



**5-YEAR
WARRANTY***

NEW
PRODUCTS INSIDE

PRODUCT CATALOG

45
YEARS
NIVELCO 

2026/2



NEW PilotREK

WT-300

NON-CONTACT RADAR LEVEL TRANSMITTER
FOR BULK SOLIDS



60 m
measuring
range



REQUEST AN OFFER



5 YEARS
WARRANTY

SUBSIDIARY & REPRESENTATIVE NETWORK

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GET IN TOUCH WITH NIVELCO

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[NIVELCO.COM](https://www.nivelco.com)



*5-year warranty for the majority of NIVELCO products. Detailed information on page 258 and product price sheets.

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- NEW** Integrated Non-Contact Radar Level Transmitter
- NEW** Compact Non-Contact Radar Level Transmitter
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- Capacitive Level Transmitters
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NIVELCO stands as a leading manufacturer of precision-engineered level measurement devices, with over one million units sold worldwide. Represented across three continents through subsidiaries and distributors, our products serve a wide range of industrial applications.

We build lasting partnerships by delivering top-tier quality, unmatched reliability in both products and services, reduced costs, streamlined manufacturing, and enhanced productivity.

Decades of rigorous quality policies have yielded consistently excellent results. In 2010, we extended our standard warranty from two to three years; since 2018, most of our devices have featured an industry-leading five-year full warranty.

Positive feedback from clients and partners continues to inspire our pursuit of ever-improving products and services.



Szöllős
Tamás Szöllős

Heritage and Growth – The History of NIVELCO

After training as an engineer at the “ITT Standard” telephone company, Endre Szöllős founded his business in 1939, designing and producing telephone systems. Despite the challenges of World War II, the company grew steadily while also training Endre’s sons. Following their studies in electrical engineering and economics, respectively — and after Endre’s passing in 1969 — Tamás and András Szöllős took over the business.

By 1982, the production of industrial controllers led to specialization in level measurement, giving birth to NIVELCO. By the time Hungary’s market liberalization arrived in 1989, NIVELCO already offered a full product range supported by advanced in-house manufacturing. That same year, the company launched the world’s first “compact” ultrasonic level transmitter — a sensor and transmitter combined in one unit — securing its position as a global leader.

The family business has withstood the storms of history, serving not only as a source of livelihood but also as a lasting legacy passed down through generations. After 1969, Tamás and András carried the company forward, reinforcing its family foundations with technical expertise and economic insight. Development was gradual yet purposeful, driven by a clear understanding of market needs and a dedication to meeting them. Today, Tamás Szöllős and Péter Szöllős lead the company, while the next generation is already actively involved in management, ensuring continued innovation and the enduring strength of its family-led values.

NIVELCO successfully embraced the opportunities created by newly opened markets, establishing trade relationships with prominent foreign distributors and sales agents. Building on its existing presence in neighboring countries, the company invested in sales organizations and offices in Austria and Poland, followed by expansion into the Czech Republic, Romania, India, the United States, and Croatia. This international growth reflects the strength of NIVELCO’s core business philosophy: *combining a comprehensive product portfolio for a wide range of applications with continuous investment in advanced technologies, expertise, and product development.*

The company’s competitiveness is further supported by rigorous quality management and control systems, a global marketing, sales, and service network, fast and flexible in-house production and logistics, and the use of an integrated IT system for product design and manufacturing data. By maintaining fair and sustainable pricing while continuously investing in its employees and workplace culture, NIVELCO has proven that, despite globalization favoring large multinational corporations, a medium-sized family-owned company can remain flexible, independent, and highly successful in delivering customer satisfaction through high-value, knowledge-based products.



Endre Szöllős



Tamás Szöllős and András Szöllős

NIVELCO PROCESS CONTROL CO.

Hungary – 1982

NIVELCO Messtechnik GmbH

Austria – 1991

NIVELCO-Poland Sp. z o.o.

Poland – 1995

NIVELCO Bohemia s.r.o.

Czech Republic – 2004

SC NIVELCO Tehnica Masurarii SRL.

Romania – 2005

NIVELCO Instruments India Pvt. Ltd.

India – 2007

NIVELCO USA LLC

USA – 2008

NIVELCO Mjerna Tehnika d.o.o.

Croatia – 2012

NIVELCO Greece LLC.

Greece – 2020

1982	■ NIVELCO is founded ■ NIVOSONAR – the first Ultrasonic level transmitter
1984	■ NIVOCONT – Vibrating rod level switch
1986	■ NIVOCAP – Capacitive level transmitter
1989	■ NIVOSONAR – Compact Ultrasonic level transmitter: A WORLD FIRST!
1991	■ NIVELCO Messtechnik (Austria) is established
1992	■ New factory is opened in Budapest
1994	■ NIVOPOINT – Float level switch ■ NIVOMAG – Magnetic coupling level switch
1995	■ NIVELCO becomes ISO 9001 certified ■ NIVELCO Poland is founded
1996	■ NIVELCO Trade Center ■ NIVOSWITCH – Vibrating fork level switch
1999	■ NIVOPRESS – Hydrostatic level transmitter
2000	■ Budapest Factory expansion
2001	■ NIVOTRACK – Magnetostrictive level transmitter
2002	■ Standardized mechanical and electronic construction ■ HART® – Digital Communication in transmitters
2003	■ ATEX Hazardous Area Certificates
2004	■ MultiCONT – The new system concept ■ NIVELCO Bohemia (Czech Republic) is founded
2005	■ MicroTREK – Radar-based level transmitter ■ NIVELCO T.M. Company in Romania
2007	■ NIVELCO Instruments (India) is created
2008	■ NIVELCO USA is established
2009	■ AnaCONT – pH, ORP & conductivity transmitter
2010	■ AnaCONT – Dissolved oxygen transmitter ■ The first SIL product certification
2012	■ PiloTREK – Non-contact radar level transmitter ■ NIVELCO Mjerna Tehnika d.o.o. (Croatia)
2013	■ NIVOCAP CK – RF-capacitive level switch
2016	■ The first FM certificate
2017	■ EasyTREK SP-500 ■ UNICOMM HART®-USB / Bluetooth® modem
2018	■ NIPRESS – product family is expanded
2019	■ Planar antenna version of PiloTREK
2020	■ NIVOTRACK – Magnetostrictive integrated level transmitter
2021	■ Redesigned aluminum housings ■ Introduction of ISO 14001 ■ MicroTREK HT-700
2022	■ NIVOFLIP MAK-200 level switch ■ EasyTREK SP-500 Pro level transmitter
2023	■ PiloTREK W-200 non-contact, 80 GHz (W-band) radar ■ MobileEView – Configuration App
2024	■ MonoCONT – Smart Field Controller & Display ■ NIVOPRESS NBB – Detachable submersible hydrostatic level transmitter
2026	■ PiloTREK W-300 non-contact, 80 GHz (W-band) radar for solids

Timeline



Over recent decades, industrial automation has developed at a remarkable pace, and high-standard process control has become inconceivable without advanced instrumentation. While the growing demand for increasingly sophisticated solutions presented a major challenge for many traditional manufacturers, NIVELCO saw this transformation as an opportunity.

By recognizing market demands at an early stage, the company achieved international success primarily with its level measurement solutions and secured a significant market position.

One Location, Complete Capability

When NIVELCO was founded in 1982, it began operations with just 15 employees in a 150 m² commercial space in Budapest.

In parallel with its continuous growth, both the number of employees and sales revenue expanded dynamically throughout the 1980s. After several relocations, the company purchased a 4,000 m² industrial site in need of renovation in 1992. Through gradual development, this was transformed by 2000 into a modern facility of nearly 10,000 m², fully equipped to support research and development, manufacturing, warehousing, and logistics in one location.



Areas currently not utilized by the company are leased out within the framework of the NIVELCO Trade Center. Manufacturing continues to take place exclusively in Hungary, while the company's subsidiaries focus on sales and related services, including technical consulting, commissioning, and service support.

In addition to creating the conditions required for the production of high-quality products, NIVELCO places special emphasis on the working environment of its employees. The orderly, modern, and air-conditioned workplace contributes to efficient operations and consistently high-quality performance.



Advanced Manufacturing Processes

NIVELCO invests substantial resources in the continuous advancement of its manufacturing technologies. The production of high-quality instrumentation is supported by production preparation and logistics processes enhanced by proprietary IT systems. Strict quantitative and qualitative standards are ensured through a modern CNC machining facility and advanced surface-mount electronics technology. The reliability of every device is guaranteed by climatic treatment, testing, and computerized inspection performed on each individual unit. Quality is maintained through an ISO 9001-certified quality management system, complemented by a self-assessment-based TQM/EFQM model, while the company's environmental management program follows the principles of ISO 14001. All products are delivered to partners only after undergoing full, 100% inspection with complete traceability.



Technical & Sales Support

Providing exemplary technical and sales support to customers, contractors, and distributors remains core to NIVELCO's approach. The sales team's amassed knowledge and experience drive one of the company's key strengths. Feedback from the Hungarian team, subsidiaries in Poland, the Czech Republic, Romania, India, the USA, Croatia, and Greece, plus export distributors and agents, informs product planning and development.

NIVELCO shares this expertise via website articles, application stories, reference sites, and the biannual NIVELCO Magazine. Hands-on training at the Budapest center equips customers, installers, and distributors.

Corporate Communication

The PR team creates unified marketing materials—brochures, ads, presentations. They manage the NIVELCO website, Selector tool, myNIVELCO, downloadable docs, and product videos on YouTube showcasing our portfolio, manufacturing, and applications. The team also oversees online/social channels (*web, Facebook, LinkedIn, Instagram, YouTube, NewsLine*), trade shows, conferences, and partner training. The PR team actively collects photos, videos, and written stories about successful applications to enhance marketing efforts and demonstrate real-world performance. These materials are regularly updated and shared across multiple channels to support customer engagement and showcase NIVELCO's solutions in action.



Global Presence

In 1982, NIVELCO started primarily as a company focused on the domestic market, at a time when international opportunities were still limited. Yet it soon became evident that the company's expertise and innovative capabilities were suited to a far broader role.

From the 1990s onward, NIVELCO expanded decisively into international markets and, through consistent growth and competitive solutions, built an increasingly strong presence worldwide. Today, around 79% of the company's sales revenue is generated from exports, clearly positioning NIVELCO as an export-oriented enterprise. With an extensive partner network and international subsidiaries in Poland, the Czech Republic, Romania, the United States, India, and Croatia, the company is now present in more than 80 countries and continues to strengthen its global connections.

This international presence is founded on knowledge sharing and close co-operation. NIVELCO regularly organizes professional training programs for its partners, including the Technical & Marketing Training program held twice a year, which has become an important meeting point for the international partner community. In addition, the NIVELCO Professional Days (NSZN) provide domestic partners with up-to-date knowledge and direct professional support.



Research & Development

NIVELCO's Research and Development department focuses on the continual enhancement of all products and technologies, including mechanics, hardware, and software, while designing new solutions tailored to customer needs. The team is dedicated to modernizing and optimizing the entire product range, improving both quality and design elegance.

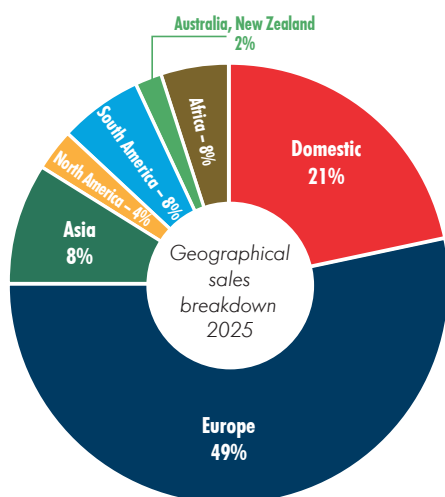
To build an exceptionally versatile product portfolio that addresses even the most complex industrial challenges, the R&D team navigates strict approval processes such as ATEX and PED, and obtains performance and accuracy certifications like OIML, GOST, and SIL. Close collaboration with international certification bodies – including BKI, TÜV, DNV, BV, and OMH – ensures compliance and reliability.

Our goal is to develop sophisticated, thoroughly tested devices that meet specifications and maintain competitive pricing. NIVELCO maintains strong partnerships with academic institutions and suppliers to incorporate the latest advancements. Collaborations with Budapest University of Technology and Economics, Óbuda University, and others have enabled us to recruit many young, talented engineers.



Company Statistics & Our Development

Since its foundation, NIVELCO has shown continuous growth, characterized by increases in production, turnover, and company value. Over the past five years, we have invested several million euros in technological developments, including new production lines, R&D laboratories, and digital infrastructure. These investments were funded entirely from our own net profits, without the use of external loans. Our balance sheet reflects outstanding financial stability, boasting a solid equity ratio of 75%, which enables long-term, risk-free expansion.



Market Presence & Product Evolution

Domestically, 21% of our products are sold, while 49% are sold in Europe. The remainder show remarkable development in international markets, including Asia, America, and Africa. We began our global expansion in 1990 with the introduction of ultrasonic level transmitters and evolved into a systematic, market-driven product development strategy. This process has led to advanced instruments that now account for a significant share of our sales. These include 80 GHz radar level transmitters (PiloTREK), vibrating fork level switches (NIVOSWITCH), and signal processing units. These units are available in ATEX dust explosion-proof, high-temperature, and IoT-enabled variants.

Recognition & Innovation

Building on this foundation, NIVELCO has solidified its reputation as a globally recognized leader in process control. This is evidenced by awards such as the 2025 Millennium Award. Our commitment to innovation is evident in our extensive product portfolio, which has expanded beyond ultrasonic transmitters to include sophisticated systems, including data loggers and remote monitoring solutions. This diversification aligns perfectly with our strategic goal of providing comprehensive, reliable solutions for a wide range of industrial challenges, including water and wastewater treatment, chemicals, food processing, and power generation.

Future Focus on Sustainability

Looking ahead, we prioritize sustainable innovation. This includes continuing to optimize production, achieving zero-waste targets, and making systems wireless where possible through wireless communication and easy installation. For nearly 45 years, we have ensured reliable industrial automation with partners in over 80 countries.

References



IN NEARLY ALL INDUSTRIES AND ALMOST EVERYWHERE IN THE WORLD

Our devices serve nearly all industries requiring level measurement and control — from oil & gas, cement & aggregates, food & beverages, and pharmaceuticals to chemicals, clean water treatment, and sewage systems. Applications are virtually limitless. Explore our successful case studies by industry, device type, and operating principle on our website. Our robust solutions ensure reliable performance across diverse conditions and challenging environments worldwide.



Safe Chemical Storage – Turkey



Tyre manufacturing – USA



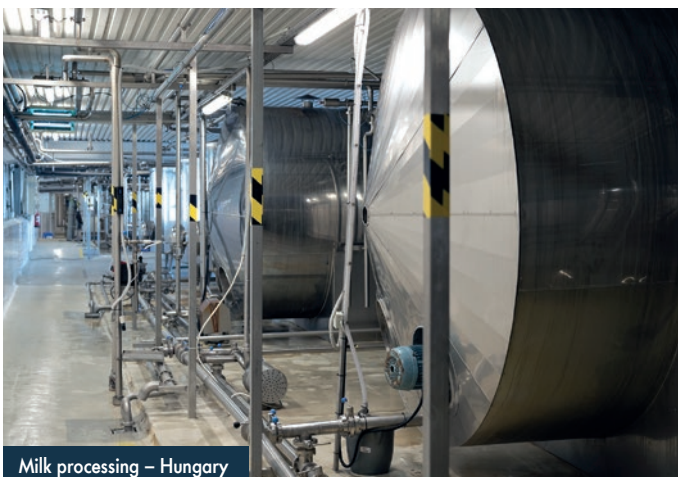
Pharmaceutical industry – Hungary



Grain elevator – Poland



Cellulose plant – Hungary



Milk processing – Hungary



Brewery – Hungary

LEVEL TRANS MITTERS

Since its founding, NIVELCO has manufactured industrial measuring instruments. Our primary focus has remained consistent, developing a wide range of devices across various operating principles over decades. Our ultrasonic level transmitters offer one of the market's widest selections, including integrated, compact, 2- and 4-wire models for liquids and solids.

Most transmitters are available in PFA-coated versions for aggressive media. All transmitter families include explosion-proof models for hazardous environments.

PiloTREK WP-200 NON-CONTACT INTEGRATED RADAR

NEW

page 15



- 2-wire, 80 GHz (W-band) radar
- Measuring range up to 30 m
- Accuracy ± 2 mm
- Lens and encapsulated antennas
- Submersible integrated design with IP66/IP68 protection
- Bluetooth® configuration
- PACTware™ compatible
- Ex versions

PiloTREK WE-200 NON-CONTACT COMPACT RADAR

NEW

page 21



- 2-wire, 80 GHz (W-band) radar
- Measuring range up to 30 m
- Accuracy ± 2 mm
- Plug-in graphic display module
- Lens, horn and encapsulated antennas
- High-temperature version
- Bluetooth® configuration
- NIFLANGE weldable stainless steel flange variants
- Ex versions

PiloTREK WT-300 NON-CONTACT COMPACT RADAR

NEW

page 30



- 2-wire, 80 GHz (W-band) radar
- Measuring range up to 60 m
- Plug-in graphic display module
- Tilttable flange design
- Max. 25 bar, +200 °C
- Bluetooth® configuration
- For media with $\epsilon_r > 1.4$
- Ex versions

MicroTREK GUIDED WAVE RADAR

page 34



- 2-wire compact transmitter
- TDR principle
- Accuracy ± 5 mm / ± 20 mm
- For media with $\epsilon_r > 1.4$
- Measuring range up to 30 m
- 4...20 mA + HART® communication
- Up to 40 bar and +200 °C
- Rod, cable or coaxial probe
- Plug-in graphic display module
- Ex versions

NIVOCAP CAPACITIVE

page 44



- 2-wire compact transmitter
- Rod or cable probe up to 20 m
- For media with $\epsilon_r > 1.5$
- Partially or fully insulated probe
- 32-point linearization
- High sensitivity
- 4...20 mA + HART® communication
- Ex versions

NIVOFLIP BYPASS LEVEL INDICATORS

page 69



- Operation without power supply
- Measuring range 500...5500 mm
- Accuracy ± 10 mm
- Titanium float
- Optional strap-on level switches
- Process pressure up to 100 bar
- DIN and ANSI flanges
- High-temperature version up to +250 °C
- PED certified
- Ex versions

NIVOPRESS N SUBMERSIBLE HYDROSTATIC

page 49



- 2- or 3-wire submersible transmitter
- Stainless steel or fully plastic body
- Measuring range up to 350 m
- 4...20 mA + HART® communication
- Linearity error 0.25%
- Integrated Pt100 temperature sensor
- Venting tube in cable
- Detachable variants
- IP68 protection
- Ex versions

EasyTREK for liquids INTEGRATED ULTRASONIC

page 78



- 2-wire integrated transmitter
- Narrow 5° beam angle
- Measuring range up to 25 m
- PP, PVDF or PTFE transducers
- 32-point linearization
- 4...20 mA + HART® communication
- Open-channel flow metering
- IP68 protection
- Ex versions

NIVOTRACK MAGNETOSTRICTIVE INTEGRATED

page 57



- 1 mm resolution
- Distance and level measurement
- Normal and mini rigid guide tube versions
- Stainless steel or titanium floats
- IP65 protection
- HART® communication
- Suitable for chemicals, solvents and hydrocarbons
- Tank level monitoring
- Interface measurement

EchoTREK for liquids COMPACT ULTRASONIC

page 85



- 2- and 4-wire compact transmitter
- Narrow 5° beam angle
- Measuring range up to 25 m
- PP, PVDF, PTFE or SS transducers
- 32-point linearization
- Plug-in display module
- 4...20 mA + HART® communication
- IP67 protection
- Ex versions

NIVOTRACK MAGNETOSTRICTIVE COMPACT

page 62



- 2-wire compact or mini compact transmitter
- Resolution 0.1 mm or 1 mm
- Measuring range up to 15 m
- For liquids with min. density of 0.4 kg/dm³
- Distance, level and volume measurement
- Rigid or flexible probe
- Ex versions

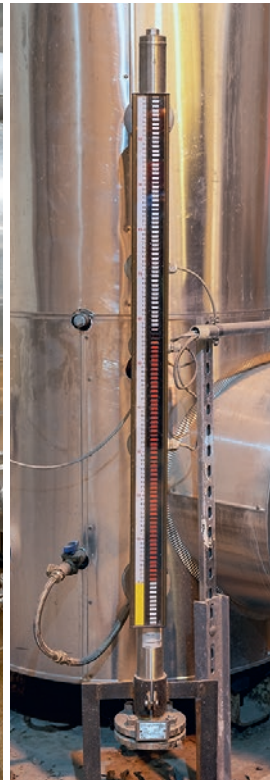
EasyTREK for solids INTEGRATED ULTRASONIC

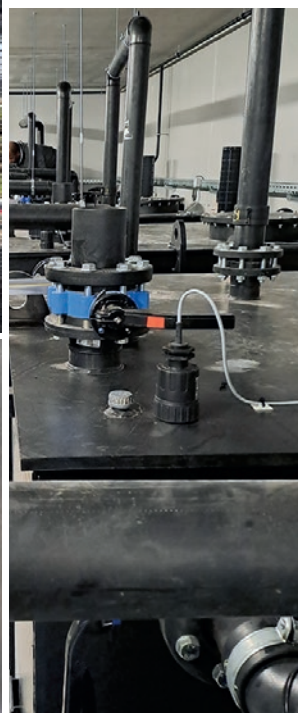
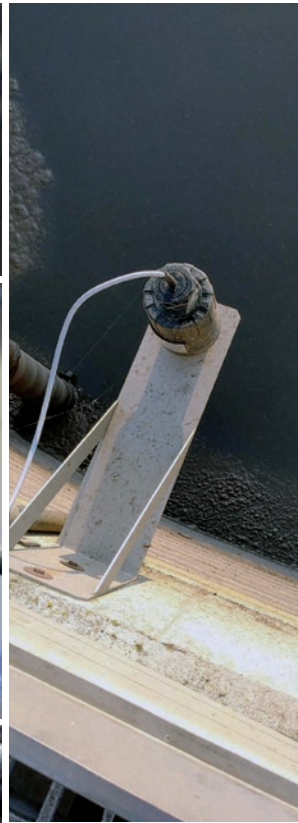
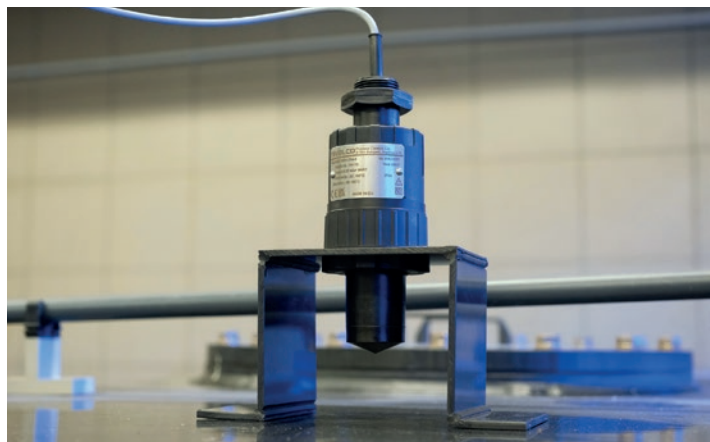
page 94



- 4-wire integrated transmitter
- Narrow 5° beam angle
- Measuring range up to 60 m
- PP sensor
- Bluetooth® configuration
- Joystick aiming device
- 4...20 mA + HART® communication
- IP65 protection
- Ex versions

APPLICATIONS





APPLICATIONS

The **PiloTREK WP-200** non-contact radar level transmitters use the most advanced industrial measurement technology, the 80 GHz FMCW radar. The most fundamental advantage of 80 GHz radars compared to lower frequencies (5...12 GHz and 25 GHz) is the smaller antenna size, better focusability, and narrow beam angle.

It uses the latest technology for measuring liquids, masses, emulsions, and other chemicals widely used in, for example, the water industry, food industry, energy industry, pharmaceutical industry, and chemical industry, which provides measurement results with millimeter accuracy. It is also excellent for measuring substances prone to vapor formation and liquids with gas blanket or large-particle bulk solids. In addition to the level, volume, and weight measurement functions, this product family also inherits the open-channel flow measurement functions and the threshold functions to eliminate false and interfering echoes. Since no medium is required for millimeter waves to propagate, it can also be used in a vacuum. The device can also be operated with HART® compliant **NIVELCO EView2**, **MultiCONT** universal process controller, **MonoCONT** smart field display & data logger and **PACTware™** software, or programmed via Bluetooth® communication with the new **MobileEView** app.

FEATURES

- 2-wire 80 GHz (W-band) radar
- Accuracy ± 2 mm
- Easy to install due to small antenna diameter
- 1", 1½" encapsulated antenna
- Submersible – integrated design with IP66/IP68 protection
- User-friendly threshold management
- Configuration via Bluetooth® using the MobileEView app
- PACTware™ compatible
- 5-year warranty
- Ex version available

APPLICATIONS

- For measuring the level of liquids, emulsions, and other media
- For free flowing solids
- Storage tanks, chemical tanks, open pits, sumps, wells
- Measurement through a plastic tank roof (only in case of higher dielectric constant liquid)
- For material prone to vapor formation
- For measuring liquids with a gas blanket
- It can also be used in a vacuum
- Open-channel flow measurement

CERTIFICATES

- ATEX (*Ex ia GD*)
- IECEx (*Ex ia GD*) (*in prep.*)
- INMETRO (*Ex ia GD*),
- ANATEL

AREAS OF APPLICATION

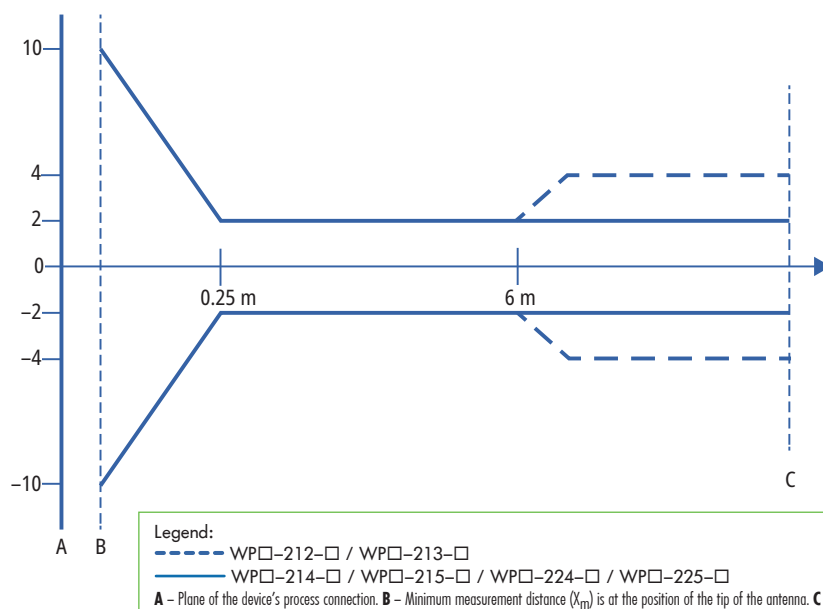
- Water and wastewater industry
- Energy industry / Plant utilities
- Food & Beverage
- Pharmaceutical industry
- Chemical industry
- Marine applications
- Agriculture
- Construction materials
- Heavy industry
- Packaging industry



WPC-204-4

Smarter.
Smaller.
The lens
advantage.

LINEARITY ERROR



WP-204-4

OPERATING PRINCIPLE

The reflection of the millimeter-waves is highly dependent on the dielectric constant of the medium. Therefore, the measured medium's dielectric constant (ϵ_r) must be over 1.9 for millimeter-wave level measurement. The measurement principle of a level transmitter with a millimeter-waves signal is based on measuring the reflection's time of flight.

Informative ϵ_r values							
Butane (C ₄ H ₁₀)	1.4	Ethers	4.4	Gasoline	2.3	Methyl alcohol (CH ₃ OH)	33.1
LP gas	1.6...1.9	Acetic acid (CH ₃ COOH)	6.2	Bitumen	2.6	Glycol (C ₂ H ₆ O ₂)	37
Kerosene		Limestone	6.1...9.1	Carbon disulfide (CS ₂)		Nitrobenzene (C ₆ H ₅ NO ₂)	40
Crude Oil	2.1	Ammonia (NH ₃)	17...26	Clinker	2.7	Glycerin (C ₃ H ₈ O ₃)	41.1
Diesel Oil		Acetone (C ₃ H ₆ O)	21	Resin	2.4...3.6	Water (H ₂ O)	80
Benzol (C ₆ H ₆)	2.2	Ethyl alcohol (C ₂ H ₅ OH)	24	Cereal Grain	3...5	Sulphuric acid (H ₂ SO ₄) (T = 20 °C)	84

The speed of propagation of millimeter-waves signals in the air, gases, and vacuum is almost constant regardless of temperature and medium pressure, so the measured distance does not depend on the physical parameters of the intermediate medium. The PiloTREK WP-200 level transmitter is a continuous-wave frequency modulated radar (FMCW) operating at 80 GHz (W-band). The most obvious advantages of 80 GHz radars over lower frequency (5...12 & 25 GHz) radars are smaller antenna size, better focus, and smaller beam angle. A portion of the millimeter-wave continuous wave energy radiated by the level transmitter antenna is reflected from the measured surface, depending on the material to be measured. The distance of the reflecting surface is calculated with high accuracy by the electronics from the frequency shift of the reflected signal and converted into a distance, level, or volume signal by the electronics.

TECHNICAL DATA

		PVDF housing	PP housing
		WPB, WPT, WPC-2□□-□	WPA-2□□-□
Measured values		Distance; Calculated values: level, volume, mass, flow	
Signal frequency		77...81 GHz (W-band)	
Measuring range ⁽¹⁾		0...30 m	
Lowest ε _r of medium		1.6 (under ideal conditions)	
Resolution		0.1 mm	
Supply voltage		12...36 V DC	
Output	Analog	4...20 mA (3.9...20.5 mA); R _{lmax} = (U _s – 12 V) / 0.02 A	
	Digital	Bluetooth® LE 6.0 (optional), HART® interface (loop resistance ≥250 Ω)	
	Service interface	SAT-504-3 compatible; galvanically isolated; 3.3 V LVDS; max. 100 mA	
	Relay (optional)	SPDT 30 V / 1 A DC; 42 V / 0.5 A AC	
Measuring frequency		~1/s	
Antenna material ⁽¹⁾		Encapsulated antenna (PP / PVDF / PTFE)	
Process temperature		-40...+80 °C	-30...+80 °C
Ambient temperature			
Process pressure		-1...3 bar	
Seal		FPM (Viton®)	EPDM
		Optional: EPDM, FFKM Perfluoroelastomer (Kalrez® 6375)	
Process connection		1", 1½" BSP / NPT	
Ingress protection		IP66 / IP68	
Electrical connection		4× 0.5 mm ² shielded Ø6 mm cable × 5 m (up to 30 m); For relay option: 7× 0.5 mm ² shielded cable	
Electrical protection		Class I Overvoltage Protection; (Class III [SELV])	
Weight		~600 g	

⁽¹⁾ Depending on order code.

TYPE-DEPENDENT DATA

	Encapsulated horn antenna (WPA, WPB, WPT)			Lens-antenna (WPC)		
	WP□-212-□ / WP□-213-□	WP□-214-□ / WP□-215-□	WP□-224-□ / WP□-225-□	WPC-212-□ / WPC-213-□	WPC-214-□ / WPC-215-□	WPC-224-□ / WPC-225-□
Antenna material	PP, PVDF, PTFE			PTFE		
Dead zone ⁽¹⁾	0 m					
Max. measurement range ⁽²⁾	10 m		20 m	10 m		20 m
Accuracy ⁽³⁾	up to 6 m: ±2 mm, over 6 m: ±4 mm	±2 mm		up to 6 m: ±2 mm, over 6 m: ±4 mm	±2 mm	
Beam angle (−3 dB)	12°	7°		12°	7°	
Antenna insertion length ⁽⁴⁾	56 mm	70 mm		28 mm	46 mm	
Lower process connection	1" BSP/NPT	½" BSP/NPT		1" BSP/NPT	½" BSP/NPT	
Upper process connection	1" BSP					

⁽¹⁾ Measured from the tip of the antenna, for <80 DC (ε_r).⁽³⁾ In the case of an ideal reflecting surface, according to IEC 62828-1.⁽²⁾ May be limited in the case of low dielectric constant or non-perpendicular or non-planar media.⁽⁴⁾ Measured from the seal plane of the process connection.

Ex INFORMATION – ATEX Certificate No.: BKI24ATEX0001 X

	WP□-2□□-8 Ex, WP□-2□□-E Ex	
Ex marking (ATEX)	II 1 G Ex ia IIC T5 Ga	II 1 D Ex ia IIIC T95°C Da
Ex power supply, intrinsically safety data ⁽⁵⁾	U _i = 30 V, I _i = 100 mA, P _i = 0.75 W Ci ≤ 12 nF + 0.12 nF/m cable, Li ≤ 238 μH + 0.65 μH/m cable with standard 5 m cable: Ci ≤ 12.5 nF, Li ≤ 242 μH	U _i = 30 V, I _i = 140 mA, P _i = 1 W Ci ≤ 12 nF + 0.12 nF/m cable, Li ≤ 238 μH + 0.65 μH/m cable with standard 5 m cable: Ci ≤ 12.5 nF, Li ≤ 242 μH
Supply voltage	12...30 V DC	

⁽⁵⁾ In IIB applications, Ex power supply data for IIIC can be used.

TEMPERATURE DATA FOR Ex CERTIFIED MODELS – ATEX

	WP□-2□□-8 Ex, WP□-2□□-E Ex	
	Ex ia IIC (Hazardous Gas Atmospheres)	Ex ia IIC (Explosive Dust Atmospheres)
Temperature class	T5	T95°C
Maximum ambient temperature	+80 °C	
Maximum surface temperature at the process connection ⁽⁶⁾	+80 °C	

⁽⁶⁾ Conducted or radiated heat transferred by medium, ambient or process connection.

Ex INFORMATION – IECEx Certificate No.: IECEx BKI 26.0003X

	WP□-2□□-8 Ex, WP□-2□□-E Ex	
Ex marking (IECEx)	Ex ia IIC T5 Ga	Ex ia IIIC T95°C Da
Ex power supply, intrinsically safety data ⁽⁷⁾	U _i = 30 V, I _i = 100 mA, P _i = 0.75 W Ci ≤ 13 nF + 0.14 nF/m cable, Li ≤ 265 μH + 0.72 μH/m cable with standard 5 m cable: Ci ≤ 14 nF, Li ≤ 270 μH	U _i = 30 V, I _i = 140 mA, P _i = 1 W Ci ≤ 13 nF + 0.14 nF/m cable, Li ≤ 265 μH + 0.72 μH/m cable with standard 5 m cable: Ci ≤ 14 nF, Li ≤ 270 μH
Supply voltage	12...30 V DC	

⁽⁷⁾ In IIB applications, Ex power supply data for IIIC can be used.

TEMPERATURE DATA FOR Ex CERTIFIED MODELS – IECEx

	WP□-2□□-8 Ex, WP□-2□□-E Ex	
	Ex ia IIC (Hazardous Gas Atmospheres)	Ex ia IIC (Explosive Dust Atmospheres)
Temperature class	T5	T95°C
Maximum ambient temperature	+80 °C	
Maximum surface temperature at the process connection ⁽⁸⁾	+80 °C	

⁽⁸⁾ Conducted or radiated heat transferred by medium, ambient or process connection.

Ex INFORMATION – INMETRO Certificate NO.: DNV 24.0166 X

	WP□-2□□-8 Ex, WP□-2□□-E Ex	
Ex marking (INMETRO)	Ex ia IIC T5 Ga	Ex ia IIIC T95°C Da
Ex power supply, intrinsically safety data ⁽⁹⁾	U _i = 30 V, I _i = 100 mA, P _i = 0.75 W Ci ≤ 12 nF + 0.12 nF/m cable, Li ≤ 238 μH + 0.65 μH/m cable with standard 5 m cable: Ci ≤ 12.5 nF, Li ≤ 242 μH	U _i = 30 V, I _i = 140 mA, P _i = 1 W Ci ≤ 12 nF + 0.12 nF/m cable, Li ≤ 238 μH + 0.65 μH/m cable with standard 5 m cable: Ci ≤ 12.5 nF, Li ≤ 242 μH
Supply voltage	12...30 Vcc	

⁽⁹⁾ In IIB applications, Ex power supply data for IIIC can be used.

TEMPERATURE DATA FOR Ex CERTIFIED MODELS – INMETRO (Ex ia)

	WP□-2□□-8 Ex, WP□-2□□-E Ex	
	Ex ia IIC (Hazardous Gas Atmospheres)	Ex ia IIC (Explosive Dust Atmospheres)
Temperature class	T5	T95°C
Maximum ambient temperature	+80 °C	
Maximum surface temperature at the process connection ⁽¹⁾		

⁽¹⁾ Conducted or radiated heat transferred by medium, ambient or process connection.

POLARIZATION

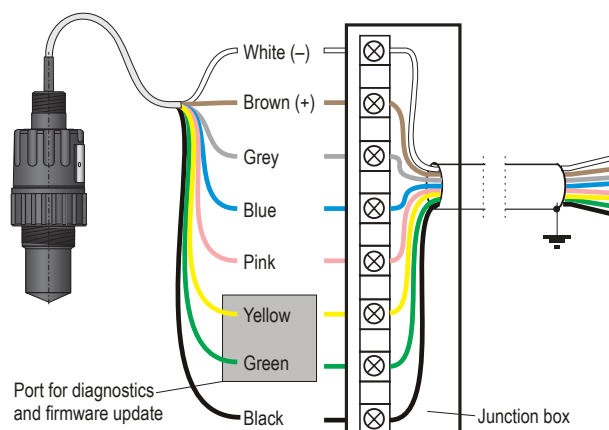
The PiloTREK W-200 80 GHz radar is much less sensitive to installation conditions, both in terms of polarization and clutter sensitivity, due to its narrow and nearly circular beamwidth.

BACKGROUND MAPPING

Thanks to its 80 GHz FMCW technology, it is much less sensitive to the presence of clutter than previous generation radars. It now has an easy-to-use, flexible threshold management (EView2) that allows echoes from clutter in the tank to be easily masked if necessary. The threshold curve is designed to mask unwanted echoes from the measurement. Echo peaks below the threshold are not included in the evaluation.

WIRING

The **BROWN** (+) / **WHITE** (-) wires are the 4...20 mA output or power supply. The **GREY**, **BLUE** and **PINK** wires are for relay output and are only available in relay version. The **YELLOW** and **GREEN** wires are for servicing purposes only and are hidden by default. The **BLACK** is the cable shielding.

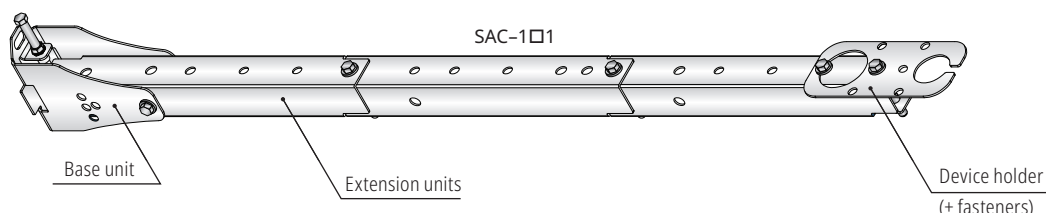


MOUNTING

The device must be mounted far as possible from interfering objects inside the tank and from sources of interference, such as waves, vortices or strong vibrations. The antenna axis must be perpendicular to the surface of the measured medium within $\pm 2...3^\circ$. For outdoor use, we recommend using an aluminum housing. In regions with extremely hot climates, we recommend protecting the device from direct sunlight to avoid exceeding the ambient temperature limits of the housing. For this purpose, we recommend using the UNIMOUNT SAB sunshield.

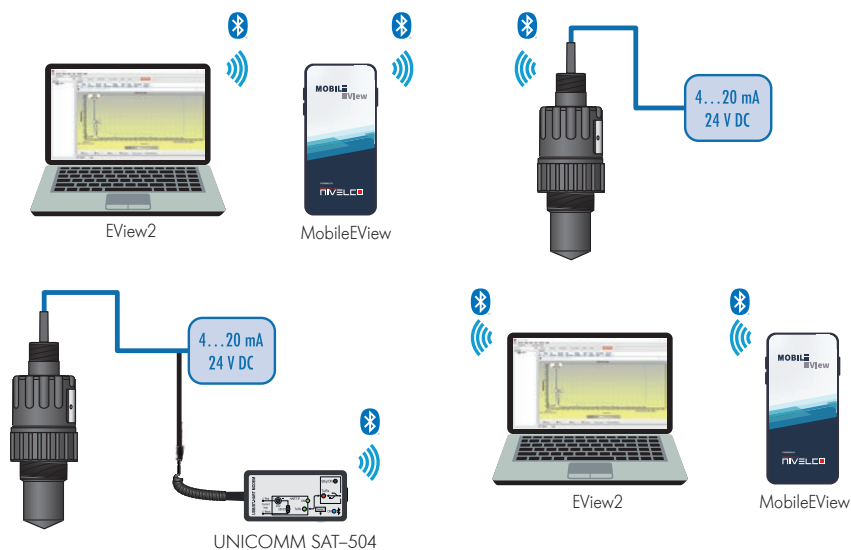
SAC-1□1 – MOUNTING ASSEMBLY

We recommend our new universal mounting bracket designed for level transmitters and level switches. The complete set includes the base unit, one or more extension modules, the 1" suspension element, adapter plates for 1", 1½" and 2" process connections, as well as the full fastening screw kit. All components can be assembled according to the user's installation requirements. The bracket is manufactured from aluminum and stainless steel and is rated for a maximum load of 15 kg (only when using one extension element). It features a length adjustable between 250...1000 mm, leveling possibility, and both horizontal and vertical pivoting options, ensuring broad applicability in industrial environments.



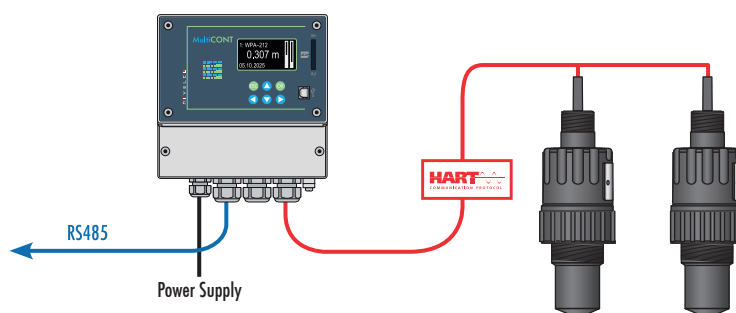
Bluetooth® CONNECTIVITY

The Bluetooth® option on the PiloTREK W-200 Series allows for convenient device setup and diagnostics via the NIVELCO MobileEView app for Android or iOS or the free EView2 software download for laptops.

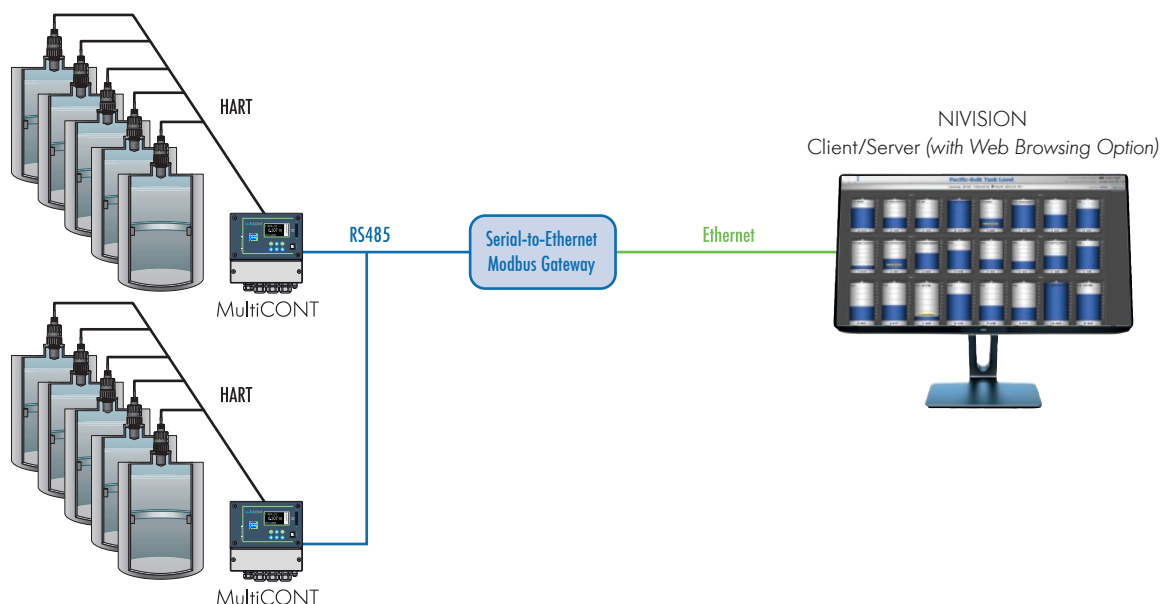


PiloTREK TRANSMITTERS IN HART® MULTIDROP LOOP

MultiCONT multi-channel remote controllers process, display, and transmit data from NIVELCO's HART®-equipped transmitters in a multidrop loop. Up to 15 of these connected transmitters can be programmed and maintained from MultiCONT, which supports data-logging tasks. MultiCONT provides programmable relay outputs, while 4...20 mA outputs are available through remote I/O modules.



MultiCONT can send measurement data via RS485 to PLCs, computers running third-party SCADA systems, or the NIVELCO NIVISION inventory monitoring system.



Integrated Non-Contact Radar Level Transmitter

PiloTREK WP-200

PiloTREK WP-200 80 GHz Integrated

5 years

2-wire integrated non-contact radar level transmitter with lens, horn, or encapsulated antenna, ingress protection: IP66/IP68

Version

W ☐ ☐ - 2 ☐ ☐ - ☐

P Integrated transmitter

Antenna / Housing

W P ☐ ☐ - 2 ☐ ☐ - ☐

A PP / PP

B PVDF / PVDF

T PTFE / PVDF

C PTFE / PVDF (lens-antenna version)

Measurement range

W P ☐ ☐ - 2 ☐ ☐ - ☐

1 10 m

2 20 m

3 * 30 m

Process connection – lower / upper

W P ☐ ☐ - 2 ☐ ☐ - ☐

2 1" BSP / 1" BSP (only for 10 m measurement range)

3 1" NPT / 1" BSP (only for 10 m measurement range)

4 1½" BSP / 1" BSP (only for 10 m or 20 m measurement range)

5 1½" NPT / 1" BSP (only for 10 m or 20 m measurement range)

6 * 2" BSP / 1" BSP (only for 20 m measurement range)

7 * 2" NPT / 1" BSP (only for 20 m measurement range)

8 * Ø75 mm (2½") / 1" BSP (only for 30 m measurement range)

Output / Certificates

W P ☐ ☐ - 2 ☐ ☐ - ☐

4 4...20 mA + HART®

8 4...20 mA + HART® / Ex ia GD

H 4...20 mA + HART® + SPDT Relay

B 4...20 mA + HART® + Bluetooth®

E 4...20 mA + HART® + Bluetooth® / Ex ia GD

R 4...20 mA + HART® + SPDT Relay + Bluetooth®

T 4...20 mA + HART® + Bluetooth®, with 10 m cable

* Under development

Cable

Maximum length 30 m; sold by the meter over the standard 5 m

Accessories sold separately; see relevant page for details

S F A - 3 ☐ ☐ - ☐ FlangesS A T - 5 0 4 - ☐ HART®-USB/Bluetooth® modemS A K - 3 0 5 - ☐ HART®-USB/RS485 modemS A C - 1 ☐ 1 - 0 Mounting bracketsP ☐ F - ☐ 1 ☐ - ☐ Smart Field Display and Data LoggerP ☐ F - ☐ 0 1 - ☐ Loop DisplayS A A - 1 ☐ 2 - 0 Joystick aiming device

Process seal material (Price on request, factory default: EPDM for PP housing, FPM (Viton®) for PVDF and PTFE housing)

- EPDM

- FPM (Viton®)

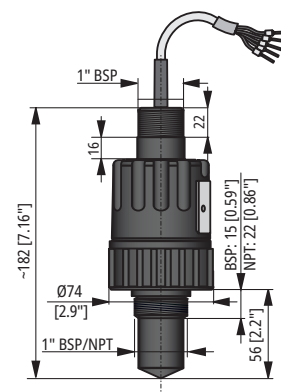
- FFKM (Kalrez® 6375)

Process seals are ordered separately and must be specified in the text part of the order. Optional seals available for all types. Other seals are also available.

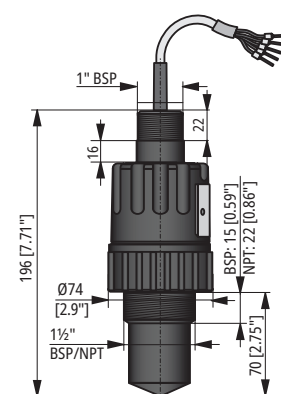
NIV24

WPA-212-4, WPA-214-4, WPA-224-4,

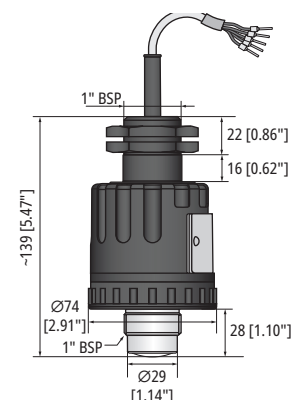
WPA-214-B, WPA-214-T, WPB-214-B



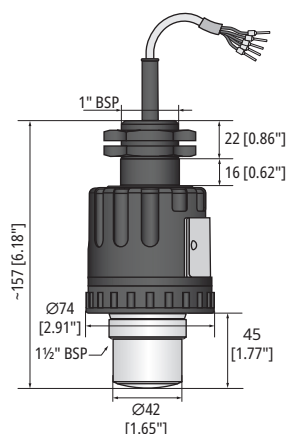
WP□-212-□, WP□-213-□



WP□-2□4-□, WP□-2□5-□



WPC-212-□ / WPC-213-□



WPC-2□4-□ / WPC-2□5-□

The PiloTREK WE-200 non-contact radar level transmitters use the most advanced industrial measurement technology, the 80 GHz FMCW radar. The most fundamental advantage of 80 GHz radar compared to lower frequencies (5...12 GHz and 25 GHz) is the smaller antenna size, better focusability, and narrow beam angle. It uses the latest technology to measure liquids, masses, emulsions and other chemicals widely used in the water, food, energy, pharmaceutical and chemical industries, providing measurement results with millimeter accuracy. It is also excellent for measuring substances that tend to vaporize and liquids with a gas blanket or for free flowing solids.

In addition to the level, volume, and weight measurement functions, this product family also inherits the open channel flow measurement functions and the threshold functions to eliminate false and interfering echoes. Since no medium is required for millimeter waves to propagate, it can also be used in a vacuum.

The device can also be operated with HART®-compliant NIVELCO EView2, MultiCONT universal process controller, MonoCONT smart field display & data logger, and PACTware™ software, or programmed via Bluetooth® communication with the MobileEView app.

FEATURES

- 2-wire 80 GHz (W-band) radar
- Accuracy ± 2 mm
- Small antenna diameter for easy installation
- Plug-in graphic display module
- Horn and plastic encapsulated antennas
- Compact design with IP66/IP67 protection
- User-friendly threshold management
- Configuration via Bluetooth® using the MobileEView app
- PACTware™ compatible
- NIFLANGE welded stainless steel flange design
- High-temperature version
- 5-year warranty
- Ex versions

- For materials that tend to vaporize
- For measuring liquids with a gas blanket
- It can also be used in a vacuum
- Open-channel flow measurement

CERTIFICATES

- ATEX (*Ex ia GD*)
- IECEx (*Ex ia GD*) (*in prep.*)
- INMETRO (*Ex ia GD*), ANATEL
- FM Class I, Division 1 (*XP*) (*in prep.*)

AREAS OF APPLICATION

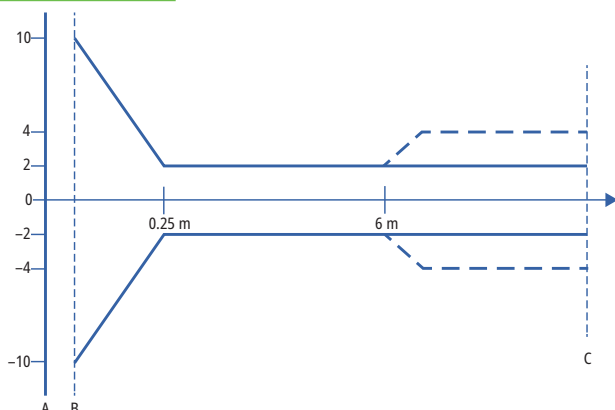
- Water and Wastewater Industry
- Energy / Utilities
- Food & Beverage
- Chemical & Pharmaceutical
- Agriculture
- Construction Materials
- Heavy Industry
- Packaging Industry

APPLICATIONS

- For level measurement of liquids, emulsions and other media
- For free flowing solids
- Storage tanks, chemical tanks, open pits, sumps, wells
- Measurement through a plastic tank roof (*only in case of higher dielectric constant liquid*)



LINEARITY ERROR



Legend:

- W□□-212-□ / W□□-213-□
- W□□-214-□ / W□□-215-□ / W□□-224-□ / W□□-225-□

A – Plane of the device's process connection.

B – Minimum measurement distance (X_M) is at the position of the tip of the antenna.

C – Maximum measurement distance (X_M).

OPERATING PRINCIPLE

The reflection of the millimeter-waves is highly dependent on the dielectric constant of the medium. Therefore relative dielectric constant of the measured media (ϵ_r) must be over 1,9 for measurement using millimeter wave length measuring signal. The measurement principle of a level transmitter with a millimeter-waves signal is based on the measurement of the total

Informative ϵ_r values							
Butane (C ₄ H ₁₀)	1.4	Ethers	4.4	Gasoline	2.3	Methyl alcohol (CH ₃ OH)	33.1
LP gas	1.6...1.9	Acetic acid (CH ₃ COOH)	6.2	Bitumen	2.6	Glycol (C ₂ H ₆ O ₂)	37
Kerosene	2.1	Limestone	6.1...9.1	Carbon disulfide (CS ₂)		Nitrobenzene (C ₆ H ₅ NO ₂)	40
Crude Oil		Ammonia (NH ₃)	17...26	Clinker	2.7	Glycerin (C ₃ H ₈ O ₃)	41.1
Diesel Oil		Acetone (C ₃ H ₆ O)	21	Resin	2.4...3.6	Water (H ₂ O)	80
Benzol (C ₆ H ₆)	2.2	Ethyl alcohol (C ₂ H ₅ OH)	24	Cereal Grain	3...5	Sulphuric acid (H ₂ SO ₄) (T = 20 °C (68 °F))	84

time of flight of the measuring microwave signal. The speed of propagation of millimeter-waves signals in the air, gases, and vacuum is almost constant regardless of temperature and medium pressure, so the measured distance does not depend on the physical parameters of the intermediate medium. The PiloTREK WE-200 level transmitter works on continuous-wave frequency modulated radar (FMCW) principle operating at 80 GHz (W-band). A portion of the millimeter-wave continuous wave energy radiated by the level transmitter antenna is reflected from the measured surface, depending on the material to be measured. The distance of the reflecting surface is calculated with high accuracy by the electronics from the frequency shift of the reflected signal and converted into a distance, level, mass or volume signal by the electronics.

TECHNICAL DATA

		PiloTREK W□□-200		
Measured values		Distance; calculated values: level, volume, mass, flow		
Signal frequency		77...81 GHz (W-band)		
Measurement range ⁽¹⁾		0...30 m		
Lowest ε _r of medium		1.6 (under ideal conditions)		
Resolution		0.1 mm		
Supply voltage		12...36 V DC		
Output	Analog	4...20 mA (3.9...20.5 mA); R _{Lmax} = (U _s – 12 V) / 0.02 A		
	Digital	Bluetooth® LE 6.0 (optional), HART® interface (loop resistance ≥250 Ω)		
	Display	SAP-300 – graphic display unit		
	Service interface	Compatible with SAT-506-0		
	Relay (optional)	SPDT 30 V / 1 A DC; 42 V / 0.5 A AC		
Measuring frequency		~1/s		
Antenna material ⁽²⁾		1.4571/1.4404 stainless steel, or plastic antenna enclosure (PP / PVDF / PTFE)		
Process temperature		–40...+80 °C, High-temperature version: –40...+200 °C ⁽²⁾		
Ambient temperature ⁽³⁾		–40...+70 °C, with display –20...+70 °C		
Process pressure		PP, PVDF, PTFE antenna: –1...3 bar; Stainless steel antenna: –1...40 bar		
Seal		EPDM for PP and stainless steel (1.4571/1.4404) antenna, FPM (Viton®) for PVDF and PTFE antenna. Optional: EPDM, FFKM Perfluoroelastomer (Kalrez® 6375)		
Process connection		1", 1½" BSP / NPT, TriClamp, prepared for welded flange (NIFLANGE)		
Ingress protection		IP66 / IP67		
Electrical connection		2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection, cable outer diameter: Ø6...12 mm, recommended shielded cable wire cross section: 0.5...1.5 mm ²		
Electrical protection		Overvoltage Class I; (Class III [SELV])		
Housing material ⁽¹⁾		Fiberglass-reinforced plastic (PBT)	Painted aluminum	Stainless steel 1.4571/1.4404
Weight		0.6...0.8 kg	1.1...2 kg	2.4...2.9 kg

⁽¹⁾According to order code.

⁽³⁾With PP encapsulated antenna: -30...+80 °C.

⁽²⁾High temperature version with metal housing and stainless steel or PTFE encapsulated antenna only.

TYPE-DEPENDENT DATA

	Encapsulated Antenna (W□P, W□V, W□F)			Lens-antenna (W□C, W□E, W□G)			Stainless Steel Antenna (W□S, W□M, W□K)		
	W□□-212-□, W□□-213-□	W□□-214-□, W□□-215-□	W□□-224-□, W□□-225-□	W□□-212-□, W□□-213-□	W□□-214-□, W□□-215-□	W□□-224-□, W□□-225-□	W□□-212-□, W□□-213-□	W□□-214-□, W□□-215-□	W□□-224-□, W□□-225-□
Antenna material	PP, PVDF, PTFE			PTFE			Stainless steel 1.4571/1.4404		
Dead zone ⁽¹⁾	0 m								
Maximum measuring range ⁽²⁾	10 m		20 m	10 m		20 m	10 m		20 m
Accuracy ⁽³⁾	≤6 m: ±2 mm; >6 m: ±4 mm	±2 mm		≤6 m: ±2 mm; >6 m: ±4 mm	±2 mm		≤6 m: ±2 mm; >6 m: ±4 mm	±2 mm	
Antenna insertion length ⁽⁴⁾	56 mm	70 mm		28 mm	46 mm		80 mm	90 mm	
Process pressure	-1...3 bar						-1...25 bar		
Beam angle (-3 dB)	12°	7°		12°	7°		12°	7°	
Process connection	1" BSP/NPT	1½" BSP/NPT		1" BSP/NPT	1½" BSP/NPT		1" BSP/NPT	1½" BSP/NPT	

⁽¹⁾ From the tip of the antenna, if dielectric constant (ϵ_r) < 80.⁽²⁾ May be limited for media with low dielectric constants or non-vertical or non-planar surfaces.⁽³⁾ With an ideal reflecting surface, according to IEC 62828-1, an Accuracy ±2 mm is not guaranteed for Region 3 and Region 4 settings.⁽⁴⁾ From process connection.

Ex INFORMATION – ATEX Certificate No.: BKI24ATEX0001 X

Application group		IIC	IIIC
Standard version		WE□-2□□-8 Ex / WG□-2□□-8 Ex / WE□-2□□-E Ex / WG□-2□□-E Ex	
Ex marking (ATEX)		Ⓔ II 1 G Ex ia IIC T5 Ga	Ⓔ II 1 D Ex ia IIIC T95°C Da
High-temperature version		WH□-2□□-8 Ex / WJ□-2□□-8 Ex / WH□-2□□-E Ex / WJ□-2□□-E Ex	
Ex marking (ATEX)		Ⓔ II 1 G Ex ia IIC T6...T3 Ga	Ⓔ II 1 D Ex ia IIIC T85°C...T180°C Da
Ex power supply, intrinsically safety data ⁽⁵⁾		Ui = 30 V, li = 100 mA, Pi = 0.75 W Ci ≤ 12 nF, Li ≤ 250 µH	Ui = 30 V, li = 140 mA, Pi = 1 W, Ci ≤ 12 nF, Li ≤ 250 µH
Supply voltage		12...30 V DC	
Electrical connection	Cable entry	2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection	
	Cable outer diameter	Ø6...12 mm	
	Wire cross-section	0.5...1.5 mm ²	

⁽⁵⁾ In IIB applications, Ex power supply data for IIIC can be used.

TEMPERATURE DATA FOR Ex CERTIFIED MODELS – ATEX

Temperature data	Standard version WE□-2□□-8 Ex / WG□-2□□-8 Ex, WE□-2□□-E Ex / WG□-2□□-E Ex	High-temperature version WH□-2□□-8 Ex / WJ□-2□□-8 Ex, WH□-2□□-E Ex / WJ□-2□□-E Ex				
	Ex ia IIC, Ex ia IIIC	Ex ia IIC, Ex ia IIIC				
Temperature class	T6 T85°C	T6 T85°C	T5 T100°C	T4 T135°C	T3 T180°C	
Highest process temperature	+80 °C	+80 °C	+100 °C	+135 °C	+180 °C	
Highest surface temperature at the process connection	+70 °C	+70 °C	+100 °C	+135 °C		
Highest ambient temperature	+70 °C	+70 °C	+70 °C	+60 °C		



WHS-214-B

Ex INFORMATION – IECEx

Application group		IIC	IIIC
Standard version		WE□-2□□-8 Ex / WG□-2□□-8 Ex / WE□-2□□-E Ex / WG□-2□□-E Ex	
Ex marking (IECEx)		Ex ia IIC T6 Ga	Ex ia IIIC T85°C Da
High-temperature version		WH□-2□□-8 Ex / WJ□-2□□-8 Ex / WH□-2□□-E Ex / WJ□-2□□-E Ex	
Ex marking (IECEx)		Ex ia IIC T6...T3 Ga	Ex ia IIIC T85°C...T200°C Da
Ex power supply, intrinsically safety data ⁽⁶⁾		Ui = 30 V, li = 100 mA, Pi = 0.75 W Ci ≤ 13 nF, Li ≤ 265 µH	Ui = 30 V, li = 140 mA, Pi = 1 W, Ci ≤ 13 nF, Li ≤ 265 µH
Supply voltage		12...30 V DC	
Electrical connection	Cable entry	2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection	
	Cable outer diameter	Ø6...12 mm	
	Wire cross-section	0.5...1.5 mm ²	

⁽⁶⁾ In IIB applications, Ex power supply data for IIIC can be used.

TEMPERATURE DATA FOR Ex CERTIFIED MODELS – ATEX

Temperature data	Standard version WE□-2□□-8 Ex / WG□-2□□-8 Ex, WE□-2□□-E Ex / WG□-2□□-E Ex	High-temperature version WH□-2□□-8 Ex / WJ□-2□□-8 Ex, WH□-2□□-E Ex / WJ□-2□□-E Ex			
	Ex ia IIC, Ex ia IIIC	Ex ia IIC, Ex ia IIIC			
Temperature class	T6 T85°C	T6 T85°C	T5 T100°C	T4 T135°C	T3 T200°C
Highest process temperature	+80 °C	+80 °C	+100 °C	+130 °C	+200 °C
Highest surface temperature at the process connection	+70 °C	+70 °C	+100 °C	+130 °C	+180 °C
Highest ambient temperature	+70 °C				

Ex INFORMATION – INMETRO Certificate No.: DNV 24.0166 X

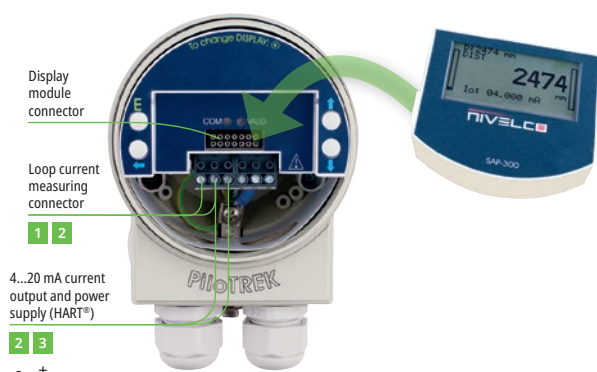
Application group	IIC	IIIC
Standard version	WE□-2□□-8 Ex / WG□-2□□-8 Ex / WE□-2□□-E Ex / WG□-2□□-E Ex	
Ex marking (INMETRO)	Ex ia IIC T6 Ga	Ex ia IIIC T85°C Da
High-temperature version	WH□-2□□-8 Ex / WJ□-2□□-8 Ex / WH□-2□□-E Ex / WJ□-2□□-E Ex	
Ex marking (INMETRO)	Ex ia IIC T6...T3 Ga	Ex ia IIIC T85°C...T180°C Da
Ex power supply, intrinsically safety data ⁽¹⁾	Ui = 30 V, Ii = 100 mA, Pi = 0.75 W Ci ≤ 12 nF, Li ≤ 250 µH	Ui = 30 V, Ii = 140 mA, Pi = 1 W, Ci ≤ 12 nF, Li ≤ 250 µH
Supply voltage	12...30 Vcc	
Electrical connection	Cable entry	2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection
	Cable outer diameter	Ø6...12 mm
	Wire cross-section	0.5...1.5 mm ²

⁽¹⁾ In IIB applications, Ex power supply data for IIIC can be used.

TEMPERATURE DATA FOR Ex CERTIFIED MODELS – INMETRO

Temperature data	Standard version WE□-2□□-8 Ex / WG□-2□□-8 Ex, WE□-2□□-E Ex / WG□-2□□-E Ex	High-temperature version WH□-2□□-8 Ex / WJ□-2□□-8 Ex, WH□-2□□-E Ex / WJ□-2□□-E Ex			
	Ex ia IIC, Ex ia IIIC	Ex ia IIC, Ex ia IIIC			
Temperature class	T6 T85°C	T6 T85°C	T5 T100°C	T4 T135°C	T3 T180°C
Highest process temperature	+80 °C	+80 °C	+100 °C	+135 °C	+180 °C
Highest surface temperature at the process connection	+70 °C	+70 °C	+100 °C	+135 °C	
Highest ambient temperature	+70 °C	+70 °C	+70 °C	+60 °C	

WIRING



WJT-215-B

POLARIZATION

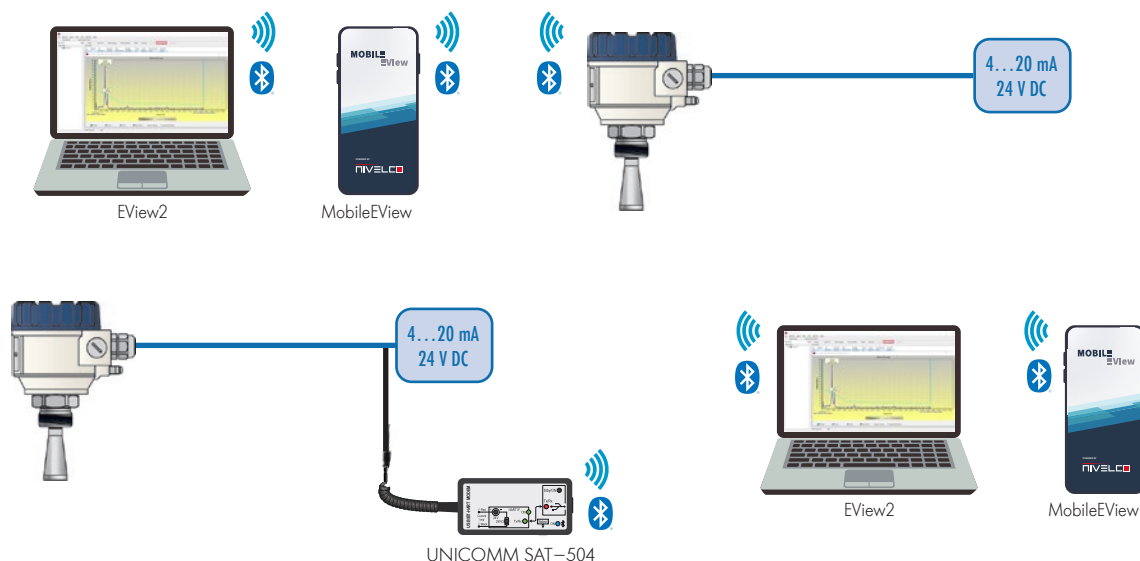
The PiloTREK W-200 80 GHz radar is much less sensitive to installation conditions, both in terms of polarization and clutter sensitivity, due to its narrow and nearly circular beamwidth.

BACKGROUND MAPPING

Thanks to its 80 GHz FMCW technology, it is much less sensitive to the presence of clutter than previous generation radars. It now has an easy-to-use, flexible threshold management (EView2) that allows echoes from clutter in the tank to be easily masked if necessary. The threshold curve is designed to mask unwanted echoes from the measurement. Echo peaks below the threshold are not included in the evaluation.

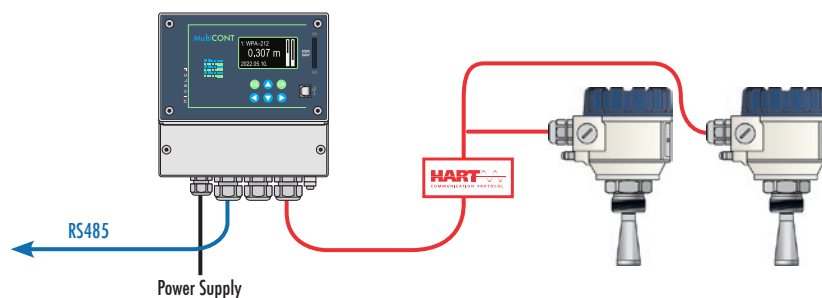
Bluetooth® CONNECTIVITY

The Bluetooth® option on the PiloTREK W-200 Series allows for convenient device setup and diagnostics via the NIVELCO MobileEView app for Android or iOS or the free EView2 software download for laptops.

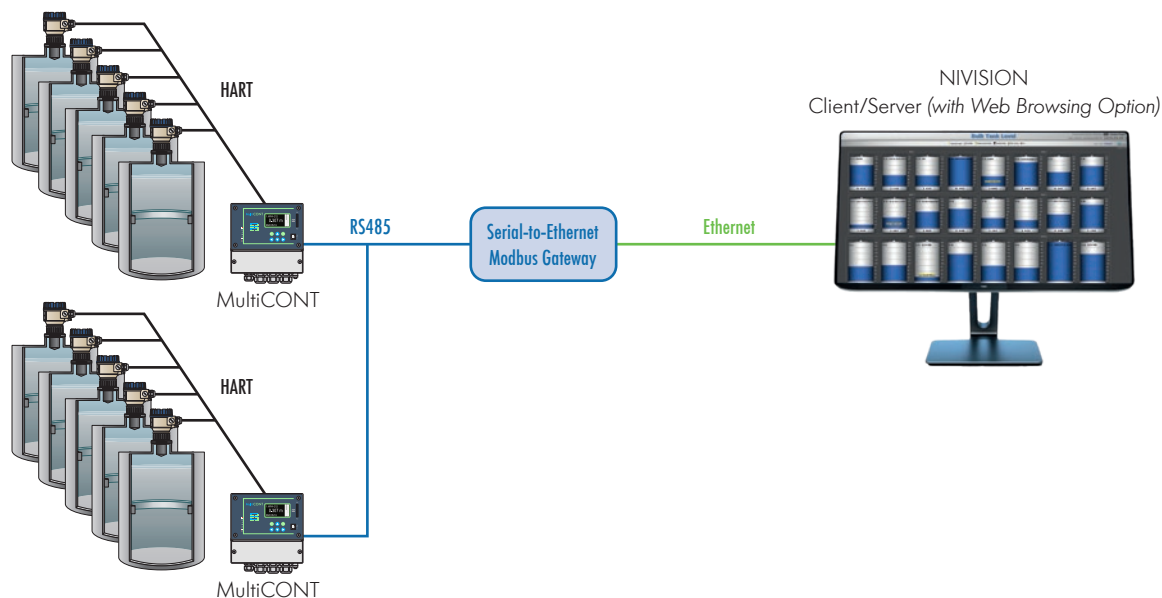


PiloTREK TRANSMITTERS IN HART® MULTIDROP LOOP

MultiCONT multi-channel remote controllers process, display, and transmit data from NIVELCO's HART®-equipped transmitters in a multidrop loop. Up to 15 of these connected transmitters can be programmed and maintained from MultiCONT, which supports data-logging tasks. MultiCONT provides programmable relay outputs, while 4...20 mA outputs are available through remote I/O modules.



MultiCONT can send measurement data via RS485 to PLCs, computers running third-party SCADA systems, or the NIVELCO NIVISON inventory monitoring system.



PROGRAMMING, ECHO MAP

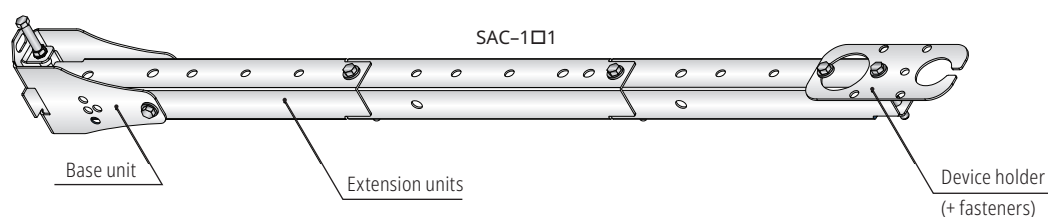
All parameters can be programmed via the optional UNIDISP SAP-300 plug-in display; measurement and output parameters can be set using a text-based menu system. Measured values are displayed as numbers and bar graphs on the dot-matrix screen. The echo map helps detect false reflections and optimizes measurement configuration.

MOUNTING

The device must be mounted far as possible from interfering objects inside the tank and from sources of interference, such as waves, vortices or strong vibrations. The antenna axis must be perpendicular to the surface of the measured medium within $\pm 2...3^\circ$. For outdoor use, we recommend using an aluminum housing. In regions with extremely hot climates, we recommend protecting the device from direct sunlight to avoid exceeding the ambient temperature limits of the housing. For this purpose, we recommend using the UNIMOUNT SAB sunshield.

SAC-1□1 – MOUNTING ASSEMBLY

We recommend our new universal mounting bracket designed for level transmitters and level switches. The complete set includes the base unit, one or more extension modules, the 1" suspension element, adapter plates for 1", 1½" and 2" process connections, as well as the full fastening screw kit. All components can be assembled according to the user's installation requirements. The bracket is manufactured from aluminum and stainless steel and is rated for a maximum load of 15 kg (*only when using one extension element*). It features a length adjustable between 250...1000 mm, leveling possibility, and both horizontal and vertical pivoting options, ensuring broad applicability in industrial environments.



DIMENSIONS*

PTFE lens-antenna (W□C, W□E, W□G)			
Aluminum housing		Plastic housing	
W□E-212-□ / W□E-213-□	W□E-2□4-□ / W□E-2□5-□	W□C-212-□ / W□C-213-□	W□C-2□4-□ / W□C-2□5-□
Stainless steel housing			
W□G-212-□ / W□G-213-□	W□G-2□4-□ / W□G-2□5-□		

Plastic housing (W□M, W□P, W□V, W□F)			
Stainless steel antenna		PP/PVDF encapsulated antenna	
W□M-212-□ / -213-□	W□M-214-□ / -215-□	W□□-212-□ / -213-□	W□□-2□4-□ / -2□5-□
Aluminum housing (W□A, W□B, W□S, W□T)			
Stainless steel antenna		PVDF encapsulated antenna	PTFE encapsulated antenna
W□S-212-□ / -213-□	W□S-214-□ / -215-□	W□T-224-B	W□B-224-B
Stainless steel housing (W□K)			
Stainless steel antenna		PTFE encapsulated antenna	
W□K-212-□ / -213-□	W□K-214-□ / -215-□	W□L-213-□	W□L-215-□
Aluminum housing			Stainless steel housing
PTFE encapsulated antenna			
Standard version		High-temperature version	
W□T-213-□	W□T-215-□	WHT-215-□	WHL-21C-□

*Please note that outline drawings are not shown for all available types.

PiloTREK WE-200 80 GHz Compact

5 years

2-wire compact non-contact radar level transmitter with lens, horn, or encapsulated antenna, ingress protection: IP66/IP67

Version

W ☐ ☐ - 2 ☐ ☐ - ☐

E		Transmitter
G		Transmitter with plug-in display
H	*	Transmitter, high-temperature version (max. +200 °C)
J	*	Transmitter with plug-in display, high-temperature version (max. +200 °C)

* High-temperature version with metal housing and stainless steel or PTFE encapsulated antenna only.

Antenna / Housing

W ☐ ☐ - 2 ☐ ☐ - ☐

P		PP / Fiberglass-reinforced plastic (PBT)
A		PP / Painted aluminum
D		PP / Stainless steel
M		1.4571/1.4404 / Fiberglass-reinforced plastic (PBT)
S		1.4571/1.4404 / Painted aluminum
K		1.4571/1.4404 / Stainless steel
V		PVDF / Fiberglass-reinforced plastic (PBT)
B		PVDF / Painted aluminum
W		PVDF / Stainless steel
F		PTFE / Fiberglass-reinforced plastic (PBT)
T		PTFE / Painted aluminum
L		PTFE / Stainless steel
C		PTFE / Fiberglass-reinforced plastic (PBT) (lens-antenna version)
E		PTFE / Painted aluminum (lens-antenna version)
G		PTFE / Stainless steel (lens-antenna version)

Measurement range

W ☐ ☐ - 2 ☐ ☐ - ☐

1		10 m
2		20 m
3	**	30 m

** Under development

Process connection

W ☐ ☐ - 2 ☐ ☐ - ☐

2		1" BSP (only for 10 m measurement range)
3		1" NPT (only for 10 m measurement range)
4		1½" BSP (only for 10 m or 20 m measurement range)
5		1½" NPT (only for 10 m or 20 m measurement range)
C		1½" TriClamp (only for PTFE antenna and only for 10 m measurement range)
D		2" TriClamp (only for PTFE antenna version)
E		3" TriClamp (only for PTFE antenna version)
F		4" TriClamp (only for PTFE antenna version)
8	**	Ø75 mm (2½") prepared for flange (only 30 m and encapsulated types, flanges available from size DN80 should be ordered separately)
S		Prepared for welded flange (only for 10 and 20 m ranges, with 1½" stainless steel antenna, flange type MF_----L to be ordered separately)

** Under development

Output / Certificates

W ☐ ☐ - 2 ☐ ☐ - ☐

4		4...20 mA + HART®
5	**	4...20 mA + HART® / Ex ta D
8		4...20 mA + HART® / Ex ia GD
B		4...20 mA + HART® + Bluetooth®
C	**	4...20 mA + HART® + Bluetooth® / Ex ta D
E		4...20 mA + HART® + Bluetooth® / Ex ia GD
H		4...20 mA + HART® + SPDT Relay
F	**	4...20 mA + HART® + SPDT Relay / Ex ta D
R		4...20 mA + HART® + SPDT Relay + Bluetooth®
J	**	4...20 mA + HART® + SPDT Relay + Bluetooth® / Ex ta D

** Under development

Need of IEC Ex is to be specified in the text part of the order

Accessories sold separately; see relevant page for details

S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 -	HART®-USB/Bluetooth® modem
S A K - 3 0 5 -	HART®-USB/RS485 modem
S A T - 5 0 6 -	eLink Module
M F - - - - -	Mounting flange
S A C - 1 1 1 - 0	Mounting brackets
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

Process seal material (Price on request, factory default: EPDM for PP and 1.4571/1.4404 antenna, FPM (Viton®) for PVDF and PTFE antenna)

- EPDM
- FPM (Viton®)
- FFKM (Kalrez® 6375)

Process seals are ordered separately and must be specified in the text part of the order. Optional seals available for all types. Other seals are also available.

Accessories sold separately; see relevant page for details

S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A T - 5 0 6 - ■	eLink Module
M F ■ - ■ ■ ■ - ■	Mounting flange
S A C - 1 ■ 1 - 0	Mounting brackets
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

Process seal material

- Factory default: EPDM for PP and 1.4571/1.4404 antenna, FPM for PVDF and PTFE antenna

- Optional: EPDM, FPM, FFKM available for all types

Process seals are ordered separately and must be specified in the text part of the order. Other seals are also available.

UNIMOUNT SAC mounting bracket

5 years

Mounting bracket available separately for level transmitters, level switches, 1" suspension elements, 1", 1½" and 2" connections, and nameplates. Made of painted aluminum and stainless steel, for loads up to 5 kg.

Type

■ A C - 1 ■ 1 - 0	
S	Mounting brackets

Extension element

S A C - 1 ■ 1 - 0	
0	None
1	1×
2	2×
3	3×

Accessories sold separately

S A C - 1 0 0 - 0	Basic unit
S A C - 2 1 0 - 0	Extension element, 300 mm (×1)
S A C - 2 0 1 - 0	Accessory set (1" suspension element + plate for 1", 1½" and 2" connections + vibration-damping sponge washer + screw set)

UNIMOUNT SAB shielding cap

5 years

Sun protection shielding cap designed for installation on the top cover of the instrument housing. Available in stainless steel or plastic.

Type

S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

NIIFLANGE MFT

5 years

Available in carbon steel, PTFE lined carbon steel, polypropylene (PP), and stainless steel, DIN, ANSI, and JIS flanges

Prices on request

Type

■ F ■ - ■ ■ ■ - ■

M Mounting flange

Version

M F ■ - ■ ■ ■ - ■

A Flat Face (A)

T Raised Face (B1)

C Tongue (C)

D Groove (D)

Standard / Flange material / Form

M F ■ - ■ ■ ■ - ■

1	DIN / Carbon steel / EN 1092 (B1)
2	DIN / Stainless steel / EN 1092 (B1)
3	DIN / Polypropylene / EN 1092 (A)
5	ANSI / Carbon steel / ASME B16.5 (RF)
6	ANSI / Stainless steel / ASME B16.5 (RF)
7	ANSI / PP / ASME B16.5 (FF)
A	JIS / Carbon steel / B 2220 (RF)
B	JIS / Stainless steel / B 2220 (RF)
C	JIS / PP / B 2220 (FF)

Dimension DIN / ANSI / JIS

M F ■ - ■ ■ ■ - ■

D	DN15 / ½" / 15A
A	DN20 / ¾" / 20A
B	DN25 / 1" / 25A
C	DN32 / 1¼" / 32A
7	DN40 / 1½" / 40A
0	DN50 / 2" / 50A
1	DN65 / 2½" / 65A
2	DN80 / 3" / 80A
3	DN100 / 4" / 100A
4	DN125 / 5" / 125A
5	DN150 / 6" / 150A
6	DN200 / 8" / 200A
8	DN250 / 10" / 250A
9	DN300 / 12" / 300A

Pressure DIN / ANSI / JIS

M F ■ - ■ ■ ■ - ■

5	PN6 / - / 5K
6	PN10 / - / 10K
1	PN16 / 150 psi / 16K
2	PN25 / 300 psi / 30K
3	PN40 / 600 psi / 40K
4	PN63 / 900 psi / 63K

Internal dimension

M F ■ - ■ ■ ■ - ■

1	¼" BSP
C	½" BSP
D	½" NPT
E	¾" BSP
4	¾" NPT
2	1" BSP
5	1" NPT
7	1½" BSP
8	1½" NPT
3	2" BSP
6	2" NPT
9	M20x1.5
H	Weldable to vibrating fork (stainless steel only)
J	Weldable to MK (stainless steel only)
K	Weldable to TT (stainless steel only)
L	Weldable to WE (stainless steel only)
N	Weldable to WT (stainless steel only)
W	Tilttable to WT

The new PiloTREK WT-300 non-contact radar level transmitters utilize 80 GHz FMCW radar technology—the most advanced in industrial measurement—for bulk solids in food processing, agriculture, construction materials, chemicals, and mining. They deliver millimeter accuracy across light powders to large-particle solids.

Beyond level, volume, and weight measurement, the family includes threshold functions to eliminate false echoes. Compatible with HART®-enabled NIVELCO EView2, MultiCONT universal process controller, MonoCONT smart field display & data logger, and PACTware™ software, or programmable via Bluetooth® with the MobileEView app.

FEATURES

- 2-wire 80 GHz (W-band) radar
- Measurement range up to 60 m
- Accuracy ± 2 mm
- Easy installation
- Plug-in graphic display module
- User-friendly threshold management
- Tiltable flanged design
- Compatible with NIFLANGE tiltable flange
- Prepared for compressed air dust blowing
- Compact design with IP66/IP67 protection
- Configuration via Bluetooth® using the MobileEView app
- PACTware™ compatible
- High-temperature version (under development)
- 5-year warranty

APPLICATIONS

- For free flowing solids
- Wide range of applications, from light powders to bulk solids with large particle sizes
- Measurement through a plastic tank roof (only in case of higher dielectric constant liquid)
- It can also be used in a vacuum

CERTIFICATES

- ATEX (in prep.)
- IECEx (Ex ia GD)

AREAS OF APPLICATION

- For level measurement of powders and granular materials with a minimum dielectric constant (ϵ_r) of 1.4
- Agriculture
- Construction Materials
- Chemical Industry
- Food Industry
- Mining
- Energy Production
- Packaging Industry
- Recycling
- Plastics Industry

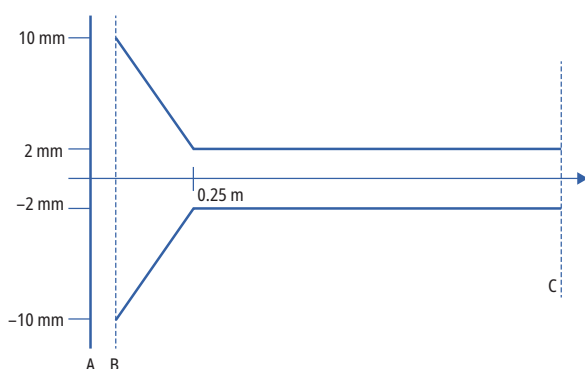
WQT-369



WBT-33M



LINEARITY ERROR



Legend:

— WQT-300-□ / WQT-600-□

A – Process connection plane of the device.

B – The minimum measurement distance below which the radar cannot measure, due to the insertion length of the antenna (X_{min}).

C – Maximum measurement distance (X_{max}).

OPERATING PRINCIPLE

The reflection of millimeter waves is strongly influenced by the dielectric constant of the medium and the characteristics of the surface. If the dielectric constant (ϵ_r) is low, the achievable measuring range may be limited. The level transmitter operates by measuring the echo

Informative ϵ_r values					
Granulated plastic	1.1...2.8	Corn, cereals, grain, sunflower seed	2.0...5.0	Flour	2.4
Cement	1.5...10			Ground stone, gravel, sand,	2.5...5.0
Powdered lime (CaO)	1.6...2.2	Seed-corn, granulated fodder mixture	2.0...3.0	Sodium chloride (NaCl), Table salt, rock salt	3.3
Powdered milk	1.6...2.2			Sodium carbonate, Soda (Na_2CO_3)	5.3...8.4
Granule fertilizers (Nitrates, Phosphates)	1.6...6.4	Coal, coal powder, metal ore	2.3...15	Sodium bicarbonate, Baking soda (NaHCO_3)	5.7
Powdered sugar	1.8	Coal dust	2.3		

signal transit time. Since the propagation velocity of the signal in air, gases, and vacuum is virtually constant, the measured distance is independent of the properties of the medium between the sensor and the product surface.

The PiloTREK WT-300 is an 80 GHz (W-band) frequency-modulated continuous-wave (FMCW) radar. The high operating frequency allows for a smaller antenna, better focusing, and a narrower beam angle. From the frequency shift of the reflected signal, the electronics determine the distance with high accuracy and convert it into a level, volume, or other proportional output signal.

TECHNICAL DATA

		PiloTREK W□□-3□□-□
Measured values		Distance; calculated values: level, volume, mass, flow
Signal frequency		77...81 GHz (W-band)
Measurement range ⁽¹⁾		0...60 m
Lowest ϵ_r of medium		1.4
Resolution		0.1 mm
Supply voltage		12...36 V DC
Output	Analog	4...20 mA (3.9...20.5 mA); $R_{Lmax} = (U_s - 12 \text{ V}) / 0.02 \text{ A}$
	Digital	HART® interface, HART® loop resistance $\geq 250 \Omega$
	Display	SAP-300 – graphic display unit
	Service interface	Compatible with SAT-506-0
	Relay (optional)	SPDT 30 V / 1 A DC; 42 V / 0.5 A AC
Connectivity		Bluetooth® LE 6.0 (optional)
Measuring frequency		~1/s
Antenna material		Aluminum / PTFE
Process temperature		-40...+80 °C; high-temperature version: -40...+200 °C ⁽²⁾
Ambient temperature		-40...+70 °C, with display -20...+70 °C
Seal		FPM (Viton®), Optional: EPDM, FFKM Perfluoroelastomer (Kalrez® 6375)
Process pressure		-1...3 bar
Maximum pressure of the pneumatic system		10 bar
Process connection		3" BSP/NPT, DIN, ANSI, JIS flanges, prepared for tiltable flange (NIFLANGE)
Ingress protection		IP66 / IP67
Electrical connection		2x M20x1.5 cable glands + 2x internally threaded 1/2" NPT connection, cable outer diameter: $\varnothing 6...12 \text{ mm}$, recommended shielded cable, wire cross section: $0.5...1.5 \text{ mm}^2$
Electrical protection		Overvoltage Class I; (Class III [SELV])
Housing material ⁽¹⁾	Painted aluminum	Stainless steel 1.4571/1.4404
Weight	1.5...2.5 kg	2.5...3.5 kg

⁽¹⁾According to order code.

⁽²⁾High-temperature version only with metal housing and stainless steel flange, under development.

ANTENNA DATA

	W□□-33□-□	W□□-36□-□
Dead zone ⁽³⁾	0 m	
Maximum measurement range ⁽⁴⁾	30 m	60 m
Accuracy ⁽⁵⁾	$\pm 2 \text{ mm}$	
Beam angle (-3 dB)	3°	
Antenna insertion length ⁽⁶⁾	17 mm	

⁽³⁾ Measured from the tip of the antenna.

⁽⁴⁾ May be limited in the case of low dielectric constant or non-perpendicular or non-planar media.

⁽⁵⁾ In the case of an ideal reflecting surface.

⁽⁶⁾ Measured from the seal plane of the process connection.

Ex INFORMATION – IECEX (Ex ia GD)

Application group	IIC	IIIC
Standard version	WT□- / WB□- / WC□- / WD□-3□□-8 Ex / E Ex	
Ex marking (IECEX)	Ex ia IIC T6 Ga	Ex ia IIIC T85°C Da
High-temperature version	WK□- / WL□- / WM□- / WN□-3□□-8 Ex / E Ex	
Ex marking (IECEX)	Ex ia IIC T6...T3 Ga	Ex ia IIIC T85°C...T200°C Da
Ex power supply, intrinsically safety data ⁽¹⁾	U _i = 30 V, I _i = 100 mA, P _i = 0.75 W, C _i ≤ 13 nF, L _i ≤ 265 μH	U _i = 30 V, I _i = 140 mA, P _i = 1 W, C _i ≤ 13 nF, L _i ≤ 265 μH
Supply voltage	12...30 V DC	
Electrical connection	Cable entry	2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection
	Cable outer diameter	Ø6...12 mm
	Wire cross-section	0.5...1.5 mm ²

⁽¹⁾ In IIB applications, Ex power supply data for IIIC can be used.

TEMPERATURE DATA FOR Ex CERTIFIED MODELS – IECEX (Ex ia GD)

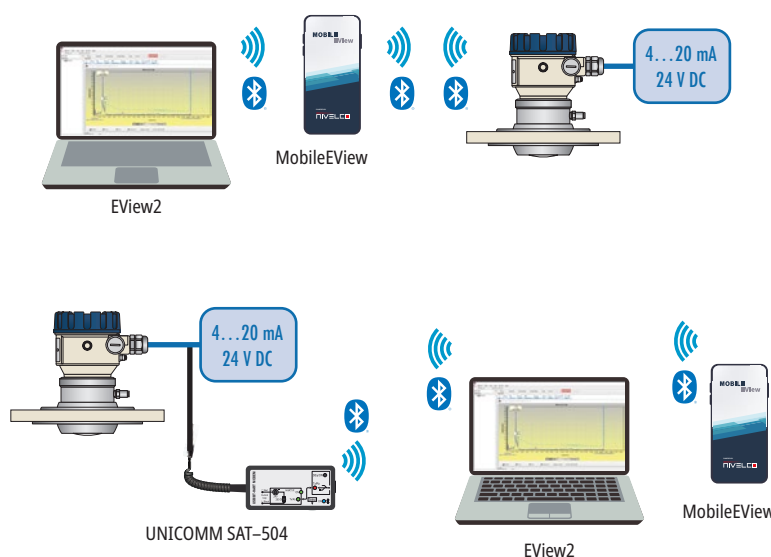
	Standard version	High-temperature version			
	WE□-2□□-8 Ex / WG□-2□□-8 Ex / WE□-2□□-E Ex / WG□-2□□-E Ex	WH□-2□□-8 Ex / WJ□-2□□-8 Ex / WH□-2□□-E Ex / WJ□-2□□-E Ex			
	Ex ia IIC, Ex ia IIIC	Ex ia IIC, Ex ia IIIC			
Temperature class	T6 T85°C	T6 T85°C	T5 T100°C	T4 T135°C	T3 T200°C
Maximum process temperature	+80 °C	+80 °C	+95 °C	+130 °C	+200 °C
Maximum surface temperature at the process connection	+70 °C	+70 °C	+95 °C	+130 °C	+180 °C
Maximum ambient temperature	+70 °C	+70 °C	+70 °C	+60 °C	

BACKGROUND MAPPING

Thanks to its 80 GHz FMCW technology, it is much less sensitive to the presence of clutter than previous-generation radars. It now has an easy-to-use, flexible threshold management (**EView2**) that allows echoes from clutter in the tank to be easily masked if necessary. The threshold curve is designed to mask unwanted echoes from the measurement. Echo peaks below the threshold are not included in the evaluation.

Bluetooth® CONNECTIVITY

The Bluetooth® option on the PiloTREK W-300 Series allows for convenient device setup and diagnostics via the NIVELCO MobileEView app for Android or iOS or the free **EView2** software download for laptops.



PiloTREK TRANSMITTERS IN HART® MULTIDROP LOOP

MultiCONT multi-channel remote controllers process, display, and transmit data from NIVELCO's HART®-equipped transmitters in a multidrop loop. Up to 15 of these connected transmitters can be programmed and maintained from MultiCONT, which supports data-logging tasks. MultiCONT provides programmable relay outputs, while 4...20 mA outputs are available through remote I/O modules.

MultiCONT can send measurement data via RS485 to PLCs, computers running third-party SCADA systems, or the NIVELCO **NIVISON** inventory monitoring system.

PROGRAMMING, ECHO MAP

All parameters can be programmed via the optional **UNIDISP SAP-300** plug-in display; measurement and output parameters can be set using a text-based menu system. Measured values are displayed as numbers and bar graphs on the dot-matrix screen. The echo map helps detect false reflections and optimizes measurement configuration.

PiloTREK WT-300 80 GHz Compact

5 years

2-wire compact non-contact radar level transmitter with plastic lens antenna and tiltable flange

Version

W ☐ ☐ - 3 ☐ ☐ - ☐

T	Transmitter
B	Transmitter with plug-in display
K	* Transmitter, high-temperature version (max. +200 °C)
L	* Transmitter with plug-in display, high-temperature version (max. +200 °C)
C	Transmitter with air purge
D	Transmitter with plug-in display and air purge
M	* Transmitter with air purge, high-temperature version (max. +200 °C)
N	* Transmitter with plug-in display and air purge, high-temperature version (max. +200 °C)

* High-temperature version only with metal housing and stainless steel flange, under development

Antenna / Housing

W ☐ ☐ - 3 ☐ ☐ - ☐

F	PTFE / Fiberglass-reinforced plastic (PBT)
T	PTFE / Painted aluminum
L	PTFE / Stainless steel

Measurement range

W ☐ ☐ - 3 ☐ ☐ - ☐

3	30 m
6	60 m

Process connection / Material

W ☐ ☐ - 3 ☐ ☐ - ☐

M	3" BSP
N	3" NPT
DIN flanges: stainless steel (1.4571/1.4404)	
1	DN100 PN16, Flange / 1.4571/1.4404
2	DN125 PN16, Flange / 1.4571/1.4404
3	DN150 PN16, Flange / 1.4571/1.4404
RF ANSI flanges: stainless steel (1.4571/1.4404)	
4	4" RF 150 psi, Flange / 1.4571/1.4404
5	5" RF 150 psi, Flange / 1.4571/1.4404
6	6" RF 150 psi, Flange / 1.4571/1.4404
JIS flanges: stainless steel (1.4571/1.4404)	
7	JIS 10K 100A, Flange / 1.4571/1.4404
8	JIS 10K 125A, Flange / 1.4571/1.4404
9	JIS 10K 150A, Flange / 1.4571/1.4404
DIN flanges: Polypropylene (PP)	
A	DN100 (as per PN16), Flange / PP
B	DN125 (as per PN16), Flange / PP
C	DN150 (as per PN16), Flange / PP
FF ANSI flanges: Polypropylene (PP)	
D	4" FF (as per 150 psi), Flange / PP
E	5" FF (as per 150 psi), Flange / PP
F	6" FF (as per 150 psi), Flange / PP
JIS flanges: Polypropylene (PP)	
G	JIS 100A (as per 10K), Flange / PP
H	JIS 125A (as per 10K), Flange / PP
J	JIS 150A (as per 10K), Flange / PP
Prepared for tiltable flange	
U	** Ø100 mm / prepared for tiltable flange
S	*** Ø100 mm / prepared for weldable flange (only for stainless steel housing)

** Flange type MF_--W from size DN100 to be ordered separately.

*** Flange type MF_--N from size DN80 to be ordered separately.

Output / Certificates

W ☐ ☐ - 3 ☐ ☐ - ☐

4	4...20 mA + HART®
5 ****	4...20 mA + HART® / Ex ta D
8 ****	4...20 mA + HART® / Ex ia GD
B	4...20 mA + HART® + Bluetooth®
C ****	4...20 mA + HART® + Bluetooth® / Ex ta D
E ****	4...20 mA + HART® + Bluetooth® / Ex ia GD
H	4...20 mA + HART® + Relay
F ****	4...20 mA + HART® + Relay / Ex ta D
R	4...20 mA + HART® + Relay + Bluetooth®
J ****	4...20 mA + HART® + Relay + Bluetooth® / Ex ta D

**** Under development

Available on request (see relevant page for details)

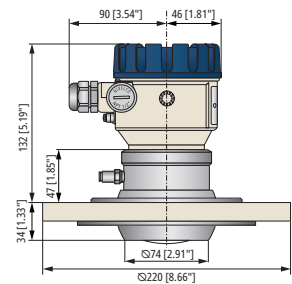
S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 -	HART®-USB/Bluetooth® modem
S A K - 3 0 5 -	HART®-USB/RS485 modem
S A T - 5 0 6 -	eLink Module

Process seal material (Price on request, factory default:FPM (Viton®))

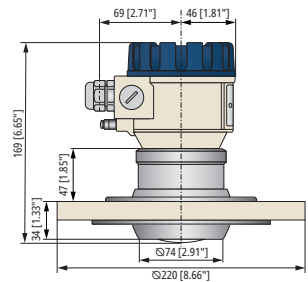
- EPDM

- FFKM (Kalrez® 6375)

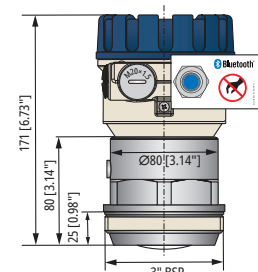
Process seals are ordered separately and must be specified in the text part of the order. Optional seals available for all types. Other seals are also available.



WDT-369



WTF-334 / WTF-364



WTT/WBT/WCT/WDT-33M/33N-□

The MicroTREK H-700 series guided microwave level transmitter measures continuous level and interface of conductive/non-conductive liquids, pulps, and solids. It uses Time Domain Reflectometry (TDR), measuring the time-of-flight of radar pulses guided via probe (GWR – Guided Wave Radar). This preserves radar energy through challenging environments, with reflection occurring at material impedance changes—typically at the air interface ($\epsilon_r = 1$). Products with dielectric constants as low as 1.4 can be measured.

In interface measurement mode two levels can be measured simultaneously. A low dielectric material on the top ($\epsilon_r = 1.4 \dots 10$) and a higher dielectric one ($\epsilon_r > 20$) under it.

FEATURES

- The measurement is not affected by temperature, pressure and medium properties (e.g. density, dielectric constant, humidity, etc.)
- Measurement range up to 30 m
- Maximum tracking speed: 2000 m/h (555 mm/s)
- Accuracy: ± 5 mm
- Rod, flexible, or coaxial probes
- Segmented or segmented coaxial probe version
- Lowest $\epsilon_r \geq 1.4$
- Interface measurement (optional)
- Dual current output for interface measurement (optional)
- Plug-in display
- Advanced threshold management
- False echo suppression
- Output Conversion Table (OCT, VMT) with up to 100 point pairs for accurate output linearization
- PACTware™ compatible
- 4...20 mA + HART® output + relay (optional)
- Process temperature range: $-30 \dots +200$ °C
- Highest process pressure: 40 bar
- IP67
- 5-year warranty

CERTIFICATES

- ATEX (Ex ia G)
- ATEX (Ex ia D)
- ATEX (Ex ta/tb D)
- IEC Ex (Ex ia G)
- IEC Ex (Ex ia D)
- INMETRO (Ex ia G)
- INMETRO (Ex ia D)
- UKCA Ex (Ex ia G)
- UKCA Ex (Ex ia D)
- UKCA Ex (Ex ta/tb D)
- FM Clas I, Div. 1 (pending)
- FM Clas I, Div. 2 (pending)

APPLICATIONS

Mono cable / Mono rod Mono segmented rod	Twin cable	Twin rod	Coaxial pipe
■ Cement, limestone, fly ash, alumina, soot ■ All high-viscosity liquids ■ Mineral powders ■ Clean and contaminated liquids ■ For stilling wells and bypass applications (calibration required) ■ With plastic-coated probe for chemically aggressive substances ■ Slightly conductive foams ■ High-temperature applications	■ Tank plants with solvents, oil and fuels ■ Water storage tanks ■ Plastic granules ■ For products with low dielectric constant ($\epsilon_r > 1.8$) ■ For all liquids, light granules without any conductive sediments ■ For narrow tanks ■ Where minimum dead zone is requested ■ Mounting close to tank wall is possible	■ Plastic granules ■ Clean and moderately contaminated liquids ■ Where minimum dead zone is needed ■ For grains and fine powders in small hoppers ■ For small size and narrow tanks ■ For low dielectric media and slightly moving products	■ Up to 6 m high small vessels and tanks ■ Solvents, liquefied gases ■ LPG, LNG ■ For clean liquids with low dielectric constant ■ Agitated or flowing liquids – the probe acts as a stilling well ■ Liquid or vapor spray near the probe ■ Can be heated ■ Contact possible with metallic object or tank wall ■ Where no dead zone allowed



TECHNICAL DATA

		Version	Plastic housing	Aluminum housing	Stainless steel housing
Measured values / calculated values			Distance / Level, Volume, Weight		
Measurement range			Depending on probe version and dielectric constant (ϵ_r) of the medium		
Probe versions			Mono cable, twin cable, mono rod, twin rod, coaxial pipe, segmented coaxial pipe and segmented rod		
Accuracy	Linearity error ⁽¹⁾		For liquids: ± 5 mm, if probe length ≥ 10 m: $\pm 0.05\%$ of the probe length. For solids: ± 20 mm, if probe length ≥ 10 m: $\pm 0.2\%$ of the probe length		
	Resolution		1 mm		
Lowest ϵ_r of medium			1.4 (depending on probe version)		
Supply voltage			12 ⁽³⁾ ...36 V DC, nominal 24 V DC, Ex version: 12 ⁽³⁾ ...30 V DC, transient overvoltage protection		
Output	Communication		4...20 mA + HART®		
	Display (optional)		SAP-300 graphic display unit		
	Relay (optional)		SPDT 30 V / 1 A DC; 48 V / 0.5 A AC		
Process temperature			-30...+90 °C; high-temperature version: -30...+200 °C		
			For plastic-coated probes, coated: see "Probe Properties"		
Highest process pressure			40 bar; with plastic lined flange: maximum 25 bar		
Ambient temperature			-30...+65 °C, with display: -20...+65 °C		
Process connection			Threaded, flanged or sanitary connections (as per order code)		
Ingress protection			IP67		
Electrical connection			2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection, cable outer diameter: Ø6...12 mm (shielded cable is recommended), wire cross section: 0.5...1.5 mm ²		
Electrical protection			Class III		
Housing material			Plastic (PBT)	Painted aluminum	Stainless steel (1.4571/1.4404)
Seal			FPM (Viton®), optional: FFKM (Kalrez®), EPDM		
Explosion protection			—	See "Ex Information"	
Weight (head unit)			1.3 kg	2.2 kg	3.9 kg

⁽¹⁾ Under reference conditions and constant temperature.⁽²⁾ The use of SAP-300 graphic displays is limited in hazardous environment. For further information, see "Ex Information".⁽³⁾ Stable HART® communication can be guaranteed with terminal voltage > 13 V DC.

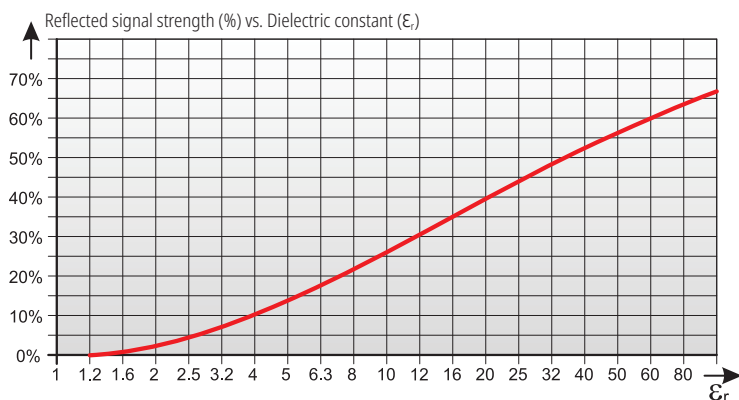
Ex INFORMATION

		H□□-7□□-8 Ex / H□□-9□□-8 Ex		H□□-7□□-6 Ex H□□-9□□-6 Ex	H□□-7□□-5 Ex H□□-9□□-5 Ex	H□□-7□□-9 Ex H□□-9□□-9 Ex
		Without probe coating, without display	With coated probe and/or display			
Protection		Ex ia G		Ex ia D	Ex ta/tb D	Ex ta D ⁽⁴⁾
Ex marking ⁽⁵⁾	ATEX	 II 1 G Ex ia IIC T6...T3 Ga	 II 1 G Ex ia IIB T6...T3 Ga	 II 1 D Ex ia IIIC T85°C...T180°C Da	 II 1/2 D Ex ta/tb IIIC T85°C...T180°C Da/Db	 II 1D Ex ta IIIC T105°C Da
	IEC Ex ⁽⁶⁾	Ex ia IIC T6...T3 Ga	Ex ia IIB T6...T3 Ga	Ex ia IIIC T85°C...T180°C Da	Ex ta/tb IIIC T85°C...T180°C Da/Db	Ex ta IIIC T105°C Da
Ex supply voltage and intrinsic safety data		$C_i \leq 25 \text{ nF}$, $L_i \leq 300 \text{ }\mu\text{H}$, $U_i \leq 30 \text{ V}$, $I_i \leq 100 \text{ mA}$, $P_i \leq 0.75 \text{ W}$	$C_i \leq 25 \text{ nF}$, $L_i \leq 300 \text{ }\mu\text{H}$, $U_i \leq 30 \text{ V}$, $I_i \leq 140 \text{ mA}$, $P_i \leq 1 \text{ W}$	$U_i = 30 \text{ V DC}$, $I_i = 1 \text{ A}$		
Supply voltage		12 ⁽⁷⁾ ...30 V DC				
Electrical connection		2 × M20×1.5 metal cable glands, cable outer diameter: Ø6...Ø12 mm, wire cross section: maximum 1.5 mm ²				
Ambient temperature		-30...+65 °C, with display: -20...+65 °C				

⁽⁴⁾ Ex ta D protection class devices are available only with a windowless cap.⁽⁶⁾ IEC Ex compliance is optional; must be requested in the order.⁽⁵⁾ In IIC environment SAP-300 graphic display must not be used!⁽⁷⁾ In an industrial environment, reliable operation can be guaranteed with a terminal voltage > 13 V.

MEASURABILITY OF THE MEDIUM

The measurability of the medium and the reflected signal strength depends on the relative dielectric constant of the medium.



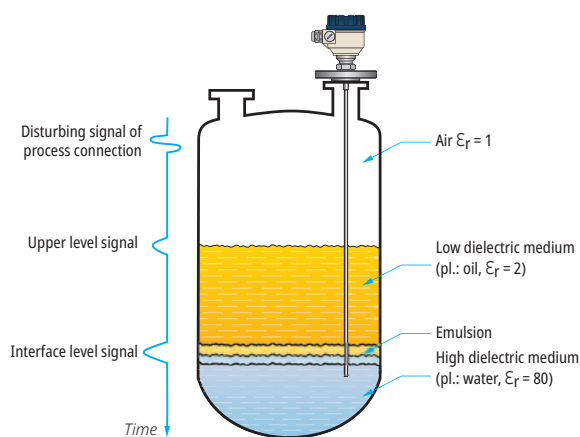
Informative ϵ_r values			
Butane	1.4	Grain	3...5
Cement	1.5...10	Cooking oil	3.9
LPG	1.6...1.9	Limestone	6.1...9.1
Kerosene	1.8...2.1	Acetone	21
Crude oil	2.1	Ethanol	24
Diesel oil	2.1	Methanol	33.1
Gasoline	2.3	Glycol	37
Asphalt	2.6	Nitrobenzene	40
Clinker	2.7	Water	80
Resin	2.4...3.6	Sulphuric acid (T = 20 °C)	84

INTERFACE MEASUREMENT OF LIQUIDS

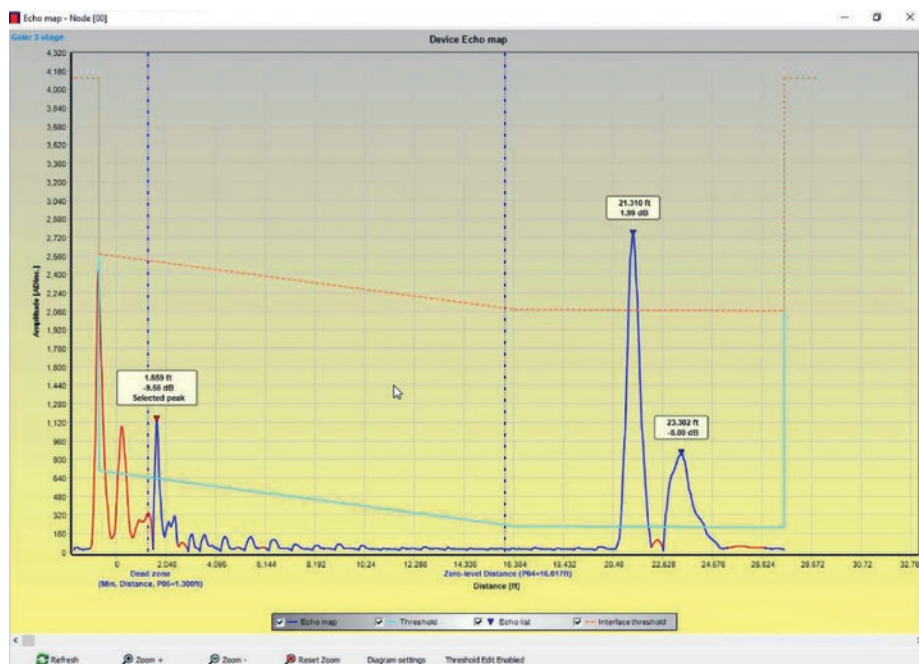
Low dielectric materials are semi-transparent to the microwave signal. Such materials only partially reflect the energy of the microwave signal. The non-reflected part of the emitted measuring signal passes through the low dielectric medium and is reflected from the impedance boundary of the two materials. MicroTREK level transmitters equipped with the interface measurement option measure and process these two reflections simultaneously.

TYPICAL APPLICATIONS FOR INTERFACE MEASUREMENT

Typical applications are separator or storage tanks. Containing water, oils or other low dielectric, non-conductive and water-insoluble liquid chemicals. Most widespread use of the device is in oil industry.



MicroTREK H-700 devices ordered with interface measurement option can measure the upper level of already separated liquids, the phase boundary (interface) level, or the thickness of the upper liquid layer. Depending on the setting, any of listed measured values can be assigned to the 4...20 mA and HART® outputs. MicroTREK H-700 series with interface option are suitable for phase boundary (interface) measurement with any NIVELCO made probe. The use of more sensitive probes (twin and coaxial) is recommended for more critical applications.



The basic criteria for interface measurement

- The upper liquid layer must be electrically non-conductive
- The value of relative dielectric constant of the upper liquid layer must be known
- The upper liquid layer must be homogeneous, its composition and material structure must not change
- The upper layer of the fluid can only be measured if its layer thickness exceeds 120 mm
- The lower and upper liquids must be separated from each other, free from emulsion transition
- The lower liquid layer must be electrically conductive, or if it is not, than the difference in the relative dielectric constants of the two liquids must be greater than 10.*

*In the case of clean separation of the liquids and use of a most sensitive coaxial probe.

PROBES

Reliable measurement with microwaves depends on selecting the appropriate probes and taking the medium's properties and other vessel conditions into consideration.

Probe	ϵ_r min.	Process connection	Max. measurement range	Dead zone ⁽¹⁾	
				Upper (t) / lower (b) $\epsilon_r = 80$	Upper (t) / lower (b) $\epsilon_r = 2.4$
Mono cable Ø4 mm	2.1	1"; 1½"	30 m	250 mm / 20 mm	350 mm / 100 mm
Mono cable Ø8 mm		1½"			
Mono rod Ø8 mm		1"	3 m		
Mono / segmented rod Ø14 mm			6 m		
Twin cable Ø4 mm	1.8	1½"	30 m	150 mm / 20 mm	300 mm / 100 mm
Twin rod Ø8 mm			3 m		
Coaxial pipe Ø28 mm	1.4	1"; 1½"	6 m	0 / 10 mm	0 / 100 mm
Segmented coaxial pipe Ø14 mm	1.6	1½"			
Coated cable Ø6 mm	2.4	1"; 1½" TriClamp; DN40 MILCH, DN50	30 m	250 mm / 20 mm	350 mm / 100 mm
Coated rod Ø12 / Ø16 mm		DN50	3 m		

⁽¹⁾ The unmeasurable upper and lower part of the tank. The lower dead zone is extended with the length of the counterweight (cable versions only)

PROBE PROPERTIES

	Probe	Ø4 mm cable	Rod	Rod / segmented rod	Ø8 mm cable	Ø4 mm twin cable	Twin rod	Coaxial
	Type	HOK, HOL HOV, HOW	HOR, HOP	HOS, HOZ	HON, HOJ	HOT, HOU	HOD, HOE	HOA, HOB HOC, HOH
Maximum measuring distance		30 m	3 m	6 m	30 m		3 m	6 m
Min. meas. dist. ($\epsilon_r = 80$ / $\epsilon_r = 2.4$)		250 mm / 350 mm				150 mm / 300 mm		0 m
Lowest ϵ_r of medium		2.1				1.8		1.4
Sensing area around probe		Ø600 mm				Ø200 mm		0 mm
Process connection		1" BSP / NPT	1" BSP	1½" BSP				1" BSP / NPT
		1½" BSP / NPT	1" NPT	1½" NPT				1½" BSP / NPT
Probe material		1.4401	1.4571/1.4404		1.4401		1.4571/1.4404	
Probe nominal diameter		4 mm	8 mm	14 mm	8 mm	2× 4 mm	2× 8 mm	28 mm
Weight		0.12 kg/m	0.4 kg/m	1.2 kg/m	0.4 kg/m	0.24 kg/m	0.8 kg/m	1.3 kg/m
Separator material ⁽²⁾		–				PFA, welded onto the cable	PTFE-GF25	PTFE
Weight dimensions		Ø25 × 100 mm	–		Ø40 × 260 mm	Ø40 × 80 mm	–	
Weight material		1.4571/1.4404	–		1.4571/1.4404		–	

⁽²⁾ There is no separator mounted up to 1.5 m probe length.

COATED PROBE PROPERTIES

	Probe	Ø4 mm FEP-coated cable			Ø4 mm fully FEP/PFA-coated cable	Fully PFA-coated rod		Fully PP-coated rod
	Type	H□F, H□G	H□X	H□Y	H□M	H□Q	H□O	H□I
Maximum measuring distance	30 m					3 m		
Min. meas. dist. ($\epsilon_r = 80$ / $\epsilon_r = 2.4$)	250 mm / 350 mm							
Lowest ϵ_r of medium	2.1							
Sensing area around probe	Ø600 mm							
Process connection	1" BSP / NPT	1½" TriClamp	DN40 MILCH	DN50 PN25 flange		1½" TriClamp	DN50 PN25	
Highest process temperature	+200 °C				+150 °C			+60 °C
Probe material	1.4401					1.4571/1.4404		
Probe coating	FEP					PFA		PP
Probe nominal diameter	6 mm					12 mm		16 mm
Probe coating	–				FEP / PFA	PFA		PP
Weight material	1.4571/1.4404				1.4571/1.4404 + PFA-coating	–		
Weight dimensions	Ø25 × 100 mm					–		
Weight	0.16 kg/m					0.5 kg/m		0.6 kg/m

MicroTREK H-700 with cable probe

5 years

2-wire compact guided wave radar level transmitter (GWR) for liquids and free-flowing solids with stainless steel mono or twin cable probe with or without plastic coating

Version / Temperature

H	Transmitter / Flange temperature max. +90 °C
T	High-temperature transmitter / Flange temp. max. +200 °C (M type only up to +150 °C)
H	Transmitter with plug-in display / Flange temperature max. +90 °C
B	High-temperature transmitter with plug-in display / Flange temp. max. +200 °C (M type only up to +150 °C)
P	

Probe / Process connection

H	
K	Mono cable, Ø4 mm, 1.4401 / 1" BSP / max. 30 m
L	Mono cable, Ø4 mm, 1.4401 / 1" NPT / max. 30 m
V	Mono cable, Ø4 mm, 1.4401 / 1½" BSP / max. 30 m
W	Mono cable, Ø4 mm, 1.4401 / 1½" NPT / max. 30 m
1	Mono cable, Ø4 mm, 1.4401 / 1½" TriClamp / max. 30 m
2	Mono cable, Ø4 mm, 1.4401 / 2" TriClamp / max. 30 m
N	Mono cable, Ø8 mm, 1.4401 / 1½" BSP / max. 30 m
J	Mono cable, Ø8 mm, 1.4401 / 1½" NPT / max. 30 m
T	Twin cable, 2x Ø4 mm, 1.4401 / 1½" BSP / max. 30 m
U	Twin cable, 2x Ø4 mm, 1.4401 / 1½" NPT / max. 30 m
F	* Mono cable, Ø4 mm, + FEP-coated / 1" BSP / max. 30 m
G	* Mono cable, Ø4 mm, + FEP-coated / 1" NPT / max. 30 m
X	* Mono cable, Ø4 mm, + FEP-coated / TriClamp 1½" / max. 30 m
Y	* Mono cable, Ø4 mm, + FEP-coated / Sanitary DN40 / max. 30 m
M	Mono cable, Ø4 mm, + PFA/FEP fully coated / DN50, PN25, 1.4571/1.4404 + PFA/FEP lining

* Only the cable probe is coated

Housing

H	
7	Painted aluminum
8	Fiberglass-reinforced plastic (PBT) (Ex version not available)
9	Stainless steel

Probe length / Material

H	
n n	1.0...30.0 m (sold by the meter), for mono cable, Ø4 mm / 1.4401
n n	1.0...30.0 m (sold by the meter), for mono cable, Ø8 mm / 1.4401
n n	1.0...30.0 m (sold by the meter), for twin cable / 1.4401
n n	1.0...30.0 m (sold by the meter), for mono cable, Ø4 mm / 1.4401 + FEP

nn = 01...30 : 1.0...30.0 m

Output / Certificates

H	
4	4...20 mA + HART®
5	4...20 mA + HART® / Ex ta/tb D (only for uncoated probe versions)
6	4...20 mA + HART® / Ex ia D (only for uncoated probe versions)
8	4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)
9	4...20 mA + HART® / Ex ta D (only for uncoated probe versions)
H	4...20 mA + HART® + SPDT Relay

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 -	HART®-USB/Bluetooth® modem
S A K - 3 0 5 -	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

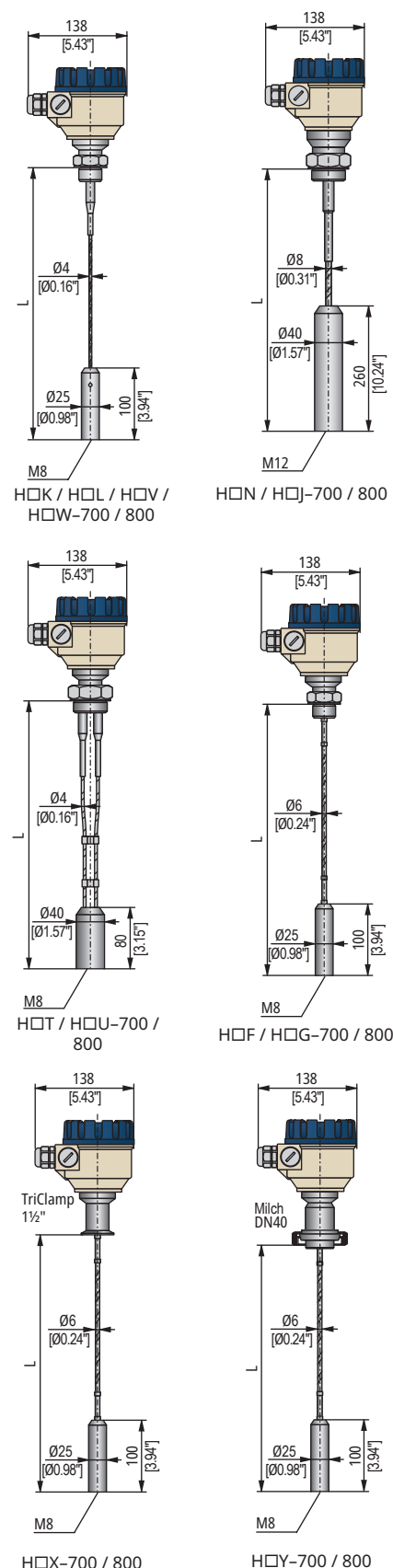
Process connections (Price on request)

- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

Process seal material (Price on request, factory default: FPM (Viton®))

- EPDM
- FFKM (Kalrez® 6375)

The above process connections and process seals are ordered separately and must be specified in the text part of the order. Optional seals available for all types. Other seals are also available.



MicroTREK H-700 with Ø8 mm rod probe

5 years

2-wire compact guided wave radar level transmitter (GWR) for liquids and free-flowing solids with stainless steel mono or twin rod probe with or without plastic coating

Version / Temperature

H	■ ■ - ■ ■ ■ - ■ ■	
T		Transmitter / Flange temperature max. +90 °C
H		High-temperature transmitter / Flange temp. max. +200 °C (up to +150 °C with plastic-coated probes)
B		Transmitter with plug-in display / Flange temperature max. +90 °C
P		High-temperature transmitter with plug-in display / Flange temp. max. +200 °C (up to +150 °C with plastic-coated probes)

Probe / Process connection

H	■ ■ - ■ ■ ■ - ■ ■	
R		Mono rod, Ø8 mm, 1.4571/1.4404 / 1" BSP / max. 3 m
P		Mono rod, Ø8 mm, 1.4571/1.4404 / 1" NPT / max. 3 m
3		Mono rod, Ø8 mm, 1.4571/1.4404 / 1½" TriClamp / max. 3 m
D		Twin rod, 1.4571/1.4404 / 1½" BSP / max. 3 m
E		Twin rod, 1.4571/1.4404 / 1½" NPT / max. 3 m
Q		Mono rod + PFA-coated / DN50, PN25, 1.4571/1.4404 + PFA lining
I		Mono rod + PP-coated / DN50, PN25, 1.4571/1.4404 + PP lining (up to a maximum flange temperature of +60 °C)
O		Mono rod + PFA-coated / 1½" TriClamp PFA-coated
7		Mono rod + PFA-coated / 2" TriClamp PFA-coated

Housing

H	■ ■ - ■ ■ ■ - ■ ■	
7		Painted aluminum
8		Fiberglass-reinforced plastic (PBT) (Ex version not available)
9		Stainless steel

Probe length / Material

H	■ ■ - ■ ■ ■ - ■ ■	
n n		1.0...3.0 m (each 0.1 m), for mono rod / 1.4571/1.4404
n n		1.0...3.0 m (each 0.1 m), for mono rod / 1.4571/1.4404, PP-coated
n n		1.0...3.0 m (each 0.1 m), for mono rod / 1.4571/1.4404, PFA-coated
n n		1.0...3.0 m (each 0.1 m), for twin rod / 1.4571/1.4404
nn = 10...30 : 1.0...3.0 m		

Output / Certificates

H	■ ■ - ■ ■ ■ - ■ ■	
4		4...20 mA + HART®
5		4...20 mA + HART® / Ex ta/tb D (only for uncoated probe versions)
6		4...20 mA + HART® / Ex ia D (only for uncoated probe versions)
8		4...20 mA + HART® / Ex ia G (in the case of plastic-coated probes, only Ex ia IIB)
9		4...20 mA + HART® / Ex ta D (only for uncoated probe versions)
H		4...20 mA + HART® + SPDT Relay

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

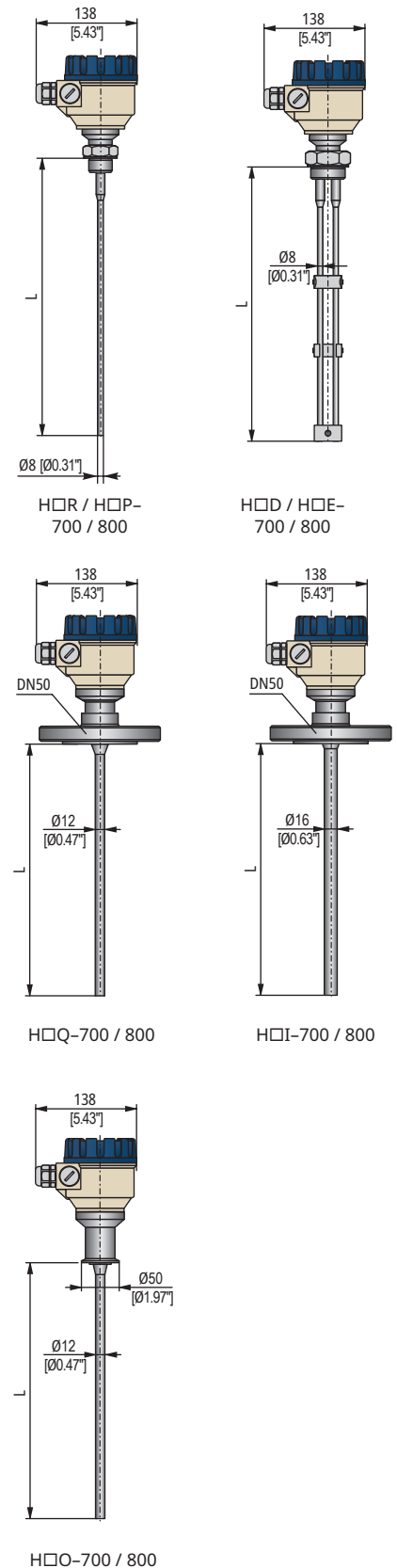
Process connections (price information on request)

- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

Process seal material (Price on request, factory default: FPM (Viton®))

- EPDM
- FFKM (Kalrez® 6375)

The above process connections and process seals are ordered separately and must be specified in the text part of the order. Optional seals available for all types. Other seals are also available.



HOS / HOZ-700 / 800

Technical drawing showing the probe assembly with dimensions: 138 [5.43"] for the top section, 138 [5.43"] for the middle section, and 1000 [39.37"] for the segmented probe. The probe diameter is Ø14 [Ø0.55"].

HOA / HOB / HOC / HOH-700 / 800

Technical drawing showing the probe assembly with dimensions: 138 [5.43"] for the top section, 138 [5.43"] for the middle section, and 1000 [39.37"] for the segmented probe. The probe diameter is Ø28 [Ø1.1"].

HOC / HOH-700 / 800 with segmented probe

Technical drawing showing the probe assembly with dimensions: 138 [5.43"] for the top section, 138 [5.43"] for the middle section, and 1000 [39.37"] for the segmented probe. The probe diameter is Ø28 [Ø1.1"].

MicroTREK H-700 with cable probe, with interface function

5 years

2-wire compact guided wave radar level transmitters (GWR) with interface function with stainless steel mono or twin cable probe with or without plastic coating

Version / Temperature

H	□	□	-	□	□	□	-	□
C	Transmitter / Flange temperature max. +90 °C							
E	High-temperature transmitter / Flange temp. max. +200 °C (M type only up to +150 °C)							
D	Transmitter with plug-in display / Flange temperature max. +90 °C							
F	High-temperature transmitter with plug-in display / Flange temp. max. +200 °C (M type only up to +150 °C)							

Probe / Process connection

H	□	□	-	□	□	□	-	□
K	Mono cable, Ø4 mm, 1.4401 / 1" BSP / max. 30 m							
L	Mono cable, Ø4 mm, 1.4401 / 1" NPT / max. 30 m							
V	Mono cable, Ø4 mm, 1.4401 / 1½" BSP / max. 30 m							
W	Mono cable, Ø4 mm, 1.4401 / 1½" NPT / max. 30 m							
1	Mono cable, Ø4 mm, 1.4401 / 1½" TriClamp / max. 30 m							
2	Mono cable, Ø4 mm, 1.4401 / 2" TriClamp / max. 30 m							
N	Mono cable, Ø8 mm, 1.4401 / 1½" BSP / max. 30 m							
J	Mono cable, Ø8 mm, 1.4401 / 1½" NPT / max. 30 m							
T	Twin cable, 2x Ø4 mm, 1.4401 / 1½" BSP / max. 30 m							
U	Twin cable, 2x Ø4 mm, 1.4401 / 1½" NPT / max. 30 m							
F	* Mono cable, Ø4 mm, + FEP-coated / 1" BSP / max. 30 m							
G	* Mono cable, Ø4 mm, + FEP-coated / 1" NPT / max. 30 m							
X	* Mono cable, Ø4 mm, + FEP-coated / TriClamp 1½" / max. 30 m							
Y	* Mono cable, Ø4 mm, + FEP-coated / Sanitary DN40 / max. 30 m							
M	Mono cable, Ø4 mm, + PFA/FEP fully coated / DN50, PN25, 1.4571/1.4404 + PFA/FEP lining							

* Only the cable probe is coated

Housing

H	□	□	-	□	□	□	-	□
7	Painted aluminum							
8	Fiberglass-reinforced plastic (PBT) (Ex version not available)							
9	Stainless steel							

Probe length / Material

H	□	□	-	□	□	□	-	□
nn	1.0...30.0 m (sold by the meter), for mono cable, Ø4 mm / 1.4401							
nn	1.0...30.0 m (sold by the meter), for mono cable, Ø8 mm / 1.4401							
nn	1.0...30.0 m (sold by the meter), for twin cable / 1.4401							
nn	1.0...30.0 m (sold by the meter), for mono cable, Ø4 mm / 1.4401 + FEP							

nn = 01...30 : 1,0...30,0 m

Output / Certificates

H	□	□	-	□	□	□	-	□
4	4...20 mA + HART®							
8	** 4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)							
H	4...20 mA + HART® + SPDT Relay							
T	** 2x 4...20 mA + HART®							
U	** 2x 4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)							

** Under development

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 - □	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - □	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

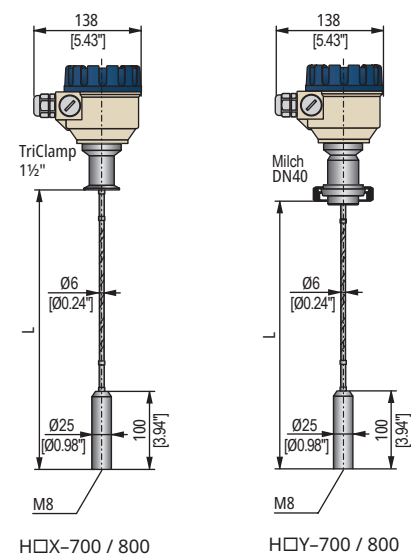
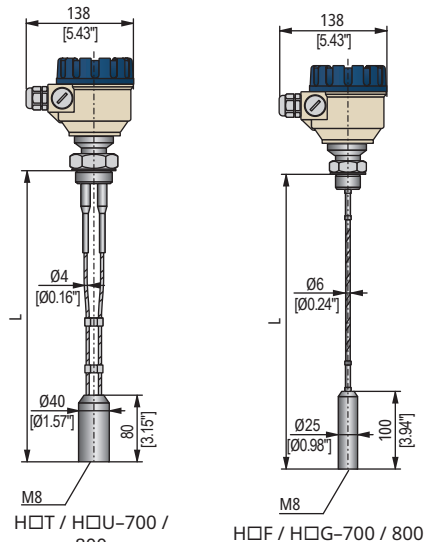
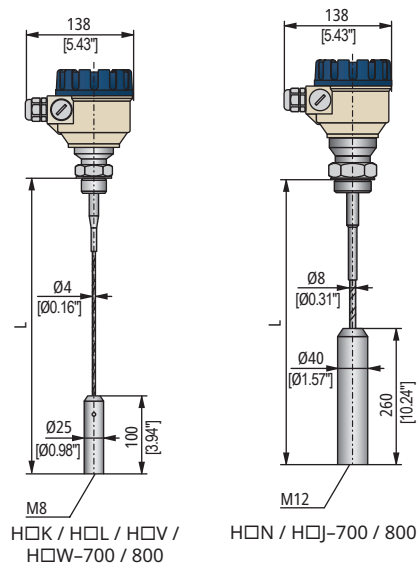
Process connections (price information on request)

- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

Process seal material (Price on request, factory default: FPM (Viton®))

- EPDM
- FFKM (Kalrez® 6375)

The above process connections and process seals are ordered separately and must be specified in the text part of the order. Optional seals available for all types. Other seals are also available.



MicroTREK H-700 with Ø8 mm rod probe, with interface function

5 years

2-wire compact guided wave radar level transmitter (GWR) with interface function
with stainless steel mono or twin rod probe with or without plastic coating

Version / Temperature

H	□	-	□	□	-	□	
C							Transmitter / Flange temperature max. +90 °C
E							High-temperature transmitter / Flange temp. max. +200 °C (M type only up to +150 °C)
D							Transmitter with plug-in display / Flange temperature max. +90 °C
F							High-temperature transmitter with plug-in display / Flange temp. max. +200 °C (up to +150 °C with plastic-coated probes)

Probe / Process connection

H	□	-	□	□	-	□	
R							Mono rod, Ø8 mm, 1.4571/1.4404 / 1" BSP / max. 3 m
P							Mono rod, Ø8 mm, 1.4571/1.4404 / 1" NPT / max. 3 m
3							Mono rod, Ø8 mm, 1.4571/1.4404 / 1½" TriClamp / max. 3 m
D							Twin rod, 1.4571/1.4404 / 1½" BSP / max. 3 m
E							Twin rod, 1.4571/1.4404 / 1½" NPT / max. 3 m
Q							Mono rod + PFA-coated / DN50, PN25, 1.4571/1.4404 + PFA lining
I							Mono rod + PP-coated / DN50, PN25, 1.4571/1.4404 + PP lining (up to a maximum flange temperature of +60 °C)
O							Mono rod + PFA-coated / 1½" TriClamp PFA-coated
7							Mono rod + PFA-coated / 2" TriClamp PFA-coated

Housing

H	□	-	□	□	-	□	
7							Painted aluminum
8							Fiberglass-reinforced plastic (PBT) (Ex version not available)
9							Stainless steel

Probe length / Material

H	□	-	□	□	-	□	
n	n						1.0...3.0 m (each 0.1 m), for mono rod / 1.4571/1.4404
n	n						1.0...3.0 m (each 0.1 m), for mono rod / 1.4571/1.4404, PP-coated
n	n						1.0...3.0 m (each 0.1 m), for mono rod / 1.4571/1.4404, PFA-coated
n	n						1.0...3.0 m (each 0.1 m), for twin rod / 1.4571/1.4404

nn = 10...30 : 1.0...3.0 m

Output / Certificates

H	□	-	□	□	-	□	
4							4...20 mA + HART®
8	*						4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)
H							4...20 mA + HART® + SPDT Relay
T	*						2x 4...20 mA + HART®
U	*						2x 4...20 mA + HART® / Ex ia G (plastic-coated probes Ex ia IIB only)

* Under development

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 - □	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - □	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

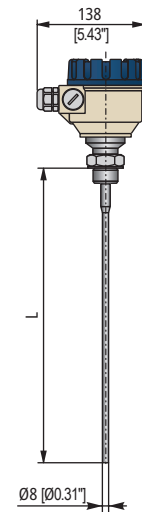
Process connections (price information on request)

- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

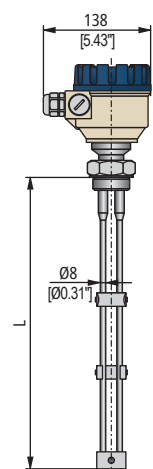
Process seal material (Price on request, factory default: FPM (Viton®))

- EPDM
- FFKM (Kalrez® 6375)

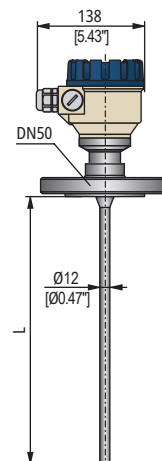
The above process connections and process seals are ordered separately and must be specified in the text part of the order. Optional seals available for all types. Other seals are also available.



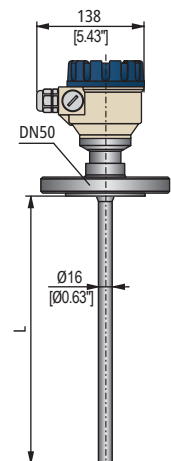
HQR / HOP-700 / 800



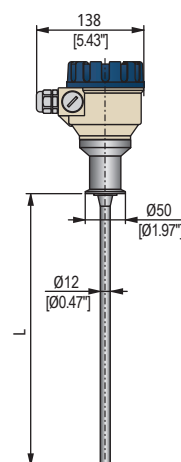
HOD / HOE-700 / 800



HQQ-700 / 800



HQI-700 / 800



HQO-700 / 800

MicroTREK H-700 with Ø14 mm rod or coaxial probe, with interface function**5 years**

2-wire compact guided wave radar level transmitter (GWR) with interface function with stainless steel Ø14 mm rod or coaxial probe

Version / TemperatureH ☐ ☐ - ☐ ☐ - ☐

C	Transmitter / Flange temperature max. +90 °C
E	High-temperature transmitter / Flange temp. max. +200 °C
D	Transmitter with plug-in display / Flange temperature max. +90 °C
F	High-temperature transmitter with plug-in display / Flange temp. max. +200 °C

Probe / Process connectionH ☐ ☐ - ☐ ☐ - ☐

S	*	Mono rod, Ø14 mm, 1.4571/1.4404 / 1½" BSP / max. 6 m
Z	*	Mono rod, Ø14 mm, 1.4571/1.4404 / 1½" NPT / max. 6 m
4		Mono rod, Ø14 mm, 1.4571/1.4404 / 2" TriClamp / max. 6 m
A		Coaxial, 1.4571/1.4404 / 1" BSP / max. 6 m
B		Coaxial, 1.4571/1.4404 / 1" NPT / max. 6 m
C	*	Coaxial, 1.4571/1.4404 / 1½" BSP / max. 6 m
H	*	Coaxial, 1.4571/1.4404 / 1½" NPT / max. 6 m
5		Coaxial, 1.4571/1.4404 / 1½" TriClamp / max. 6 m
6		Coaxial, 1.4571/1.4404 / 2" TriClamp / max. 6 m

* Can be ordered with segmented probe which must be specified in the text of the order. The length of a probe section is 1 m.

HousingH ☐ ☐ - ☐ ☐ - ☐

7	Painted aluminum
8	Fiberglass-reinforced plastic (PBT) (Ex version not available)
9	Stainless steel

Probe length / MaterialH ☐ ☐ - ☐ ☐ ☐ - ☐

nn	1.0...6.0 m (each 0.1 m), for mono rod / 1.4571/1.4404
nn	1.0...6.0 m (each 0.1 m), for coaxial / 1.4571/1.4404
nn	1.0...6.0 m (each 0.1 m), for segmented mono rod / 1.4571/1.4404
nn	1.0...6.0 m (each 0.1 m), for segmented coaxial / 1.4571/1.4404

nn = 10...60 : 1.0...6.0 m

Output / CertificatesH ☐ ☐ - ☐ ☐ ☐ - ☐

4	4...20 mA + HART®
8 **	4...20 mA + HART® / Ex ia G
H	4...20 mA + HART® + SPDT Relay
T **	2x 4...20 mA + HART®
U **	2x 4...20 mA + HART® / Ex ia G

** Under development

Need of IEC Ex is to be specified in the text part of the order

Available on request (see relevant page for details)

S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 -	HART®-USB/Bluetooth® modem
S A K - 3 0 5 -	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

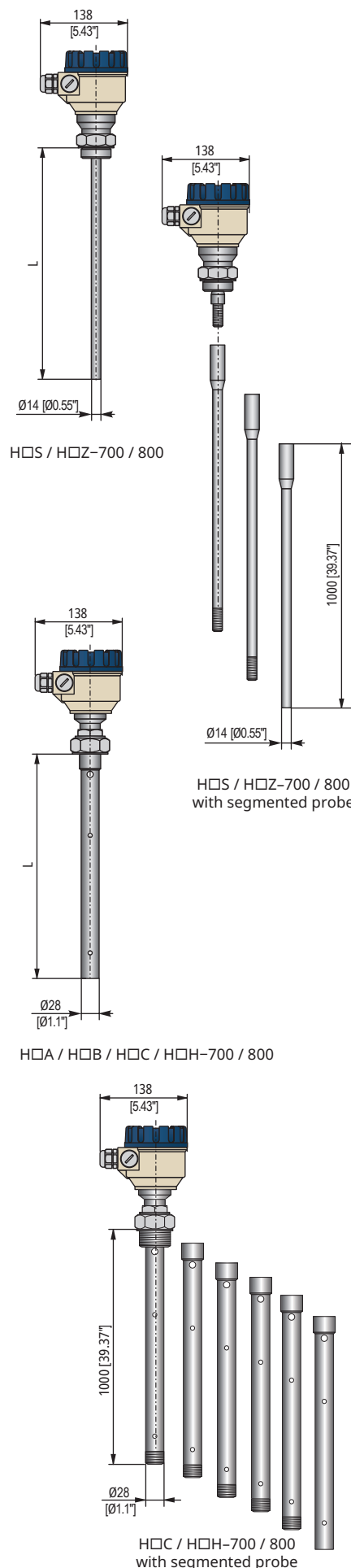
Process connections (price information on request)

- DIN and ANSI flanges
- DN40 Pipe coupling (DIN 11851)

Process seal material (Price on request, factory default: FPM (Viton®))

- EPDM
- FFKM (Kalrez® 6375)

The above process connections and process seals are ordered separately and must be specified in the text part of the order. Optional seals available for all types. Other seals are also available.



The NIVOCAP 2-wire capacitive level transmitter provides an ideal solution for distance, level, and volume measurement of conductive and non-conductive liquids, pastes, powders, and bulk solids with a relative dielectric constant (ϵ_r) greater than 1.5. The device's probe and the reference probe (either the tank's metal wall or a separate probe) operate as the opposing plates of a capacitor. The air between these plates is replaced by a medium with a higher dielectric constant, which changes the capacitance proportionally to the level of the material. The electronic circuitry incorporated into the device measures the capacitance difference and converts it to an output signal.

FEATURES

- Up to 20 m measurement range
- Vertical mounting
- Rod or cable probe versions
- $-30...+200\text{ }^{\circ}\text{C}$ process temperature
- Up to 40 bar process pressure
- 32-point linearization table
- Indirect assignment of 0% and 100%
- IP67
- 4...20 mA + HART® output
- PACTware™ compatible
- Ex version
- 5-year warranty

CERTIFICATES

- ATEX (Ex ia G)

APPLICATIONS

- Distance, level, and volume measurement of liquids, pastes, powders, and bulk solids with a relative dielectric constant (ϵ_r) greater than 1.5
- For conductive and non-conductive materials
- For high pressures and high-temperature mediums
- Chemical Industry
- Food and Beverage Industry
- Power Plants
- Oil & Gas Industry
- Water/Wastewater Industry



SAP-202
display



CHR-200



CAF-110



CFR-100

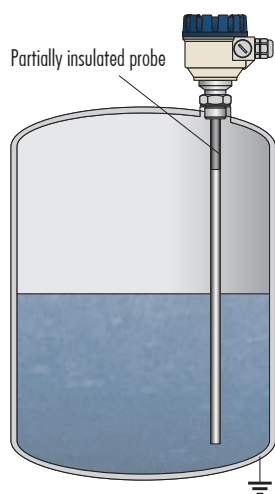


CBC-203-6 Ex

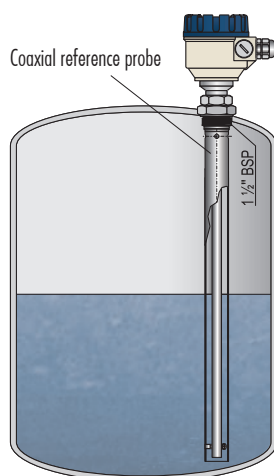


CTK-200

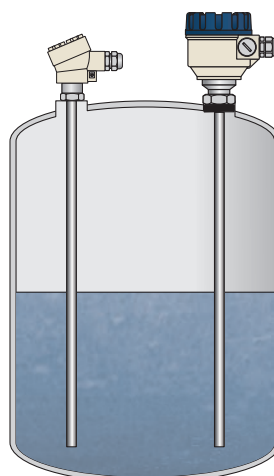
ARRANGEMENTS



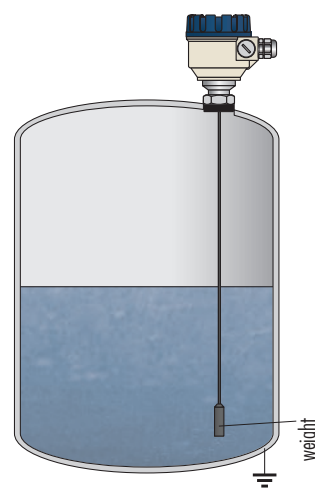
Rod probe
Metal tank and non-conductive medium. The rod probe is partially insulated at the process connection.



Rod probe
With coaxial tube reference probe



Rod probe
With reference rod probe



Cable probe with weight
Metal tank

TECHNICAL DATA

Version		Rod probe	High-temperature rod probe	Cable probe
Measurement range (Ln)		0.2...3 m		1...20 m
Capacitance range		0 pF...5 nF		
Min. transmittable capacity range		Max. (I _{out}) SPAN: 10 pF / 10% FS		
Saturation capacitance of the insulated probe		~600 pF/m		~200 pF/m
Relative dielectric constant		ϵ_r min. 1.5		
Process connection		As per order code		
Material of wetted parts	Threaded part	1.4571/1.4404 stainless steel		
	Probe	Fully or partially PFA-coated 1.4301 stainless steel		Fully / partially FEP-coated steel cable
Housing material		Plastic (PBT), painted aluminum / stainless steel		
Process temperature		-30...+130 °C	-30...+200 °C	-30...+130 °C
Ambient temperature		-25...+70 °C		
Process pressure		Maximum 40 bar		Maximum 16 bar
Supply voltage / consumption		12...36 V DC / maximum 800 mW, transient overvoltage protection		
Output properties	Output signals	Analog: 4...20 mA (3.9...20.5 mA) $R_{max} = (U_s - 1.4 \text{ V}) / 0.02 \text{ A}$ Error indication: 3.8 mA or 22 mA		
		Digital communication: HART®		
		Display module: SAP-202, 6-digit LCD, dimensions, bargraph		
		Current loop test: 10 mV / 1 mA via resistor in series		
	Damping time	0, 3, 6...300 s (selectable)		
	Linearity error	±0.3% FS		
		Temperature error		
Electrical connection		2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection, cable outer diameter: Ø6...12 mm (shielded cable is recommended), wire cross section: 0.5...1.5 mm²		
Electrical protection		Class III		
Ingress protection		Probe: IP68. Housing: IP67		
Weight		~2.5 kg with 0.5 m probe	~3 kg with 0.5 m probe	~2 kg with 3 m probe

Ex INFORMATION

□□□-2□□-□ Ex / □□□-3□□-□ Ex			
Protection		Intrinsic safety	
Ex marking		II 1 G Ex ia IIB T6...T3 Ga	
Intrinsic safety data		$C_i \leq 15 \text{ nF}$, $L_i \leq 200 \text{ µH}$, $U_i \leq 30 \text{ V}$, $I_i \leq 140 \text{ mA}$, $P_i \leq 1.0 \text{ W}$	
Temperature classification	T6...T4 temperature class	$T_{ambient}$: -25...+70 °C; T_{medium} : maximum +80...+120 °C	
	T3 temperature class	$T_{ambient}$: -25...+45 °C; T_{medium} : maximum +190 °C	

SELECTING THE APPROPRIATE PROBE

The device uses the capacitive operating principle; therefore, if the dielectric constant of the measured material changes or it is too low, or the wrong probes are selected for the job, measurement accuracy will suffer.

	Material				Reference probe		
	Conductive	Non-conductive			Rod	Tube	Tank wall
		$\epsilon_r > 2$	$2 > \epsilon_r > 1.5$				
Insulated probe, reference probe	■	■	–	Conductive tank	■	■	■
Partially insulated probe, reference probe	–	■	■	Non-conductive tank	■	■	–

NIVOCAP C-200 with rod probe

5 years

2-wire compact capacitive level transmitter for distance, level and volume measurement of liquids, powders, granules, with $\epsilon_r > 1.5$ relative dielectric constant, with partially or fully plastic-coated stainless steel rod probe

Version / Max. temperature

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐ ☐

T	Transmitter / max. +130 °C
B	Transmitter with plug-in display / max. +130 °C
H	High-temperature transmitter / max. +200 °C
P	High-temperature transmitter with plug-in display / max. +200 °C

Process connection size / Insulation

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐ ☐

M	¾" BSP / Fully PFA-insulated stainless steel
Z	¾" NPT / Fully PFA-insulated stainless steel
R	1" BSP / Fully PFA-insulated stainless steel
P	1" BSP / Partially PFA-insulated stainless steel
A	1" NPT / Fully PFA-insulated stainless steel
C	1" NPT / Partially PFA-insulated stainless steel
S	1½" BSP / Fully PFA-insulated stainless steel
T	1½" BSP / Partially PFA-insulated stainless steel
B	1½" NPT / Fully PFA-insulated stainless steel
D	1½" NPT / Partially PFA-insulated stainless steel
1	* 1" TriClamp / Fully PFA-insulated steel
2	* 1½" TriClamp / Fully PFA-insulated steel
3	* 2" TriClamp / Fully PFA-insulated steel

Housing

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐ ☐

2	Painted aluminum
3	Fiberglass-reinforced plastic (PBT)
4	* Stainless steel

* Ex version under approval

Probe length

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐ ☐

Fully PFA-insulated

0 2	0.2 m
n n	0.3...3 m; sold by the 100 mm

Partially PFA insulated

0 2	0.2 m
n n	0.3...3 m; sold by the 100 mm

nn = 03...30 : 0.3...3 m

Output / Certificates

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐ ☐

2	4...20 mA
4	4...20 mA + HART®
6	4...20 mA / Ex ia G
8	4...20 mA + HART® / Ex ia G

Available on request: special process connections (should be given in the text of the order)

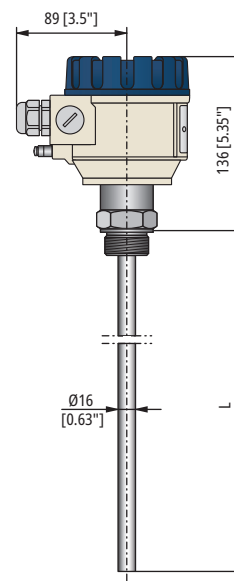
X12	DN40 Pipe coupling (DIN 11851)
X12	DN50 Pipe coupling (DIN 11851)

Accessories sold separately; see relevant page for details

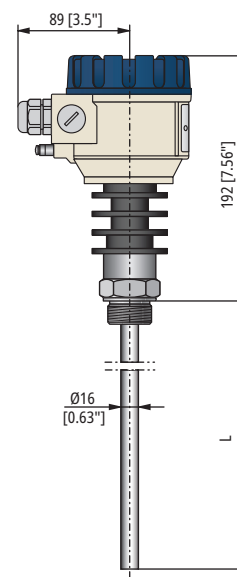
S A P - 2 0 2 - 0	Plug-in display module
S A T - 5 0 4 - ☐	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ☐	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

Adapters

E A A - 1 8 6 - 0	1" BSP / ¾" NPT (1.4571/1.4404)
E A A - 1 8 D - 0	1" BSP / 2" BSP (1.4571/1.4404)



CTR-200 / 300



CHR-200 / 300

NIVOCAP C coaxial reference probe

5 years

For use with NIVOCAP rod probe capacitive level transmitters

Internal process connection for NIVOCAP: 1" BSP, process connection: 1½" BSP/NPT

Connection type

C ☐ F - 1 ☐ ☐ - 0

A BSP

D NPT

Probe length

C ☐ F - 1 ☐ ☐ - 0

0 2 0.2 m

n n 0.3...3 m; sold by the 0.1 m

nn = 03...30 : 0.3...3 m

NIVOCAP C reference rod probe

5 years

Reference rod probes for NIVOCAP rod probe type capacitance level transmitters

Process connection 1" BSP/NPT

Connection type

C ☐ ☐ - 1 ☐ ☐ - 0

F BSP thread

E NPT thread

Connection size / Insulation

C ☐ ☐ - 1 ☐ ☐ - 0

R 1" / Fully PFA-insulated stainless steel

P 1" / Partially-PFA insulated stainless steel

Probe length

C ☐ ☐ - 1 ☐ ☐ - 0

Fully PFA-insulated

0 2 0.2 m

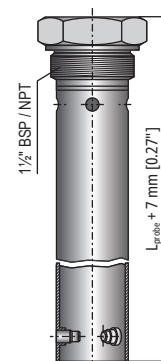
n n 0.3...3 m; sold by the 100 mm

Partially PFA-insulated

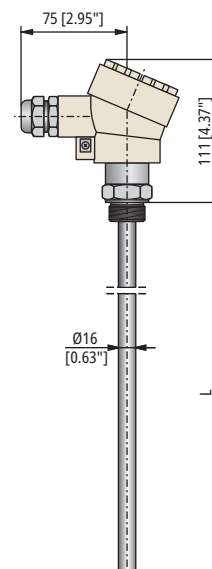
0 2 0.2 m

n n 0.3...3 m; sold by the 100 mm

nn = 03...30 : 0.3...3 m



CAF-100



CFR-100

NIVOCAP C-200 with cable probe

5 years

2-wire compact capacitive level transmitter for distance, level and volume measurement of liquids, powders, granules, with $\epsilon_r > 1.5$ relative dielectric constant, with partially of fully plastic-coated stainless steel cable probe

Version / Max. temperature

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

T	Transmitter / max. +130 °C
B	Transmitter with plug-in display / max. +130 °C

Process connection / Cable type

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

K	1" BSP / Fully FEP-insulated stainless steel
V	1½" BSP / Fully FEP-insulated stainless steel
E	1" NPT / Fully FEP-insulated stainless steel
F	1½" NPT / Fully FEP-insulated stainless steel
4	* 1" TriClamp / Fully FEP-insulated stainless steel
5	* 1½" TriClamp / Fully FEP-insulated stainless steel
6	* 2" TriClamp / Fully FEP-insulated stainless steel

Housing

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

2	Painted aluminum
3	Fiberglass-reinforced plastic (PBT)
4	* Stainless steel

* Ex version under approval

Probe length

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

Fully FEP-insulated	
0 1	1 m
n n	2...20 m; sold by the meter

nn = 02...20 : 2...20 m

Output / Certificates

C ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

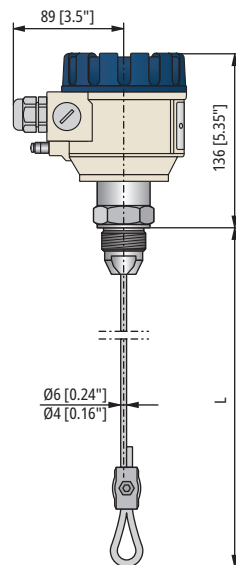
2	4...20 mA
4	4...20 mA + HART®
6	4...20 mA / Ex ia G
8	4...20 mA + HART® / Ex ia G

Accessories sold separately; see relevant page for details

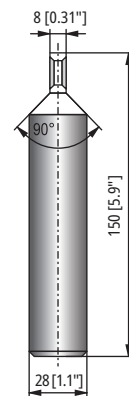
CTK-103-0M-400-01	Stainless steel counterweight Ø28 x 150 mm
S A P - 2 0 2 - 0	Plug-in display module
S A T - 5 0 4 -	HART®-USB/Bluetooth® modem
S A K - 3 0 5 -	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

Adapters

E A A - 1 8 6 - 0	1" BSP / ¾" NPT (1.4571/1.4404)
E A A - 1 8 D - 0	1" BSP / 2" BSP (1.4571/1.4404)



CTK-200 / 300



CTK-103-0M-400-01

NIVOPRESS N submersible hydrostatic level transmitters are designed to measure the level of clean and contaminated liquids. The pressure sensor at the end of the probe measures the sum of the hydrostatic pressure (P_{hyd}) of the liquid column above and the atmospheric pressure (P_{atm}). Atmospheric pressure is channeled to the sensor through a breathing capillary equipped with a moisture filter that prevents moisture from damaging the electronics. The atmospheric pressure is subtracted from the overall measured pressure to get the hydrostatic pressure, which is proportional to the height of the liquid column (h), then the sensor's signal is converted into an output signal. If both the level and the temperature of the liquid needs to be measured, a combined (*level & temperature*) transmitters are available. There is a wide variety of accessories for the transmitters.

The new **NBB-400** detachable head unit versions are particularly ideal for marine applications such as ships and floating docks. The separated head design allows for quick sensor replacement without the need for complex wiring disassembly, minimizing downtime and technical maintenance.

A sewage adapter operating on the diving bell principle can be snapped into the protective cap's place to avoid direct contact between the sensor and the measured contaminated liquid. A mechanical filter is built into **NZ** type transmitters as a measure of extra protection. **N-500** devices can be used in hazardous environments. **NZ** screw-in type transmitters are recommended for applications where there is a risk of flooding. **NB/NG** plastic housing types, are designed for those applications where aggressive mediums (e.g., *saline solutions or seawater*) may corrode stainless steel.

FEATURES

- Measurement range up to 350 m
- Remotely programmable
- IP68
- Submersible or screw-in versions
- Ø22 / Ø24 mm tube
- HART® communication
- PACTware™ compatible
- 2 or 3-wire versions
- Ex versions
- 2× 4...20 mA output (*level + temperature*)
- Built-in Pt100 temperature sensor
- Overvoltage and inverse polarity protection
- Wide range of accessories
- Detachable variants
- Approved for potable water
- Available with capacitance ceramic, piezoresistive stainless steel or ceramic sensor
- 5-year warranty

APPLICATIONS

- Level and temperature measurement of potable water wells, tanks, pools
- Submersible pump control
- Screw-in submersible version with IP68 protection for applications with risk of flooding
- Clean or slightly polluted, contaminated liquids
- Sewage
- Draw-down protection
- Sewage lift station control
- Saline solutions, seawater

CERTIFICATES

- ATEX (Ex ia G)
- UKCA Ex (Ex ia G)
- Bureau Veritas (BV) (*pending*)



TECHNICAL DATA

		2-wire					3-wire
		NBB + NAB / NAG	NBK, NBP, NGK, NGP	NK□, NN□, ND□, NH□	NC□, NT□	NP□, NF□, NZ□, NR□	NPH, NFH, NZH, NRH
Sensor	Principle	Piezoresistive			Capacitive	Piezoresistive	
	Material	Ceramic				Stainless steel	
Housing		Plastic		Stainless steel			
Measurement range ⁽¹⁾		0...200 mH ₂ O			0...20 mH ₂ O	0...350 mH ₂ O	0...200 mH ₂ O
		As per order code; current output can be customized within 2...130% pressure range; remotely programmable					
Overload allowed (versus range)		3× (≤ 20 mH ₂ O) 2× (> 20 mH ₂ O)			20× (≤ 3 mH ₂ O) 10× (> 3 mH ₂ O)	3x	
Output		4...20 mA + HART®			4...20 mA	4...20 mA + HART®	0...10 V (0 V ≤ 100 mV) measured to the negative supply voltage
Supply voltage		12...30 V DC, nominal voltage: 24 V DC					18...30 V DC / 6 mA
Linearity error (level)		±0.45% (≤20 mH ₂ O); ±0.25% (>20 mH ₂ O)			±0.25% (≤200 mH ₂ O); ±0.5% (>200 mH ₂ O)		
Temperature error		≤ ±0.1% / 10 K					≤ ±0.2% / 10 K
Process temperature		Normal: −30...+60 °C; extended temperature range: −40...+80 °C, only with FEP cable					
Process connection		NAA-209 cable mounting wedge clamp, threaded types with ¾" BSP thread					
Ingress protection		IP68					
Electrical protection		Class III					
Electrical connection		Shielded cable with breathing capillary Ø7 mm					
Wire cross-section		Ø7 mm; wire cross-section: 0.34 mm ²					
Cable length ⁽²⁾		0...450 m	0...300 m			0...450 m	0...110 m
Dimensions		Ø34 × 205 mm	Ø24 × 212 mm	NK, NN: Ø22 × 173 mm ND, NH: Ø38 × 174 mm	Ø40 × 146 mm	NP, NF: Ø22 × 173 mm NZ, NR: Ø38 × 174 mm	
Weight		Probe: 205 g Connector head: 65 g	Probe: 200 g	NK, NN: probe: 200 g ND, NH: probe: 300 g	Probe: 400 g	NP, NF: probe: 200 g NZ, NR: probe: 300 g	
Temperature measurement		–	NPD, NFD, NZD, NRD types: additional 2-wire transmitter; Output: 4...20 mA; supply voltage: 12...30 V DC; Operating range: 0...+60 °C; accuracy: ±3 °C				–
			N□P types: Pt100 sensor, 4-wire output; Resistance of the colorless insulated wires: 57 mΩ/m ±10%.				
		For HART® types: can be queried as a secondary value, accuracy: ±3 °C					
Material of wetted parts	Sensor	Al ₂ O ₃ ceramic				1.4404, 1.4571 / 1.4435	
	Housing	POM-C		1.4571/1.4404			
	Cable coating	Polyurethane (PUR) / FEP					
	Seals	Viton® (FKM)					
	Protective cap	POM-C		1.4571/1.4404		–	1.4571/1.4404

⁽¹⁾ mH₂O means: 1 meter of water column, 1 mH₂O ~0.1 bar⁽²⁾ As order code.

Ex INFORMATION

Type	N□□-5□□-□ ⁽¹⁾ Ex	
Variant	Standard	Detachable
Supply voltage	12...30 V DC	
Ex marking	up to 100 m cable length: II 1G Ex ia IIC T6 Ga; 100...300 m cable length: II 1G Ex ia IIB T6 Ga	NBB-5□□0-0 Ex: II 1G Ex ia IIC T6 Ga
Reference document	npk411hu22h08-b	
Operation temperature	-30...+60 °C	
Intrinsically safe data	$U_i = 30 \text{ V}$; $I_i = 100 \text{ mA}$; $P_i = 0,8 \text{ W}$ for IIC gas group: $C_i \leq 52 \text{ nF}$; $L_i \leq 1,4 \text{ mH}$ (calculated with 100 m integrated cable), for IIB gas group: $C_i \leq 132 \text{ nF}$; $L_i \leq 1,6 \text{ mH}$ (calculated with 300 m integrated cable)	
		NBB-5□□0-0 Ex: $C_i < 12 \text{ nF} + 0,4 \text{ nF/m cable}$, $L_i < 1,3 \text{ mH} + 0,9 \mu\text{H/m cable}$ (only to be used with NAB/NAG-40□-□ cable set)

⁽¹⁾ Except: NCH / NTH / NBH / NGH / NCD / NTD / NBD / NGD.

TECHNICAL PROPERTIES OF ACCESSORIES

NAA-101 – Cable terminal box	
Dimensions	93 × 93 × 55 mm
Ingress protection	IP65
Process temperature range	-40...+70 °C
Material	Polycarbonate
Cable gland	M20×1.5 (cable outer diameter: Ø5...Ø10 mm)
Electrical connection	Terminal block (for max. 2.5 mm ² wire cross section)
NAA-102 – Cable terminal box with overvoltage protection	
Data	See NAA-101
Electrical Properties	See OVP

NAA-101 / NAA-102
cable terminal box

NAA-209 – Cable mounting wedge clamp		
Max. mechanical load	300 m cable	
Material	Polyamide, stainless steel wedge clamp	
Process temperature range	-20... + 60 °C	
Overvoltage protection		
	OVP-22 / -33 ⁽²⁾	OVP-32 / -33 ⁽²⁾
Version	Field use	Rail-mountable (EN 60715)
Dimensions	72 × 42 × 19 mm	62 × 65 × 18 mm
Ingress protection	IP54	IP20
Breakdown voltage	33 V	
Absorbed energy	600 W / 1 ms	
Serial resistance	13 Ω	
Leakage current	≤ 10 µA	

⁽²⁾ Applicable only for one 2-wire 4...20 mA (HART®) device!NAA-209 cable
mounting unitNAA-105
cable-holding sliding sleeveOVP-32 / 33
Overvoltage Protection UnitOVP-22 / 33
Overvoltage Protection Unit

NIVOPRESS N-200 with capacitive ceramic sensor

5 years

2-wire submersible hydrostatic level transmitter for liquids
with capacitive ceramic sensor; humidity filter: fixed to breathing cable

Type / Cable material

N ■ ■ - 2 ■ ■ - ■

C Capacitive ceramic sensor / PUR

T Capacitive ceramic sensor / FEP

Output

N ■ ■ - 2 ■ ■ - ■

K 2-wire, 4...20 mA output

P Level: 4...20 mA + Temperature: Pt100 sensor

Version

N ■ ■ - ■ ■ ■ - ■

2 Standard

Range

N ■ ■ - 2 ■ ■ - ■

1 0...1 mH₂O (0...100 mbar)2 0...2 mH₂O (0...200 mbar)3 0...5 mH₂O (0...500 mbar)4 0...10 mH₂O (0...1000 mbar)5 0...20 mH₂O (0...2000 mbar)

Breathing cable length

N ■ ■ - 2 ■ ■ - ■

PUR cable

n n 1...99 m; sold by the meter

o o 100...190 m; sold by the meter

p p 200...290 m; sold by the meter

r r 300...390 m; sold by the meter

s s 400...450 m; sold by the meter

FEP cable

n n 1...99 m; each started 1 m

o o 100...190 m; each started 1 m

p p 200...290 m; each started 1 m

r r 300...390 m; sold by the meter

s s 400...450 m; sold by the meter

nn = 01...99 : 1...99 m

oo = A0...A9 : 100...190 m

pp = B0...B9 : 200...290 m

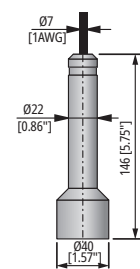
rr = C0...C9 : 300...390 m

ss = D0...D5 : 400...450 m

Available on request (must be specified in the text of the order)

High-temperature (up to +80 °C) version

Custom 4...20 mA output calibration



NC□ / NT□-200

NIVOPRESS N-400 stainless steel sensor

5 years

2 or 3-wire submersible hydrostatic level transmitter for liquids with stainless steel piezoresistive sensor; humidity filter: fixed to breathing cable

Sensor / Cable material

N ■ ■ - ■ ■ ■ - ■ ■

P	Piezoresistive stainless steel sensor / PUR
F	Piezoresistive stainless steel sensor / FEP
Z	Piezoresistive stainless steel sensor, 3/4" BSP process connection / PUR
R	Piezoresistive stainless steel sensor, 3/4" BSP process connection / FEP

Output

N ■ ■ - ■ ■ ■ - ■ ■

K	2-wire, 4...20 mA + HART
H	* 3-wire, 0...10 V DC output (up to 200 mH ₂ O)
D	* Level: 4...20 mA + HART + Temperature: 4...20 mA (electronic temp. sensor)
P	Level: 4...20 mA + HART + Temperature: Pt100 sensor

* Ex version not available

Version

N ■ ■ - ■ ■ ■ - ■ ■

4	Standard
5	Ex ia G

Range

N ■ ■ - ■ ■ ■ - ■ ■

1	0...1 mH ₂ O (0...100 mbar)
2	0...2 mH ₂ O (0...200 mbar)
3	0...5 mH ₂ O (0...500 mbar)
4	0...10 mH ₂ O (0...1000 mbar)
5	0...20 mH ₂ O (0...2000 mbar)
6	0...50 mH ₂ O (0...5000 mbar)
7	0...100 mH ₂ O (0...10000 mbar)
8	0...200 mH ₂ O (0...20000 mbar)
9	0...350 mH ₂ O (0...35000 mbar)

Breathing cable length

N ■ ■ - ■ ■ ■ - ■ ■

PUR cable

n	n	1...99 m; sold by the meter
o	o	100...190 m; sold by the meter
p	p	200...290 m; sold by the meter
r	r	300...390 m; sold by the meter
s	s	400...450 m; sold by the meter

FEP cable

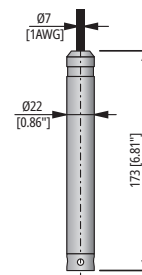
n	n	1...99 m; sold by the meter
o	o	100...190 m; sold by the meter
p	p	200...290 m; sold by the meter
r	r	300...390 m; sold by the meter
s	s	400...450 m; sold by the meter

nn = 01...99 : 1...99 m
oo = A0...A9 : 100...190 m
pp = B0...B9 : 200...290 m
rr = C0...C9 : 300...390 m
ss = D0...D5 : 400...450 m

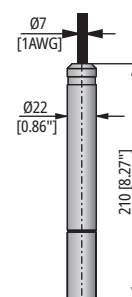
Available on request (must be specified in the text of the order)

High temperature (up to +80 °C) version (Ex version not available)

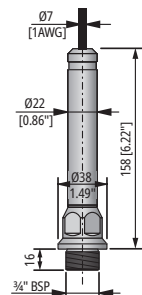
Custom 4...20 mA output calibration



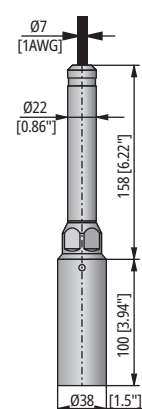
NPK / NFQ-400 / 500



NPK / NFQ-400 / 500
+ NAW-104



NZQ / NRQ-400 / 500



NZQ / NRQ-400 / 500
+ NAZ-103

NIV24

NPK-430-5	NPK-442-0
NPK-431-0	NZK-441-0
NPK-441-0	
NPK-441-5	

NIVOPRESS N-400 piezoresistive ceramic sensor

5 years

2-wire submersible hydrostatic level transmitter for liquids with piezoresistive ceramic sensor; humidity filter: fixed to breathing cable

Sensor / Cable material / Housing material

N ■ ■ ■ - ■ ■ ■ - ■ ■

K	Piezoresistive ceramic sensor / PUR / 1.4571/1.4404
N	Piezoresistive ceramic sensor / FEP / 1.4571/1.4404
B	Piezoresistive ceramic sensor / PUR / POM
G	Piezoresistive ceramic sensor / FEP / POM
D	Piezoresistive ceramic sensor, 3/4" BSP process connection / PUR / 1.4571/1.4404
H	Piezoresistive ceramic sensor, 3/4" BSP process connection / FEP / 1.4571/1.4404

Output

N ■ ■ ■ - ■ ■ ■ - ■ ■

K	2-wire, 4...20 mA + HART
D	* Level: 4...20 mA + HART + Temperature: 4...20 mA (electronic temp. sensor)
P	Level: 4...20 mA + HART + Temperature: Pt100 sensor

* Ex version not available

Version

N ■ ■ ■ - ■ ■ ■ - ■ ■

4	Standard
5	Ex ia G

Range

N ■ ■ ■ - ■ ■ ■ - ■ ■

1	0...1 mH ₂ O (0...100 mbar)
2	0...2 mH ₂ O (0...200 mbar)
3	0...5 mH ₂ O (0...500 mbar)
4	0...10 mH ₂ O (0...1 000 mbar)
5	0...20 mH ₂ O (0...2 000 mbar)
6	0...50 mH ₂ O (0...5000 mbar)
7	0...100 mH ₂ O (0...10000 mbar)
8	0...200 mH ₂ O (0...20000 mbar)

Breathing cable length

N ■ ■ ■ - ■ ■ ■ - ■ ■

PUR cable

n	n	1...99 m; each started 1 m
o	o	100...190 m; sold by the meter
p	p	200...290 m; sold by the meter
c	o	300 m; sold by the meter

FEP cable

n	n	1...99 m; sold by the meter
o	o	100...190 m; sold by the meter
p	p	200...290 m; sold by the meter
c	o	300 m; sold by the meter

nn = 01...99 : 1...99 m

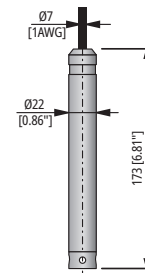
oo = A0...A9 : 100...190 m

pp = B0...B9 : 200...290 m

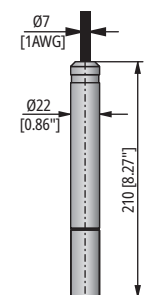
Available on request (must be specified in the text of the order)

High temperature (up to +80 °C) version (Ex version not available)

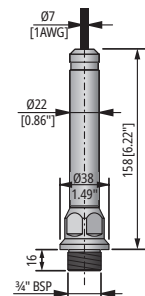
Custom 4...20 mA output calibration



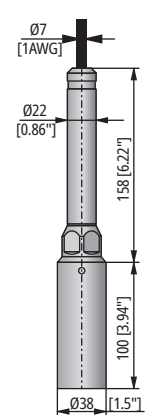
NK / NN-400



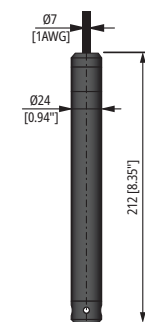
NK / NN-400
+ NAW-104



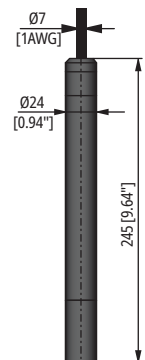
ND / NH-400



ND / NH-400
+ NAZ-103



NB / NG-400



NB / NG-400
+ NAW-107

NIVOPRESS N-400 separated head unit

5 years

2-wire submersible hydrostatic level transmitter for liquids with piezoresistive ceramic sensor; separated head unit

Sensor / Housing material

N ☐ B - ☐ ☐ 0 - 0

B Piezoresistive ceramic sensor / POM

Output / Version

N B ☐ - ☐ ☐ 0 - 0

B 2-wire, 4...20 mA + HART

Version

N B B - ☐ ☐ 0 - 0

4 Standard

5 Ex ia G

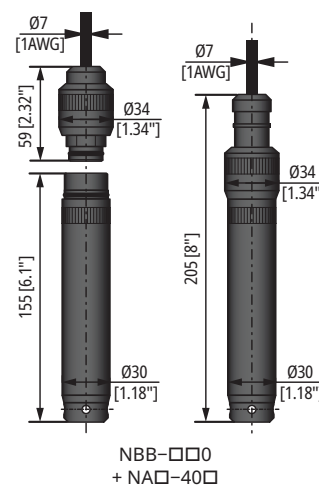
Range

N B B - ☐ ☐ 0 - 01 0...1 mH₂O (0...100 mbar)2 0...2 mH₂O (0...200 mbar)3 0...5 mH₂O (0...500 mbar)4 0...10 mH₂O (0...1 000 mbar)5 0...20 mH₂O (0...2 000 mbar)6 0...50 mH₂O (0...5000 mbar)7 0...100 mH₂O (0...10000 mbar)8 0...200 mH₂O (0...20000 mbar)

Available on request (must be specified in the text of the order)

High temperature (up to +75 °C) version (Ex version not available)

Custom 4...20 mA output calibration



NBB-□□0
+ NA□-40□

NIVOPRESS N-400 Detachable cable set

5 years

Detachable cable set for 2-wire submersible hydrostatic level transmitter with connector; with humidity filter: fixed to breathing cable

Cable material

N A ☐ - 4 0 ☐ - ☐

B PUR

G FEP

Cable length

N A ☐ - 4 0 ☐ - ☐

PUR cable

n n 1...99 m; sold by the meter

o o 100...190 m; sold by the meter

p p 200...290 m; sold by the meter

r r 300...390 m; sold by the meter

s s 400...450 m; sold by the meter

FEP cable

n n 1...99 m; sold by the meter

o o 100...190 m; sold by the meter

p p 200...290 m; sold by the meter

r r 300...390 m; sold by the meter

s s 400...450 m; sold by the meter

nn = 01...99 : 1...99 m

oo = A0...A9 : 100...190 m

pp = B0...B9 : 200...290 m

rr = C0...C9 : 300...390 m

ss = D0...D5 : 400...450 m

NIVOPRESS N accessories (sold separately)

5 years

Terminal boxes and cable mounting units

N A A - 1 0 □ - 0

- | | |
|---|---|
| 1 | Terminal box with filter without OVP |
| 2 | Terminal box with filter with OVP-12/33 (only for N_K versions) |
| 5 | Sliding sleeve 1½" BSP |
| 6 | Sliding sleeve 1½" NPT |

N A A - 2 0 9 - 0 Cable mounting wedge clamp

Overvoltage protection units

O V P - □ 2 S - L

- | | |
|---|------------------------------------|
| 2 | OVP-22/33, outdoor, IP54 |
| 3 | OVP-32/33, IP20, DIN rail mounting |

Sewage adapters

N A W - 1 0 □ - 0

- | | |
|---|--|
| 4 | Can be mounted in the place of the protective cap / 1.4571/1.4404 |
| 7 | Can be mounted in the place of the protective cap / POM |
| 8 | Can be mounted in the place of the protective cap / POM (for NBB type) |

N A Z - 1 0 3 - 0 Sewage adapter (for ¾" threaded process connection) / 1.4571/1.4404

Detachable sensor accessories

N A S - 1 0 □ - 0

- | | |
|---|--------------------------------|
| 0 | Separating ring |
| 1 | Protective cap for sensor head |
| 2 | Protective cap for cable set |

Adapters

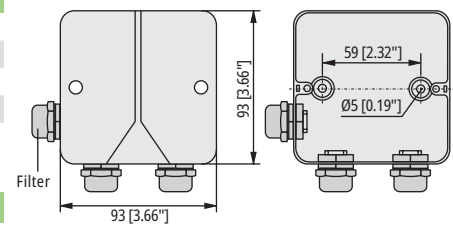
- | | |
|-------------------|----------------------------------|
| E A A - 1 5 3 - 0 | ¾" BSP / ½" BSP (1.4571/1.4404) |
| E A A - 1 5 7 - 0 | ¾" BSP / M20x1.5 (1.4571/1.4404) |
| E A A - 1 5 8 - 0 | ¾" BSP / 1" BSP (1.4571/1.4404) |
| E A A - 1 5 9 - 0 | ¾" BSP / 1" NPT (1.4571/1.4404) |

Accessories (sold separately; see relevant page for details)

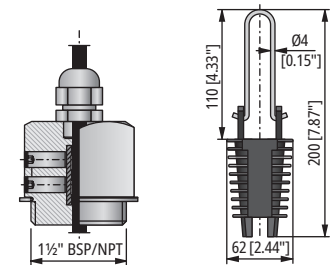
N A A - 1 0 2 - 0 M - 1 0 0 - 0 0 Breathing cable gland

S A T - 5 0 4 - ■ HART®-USB/Bluetooth® modem

S A K - 3 0 5 - ■ HART®-USB/RS485 modem

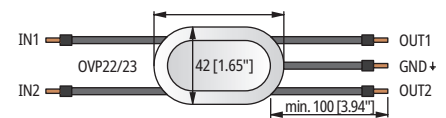


NAA-101 / 102

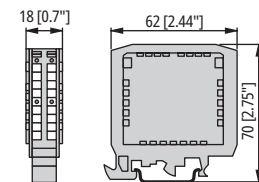


NAA-105/106

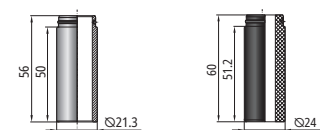
NAA-209



OVP-22 / 33

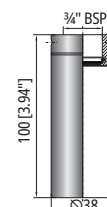


OVP-32 / 33



NAW-104

NAW-107



NAZ-103

NIV24

NAA-209-0

OVP-22 / 33

OVP-32 / 33

NAA-101-0

NIVOTRACK MI□-, MX□-, MY□-5□□ magnetostrictive level transmitters are an ideal solution for high-accuracy measurement of clean fluids. Integrating the transmitter into a process control system is easy due to the intelligent signal processing and communication software and the wide range of accessories.

OPERATING PRINCIPLE

The float, containing a magnetic disc, moves along the stem with a magnetostrictive wire in it. A pulse generated by the electronics travels along the magnetostrictive wire. When the pulse reaches the float's magnetic field, torsion develops. Reflected from the torsion point, the pulse creates an acoustic wave, which travels back along the wire. The transmitter's 4...20 mA output is proportional to the time between the excitation and detection.

FEATURES

- 2-wire integrated transmitter
- 1 mm resolution
- Distance and level measurement
- Standard and mini versions
- Stainless steel or Titanium floats
- IP65
- HART® communication
- Level monitoring of tanks
- Interface measurement
- 5-year warranty

APPLICATIONS

- Level measurement of liquids, with min. 0.4 kg/dm³ density
- Chemical industry
- Power plants
- Oil industry
- Water industry
- Chemicals, solvents, hydrocarbons



MIA-513

TECHNICAL DATA

		Rigid probe version		
		Standard (MI□)	Mini (MY□)	Plastic-coated (MX□)
Measured process value		Liquid level, distance		
Nominal length (L)		0.3...3.5 m	0.3...1.5 m	0.3...3 m
Material of the tube		1.4571/1.4404 (316Ti) stainless steel		PFA-coated stainless steel 1.4571/1.4404 (316Ti)
Highest process pressure ⁽¹⁾		25 bar	16 bar	3 bar
Process temperature ⁽¹⁾		-40...+90 °C		
Standard float diameter / material ⁽¹⁾		Ø54 × 60 mm cylindrical / 1.4404	Ø28 × 29 mm / 1.4404	Ø76 × 87 mm cylindrical / PVDF or PP
Medium density		See "Floats"		
Material of wetted parts		Titanium, Stainless Steel	Stainless Steel	PFA, PVDF, PP
Ambient temperature		-40...+70 °C		
Output	Analog	4...20 mA (limit values: 3.9...20.5 mA)		
	Digital communication	HART® (lowest loop resistance: 250 Ω)		
Error indication		Output signal = 22 mA / 3.8 mA		
Output load		$R_L = (U_S - 12.5 \text{ V}) / 0.02 \text{ A}$, U_S = supply voltage		
Supply voltage		12.5...36 V DC		
Electrical protection		Class III		
Ingress protection		IP65		
Process connection		As per order code		
Electric connection (MI□-5□□-M types)		Hirschmann EN 175 301-803-A (DIN 43650)		
Weight		2.9 kg + measuring probe (0.6 kg/m)	2.9 kg + measuring probe (0.3 kg/m)	2.9 kg + measuring probe (0.7 kg/m)

⁽¹⁾ Properties of non-standard floats can be found in "Floats."

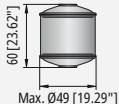
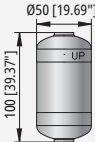
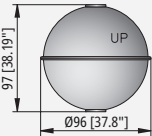
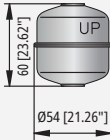
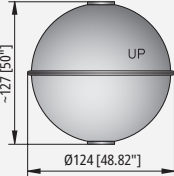
MEASUREMENT DATA

M□□-5□□-□	
Resolution (on HART® transmitted value)	1 mm
Nonlinearity (on HART® transmitted value) ⁽¹⁾	±2 mm or ±0.085% F.S. whichever is greater
Hysteresis (under reference conditions)	±0.25 mm
Zero span (in LEVEL mode)	Anywhere within the active range
Measurement range (reducing) ⁽²⁾	Minimal distance: 32 mm; Maximum distance: see "Dimensions"
Temperature error	0.04 mm / 10 °C (-25...+50 °C)
Current output resolution	0.4 µA
Current output accuracy	33 µA
Current output temperature error	6 ppm / °C

⁽¹⁾ Under reference conditions, accuracy data only valid in case of factory setting. When used with a bypass float, the values given are not valid. With factory-calibrated float for NIVOFLIP, accuracy is 4...5 mm.

⁽²⁾ Accuracy data is only valid with factory default settings!

FLOATS

		MBA-505-2X-0C7-10	MBA-505-2M-600-00 ⁽³⁾	MBK-530-2M-400-00 ⁽⁴⁾	MBA-505-2M-800-00 ⁽³⁾	MBA-505-2M-200-00 ⁽³⁾	MBA-505-2M-900-00 ⁽⁴⁾
Type	MI□						
Dimensions							
Medium density (min.)	0.61 kg/dm ³	0.45 kg/dm ³	0.55 kg/dm ³	0.55 kg/dm ³	0.8 kg/dm ³	0.4 kg/dm ³	
Material	Titanium		Austenitic stainless steel ⁽⁵⁾	Titanium	Austenitic stainless steel ⁽⁵⁾		
Process pressure	16 bar			25 bar			

⁽³⁾ Designed for min. 2" process connection, order only with rigid probe.

⁽⁴⁾ Flange is ordered separately.

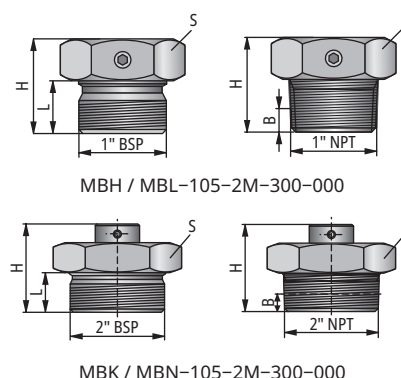
⁽⁵⁾ 1.4401, 1.4404, 1.4435, 1.4571, etc.

Type	MGU-505-2M-200-00	MGU-506-1M-200-00	4w34bs16yyyyy ⁽⁶⁾
Dimensions			
Medium density (min.)	0.7 kg/dm ³	0.4 kg/dm ³	0.8 kg/dm ³
Material	PVDF	PP	Austenitic stainless steel ⁽⁵⁾
Process pressure	3 bar		10 bar

⁽⁶⁾ Designed for min. 1" process connection, order only with mini version.

ACCESSORIES

Threaded sliding sleeve					
Type	Process connection	S (mm)	H (mm)	L (mm)	B (mm)
MBH-105-2M-300-00	1" BSP	41	36	20	-
MBK-105-2M-300-00	2" BSP	60	55	24	-
MBL-105-2M-300-00	1" NPT	41	37	-	~10
MBN-105-2M-300-00	2" NPT	60	44,5	-	~11



NIVOTRACK M-500 Integrated with rigid probe

5 years

2-wire integrated magnetostrictive level transmitter for liquids with Ø54 mm stainless steel float and rod probe, 1 mm resolution

Version

M ☐ ☐ - 5 ☐ ☐ - ☐

I Transmitter

Process connection

M I ☐ ☐ - 5 ☐ ☐ - ☐

A 1" BSP

B 1" BSP, lower connection

C 2" BSP

F 2" BSP, lower connection

D 1" NPT

E 1" NPT, lower connection

G 2" NPT

H 2" NPT, lower connection

O 2½" TriClamp

S 2½" TriClamp, lower connection

P 3" TriClamp

R 4" TriClamp

U * Without process connection, threaded sliding sleeve to be ordered separately.

L ** Without float, for NIVOFLIP (max. 3.5 m, max. +90 °C)

* For bypass level indicators other than NIVOFLIP, only if calibrated with the bypass' own float.

** Probe length = center to center of NIVOFLIP +300 mm

Housing

M I ☐ ☐ - ☐ ☐ ☐ - ☐

5 Stainless steel

Probe length***

M I ☐ ☐ - 5 ☐ ☐ ☐ - ☐

n n 0.3...1 m

o o 1.1...3 m; sold by the 0.1 m

nn = 03...10 : 0.3...1 m

oo = 11...30 : 1.1...3 m, *** 3...3.5 m as per special offer

Output / Resolution / Certificates / Electric connection

M I ☐ ☐ - 5 ☐ ☐ ☐ - ☐

L **** 4...20 mA + HART® / 1 mm / Ex ia G / cable

M 4...20 mA + HART® / 1 mm / DIN connector

**** Under development

Need of IEC Ex is to be specified in the text part of the order.

Available on request (must be specified in the text of the order)

MBK-530-2M-400-00 Ø96 mm stainless steel ball float (for min. 0.55 kg/dm³ liquids)

MBA-505-2M-900-00 Ø124 mm stainless steel ball float (for min. 0.4 kg/dm³ liquids)

MBA-505-2M-800-00 Ø54 mm titanium float (for min. 0.55 kg/dm³ liquids)

MBA-505-2X-0C7-10 Ø49x60 mm titanium float (min. 0.61 kg/dm³)

MBA-505-2M-600-00 Ø50x100 mm titanium float (min. 0.45 kg/dm³)

Accessories sold separately; see relevant page for details

MBH-105-2M-300-00 Sliding sleeve, 1.4571/1.4404, 1" BSP

MBK-105-2M-300-00 Sliding sleeve, 1.4571/1.4404, 2" BSP

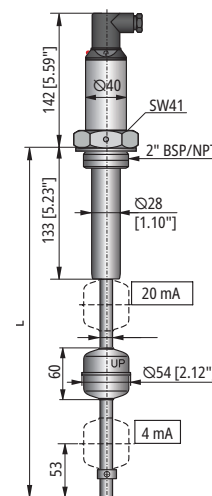
MBL-105-2M-300-00 Sliding sleeve, 1.4571/1.4404, 1" NPT

MBN-105-2M-300-00 Sliding sleeve, 1.4571/1.4404, 2" NPT

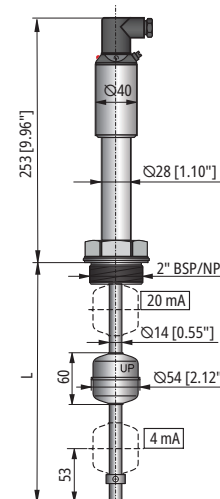
S A T - 5 0 4 - ☐ HART®-USB/Bluetooth® modem

S A K - 3 0 5 - ☐ HART®-USB/RS485 modem

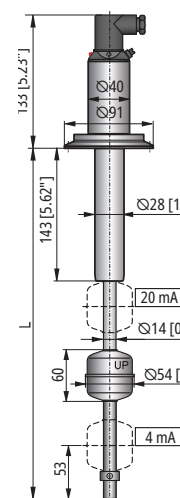
P ☐ F - ☐ 1 ☐ - ☐ Smart Field Display and Data Logger

P ☐ F - ☐ 0 1 - ☐ Loop Display


MIC / MIG-500-M



MIF / MIH-500-M



MIP-500-M

NIVOTRACK M-500 Integrated mini version with rigid probe

5 years

2-wire integrated magnetostrictive level transmitter for liquids, mini version, with Ø28 mm stainless steel float and rod probe, 1 mm resolution

Version	
M ☐ ☐ - 5 ☐ ☐ - ☐	
Y	Transmitter mini
Process connection	
M Y ☐ ☐ - 5 ☐ ☐ - ☐	
V	¾" BSP, lower connection
W	¾" NPT, lower connection
A	1" BSP
B	1" BSP, lower connection
C	2" BSP
F	2" BSP, lower connection
D	1" NPT
E	1" NPT, lower connection
G	2" NPT
H	2" NPT, lower connection
J	1½" TriClamp
K	1½" TriClamp, lower connection
M	2" TriClamp
N	2" TriClamp, lower connection
O	2½" TriClamp
S	2½" TriClamp, lower connection
P	3" TriClamp
R	4" TriClamp

Housing	
M Y ☐ ☐ - ☐ ☐ - ☐	
5	Stainless steel

Probe length	
M Y ☐ ☐ - 5 ☐ ☐ - ☐	
n n	0.3...1 m
o o	1.1...1.5 m; sold by the 0.1 m
nn = 03...10 : 0.3...1 m	
oo = 11...15 : 1.1...1.5 m	

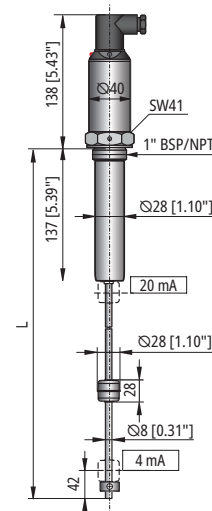
Output / Resolution / Certificates / Electric connection	
M Y ☐ ☐ - 5 ☐ ☐ - ☐	
K *	4...20 mA + HART® / 1 mm / cable
L *	4...20 mA + HART® / 1 mm / Ex ia G / cable
M	4...20 mA + HART® / 1 mm / DIN connector
N *	4...20 mA + HART® / 1 mm / Ex ia G / DIN connector
O *	4...20 mA + HART® / 1 mm / M12x1 connector
P *	4...20 mA + HART® / 1 mm / Ex ia G / M12x1 connector

* Under development

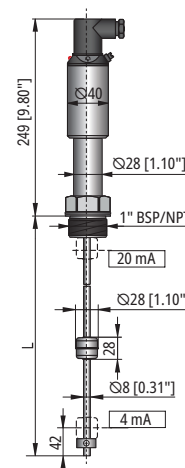
IEC Ex compliance is optional; it must be specified in the order.

Accessories sold separately; see relevant page for details

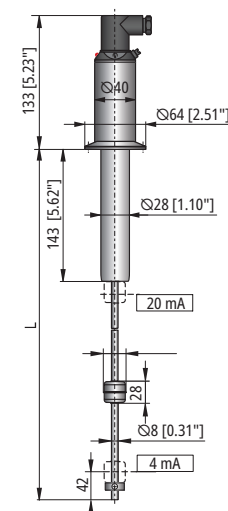
S A T - 5 0 4 - ☐	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ☐	HART®-USB/RS485 modem
P ☐ F - ☐ 1 ☐ - ☐	Smart Field Display and Data Logger
P ☐ F - ☐ 0 1 - ☐	Loop Display



MYA / MYD-500-M



MYB / MYE-500-M



MYM-500-M

NIVOTRACK M-500 Integrated with plastic-coated rigid probe
5 years

2-wire integrated magnetostrictive level transmitter for liquids
with Ø76 mm PVDF float and plastic-coated stainless steel rod probe, 1 mm resolution

Version
M ☐ **U** - 5 ☐ ☐ ☐ - ☐
X Transmitter

Process connection
M **X** ☐ **U** - 5 ☐ ☐ ☐ - ☐
U Without process connection for sliding sleeve

Housing
M **X** **U** - ☐ ☐ ☐ - ☐
5 Stainless steel

Probe length
M **X** **U** - 5 ☐ ☐ ☐ - ☐
nn 0.3...1 m

oo 1.1...3 m; sold by the 0.1 m

nn = 03...10 : 0.3...1 m

oo = 11...30 : 1.1...3 m

Output / Resolution / Certificates / Electric connection
M **X** **U** - 5 ☐ ☐ ☐ - ☐
K * 4...20 mA + HART® / 1 mm / cable

L * 4...20 mA + HART® / 1 mm / Ex ia G / cable

M 4...20 mA + HART® / 1 mm / DIN connector

N * 4...20 mA + HART® / 1 mm / Ex ia G / DIN connector

O * 4...20 mA + HART® / 1 mm / M12x1 connector

P * 4...20 mA + HART® / 1 mm / Ex ia G / M12x1 connector

* Under development

Available on request (must be specified in the text of the order)
MGH-105-2M-300-00 Sliding sleeve: 1" BSP, PVDF

MGL-105-2M-300-00 Sliding sleeve: 1" NPT, PVDF

MGU-506-1M-200-00 Ø76x87 mm PP float (for min. 0.4 kg/dm³ liquids)

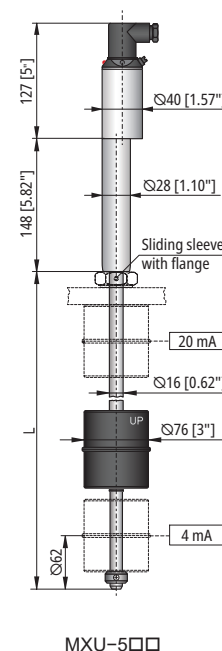
M F A - 3 2 1 - 2 PP flange DN80, PN16 + 1" BSP sliding sleeve must be ordered

M F A - 3 3 1 - 2 PP flange DN100, PN16 + 1" BSP sliding sleeve must be ordered

Accessories sold separately; see relevant page for details)
S A T - 5 0 4 - HART®-USB/Bluetooth® modem

S A K - 3 0 5 - HART®-USB/RS485 modem

P F - 1 - Smart Field Display and Data Logger

P F - 0 1 - Loop Display


NIVOTRACK magnetostrictive level transmitters are an ideal solution for high-accuracy measurement of clean fluids. Their level of precision makes them an excellent choice for the custody transfer measurement of liquids such as fuels, solvents, and alcohol derivatives. Flexible tube units make accurate measurements possible in tanks as high as 15 meters. Models with plastic coating can be used with aggressive materials. Integrating the transmitter into a process control system is easy due to the intelligent signal processing and communication software and the wide range of accessories offered.

FEATURES

- 0.1 mm or 1 mm resolution
- Insertion length up to 15 m
- Compact design
- Rigid or flexible guide tube
- Plastic-coated version for chemical applications
- 4...20 mA and HART® output
- Graphical display
- 99-point linearization table
- Measurement optimization
- Volume measurement
- PACTware™ compatible
- Interface measurement
- ATEX-certified versions
- IP67 / IP68 protection
- 5-year warranty

APPLICATIONS

- Custody transfer measurement
- Oil, gas and chemical industry
(ATG – Automatic Tanking Gauge)
- Fuels and gasoline products
- Pharmaceutical industry
- Alcohols and beverages, food industry
- Installation in bypass tubes possible
- Supplementary level transmitter for NIVOFLIP magnetic flip indicator

CERTIFICATES

- ATEX (Ex ia G)
- ATEX (Ex db G)
- ATEX (Ex db ia G)
- Tested according to OIML R 85
- IEC Ex (Ex ia G)
- IEC Ex (Ex db G)
- IEC Ex (Ex db ia G)



FLOATS

	MBA-505-		MBK-530-2M -400-00	MBA-505-2M-		MBA-505- 2M-900-00	MGU-505- 2M-200-00	MGU-506- 1M-200-00	4w34bs- 16yyyyy ⁽²⁾
	2X-0C7-10	2M-600-00 ⁽¹⁾		800-00 ⁽¹⁾	200-00 ⁽¹⁾				
Dimensions									
Medium density (min.) [kg/dm ³]	0.61	0.45	0.55	0.55	0.8	0.4	0.7	0.4	0.8
Material	Titanium		Austenitic stainless steel ⁽³⁾	Titanium	Austenitic stainless steel ⁽³⁾		PVDF	PP	Austenitic stainless steel ⁽³⁾
Process pressure	16 bar			25 bar			3 bar		10 bar

⁽¹⁾ Designed for min. 2" process connection

⁽³⁾ 1.4401, 1.4404, 1.4435, 1.4571, etc.

⁽²⁾ Designed for min. 1" process connection, only order with mini version.

TECHNICAL DATA

		Rigid probe	Flexible probe	Plastic-coated rigid probe	Mini version with rigid probe
Measured process value		Liquid level, distance, volume			
Nominal length (l)		0.3...4.5 m	2...15 m	0.3...3 m	0.3...1.5 m
Material of the tube		1.4571/1.4404 stainless steel		PFA-coated stainless steel	1.4571/1.4404 stainless steel
Highest process pressure ⁽¹⁾		25 bar	16 bar	3 bar	10 bar
Process temperature		−40...+90 °C, see temperature diagram			
Standard float (see: Floats table) ⁽²⁾		MBA-505-2M-200-00	MBK-530-2M-400-00	MGU-505-2M-200-00	4w34bs16yyyyy
Medium density		See "Floats"			
Material of wetted parts		Titanium, Stainless steel		PFA, PVDF, PP	Stainless steel
Ambient temperature		−40...+70 °C (SAP plug-in display: minimum temperature −25 °C)			
Output	Analog	4...20 mA (limit values: 3.9...20.5 mA)			
	Digital	HART® (lowest loop resistance: 250 Ω)			
	Display	Graphical display (SAP-300)			
Damping time		Adjustable 0...99 s			
Error indication		22 mA or 3.8 mA or holding			
Output load		$R_l = (U_s - 12.5 \text{ V})/0.02 \text{ A}$, U_s = supply voltage			
Supply voltage		12.5...36 V DC			
Electrical protection		Class III			
Ingress protection		IP67			
Process connection		As per order code			
Electric connection		2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection, cable outer diameter: Ø6...12 mm (shielded cable is recommended), wire cross section: 0.5...1.5 mm²			
Housing		Plastic (PBT) or painted aluminum or stainless steel			
Weight		1.7 kg + measuring probe: 0.6 kg/m	2.9 kg + m. probe: 0.3 kg/m + counterweight 3.5 kg	1.7 kg + m. probe: 0.7 kg/m	1.7 kg + m. probe: 0.25 kg/m

⁽¹⁾ Depends on selected float, with sliding sleeve connection the highest process pressure is 3 bar (0.3 MPa)⁽²⁾ Requested float version must be specified in the order

MEASUREMENT DATA

	M□□-□□□-2/4/6/8	M□□-□□□-1/3/5/7, M□□-□□□-A/B/C/D
Resolution ⁽³⁾	1 mm	0.1 mm
Nonlinearity ^{(3) (4)} (up to 10 m order length)	±2 mm or ±0.02% F.S. whichever is greater	±1 mm or ±0.01% F.S. whichever is greater
Nonlinearity ^{(3) (4)} (above 10 m order length)	±3 mm or ±0.02% F.S. whichever is greater	
Hysteresis	±1 mm	±0.25 mm (up to 10 m length)
		±1 mm (above 10 m length)
Zero span (in LEVEL mode)	Anywhere within the active range	
Measurement range (reducing)	Minimum distance: 200 mm; maximum distance: as per probe length	
Temperature error	0.04 mm / 10 °C between (-25...+50 °C)	
Current Output Properties	Resolution: 2 µA, accuracy: 10 µA, temperature error: 200 ppm/ °C	

⁽³⁾ For displayed and HART® transmitted values⁽⁴⁾ Under reference conditions, accuracy data only valid in case of factory setting. When used with a bypass float, the values given are not valid. With factory-calibrated float for NIVOFLIP, accuracy is 3...4 mm.

Ex INFORMATION

	M□□-5/7□□-5 Ex, 6 Ex, 7 Ex, 8 Ex	M□□-5/7□□-C Ex, D Ex	M□□-5/7□□-A Ex, B Ex
Ex marking (ATEX)	II 1 G Ex ia IIB T6...T5 Ga	II 1/2 G Ex db ia IIB T6...T5 Ga/Gb	II 2 G Ex db IIB T6...T5 Gb
Ex marking (IECEx)	Ex ia IIB T6...T5 Ga	Ex db ia IIB T6 Ga/Gb	Ex db IIB T6...T5 Gb
Nominal length (l)	0.3...15 m	0.3...10 m	
Cable entry	M20×1.5 cable gland	Metal M20×1.5 cable gland Ex d certification	
Cable outer diameter	Ø7...Ø13 mm	Ø9...Ø11 mm	
Ex supply voltage, Intrinsically safety data	$U_i = 30 \text{ V}$ $I_i = 140 \text{ mA}$ $P_i = 1 \text{ W}$ $C_i < 15 \text{ nF}$ $L_i < 200 \text{ µH}$		$U_s: 12.5...36 \text{ V DC}$ $I_i = 140 \text{ mA}$

TECHNICAL DATA FOR DEVICES MOUNTED ON NIVOFLIP LEVEL INDICATORS

	NIVOTRACK devices for NIVOFLIP bypass chamber MTU- / MBU- / MTL- / MBL- / MTT- / MBT-□□□-□
Nominal length (L)	0.5...6 m
Material of the probe	1.4571/1.4404 stainless steel
Process temperature ⁽¹⁾	MTU- / MBU- / MTL- / MBL-□□□-□: -40...+90 °C MTT- / MBT-□□□-□: -40...+200 °C (equipped with the required thermal insulation)
Ambient temperature ⁽¹⁾	-40...+70 °C (SAP plug-in display: min. -25 °C)
Ingress protection	IP67
Process connection ⁽²⁾	MTU- / MBU-□□□-□: none; MTL- / MBL-□□□-□: with AWAB clamp; MTT- / MBT-□□□-□: with AWAB clamp and ceramic thermal insulation
Housing	Plastic (PBT) / painted aluminum / stainless steel
Weight	1,7 kg + probe: 0,6 kg/m

⁽¹⁾ See the ambient and process temperature diagram in sections.⁽²⁾ See the Order Codes.

MEASUREMENT DATA FOR DEVICES MOUNTED ON NIVOFLIP LEVEL INDICATORS

(MSZ EN 60770-1:2011, MSZ EN 61298-1:2009, MSZ EN 61298-3:2009)

	MOL-, MQU- -□□□-2/4/6/8	MOL-□□□-1/3/5/7/9/A/B/C/D MQU-□□□-1/3/5/7/9/A/B/C/D	MOT-□□□- -2/4/6/8	MOT-□□□- -1/3/5/7/9/A/B/C/D
Resolution ⁽³⁾	1 mm	0.1 mm	1 mm	0.1 mm
Nonlinearity ⁽³⁾⁽⁴⁾	±3 mm or ±0.07% F.S. whichever is greater		±4 mm or ±0.09% F.S. whichever is greater	
Hysteresis ⁽⁴⁾	±1 mm		±2 mm	

⁽³⁾ For the displayed and transmitted value of the HART® line.⁽⁴⁾ Under reference conditions, only with the original float calibrated at the factory for the device.

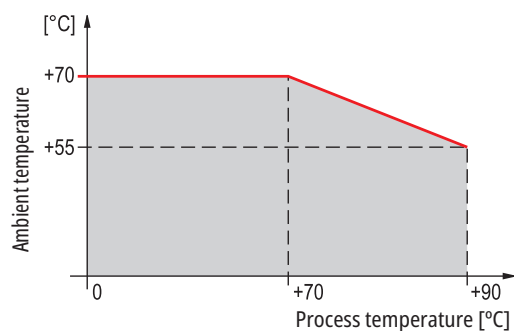
TEMPERATURE LIMIT DATA FOR ATEX (Ex ia, Ex db ia, Ex db) APPROVED MODELS

Device probe version	Temperature class	Ambient temperature ⁽²⁾	Process temperature
Rigid probe (Rod)	T6	-40...+70 °C	+80 °C
Flexible probe (Cable)			+70 °C
Rigid probe (Rod)	T5	-40...+55 °C	+90 °C

⁽²⁾ For models equipped with an SAP display, the lower limit of the ambient temperature is restricted to -25 °C.

AMBIENT, PROCESS TEMPERATURE DIAGRAM

For process temperatures above +70 °C, the permissible ambient temperature is shown in the diagram below:



NIVOTRACK M-500 Compact with rigid probe

5 years

2-wire compact magnetostrictive level transmitter for liquids
with Ø54 mm stainless steel float and rod probe, 0.1 mm or 1 mm resolution

Version

M ■ ■ - ■ ■ ■ - ■ ■

T	Transmitter
B	Transmitter with plug-in display

Process connection

M ■ ■ - ■ ■ ■ - ■ ■

A	1" BSP
C	2" BSP
D	1" NPT
G	2" NPT
O	2½" TriClamp
P	3" TriClamp
R	4" TriClamp
U	* Without process connection, threaded sliding sleeve to be ordered separately.
L	** Without float, for NIVOFLIP (max. 5.8 m, max. +90 °C)
T	** Without float, for NIVOFLIP (max. 5.8 m, max. +200 °C)

* For bypass level indicators other than NIVOFLIP, only if calibrated with the bypass' own float.

** Probe length = center to center of NIVOFLIP +300 mm

Housing

M ■ ■ - ■ ■ ■ - ■ ■

5	Painted aluminum
6	*** Fiberglass-reinforced plastic (PBT)
7	Stainless steel
E	Painted aluminum, Side viewed "B" head position model
F	*** Fiberglass-reinforced plastic (PBT), Side viewed "B" head position model
G	Stainless steel, Side viewed "B" head position model

*** Ex version not available

Probe length***

M ■ ■ - ■ ■ ■ - ■ ■

nn	0.5...1 m
oo	1.1...3 m; sold by the 100 mm

nn = 05...10 : 0.5...1 m, oo = 11...30 : 1.1...3 m, *** 3...4.5 m as per special offer

Output / Resolution / Certificates

M ■ ■ - ■ ■ ■ - ■ ■

1	4...20 mA / 0.1 mm
2	4...20 mA / 1 mm
3	4...20 mA + HART® / 0.1 mm
4	4...20 mA + HART® / 1 mm
5	4...20 mA / 0.1 mm / Ex ia G
6	4...20 mA / 1 mm / Ex ia G
7	4...20 mA + HART® / 0.1 mm / Ex ia G
8	4...20 mA + HART® / 1 mm / Ex ia G
A	4...20 mA / 0.1 mm / Ex d G
B	4...20 mA + HART® / 0.1 mm / Ex d G
C	4...20 mA / 0.1 mm / Ex d ia G
D	4...20 mA + HART® / 0.1 mm / Ex d ia G

For custody transfer only models with HART output, 0.1 mm resolution, local display unit can be ordered, with up to 10 m probe length.

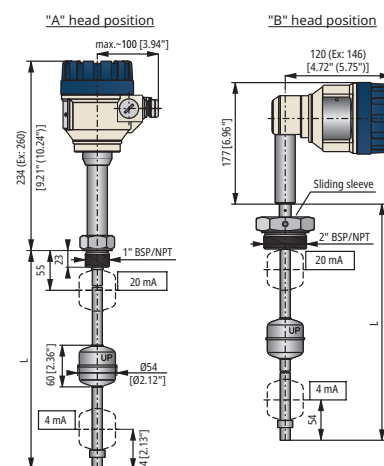
Need of IEC Ex is to be specified in the text part of the order.

Available on request (must be specified in the text of the order)

MBK-530-2M-400-00	Ø96 mm stainless steel ball float (for min. 0.55 kg/dm³ liquids)
MBA-505-2M-900-00	Ø124 mm stainless steel ball float (for min. 0.4 kg/dm³ liquids)
MBA-505-2M-800-00	Ø54x60 mm titanium float (for min. 0.55 kg/dm³ liquids)
MBK-505-2X-0C7-10	Ø49x60 mm titanium float (min. 0.61 kg/dm³)
MBA-505-2M-600-00	Ø50x100 mm titanium float (min. 0.45 kg/dm³)

Accessories sold separately; see relevant page for details

MBH-105-2M-300-00	Sliding sleeve, 1.4571/1.4404, 1" BSP
MBK-105-2M-300-00	Sliding sleeve, 1.4571/1.4404, 2" BSP
MBL-105-2M-300-00	Sliding sleeve, 1.4571/1.4404, 1" NPT
MBN-105-2M-300-00	Sliding sleeve, 1.4571/1.4404, 2" NPT
S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

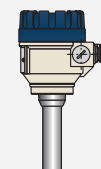


MTA / MTD-500 / 600

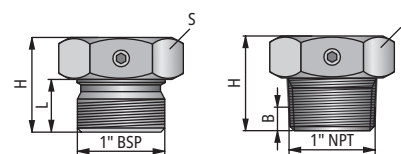
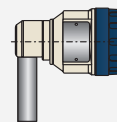
MTU-500 / 600

Head position

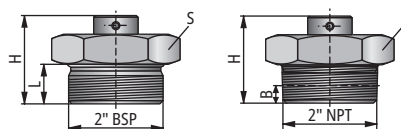
"A"



"B"



MBH / MBL-105-2M-300-000



MBK / MBN-105-2M-300-000

Type	Material	Proc. conn.	Dimensions			
			S (mm)	H (mm)	L (mm)	B (mm)
MBH-105-2M-300-00	1.4571/1.4404	1" BSP	41	36	20	-
MBK-105-2M-300-00		2" BSP	60	55	24	-
MBL-105-2M-300-00		1" NPT	41	37	-	10
MBN-105-2M-300-00		2" NPT	60	44.5	-	11

NIVOTRACK M-500 Compact with flexible probe

5 years

2-wire compact magnetostrictive level transmitter for liquids with stainless steel float, stainless steel cable probe and weight with 0.1 mm or 1 mm resolution

Version

M ☐ ☐ - ☐ ☐ ☐ - ☐

T Transmitter
B Transmitter with plug-in display

Process connection

M ☐ ☐ - ☐ ☐ ☐ - ☐

K 2" BSP, Ø96 mm float
N 2" NPT, Ø96 mm float

Housing

M ☐ ☐ - ☐ ☐ ☐ - ☐

5 Painted aluminum
6 * Fiberglass-reinforced plastic (PBT)
7 Stainless steel
E Painted aluminum, Side viewed "B" head position model
F * Fiberglass-reinforced plastic (PBT), Side viewed "B" head position model
G Stainless steel, Side viewed "B" head position model

* Ex version not available

Probe length

M ☐ ☐ - ☐ ☐ ☐ - ☐

n n 2...3 m
o o 3.1...15 m; sold by the 100 mm

nn = 20...30 : 2...3 m
oo = 31...F0 : 3.1...15 m

Output / Resolution / Certificates

M ☐ ☐ - ☐ ☐ ☐ - ☐

1 4...20 mA / 0.1 mm
2 4...20 mA / 1 mm
3 4...20 mA + HART® / 0.1 mm
4 4...20 mA + HART® / 1 mm
5 4...20 mA / 0.1 mm / Ex ia G
6 4...20 mA / 1 mm / Ex ia G
7 4...20 mA + HART® / 0.1 mm / Ex ia G
8 4...20 mA + HART® / 1 mm / Ex ia G
A 4...20 mA / 0.1 mm / Ex d G (up to 10 m)
B 4...20 mA + HART® / 0.1 mm / Ex d G (up to 10 m)
C 4...20 mA / 0.1 mm / Ex d ia G (up to 10 m)
D 4...20 mA + HART® / 0.1 mm / Ex d ia G (up to 10 m)

For custody transfer only models with HART output, 0.1 mm resolution, local display unit can be ordered, with up to 10 m probe length.

Need of IEC Ex is to be specified in the text part of the order.

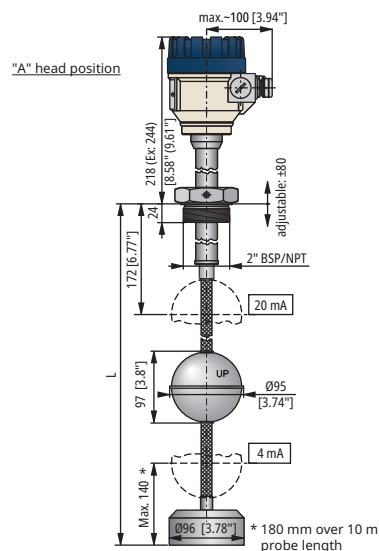
Available on request (must be specified in the text of the order)

MBA-505-2M-900-00 Ø124 mm stainless steel ball float (for min. 0.4 kg/dm³ liquids)
MBA-505-2M-600-00 Ø50x100 mm titanium float (min. 0.45 kg/dm³), only available with MBK-530-2M-000-11 narrow weight

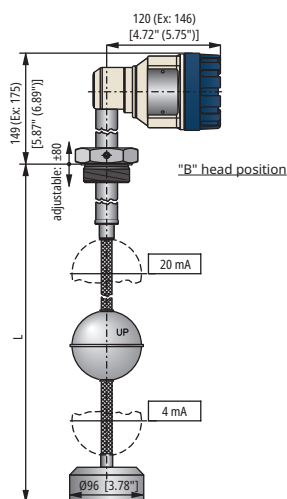
Accessories sold separately; see relevant page for details

S A P - 3 0 0 - 0 Graphic plug-in display module
S A T - 5 0 4 - HART®-USB/Bluetooth® modem
S A K - 3 0 5 - HART®-USB/RS485 modem
S A B - 1 1 2 - 0 3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0 3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2 Stainless steel shielding cap, clamp-type design, for all instrument covers

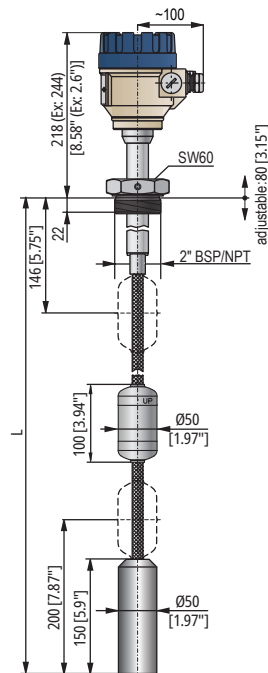
MBK-530-2M-000-01 Ø96x45 mm standard counterweight
MBK-530-2M-000-11 Ø50x150 mm counterweight for 2" connection



MTK / MTN-500 / 600



MTK / MTN-500 / 600



MTK / MTN-500 / 600
with Ø50x100 titanium float

NIVOTRACK M-500 Compact with plastic-coated rigid probe**5 years**

2-wire compact magnetostrictive level transmitter for liquids with Ø76 mm PVDF float and plastic-coated stainless steel rod probe, 0.1 mm or 1 mm resolution

Version**M** ☐ **U** - ☐ ☐ ☐ - ☐**E** Transmitter**G** Transmitter with plug-in display**Process connection****M** ☐ ☐ - ☐ ☐ ☐ - ☐**U** Without process connection for sliding sleeve**Housing****M** ☐ **U** - ☐ ☐ ☐ - ☐**5** Painted aluminum**6** * Fiberglass-reinforced plastic (PBT)**7** Stainless steel**E** Painted aluminum, Side viewed "B" head position model**F** * Fiberglass-reinforced plastic (PBT), Side viewed "B" head position model**G** Stainless steel, Side viewed "B" head position model

* Ex version not available

Probe length**M** ☐ **U** - ☐ ☐ ☐ - ☐**nn** 0.5...1 m**oo** 1.1...3 m; sold by the 100 mm

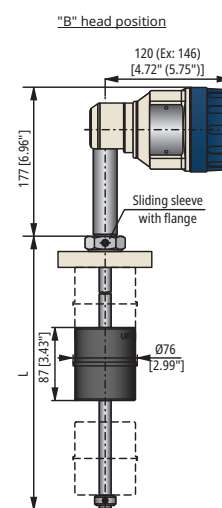
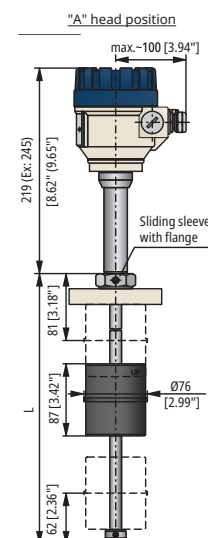
nn = 05...10 : 0.5...1 m

oo = 11...30 : 1.1...3 m

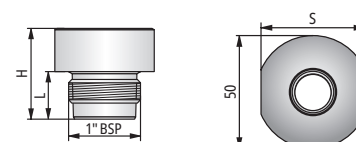
Output / Resolution / Certificates**M** ☐ **U** - ☐ ☐ ☐ - ☐**1** 4...20 mA / 0,1 mm**2** 4...20 mA / 1 mm**3** 4...20 mA + HART® / 0,1 mm**4** 4...20 mA + HART® / 1 mm**5** 4...20 mA / 0,1 mm / Ex ia G**6** 4...20 mA / 1 mm / Ex ia G**7** 4...20 mA + HART® / 0,1 mm / Ex ia G**8** 4...20 mA + HART® / 1 mm / Ex ia G**A** 4...20 mA / 0,1 mm / Ex d G**B** 4...20 mA + HART® / 0,1 mm / Ex d G**C** 4...20 mA / 0,1 mm / Ex d ia G**D** 4...20 mA + HART® / 0,1 mm / Ex d ia G

For custody transfer only models with HART output, 0.1 mm resolution, local display unit can be ordered, with up to 10 m probe length.

Need of IEC Ex is to be specified in the text part of the order.

Available on request (must be specified in the text of the order)**MGH-105-2M-300-00** Sliding sleeve, PVDF: 1" BSP**MGL-105-2M-300-00** Sliding sleeve, PVDF: 1" NPT**MGU-506-1M-200-00** Ø76x87 mm PP float (for min. 0.4 kg/dm³ liquids)**M F A - 3 2 1 - 2** PP flange DN80, PN16 + 1" BSP sliding sleeve must be ordered**M F A - 3 3 1 - 2** PP flange DN100, PN16 + 1" BSP sliding sleeve must be ordered**Accessories sold separately; see relevant page for details****S A P - 3 0 0 - 0** Graphic plug-in display module**S A T - 5 0 4 -** HART®-USB/Bluetooth® modem**S A K - 3 0 5 -** HART®-USB/RS485 modem**S A B - 1 1 2 - 0** 3D printed plastic shielding cap, snap-on design for plastic cover**S A B - 1 1 3 - 0** 3D printed plastic shielding cap, snap-on design for aluminum cover**S A B - 2 1 1 - 2** Stainless steel shielding cap, clamp-type design, for all instrument covers

MEU-500 / 600



MGH-105-2M-300-000

	Material	Proc. conn.	Dimensions		
			S (mm)	H (mm)	L (mm)
MGH-105-2M-300-00	PVDF	1" BSP	46	42	22
MGL-105-2M-300-00		1" NPT			25

NIVOTRACK M-500 Compact mini version with rigid probe

5 years

2-wire integrated magnetostrictive level transmitter for liquids, mini version, with Ø28 mm stainless steel float and rod probe, 0.1 mm or 1 mm resolution

Version	
M	Transmitter
C	Transmitter with plug-in display

Process connection	
M	1" BSP
D	1" NPT
J	1½" TriClamp
M	2" TriClamp
O	2½" TriClamp
P	3" TriClamp
R	4" TriClamp

Housing	
M	Painted aluminum
5	Fiberglass-reinforced plastic (PBT)
6	Stainless steel
E	Painted aluminum, Side viewed "B" head position model
F	Fiberglass-reinforced plastic (PBT), Side viewed "B" head position model
G	Stainless steel, Side viewed "B" head position model

* Ex version not available

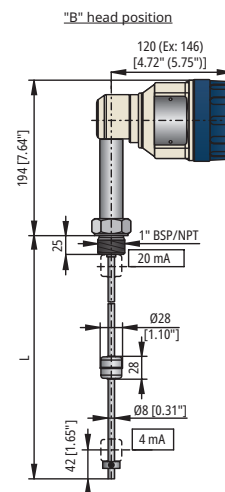
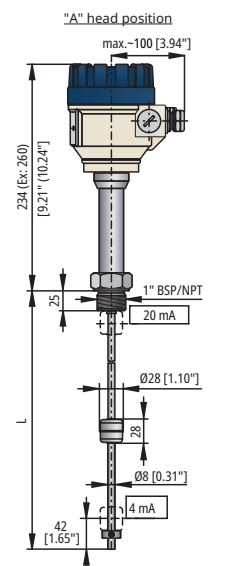
Probe length	
M	0.5...1 m
n n	1.1...1.5 m; sold by the 100 mm
nn	05...10 : 0.5...1 m
oo	11...15 : 1.1...1.5 m

Output / Resolution / Certificates	
M	4...20 mA / 0.1 mm
1	4...20 mA / 1 mm
2	4...20 mA + HART® / 0.1 mm
3	4...20 mA + HART® / 1 mm
4	4...20 mA / 0.1 mm / Ex ia G
5	4...20 mA / 1 mm / Ex ia G
6	4...20 mA + HART® / 0.1 mm / Ex ia G
7	4...20 mA + HART® / 1 mm / Ex ia G
8	4...20 mA + HART® / 1 mm / Ex ia G

Need of IEC Ex is to be specified in the text part of the order

Accessories sold separately; see relevant page for details)	
S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 -	HART®-USB/Bluetooth® modem
S A K - 3 0 5 -	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers

Accessories sold separately (floats)	
MBA-505-2M-200-00	Ø54x60 mm stainless steel float (for min. 0.8 kg/dm³ liquids)
MBK-530-2M-400-00	Ø96 mm stainless steel ball float (for min. 0.55 kg/dm³ liquids)
MBA-505-2M-900-00	Ø124 mm stainless steel ball float (for min. 0.4 kg/dm³ liquids)
MBA-505-2M-800-00	Ø54x60 mm titanium float (for min. 0.55 kg/dm³ liquids)
MBA-505-2X-0C7-10	Ø49x60 mm titanium float (for min. 0.61 kg/dm³ liquids)
MBA-505-2M-600-00	Ø50x100 mm titanium float (for min. 0.45 kg/dm³ liquids)
MGU-505-2M-200-00	Ø76x87 mm PVDF float (for min. 0.7 kg/dm³ liquids)
MGU-506-1M-200-00	Ø76x87 mm PP float (for min. 0.4 kg/dm³ liquids)
4w34bs16yyyy	Ø28x28 mm stainless steel float (for min. 0.8 kg/dm³ liquids)



MMA / MMD-500 / 600

NIVOFLIP is a bypass level indicator for pressurized vessels with up to 5.5 m flange distance containing liquids. The device has the international PED (*Pressure Equipment Directive*) certificate, so it can be used for level indication of pressurized vessels up to 100 bar process pressure. The high-temperature versions are applicable up to +250 °C process temperature. **NIVOFLIP** can be equipped with optional limit switches or with **NIVELCO's NIVOTRACK** high-precision magnetostrictive level transmitter if level transmission is needed.

FEATURES

- Clearly visible display
- Measurement range: 500...5500 mm
- ±10 mm accuracy
- Up to 100 bar process pressure
- High-temperature version
- Aluminum or stainless steel indicator housing
- Bypass measuring chamber version without indicator
- Optional level switches
- Optional magnetostrictive level transmitter
- Explosion-proof
- 5-year warranty

APPLICATIONS

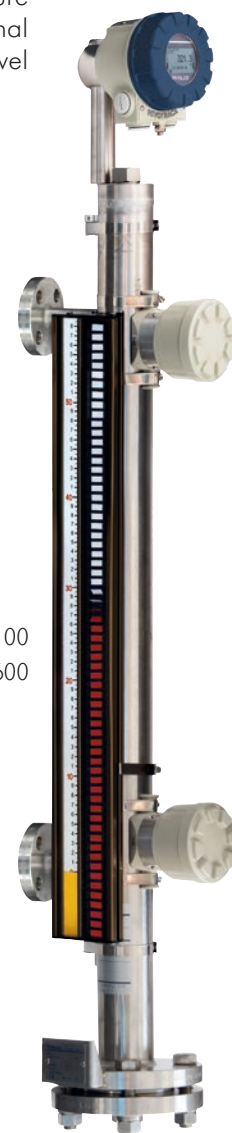
- Oil & Gas
- Chemical industry
- Power generation
- Boilers
- Pressurized vessels
- Tanks

CERTIFICATES

- PED certificate
- ATEX (Ex d e m Gb): MAK-100 level switches
- ATEX (Ex h Ga/Gb): ML-100 bypass level indicator

OPERATION

The fluid level in the bypass chamber is the same as in the tank. The welded bypass chamber and the tank form one pressurized system, so the float containing a magnet rises and descends with the fluid level. The properly polarized magnet in the float topples the two-toned plates with the colored magnetic caps through the stainless steel tube's wall, indicating the fluid level. The plates with different color codes on the 100 mm under the lower stem provide a visual error message when fluid levels drop below the device's lower connecting point.



NIVOFLIP ML□-100 + MAK-100
+ NIVOTRACK M□L-500/600

NIVOFLIP LEVEL INDICATING SYSTEM

NIVOFLIP bypass liquid level indicator can be equipped with positionable MAK-100/200 external level switches to provide level limit switching. For MAK-100 level switches, the minimal liquid density must exceed the default value specified in the datasheet by 0.1 kg/dm³. For jobs requiring more accuracy than that of the magnetic flaps, high-precision **NIVOTRACK M-500** magnetostrictive level transmitters are recommended to use. The system is suitable for custody-transfer measurements and is equipped with a NIVOTRACK transmitter tested in accordance with OIML R 85. The floatless rigid probe magnetostrictive transmitter can be mounted externally to the bypass chamber with clamps. All optional units are operated via magnetic coupling, there is no direct contact with the measured material.

PROPERTIES

NIVOFLIP	Standard version	High-temperature version
Titanium float	■	■
PED certificate	■	■
Maximum 100 bar process pressure	■	—
Maximum +250 °C process temperature	—	■
Optional level switch	■	■
Optional level transmitter	■	■

TECHNICAL DATA

		Standard version	High-temperature version
Display type		Two-toned magnetic flaps	
Display	scale	cm / inch	
	accuracy	±10 mm	
	resolution	5 mm	
	error indication	Lower 100 mm, inversely polarized flaps	
Tube diameter		Ø60.3 mm	
Material of wetted parts		1.4571/1.4404 stainless steel, float: TiGr2 titanium	
Flange distance (center to center)		500...5500 mm (as per order code)	
Process connection		DIN, ANSI flanges, ¾", 1" BSP/NPT (as per order code)	
Vent connection		M20x1.5	
Process pressure		Max. 100 bar	Max. 88 bar
Process temperature		-60...+130 °C	-60...+250 °C
Ambient temperature		-60...+60 °C	
Min. medium density ⁽¹⁾		0.7 kg/dm ³	
Level switch		Optional, freely adjustable MAK-100/200 level switches ⁽²⁾	
PED (2014/68/EU) certificate		Category I, II & III, Module B+C2	
Level transmitter		Optional NIVOTRACK M□L-500 / 600 / 700 magnetostrictive level transmitter ⁽²⁾	
Weight		About 25 kg for 1 m center to center distance	

⁽¹⁾ In case of MAK-100 level switches, the minimal medium density must exceed the default value by 0.1 kg/dm³. The minimum media density is influenced by the type of float!

⁽²⁾ For NIVOTRACK level transmitters and MAK level switches, the highest temperature values are shown in the diagram below.

Ex INFORMATION

ATEX certificate	M□□-□□□□-□ Ex, MH□□-□□□□-□ Ex	Ex marking: Ⓔ II 1/2 G Ex h IIC T6...T2 Ga/Gb
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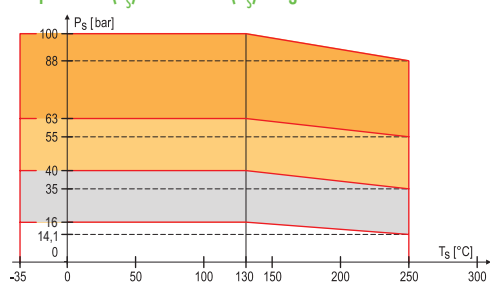
Temperature data for Ex certified models	Hazardous gas atmospheres			
	Standard [M□□-□□□□-□ Ex]		High-temperature [MH□□-□□□□-□ Ex]	
Highest process temperature	+80 °C	+95 °C	+130 °C	+250 °C
Highest ambient temperature	+60 °C			
Highest surface temperature	+80 °C	+95 °C	+130 °C	+250 °C
Temperature class	T6	T5	T4	T2

Lowest ambient and process temperature: -60 °C

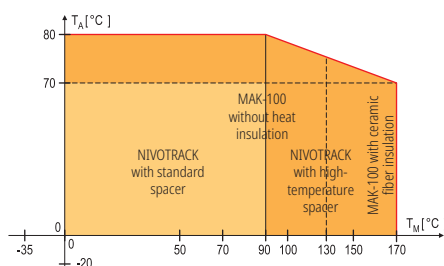
Highest process pressure		Highest process temperature	
Process connection	Flange rating	T _{max} = 130 °C	
		Standard version	High-temperature version
		Maximum process pressure	
DIN flanges DN15 – DN50	PN16	16 bar	14.1 bar
	PN40	40 bar	35 bar
	PN63	63 bar	55 bar
	PN100	100 bar	88 bar
ANSI flanges ½" – 1"	150 Class	232 psi	204 psi
	400 Class	580 psi	500 psi
	600 Class	930 psi	800 psi
	900 Class	1440 psi	1275 psi

TEMPERATURE DIAGRAM

Temperature (T_s) – Pressure (P_s) diagram



Process temperature (T_M) – Ambient temperature (T_A) diagram when NIVOTRACK level transmitter or MAK-100/MAK-200 level switch is mounted on NIVOFLIP



MAK-100/200 MAGNETIC LEVEL SWITCHES

The **MAK** magnetic level switches are optional accessories for **NIVOFLIP** bypass level indicators. The float in the stainless steel bypass tube follows the level of the measured liquid. The float (*permanent magnet*) operates the positionable MAK-100/200 level switch via magnetic coupling and provides a non-contact signal transfer to the switch. There must be at least 100 mm distance for MAK-100 and 60 mm distance for MAK-200 between two switching points.

TECHNICAL DATA

	MAK-100-0	MAK-100-7 Ex	MAK-100-6 Ex	MAK-2□0-□
Process temperature	up to +130 °C	See temperature classes table		up to +130 °C
Ambient temperature	-20...+80 °C			-25...+90 °C
Material of the switch-housing	Painted aluminum			Stainless steel (1.4571/1.4404)
Bracket material	-			Aluminum
Switch	1 microswitch, with NO, NC contacts			1 bistable reed switch, with NO, NC contacts ⁽¹⁾
Switching data	250 V 2.5 A AC12, 220 V 0.3 A DC13	Only Ex ia certified and approved contact isolator should be used for supply		120 W / VA, 250 V AC/DC, 3 A
Switching hysteresis	up to Δ 35 mm			
Electrical connection	M20×1.5 cable gland, terminal for max. 2.5 mm ² wire cross section			M12 cable gland: cable diameter: Ø4...6 mm, max 0.75 mm ² wire cross section
Ingress protection	IP65			
Electrical protection	Class I			Class II
Overvoltage protection	-			Class II (Pollution Degree 2)
Ex marking	-	⚡ II 2 G Ex db eb mb IIC T6...T4	⚡ II 1 G	-
Weight	1.5 kg			~0.15 kg

⁽¹⁾ The contact type must be specified in the order code.

MAK-100



MAK-200

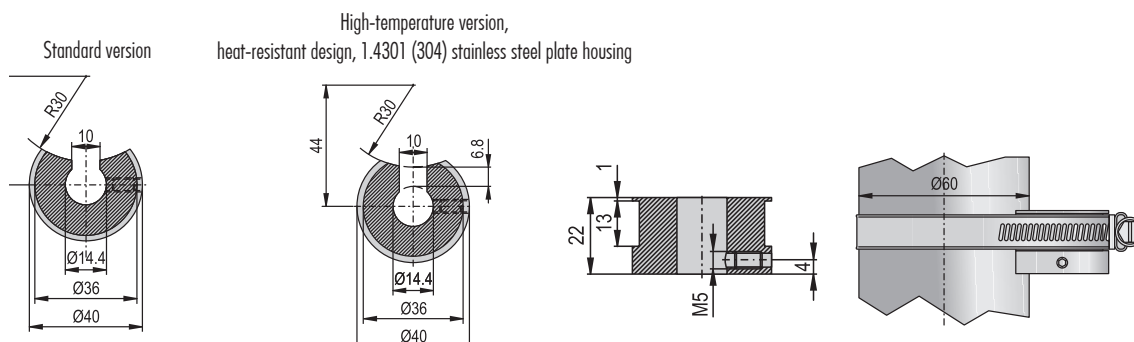


TEMPERATURE DATA FOR Ex CERTIFIED MODELS

Classes	MAK-100-6 Ex		MAK-100-7 Ex	
	Process temperature	Ambient temperature	Process temperature	Ambient temperature
T6	max. +80 °C	-20...+60 °C	max. +70 °C	-20...+60 °C
T5	max. +95 °C	-20...+70 °C	max. +85 °C	-20...+70 °C
T4	max. +130 °C	-20...+80 °C	max. +120 °C	-20...+80 °C

NIVOTRACK MOUNTED ON NIVOFLIP

The length of the magnetostrictive level transmitter's probe must be 300 mm longer than the center to center distance of the bypass tube, depending on float version. The level transmitter is placed onto the bypass tube so that the top of the magnetostrictive probe is at the same height as the bypass tube's top. The end of the magnetostrictive probe must extend at least 100 mm below the lower process connection stub. The aluminum spacers that come with the level transmitter are held to the probe stem by grub screws, and the assembly is clamped onto the bypass tube. High-temperature versions have ceramic fiber insulator fabric between the bypass tube and the probe of the level transmitter.



NIVOFLIP ML 16/40 bar process pressure

5 years

Bypass level indicator with optical display and magnetic float for liquids with titanium float and for max. 16 or 40 bar process pressure. The device can be equipped with NIVOTRACK M_L-500 and M_T-500 magnetostrictive level transmitter up to +90 °C / +200 °C process temperature! (Center to center distance +300 mm).

Version

M ☐ ☐ - ☐ ☐ ☐ - ☐

- L** Standard version, max. +130 °C
- H** High-temperature version, max. +250 °C, as per pressure diagram

Process connection

M ☐ ☐ - ☐ ☐ ☐ - ☐

- A** DN15 (B form)
- B** DN20 (B form)
- C** DN25 (B form)
- D** DN40 (B form)
- E** DN50 (B form)
- F** ANSI ½" RF
- G** ANSI ¾" RF
- H** ANSI 1" RF
- J** ANSI 1½" RF
- K** ANSI 2" RF
- X** ¾" BSPT
- Y** ¾" NPT
- 1** 1" BSPT
- 2** 1" NPT

Bypass tube / Pressure / Lamella housing material

M ☐ ☐ - ☐ ☐ ☐ - ☐

- 5** 60.3 mm tube diameter / PN16; Class 150 / Aluminum
- 1** 60.3 mm tube diameter / PN40; Class 400 / Aluminum
- 9** 60.3 mm tube diameter / PN16; Class 150 / Stainless steel
- 6** 60.3 mm tube diameter / PN40; Class 400 / Stainless steel

Measurement range (center to center)

M ☐ ☐ - ☐ ☐ ☐ - ☐

For aluminum lamella housing

- 0 5** 0.5 m
- n n** 0.6...5.5 m; sold by the 0.1 m

For stainless steel lamella housing

- 0 5** 0.5 m
- n n** 0.6...5.5 m; sold by the 0.1 m

nn = 06...55 : 0.6...5.5 m

Scale

M ☐ ☐ - ☐ ☐ ☐ - ☐

- 1** mm scale
- 3** Feet/inch scale

Available on request (must be specified in the text of the order)

Float specific gravity adjustment (net price)

Drain Plug: M20x1.5 / ½" M-BSP

Vent Plug: M20x1.5 / ½" M-BSP

Drain Plug: M20x1.5 / ½" M-NPT

Vent Plug: M20x1.5 / ½" M-NPT

Drain Plug: M20x1.5 / ¾" M-BSP

Vent Plug: M20x1.5 / ¾" M-BSP

Drain Plug: M20x1.5 / ¾" M-NPT

Vent Plug: M20x1.5 / ¾" M-NPT

Drain Plug: M20x1.5 / ½" M-BSP, high-temperature version

Vent Plug: M20x1.5 / ½" M-BSP, high-temperature version

Drain Plug: M20x1.5 / ½" M-NPT, high-temperature version

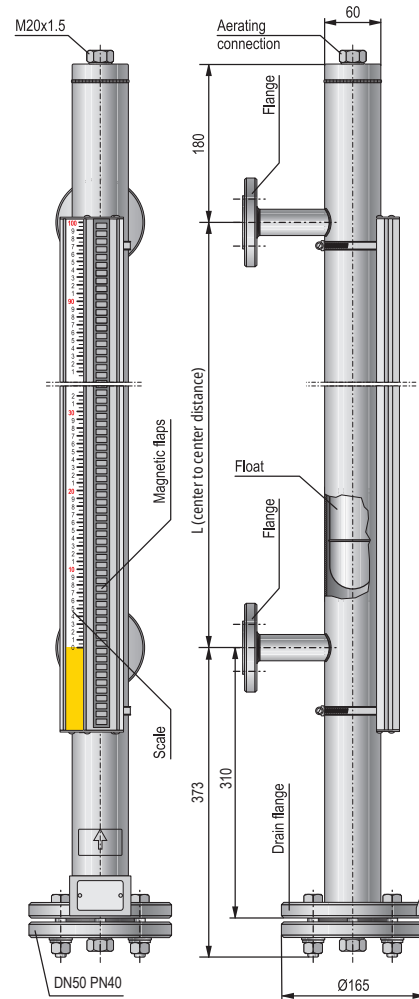
Vent Plug: M20x1.5 / ½" M-NPT, high-temperature version

Drain Plug: M20x1.5 / ¾" M-BSP, high-temperature version

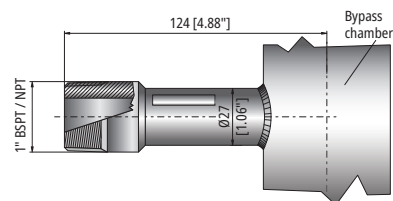
Vent Plug: M20x1.5 / ¾" M-BSP, high-temperature version

Drain Plug: M20x1.5 / ¾" M-NPT, high-temperature version

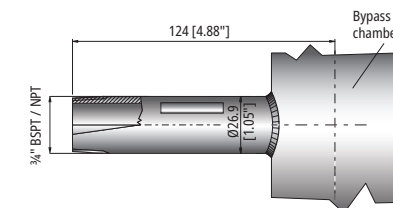
Vent Plug: M20x1.5 / ¾" M-NPT, high-temperature version



ML0-000-0 for 16/40 bar pressure



MOX-000-0 (¾" BSPT), MOY-000-0 (¾" NPT)
Threaded connection



MO1-000-0 (1" BSPT), MO2-000-0 (1" NPT)
Threaded connection

NIVOFLIP ML 63/100 bar process pressure

5 years

Bypass level indicator with optical display and magnetic float for liquids with titanium float and for max. 63 or 100 bar process pressure.

The device can be equipped with NIVOTRACK M_L-500 and M_T-500 magnetostrictive level transmitter up to +90 °C / +200 °C process temperature! (Center to center distance +300 mm).

Version

M ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

L	Standard version, max. +130 °C
H	High-temperature version, max. +250 °C, as per pressure diagram

Process connection

M ☐ ☐ - ☐ ☐ ☐ - ☐

A	DN15 (B form)
B	DN20 (B form)
C	DN25 (B form)
D	DN40 (B form)
E	DN50 (B form)
F	ANSI ½" RF
G	ANSI ¾" RF
H	ANSI 1" RF
J	ANSI 1½" RF
K	ANSI 2" RF

Bypass tube / Pressure / Lamella housing material

M ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

3	60.3 mm tube diameter / PN63; Class 600 / Aluminum
4	60.3 mm tube diameter / PN100; Class 900 / Aluminum
7	60.3 mm tube diameter / PN63; Class 600 / Stainless steel
8	60.3 mm tube diameter / PN100; Class 900 / Stainless steel

Measurement range (center to center)

M ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

For aluminum lamella housing

0 5	0.5 m
n n	0.6...5.5 m; sold by the 0.1 m

For stainless steel lamella housing

0 5	0.5 m
n n	0.6...5.5 m; sold by the 0.1 m

nn = 06...55 : 0.6...5.5 m

Scale

M ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

1	mm scale
3	Feet/inch scale

Available on request (must be specified in the text of the order)

Float specific gravity adjustment (net price)

Drain Plug: M20x1.5 / ½" M-BSP

Vent Plug: M20x1.5 / ½" M-BSP

Drain Plug: M20x1.5 / ½" M-NPT

Vent Plug: M20x1.5 / ½" M-NPT

Drain Plug: M20x1.5 / ¾" M-BSP

Vent Plug: M20x1.5 / ¾" M-BSP

Drain Plug: M20x1.5 / ¾" M-NPT

Vent Plug: M20x1.5 / ¾" M-NPT

Drain Plug: M20x1.5 / ½" M-BSP, high-temperature version

Vent Plug: M20x1.5 / ½" M-BSP, high-temperature version

Drain Plug: M20x1.5 / ½" M-NPT, high-temperature version

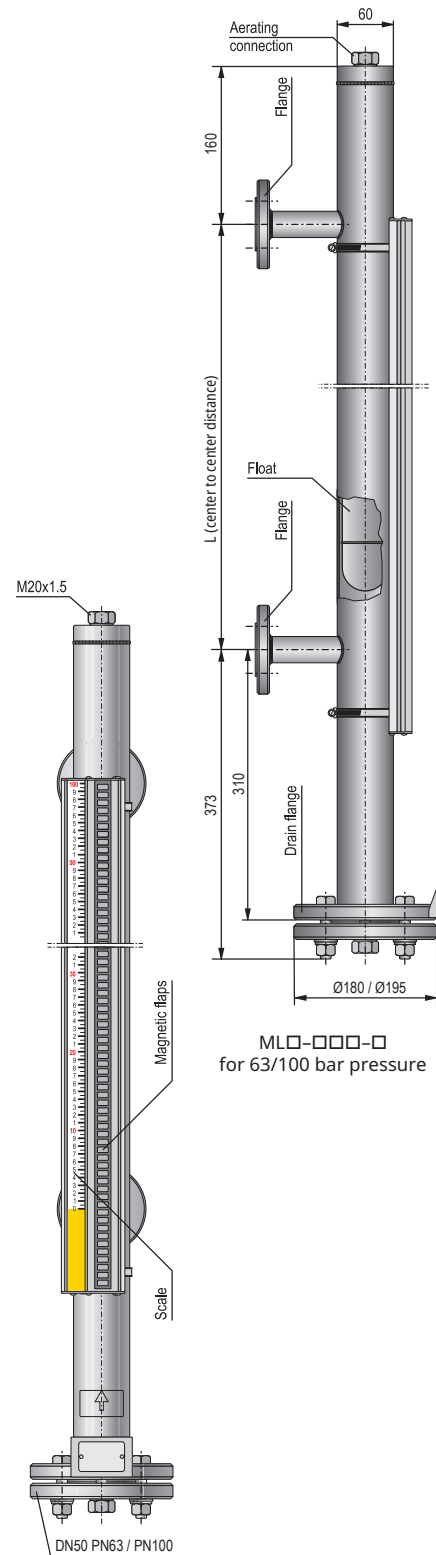
Vent Plug: M20x1.5 / ½" M-NPT, high-temperature version

Drain Plug: M20x1.5 / ¾" M-BSP, high-temperature version

Vent Plug: M20x1.5 / ¾" M-BSP, high-temperature version

Drain Plug: M20x1.5 / ¾" M-NPT, high-temperature version

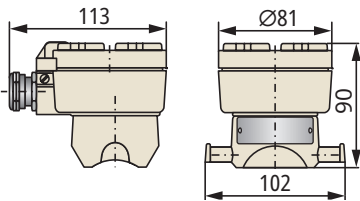
Vent Plug: M20x1.5 / ¾" M-NPT, high-temperature version



NIVOFLIP MAK-100 with 35 mm hysteresis5 years

Magnetic coupling limit switch for NIVOFLIP ML bypass level indicator with contact output, with 35 mm hysteresis, factory positioned at intervals specified in the order

Ex certificate		
M A K - 1 0 0 - □		
0	None	
6	Ex ia	
7	Ex d e m Gb	



MAK-100

NIVOFLIP MAK-200 with 20 mm hysteresis5 years

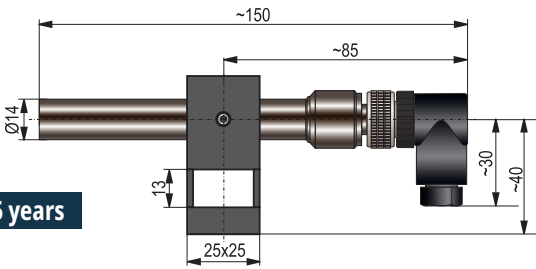
Magnetic coupling limit switch for NIVOFLIP ML bypass level indicator with contact output, with 20 mm hysteresis, factory positioned at intervals specified in the order

Output		
M A K - 2 □ 0 - ■		
0	1 bistable reed, NO	
1	1 bistable reed, NC	

Electrical connection		
M A K - 2 ■ □ - ■		
0	M12x1 connector	

Ex certificate		
M A K - 2 ■ 0 - □		
0	None	
6	* Ex ia	

* Under development



MAK-200

NIVOFLIP ML Bypass measuring chamber, 16/40 bar

5 years

Bypass measuring chamber for liquid level measurement or level switching, stainless steel, 16 or 40 bar

Prices on request

Version

M ☐ ☐ - ☐ ☐ - ☐ ☐

L Standard version, max. +130 °C

H High-temperature version, max. +250 °C, as per pressure diagram

Process connection

M ☐ ☐ - ☐ ☐ - ☐ ☐

A DN15 (B form)

B DN20 (B form)

C DN25 (B form)

D DN40 (B form)

E DN50 (B form)

F ANSI 1/2" RF

G ANSI 3/4" RF

H ANSI 1" RF

J ANSI 1 1/2" RF

K ANSI 2" RF

X 3/4" BSPT

Y 3/4" NPT

1 1" BSPT

2 1" NPT

Bypass tube / Pressure

M ☐ ☐ - ☐ ☐ - ☐ ☐

5 60.3 mm tube diameter / PN16; Class 150

1 60.3 mm tube diameter / PN40; Class 400

Measurement range (center to center)

M ☐ ☐ - ☐ ☐ - ☐ ☐

0 5 0.5 m

n n 0.6...5.5 m; sold by the 0.1 m

nn = 06...55 : 0.6...5.5 m

Device connection

M ☐ ☐ - ☐ ☐ - ☐ ☐

A 3/4" BSP

B 3/4" NPT

C 1" BSP

D 1" NPT

E 1 1/2" BSP

F 1 1/2" NPT

G 2" BSP

H 2" NPT

Available on request (must be specified in the text of the order)

Drain Plug: M20x1.5 / 1/2" M-BSP

Drain Plug: M20x1.5 / 1/2" M-NPT

Drain Plug: M20x1.5 / 3/4" M-BSP

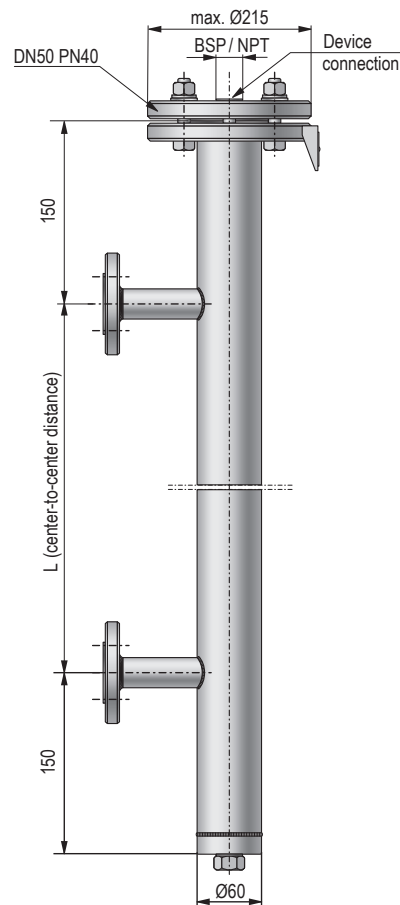
Drain Plug: M20x1.5 / 3/4" M-NPT

Drain Plug: M20x1.5 / 1/2" M-BSP, high-temperature version

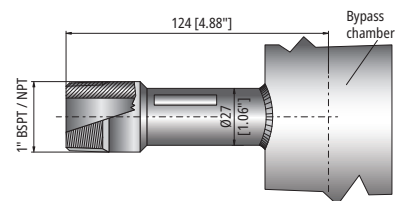
Drain Plug: M20x1.5 / 1/2" M-NPT, high-temperature version

Drain Plug: M20x1.5 / 3/4" M-BSP, high-temperature version

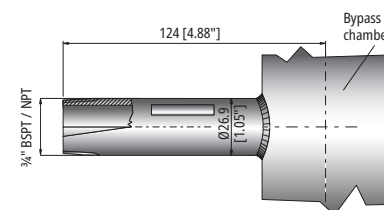
Drain Plug: M20x1.5 / 3/4" M-NPT, high-temperature version



ML□-100 / 500,
MH□-100 / 500



M□X-□□□-□ (3/4" BSPT), M□Y-□□□-□ (3/4" NPT)
Threaded connection



M□1-□□□-□ (1" BSPT), M□2-□□□-□ (1" NPT)
Threaded connection

NIVOFLIP ML Bypass measuring chamber, 63/100 bar process pressure

5 years

Bypass measuring chamber for liquid level measurement or level switching, stainless steel, 63 or 100 bar

Prices on request

Version

M ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

- L** Standard version, max. +130 °C
- H** High-temperature version, max. +250 °C, as per pressure diagram

Process connection

M ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

- A** DN15 (B form)
- B** DN20 (B form)
- C** DN25 (B form)
- D** DN40 (B form)
- E** DN50 (B form)
- F** ANSI ½" RF
- G** ANSI ¾" RF
- H** ANSI 1" RF
- J** ANSI 1½" RF
- K** ANSI 2" RF

Bypass tube / Pressure

M ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

- 3** 60.3 mm tube diameter / PN63; Class 600
- 4** 60.3 mm tube diameter / PN100; Class 900

Measurement range (center to center)

M ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

- 0 5** 0.5 m
- n n** 0.6...5.5 m; sold by the 0.1 m

nn = 06...55 : 0.6...5.5 m

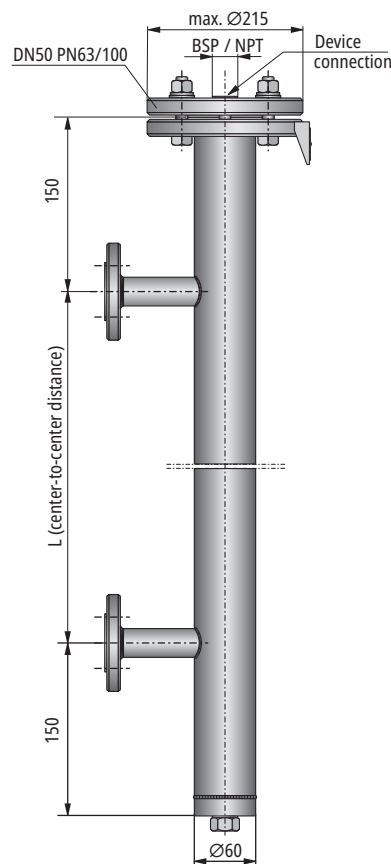
Device connection

M ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

- A** ¾" BSP
- B** ¾" NPT
- C** 1" BSP
- D** 1" NPT
- E** 1½" BSP
- F** 1½" NPT
- G** 2" BSP
- H** 2" NPT

Available on request (must be specified in the text of the order)

- Drain Plug: M20x1.5 / ½" M-BSP
- Drain Plug: M20x1.5 / ½" M-NPT
- Drain Plug: M20x1.5 / ¾" M-BSP
- Drain Plug: M20x1.5 / ¾" M-NPT
- Drain Plug: M20x1.5 / ½" M-BSP, high-temperature version
- Drain Plug: M20x1.5 / ½" M-NPT, high-temperature version
- Drain Plug: M20x1.5 / ¾" M-BSP, high-temperature version
- Drain Plug: M20x1.5 / ¾" M-NPT, high-temperature version



ML□-300 / 400,
MH□-300 / 400

Accessories sold separately 5 years

Drain/Vent Plug	
MLD-105-0M-611-00	Drain/Vent Plug: M20x1.5 / 1/2" M-BSP
MLD-105-0M-621-00	Drain/Vent Plug: M20x1.5 / 1/2" M-NPT
MLD-105-0M-631-00	Drain/Vent Plug: M20x1.5 / 3/4" M-BSP
MLD-105-0M-641-00	Drain/Vent Plug: M20x1.5 / 3/4" M-NPT
MHD-105-0M-611-00	Drain/Vent Plug: M20x1.5 / 1/2" M-BSP, high-temp. version
MHD-105-0M-621-00	Drain/Vent Plug: M20x1.5 / 1/2" M-NPT, high-temp. version
MHD-105-0M-631-00	Drain/Vent Plug: M20x1.5 / 3/4" M-BSP, high-temp. version
MHD-105-0M-641-00	Drain/Vent Plug: M20x1.5 / 3/4" M-NPT, high-temp. version

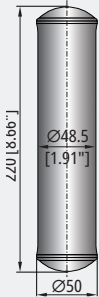
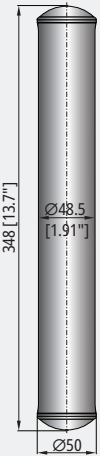
Ball valve	
MLD-105-0M-711-00	Ball valve 1/2" BSP MF 63 bar / 914 psi (max. +180 °C)
MLD-105-0M-721-00	Ball valve 1/2" NPT MF 63 bar / 914 psi (max. +180 °C)

Floats	
MLC-105-1M-700-00	Ø50x200 mm titan float
MLC-405-1M-200-00	Ø50x350 mm titan float

NIVOTRACK level transmitter for NIVOFLIP (see relevant page for details)

M I ■ - 5 ■ ■ - ■ ■
M ■ ■ - ■ ■ ■ - ■ ■

FLOATS

	MLC-105-1M-700-00	MLC-405-1M-200-00
Dimensions		
Medium density (min.) [kg/dm³]	0.7...1.1	
Material	Titanium	
Process pressure	63 bar	100 bar

The **EasyTREK SP-500 Pro** series level transmitters embody four decades of NIVELCO's experience in ultrasonic level measurement. EasyTREK devices are IP68-rated and integrate the transducer and processing electronics into a single unit. The transmitters support HART® 7 communication and can be used in multidrop systems connected to a **MultiCONT** universal process controller, a **MonoCONT** smart field display & data logger, or a PC via a **UNICOMM** HART®-USB modem or a similar interface. They can also be programmed remotely using a handheld field communicator and connected wirelessly to a computer via an SAT-504 Bluetooth® HART® modem.

The EasyTREK SP-500 Pro devices are more compact, feature an extended maximum measuring range, and offer a reduced minimum measuring distance.

FEATURES

- 2-wire integrated transmitter
- Non-contact level measurement
- Battery-powered operation from 12 V DC
- Measuring range up to 18 m
- Narrow 5° beam angle
- Temperature compensation
- HART® 7 communication
- PACTware™ compatible
- Handheld communicator compatibility
- Advanced threshold management
- Quick-start mode
- Fast measurement cycle
- IP68 protection
- PP/PVDF transducer
- Service Interface
- 5-year warranty

APPLICATIONS

- Liquid level measurement and open-channel flow metering
- Wide range of applications, from wastewater to aggressive chemicals
- Level measurement in basins, wells, sumps, and lift stations
- Measurement of hydrocarbons, acids, and water-based liquids

TECHNICAL DATA

EasyTREK SP-500 Pro		
System	2-wire	
Supply voltage	12...36 V DC	
Accuracy ⁽¹⁾	± (0.1% of measured distance +0.025% of range) or ± (0.05% of range), whichever is greater	
Resolution	Depending on measured distance: < 2 m: 1 mm, 2...5 m: 2 mm, 5...10 m: 5 mm, >10 m: 10 mm	
Output	Analog	4...20 mA
	Relay	SPDT, 30 V DC, 1 A DC
	Digital communication	HART® 7
Ambient temperature	-30...+80 °C	
Process temperature	PP, PVDF transducers -30...+90 °C	
Pressure (absolute)	0.5...3 bar	
Housing	PP or PVDF same as the transducer material	
Electrical connection	LiYCY 4× 0.5 mm ² (relay version: 7× 0.5 mm ²) shielded Ø6 mm cable; standard cable length: 5 m (available up to 30 m)	
Electrical protection	Class III	
Ingress protection	IP68	
Seal	PP transducers: EPDM; all other transducers: FPM (Viton®)	

⁽¹⁾ Under optimal conditions and constant transducer temperature.

TRANSDUCER DETAILS

	SP□-□					
	5A□-□	59□-□	58□-□	57□-□	56□-□	54□-□
Beam angle	5°	6°	5°	7°	5°	5°
Transducer material	PP, PVDF					
Upper process connection	1" BSP					
Lower process connection	1" BSP / NPT	1½" BSP / NPT	2" BSP / NPT		-	
Max. measurement range ⁽¹⁾	3 m	5 m	8 m	10 m	12 m	18 m
Min. measurement range ⁽¹⁾	0.15 m	0.18 m	0.2 m	0.25 m	0.25 m	0.35 m

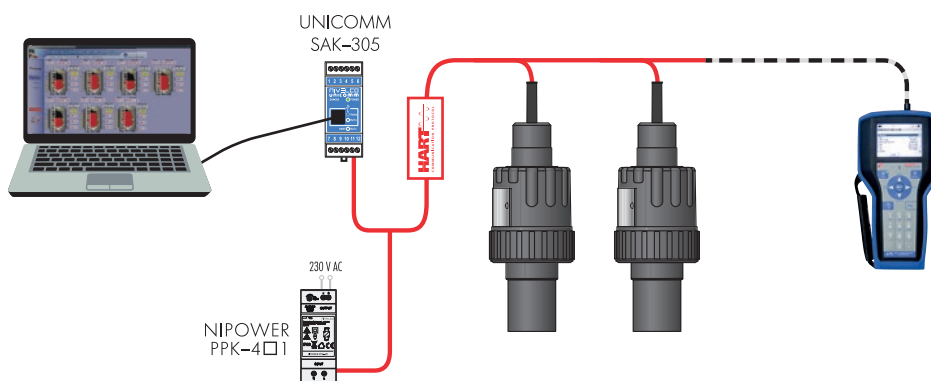
⁽¹⁾ Under optimal conditions and constant transducer temperature.



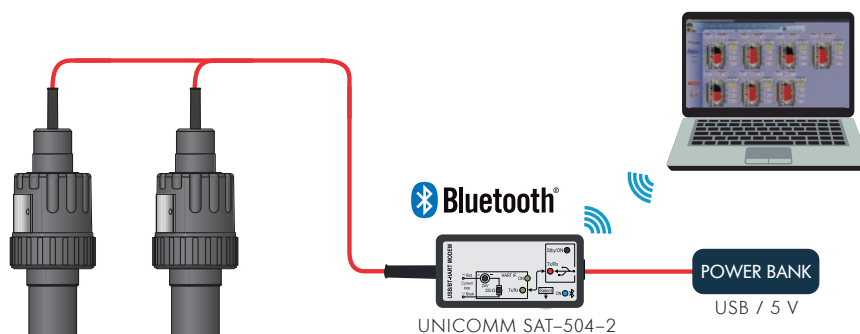
SPA-590



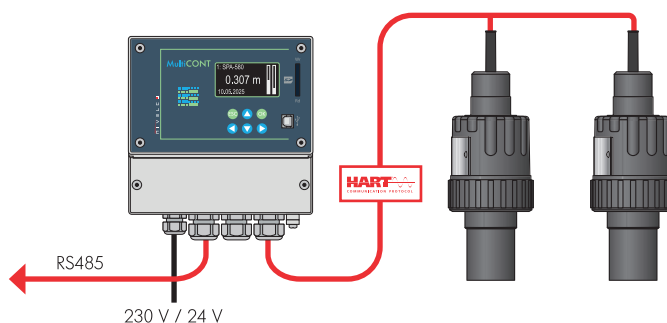
SPB-540

PC CONNECTION

Devices with HART® connectivity can be linked to a PC using a **UNICOMM SAK-305** HART®-USB modem. All measured values of **EasyTREK** level transmitters can be visualized, and the devices can be remotely programmed via HART®. Applicable software for PC: **EView2** configuration tool or **NIVISION** process visualization program.

Bluetooth® CONNECTIVITY

Devices with HART® connectivity can be linked to a PC via Bluetooth® using a **UNICOMM HART®-USB/Bluetooth®** modem (SAT-504). The USB power bank connected to the **UNICOMM** modem can power the entire setup.

HART® MULTIDROP LOOP

MultiCONT Multichannel Process Controllers process and display measurement data supplied by **NIVELCO**'s HART® compatible transmitters in a Multidrop loop. Connected transmitters can be programmed through **MultiCONT**, and it can also perform data logging tasks. Processed data may be sent to a computer via RS485 and displayed in **NIVISION**.

EasyTREK SP-500 Pro

5 years

2-wire integrated ultrasonic level transmitters for liquids
with PP or PVDF transducer; Ingress protection: IP68

Range / Frequency

S P ☐ - 5 ☐ - ☐

A	0.15...3 m / 120 kHz (only for 1" process connection)
9	0.18...5 m / 80 kHz (only for 1" or 1½" process connection)
8	0.2...8 m / 80 kHz (only for 1" or 2" process connection)
7	0.25...10 m / 60 kHz (only for 1" or 2" process connection)
6	0.25...12 m / 60 kHz (only for 1" process connection)
4	0.35...18 m / 40 kHz (only for 1" process connection)

Transducer / Cable material

S P ☐ - 5 ☐ - ☐

A	PP / PVC
B	PVDF / PVC
E	PP / PUR
F	PVDF / PUR

Process connection

S P ☐ - 5 ☐ - ☐

0	BSP thread
N	1", 1½", 2" NPT and 1" BSP (only for SP-5A/59/58/57)

Output

S P ☐ - 5 ☐ - ☐

4	4...20 mA + HART®
H	4...20 mA + HART® + SPDT Relay
Q	4...20 mA + HART®, with 10 m cable

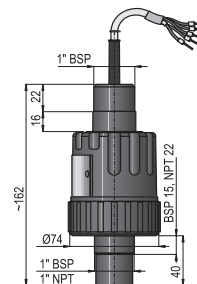
Cable

Maximum length 30 m; sold by the meter over the standard 5 m, PVC

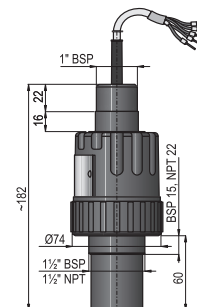
Maximum length 30 m; sold by the meter over the standard 5 m, PUR

Accessories sold separately; see relevant page for details

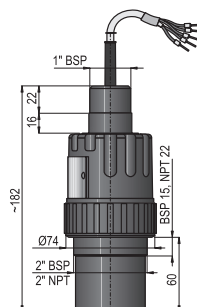
S F A - 3 ☐ - ☐	Flanges
S A T - 5 0 4 - ☐	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ☐	HART®-USB/RS485 modem
S A C - 1 ☐ 1 - 0	Mounting brackets
S A A - 1 0 1 - 0	Quick-connect gland for pipe-mounting devices with 1" process connection, PP
S A A - 1 0 6 - 0	Damping gland for mounting SP devices to thin metal roofs, PP
P ☐ F - ☐ 1 ☐ - ☐	Smart Field Display and Data Logger
P ☐ F - ☐ 0 1 - ☐	Loop Display



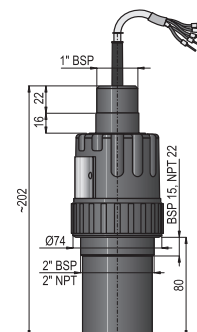
SP-5A



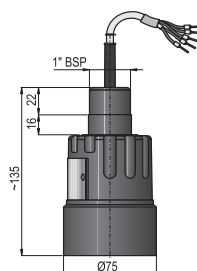
SP-59



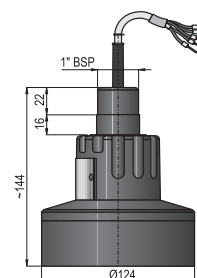
SP-58



SP-57



SP-56



SP-54

NIV24

SPA-5A0-4
SPA-590-4
SPA-580-4, SPA-580-Q
SPA-540-4
SAA-107-0
SAA-108-0

EasyTREK high performance level transmitters embody four decades of NIVELCO's experience in ultrasonic level measurement. Whether measuring the level of sump tanks or open-channel flows, EasyTREK transmitters are the best choice. Installed on the tank's roof or above the liquid's surface, the transmitter produces an output signal (*analog or HART® digital*) proportional to the liquid level. The **EasyTREK** is an integrated blind transmitter with equal measuring performance to that of EchoTREK; it is also readable and programmable remotely through HART® protocol.

There are two mounting options for **EasyTREK**: a 1½" and a 2" process connection. Its 1" threaded neck facilitates suspending it above the medium, a typical water/wastewater application.

FEATURES

- 2-wire integrated level transmitter
- Non-contact level measurement
- Up to 25 m measurement range
- Narrow (5°) beam angle
- Full temperature compensation
- IP68
- HART® communication
- Ex version
- 5-year warranty

APPLICATIONS

- For most liquids, including flammable liquids
- Open-channel flow metering
- Wide application range from wastewater to aggressive chemicals
- Level measurement in basins, wells, sumps, lift-stations
- Measuring hydrocarbons, acids, aggressive liquids, any water-based mediums

CERTIFICATES

- ATEX (Ex ia G)
- INMETRO (Ex ia G)
- UKCA Ex (Ex ia G)



SPA-380-4

TRANSDUCERS

Transducer material	EasyTREK
	SP-300
PP	■
PVDF	■
PTFE	■

PROPERTIES

Functions	EasyTREK
	SP-300
Relay	■
HART®	■
IrDA	■
Logger	■
Intrinsic safety	■

PROGRAMMING

Devices with HART® output can be connected to a PC via a **UNICOMM** HART®-USB modem. All measured values can be displayed on the PC screen, and the devices can be programmed remotely via the HART® modem. Up to 15 non-Ex devices can be connected to a single HART® loop. Applicable software: **EView2** configuration software or **NIVISION** process visualization software.

Programmable features via HART® communication:

- 4 mA assignment to low level
- 20 mA assignment to high level
- Current output error indication
- Relay switch points
- Damping time
- Measurement configuration (Units, function, close-end blocking)
- Measurement optimization (Damping, tracking speed, sound velocity correction)
- Tank contents profiles: 14 different shapes
- Open-channel flow metering: 21 different profiles
- Relay functions (*differential, flow pulse, etc.*)
- 32-point linearization and measurement simulation
- Diagnostic information (*echo map and signal-to-noise ratio*)

TECHNICAL DATA

		EasyTREK SP-300
System		2-wire
Accuracy ⁽¹⁾		$\pm (0.2\% \text{ of measured distance} + 0.05\% \text{ of range})$
Resolution		Depending on measured distance: <2 m: 1 mm; 2...5 m: 2 mm; 5...10 m: 5 mm; >10 m: 10 mm
Output	Analog	4...20 mA
	Relay	SPDT, 30 V DC, 1 A DC
	Digital Communication	HART®
Ambient temperature		-30...+80 °C
		Ex version: see "Ex Information"
Process temperature		See Transducer Details, Ex version: see "Ex Information"
Pressure (absolute)		0.5...3 bar
Supply voltage		12...36 V DC / 48...720 mW
Electrical protection		Class III
Housing		Polypropylene (PP) or (PVDF) same as the transducer material; PTFE transducer housing is made of PP;
Seal		PP transducers: EPDM; all other transducers: FPM (Viton®)
Electrical connection		LiYCY 6× 0.5 mm ² shielded Ø6 mm cable; standard cable length: 5 m (available up to 30 m)
Ingress protection		IP68
Explosion protection		See "Ex Information"
Weight		1.2...2 kg

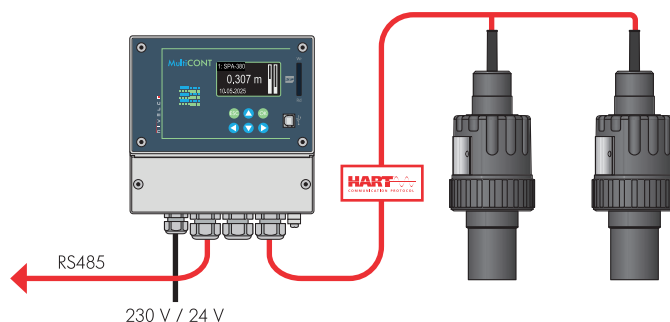
⁽¹⁾ Under optimal conditions and constant transducer temperature

Ex INFORMATION

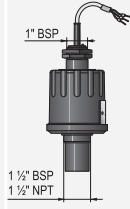
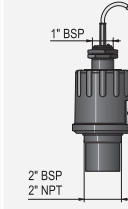
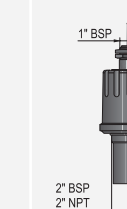
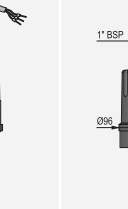
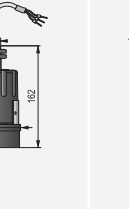
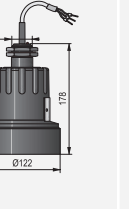
		EasyTREK SP-300
Protection		Intrinsic safety
Ex marking		II 1 G Ex ia IIB T6...T5 Ga
Intrinsic safety data		$C_i \leq 28 \text{ nF}$, $L_i \leq 200 \text{ }\mu\text{H}$, $U_i \leq 30 \text{ V}$, $I_i \leq 140 \text{ mA}$, $P_i \leq 1 \text{ W}$
Ambient temperature		-20...+70 °C
Process temperature		With PP transducer: -20...+70 °C, with PVDF transducer: -20...+80 °C Temperature class T6; with PTFE transducer: -30...+90 °C Temperature class T5
Electrical connection		6× 0.5 mm ² shielded Ø6 mm cable

HART® MULTIDROP LOOP

MultiCONT Multichannel Process Controllers process and display measurement data supplied by NIVELCO's HART® equipped transmitters in a Multidrop loop. Connected transmitters can be programmed through **MultiCONT**, and it can also perform data logging tasks. Processed data may be sent to a computer via RS485 and displayed in **NIVISON**.



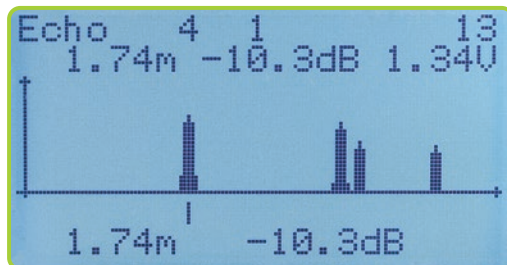
TRANSDUCER DETAILS

	SP□-39	SP□-38	SP□-37	SP□-36	SP□-34	SP□-32
Beam angle	6°	5°	7°	5°		7°
Transducer material	PP or PVDF					
EasyTREK SP 2-wire						
Upper process connection	1" BSP					
Lower process connection	1½" BSP / NPT	2" BSP / NPT			–	
Max. measurement range ⁽¹⁾	4 m	6 m	8 m	10 m	15 m	25 m
Min. measurement range ⁽¹⁾	0.2 m	0.25 m	0.35 m		0.45 m	0.6 m
Process temperature	–30... +90 °C					
Recommended applications	Small vessels with 1½" or 2" process connection			Small vessels with flange	Medium-sized vessels with flange	Tall vessels with flange

Transducer material	PTFE		
Max. measurement range ⁽¹⁾	3 m	5 m	6 m
Min. measurement range ⁽¹⁾	0.25 m		0.35 m
Process temperature	–30...+90 °C		

⁽¹⁾ Under optimal conditions and constant transducer temperature

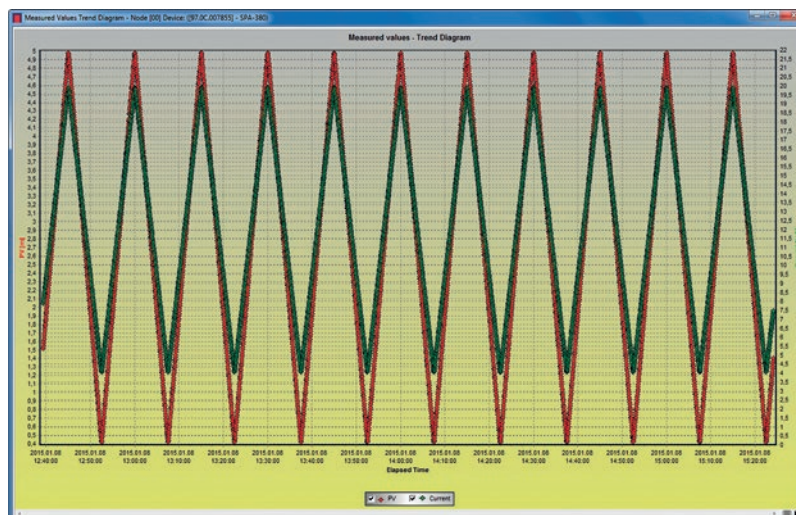
ECHO MAP IN MultiCONT



SPA-360-4



DISPLAY MEASUREMENT VALUE IN EView2



SPA-340-4

EasyTREK SP-300

5 years

2-wire integrated ultrasonic level transmitters for liquids
with PP, PVDF or PTFE transducer; Ingress protection: IP68

Range / Frequency

S P ■ - 3 ■ ■ - ■

9	0.2...4 m / 80 kHz (only for 1" or 1½" process connection)
8	0.25...6 m / 80 kHz (only for 1" or 2" process connection)
7	0.35...8 m / 60 kHz (only for 1" or 2" process connection)
6	0.35...10 m / 60 kHz (only for 1" process connection)
4	0.45...15 m / 40 kHz (only for 1" process connection)
2	0.6...25 m / 20 kHz (only for 1" process connection)

Transducer / Cable material

S P ■ - 3 ■ ■ - ■

A	PP / PVC
B	PVDF / PVC
T	PTFE (only for SP-39/38/37) / PVC
E	PP / PUR
F	PVDF / PUR
G	PTFE (only for SP-39/38/37) / PUR

Process connection

S P ■ - 3 ■ ■ - ■

0	BSP thread
N	1½" or 2" NPT and 1" BSP (only for SP-39/38/37)

Output / Certificates

S P ■ - 3 ■ ■ - ■

3	4...20 mA + HART® + Data logging feature
4	4...20 mA + HART®
7	4...20 mA + HART® + Data logging feature / Ex ia G
8	4...20 mA + HART® / Ex ia G
A	4...20 mA + HART® + Data logging feature + SPDT Relay
H	4...20 mA + HART® + SPDT Relay
Q	4...20 mA + HART®, with 10 m cable

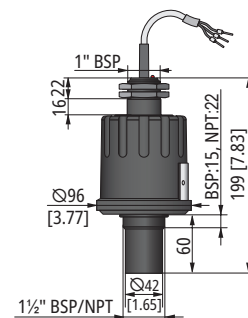
Cable

Maximum length 30 m; sold by the meter over the standard 5 m, PVC

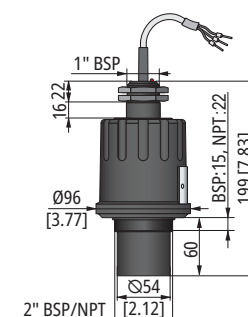
Maximum length 30 m; sold by the meter over the standard 5 m, PUR

Accessories sold separately; see relevant page for details

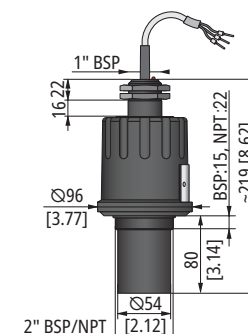
S F A - 3 ■ ■ - ■	Flanges
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A C - 1 ■ ■ 1 - 0	Mounting brackets
S A A - 1 0 1 - 0	Quick-connect gland for pipe-mounting devices with 1" process connection, PP
S A A - 1 0 6 - 0	Damping gland for mounting SP devices to thin metal roofs, PP
P ■ F - ■ ■ 1 - ■	Smart Field Display and Data Logger
P ■ F - ■ ■ 0 1 - ■	Loop Display



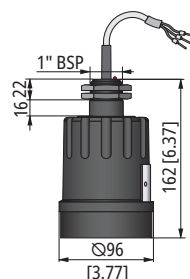
SP□-39□



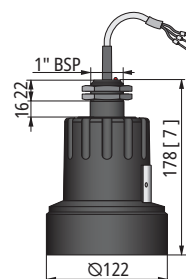
SP□-38□



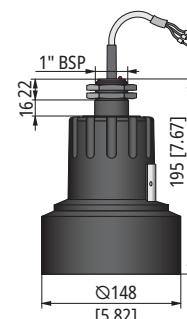
SP□-37□



SP□-36□



SP□-34□



SP□-32□

NIV24

SPA-380-4, SPA-380-Q

SPA-360-4

SPA-340-4, SPA-340-Q

SAA-107-0

SAA-108-0

EchoTREK SE-300 high-performance level transmitters embody four decades of NIVELCO's experience in ultrasonic level measurement. Whether used for level measurement in sump tanks or for open-channel flow metering, EchoTREK transmitters are an excellent choice. Installed above the liquid surface, the transmitter provides an analog output signal proportional to the measured level. EchoTREK is a compact intelligent ultrasonic level transmitter with a 4...20 mA output and optional HART® protocol. An optional removable plug-in display enables local indication. Programming is carried out using four push-buttons; both the display and the buttons are protected by removable covers.

EchoTREK transmitters support HART® 7 communication and can be used in multidrop systems connected to a MultiCONT universal process controller, a MonoCONT smart field display & data logger, or a PC via a UNICOMM HART®-USB / RS485 modem or a similar interface.

Available with measuring ranges of up to 25 m, EchoTREK transmitters are suitable for a wide range of applications. They use NIVELCO's SenSonic range transducers with a full beam angle of 5...7 degrees, combined with intelligent electronics featuring the QUEST+ advanced signal-processing algorithm.

FEATURES

- Compact 2- or 4-wire level transmitter
- Non-contact level measurement
- Up to 25 m measurement range
- Narrow 5° beam angle
- Full temperature compensation
- IP67 protection
- Plug-in display unit
- HART® communication
- PACTware™ compatible
- Ex version available
- 5-year warranty

CERTIFICATES

- ATEX (Ex ia G)
- INMETRO (Ex ia G)
- UKCA Ex (Ex ia G)



SBA-46G-1 (4-wire)

APPLICATIONS

- Most liquids, including flammable liquids
- Open-channel flow metering
- Wide range of applications, from wastewater to aggressive
- Level measurement in basins, wells, sumps, lift stations
- Measurement of hydrocarbons, acids, aggressive liquids, and water-based media



SG-380-4
(2-wire)

TRANSDUCERS

Transducer material	EchoTREK	
	SE / SG-300	ST / SB-400
PP (Polypropylene)	■	■
PVDF	■	■
PTFE	■	■
1.4571/1.4404 (316Ti) stainless steel	■	■

PROPERTIES

Functions	EchoTREK	
	SE / SG-300	ST/SB-400
Relay	■	■
HART®	■	■
IrDA	■	■
Logger	■	■
Ex ia (Intrinsic safety)	■	–
Display	SAP-200	

OPERATION

Ultrasonic level measurement is based on measuring the travel time of ultrasonic pulses from the sensor to the product surface and back. The travel time of the reflected signal is measured and processed by the electronics, then converted into data proportional to distance, level, volume, or flow, taking into account the tank dimensions or the pre-programmed flume/weir parameters. The QUEST+ intelligent signal-processing software supervises the measurement process and ensures reliable level monitoring.

TECHNICAL DATA

		SE / SG-300	ST / SB-400
System		2-wire	4-wire
Accuracy ⁽¹⁾		$\pm$ (0.2% of measured distance + 0.05% of range)	
Resolution		Depending on measured distance: <2 m: 1 mm; 2...5 m: 2 mm; 5...10 m: 5 mm; >10 m: 10 mm	
Output	Analog	4...20 mA	
	Relay ⁽²⁾	SPDT, 30 V DC, 1 A DC	#1 SPDT, 250 V AC, 3 A AC1 #2 SPDT, 30 V DC, 1 A DC
	Display	SAP-200: 6-digit plug-in display	
	Digital communication	HART®	
Ambient temperature		With plastic housing: -25...+70 °C with metal housing: -30...+70 °C with display: -25...+70 °C	
		Ex version: see "Ex Information"	
Process temperature		See Transducer Details / Ex version: see "Ex Information"	
Pressure ⁽³⁾ (absolute)		0.5...3 bar, with stainless steel transducer: 0.9...1.1 bar	
Supply voltage		12 ⁽⁴⁾ ...36 V DC / 48...720 mW	85...255 V AC / 2 VA 20...28 V AC/DC / 3 VA / 3 W
Electrical protection		DC power supply: Class III	
		AC power supply: with metal housing: Class I with plastic housing: Class II	
Housing		Plastic (PBT), painted aluminum or stainless steel	Plastic (PBT), painted aluminum
Seal		In the case of a PP transducer: EPDM; all the other transducers: FPM (Viton®)	
Electrical connection		2× M20×1.5 cable glands + 2× internally threaded ½" NPT connection, cable outer diameter: Ø6...12 mm (shielded cable is recommended), wire cross section: 0.5...1.5 mm ²	
Ingress protection		Transducer: IP68, Housing: IP67	
Explosion protection		see "Ex Information"	—
Weight		1.3...2.3 kg	

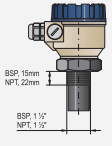
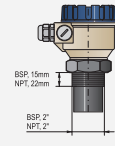
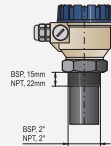
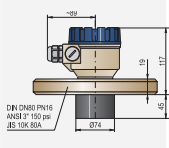
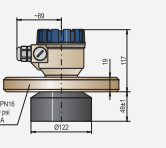
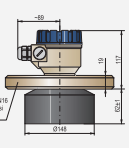
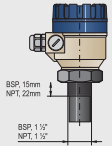
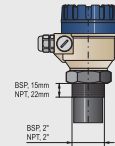
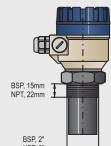
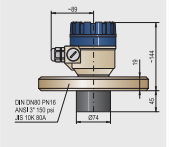
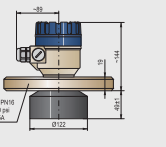
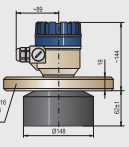
⁽¹⁾ Under optimal conditions and constant transducer temperature⁽²⁾ 4-wire EchoTREK transmitters have two parallel operating relays⁽³⁾ For pressures below 0.5 bar, ask NIVELCO.⁽⁴⁾ At 12 V, only partial operation is possible. For unrestricted, reliable operation, 13.4 V is required.

Ex INFORMATION

		SE / SG-300
Protection	Intrinsic safety	
Ex marking (ATEX)	Ⓔ II 1 G Ex ia IIB T6...T4 Ga	
Intrinsic safety data	$C_i \leq 15$ nF, $L_i \leq 200$ µH, $U_i \leq 30$ V, $I_i \leq 140$ mA, $P_i \leq 1$ W	
Ambient temperature	With plastic housing: -20...+70 °C with metal housing: -30...+70 °C with display: -25...+70 °C	
Process temperature	With PP transducer: -20...+70 °C, with PVDF transducer: -20...+80 °C, with PTFE transducer: -30...+90 °C With Stainless Steel transducer: -30...+100 °C	
Electrical connection	2× M20×1.5 metal cable glands	

SEV-390-8 Ex
+ SFA-3□6SAP-200
display

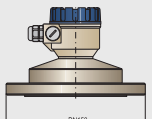
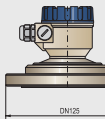
TRANSDUCER DETAILS

	S□□-39 / 49	S□□-38 / 48	S□□-37 / 47	S□□-36 / 46	S□□-34 / 44	S□□-32 / 42
Beam angle	6°	5°	7°	5°		7°
Transducer material	PP or PVDF					
EchoTREK SE / SG 2-wire						
EchoTREK ST / SB 4-wire						
Process connection	1½" BSP / NPT	2" BSP / NPT		DN80 flange	DN125 flange	DN150 flange
Maximum measurement range ⁽¹⁾	4 m	6 m	8 m	10 m	15 m	25 m
Minimum measurement range ⁽¹⁾	0.2 m	0.25 m	0.35 m		0.45 m	0.6 m
Process temperature	-30...+90 °C					
Recommended applications	Small vessels with 1½" or 2" process connection			Small vessels with flange	Medium-sized vessels with flange	Tall vessels with flange

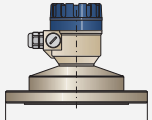
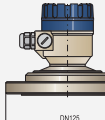
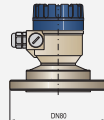
Transducer material	PTFE			Stainless steel		
Maximum measurement range ⁽¹⁾	3 m	5 m	6 m	7 m	12 m	15 m
Minimum measurement range ⁽¹⁾	0.25 m		0.35 m	0.4 m	0.55 m	0.65 m
Process temperature	-30...+90 °C			-30...+100 °C (CIP +120 °C for max. 2 hours)		

⁽¹⁾ Under optimal conditions and constant transducer temperature

EchoTREK S□S / S□M
2-wire



EchoTREK S□S / S□M
4-wire



SEA-370



SGP-370-8Ex

EchoTREK ST-400 - 4-wire, max. 8 m

5 years

4-wire compact ultrasonic level transmitters for liquids with 2 SPDT relays with PP, PVDF or PTFE transducer; Ingress protection: IP67

Range / Frequency

S ■ ■ ■ - 4 ■ ■ ■ - ■

9	0.2...4 m / 80 kHz (only for 1½" process connection)
8	0.25...6 m / 80 kHz (only for 2" process connection)
7	0.35...8 m / 60 kHz (only for 2" process connection)

Version

S ■ ■ ■ - 4 ■ ■ ■ - ■

T	Transmitter
B	Transmitter with plug-in display

Housing / Transducer material

S ■ ■ ■ - 4 ■ ■ ■ - ■

P	Fiberglass-reinforced plastic (PBT) / Polypropylene (PP)
V	Fiberglass-reinforced plastic (PBT) / PVDF
F	Fiberglass-reinforced plastic (PBT) / PTFE
A	Painted aluminum / Polypropylene (PP)
B	Painted aluminum / PVDF
T	Painted aluminum / PTFE

Process Connection

S ■ ■ ■ - 4 ■ ■ ■ - ■

0	BSP thread
N	NPT thread

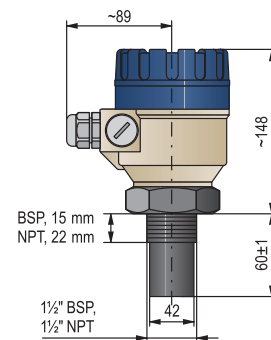
Supply voltage / Output

S ■ ■ ■ - 4 ■ ■ ■ - ■

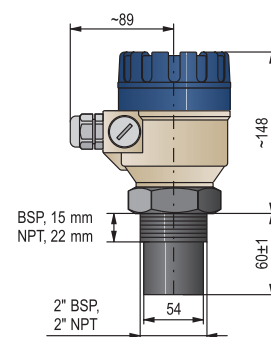
1	85...255 V AC / 4...20 mA + SPDT Relay
3	85...255 V AC / 4...20 mA + HART® + SPDT Relay
G	85...255 V AC / 4...20 mA + HART® + SPDT Relay + Data logging feature
K	85...255 V AC / 4...20 mA + SPDT + Data logging feature
2	24 V AC/DC / 4...20 mA + SPDT Relay
4	24 V AC/DC / 4...20 mA + HART® + SPDT Relay
H	24 V AC/DC / 4...20 mA + HART® + SPDT Relay + Data logging feature
L	24 V AC/DC / 4...20 mA + SPDT Relay + Data logging feature

Accessories sold separately; see relevant page for details

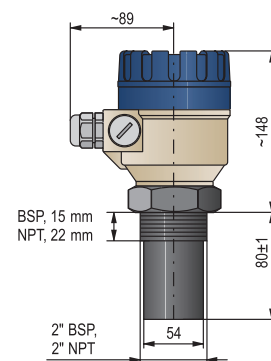
S A P - 2 0 0 - 0	Plug-in programmer/display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A C - 1 ■ 1 - 0	Mounting brackets
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



ST□-49□



ST□-48□



ST□-47□

NIV24

SAP-200-0

SAA-107-0

SAA-108-0

EchoTREK ST-400 - 4-wire, max. 25 m

5 years

4-wire compact ultrasonic level transmitters for liquids with 2 SPDT Relays with PP or PVDF transducer; Ingress protection: IP67

Range / Frequency

S ■ ■ - 4 ■ ■ - ■

6	0.35...10 m / 60 kHz (Min. required flange size: DN80)
4	0.45...15 m / 40 kHz (Min. required flange size: DN125)
2	0.6...25 m / 20 kHz (Min. required flange size: DN150)

Version

S ■ ■ - 4 ■ ■ - ■

T	Transmitter
B	Transmitter with plug-in display

Housing / Transducer material

S ■ ■ - 4 ■ ■ - ■

P	Fiberglass-reinforced plastic (PBT) / Polypropylene (PP)
V	Fiberglass-reinforced plastic (PBT) / PVDF
A	Painted aluminum / Polypropylene (PP)
B	Painted aluminum / PVDF

Process Connection

S ■ ■ - 4 ■ ■ - ■

DIN flanges: Polypropylene (PP), PN16

2	DN80 PN16
3	DN100 PN16
4	DN125 PN16
5	DN150 PN16
6	DN200 PN16

FF ANSI flanges: Polypropylene (PP), 150 psi

A	3" FF 150 psi
B	4" FF 150 psi
C	5" FF 150 psi
D	6" FF 150 psi
E	8" FF 150 psi

JIS flanges: Polypropylene (PP), 10K

G	80A (as per 10K)
H	100A (as per 10K)
P	125A (as per 10K)
R	150A (as per 10K)
S	200A (as per 10K)

Mounting brackets

K	200 mm mounting bracket, powder-coated steel
L	500 mm mounting bracket, powder-coated steel
M	700 mm mounting bracket, powder-coated steel

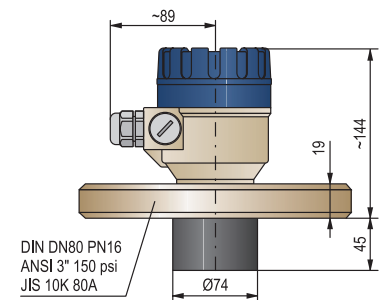
Supply voltage / Output

S ■ ■ - 4 ■ ■ - ■

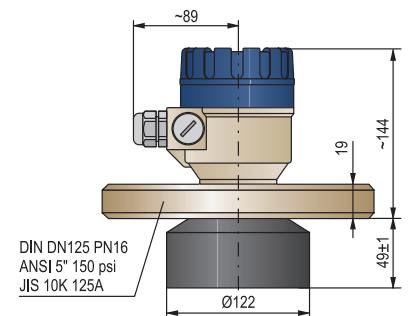
1	85...255 V AC / 4...20 mA + SPDT Relay
3	85...255 V AC / 4...20 mA + HART® + SPDT Relay
G	85...255 V AC / 4...20 mA + HART® + SPDT Relay + Data logging feature
K	85...255 V AC / 4...20 mA + SPDT Relay + Data logging feature
2	24 V AC/DC / 4...20 mA + SPDT Relay
4	24 V AC/DC / 4...20 mA + HART® + SPDT Relay
H	24 V AC/DC / 4...20 mA + HART® + SPDT Relay + Data logging feature
L	24 V AC/DC / 4...20 mA + SPDT Relay + Data logging feature

Accessories sold separately; see relevant page for details

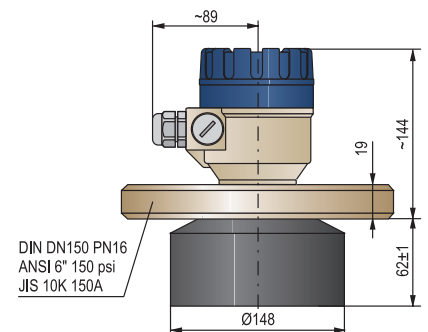
S A P - 2 0 0 - 0	Plug-in programmer/display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



ST-460



ST-440



ST-420

EchoTREK ST-400 - 4-wire with stainless steel transducer

5 years

4-wire compact ultrasonic level transmitters for liquids with 2 SPDT Relays with stainless steel transducer face; Ingress protection: IP67

Range / Frequency

S ■ ■ - 4 ■ ■ - ■

6	0.4...7 m / 60 kHz (flange size: DN80)
4	0.55...12 m / 40 kHz (flange size: DN125)
2	0.65...15 m / 20 kHz (flange size: DN150)

Version

S ■ ■ - 4 ■ ■ - ■

T	Transmitter
B	Transmitter with plug-in display

Housing / Transducer material

S ■ ■ - 4 ■ ■ - ■

M	Fiberglass-reinforced plastic (PBT) / stainless steel (AISI SS316Ti, DIN 1.4571/1.4404)
S	Painted aluminum / stainless steel (AISI SS316Ti, DIN 1.4571/1.4404)

Process Connection / Material

S ■ ■ - 4 ■ ■ - ■

2	DN80 PN16 (only for S-46), PP-coated steel
4	DN125 PN16 (only for S-44), PP-coated steel
5	DN150 PN16 (only for S-42), PP-coated steel

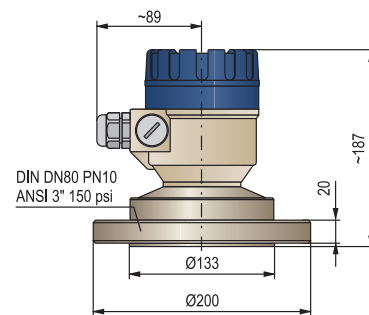
Supply voltage / Output

S ■ ■ - 4 ■ ■ - ■

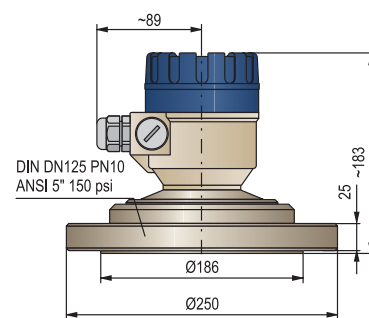
1	85...255 V AC / 4...20 mA + SPDT Relay
3	85...255 V AC / 4...20 mA + HART® + SPDT Relay
G	85...255 V AC / 4...20 mA + HART® + SPDT Relay+ Data logging feature
K	85...255 V AC / 4...20 mA + SPDT Relay+ Data logging feature
2	24 V AC/DC / 4...20 mA + SPDT Relay
4	24 V AC/DC / 4...20 mA + HART® + SPDT Relay
H	24 V AC/DC / 4...20 mA + HART® + SPDT Relay+ Data logging feature
L	24 V AC/DC / 4...20 mA + SPDT Relay+ Data logging feature

Accessories sold separately; see relevant page for details

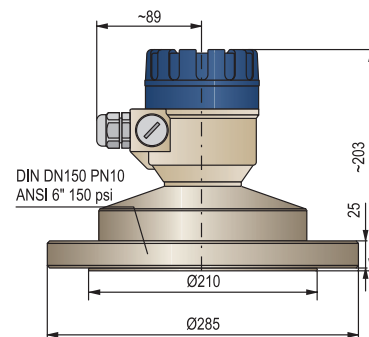
S A P - 2 0 0 - 0	Plug-in programmer/display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



STM / STS-462



STM / STS-444



STM / STS-425

EchoTREK SE-300 - 2-wire, max. 8 m

5 years

2-wire compact ultrasonic level transmitters for liquids with PP, PVDF or PTFE transducer; Ingress protection: IP67

Range / Frequency

S ■ ■ - 3 ■ ■ - ■

9	0.2...4 m / 80 kHz (only for 1½" process connection)
8	0.25...6 m / 80 kHz (only for 2" process connection)
7	0.35...8 m / 60 kHz (only for 2" process connection)

Version

S ■ ■ - 3 ■ ■ - ■

E	Transmitter
G	Transmitter with plug-in display

Housing / Transducer material

S ■ ■ - 3 ■ ■ - ■

P	Fiberglass-reinforced plastic (PBT) / Polypropylene (PP)
V	Fiberglass-reinforced plastic (PBT) / PVDF
F	Fiberglass-reinforced plastic (PBT) / PTFE
A	Painted aluminum / Polypropylene (PP)
B	Painted aluminum / PVDF
T	Painted aluminum / PTFE
K	Stainless steel / Polypropylene (PP)
W	Stainless steel / PVDF
L	Stainless steel / PTFE

Process Connection

S ■ ■ - 3 ■ ■ - ■

0	BSP thread
N	NPT thread

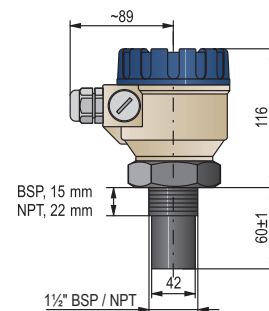
Output / Certificates

S ■ ■ - 3 ■ ■ - ■

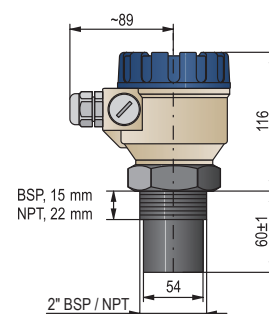
1	4...20 mA + Data logging feature
2	4...20 mA
3	4...20 mA + HART® + Data logging feature
4	4...20 mA + HART®
5	4...20 mA + Data logging feature / Ex ia G
6	4...20 mA / Ex ia G
7	4...20 mA + HART® + Data logging feature / Ex ia G
8	4...20 mA + HART® / Ex ia G
L	4...20 mA + Data logging feature + SPDT Relay
R	4...20 mA + SPDT Relay
A	4...20 mA + HART® + Data logging feature + SPDT Relay
H	4...20 mA + HART® + SPDT Relay

Accessories sold separately; see relevant page for details

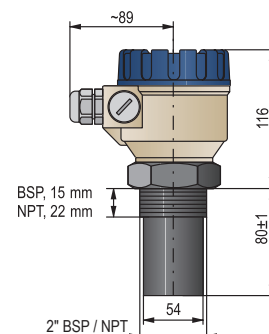
S F A - 3 ■ ■ - ■	Flanges
S A P - 2 0 0 - 0	Plug-in programmer/display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A C - 1 ■ 1 - 0	Mounting brackets
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



SE□-39□



SE□-38□



SE□-37□

NIV24

SEP-380-2, SEP-390-2

SAP-200-0

SAA-107-0, SAA-108-0

EchoTREK SE-300 - 2-wire, max. 25 m

5 years

2-wire compact ultrasonic level transmitters for liquids
with PP or PVDF transducer; Ingress protection: IP67

Range / Frequency

S ■ ■ ■ - 3 ■ ■ ■ - ■

6	0.35...10 m / 60 kHz (min. required flange size: DN80)
4	0.45...15 m / 40 kHz (min. required flange size: DN125)
2	0.6...25 m / 20 kHz (min. required flange size: DN150)

Version

S ■ ■ ■ - 3 ■ ■ ■ - ■

E	Transmitter
G	Transmitter with plug-in display

Housing / Transducer material

S ■ ■ ■ - 3 ■ ■ ■ - ■

P	Fiberglass-reinforced plastic (PBT) / Polypropylene (PP)
V	Fiberglass-reinforced plastic (PBT) / PVDF
A	Painted aluminum / Polypropylene (PP)
B	Painted aluminum / PVDF
K	Stainless steel / Polypropylene (PP)
W	Stainless steel / PVDF

Process Connection

S ■ ■ ■ - 3 ■ ■ ■ - ■

DIN flanges: Polypropylene (PP), PN16

2	DN80 PN16
3	DN100 PN16
4	DN125 PN16
5	DN150 PN16
6	DN200 PN16

FF ANSI flanges: Polypropylene (PP), 150 psi

A	3" FF 150 psi
B	4" FF 150 psi
C	5" FF 150 psi
D	6" FF 150 psi
E	8" FF 150 psi

JIS flanges: Polypropylene (PP), 10K

G	80A (as per 10K)
H	100A (as per 10K)
P	125A (as per 10K)
R	150A (as per 10K)
S	200A (as per 10K)

Mounting brackets

K	200 mm mounting bracket, powder-coated steel
L	500 mm mounting bracket, powder-coated steel
M	700 mm mounting bracket, powder-coated steel

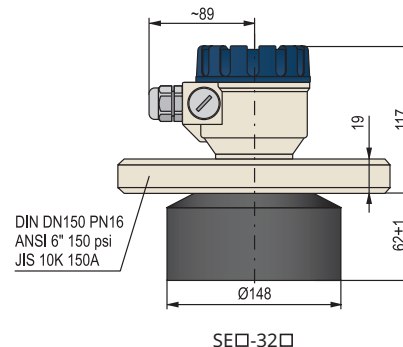
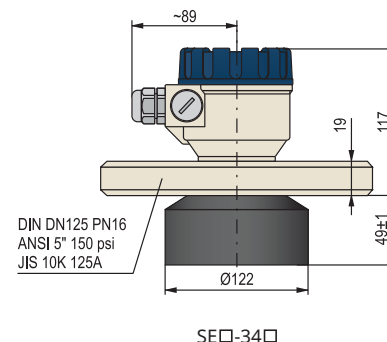
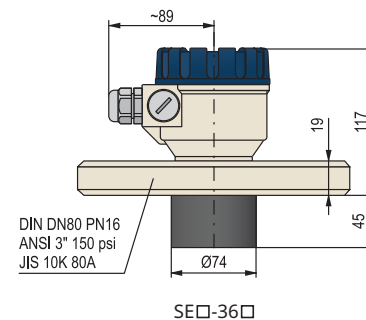
Output / Certificates

S ■ ■ ■ - 3 ■ ■ ■ - ■

1	4...20 mA + Data logging feature
2	4...20 mA
3	4...20 mA + HART® + Data logging feature
4	4...20 mA + HART®
5	4...20 mA + Data logging feature / Ex ia G
6	4...20 mA / Ex ia G
7	4...20 mA + HART + Data logging feature / Ex ia G
8	4...20 mA + HART® / Ex ia G
L	4...20 mA + Data logging feature + SPDT Relay
R	4...20 mA + SPDT Relay
A	4...20 mA + HART® + Data logging feature + SPDT Relay
H	4...20 mA + HART® + SPDT Relay

Accessories sold separately; see relevant page for details

S A P - 2 0 0 - 0	Plug-in programmer/display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



EchoTREK SE-300 - 2-wire with stainless steel transducer

5 years

2-wire compact ultrasonic level transmitters for liquids
with stainless steel transducer face; Ingress protection: IP67

Range / Frequency

S ■ ■ - 3 ■ ■ - ■

6	0.4...7 m / 60 kHz (flange size: DN80)
4	0.55...12 m / 40 kHz (flange size: DN125)
2	0.65...15 m / 20 kHz (flange size: DN150)

Version

S ■ ■ - 3 ■ ■ - ■

E	Transmitter
G	Transmitter with plug-in display

Housing / Transducer material

S ■ ■ - 3 ■ ■ - ■

M	Fiberglass-reinforced plastic (PBT) / stainless steel (AISI SS316Ti, DIN 1.4571/1.4404)
S	Painted aluminum / stainless steel (AISI SS316Ti, DIN 1.4571/1.4404)
N	Stainless steel / stainless steel (AISI SS316Ti, DIN 1.4571/1.4404)

Process Connection / Material

S ■ ■ - 3 ■ ■ - ■

2	DN80 PN16 (only for S-36), PP-coated steel
4	DN125 PN16 (only for S-34), PP-coated steel
5	DN150 PN16 (only for S-32), PP-coated steel

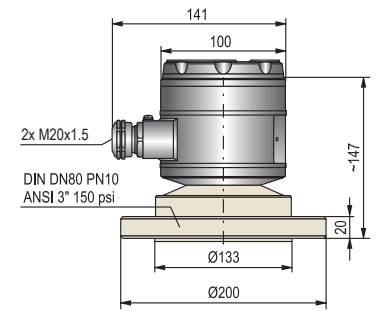
Output / Certificates

S ■ ■ - 3 ■ ■ - ■

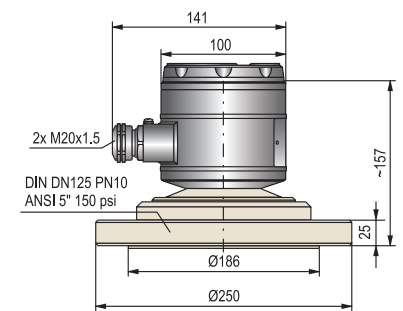
1	4...20 mA + Data logging feature
2	4...20 mA
3	4...20 mA + HART® + Data logging feature
4	4...20 mA + HART®
5	4...20 mA + Data logging feature / Ex ia G
6	4...20 mA / Ex ia G
7	4...20 mA + HART® + Data logging feature / Ex ia G
8	4...20 mA + HART® / Ex ia G
L	4...20 mA + Data logging feature + Relay
R	4...20 mA + Relay
A	4...20 mA + HART® + Data logging feature + SPDT Relay
H	4...20 mA + HART® + SPDT Relay

Accessories sold separately; see relevant page for details

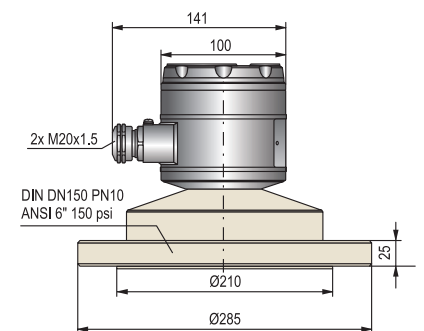
S A P - 2 0 0 - 0	Plug-in programmer/display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



SEN-362



SEN-344



SEN-325

The new 4-wire EasyTREK ultrasonic level transmitters are designed for solids level monitoring — an area where previously only more complex, two-part systems could perform adequately. Equipped with SenSonic narrow-beam transducers for superb signal transmission, EasyTREK effortlessly handles filling noise, dust, and irregular surface profiles. When combined with QUEST+, our advanced adaptive signal processing software, it delivers world-class performance and reliability.

FEATURES

- Non-contact level measurement
- 4-wire integrated (blind) level transmitter
- Up to 60 m measurement range
- Narrow (5°) beam angle
- Full temperature compensation
- IP65
- HART® communication
- Configuration via Bluetooth® (SCD-500)
- Dust Ex version available (SCD-300)
- 5-year warranty

APPLICATIONS

- Level, volume and weight calculation
- Wide application range: light powders to coarse bulk solid materials
- Reliable operation in challenging environments (e. g. dust)

CERTIFICATES (SCD-300)

- ATEX (Ex ma ta D)
- EAC Ex (Ex ma ta D)



TECHNICAL DATA

		SCD-300	SCD-500 (Coming soon)
System		4-wire	
Accuracy ⁽¹⁾		± (0.2% of measured distance + 0.1% of range)	
Resolution		10 mm	
Output	Analog	4...20 mA	
	Relay	SPST, 48 V AC / 5 A	
	Service interface	–	Compatible with SAT-504-3/4
	Digital communication	HART®	Bluetooth®, HART® interface (loop resistance ≥250 Ω)
Ambient temperature		-30...+60 °C	
Process temperature			
Process pressure		0.7...1.1 bar P _{absolute} and ±0.1 bar difference between ambient and tank pressure	
Supply voltage		11.4...40 V DC / 4.7 W; 11.4...28 V AC / 5.2 VA	24 V DC / 2.5 W
Electrical protection		Class III	
Inrush current draw			0.6 A
Housing		Same as the transducer housing material	
Electrical connection		LiYCY type 7× 0.5 mm² shielded Ø7.5 mm cable; standard cable length: 5 m (available up to 30 m)	LiYCY type 6× 0.5 mm² shielded Ø7.5 mm cable; standard cable length: 5 m (available up to 30 m)
Ingress protection		IP65	
Explosion protection		see "Ex Information"	in prep.
Weight		~3...3.5 kg, or 6.5 kg	

⁽¹⁾ Under optimal conditions and constant transducer temperature.

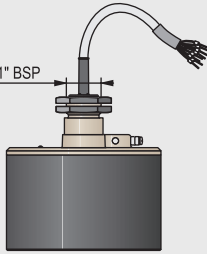
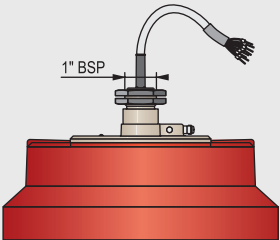
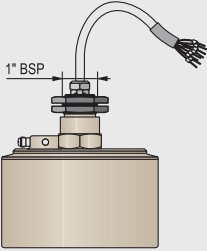
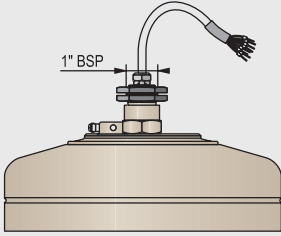
Ex INFORMATION

	SCD-300
Protection	Dust Ex
Ex marking	Ex II 1 D Ex ma ta IIIC T85°C...T130°C Da
Ambient temperature	–30...+60 °C
Process temperature	
Output	Electronic switch: SPST 48 V AC 50 V DC / 1 A

PROPERTIES

	SCD-300	SCD-500
Relay / SSR	SPST	–
HART®	■	■
Dust Ex version	■	□
Bluetooth®	–	■

TRANSDUCER PROPERTIES

	SCD-34□ / 54□	SCD-33□ / 53□	SCD-31□ / 51□
Recommended applications	Small tanks, hoppers, conveyor belts. Both for powders and granules.	Medium-sized silos with solids.	Large silos with solids. Recommended in dusty environments due to its power and low frequency.
EasyTREK			
EasyTREK (Ex version SCD-300 only)			
Transducer Material	Standard version: PP + Painted aluminum, Ex version: Painted aluminum (SCD-300)		
Transducer Surface	Closed-cell PVC foam		
Beam Angle	5°		
Max. Measurement Range ⁽¹⁾	15 m	30 m	60 m
Min. Measurement Range ⁽¹⁾	0.6 m		1 m

⁽¹⁾ Under optimal conditions and constant transducer temperature



SCD-31J-8 Ex



SCD-33J / 53J-4



SCD-31J / 51J-4

EasyTREK SC-300

5 years

4-wire integrated ultrasonic level transmitters for solids with PP or cast aluminum sensor housing with PVC foam face

Range / Frequency

S C D - 3 ☐ ☐ - ☐

4 0.6...15 m (40 kHz)

3 0.6...30 m (30 kHz)

1 1...60 m (15 kHz)

Process connection

S C D - 3 ☐ ☐ - ☐

0 1" BSP thread

J Joystick aiming device

Output / Ex Certificate

S C D - 3 ☐ ☐ - ☐

4 4...20 mA + HART® + SPST solid-state output

8 4...20 mA + HART® + SSR / Ex ma ta IIIC

Cable

Maximum length 30 m; sold by the meter over the standard 5 m

Accessories sold separately; see relevant page for details

S F A - 3 ☐ ☐ - ☐

Flanges

S A T - 5 0 4 - ☐

HART®-USB/Bluetooth® modem

S A K - 3 0 5 - ☐

HART®-USB/RS485 modem

S A A - 1 0 1 - 0

Quick-connect gland for pipe-mounting devices with 1" process connection, PP

S A A - 1 1 2 - 0

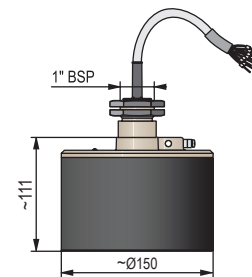
Joystick aiming device

P ☐ F - ☐ 1 - ☐

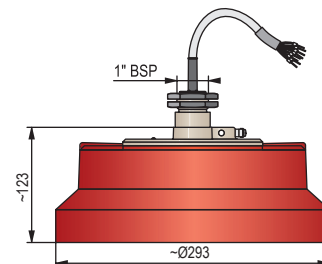
Smart Field Display and Data Logger

P ☐ F - ☐ 0 1 - ☐

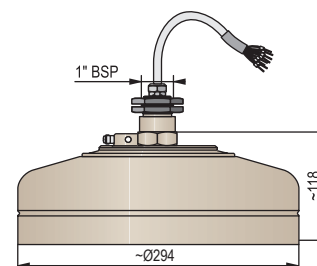
Loop Display



SCD-330 / 340 / 530 / 540



SCD-310 / 510



SCD-310-8 Ex

EasyTREK SC-500

5 years

4-wire integrated ultrasonic level transmitters for solids with PP sensor housing with PVC foam face

Range / Frequency

S C D - 5 ☐ ☐ - ☐

4 0.6...15 m (40 kHz)

3 0.6...30 m (30 kHz)

1 1...60 m (15 kHz)

Process connection

S C D - 5 ☐ ☐ - ☐

0 1" BSP thread

J Joystick aiming device (total length ~610 mm)

Output / Ex Certificate

S C D - 5 ☐ ☐ - ☐

4 4...20 mA + HART®

8 * 4...20 mA + HART® / Ex ma ta IIIC

B * 4...20 mA + HART® + Bluetooth®

E * 4...20 mA + HART® + Bluetooth® / Ex ma ta IIIC

* Under development

Cable

Maximum length 30 m; sold by the meter over the standard 5 m

Accessories sold separately; see relevant page for details

S F A - 3 ☐ ☐ - ☐

Flanges

S A T - 5 0 4 - ☐

HART®-USB/Bluetooth® modem

S A K - 3 0 5 - ☐

HART®-USB/RS485 modem

S A A - 1 0 1 - 0

Quick-connect gland for pipe-mounting devices with 1" process connection, PP

S A A - 1 1 2 - 0

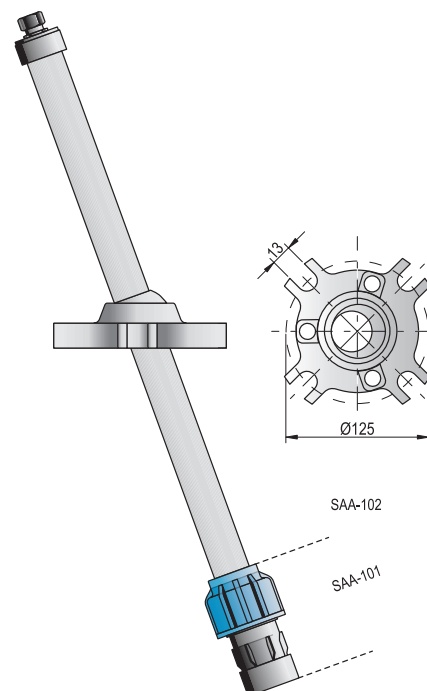
Joystick aiming device

P ☐ F - ☐ 1 - ☐

Smart Field Display and Data Logger

P ☐ F - ☐ 0 1 - ☐

Loop Display



SAA-102

COMING SOON

NIVOSONAR SFA**5 years**

Plastic flanges for ultrasonic level transmitters
Material: Polypropylene (PP)

Type**S F A - 3****S** Flanges**Flange size****S F A - 3**

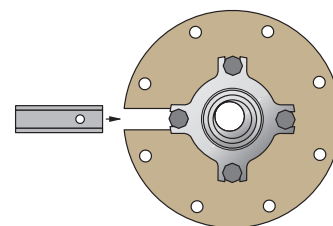
DIN flanges, PN16

2 DN80 PN16**3** DN100 PN16**4** DN125 PN16**5** DN150 PN16**6** DN200 PN16**7** DN250 PN16**8** DN300 PN16**9** DN350 PN16

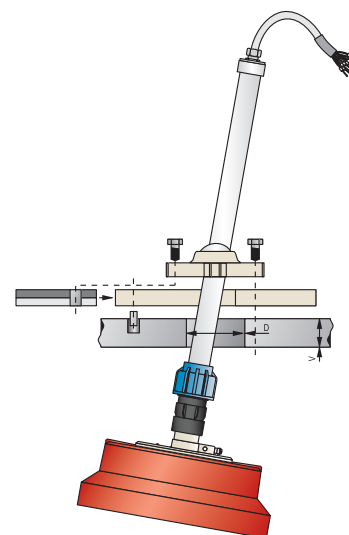
FF ANSI flanges, 150 psi

A 3" FF 150 psi**B** 4" FF 150 psi**C** 5" FF 150 psi**D** 6" FF 150 psi**E** 8" FF 150 psi**Y** 12" FF 150 psi**K** 14" FF 150 psi

JIS flanges, 10K

G 80A (as per 10K)**H** 100A (as per 10K)**P** 125A (as per 10K)**R** 150A (as per 10K)**S** 200A (as per 10K)**Z** 300A (as per 10K)**W** 350A (as per 10K)**Flange type****S F A - 3****1** Ø35 mm hole (for units with 1" BSP process connection)**3** For units with 2" BSP process connection**4** For units with 2" NPT process connection**5** For mounting to SAA-102 aiming device**6** For units with 1½" BSP process connection**7** For units with 1½" NPT process connection**Version****S F A - 3****0** Standard hole

SFA-3□5



SCD-51J + SFA-3□5

Diameter of the opening (D)	Max. thickness of the roof (V)
160 mm	110 mm
190 mm	150 mm
230 mm	200 mm
300 mm	280 mm
340 mm	300 mm

UNIMOUNT SAC mounting bracket

5 years

Mounting bracket available separately for level transmitters, level switches, 1" suspension elements, 1", 1½" and 2" connections, and nameplates. Made of painted aluminum and stainless steel, for loads up to 5 kg.

Type

□ A C - 1 ■ 1 - 0

S Mounting brackets

Extension element

S A C - 1 □ 1 - 0

0 None

1 1×

2 2×

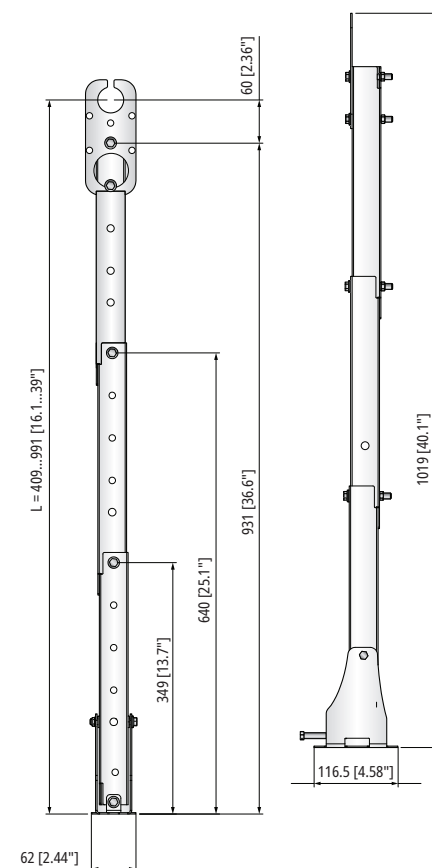
3 3×

Accessories sold separately

S A C - 1 0 0 - 0 Basic unit

S A C - 2 1 0 - 0 Extension element, 300 mm (×1)

S A C - 2 0 1 - 0 Accessory set (1" suspension element + plate for 1", 1½" and 2" connections + vibration-damping sponge washer + screw set)



SAC-131

UNIMOUNT SAA Joystick aiming device

5 years

Joystick aiming device for adjusting the measuring angle of the level transmitter, with PG9-type cable gland, DN50 PN16 flange mounting design, 1" BSP device connection

Type

□ A A - 1 ■ 2 - 0

S Joystick aiming device

Pipe length / total length

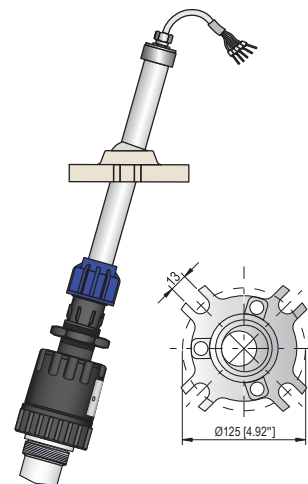
S A A - 1 □ 2 - 0

2 200 mm / ~260 mm

3 300 mm / ~360 mm

4 400 mm / ~460 mm

0 550 mm / ~610 mm



SAA-102

UNIMOUNT SAB shielding cap

5 years

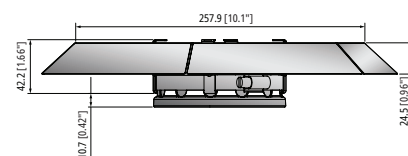
Sun protection shielding cap designed for installation on the top cover of the instrument housing. Available in stainless steel or plastic.

Type

S A B - 1 1 2 - 0 3D printed plastic shielding cap, snap-on design for plastic cover

S A B - 1 1 3 - 0 3D printed plastic shielding cap, snap-on design for aluminum cover

S A B - 2 1 1 - 2 Stainless steel shielding cap, clamp-type design, for all instrument covers



SAB-211-2

Accessories for all transmitters

UNIDISP SAP-100

5 years

Plug-in programming and display module for 4-wire EchoTREK ST-300
Field indications: 6-digits LCD, icons and bargraph display

Type

S A P - 1 0 0 - 0 Plug-in programmer/display module

UNIDISP SAP-200

5 years

Plug-in dot-matrix graphic display is designed for 2-wire transmitters. It provides clear field indication of the measured value and a bargraph display.

Label

S A P - 2 0 - 0
0 Module with label for 2-wire and S-400 EchoTREK
2 Module with label for NIVOCAP, THERMOCONT, UNICONT PD

UNIDISP SAP-300

5 years

Plug-in dot matrix (128 x 64) graphic display for 2-wire transmitters
Field indications: measured value, bargraph display

Type

S A P - 3 0 0 - 0 Graphic plug-in display module

UNICOMM SAT-305

5 years

Infrared interface module with data logger readout function, equipped with Type-B mini USB connector

Type

S A T - 3 0 5 - 0 IRDA module

UNICOMM SAT-506

5 years

eLink unit for software/firmware updates and data logger readout, with Type-B mini USB connector. Can be plugged into the socket of the SAP display module. Provides galvanically isolated power and communication to the device, enabling high-speed program loading.

Type

S A T - 5 0 6 - eLink Module
0 eLink plug-in unit
1 eLink plug-in unit, for data logger readout only

EView2

1 year

EView2 HART configuration software package for remote programming and monitoring of primary measurement values in HART multidrop systems. Available for free download from our website.

MobileEView

MobileEView is NIVELCO's mobile application that communicates with devices via Bluetooth®. It enables easy configuration and management of transmitter settings.

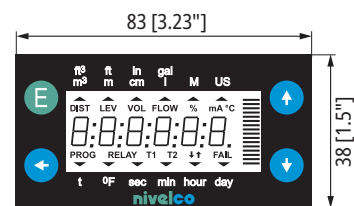
SENSORAR

5 years

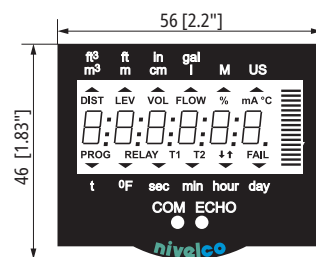
Mounting nuts

Type

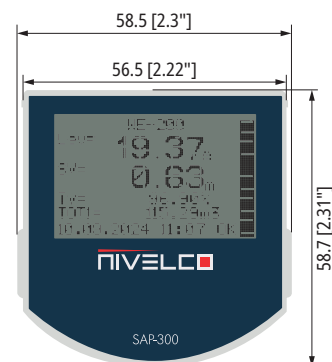
SIA-340-0M-020-05 1" BSP female nut / PP
SIB-340-9M-020-05 1" BSP female nut / PVDF
SSA-390-9M-020-01 1½" BSP female nut / PP
SSB-390-9M-020-01 1½" BSP female nut / PVDF
SSA-380-9M-020-02 2" BSP female nut / PP
SSB-380-9M-020-02 2" BSP female nut / PVDF



SAP-100



SAP-200



SAP-300

NIV24

SAP-100-0

SAP-200-0

SAP-300-0



We know all about liquids.

Distance

Mass

DO

Temperature

Flow

Weight

Pressure

Level

Volume

5 YEARS WARRANTY



SIL



BUREAU
VERITAS



NIVELCO.COM

LEVEL SWITCHES

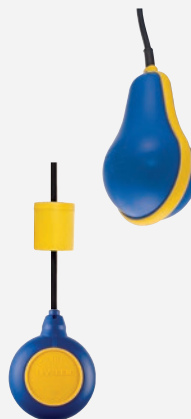
The most frequent level instrumentation task is level control and limit-switching. NIVELCO offers reliable level control and limit level switching solutions for most mediums, from potable water to sewage, aggressive alkalis and acids, free-flowing, powdered, bulk, or granular solids.

Most of our level switches have explosion-proof (ATEX or IEC Ex compliant) versions.

We offer suitable solutions for industries with special requirements, for example, shipbuilding that requires DNV, Bureau Veritas (BV), or SIL certificates.

NIVOFLOAT FLOAT SWITCHES

page 105



- Air-tight, double-chamber design
- Adjustable switch differential
- Cable length up to 20 m
- Process temperature up to +50 °C
- Process pressure up to 2 bar
- Level switching from potable water to sewage
- Fail-safe indication and pump control
- Suitable for tanks and basins

NIVOCONT K CONDUCTIVE LEVEL SWITCHES

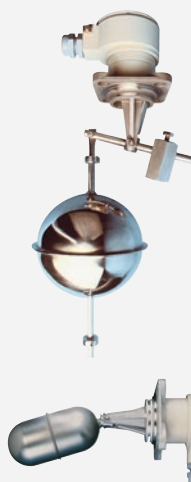
page 107



- Cost-effective solution
- Limit or differential switch versions
- Adjustable sensitivity
- Adjustable delay
- All wetted parts in stainless steel
- Compact and remote variants
- For liquids with conductivity > 10 µS/cm
- Rod probes up to 3 m

NIVOMAG MAGNETIC COUPLING SWITCHES

page 112



- Operation without power supply
- Micro-switch isolated from the process
- All wetted parts in stainless steel
- Fixed or adjustable switch differential
- Submersible versions
- For liquids with density > 0.7 kg/dm³
- Ex d versions
- Marine and SIL certificate

NIVOPOINT

MAGNETIC TRACKING SWITCHES

page 117



- Operation without power supply
- Reed switch contact
- Stainless steel or titanium floats
- PFA-coated probe version with plastic float
- Up to 5 switching points
- For liquids with density $> 0.4 \text{ kg/dm}^3$
- Multi-point level switching in sealed tanks
- Ex versions

NIVOSWITCH for LIQUIDS

VIBRATING FORK LEVEL SWITCHES

page 122



- For most liquids with density $> 0.7 \text{ kg/dm}^3$ and viscosity up to $10^4 \text{ mm}^2/\text{s}$
- No moving parts
- Self-cleaning in most media
- Stainless steel and plastic-coated forks
- Rigid pipe length up to 3 m
- IP67/IP68 protection
- Ex versions

NIVOSWITCH for SOLIDS

VIBRATING FORK LEVEL SWITCHES

page 134



- For powdered solids with density $> 0.01 \text{ kg/dm}^3$
- No moving parts
- Stainless steel fork
- Self-cleaning in most media
- Rigid pipe length up to 3 m
- IP67/IP68 protection
- Ex versions

NIVOCONT R

VIBRATING ROD LEVEL SWITCHES

page 148



- For granular solids with density $> 0.05 \text{ kg/dm}^3$
- Insertion length up to 20 m
- Stainless steel vibrating section
- Selectable density
- Plastic or aluminum housing
- Relay or electronic switch output
- IP67 protection
- Ex versions

NIVOROTA

ROTARY PADDLE LEVEL SWITCHES

page 154



- For granular solids with density $> 0.1 \text{ kg/dm}^3$
- Plastic or aluminum housing
- Stainless steel wetted parts
- Single or 3-blade paddle
- Insertion length up to 3 m
- Rotary force independent of supply voltage
- Blinking LED for low supply voltage indication
- High-temperature version
- IP67 protection
- Ex versions

NIVOCAP CK

RF-CAPACITANCE LEVEL SWITCHES

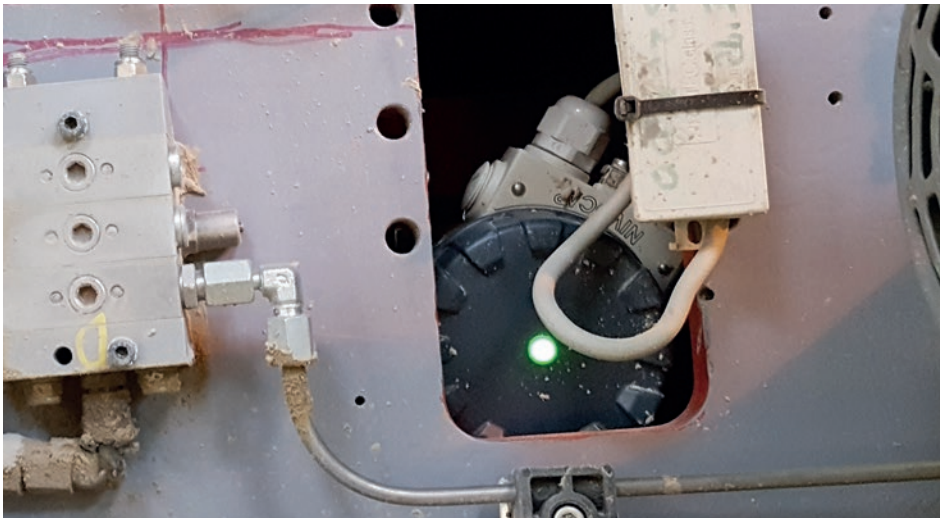
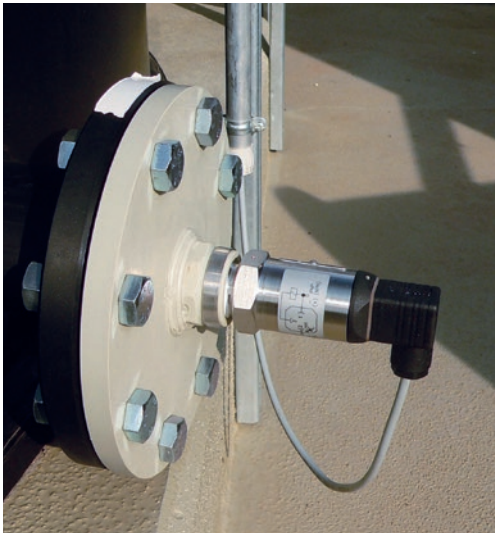
page 160



- For solids with $\epsilon_r \geq 1.5$ and liquids
- Suitable for viscous and sticky materials
- Easy calibration
- Selectable sensitivity
- Immune to material deposits
- Insertion length up to 10 m
- High-temperature version
- IP67 protection
- Ex versions

APPLICATIONS





The NIVOFLOAT NL-100 float level switch is suitable for clean or slightly contaminated water. The NIVOFLOAT NW-100 tilting-float level switch is for sewage, tanks, basins, or cisterns. The waterproof dual-chambered float is injection-molded polypropylene, and the microswitch is incorporated into the float.

The cable is lead through a waterproof sealed entry point into the monolithic structure of the injection-molded plastic housing. It uses three copper wires of 1 mm² cross-section, insulated with PVC or Neoprene. The double-walled design provides outstanding safety for users in terms of life and touch protection. In addition, the NIVOFLOAT is suitable for various control tasks, such as liquid level monitoring and pump control. These devices serve reliably provided their operating conditions are appropriately selected.

FEATURES

- Dual-chambered float
- Switching differential is adjustable by counterweight (NL-100)
- Special float shape (NW-100)
- Up to 30 m cable length
- Process temperature up to +50 °C
- Process pressure maximum NL-100: 1 bar; NW-100: 2 bar
- Variants for potable water available
- IP68

APPLICATIONS

- Suitable for drinking water
- Industrial and communal sewage
- Tank filling/emptying control
- Overfill protection



TECHNICAL DATA

	NLO-100-1	NWO-100-1
Switching angle	+20/-45	±45°
Process temperature	0...+50 °C	
Process pressure	up to 1 bar	up to 2 bar
Material of the float / counterweight	Non-toxic polypropylene (PP) / Polystyrene	Non-toxic polypropylene (PP)
Float volume	384 cm ³	1000 cm ³
Rating of the microswitch	10(4) A, 250 V AC, AC1	10(3) A, 250 V AC, AC1
Electrical life-span	10 ⁷ switches	
Ingress protection	IP68	IP68
Cable	Ø9 mm / 3 × 1 mm ²	
Cable length	5 m, 10 m, 20 m, 30 m	5 m, 10 m, 20 m
Weight (without cable)	235 g	1100 g

NIVOFLOAT NLP-100 with PVC cable

3 years

Double-chamber float level switch with PVC cable for clean liquids, without counterweight

Cable length

N L P - 1 □ □ - 1

0 5	5 m
1 0	10 m
2 0	20 m
3 0	30 m

NIVOFLOAT NLN-100 with Neoprene cable

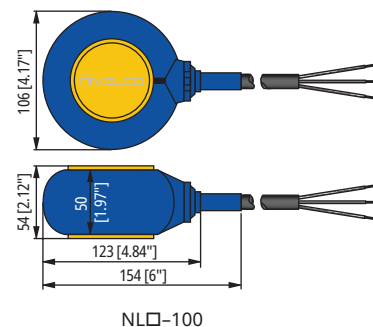
3 years

Double-chamber float level switch with Neoprene cable for clean liquids, without counterweight

Cable length

N L N - 1 □ □ - 1

0 5	5 m
1 0	10 m
2 0	20 m



NLN-100

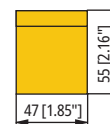
NIVOFLOAT NMW-100

3 years

Counterweight for NL type float level switch

Material: polystyrene

N M W - 1 0 0 - 0 Counterweight



NMW-100

NIVOFLOAT NWP-100 with PVC cable

3 years

Double-chamber float level switch with PVC cable for contaminated liquids, without counterweight

Cable length

N W P - 1 □ □ - 1

0 5	5 m
1 0	10 m
2 0	20 m

NIVOFLOAT NWN-100 with Neoprene cable

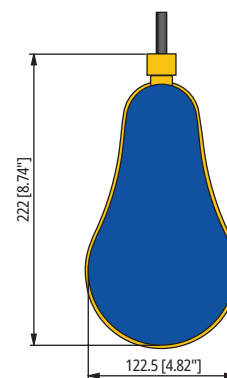
3 years

Double-chamber float level switch with Neoprene cable for contaminated liquids, without counterweight

Cable length

N W N - 1 □ □ - 1

0 5	5 m
1 0	10 m
2 0	20 m



NWN-100

NIV24

NLP-105-1, NWP-105-1

NLN-110-1, NWN-110-1

NLP-120-1, NLP-130-1, NWP-120-1

NLN-105-1, NWN-105-1

NLN-110-1, NWN-110-1

NLN-120-1, NWN-120-1

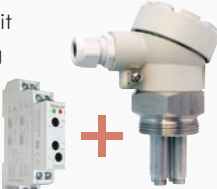
NMW-100-0

NIVOCONT K conductive level switches can be used in liquids whose conductivity exceeds 10 µS/cm. The level of the liquid is detected by a probe that is immersed in the medium. Single and multiple rod type probes are available. They (and the tank wall, if conductive) act as electrodes, and the measured liquid is used as conductive material between them. Up to 4 rods can be fitted in a multiple-probe socket with an additional reference probe if the tank wall is not conductive. The probe's length must correspond with the measured level. When the liquid level reaches the probe, it changes the loop's conductivity, and the output relay is activated. The device senses the change in conductivity between the probes and the reference probe. KLP separators must be used every 0.5 m to provide appropriate distance between the probes.

FEATURES

Level Switches		Compact Level Switches
KRK-512	KRK-622	KKH-2□2
- Level switching - Filling-emptying control - Selectable NO/NC relay function - Adjustable sensitivity - Adjustable ON/OFF delay - Delay time indication - AC/DC versions 5-year warranty	- Available functions: - Monitoring of 2 independent levels in 2 tanks - Monitoring of 2 independent levels in 1 tank - Pumping from one tank to another - DIP switch on front panel (8 functions) - Adjustable sensitivity (for each probe separately) - Adjustable relay switching delay (for each probe separately) - AC/DC versions 5-year warranty	- Probe and relay in one unit 1 or 2 incorporated KRK-512 electronics 1 or 2 independent relay outputs for pump control or differential level switching - Selectable NO/NC relay function - Adjustable sensitivity - Adjustable ON/OFF delay - Delay time indication - AC/DC versions 5-year warranty

VERSIONS

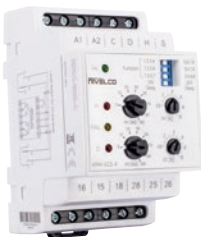
Level Switch and Probe	Compact Level Switch
- DIN-rail-mounted 1 or 2 channel switching unit - Probe socket with aluminum or plastic housing featuring 1½" BSP/NPT process connection - Probe-rods up to 3 m 	1 or 2 channel switching unit in plastic housing with 1½" BSP process connection - Probe-rods up to 3 m 

APPLICATIONS

- For conductive liquids with at least 10 µS/cm conductivity
- For emptying/filling control or level switching
- Fail-safe indication and pump control
- Water inrush indicator



KRK-512-5



KRK-622-□



KSH-2□□



KSH-302



KKH-2□2-5

TECHNICAL DATA

Type Features	Level Switches		
	KRK-512-5	KRK-622-1	KRK-622-4
Supply voltage (U _n)	24...240 V AC/DC (AC 50...60 Hz)	230 V AC	24 V AC/DC
	-15...+10%		
Power consumption	1.5 W / max. 2 VA	2.5 W / 5 VA	1.4 W / 2 VA
Ambient temperature	-20...+55 °C		
Probe voltage	Max. 3.5 V AC		
Probe current	Max. 0.1 mA AC	Max. 1 mA AC	
Sensitivity	Adjustable: 5...100 kΩ		
Cable capacitance	100 nF (100 kΩ sensitivity) 800 nF (5 kΩ sensitivity)		
Fixed ON delay	1.5 s	-	
ON/OFF delay	0.5...10 s		
Relay output	1× SPDT 250 V 8 A, AC1 24 V DC 8 A	2× SPDT 250 V 16 A, AC1 24 V DC 16 A	
Electrical connection	Terminal block, max. 2.5 mm ²		
Electrical protection	Class II		Class III
Mechanical connection	EN 60715 rail		
Ingress protection	IP20		
Weight	72 g	248 g	147 g

Type Features	Compact Level Switches	
	KKH-212-5	KKH-222-5
Supply voltage (U _n)	24...240 V AC/DC (AC 50...60 Hz) -15...+10%	
Power consumption	Max. 2 VA	Max. 4 VA
Ambient temperature	-20...+50 °C	
Process temperature	-20...+80 °C	
Process pressure	1 bar	
Number of probes	2+s*	4+s*
Probe voltage	Max. 3.5 V AC	
Probe current	Max. 0.1 mA	
Sensitivity	Adjustable: 5...100 kΩ	
Fixed ON delay	1.5 s	
ON/OFF delay	0.5...10 s	
Relay output	1× SPDT 250 V 8 A AC1 / DC 24 V 8 A	2× SPDT 250 V 8 A, AC1 / DC 24 V 8 A
Electrical connection	Cable gland: 2× M20×1.5 Ø6...12 mm cables, Terminal block, max. 2.5 mm ²	
Electrical protection	Class II	
Process connection	1½" BSP	
Material of probe socket	PP	
Housing material	Polycarbonate	
Ingress protection	IP67	
Weight (without probe)	660 g	800 g

s*=reference probe

PROBES, ACCESSORIES

KSK-201
Single-probe socketKSK-201
Submersible probeKLN-200
ProbeKLP-201-0 Separator for
KSH-300 and KKH-200KLP-204-0
Separator for KSH-200

Probes Features	Single-probe			Multi-probe						Submersible	
				Aluminum housing			Plastic housing				
	KSP-201	KSS-201	KSN-201	KSH-						KSK-201	
				202/402	203/403	204/404	301/501	302/502	303/503		304/504
Number of probes	1			2+s*	3+s*	4+s*	1+s*	2+s*	3+s*	4+s*	1
Process connection	¾" BSP			1½" BSP/NPT as per order code							Cable-mountable
Probe socket material	PP	Carbon steel	1.4571/1.4404				PP				–
Housing	–			Cast aluminum			PBT				ABS
Probe material	1.4571/1.4404										1.4401
Insulation of socket	PP	PFA					PP				ABS
Process temperature	max. +80 °C	maximum +200 °C					maximum +80 °C				
Ambient temperature		maximum +200 °C		maximum +80 °C							
Process pressure	max. 3 bar	maximum 16 bar					maximum 3 bar				–
Electrical connection	M4 nut, protected by rubber cap			M20×1.5 cable gland, cable diameter: Ø6...Ø12 mm							Pg7 ⁽¹⁾
Ingress protection	IP20			IP65				IP67			IP68
Weight (without probe)	100 g			400 g				200 g			50 g

s* = reference probe ⁽¹⁾ Cable: Ø4...7 mm

NIVOCONT KRK-512 1x output

5 years

Conductive level control switch for KS sockets and KL probes with 1x SPDT relay output for limit switching or differential switching with time delay

Type

□ R K - 5 1 2 - 5

K Conductive level switch

NIVOCONT KRK-622 2x outputs

5 years

Conductive level control switch for KS sockets and KL probes with 2x SPDT relay outputs for limit switching or differential switching with time delay

Supply voltage

K R K - 6 2 2 - □

1 230 V AC
4 24 V AC/DC

NIVOCONT KKH Compact

5 years

Compact conductive level switch with single or dual channel probe socket including 1 or 2 KRK-512 level control switches

Type

K K H - 2 □ 2 - 5

1 Single channel (3 probes)
2 Dual channel (5 probes)

NIVOCONT KS Single-probe socket

5 years

Single-probe socket for level detection of electrically conductive liquids For level detection with KL electrodes and KR level control unit

Socket- / Insulation material

K S □ - 2 0 1 - 0

P PP / PP
S Carbon Steel / PFA
N Stainless steel / PFA

NIVOCONT KSH Multi-probe socket

5 years

Multi-probe socket for level detection of electrically conductive liquids For level detection with KL electrodes and KR level control unit

Type / Process connection

K S H - □ 0 □ - 0

2 Aluminum housing / 1½" BSP
3 Plastic housing / 1½" BSP
4 Aluminum housing / 1½" NPT
5 Plastic housing / 1½" BSP, with titanium screws

Probes

K S H - □ 0 □ - 0

2 2-probes + reference electrode
3 3-probes + reference electrode
4 4-probes + reference electrode

NIVOCONT KSK Submersible probe

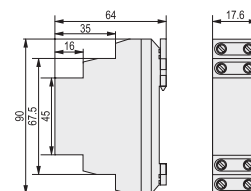
5 years

Submersible probe for conductive liquids, to connect to KR level control unit

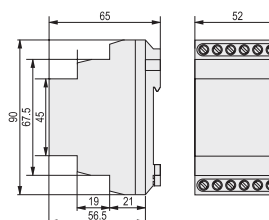
K S K - 2 0 1 - 0 Submersible probe

Accessories sold separately; see relevant page for details

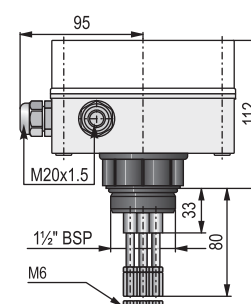
EAM-702-0 1½" female nut / 1.4571/1.4404
SSA-390-9M-020-01 1½" BSP female nut / PP



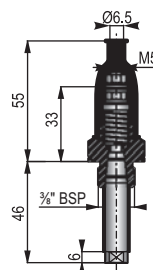
KRK-512-5



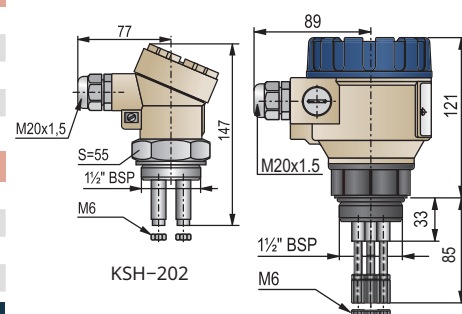
KRK-622-□



KKH-2□2-5

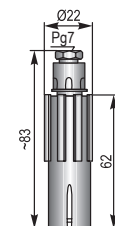


KS□-201



KSH-202

KSH-303



KSK-201

NIV24

KRK-512-5, KRK-622-1, KRK-622-4, KKH-212-5, KKH-222-5, KSP-201-0, KSS-201-0, KSN-201-0, KSH-202-0, KSH-302-0, KSK-201-0, KSH-203-0, KSH-303-0, KSH-204-0, KSH-304-0, KSH-303-0, KSH-304-0

NIVOCONT KLN Stainless steel probe

5 years

Stainless steel probe stem with M6 thread for KS and KKH probe socket

Length

K L N - 2 □ □ - 0

0 5	0.5 m
1 0	1.0 m
1 5	1.5 m
2 0	2.0 m
2 5	2.5 m
3 0	3.0 m

NIVOCONT KLB Coated probe stem

5 years

Stainless steel (1.4571/1.4404) threaded (M6) probe stem for KS and KKH probe heads
Probe stem coated with plastic tube, 10 mm uninsulated length at the end.
Special version: PE-coated (up to +100 °C).

Length

K L B - 2 □ □ - 0

0 5	0.5 m
1 0	1.0 m
1 5	1.5 m
2 0	2.0 m
2 5	2.5 m
3 0	3.0 m

NIVOCONT KLC PFA-coated probe stem

5 years

Stainless steel (1.4571/1.4404) threaded (M6) probe stem for KS and KKH probe heads
Probe stem coated with plastic tube, 10 mm uninsulated length at the end.
Special version: PFA-coated (up to +200 °C).

Length

K L C - 2 □ □ - 0

0 5	0.5 m
1 0	1.0 m
1 5	1.5 m
2 0	2.0 m
2 5	2.5 m
3 0	3.0 m

NIVOCONT KLE Probe extension

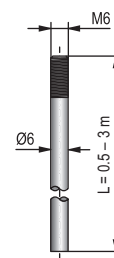
5 years

Stainless steel electrode with M6 thread for KS and KKH probe socket
Special version: probe extension for KLN

Length

K L E - 2 □ □ - 0

0 5	0.5 m
1 0	1.0 m
1 5	1.5 m
2 0	2.0 m
2 5	2.5 m
3 0	3.0 m



KLN-200

NIV24

KLN-205-0, KLN-210-0, KLN-215-0

KLN-220-0, KLN-230-0

KLP-204-0, KLP-201-0

NIVOCONT KLT Titanium probe

5 years

Titanium probe stem with M6 thread for KSH-5__ probe socket

Length

K L T - 2 □ □ - 0

0 5	0.5 m
1 0	1.0 m
1 5	1.5 m
2 0	2.0 m
2 5	2.5 m
3 0	3.0 m

NIVOCONT KLF Probe extension

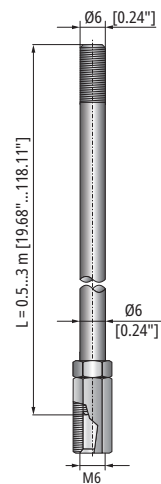
5 years

Titanium probe stem with M6 thread for KSH-5__ probe socket
Special version: probe extension for KLT

Length

K L F - 2 □ □ - 0

0 5	0.5 m
1 0	1.0 m
1 5	1.5 m
2 0	2.0 m
2 5	2.5 m
3 0	3.0 m



KLE/KLF-200

NIVOCONT KLP

5 years

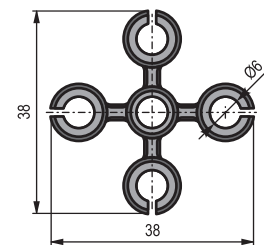
Separator for NIVOCONT K probes.
Separator does not fit coated probes.

Type

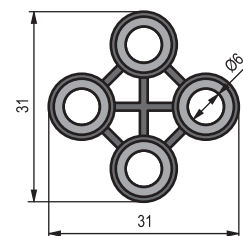
K L P - 2 0 4 - 0	For KSH-200
K L P - 2 0 1 - 0	For KSH-300 and KKH-200

Accessories sold separately; see relevant page for details

S A C - 1 ■ 1 - 0	Mounting brackets
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KLP-201



KLP-204

NIV24

KLP-204-0, KLP-201-0

The **NIVOMAG MK** magnetic float level switches are used for point-level detection and level control of liquids in all types of containers. Operating principle: the float's magnet activates the output switch via a non-contact coupling system. The device is available in numerous side and top-mounted versions, further widening the applicability of the device. For simpler jobs, fixed hysteresis models offer an affordable solution, while for a more complex level control application, the best choice is the adjustable hysteresis variants. Models with rubber and silicone sleeves can be used with contaminated liquids. The **NIVOMAG** switch can be fitted with an **MMK** tester to check functionality even when the liquid levels are not changing.

FEATURES

- Magnetic coupling between switch and float
- Operation w/o external power supply
- Side and top mounted versions
- Submersible version
- Fixed or variable hysteresis
- NIFLANGE weldable stainless steel flange variants
- Max. +250 °C process temperature
- Flame-proof version
- Aluminum or stainless steel housing
- Variants with 2× microswitches
- IP65 / IP68
- 5-year warranty

APPLICATIONS

- Overflow protection
- Level controls
- Supplementary fail-safe switch if combined with other devices
- Water tanks, feedwater tanks
- Fuel tanks
- Power plants

CERTIFICATES

- ATEX (Ex db eb mb G)
- IEC Ex (Ex db eb mb G)
- INMETRO (Ex db eb mb G)
- DNV
- Bureau Veritas (BV)
- SIL 1 (Safety Integrity Level)

VARIANTS

The following tables and diagrams help select the appropriate model for the job. When selecting a model, liquid density, mounting position, process connection, and the need for adjustable or fixed hysteresis or a rubber sleeve must be considered.

Additional technical data				
Lever length (mm)	0...100	200	300	1000...3000
Maximum float Ø (mm)	Minimum liquid density (kg/dm ³)			
52	0.7	0.8	0.85	–
64			0.8	–
124	–	–	–	0.7

	MK□–		
	–□1□	–□2□	–□3□
Fixed switching differential	■	–	–
Adjustable switching differential	–	■	■
Straight lever	■	■	■
"L" or "Z" lever	■	■	–
Side mounted	■	■	–
Top mounted	■ ⁽¹⁾	■ ⁽¹⁾	■
Submersible	■	■	■
Protective Rubber Sleeve	■	–	–
Flanged process connection	■	■	■ ⁽²⁾
Threaded process connection	■	–	–
Ex version	■	■	■
Tester	■	■ ⁽³⁾	–
Stainless steel housing	■	■	■
2× microswitches	■	■	■

⁽¹⁾ With "L" lever. ⁽²⁾ Only with 92 × 92 flange. ⁽³⁾ Only with special counter flange.



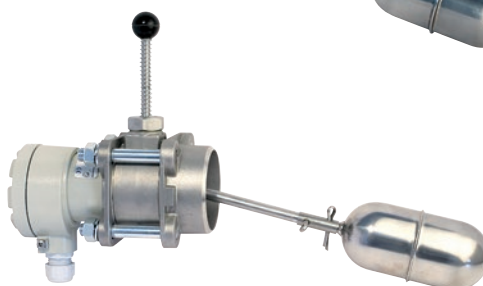
MKA-210-□



MKZ-210-0



MKA-220-□



MKA-210-□ + MMK-1□0 tester + MFF-1□1 counter flange



MKA-230-□

TECHNICAL DATA

		Cylindrical float (side and top mounting)			Ball float (top mounting)	
		MKA-□1□-□	MKA-□2□-□	MKU/MKV/MKZ- □1□-□	MKS / MKG- □1□-□	MK□-□3□-□
Nominal pressure		25 bar [MKU, MKV, MKZ: 2 bar / 25 bar]				16 bar
Process temperature		-40...+250 °C		0...+80 °C	MKS: 0...+200 °C MKG: 0...+100 °C	-40...+250 °C
		Ex version: see Temperature specification table				
Ambient temperature		-20...+80 °C, Ex version: see temperature specification for Ex version table				
Liquid density		Minimum 0.7...0.85 kg/dm³, see "Additional technical data" table				
Switching differential		Fixed	Adjustable	Fixed ⁽¹⁾		Adjustable
Insertion length		202...521 mm	254...573 mm	202...521 mm ⁽¹⁾		1265...3265 mm
Material of wetted parts		Stainless steel (1.4571, 1.3960, 1.4404); MKG, MKV: rubber (NBR); MKS, MKZ: silicone				
Housing material		Painted aluminum or stainless steel				
Microswitch		1 or 2 microswitch with closing and opening contact (NO and NC) ⁽²⁾				
Switch rating	Standard	250 V 10 A AC12; 220 V 0.6 A DC13				
	Ex	250 V 2.5 A AC12; 220 V 0.3 A DC13				
Electrical connection		M20×1.5 cable gland, cable diameter: Ø6...12 mm (Ex version: Ø10...14 mm), wire cross section: 5× 0.75...2.5 mm² (MKU, MKV, MKZ: integrated cable NSSHöu-J 5× 1.5 mm², Ø14mm) ⁽³⁾				
Ingress protection		IP65 (MKU, MKV, MKZ: IP68, up to 20 m water column)				
Electrical protection		Class I				
Safety integrity level		SIL 1				
Ex marking	ATEX	Ⓔ II 1/2 G Ex db eb mb IIC T6...T2 Ga/Gb				
	IEC Ex	Ex db eb mb IIC T6...T2 Ga/Gb				
	INMETRO	Ex db eb mb IIC T6...T2 Ga/Gb				
Weight		~1.8...3.5 kg				

⁽¹⁾ MKU type is also available with adjustable switching differential. In this case, the extension length is 254...573 mm.

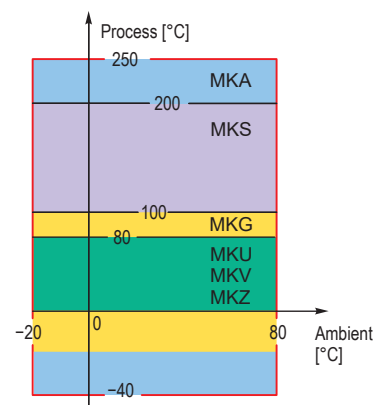
⁽²⁾ NO and NC terminals must be connected to an equipotential circuit.

⁽³⁾ Cable length must be specified when ordered.

Ex INFORMATION

Temperature specification for Ex versions

Temperature classes		T6	T5	T4	T3	T2
Ambient temperature range		-20...+70 °C	-20...+80 °C			
Process temperature range	MKA	-40...+80 °C	-40...+95 °C	-40...+130 °C	-40...+200 °C	-40...+250 °C
	MKG	-20...+80 °C	-20...+95 °C			
	MKS	-40...+80 °C	-40...+95 °C	-40...+130 °C	-40...+200 °C	
	MKU, MKV, MKZ	-20...+70 °C	-20...+80 °C			



NIVOMAG MK-21 with fixed switch differential

5 years

Side / top-mounted magnetic coupling float level switch with fixed switch differential with SIL 1 and marine (DNV, BV) certificates

Version

M K ☐ - ☐ 1 ☐ - ☐

A	Standard
G	With rubber protective sleeve
S	With silicone protective sleeve
U	* Submersible (IP68)
V	* Submersible (IP68), with rubber protective sleeve
Z	* Submersible (IP68), with silicone protective sleeve

* Cable length must be specified in text of the order.

Housing / Output

M K ☐ - ☐ 1 ☐ - ☐

2	Aluminum / 1x SPDT
5	** Aluminum / 2x SPDT
4	Stainless steel / 1x SPDT
6	** Stainless steel / 2x SPDT

** Ex version in progress.

Process connection

M K ☐ - ☐ 1 ☐ - ☐

0	92 × 92 mm, PN square flange
B	*** 2" BSP
N	*** 2" NPT
1	*** DIN DN80, PN40 / 25 / 16 / 10 steel
2	*** DIN DN100, PN40 / 25 steel
5	*** DIN DN80, PN40 / 25 / 16 / 10, 1.4571/1.4404 stainless steel
6	*** DIN DN100, PN40 / 25, 1.4571/1.4404 stainless steel
U	*** Stainless steel flanges; welded (MF_----) type flanges [available from size DN80] should be ordered separately

*** Not available with protection sleeve

Protrusion / Lever length / Ex Certificate

M K ☐ - ☐ 1 ☐ - ☐

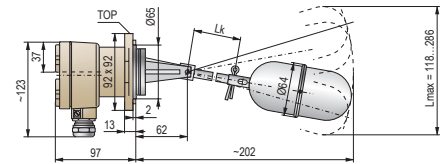
0	202 mm (189 mm for MKA-21B, 178 mm for MKA-21N)
1	321 / 100 mm
2	421 / 200 mm
3	521 / 300 mm
4	**** "L" or "Z" lever
9	202 mm (189 mm for MKA-21B, 178 mm for MKA-21N) / Ex db eb mb G
5	321 / 100 mm / Ex db eb mb G
6	421 / 200 mm / Ex db eb mb G
7	521 / 300 mm / Ex db eb mb G
8	**** "L" or "Z" lever / Ex db eb mb G

**** The type of the lever profile ("L" or "Z") and the upper (Lsh) or the lower (Lsl) switching point must be specified in text of the order.

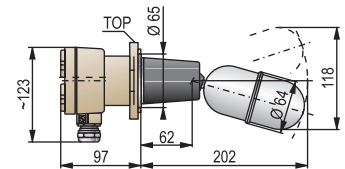
Need of IEC Ex is to be specified in the text part of the order

Cable for MKU/MKV/MKZ submersible version

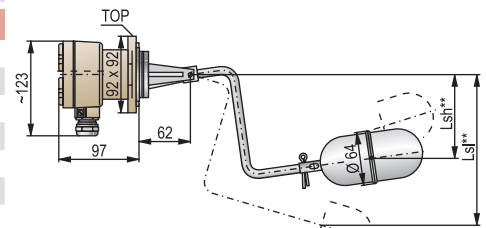
To be specified in the order; sold by the meter



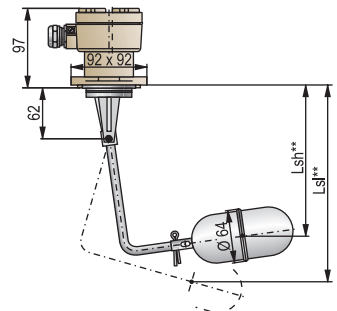
MKA-210-□



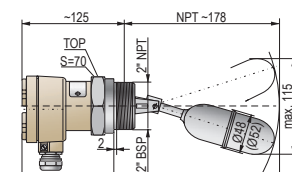
MKG-210-□



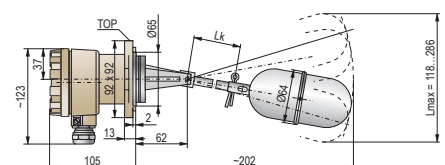
MKA-210-4 "Z" lever



MKA-210-4 "L" lever



MKA-21B / 21N



MKA-510-□

NIV24

MKA-210-0

NIVOMAG MK-22 with adjustable switch differential**5 years**

Magnetic coupling float level switch with adjustable switch differential
with SIL 1 and marine (DNV, BV) certificates

Version**M K** ☐ - ☐ **2** ☐ - ☐**A** Standard**U** * Submersible (IP68)

* Cable length must be specified in text of the order.

Housing / Output**M K** ☐ - ☐ **2** ☐ - ☐**2** Aluminum / 1x SPDT**5** ** Aluminum / 2x SPDT**4** Stainless steel / 1x SPDT**6** ** Stainless steel / 2x SPDT

** Ex version under licence.

Process connection**M K** ☐ - ☐ **2** ☐ - ☐**0** 92 x 92 mm, PN Square flange**1** DIN DN80, PN40 / 25 / 16 / 10 steel**2** DIN DN100, PN40 / 25 steel**5** DIN DN80, PN40 / 25 / 16 / 10, stainless steel**6** DIN DN100, PN40 / 25, 1.4571/1.4404 stainless steel**U** Stainless steel flanges; welded (MF_----) type flanges [available from size DN80] should be ordered separately)**Protrusion / Lever length / Ex certificate****M K** ☐ - ☐ **2** ☐ - ☐**0** 254 mm**1** 373 / 100 mm**2** 473 / 200 mm**3** 573 / 300 mm**4** *** "L" or "Z" lever**9** 254 mm / Ex db eb mb G**5** 373 / 100 mm / Ex db eb mb G**6** 473 / 200 mm / Ex db eb mb G**7** 573 / 300 mm / Ex db eb mb G**8** *** "L" or "Z" lever / Ex db eb mb G

*** The type of the lever profile ("L" or "Z") and the upper (Lsh) or the lower (Lsl) switching point must be specified in text of the order.

With the adjustable switch differential option, the switching points can be shifted.

Need of IEC Ex is to be requested in the text part of the order

Cable for MKU submersible version

To be specified in the order; sold by the meter

Accessories sold separately

MKA-210-0M-200-00 Ø64 mm stainless steel (1.4404) float (for min. 0.7...0.8 kg/dm³ liquids)

MKA-21B-0M-000-02 Ø52 mm stainless steel (1.4404) float (for min. 0.7...0.85 kg/dm³ liquids)

MKA-230-0M-100-00 Ø124 mm stainless steel (1.4404) ball float (for min. 0.7 kg/dm³ liquids)

MKA-210-0M-900-00 Ø50 mm titanium float (for min. 0.4 kg/dm³ liquids)

MKA-140-0M-000-01 Oil resistant rubber sleeve

MKA-150-0M-000-01 Silicon protection sleeve

4guo74x2epdmy EPDM O-ring (cover seal)

4gu2x76klinge REINZ AFM34 flat gasket for 92x92 connection

4gu2colklinge REINZ AFM34 flat gasket for 2" connection

MKA-110-1M-000-01 100 mm arm extension

MKA-110-2M-000-01 200 mm arm extension

MKA-110-3M-000-01 300 mm arm extension

4cesa5x25koa4 Split pin, 5x25 mm

MKA-110-1M-000-02 Tubular sleeve

MKA-120-0M-000-02 Hysteresis adjusting piece

MKA-120-0M-000-04 Tilting fork

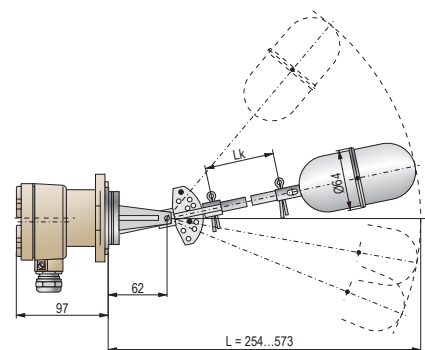
MKA-220-0M-000-07 Tilt pin, long

MKA-120-0M-000-03 Adjuster pin

4cesa2x10koa4 Split pin, 2x10 mm

MKA-210-9M-100-00 Microswitch Ex

4we83140nancy Microswitch non-Ex



MKA-220-0

NIVOMAG MK-23 Top-mounted

5 years

Top-mounted magnetic coupling float level switch and adjustable switch differential with SIL 1 and marine (DNV, BV) certificates

Version

M K - 3 0 -

A Standard
U * Submersible (IP68)

* Cable length must be specified in text of the order.

Housing / Output

M K - 3 0 -

2 Aluminum / 1x SPDT
5 ** Aluminum / 2x SPDT
4 Stainless steel / 1x SPDT
6 ** Stainless steel / 2x SPDT

** Ex version in progress.

Process connection

M K - 3 -

0 92 x 92 mm, PN Square flange

Protrusion / Lever length / Ex certificate

M K - 3 0 -

1 1265 mm / 1000 mm
2 2265 mm / 2000 mm
3 3265 mm / 3000 mm
5 1265 mm / 1000 mm / Ex db eb mb G
6 2265 mm / 2000 mm / Ex db eb mb G
7 3265 mm / 3000 mm / Ex db eb mb G

Need of IEC Ex is to be requested in the text part of the order

Cable for MKU submersible version

To be specified in the order; sold by the meter

NIVOMAG MFF Counter flange

5 years

Counter flange for MK magnetic level switch

Material

M F F - 1 - 0

1 Steel (1.7218)
2 Stainless steel (1.4409)

Version

M F F - 1 - 0

0 Standard
1 For units with MMK-1_0 tester

NIVOMAG MMK Tester

5 years

Tester for MK magnetic level switch

Type

MMK - 1 1 0 - 0 Steel (1.7218)
MMK - 1 2 0 - 0 Stainless steel (1.4409)

NIVOMAG MAY Gland adapter

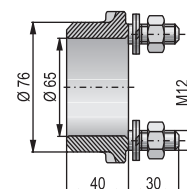
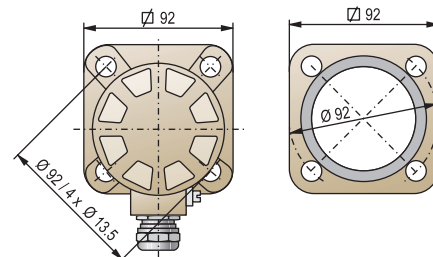
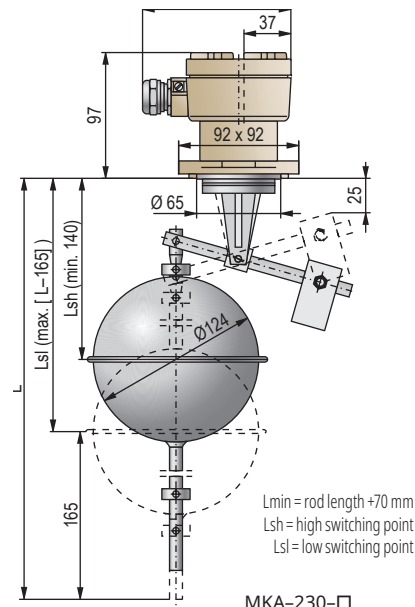
5 years

Y-adapter for multiple cable entry with M20x1.5 connector size, for non Ex devices.

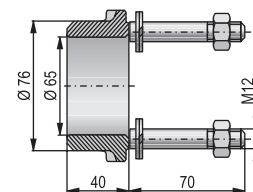
Type

M A Y - 1 2 2 -

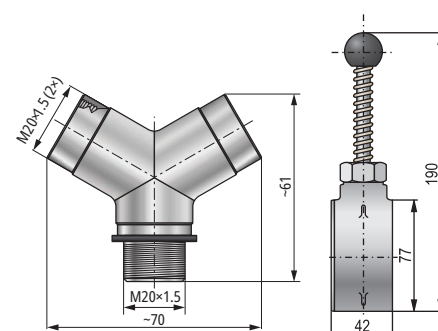
0 Without gland
1 Plastic glands
2 Metal glands



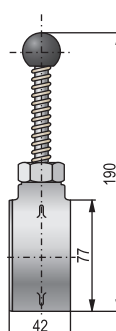
MFF-110



MFF-111



MAY-122-0



MMK-110

NIVOPOINT magnetic float level switches are suitable for single and multi-point level controlling tasks in non-hazardous and hazardous areas. The device consists of a probe tube, a float incorporating a magnet, and the housing that contains the connection terminals. Up to 5 switches can be connected to the probe. A sliding-sleeve on the top of the probe provides a simultaneous ± 25 mm adjustment possibility of the positioning of the switches. The wetted parts of the level switch are made of stainless steel. Plastic-coated versions are suitable for measuring aggressive liquids, and ATEX-certified versions can be used with explosive materials. The measured medium and application determine floats and process connections.

The mini version of the **NIVOPOINT** magnetic float level switch is suitable for small tanks. The small size and easy installation make it perfect for detecting the maximum, minimum, or intermediate level using the tank's or device's connection stubs made for other purposes.

FEATURES

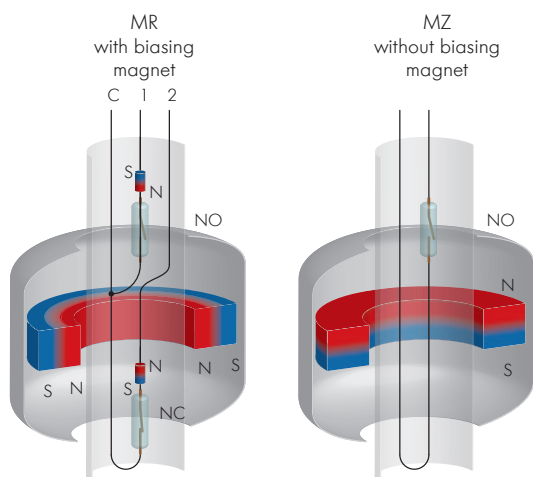
- Level switching without auxiliary power
- Up to 5 switching points
- Stainless steel and plastic-coated versions
- +150 °C process temperature
- Mini version
- Wide variety of floats
- IP67 / IP68
- Ex version available
- 5-year warranty

APPLICATIONS

- Multi-point level switching
- For controlling pumps, valves
- Level detection of aggressive liquids
- Level switching of explosive liquids

CERTIFICATES

- ATEX (Ex d G)
- Bureau Veritas (BV) (only for MZ□ types)



OPERATION

NIVOPOINT magnetic float level switches use the interaction between a magnet in the float and the reed switches in the probe. The float moves along the stem, following the level of the liquid and activating the reed-switches. As the float moves along the reed-switches, it changes their state (NO or NC), and they stay triggered until the liquid's level falls, and the float moves along the reed switches again, breaking off the self-holding state and restoring the previous state of the reed-switches. The mini version does not contain biasing magnets. By following the level, the magnetic float activates the reed switches in the probe. The reed switches opens or close according to the position of the magnetic float. The default state is when the float is at the bottom position.

TECHNICAL DATA

	Standard (MR)	Plastic-coated (MP)	Explosion-proof (MR [Ex])	Mini (MZ)
Insertion length	0.25...3 m ⁽¹⁾			0.1...1.5 m
Material of wetted parts	Titan / 1.4404 / 1.4435 float; 1.4571/1.4404 probe tube	PVDF / PP float; PFA / PP-coated probe tube	Titan / 1.4404 / 1.4435 float; 1.4571/1.4404 probe tube	
Max. process pressure ⁽²⁾	16 / 25 bar	3 / 6 bar	16 / 25 bar	
Min. medium density	0.45...0.8 kg/dm³	0.4 / 0.7 kg/dm³	0.45...0.8 kg/dm³	
Float sizes	See "Floats"			
Process temperature	-40...+150 °C	-40...+80 °C	See temperature data for Ex versions table	-40...+120 °C
Ambient temperature	-40...+95 °C			-20...+70 °C
Output	1...5 reed-switches, one connecting point of each is common NO/NC			1...3 reed-switches, NO/NC depending on float orientation
Switching rate ⁽³⁾	120 W / VA, 250 V AC/DC, If process temp. is ≤ +100 °C, then 2 A per reed-relay, max. 6 A in total, If process temp. is > +100 °C, then 1 A per reed-relay, max. 3 A in total			120 W / VA; 250 V AC / DC; max. 2 A
Switching point	See auxiliary table of order codes			up to 3 (to be specified when ordering)
Switching differential	<10 mm			max. Δ8 mm
Distance between reed-switches	≥110 mm			≥90 mm
Electrical connection	M20×1.5 cable gland, cable diameter: 6...12 mm		M20×1.5 cable gland, cable diameter: 7...12 mm ⁽⁴⁾	0.5 m long ⁽⁵⁾ cable with silicone insulation
	Terminal, 0.5...2.5 mm² wire cross section			
Process connection	As per order code			
Seal	Klingerit ⁽⁶⁾	–	Klingerit ⁽⁶⁾	
Electrical protection	Class I (protective cable 4 mm²)			Class II (reinforced insulation)
Ingress protection	IP67			IP68 (20 m)
Certification	–		ATEX: Ⓔ II 1/2G Ex db IIC T6...T3 Ga/Gb	Bureau Veritas
Housing dimensions	116 × 80 × 65 mm		124 × 80 × 65 mm	–
Weight	400 g + 300 g/m		450 g + 300 g/m	~0.15...2.5 kg (depending on order) + cable: 0.03 kg/m

⁽¹⁾ 3...4 m as per special offer, Ex version not available. ⁽²⁾ at +20 °C. ⁽³⁾ For inductive loads, it is not recommended to apply a current exceeding 10% of the rated current, as this may significantly reduce the lifespan of the switching element. In the case of capacitive loads, it must be ensured that the inrush current does not exceed 300% of the rated current.

⁽⁴⁾ The type MR□-□□□-8 Ex devices are shipped without cable glands.

⁽⁵⁾ Available with different cable length.

⁽⁶⁾ Only for BSP.

TEMPERATURE DATA FOR Ex VERSIONS

Class	T6	T5	T4	T3
Highest ambient temperature	+65 °C	+80 °C	+95 °C	+95 °C
Highest medium temperature	+80 °C	+95 °C	+130 °C	+150 °C
Minimum ambient temperature	-40 °C			

REQUIRED SPECIFICATIONS IN THE ORDER

Switching point ⁽⁷⁾		Default operation mode ⁽⁸⁾	
		NO	NC
L1 ⁽⁹⁾	 mm	☐	☐
L2	 mm	☐	☐
L3	 mm	☐	☐
L4	 mm	☐	☐
L5	 mm	☐	☐

⁽⁷⁾ Min. distance of the switching points: 110 mm for MR□/MP□, 70 mm for MZ□.

⁽⁸⁾ Default operation mode (NO/NC) is meant with bottom positioned float.

⁽⁹⁾ L = insertion length (custom size available).

NIVOPOINT MR up to 5 switching points

5 years

Magnetic tracking float level switch with up to 5 switching points. Output: NO or NC. With stainless steel rod probe, Ø54 × 60 mm stainless steel float, and IP67 aluminum housing.

Process connection

M R ☐ - ☐ ☐ ☐ - ☐

A	1" BSP
B	1½" BSP
C	2" BSP
D	1" NPT
H	1¼" NPT
E	1½" NPT
G	2" NPT
O	2½" TriClamp
P	3" TriClamp
R	4" TriClamp

Number of switching points

M R ☐ - ☐ ☐ ☐ - ☐

1	1 switch
2	2 switches
3	3 switches
4	4 switches
5	5 switches

Probe length (Ln)**

M R ☐ - ☐ ☐ ☐ - ☐

nn	0.3...0.5 m; sold by the 0.1 m
oo	0.6...3 m; sold by the 0.1 m

nn = 03...05 : 0.3...0.5 m

oo = 06...30 : 0.6...3 m, ** 3...4 m as per special offer, Ex version not available

Ex certificate

M R ☐ - ☐ ☐ ☐ - ☐

3	For non-hazardous area
7	Ex d G
8	Ex d G (without cable gland)

Available on request (must be specified in the text of the order)

MRC-105-7M-700-00	Ø96 mm stainless steel (1.4404) ball float (for min. 0.55 kg/dm³ liquids)
MRC-105-7M-800-00	Ø124 mm stainless steel (1.4401) ball float (for min. 0.4 kg/dm³ liquids)
MRC-105-7M-900-00	Ø54x60 mm titanium float (for min. 0.55 kg/dm³ liquids)
MRC-106-7M-900-00	Ø50x100 mm titanium float (for min. 0.45 kg/dm³ liquids)

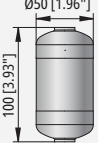
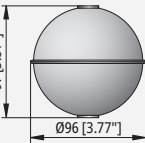
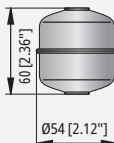
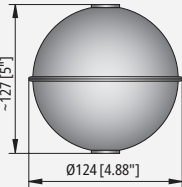
Accessories sold separately

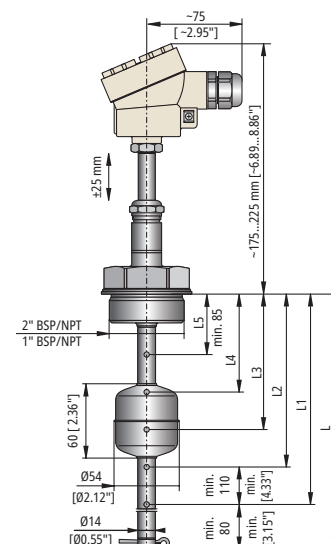
MRC-105-7M-600-00	Ø54x60 mm stainless steel (1.4401) ball float (for min. 0.8 kg/dm³ liquids)
MRC-105-7M-700-00	Ø96 mm stainless steel (1.4404) ball float (for min. 0.55 kg/dm³ liquids)
MRC-105-7M-800-00	Ø124 mm stainless steel (1.4401) ball float (for min. 0.4 kg/dm³ liquids)
MRC-105-7M-900-00	Ø54x60 mm titanium float (for min. 0.55 kg/dm³ liquids)
MRC-106-7M-900-00	Ø50x100 mm titanium float (for min. 0.45 kg/dm³ liquids)

Accessories sold separately; see relevant page for details

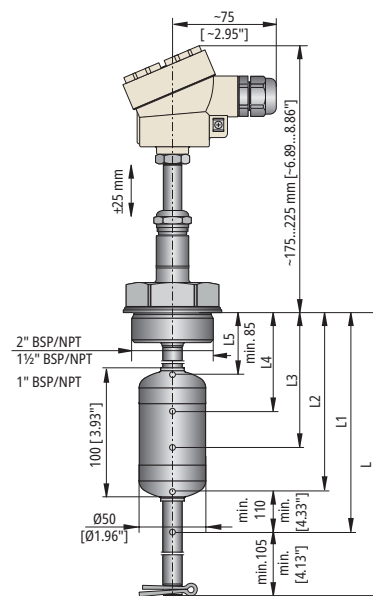
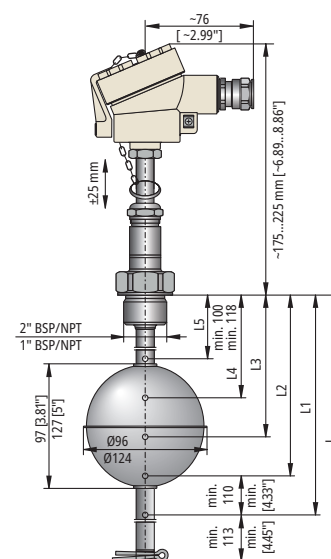
S A C - 1 ☐ 1 - 0 Mounting brackets

FLOATS

	MRC-106-7M-900-00	MRC-105-7M-700-00	MRC-105-7M-900-00		MRC-105-7M-800-00
			900-00	600-00 ⁽¹⁾	
Dimensions					
Min. medium density [kg/dm³]	0.45	0.55	0.55	0.8	0.4
Material	Titanium	Austenitic stainless steel ⁽²⁾	Titanium	Austenitic stainless steel ⁽²⁾	
Process pressure	16 bar		25 bar		

⁽¹⁾Standard float.⁽²⁾1.4401, 1.4404, 1.4435, 1.4571, etc.

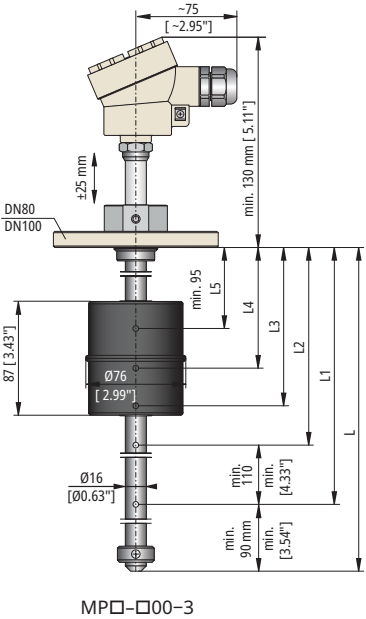
MR□-□00-3

MR□-□00-3
+ MRC-106-7M-900-00MR□-□00-7 Ex
+ MRC-105-7M-800-00

NIVOPOINT MP up to 5 switching points, plastic-coated 5 years

Magnetic tracking float level switch with up to 5 switching points. Output: NO or NC with plastic-coated probe and Ø76x87 mm PVDF float and IP67 aluminum housing

Process connection		
M P	- 3	
P		DIN DN80, PN16
R		DIN DN100, PN16
Number of switching points		
M P	- 3	
1		1 switch
2		2 switches
3		3 switches
4		4 switches
5		5 switches
Probe length		
M P	- 3	
0 5		0.5 m
n n		0.6...3 m; sold by the 0.1 m
nn = 06...30 : 0.6...3 m		
Float / Material		
M P	-	
3		Ø76 x 87 / PVDF
Available on request (must be specified in the text of the order)		
MPP-105-3M-900-00	Ø76x87 mm PP float (for min. 0.4 kg/dm³ liquids)	
Accessories sold separately		
MPP-105-3M-200-00	Ø76x87 mm PVDF float (for min. 0.7 kg/dm³ liquids)	
MPP-105-3M-900-00	Ø76x87 mm PP float (for min. 0.4 kg/dm³ liquids)	
Accessories sold separately; see relevant page for details		
S A C - 1	1 - 0	Mounting brackets



FLOATS

	MPP-105-3M-200-00 ⁽¹⁾	MPP-105-3M-900-00
Dimensions		
Medium density (min.) [kg/dm³]	0.7	0.4
Material	PVDF	PP
Process pressure	6 bar	3 bar

⁽¹⁾ Standard float.

NIVOPOINT MZ up to 3 switching points

5 years

Magnetic float switch with up to 3 switching points with stainless steel rod probe and Ø54x60 mm stainless steel float, with integrated cable and IP68 protection

Process connection

M Z □ - □ □ □ - 3

A	1" BSP
B	1½" BSP
C	2" BSP
D	1" NPT
H	1¼" NPT
E	1½" NPT
G	2" NPT
S	¼" BSP (internally mountable)
U	¾" NPT (internally mountable)
O	2½" TriClamp
P	3" TriClamp
R	4" TriClamp

Number of switching points / Number of floats

M Z □ - □ □ □ - 3

1	1 switch / 1 float
2	2 switches / 2 floats
3	3 switches / 3 floats

Probe length

M Z □ - □ □ □ - 3

nn = 01...15 : 0.1...1.5 m; sold by the 0.1 m

* Ln = 100 mm for L1 = 60 mm

Cable

Sold by the meter over the standard 0.5 m

Available on request (must be specified in the text of the order)

MZS-101-3M-800-00	Ø96 mm stainless steel (1.4404) (for min. 0.55 kg/dm³ liquids, from min. 200 mm probe length)
MZS-101-3M-900-00	Ø54x60 mm titanium float (for min. 0.55 kg/dm³ liquids)
MZS-101-3X-0C7-10	Ø49x60 mm titanium float (for min. 0.7 kg/dm³ liquids)
MZS-101-3M-600-00	Ø50x100 mm titanium float (for min. 0.45 kg/dm³ liquids)

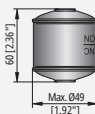
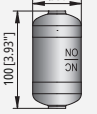
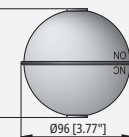
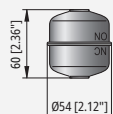
Accessories sold separately

MZS-101-3M-700-00	Ø54x60 mm stainless steel (1.4404) (for min. 0.55 kg/dm³ liquids)
MZS-101-3M-800-00	Ø96 mm stainless steel (1.4404) (for min. 0.55 kg/dm³ liquids, from min. 200 mm probe length)
MZS-101-3M-900-00	Ø54x60 mm titanium float (for min. 0.55 kg/dm³ liquids)
MZS-101-3X-0C7-10	Ø49x60 mm titanium float (for min. 0.7 kg/dm³ liquids)
MZS-101-3M-600-00	Ø50x100 mm titanium float (for min. 0.45 kg/dm³ liquids)

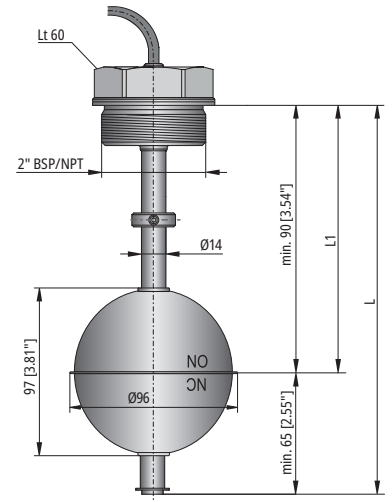
Accessories sold separately; see relevant page for details

S A C - 1 □ 1 - 0 Mounting brackets

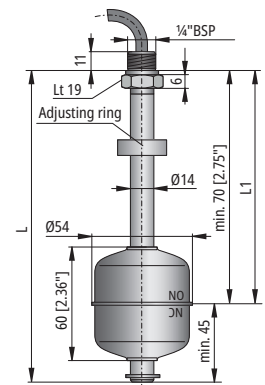
FLOATS

	MZS-101-3X-0C7-10	MZS-101-3M-600-00	MZS-101-3M-800-00	MZS-101-3M-	
				900-00	700-00 ⁽¹⁾
Dimensions					
Min. medium density [kg/dm³]	0.7	0.45	0.55	0.55	0.8
Material	Titanium		Austenitic stainless steel ⁽²⁾	Titanium	Austenitic stainless steel ⁽²⁾
Process pressure	16 bar			25 bar	

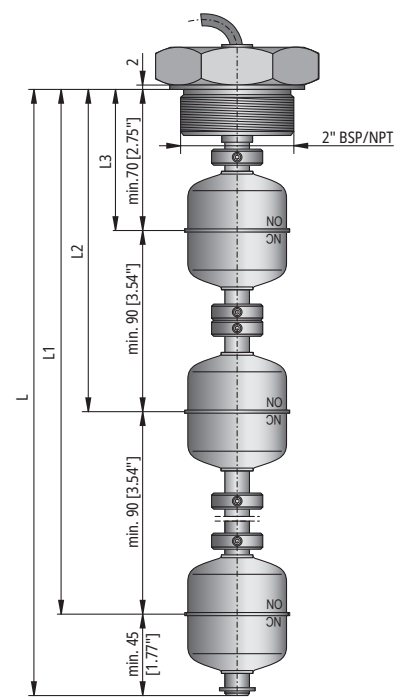
⁽¹⁾ Standard float.

⁽²⁾ 1.4401, 1.4404, 1.4435, 1.4571, etc.


MZC/MZG-1□□-3 with Ø96 mm float



MZS-1□□-3



MZC/MZG-3□□-3

NIV24

MZS-101-3

NIVOSWITCH RC-400 vibrating fork level switches with parallel vibrating fork are suitable for detecting the level of liquids. Mounted on pipes, tanks it can control filling/emptying, also can generate fail-safe alarms providing overflow- or dry run protection. The operation principle is based on that the electronic circuit excites a vibration in the fork probe. When the medium reaches and covers the fork, its vibration changes. The fork will start vibrating freely again as the medium sets it free. The electronics senses the change of vibration and gives output signal after a selected delay. The plastic-coated version is recommended to use for aggressive mediums, the highly polished version is recommended to use for abrasive mediums. The PNP/NPN transistor output versions can be connected directly to PLC, or relay unit.

Certain types of **NIVOSWITCH** vibrating forks are able to solve switching tasks of high-current loads with the help of **UNICONT PKK** switching amplifiers. **UNICONT PKK-312-8 Ex** is a recommended Intrinsic safety switching unit designed for Ex rated vibrating forks.

FEATURES

- Integrated version
- Rod length up to 3 meters
- ECTFE/PFA-coated version
- Polished vibrating part
- Hygienic versions with various process connections and 0.5 micron fine polishing
- Selectable sensitivity
- Electronic output
- Switching performance does not depend on the change of liquid conductivity, dielectric constant, pressure and temperature
- Process temperature max. +130 °C
- Output can be toggled by test magnet
- NIFLANGE weldable stainless steel flange variants
- Ex, DNV variants
- IP65/IP68

APPLICATIONS

- For liquids: min. 0.7 kg/dm³ density and max. 10⁴ mm²/s viscosity
- Food & beverages industry, water industry, chemical industry, oil industry
- For normal or hazardous, aggressive (acids, solvents) liquids
- Covers a large variety of level detection, applications such as high/low fail-safe limit switch, overflow or dry-run protection, pump controls

CERTIFICATES

- ATEX (Ex ia G)

VARIANTS

This table helps choose the proper version for a given level switching task. Most essential aspect is the consistency of the measurement medium.

		RC□-400
	Stainless steel housing	■
	Aluminum housing	—
	Plastic housing	—
	Extension	■
	High-polished version	■
	Plastic-coated fork	■
	2" process connection	■
	1", 1½" process connection	■
	Relay output	—
	Electronic output	■
Electrical connection	Terminal	—
	DIN connector	■
	M12 connector	■
	Cable	■
	Intrinsic safety version	■
	Flameproof enclosure	—
	DNV	—
	Mode setting (low-high level)	■ ⁽¹⁾
	Mode indication	■
	Output test magnet	■

⁽¹⁾ Only for 3-wire DC versions



RPS-101-0
test magnet



PKK-312-8 Ex
Ex ia power supply
for Ex ia vibrating forks



RBM-401-3



RCM-401
cable version



RCM-402
with M12
connector



RCM-400
with DIN connector

TECHNICAL DATA

	2-wire AC version	2-wire DC version	3-wire DC version
	R□□-4□□		
	-1, -2	-6, -7, -K, -8 Ex, -9 Ex, -L Ex	-3, -4, -M
Insertion length	69...3000 mm, as per order code		
Material of wetted parts	1.4571/1.4404 stainless steel or ECTFE/PFA-coating		
Process connection	As per order code		
Process temperature	-40...+130 °C (see "Temperature diagram"), for ECTFE-coated versions: -40...+120 °C		
Ambient temperature	-40...+70 °C (see "Temperature diagram") with M12 connector: -25...+70 °C		
Process pressure	Up to 40 bar; PP flange: 6 bar (see "Pressure-temperature diagram")		
Medium density	≥ 0.7 kg/dm³		
Medium viscosity	≤ 10,000 mm²/s (cSt)		
Response time	Getting immersed: 0.5 s		
	Getting free: ≤ 1 s (see response time diagram)		
Output mode indication	Bi-color (LED)		
Operation test	Output can be toggled by test magnet		
Housing material	1.4571/1.4404 stainless steel		
Electrical protection	Class I	Class III	
Output protection	-		Reverse polarity, overcurrent and short-circuit protection
Weight	~0.5 kg + 1.2 kg/m extension		

TYPE-SPECIFIC DATA

	2-wire AC version		2-wire DC version			3-wire DC version		
	R□□-4□□							
	-1	-2	-6, -8 Ex	-K, -L Ex	-7, -9 Ex	-3	-M	-4
Electrical connection	DIN connector	3 m integrated cable ⁽¹⁾ (4× 0.75 mm²)	DIN connector	M12 connector	3 m integrated cable ⁽¹⁾ (2× 0.5 mm²)	DIN connector	M12 connector	3 m integrated cable ⁽¹⁾ (5× 0.5 mm²)
Ingress protection	IP65	IP68	IP65	IP67	IP68	IP65	IP67	IP68
High/low mode setting (Low fail-safe – “L”, High fail-safe – “H”)	Determined by the wiring inside the connector	Determined by the wiring	By switch on the remote switching unit			Switch selectable	Connection within connector	Wire selectable
Supply voltage	20...255 V AC		15...29 V DC			12...55 V DC		
Power consumption	depending on load		< 0.5 W			< 0.6 W		
Output	2-wire AC, for serial connection		DC current change: When free: 9 ±1 mA; When immersed: 14 ±1 mA			Field selectable, NPN / PNP transistor switch		Field selectable, galvanically isolated PNP/NPN transistor switch
Load current (I _L)	max. continuous: 350 mA AC 13 min. continuous: 10 mA / 255 V, 25 mA / 24 V – max. impulse: 1.5 A / 40 ms		–			max. continuous: I _{Lmax} = 350 mA DC / U _{max} = 55 V DC		
Residual current, in switched off state (I _{min})	< 6 mA		–			< 100 µA		
Voltage drop when switched on	< 10.5 V		–			< 4.5 V		

⁽¹⁾ Available cable length: up to 30 m.

Ex INFORMATION

	R□□-4□□-8 Ex (DIN connector)	R□□-4□□-I Ex (M12 connector)	RC□-4□□-9 Ex (integrated cable ⁽¹⁾)
Explosion protection	Intrinsically safe ⁽²⁾		
Ex marking	⊕ II 1G Ex ia IIB T6...T4 Ga; ⊕ II 1G Ex ia IIC T6...T4 Ga		
Intrinsic safety limits	$U_i = 29 \text{ V}; I_i = 100 \text{ mA};$ $P_i = 1.4 \text{ W}; C_i = 7 \text{ nF}; L_i = 0 \text{ mH}$		$U_i = 29 \text{ V}; I_i = 100 \text{ mA};$ $P_i = 1.4 \text{ W}; C_i = 15 \text{ nF}; L_i = 0 \text{ mH}$
Supply voltage	15...29 V DC		

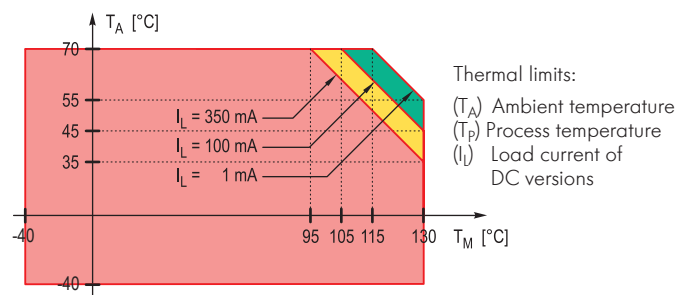
⁽¹⁾ Available cable length: max. 30 m.

⁽²⁾ Intrinsically safe vibrating forks must be powered by [Ex ia] certified devices, for example by UNICONT PKK-312-8 Ex.

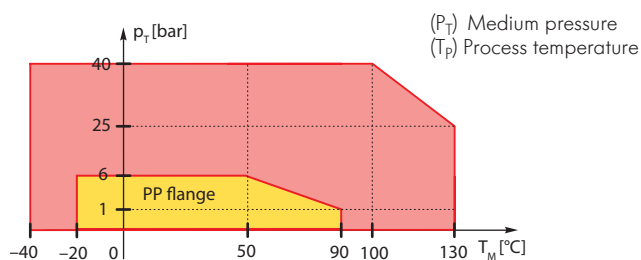
TEMPERATURE DATA FOR Ex CERTIFIED MODELS

	R□□-4□□-8 Ex, -I Ex, -9 Ex			
Temperature classes	T6	T5	T4	
Highest ambient temperature	+70 °C	+60 °C		
Highest process temperature	+70 °C	+75 °C	+95 °C	+130 °C

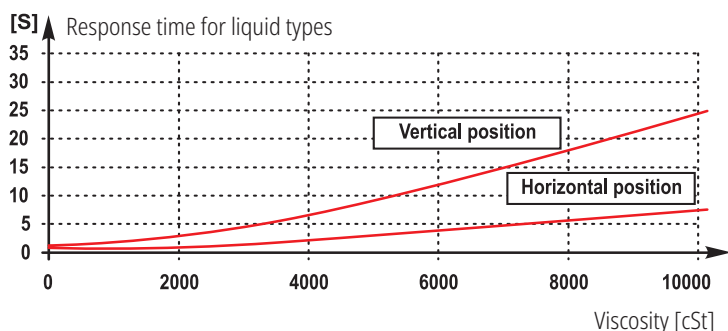
TEMPERATURE DIAGRAM



PRESSURE-TEMPERATURE DIAGRAM



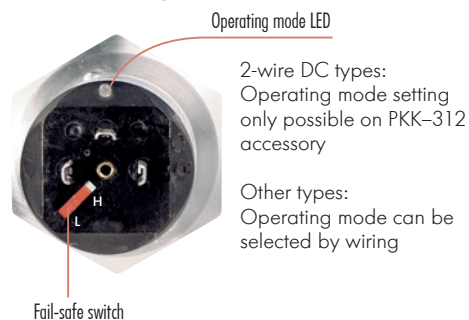
RESPONSE TIME DIAGRAM



RGB-400-3

MODE SELECT

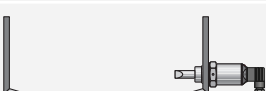
R□□-4□□-3



2-wire DC types:
Operating mode setting
only possible on PKK-312
accessory

Other types:
Operating mode can be
selected by wiring

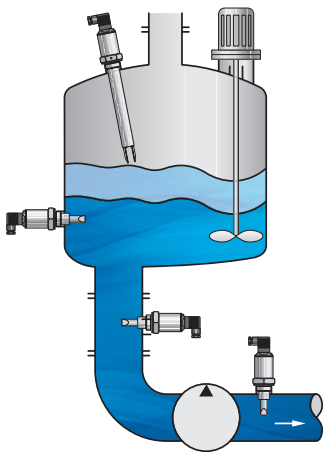
OPERATION

2-wire AC, 3-wire DC version					
Power supply	Fork location		Fail-Safe setting ⁽²⁾	Status LED	Output
ON	High level		High		ON (I _I)
			High		OFF (I _{min})
	Low level		Low		ON (I _I)
			Low		OFF (I _{min})
OFF	-	-	High / Low		OFF (I = 0)

2-wire DC version			
Power supply	Fork location	Status LED	Output
ON			14 ± 1 mA
			9 ± 1 mA
OFF	Fork immersed, or fork is free		-

⁽²⁾ In the case of the integrated version with integrated cable, it is determined by the appropriate wiring.

INSTALLATION



RCT-401-3

NIVOSWITCH RC-400 standard version

3 years

Integrated vibrating fork level switch for liquids

Type

R ■ ■ - 4 ■ ■ - ■

0 0 69 mm
0 1 125 mm

Fork material

R ■ ■ - 4 ■ ■ - ■

C Tumble-polished stainless steel
G High-polished stainless steel ($R_a \leq 0.5$)
B ECTFE-coated fork, PFA-coated extension (only 1" BSP (PVDF) or flange (PP or ECTFE-coated) process connection)
E Stainless steel without reed sensor (Ex version not available)

Process connection

R ■ ■ - 4 ■ ■ - ■

M 1" BSP
P 1" NPT
T 1½" TriClamp (ISO 2852)
R 2" TriClamp (ISO 2852)
D DN40 Pipe coupling (DIN 11851)
E DN50 Pipe coupling (DIN 11851)
U Stainless steel flanges; welded (MF_ _ _ _H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;

Flanges conform to: EN 1092-1 / ANSI B 16.5

S DN40 PN40/25/16/10
G DN50 PN40 / 25
B ANSI 2" RF 600/400 psi
K JIS 40K 50A

ECTFE-coated stainless steel flange

Flanges conform to: EN 1092-1 / ANSI B 16.5

S DN40 PN40/25/16/10
G DN50 PN40 / 25
B ANSI 2" RF 600 / 400 psi
K JIS 40K 50A

PP flanges (max. 6 bar; -20...+90 °C), DIN PN16 / ANSI 150 psi

F DN50 PN16
A ANSI 2" FF 150 psi
J JIS 10K 50A

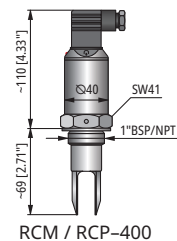
Output / Certificates

R ■ ■ - 4 ■ ■ - ■

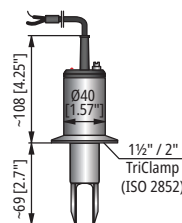
1 2-wire AC, DIN connector
2 2-wire AC, cable
3 3-wire DC, DIN connector
4 3-wire DC, cable
6 2-wire DC, DIN connector
7 2-wire DC, cable
8 2-wire DC, DIN connector / Ex ia G
9 2-wire DC, cable / Ex ia G
K 2-wire DC, M12 connector
L 2-wire DC, M12 connector / Ex ia G
M 3-wire DC, M12 connector

Cable

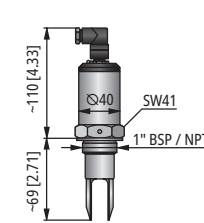
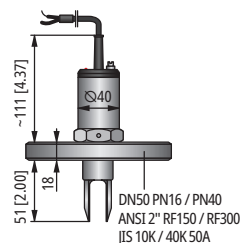
Maximum length 30 m; sold by the meter over the standard 3 m



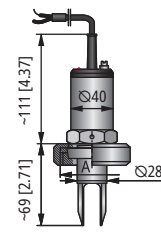
RCM / RCP-400



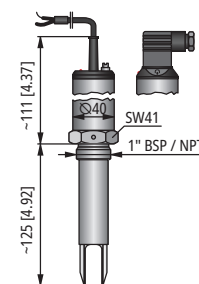
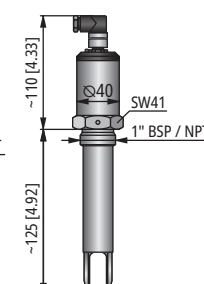
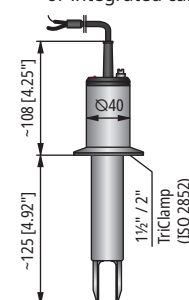
RCT / RCR-400


RCM / RCP-400
with M12 connection


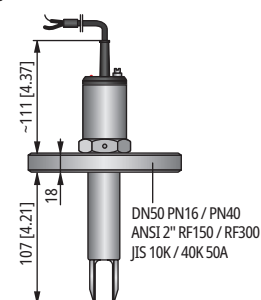
RCG-400



RCD-400


RCM / RCP-401
with DIN connection
or integrated cable

RCM / RCP-401
with M12 connection


RCT / RCR-401



RCG / RCF-401

	RCD	RCE
Nominal size	DN40	DN50
A	RD 65 x 1/6	RD 78 x 1/6

NIV24

RCM-400-3

RCM-401-3

NIVOSWITCH RF-400/500 vibrating fork level switches with parallel vibrating fork are suitable for detecting the level of liquids. Mounted on pipes, tanks it can control filling/emptying, also can generate fail-safe alarms providing overflow- or dry run protection. The operation principle is based on that the electronic circuit excites a vibration in the fork probe. When the medium reaches and covers the fork, its vibration changes. The fork will start vibrating freely again as the medium sets it free. The electronics senses the change of vibration and gives output signal after a selected delay. The plastic-coated version is recommended to use for aggressive mediums, the highly polished version is recommended to use for abrasive mediums. The PNP/NPN transistor output versions can be connected directly to PLC, or relay unit.



RFM-401-G



RFM-500

FEATURES

- Compact version
- Rod length up to 3 meters
- ECTFE/PFA-coated version
- Polished vibrating part
- Hygienic versions with various process connections and 0.5 micron fine polishing
- Selectable sensitivity
- Relay output
- Switching performance does not depend on the change of liquid conductivity, dielectric constant, pressure and temperature
- Process temperature max. +130 °C
- NIFLANGE weldable stainless steel flange variants
- Ex, DNV variants
- IP67

APPLICATIONS

- For liquids: min. 0.7 kg/dm³ density and max. 10⁴ mm²/s viscosity
- Food & beverages industry, water industry, chemical industry, oil industry
- For normal or hazardous, aggressive (acids, solvents) liquids
- Covers a large variety of level detection, applications such as high/low fail-safe limit switch, overflow or dry-run protection, pump controls

CERTIFICATES

- ATEX (Ex d G)
- IEC Ex (Ex d G)
- DNV (only for RF-400 types))
- CE
- UKCA

VARIANTS

This table helps choose the proper version for a given level switching task. Most essential aspect is the consistency of the measurement medium.

		RF□-400/500	RN□-400 Ex
Housing material	Painted aluminum	■	■
	Plastic	■	-
	Stainless steel	-	-
Extension		■	■
High-polished version		■	■
Plastic-coated fork		■	-
2" process connection		■	■
1", 1½" process connection		■	■
Relay output		■	■
Electronic output		-	-
Electrical connections	Terminal block	■	■
	DIN connector	-	-
	M12 connector	-	-
	Cable	-	-
Intrinsic safety version		-	-
Flameproof enclosure		-	■
DNV		■	-
Mode setting (low-high level)		■	■
Mode indication		■	■
Output test magnet		-	-



RVG-501



RNM-402

TECHNICAL DATA

	Ex d version	Coated version	Standard version
	RN□-4□□-□ Ex, RM□-4□□-□ Ex	RV□-□□□-□	RF□-□□□-□, RJ□-□□□-□
Insertion length	69...3000 mm, as per order code		
Material of wetted parts	1.4571/1.4404 stainless steel	ECTFE/PFA-coating	1.4571/1.4404 stainless steel
Process connection	As per order code		
Process temperature	See "Temperature data for Ex certified models"	-40...+130 °C (see "Temperature diagrams"), PP flange: -20...+90 °C; ECTFE-coated with 1.4571/1.4404 flange ¹⁾ : -40...+120 °C	
Ambient temperature		R□□-4□□: -40...+70 °C, R□□-5□□: -30 ...+70 °C	
Process pressure	max. 40 bar (see pressure diagrams)	6 bar	max. 40 bar (with PP flange 6 bar (see "Pressure diagrams"))
Medium density	≥ 0.7 kg/dm³		
Medium viscosity	≤ 10,000 mm²/s (cSt)		
Response time	Getting immersed: ≤ 0.5 s		
	Getting free: ≤ 1 s (see "Response time diagram")		
Output mode indication	Bi-color (LED)		
Supply voltage	See Ex information	20...255 V AC / 20...60 V DC	
Power consumption	< 3 W		
Housing material	Painted aluminum	R□□-4□□: fiberglass-reinforced plastic (PBT) R□□-5□□: painted aluminum	
High/low mode setting	By switch (Low fail-safe – "L", High fail-safe – "H")		
Output	1 or 2 SPDT relays 250 V AC, 8 A, AC1 / 250 V AC, 6 A, AC1		
Electrical connection	See "Ex information"	2× M20×1.5 plastic cable glands for Ø6...Ø12 mm cable, 2× or 3 terminal blocks for max. 1.5 mm² wire cross section, 2× internally threaded ½" NPT connection for protective pipes	
Electrical protection	Class I		
Ingress protection	IP67		
Weight	~2.1 kg + 1.2 kg/m extension	R□□-4□□: ~1.3 kg + 1.2 kg/m extension; R□□-5□□: ~0.95 kg + 1.2 kg/m extension	

⁽¹⁾ The temperature difference between inner and outer surface of the ECTFE-coated flanges must not exceed +60 °C. If necessary, insulate outer surface of the flange.

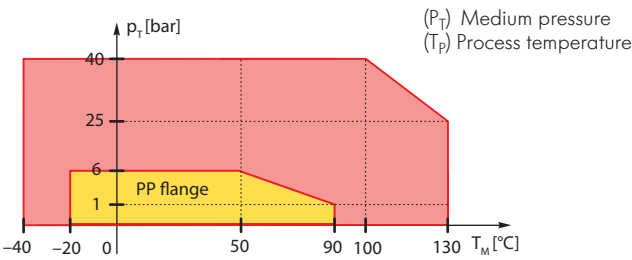
Ex INFORMATION

		Metal housing
		RN□-4□□-N Ex, RN□-4□□-P Ex, RM□-4□□-N Ex, RM□-4□□-P Ex
Explosion protection		Flame-proof housing
Ex marking	IEC Ex	Ex d IIB T6...T4 Ga/Gb, -40 °C ≤ T _{amb} ≤ +70 °C
	ATEX	Ⓔ II 1/2 G Ex d IIB T6...T4 Ga/Gb
Supply voltage		20...250 V AC (50/60 Hz) / 20...36 V DC
Electrical connection		2× M20×1.5 cable glands with Ex d IIC protection for Ø7...Ø12 mm cable
		2× or 3× terminal blocks for max. 1.5 mm ² wire cross section, 2× ½" NPT internal threads for cable protective pipes.

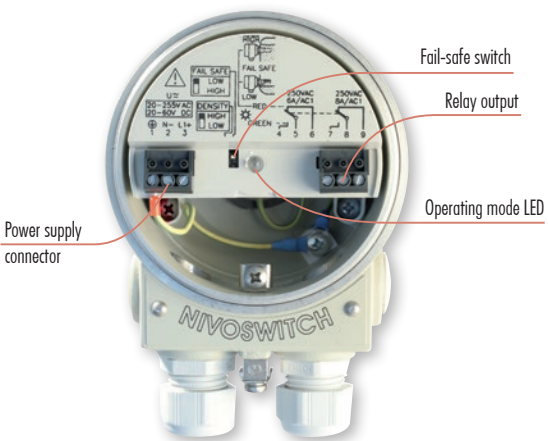
TEMPERATURE DATA FOR Ex CERTIFIED MODELS

Temperature classes	RN□-4□□-N Ex, -P Ex, RM□-4□□-N Ex, -P Ex			
	T6	T5	T4	
Process temperature minimum: -40 °C; Maximum:	+70 °C	+80 °C	+95 °C	+130 °C
Ambient temperature minimum: -40 °C; Maximum:	+65 °C	+50 °C	+65 °C	+70 °C
Highest surface temperature of the process connection	+70 °C	+80 °C	+95 °C	+125 °C
Highest surface temperature	+75 °C			+130 °C

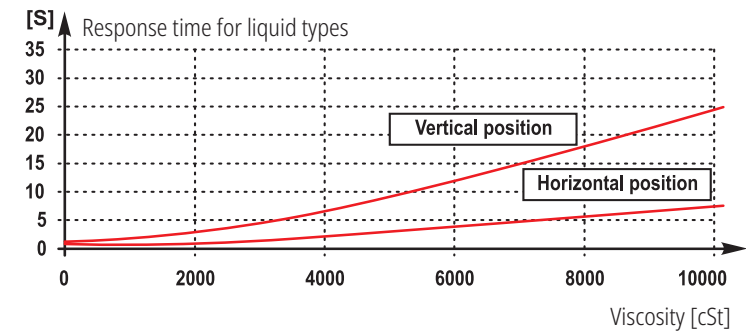
PRESSURE-TEMPERATURE DIAGRAM



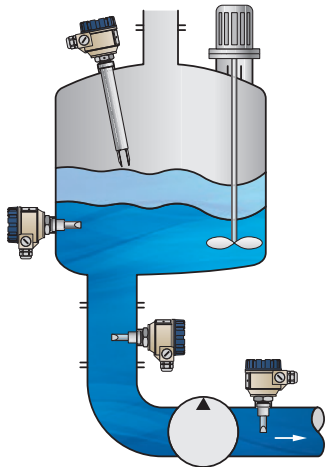
WIRING



RESPONSE TIME DIAGRAM



INSTALLATION



OPERATION

Power supply		Fork location	Fail-Safe setting	Status LED	Output ⁽²⁾
ON	High level				
	Low level				
OFF	-	-	High / Low		

⁽²⁾ Emergency is signaled by de-energized relay.

NIVOSWITCH RF-400 standard version**3 years**

Compact vibrating fork level switch for liquids

Type

R ■ ■ - ■ ■ - ■

0 0	69 mm
0 1	125 mm

Fork material

R ■ ■ - ■ ■ - ■

F	Stainless steel with tumble polish
V	ECTFE-coated fork, PFA-coated extension (only 1" BSP (PVDF) or flange (PP or ECTFE-coated) process connection)
J	High-polished stainless steel ($R_a \leq 0.5$)

Process connection

R ■ ■ - ■ ■ - ■

M	1" BSP
P	1" NPT
T	1½" TriClamp (ISO 2852)
R	2" TriClamp (ISO 2852)
D	DN40 Pipe coupling (DIN 11851)
E	DN50 Pipe coupling (DIN 11851)
U	Stainless steel flanges; welded (MF_ _ _ _ -H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;

Flanges conform to: EN 1092-1 / ANSI B 16.5

S	DN40 PN40/25/16/10
G	DN50 PN40/25
B	ANSI 2" RF 600/400 psi
K	JIS 40K 50A

ECTFE-coated stainless steel flange

Flanges conform to: EN 1092-1 / ANSI B 16.5

S	DN40 PN40/25/16/10
G	DN50 PN40/25
B	ANSI 2" RF 600/400 psi
K	JIS 40K 50A

PP flanges (max. 6 bar; -20...+90 °C)

F	DN50 PN16
A	ANSI 2" FF 150 psi
J	JIS 10K 50A

Housing

R ■ ■ - ■ ■ - ■

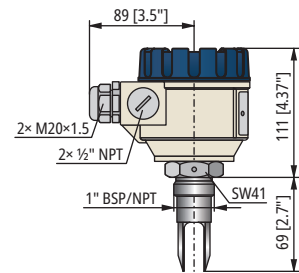
4	Painted aluminum
5	Fiberglass-reinforced plastic (PBT)

Output

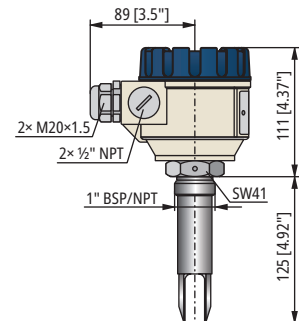
R ■ ■ - ■ ■ - ■

0	1 SPDT relay: 250 V AC, 8 A
A	2 SPDT relay: 1x 250 V AC, 8 A and 1x 250 V AC, 6 A
G *	1 SPDT relay: 250 V AC, 8 A / DNV
H *	2 SPDT relay: 1x 250 V AC, 8 A and 1x 250 V AC, 6 A / DNV

* RF version only, 1" BSP / 1" NPT and stainless steel flanged version only, with DNV certification.



RFM / RFP-400 / 500



RFM / RFP-401 / 501

NIVOSWITCH RF-400 rod-extended version

3 years

Compact vibrating fork level switch for liquids
with stainless steel rod-extended probe up to 3 m

Fork material

R ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

F	Stainless steel with tumble polishing
V	ECTFE-coated fork, PFA-coated extension (only 1" BSP (PVDF) or flange (PP or ECTFE-coated) process connection)
J	High-polished stainless steel ($R_a \leq 0.5$)

Process connection

R ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

M	1" BSP
P	1" NPT
T	1½" TriClamp (ISO 2852)
R	2" TriClamp (ISO 2852)
D	DN40 Pipe coupling (DIN 11851)
E	DN50 Pipe coupling (DIN 11851)
U	Stainless steel flanges; welded (MF_ - ____ -H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;

Flanges conform to: EN 1092-1 / ANSI B 16.5

S	DN40 PN40/25/16/10
G	DN50 PN40/25
B	ANSI 2" RF 600/400 psi
K	JIS 40K 50A

ECTFE-coated stainless steel flange

Flanges conform to: EN 1092-1 / ANSI B 16.5

S	DN40 PN40/25/16/10
G	DN50 PN40/25
B	ANSI 2" RF 600/400 psi
K	JIS 40K 50A

PP flanges (max. 6 bar; -20...+90 °C)

F	DN50 PN16
A	ANSI 2" FF 150 psi
J	JIS 10K 50A

Housing

R ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

4	Painted aluminum
5	Fiberglass-reinforced plastic (PBT)

Probe length

R ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

For standard polished forks (RF)

0 2	0.2 m
n n	0.3...3 m; sold by the 0.1 m

For high-polished forks (RJ)

0 2	0.2 m
n n	0.3...3 m; sold by the 0.1 m

For ECTFE-coated stainless steel forks (RD, RV)

0 2	0.2 m
n n	0.3...3 m; sold by the 0.1 m

nn = 03...30 : 0.3...3 m

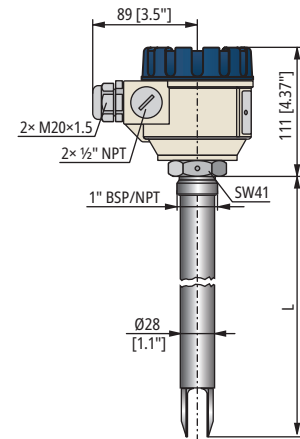
Output

R ☐ ☐ ☐ - ☐ ☐ ☐ - ☐

0	1 SPDT relay: 250 V AC, 8 A
A	2 SPDT relay: 1x 250 V AC, 8 A and 1x 250 V AC, 6 A
G *	1 SPDT relay: 250 V AC, 8 A / DNV
H *	2 SPDT relay: 1x 250 V AC, 8 A and 1x 250 V AC, 6 A / DNV

* RF version only, 1" BSP / 1" NPT and stainless steel flanged version only, max. 300 mm, with DNV certification.

Non-standard probe lengths are available on request



RFM / RFP-402 / 430
RFM / RFP-502 / 530

NIVOSWITCH RN-400 Ex standard or rod-extended version**3 years**

Explosion proof compact vibrating fork level switch for liquids, standard probe length: 125 mm
or with stainless steel rod-extended probe up to 3 m

Fork material / Ex certificate

R ■ ■ - 4 ■ ■ - ■

N Tumble-polished stainless steel / Ex d G

M High-polished stainless steel ($R_a \leq 0.5$) / Ex d G

Process connection

R ■ ■ - 4 ■ ■ - ■

M 1" BSP

P 1" NPT

H 1½" BSP

N 1½" NPT

C 2" BSP

L 2" NPT

T 1½" TriClamp (ISO 2852)

R 2" TriClamp (ISO 2852)

D DN40 Pipe coupling (DIN 11851)

E DN50 Pipe coupling (DIN 11851)

U Stainless steel flanges; welded (MF-____-H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;

Flanges conform to: EN 1092-1 / ANSI B 16.5

S DN40 PN40 / 25 / 16 / 10

G DN50 PN40 / 25

B ANSI 2" RF 600/300 psi

K JIS 40K 50A

Housing

R ■ ■ - □ ■ ■ - ■

4 Painted aluminum

Probe length

R ■ ■ - 4 □ ■ - ■

For standard polished forks (RN)

0 0 Standard probe: 69 mm

0 1 Standard probe: 125 mm

n n 0.2...3 m; sold by the 0.1 m

For high-polished forks (RM)

0 0 Standard probe: 69 mm

0 1 Standard probe: 125 mm

n n 0.2...3 m; sold by the 0.1 m

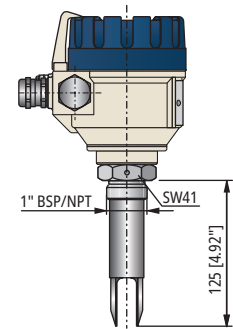
nn = 02...30 : 0,2...3 m

Output

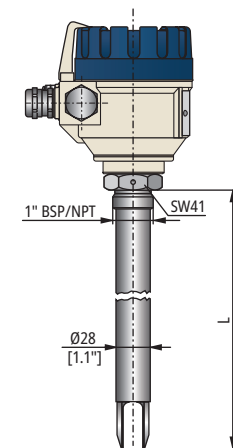
R ■ ■ - 4 ■ ■ - □

N 1 SPDT relay: 250 V AC, 8 A

P 2 SPDT relay: 1x 250 V AC, 8 A and 1x 250 V AC, 6 A



RNM / RNP-401



RNM / RNP-402 / 430

NIVOSWITCH RL/RC-200/300 vibrating fork level switches are suitable for detecting the level of granular or powdered solids. Mounted on silos, bins it can control filling/emptying, also can generate fail-safe alarms providing overfill protection. The operation principle is based on that the electronic circuit excites a vibration in the fork probe. When the medium reaches and covers the fork, its vibration changes or stops. The fork will start vibrating freely again as the medium sets it free. The electronics senses the change of vibration and gives output signal after a selected delay.

The PNP/NPN transistor output versions can be connected directly to PLC, or relay unit. Certain types of NIVOSWITCH vibrating forks are able to solve switching tasks of high-current loads with the help of UNICONT PKK switching amplifiers.

FEATURES

- Integrated version
- Rod length up to 3 meters
- Selectable sensitivity
- Electronic output
- Switching performance does not depend on the change of liquid conductivity, dielectric constant, pressure and temperature
- Process temperature max. +130 °C
- Output can be toggled by test magnet (optional)
- Ex version available
- NIFLANGE weldable stainless steel flange variants
- IP65 / IP68
- 3-year warranty

APPLICATIONS

- For solids: min. 0.01 kg/dm³ density
- Level switching for powders, granules
- Chemical industry, food & beverages, paper mill and plastic industry
- For free-flowing, powdered solids, granules
- Covers a large variety of level detection, applications such as high/low fail-safe limit switch, overfill protection

VARIANTS

This table helps choose the proper version for a given level switching task. Most essential aspect is the consistency of the measurement medium.

		RCL-300	RLC-300
Housing material	Stainless steel	■	■
	Plastic	—	—
	Aluminum	—	—
Extension		■	■
1" process connection		■	—
1½" process connection		■	■
Relay output		—	—
Electronic output		■	■
Electrical connection	Terminal block	—	—
	DIN connector	■	■
	Cable	■	■
Dust Ex version		—	—
Mode setting (low-high level)		■ ⁽¹⁾	■ ⁽¹⁾
Mode indication		■	■
Density selection		■	■
Output test magnet		■	■

⁽¹⁾ Only for 3-wire DC versions



TECHNICAL DATA

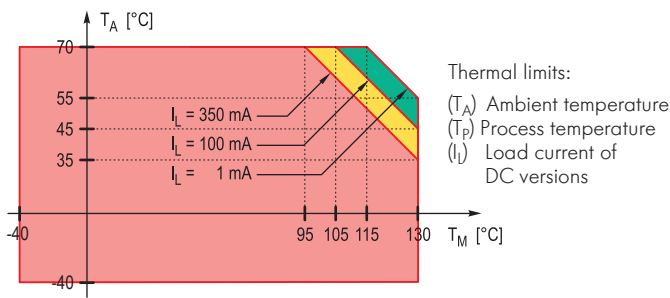
	2-wire AC version	2-wire DC version	3-wire DC version
	R□□-3□□-1, -2	R□□-3□□-6, -7	R□□-3□□-3, -4
Insertion length	125...3000 mm, as per order code		
Material of wetted parts	1.4571/1.4404 stainless steel		
Process connection	As per order code		
Process temperature	-40...+130 °C (see "Temperature diagram")		
Ambient temperature	-40...+70 °C (see "Temperature diagram")		
Process pressure	Up to 40 bar (4 MPa); PP flange: 6 bar (0.6 MPa) (see "Pressure-temperature diagram")		
Medium density	$\geq 0.01 \text{ kg/dm}^3$		
Response time	Getting immersed: 0.5 s		
	Getting free: $\leq 1 \text{ s}$ at high-density ("H") setting ($\rho \geq 0.5 \text{ kg/dm}^3$) $\leq 3 \text{ s}$ at low-density ("L") setting ($\rho < 0.5 \text{ kg/dm}^3$)		
Output mode indication	Bi-color (LED)		
Operation test	Output can be toggled by test magnet		
Housing material	1.4571/1.4404 stainless steel		
Electrical protection	Class I	Class III	
Output protection	-		Reverse polarity, overcurrent and short-circuit protection
Weight	$\sim 0.5 \text{ kg} + 1.2 \text{ kg/m extension}$		

TYPE-SPECIFIC DATA

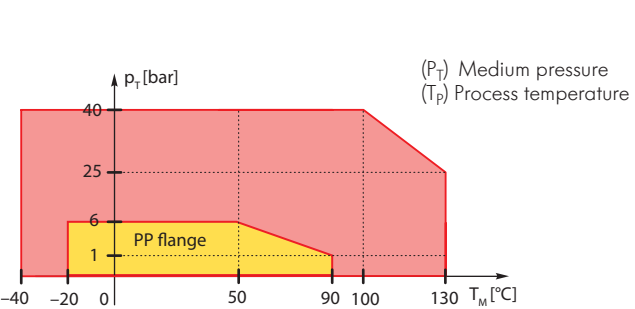
	2-wire AC version		2-wire DC version		3-wire DC version	
	R□□-3□□					
	-1	-2	-6	-7	-3	-4
Electrical connection	DIN connector	3 m integrated cable ⁽¹⁾ , (4× 0.75 mm²)	DIN connector	3 m integrated cable ⁽¹⁾ , (2× 0.5 mm²)	DIN connector	3 m integrated cable ⁽¹⁾ , (5× 0.5 mm²)
Ingress protection	IP65	IP68	IP65	IP68	IP65	IP68
High/low mode setting (Low fail-safe – “L”, High fail-safe – “H”)	Determined by the wiring inside the connector	Determined by the wiring	By switch on the remote switching unit		Switch selectable	Wire selectable
Selection of density (Low density – “L”, high density – “H”)	Not possible, ρ ≥ 0.5 kg/dm³		By inverting the polarity of connection		By switch on the cover	With wiring
Supply voltage	20...255 V AC		15...27 V DC		DC: 12...55 V DC	
Power consumption	depending on load		< 0.5 W		< 0.6 W	
Output	2-wire AC, for serial connection		DC current change: When free: 9 ±1 mA; When immersed: 14 ±1 mA		Field selectable, NPN / PNP transistor switch	Field selectable, galvanically isolated PNP/NPN transistor switch
Load current (I _L)	max. continuous: 350 mA AC 13 min. continuous: 10 mA / 255 V, 25 mA / 24 V max. impulse: 1.5 A / 40 ms		–		max. continuous: I _{Lmax} = 350 mA DC / U _{max} = 55 V DC	
Residual current, in switched off state (I _{min})	< 6 mA		–		< 10 µA	
Voltage drop when switched on	< 10.5 V		–		0...1.8 V	

⁽¹⁾ Available cable length: up to 30 m

THERMAL PROPERTIES



PRESSURE-TEMPERATURE DIAGRAM

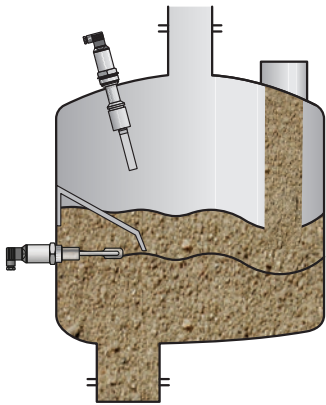


OPERATION

2-wire AC, 3-wire DC version					
Power supply	Fork location		Fail-Safe setting ⁽²⁾	Status LED	Output
ON	High level		High		ON (I_L)
			High		OFF (I_{min})
	Low level		Low		ON (I_L)
			Low		OFF (I_{min})
OFF	—	—	High / Low		OFF ($I = 0$)

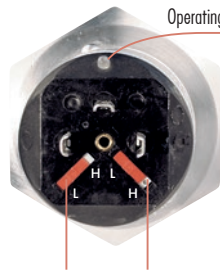
2-wire DC version			
Power supply	Fork location	Status LED	Output
ON			$14 \pm 1 \text{ mA}$
			$9 \pm 1 \text{ mA}$
OFF	Fork immersed, or fork is free		—

INSTALLATION



MODE SELECT

R□□-3□□-3



Operating mode LED

2-wire DC types
R□□-3□□-6, -7:
Operating mode setting only possible on PKK-312 accessory
Other types:
Operating mode can be selected by wiring

Fail-safe switch⁽³⁾
Density switch⁽³⁾

⁽³⁾ Only for 3-wire DC versions.

NIVOSWITCH RC-300 standard version

3 years

Integrated vibrating fork level switch for light, free-flowing solids
Standard probe length: 125 mm

Process connection

R C ☐ - 3 ☐ ☐ - ☐

M	1" BSP
P	1" NPT
U	Stainless steel flanges; welded (MF-____-H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;

Flanges conform to: EN 1092-1 / ANSI B 16.5

G	DN50 PN40 / 25
B	ANSI 2" RF 600 / 400 psi
K	JIS 40K 50A

PP flanges (max.: 6 bar; -20...+90 °C)

F	DN50 PN16
A	ANSI 2" FF 150 psi
J	JIS 10K 50A

Probe length

R C ☐ - 3 ☐ ☐ - ☐

0 1 125 mm

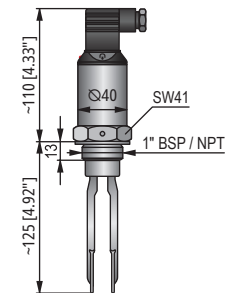
Output / Certificates

R C ☐ - 3 ☐ ☐ - ☐

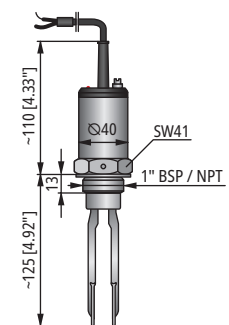
- | | |
|---|----------------------|
| 1 | 2-wire AC, connector |
| 2 | 2-wire AC, cable |
| 3 | 3-wire DC, connector |
| 4 | 3-wire DC, cable |
| 6 | 2-wire DC, connector |
| 7 | 2-wire DC, cable |

Cable

Maximum length 30 m; sold by the meter over the standard 3 m



RCM / RCP-301
with DIN connection



RCM / RCP-301
with integrated cable

NIVOSWITCH RC-300 rod-extended version 3 years

Integrated vibrating fork level switch for light, free-flowing solids with stainless steel rod-extended probe up to 3 m

Process connection

R C	■ - 3 ■ ■ - ■
M	1" BSP
P	1" NPT
U	Stainless steel flanges; welded (MF_---H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;
Flanges conform to: EN 1092-1 / ANSI B 16.5

G	DN50 PN40 / 25
B	ANSI 2" RF 600 / 400 psi
K	JIS 40K 50A
PP flanges (max.: 6 bar; -20...+90 °C)	
F	DN50 PN16
A	ANSI 2" FF 150 psi
J	JIS 10K 50A

Probe length

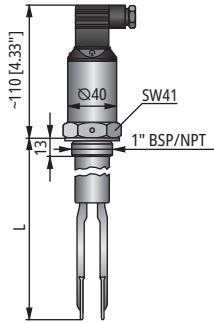
R C	■ - 3 ■ ■ - ■
0 2	0.2 m
n n	0.3...3 m; sold by the 0.1 m
nn = 03...30 : 0.3...3 m	

Output / Certificates

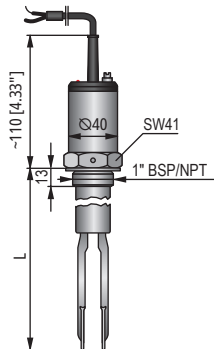
R C	■ - 3 ■ ■ - ■
1	2-wire AC, connector
2	2-wire AC, cable
3	3-wire DC, connector
4	3-wire DC, cable
6	2-wire DC, connector
7	2-wire DC, cable

Cable

Maximum length 30 m; sold by the meter over the standard 3 m



RCM / RCP-302 / 330 with DIN connector



RCM / RCP-302 / 330 with integrated cable

NIVOSWITCH RL-300 short or standard version

3 years

Integrated vibrating fork level switch with welded fork for powders and granules
Short probe length: 137 mm, standard probe length: 175 mm

Type

R L - 3 - -

0 1 137 mm

0 2 175 mm

Process connection

R L - 3 - -

H 1½" BSP

N 1½" NPT

U Stainless steel flanges; welded (MF_---H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;

Flanges conform to: EN 1092-1 / ANSI B 16.5

G DN50 PN40 / 25

B ANSI 2" RF 600 / 400 psi

K JIS 40K 50A

PP flanges (max. 6 bar; -20...+90 °C)

F DN50 PN16

A ANSI 2" FF 150 psi

J JIS 10K 50A

Output / Certificates

R L - 3 - -

1 2-wire AC, DIN connector

2 2-wire AC, integrated cable

3 3-wire DC, DIN connector

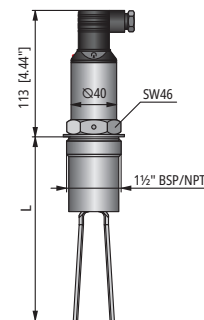
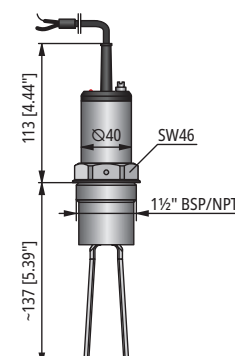
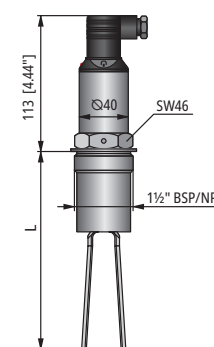
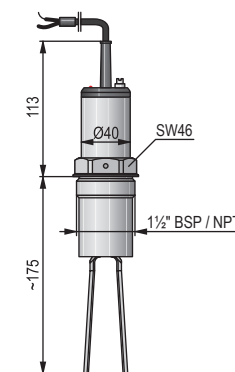
4 3-wire DC, integrated cable

6 2-wire DC, DIN connector

7 2-wire DC, integrated cable

Cable

Maximum length 30 m; sold by the meter over the standard 3 m


RLH / RLN-301
with DIN connector

RLH / RLN-301
with integrated cable

RLH / RLN-302
with DIN connector

RLH / RLN-302
with integrated cable

NIVOSWITCH RL-300 rod-extended version 3 years

Integrated vibrating fork level switch with welded fork for powders and granules with stainless steel rod-extended probe up to 3 m

Process connection

R L ☐ - 3 ☐ ☐ - ☐	
H	1½" BSP
N	1½" NPT
U	Stainless steel flanges; welded (MF_---H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;
Flanges conform to: EN 1092-1 / ANSI B 16.5

G	DN50 PN40 / 25
B	ANSI 2" RF 600 / 400 psi
K	JIS 40K 50A
PP flanges (max. 6 bar; -20...+90 °C)	
F	DN50 PN16
A	ANSI 2" FF 150 psi
J	JIS 10K 50A

Probe length

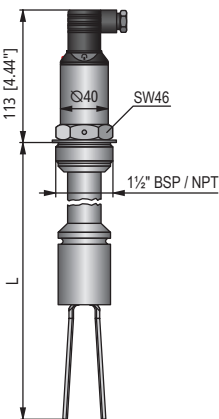
R L ☐ - 3 ☐ ☐ - ☐	
0 3	0.3 m
n n	0.4...3 m; sold by the 0.1 m
nn = 04...30 : 0.4...3 m	

Output / Certificates

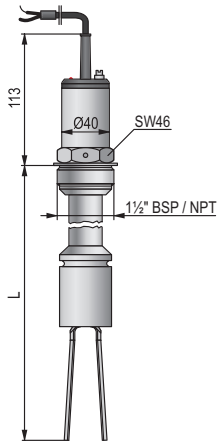
R L ☐ - 3 ☐ ☐ - ☐	
1	2-wire AC, DIN connector
2	2-wire AC, integrated cable
3	3-wire DC, DIN connector
4	3-wire DC, integrated cable
6	2-wire DC, DIN connector
7	2-wire DC, integrated cable

Cable

Maximum length 30 m; sold by the meter over the standard 3 m



RLH / RLN-303 / 330
with DIN connector



RLH / RLN-303 / 330
with integrated cable

NIVOSWITCH RF/RR-200/300 vibrating fork level switches with diverging vibrating fork are suitable for detecting the level of granular or powdered solids. Mounted on silos, bins it can control filling/emptying, also can generate fail-safe alarms providing overfill protection. The operation principle is based on that the electronic circuit excites a vibration in the fork probe. When the medium reaches and covers the fork, its vibration changes or stops. The fork will start vibrating freely again as the medium sets it free. The electronics senses the change of vibration and gives output signal after a selected delay.

FEATURES

- Compact version
- Rod length up to 3 meters
- Selectable sensitivity
- Relay output
- Switching performance does not depend on the change of liquid conductivity, dielectric constant, pressure and temperature
- Process temperature max. +130 °C
- Ex version available
- NIFLANGE weldable stainless steel flange variants
- IP67
- 3-year warranty

APPLICATIONS

- For solids: min. 0.01 kg/dm³ density
- Level switching for powders, granules
- Chemical industry, food & beverages, paper mill and plastic industry
- For free-flowing, powdered solids, granules
- Covers a large variety of level detection, applications such as high/low fail-safe limit switch, overfill protection

CERTIFICATES

- ATEX (Ex ta/tb D)

VARIANTS

This table helps choose the proper version for a given level switching task. Most essential aspect is the consistency of the measurement medium.

		RF□-200/300	RR□-200/300
Housing material	Stainless steel	—	—
	Plastic	■	■
	Aluminum	■	■
Extension		■	■
1" process connection		■	—
1½" process connection		■	■
Relay output		■	■
Electronic output		—	—
Electrical connection	Terminal block	■	■
	DIN connector	—	—
	Cable	—	—
Dust Ex version		■	■
Mode setting (low-high level)		■	■
Mode indication		■	■
Density selection		■	■
Output test magnet		—	—

TECHNICAL DATA

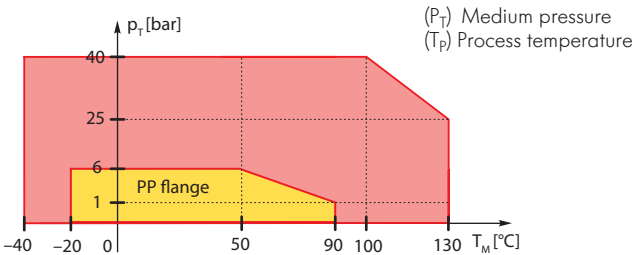
	Aluminum housing (R□□-3□□-□)	Plastic housing (R□□-2□□-□)
Insertion length	125...3000 mm, as per order code	
Material of wetted parts	1.4571/1.4404 stainless steel	
Process connection	As per order code	
Process temperature	-40...+130 °C, PP flange: -20...+90 °C	
Ambient temperature	-40...+70 °C	
Process pressure	max. 40 bar, with PP flange: 6 bar (see "Pressure-temperature diagram")	
Medium density	≥ 0.01 kg/dm ³	
Response time	Getting immersed: ≤ 0.5 s	
	Getting free: ≤ 1 s – selected high density (H) (ρ ≥ 0.5 kg/dm ³). ≤ 3 s – selected low density (L) (ρ < 0.5 kg/dm ³)	
Output mode indication	Bi-color (LED)	
Supply voltage ⁽¹⁾	20...255 V AC/DC	
Power consumption	DC: < 3 W	
Housing material	Painted aluminum	Fiberglass-reinforced plastic (PBT)
High/low mode setting	By switch (Low fail-safe (L), High fail-safe (H))	
Selection of density	By switch (Low density (L), high density (H))	
Output ⁽¹⁾	1 or 2 SPDT relays 250 V AC, 8 A, AC1 / 250 V AC, 6 A, AC1	
Electrical connection ⁽¹⁾	2× M20×1.5 plastic cable glands for Ø6...Ø12 mm cable, 2× or 3× terminal blocks for max. 2.5 mm ² wire cross section, 2× internally threaded ½" NPT connection for protective pipes	
Electrical protection	Class I	
Ingress protection	IP67	
Weight	1.3 kg + 1.2 kg/m extension	0.95 kg + 1.2 kg/m extension

⁽¹⁾ For Ex type see "Ex Information" table.

Ex INFORMATION

		Compact version, metal housing (RF□/RR□-3□□-B Ex)
Explosion protection	Dust Ex	
Ex marking	ATEX	Ⓔ II 1/2 D Ex ta/tb IIIC T140 °C Da/Db
Supply voltage	20...250 V AC / 20...50 V DC	
Electrical connection	2× M20×1.5 cable glands for Ø7...Ø12 mm cable	
	Ex ta IIIC protection	
	2× terminal blocks for max. 1.5 mm² wire cross section, 2× ½" NPT internal threads for cable protective pipes.	

PRESSURE-TEMPERATURE DIAGRAM



RFM-301



RRH-301

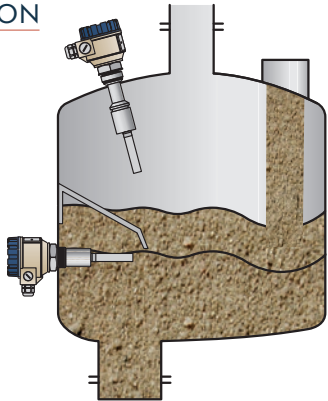
OPERATION

Compact and Integrated version					
Power supply	Fork location		Fail-Safe setting	Status LED	Output
ON	High level				
	Low level				
OFF	-	-	High / Low		

OPERATING MODE SWITCHES

Compact		Compact	
Fail-safe		Density	
	Fail-safe alarm is indicated with de-energized relay		Medium density ≥ 0.5 kg/dm³
			Medium density < 0.5 kg/dm³

INSTALLATION



NIVOSWITCH RF-200 standard version**3 years**

Compact vibrating fork level switch for light free-flowing solids
Standard probe length: 125 mm

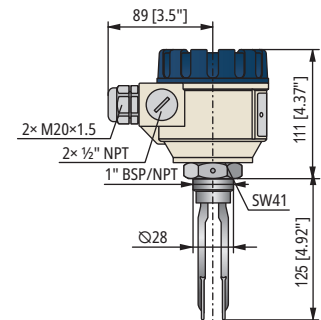
Process connection**R F** ☐ - ☐ ☐ ☐ - ☐**M** 1" BSP**P** 1" NPT**U** Stainless steel flanges; welded (MF_---H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;

Flanges conform to: EN 1092-1 / ANSI B 16.5

G DN50 PN40 / 25**B** ANSI 2" RF 600 / 400 psi**K** JIS 40K 50A

PP flanges (max. 6 bar; -20...+90 °C)

F DN50 PN16**A** ANSI 2" FF 150 psi**J** JIS 10K 50A**Housing****R F** ☐ - ☐ ☐ ☐ - ☐**2** Fiberglass-reinforced plastic (PBT) (Ex version not available)**3** Painted aluminum**Probe length****R F** ☐ - ☐ ☐ ☐ - ☐**0 1** 125 mm**Output / Certificates****R F** ☐ - ☐ ☐ ☐ - ☐**0** 1 SPDT relay: 250 V AC, 8 A**A** 2 SPDT relays: 1x 250 V AC, 8 A and 1x 250 V AC, 6 A**B** 1 SPDT relay: 250V AC, 8 A / Ex ta/tb D

RFM / RFP-201 / 301

NIVOSWITCH RF-200 rod-extended version 3 years

Compact vibrating fork level switch for light free-flowing solids with stainless steel rod-extended probe up to 3 m

Process connection

R F	-	-	-	-	-
M					1" BSP
P					1" NPT
U					Stainless steel flanges; welded (MF_---H type flanges [available from size DN40] should be ordered separately)
Stainless steel flanges; Flanges conform to: EN 1092-1 / ANSI B 16.5					
G					DN50 PN40 / 25
B					ANSI 2" RF 600 / 400 psi
K					JIS 40K 50A
PP flanges (max. 6 bar; -20...+90 °C)					
F					DN50 PN16
A					ANSI 2" FF 150 psi
J					JIS 10K 50A

Housing

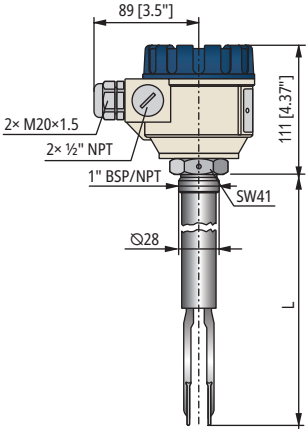
R F	-	-	-	-	-
2					Fiberglass-reinforced plastic (PBT) (Ex version not available)
3					Painted aluminum

Probe length

R F	-	-	-	-	-
0 2					0.2 m
n n					0.3...3 m; sold by the 0.1 m
nn = 03...30 : 0.3...3 m					

Output / Certificates

R F	-	-	-	-	-
0					1 SPDT relay: 250 V AC, 8 A
A					2 SPDT relays: 1x 250 V AC, 8 A and 1x 250 V AC, 6 A
B					1 SPDT relay: 250V AC, 8 A / Ex ta/tb D



RFM / RFP-202 / 230
RFM / RFP-302 / 330

NIVOSWITCH RR-200 short or standard version**3 years**

Compact vibrating fork level switch with welded fork for powders and granules
 Short probe length: 137 mm, standard probe length: 175 mm

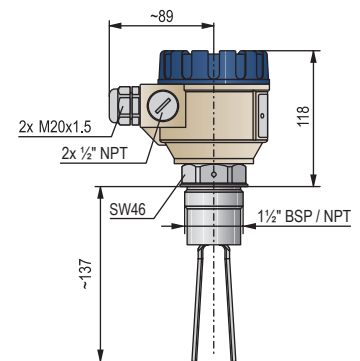
Type**R R** **0 1** Short probe, Probe length: 137 mm**0 2** Standard probe, Probe length: 175 mm**Process connection****R R** **H** 1½" BSP**N** 1½" NPT**U** Stainless steel flanges; welded (MF_ _ _ _ -H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;

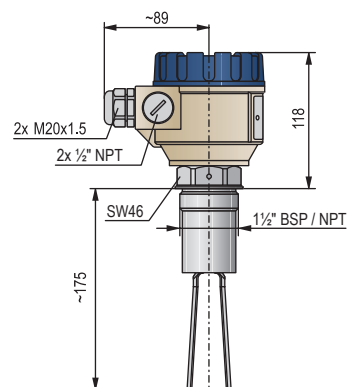
Flanges conform to: EN 1092-1 / ANSI B 16.5

G DN50 PN40 / 25**B** ANSI 2" RF 600 / 400 psi**K** JIS 40K 50A

PP flanges (maximum 6 bar; -20...+90 °C)

F DN50 PN16**A** ANSI 2" FF 150 psi**J** JIS 10K 50A**Housing****R R** **2** Fiberglass-reinforced plastic (PBT) (Ex version not available)**3** Painted aluminum**Output / Certificates****R R** **0** 1 SPDT relay: 250 V AC, 8 A**A** 2 SPDT relays: 1x 250 V AC, 8 A and 1x 250 V AC, 6 A**B** 1 SPDT relay: 250 V AC, 8 A / Ex ta/tb D

RRH / RRN-201 / 301



RRH / RRN-202 / 302

NIVOSWITCH RR-200 rod-extended version 3 years

Compact vibrating fork level switch with welded fork for powders and granules with stainless steel rod-extended probe up to 3 m

Process connection

R R	-	-	-	-	-
H					1½" BSP
N					1½" NPT
U					Stainless steel flanges; welded (MF_---H type flanges [available from size DN40] should be ordered separately)

Stainless steel flanges;
Flanges conform to: EN 1092-1 / ANSI B 16.5

G					DN50 PN40 / 25
B					ANSI 2" RF 600 / 400 psi
K					JIS 40K 50A
PP flanges (maximum 6 bar; -20...+90 °C)					
F					DN50 PN16
A					ANSI 2" FF 150 psi
J					JIS 10K 50A

Housing

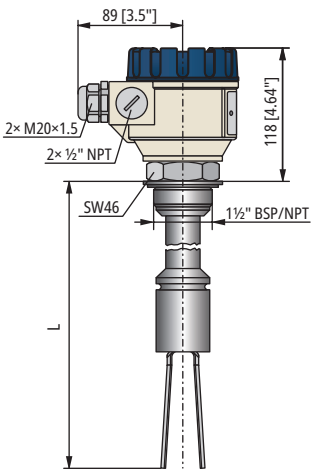
R R	-	-	-	-	-
2					Fiberglass-reinforced plastic (PBT) (Ex version not available)
3					Painted aluminum

Probe length

R R	-	-	-	-	-
0 3					0.3 m
n n					0.4...3 m; sold by the 0.1 m
nn = 04...30 : 0.4...3 m					

Output / Certificates

R R	-	-	-	-	-
0					1 SPDT relay: 250 V AC, 8 A
A					2 SPDT relay: 1x 250 V AC, 8 A and 1x 250 V AC, 6 A
B					1 SPDT relay: 250 V AC, 8 A / Ex ta/tb D



RRH / RRN-203 / 230
RRH / RRN-303 / 330

UNICONT PKK-312-8 Ex**3 years**

DIN-rail-mountable intrinsically safe remote switching unit dedicated to the Ex ia rated NIVOSWITCH R-400 series integrated vibrating fork level switches

Type

P K K - 3 1 2 - 8 24 V DC / [Ex ia G/D] (for Ex ia G vibrating forks)

UNICONT PK-300**3 years**

DIN-rail-mountable programmable current controlled remote switching unit featuring 1...22 mA input current and powering capabilities for transmitters

Type

P K K - 3 1 2 - 1 230 V AC
P K K - 3 1 2 - 2 110 V AC
P K K - 3 1 2 - 3 24 V AC
P K K - 3 1 2 - 4 24 V AC/DC
P K K - 3 1 2 - 7 24 V AC/DC / [Ex ia G/D]

NIVOSWITCH RP**3 years**

Sliding sleeve for NIVOSWITCH R-300/R-400 series vibrating forks only for extended versions without coating and with a minimum length of 300 mm

Type

R P H - 1 1 2 - 0 1½" BSP (1.4571/1.4404, max. up to 6 bar process pressure)
R P N - 1 1 2 - 0 1½" NPT (1.4571/1.4404, max. up to 6 bar process pressure)
R P H - 1 2 2 - 0 1½" BSP (1.4571/1.4404, max. up to 6 bar process pressure, for coated version)
R P N - 1 2 2 - 0 1½" NPT (1.4571/1.4404, max. up to 6 bar process pressure, for coated version)

NIVOSWITCH RP**3 years**

Stainless steel weld-in socket for flush mounting with O-ring seal for NIVOSWITCH R_M-400 vibrating forks

Type

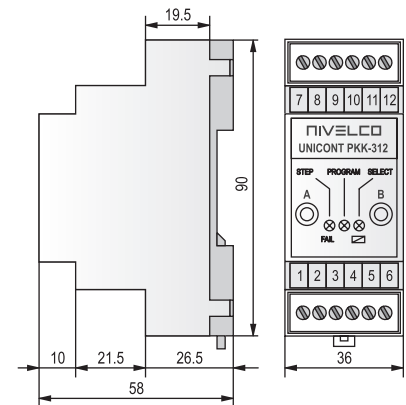
R P G - 1 0 1 - 0 1" BSP
R P K - 1 0 1 - 0 1" NPT

NIVOSWITCH RPS**3 years**

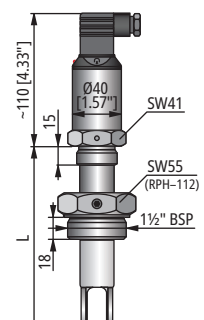
Magnetic screwdriver for operation test of integrated NIVOSWITCH vibration forks

Type

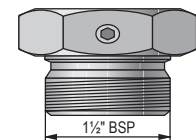
R P S - 1 0 1 - 0 Test magnet



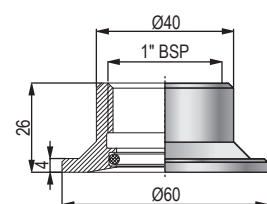
PKK-312



RCM-403 / 430 + RPH-112



RPH-112 / 122



RPG-101

NIV24

PKK-312-1, PKK-312-8 Ex

The NIVOCONT R series vibrating rod level switches are robust devices, designed for low and high level indication of granules and powders with a minimum of 0.05 kg/dm³ density. Mounted on tanks, silos or hopper bins, it controls filling/dumping, and sends alarm signals when necessary.

The circuit induces a vibration in the rod probe, when the medium touches the rod, the vibration changes, when the level drops and the medium no longer touches the rod, it starts to vibrate freely again. The electronics senses the change of vibration and sends an output signal after a predetermined delay.

FEATURES

- Length up to 20 m
- Adjustable sensitivity
- Highest process temperature: +160 °C
- Universal supply voltage
- Dust explosion protection
- Fine-polished probe
- IP67
- 5-year warranty

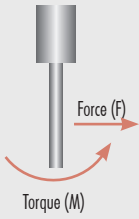
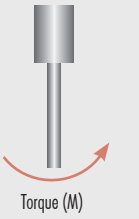
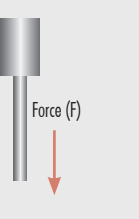
APPLICATIONS

- Powders, pellets, granulates
- Grains
- Ground products
- Stone-powder, chippings
- Cement, sand
- Coal, slag

CERTIFICATES

- ATEX (Ex ta/tb D)
- IEC Ex (Ex ta/tb D)
- UKCA Ex (Ex ta/tb D)
- KCs Ex (Ex ta/tb D)

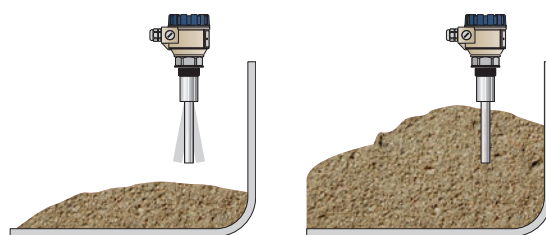
LOADABILITY

	Standard	Rod-extended	Cable-extended
Type of load			
Force	max. 500 N	–	max. 45 kN
Torque	max. 100 Nm	max. 100 Nm	–

MOUNTING OPTIONS

	Standard	Rod-extended	Cable-extended
High level switching	Top-mounted	Side-mounted ⁽¹⁾	Vertical mounting from the top
Low level switching	Side-mounted ⁽¹⁾		

⁽¹⁾ Protect the device against falling material by installing a baffle plate. The device must be installed with a slope greater than the slope angle is required for powdery materials.



RKH-502-5 Ex

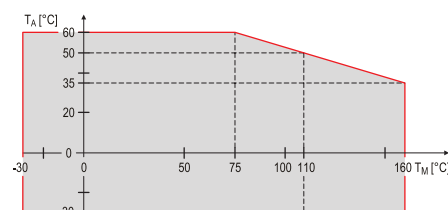


RKR-500 / 600



RKK-500 / 600

TEMPERATURE DIAGRAM



Ambient temperature (T_A) versus process temperature (T_P)

TECHNICAL DATA

		Standard (R□H/R□N)	Rod-extended (R□R/R□L)	Cable-extended (R□K/R□C)	Custom-extended (R□E/R□F)
Insertion length		207 mm	0.3...3 m	1...20 m	0.2...2 m
Material of wetted parts		1.4571/1.4404		Vibrating part: 1.4571/1.4404, Cable: PE cover	1.4571/1.4404
Housing material		Painted aluminum (R–500 series); or fiberglass-reinforced plastic (PBT) (R–600 series)			
Process connection		R□H, R□R, R□K, R□E: 1½" BSP; R□N, R□L, R□C, R□F: 1½" NPT			
Process temperature		–30...+110 °C; high-temperature version ⁽²⁾ : –30...+160 °C		–30...+80 °C	–30...+110 °C; high-temp. version ⁽²⁾ : –30...+160 °C
Ambient temperature		–30...+60 °C			
Process pressure		max. 25 bar		max. 6 bar ⁽²⁾	
Medium density ⁽¹⁾		min. 0.05 kg/dm³ (grain size max. 10 mm)			
Response time (selectable)	Getting immersed	< 1.8 s or 5 ± 1.5 s			
	Getting free	< 2 s or 5 ± 1.5 s			
Supply voltage (universal)		Standard version: 20...255 V AC/DC			
Power consumption		≤2.5 VA / 2 W			
Electrical connections		2× M20×1.5 plastic cable glands for Ø6...12 mm cable; 2× terminal blocks for max. 1.5 mm² wire cross section; 2× internally threaded 1½" NPT connection for protective pipes.			
Ingress protection		Housing: IP67 ⁽³⁾			
Electrical protection		Class I (must be grounded) ⁽³⁾			
Weight	plastic housing	1.5 kg	1.5 kg (+1.4 kg/m)	1.5 kg (+0.6 kg/m)	1.5 kg
	aluminum housing	1.88 kg	1.88 kg (+1.4 kg/m)	1.88 kg (+0.6 kg/m)	1.88 kg

⁽¹⁾ Depend on friction and grain size of the medium.⁽²⁾ Only with metal housing.⁽³⁾ Custom-extended devices must be installed and mounted appropriately, which is the responsibility of the customer. Only the appropriate mounting ensures IP67 protection, up to 6 bar maximum tank pressure, and Class I electrical protection.

OUTPUT PROPERTIES

Output	Relay	Electronic
Output type and rating	SPDT 250 V AC, 8 A, AC1	SPST 50 V, 350 mA
Output protection	–	Overvoltage, overcurrent and overload
Voltage drop (switched on)	–	< 2.7 V 350 mA
Residual current (switched off)	–	< 10 µA

Ex INFORMATION

R□□-5□□-5 Ex		
Protection		Dust Ex
Ex marking ⁽⁴⁾	ATEX	Ⓔ III/2 D Ex ta/tb IIIC T90°C...T170°C Da/Db
	IEC Ex	Ex t IIIC T ⁽⁵⁾ Da/Db IP67
	KCs Ex	Ex t IIIC T ⁽⁵⁾
Electrical connection	2× M20×1.5 cable glands with Ex ta IIIC protection for Ø7...Ø12 mm cable, 2× plug-in terminal blocks for max. 1.5 mm ² wire cross section, 2× internally threaded 1/2" NPT connection for protective pipes.	
Supply voltage (universal)	20...250 V AC (50/60Hz) / 20...50 V DC	

⁽⁴⁾ Only with metal housing.⁽⁵⁾ See "Temperature data table".

THERMAL LIMITS OF Ex COMPLIANT VERSIONS

Thermal Properties	Cable-extended			Standard or rod-extended			High-temperature
Process temperature (T _M) ⁽⁶⁾ Min.: -30 °C	+60 °C	+70 °C	+80 °C ⁽⁷⁾	+60 °C	+70 °C	+95 °C	+110 °C
Ambient temperature (T _A) ⁽⁶⁾ Min.: -30 °C	+60 °C	+50 °C	+60 °C	+60 °C	+50 °C	+60 °C	+50 °C
Max. surface temp. of process connection	+85 °C	+95 °C	+85 °C	+95 °C	+110 °C	+160 °C	
Max. surface temperature	+85 °C	+95 °C	+85 °C	+95 °C	+110 °C	+160 °C	
Temperature classes	T90°C	T100°C	T90°C	T100°C	T115°C	T170°C	

⁽⁶⁾ To operate the level switch at the maximum values of the related thermal properties the applied cable must permanently withstand up to +90 °C temperature.⁽⁷⁾ Process temperature for max. 1 hour: +95 °C.

NIVOCONT R-500 standard version 5 years

Vibrating rod level switch for powders and granular solids
Standard probe length: 207 mm

Versions

R	□	□	-	□	0	2	-	□
K								
H								
S								
T								

Process connection

R	□	□	-	□	0	2	-	□
H								
N								

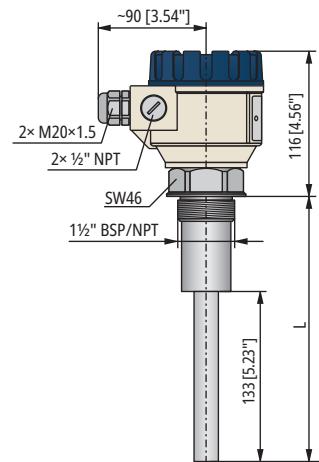
Housing

R	□	□	-	□	0	2	-	□
5								
6								

Supply voltage / Output / Certificates

R	□	□	-	□	0	2	-	□
1								
3								
5								

Need of IEC Ex is to be requested in the text part of the order



RKH / RKN-500 / 600

NIVOCONT R-500 rod-extended version**5 years**

Vibrating rod level switch for powders and granular solids
with stainless steel rod-extended probe up to 3 m

Versions

R	□	□	-	□	□	□	-	□
K								
H								
S								
T								

Standard version (+110 °C)

High-temperature version (+160 °C)

Standard version (+110 °C) with fine-polished probe ($R_a \leq 0.5$)High-temperature version (+160 °C) with fine-polished probe ($R_a \leq 0.5$)**Process connection**

R □ □ - □ □ □ - □

R 1½" BSP

L 1½" NPT

Housing

R □ □ - □ □ □ - □

5 Painted aluminum

6 Fiberglass-reinforced plastic (PBT) (not available in Ex version)

Probe length

R □ □ - □ □ □ - □

nn 0.3...0.5 m

oo 0.6...3 m; sold by the 0.1 m

nn = 03...05 : 0.3...0.5 m

oo = 06...30 : 0.6...3 m

Supply voltage / Output / Certificates

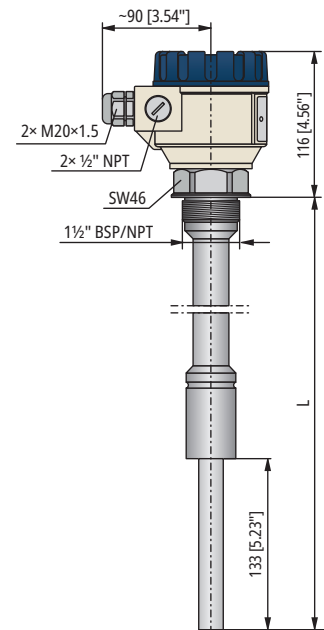
R □ □ - □ □ □ - □

1 20...255 V AC/DC / SPDT relay

3 20...255 V AC/DC / SPST solid-state output

5 20...250 V AC or 20...50 V DC / SPDT relay / Ex ta/tb D

Need of IEC Ex is to be requested in the text part of the order



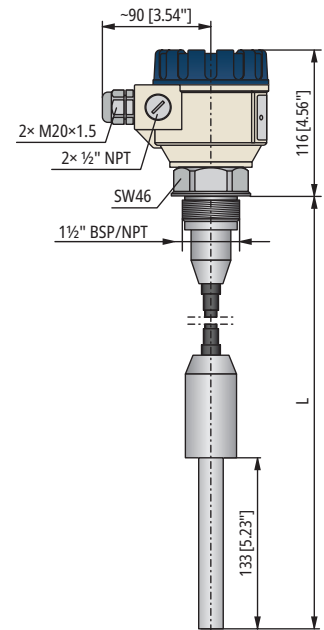
RKR / RKL-500 / 600

NIVOCONT R-500 cable-extended version 5 years

Vibrating rod level switch for powders and granular solids with PE-coated cable-extended probe up to 20 m

Process connection		
R K	-	-
K		1½" BSP
C		1½" NPT
Housing		
R K	-	-
5		Painted aluminum
6		Fiberglass-reinforced plastic (PBT) (not available in Ex version)
Probe length		
R K	-	-
0 1		1 m
n n		2...20 m; sold by the meter
nn = 02...20 : 2...20 m		
Supply voltage / Output / Certificates		
R K	-	-
1		20...255 V AC/DC / SPDT relay
3		20...255 V AC/DC / SPST solid-state output
5		20...250 V AC or 20...50 V DC / SPDT relay / Ex ta/tb D

Need of IEC Ex is to be requested in the text part of the order



RKK / RKC-500 / 600

NIVOCONT R-500 with remote-mounted electronics

5 years

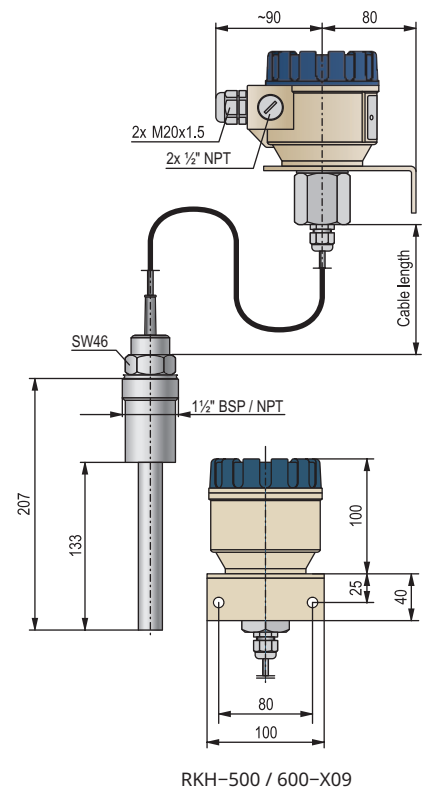
Vibrating rod level switch with electronics separated from the probe
Use the order codes below after the standard order code of the device:

Special versions

X09

Extension cable

Max. 10 m; sold by the meter (Order example:
Remotely mounted version with standard probe and 3 m extension cable: RKH-502-1-X09/3 m)



NIVOCONT R-500 custom-extended version

5 years

Vibrating rod level switch for powders and granular solids with custom extension 1" stainless steel (1.4571/1.4404) pipe cut to desired length, up to 2 m (the extension steel tube is not part of the package).

Versions

R ■ ■ - ■ 0 2 - ■

K Standard version (+110 °C)
H High temperature version (+160 °C)

Process connection / extension connection

R ■ ■ - ■ 0 2 - ■

E 1½" BSP / 1" BSP
F 1½" NPT / 1" BSP
G 1½" NPT / 1" NPT

Housing

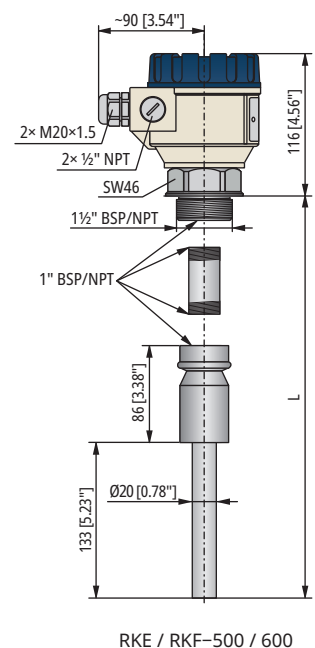
R ■ ■ - ■ 0 2 - ■

5 Painted aluminum
6 Fiberglass-reinforced plastic (PBT)

Supply voltage / Output

R ■ ■ - ■ 0 2 - ■

1 20...255 V AC/DC / SPDT relay
3 20...255 V AC/DC / SPST solid-state output



The **NIVOROTA** rotary paddle level switch detects the level of lumpy substances or powders, grains, and granules. Mounted onto tanks, silos, and hoppers, it monitors and controls the level, filling, and dumping of the stored materials such as stone, ash, sand, coal, feed, beet slices, etc. A small electric motor drives the paddle, which rotates freely in the absence of material. When the material reaches the paddle, the motor is switched off, and the output switch is triggered. When the material level drops, the paddle is free to spin again, the motor is reactivated, and the switch returns to its original state. The **NIVOROTA E-700 & E-800** series rotary paddle level switches provide all the advantageous features of the previous series in one unit. Dust Ex versions are available for use in hazardous environments.

FEATURES

- Level switching of free-flowing solids
- Cable- or rod-extended up to 3 m
- Automatic motor shutdown
- High-temperature version
- IP67
- Dust-Ex certified version
- Rotary force independent of the supply voltage
- Low supply voltage is indicated by a blinking LED

APPLICATIONS

- Food industry: sunflower seeds, sunflower hulls, coffee and, cocoa powder, flour, sugar, etc.
- Chemical industry: plastic powders, granules, pellets
- Building industry: cement, sand, calcium powder, gypsum
- Energy industry: active soot, coal powder, fly ash

VARIANTS

	E-700	E-800
Metal housing	■	–
Plastic housing	–	■
Single-blade paddle	■	■
Multi-blade paddle	■	■
Flexible coupling	■	■
Cable length	■	■
DC power supply	■	■
Dust Ex version	■	–
High-temperature version	■	–
1" process connection	■	■
1½" process connection	■	■
Torque adjustment	■	■

CERTIFICATES

- ATEX (Ex ta/tb D)
- UKCA Ex (Ex ta/tb D)

VARIANTS

For appropriate model selection the following must be taken into consideration:

- Insertion length: level switching application (*low or high level switch*) and the position of installation determine the insertion length.
- Number of blades: specific gravity and particle size of the material provides orientation for the number of blades. Most commonly used is the stainless steel, single blade paddle. The paddle can be passed through the respective threaded connection. For lighter materials the use of 3-blade paddle is recommended. The available devices have 1 or 3-blades, they can be ordered with either paddle variant, and the paddles can be ordered separately as well.
- Flexible coupling: Use if the shaft of the device has to be protected against falling materials. (*rocks, larger, lumpy materials*)



EM-700
High-temperature
rod-extended version



EL-700
Single-blade paddle
with flexible coupling

Material	Density (kg/dm ³) ⁽¹⁾
Wheat	0.4...0.5
Flour	0.6 ... 0.8
Wood chip	0.3 ... 0.4
Sawdust	0.3 ... 0.35
Whiting	0.8 ... 1
Lime hydrate dust	0.4 ... 0.5
PVC dust	0.3 ... 0.6
PVC granule	0.3 ... 0.6
Sunflower seeds	0.3 ... 0.5
Sunflower hulls	0.1 ... 0.2
Feed	0.2 ... 0.6
Ground paprika	0.8 ... 1

⁽¹⁾ Informational data



EL-700
3-blade
paddle version

TECHNICAL DATA

	Standard version		High-temperature version
	ELQ-7□□	ELQ-8□□	EMQ-7□□
Insertion length	Standard: 200 mm; rod-extended version: 0.3...3 m; cable-extended version: 1...3 m		
Paddle material, number of blades	1.4571/1.4404 stainless steel / 1, 2, 3; as per order code		
Rotation speed	~1 rpm (@50 Hz)		
Material of wetted parts	1.4571/1.4404 stainless steel, material of the seal: NBR		1.4571/1.4404 stainless steel, material of the seal: FPM
Medium density (guideline value)	Minimum 0.1 kg/dm ³		
Process temperature	-20...+120 °C	-20...+80 °C	-20...+200 °C
Ambient temperature / relative humidity	Ex version: see "Ex Information"		
Process pressure	Up to 3 bar		
Output	SPDT 250 V AC, 6 A, AC1		
Paddle-rotation / shutdown indication	Two-toned (green / red) LED		
Process connection	1"; 1½" universal thread (can be screwed into BSP and NPT threads) or 1¼ NPT		
Supply voltage	230 V AC, 120 V AC, 24 V AC, 24 V DC (18...28 V DC)		
Power consumption	Maximum 4 VA (4 W)		
Electrical connection	2× M20×1.5 plastic cable glands, for Ø6...12 mm cable + 2× internally threaded ½" NPT connection for protective pipes 2× terminal blocks for 0.5...1.5 mm ² wire cross section		
Electrical protection	Class I		
Ingress protection	IP67		
Housing material	Painted aluminum	Plastic (PBT)	Painted aluminum
Weight	Standard: 1.6 kg, rod-extended version: 1.6 kg + extension 1.6 kg/m, cable-extended version: 2.6 kg + extension 1.4 kg/m, counterweight: 1 kg		

Ex INFORMATION

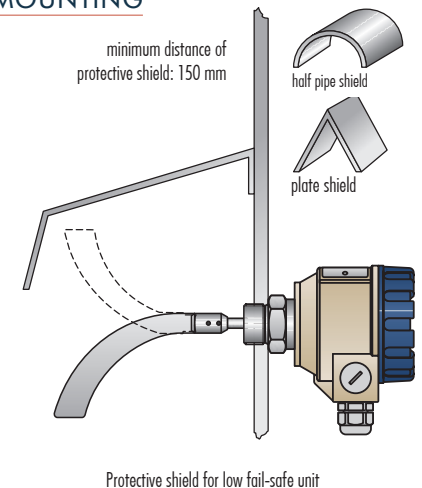
	Standard (ELQ-7□□-5, 6, 7, 8 Ex)	High-temperature (EMQ-7□□-5, 6, 7, 8 Ex)
Ex marking	Ex II 1/2 D Ex ta/tb IIIC T85°C...T135°C Da/Db	Ex II 1/2 D Ex ta/tb IIIC T85°C...T200°C Da/Db
Ex supply voltage	ELQ-7□□-5 Ex: U ₀ ≤ 253 V AC; ELQ-7□□-7 Ex: U ₀ ≤ 26.4 V AC;	EMQ-7□□-6 Ex: U ₀ ≤ 132 V AC; EMQ-7□□-8 Ex: U ₀ ≤ 28 V DC
Process and ambient temperature	See below	
Cable entry	M20×1.5 cable gland with "Ex ta" certification	
Cable outer diameter	Ø6...Ø12 mm	
Electrical connection	Wire cross-section: 0.5...1.5 mm ²	

Type	Temperature class	T85°C	T100°C	T135°C	T200°C
Standard ELQ-7□□-5, 6, 7, 8 Ex	Maximum surface temperature	+60 °C	+90 °C	+120 °C	
	Maximum process temperature		+60 °C	+50 °C	
	Maximum ambient temperature				
	Waiting time for opening the cover	40 minutes	30 minutes	10 minutes	
High-temperature EMQ-7□□-5, 6, 7, 8 Ex	Maximum surface temperature	+60 °C	+90 °C	+120 °C	+200 °C
	Maximum process temperature				
	Maximum ambient temperature		+60 °C		
	Waiting time for opening the cover	40 minutes	30 minutes	15 minutes	0 minute

OPERATING MODES

Power supply	Status LED	Output microswitch	Paddle
ON	Green	 De-Energized	Rotates
	Red	 Energized	Does not rotate
OFF	Off	 De-Energized	Does not rotate

MOUNTING



NIVOROTA E-700 standard version

3 years

Rotary paddle level switch for powders and granular solids
Standard probe length: 200 mm

Version

E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

L	Standard bidirectional version
M	High temperature bidirectional version (only with aluminum housing)

Paddle / Process connection

E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

A	1-blade paddle (EAL-701-1) / 1" universal
H	1-blade paddle (EAL-701-1) / 1½" universal
N	1-blade paddle (EAL-701-1) / 1¼" NPT
F	* 3-blade paddle (EAL-709-1) / 1½" universal
B	* 3-blade paddle (EAL-709-1) / 1¼" NPT

* Mounting plate is ordered separately

Housing / Material of process connection

E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

7	Painted aluminum / 1.4571/1.4404
8	Fiberglass-reinforced plastic (PBT) / 1.4571/1.4404 (Ex version not available)

Insertion length

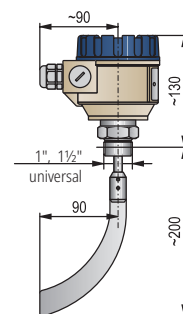
E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

0 2	200 mm
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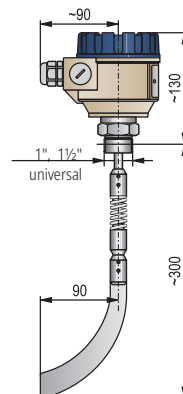
Supply voltage / Certificates

E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

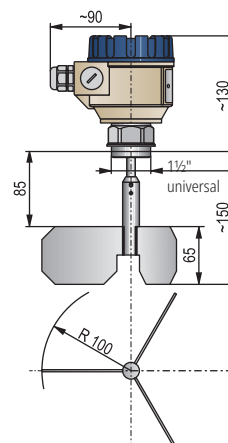
1	230 V AC
2	120 V AC
3	24 V AC
4	24 V DC
5	230 V AC / Ex ta/tb D
6	120 V AC / Ex ta/tb D
7	24 V AC / Ex ta/tb D
8	24 V DC / Ex ta/tb D



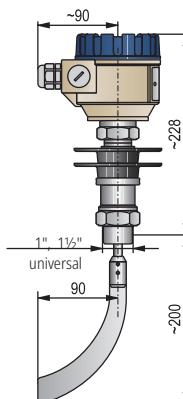
ELA / ELH-702 / 802



ELA / ELH-702 / 802 + EAS-701



ELF-702 / 802



EMA / EMH-702

NIV24

ELA-702-1

ELH-702-1, ELH-702-4

NIVOROTA E-700 rod-extended version

3 years

Rotary paddle level switch for powders and granular solids with stainless steel rod-extended probe up to 3 m

Version

E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

L Standard bidirectional version

M High temperature bidirectional version (only with aluminum housing)

Version / Paddle / Process connection

E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

R Rod-extended / 1-blade paddle (EAL-701-1) / 1½" universal

C Rod-extended / 1-blade paddle (EAL-701-1) / 1¼" NPT

Housing / Material of process connection

E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

7 Painted aluminum / 1.4571/1.4404

8 Fiberglass-reinforced plastic (PBT) / 1.4571/1.4404 (Ex version not available)

Insertion length

E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

nn 0.3...3 m rod-extended probe; sold by the 0.1 m

nn = 03...30 : 0.3...3 m

Supply voltage / Certificates

E ☐ ☐ - ☐ ☐ - ☐ ☐ - ☐ ☐

1 230 V AC

2 120 V AC

3 24 V AC

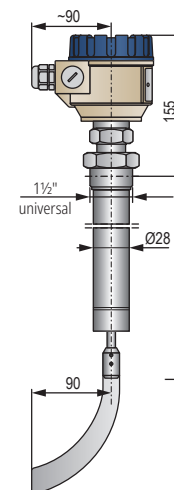
4 24 V DC

5 230 V AC / Ex ta/tb D

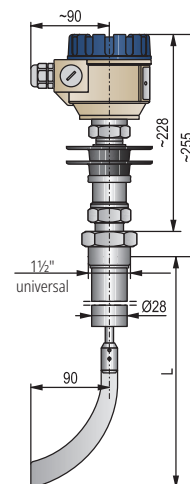
6 120 V AC / Ex ta/tb D

7 24 V AC / Ex ta/tb D

8 24 V DC / Ex ta/tb D



ELR-703 / 730



EMR-703 / 730

NIVOROTA E-700 cable-extended version

3 years

Rotary paddle level switch for powders and granular solids with stainless steel cable-extended probe up to 3 m

Version

E	□	□	-	□	□	-	□
L							Standard bidirectional version
M							High temperature bidirectional version (only with aluminum housing)

Version / Paddle / Process connection

E	□	□	-	□	□	-	□
K							Cable-extended / 1-blade paddle (EAL-701-1) / 1½" universal
D							Cable-extended / 1-blade paddle (EAL-701-1) / 1¼" NPT
L			*				Cable-extended / 3-blade paddle (EAL-709-1) / 1½" universal
G			*				Cable-extended / 3-blade paddle (EAL-709-1) / 1¼" NPT

* Mounting plate is ordered separately

Housing / Material of process connection

E	□	□	-	□	□	-	□
7							Painted aluminum / 1.4571/1.4404
8							Fiberglass-reinforced plastic (PBT) / 1.4571/1.4404 (Ex version not available)

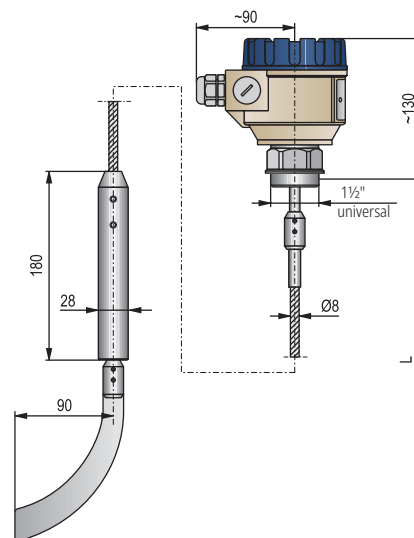
Insertion length

E	□	□	-	□	□	-	□
n n							1, 2 or 3 m cable-extended probe; sold by the meter

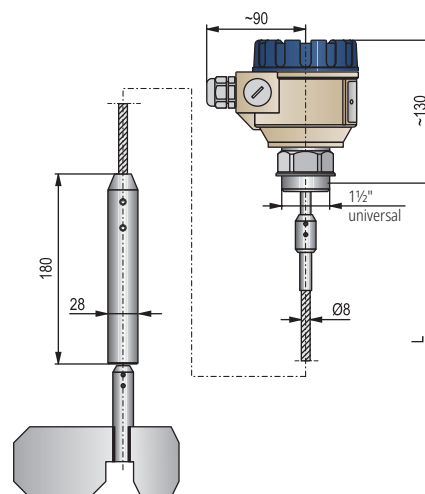
nn = 10, 20, 30 : 1, 2 or 3 m

Supply voltage / Certificates

E	□	□	-	□	□	-	□
1							230 V AC
2							120 V AC
3							24 V AC
4							24 V DC
5							230 V AC / Ex ta/tb D
6							120 V AC / Ex ta/tb D
7							24 V AC / Ex ta/tb D
8							24 V DC / Ex ta/tb D



ELK-710 / 730
ELK-810 / 830



ELL-710 / 730
ELL-810 / 830

NIVOROTA E-700 accessories (sold separately)

3 years

Mounting – type / material

E A M – 7 0 □ – 0

1	1" female nut / 1.4571/1.4404
2	1½" female nut / 1.4571/1.4404
3	Sliding sleeve for rod-extended version / 1.4571/1.4404
4	Mounting plate, 1" hole / 1.4571/1.4404
5	Mounting plate, 1" hole / carbon steel
6	Mounting plate, 1½" hole / 1.4571/1.4404
7	Mounting plate, 1½" hole / carbon steel
8	Mounting plate, 1¼" NPT / 1.4571/1.4404
9	Mounting plate, 1¼" NPT / carbon steel

Adapters

E A A – 1 8 9 – 0	1" BSP / 1" NPT (1.4571/1.4404)
E A A – 1 8 B – 0	1" BSP / 1½" BSP (1.4571/1.4404)
E A A – 1 8 C – 0	1" BSP / 1½" NPT (1.4571/1.4404)
E A A – 1 B A – 0	1½" BSP / 1¼" NPT (1.4571/1.4404)
E A A – 1 B D – 0	1½" BSP / 2" BSP (1.4571/1.4404)
E A A – 1 B E – 0	1½" BSP / 2" NPT (1.4571/1.4404)

Paddles – type / material

E A L – 7 0 □ – 1

1	1-blade curved, 168 mm / 1.4571/1.4404
2	1-blade curved, 120 mm / 1.4571/1.4404
3	2-blade flexible, 172 mm / 1.4571/1.4404
4	2-blade flexible, 120 mm / 1.4571/1.4404
5	1-blade straight, 170 mm / 1.4571/1.4404
6	1-blade straight, 70 mm / 1.4571/1.4404
7	1-blade 90°, 130 mm / 1.4571/1.4404
8	3-blade extended, 268 mm / 1.4571/1.4404
9	3-blade standard, 120 mm / 1.4571/1.4404

Length size

E A R – 7 0 □ – 1

n 0.1...0.5 m extension pipe; 1.4571/1.4404, sold by the 0.1 m

n = 1 ...5 : 0.1...0.5 m

Rigid pipe for cable-extended version

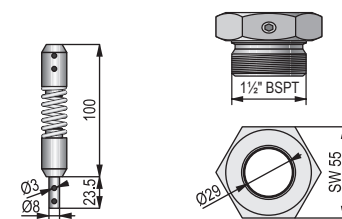
E A K – 7 □ □ – 1

nn 0.1...3 m Ø12x1; 1.4571/1.4404; sold by the 0.1 m

nn = 01...30 : 0.1...3 m

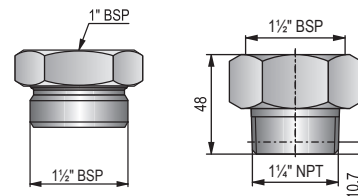
Accessories

E A S – 7 0 1 – 0	Flexible Coupling / 1.4571/1.4404
E A W – 7 0 1 – 0	Weight / 1.4571/1.4404
EAM-704-0M-000-03	Mounting plate seal
4cesp3x20ykoy	Mounting sleeve



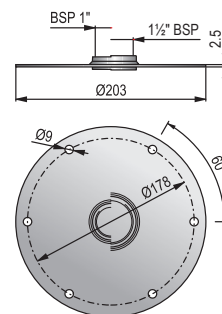
EAS-701-0

EAM-703-0

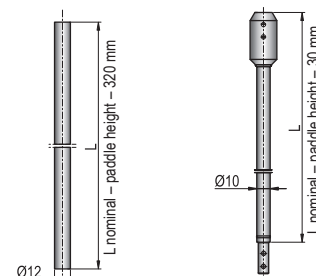


EAA-18B-0

EAA-1BA-0

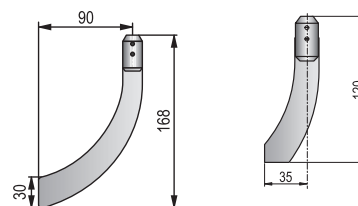


EAM-704 / 707



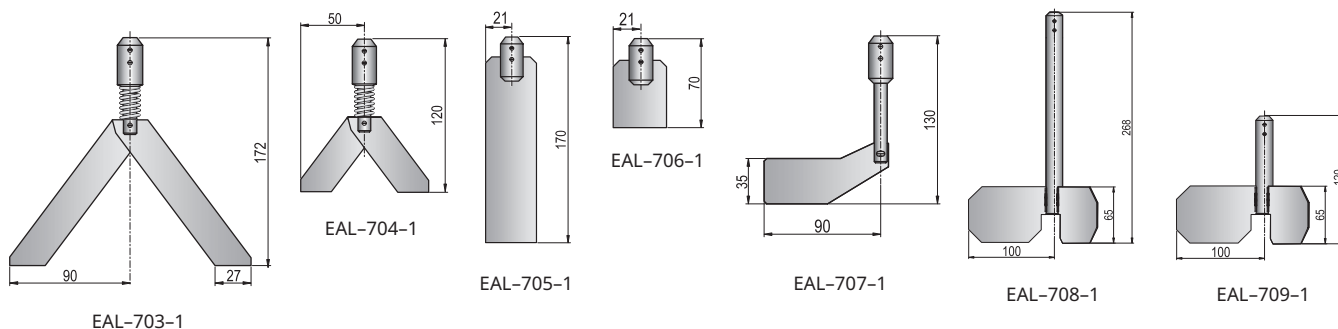
EAK-700-1

EAR-700-1



EAL-701-1

EAL-702-1



EAL-703-1

EAL-704-1

EAL-705-1

EAL-706-1

EAL-707-1

EAL-708-1

EAL-709-1

The NIVOCAP CK-100 series capacitance level switches operate in the RF (radio frequency) range, unlike conventional capacitive measurement principles. This makes them ideally suited for sticky or deposit-prone media where vibrating or mechanical contact switches are ineffective or of limited use.

The device measures the capacitance difference between the measuring probe and the reference probe, which is formed between two insulators, and the housing (reference point). This design ensures more stable operation compared to analog types by eliminating false switching caused by stubborn deposits.

The units are available exclusively with aluminum housings. Probe lengths of up to 3 meters are available in rod versions, while rope versions allow insertion lengths of up to 10 meters. High-temperature and explosion-proof versions are also available, making them suitable for power plant applications.

For liquid applications, only the lower metallic part of the probe should come into contact with the medium.

FEATURES

- Intelligent electronic level switch
- Immune to material deposits
- Easy calibration
- Selectable sensitivity
- Fail-safe operating mode
- Rod- or cable-extended
- Calibration with external magnet
- High-temperature version
- Dust-Ex versions available
- 5-year warranty

APPLICATIONS

- For viscous, sticky materials
- For solids with $\epsilon_r \geq 1.5$ relative dielectric constant and liquids
- Pharmaceutical and food industry
- Powerplant processes

CERTIFICATES

- ATEX (Ex ta/tb D)
- IEC Ex (Ex ta/tb D)

OPERATION AND SETUP

The NIVOCAP CK intelligent electronic level switch measures the change in capacitance acting on the probe. While the probe is in air, the baseline capacitance remains constant. When the target material reaches the probe, the capacitance increases, which the device detects by comparing it to a calibrated reference value. After installation at the final location, the device must be calibrated in an empty tank to record the baseline environmental capacitance. Calibration in explosion-hazard zones can be performed without removing the cover by using the supplied magnet.

Sensitivity is selectable in four steps, with fine adjustments made via a potentiometer.



CALIBRATION

After installation, calibration is initiated by pressing the CAL button or by holding the magnet on the device for 5 seconds. During calibration, LEDs indicate status with blue light: initially steady, then blinking, and finally reverting to the operating mode LED color, signaling successful calibration. In hazardous areas, calibration can be performed any time using the magnet without touching the enclosure, with the LED on the cover providing feedback. Additional settings such as measuring range, sensitivity (SENS), delay, fail-safe, and magnet switch should be set outside the hazardous area before installation. Calibration can be repeated as needed to ensure precise operation.



SENSITIVITY SETTINGS

Sensitivity (range)	Capacitance value	ϵ_r	Typical measured medium
1	18 pF	> 7.0	Wastewater, slurries, and water-based solutions
2	8 pF	4.0...7.0	Grains, fertilizers, feed
3	2.5 pF	2.0...4.0	Sand, rubber, oils, coal
4	0.5 pF	1.5...2.0	Plastics, fly ash, cement

TECHNICAL DATA

	Standard	Rod-extended	Cable-extended
Probe length	0.3...0.6 m	0.7...3 m	1...10 m
Material of wetted parts	1.4571/1.4404 / 316Ti stainless steel + PPS insulation		Probe: 1.4571/1.4404 / 316Ti stainless steel + PPS Insulation; Cable: PE coating
Process connection	¾", 1", 1½" BSP/NPT, 1¼" NPT threaded connection; as per order code		
Output	See output data table		
Ambient temperature	-30...+65 °C		
Process temperature (for solids)	-30...+110 °C		-25...+80 °C
Process temperature [High-temperature version] (for solids)	-30...+235 °C		-
Process temperature (for liquids)	0...+65 °C		
Process pressure	16 bar		
Response time (selectable)	0.15...15 s		
Sensitivity	Coarse settings: available with push button out of 4 ranges; 4 indication LED Fine adjustment: with potentiometer within the selected range		
Fail-safe mode	Low, high (selectable with DIP-switch)		
Calibration	With push button or external magnet		
Status display	Status LED, Calibration LED		
ε _r	Minimum 1.5		
Supply voltage	20...250 V AC / 20...50 V DC		
Power consumption	≤ 2.5 VA / 2 W		
Housing material	Painted aluminum		
Electrical connection	2× M20×1.5 plastic cable glands, for 6...12 mm cable + 2× internally threaded ½" NPT connection for protective pipes; 2× terminal blocks for 0.5...1.5 mm² wire cross section		
Electrical protection	Class I		
Ingress protection	IP67		
Weight	2 kg	2 kg + 1.4 kg / m	2 kg + 0.6 kg/m

OUTPUT DATA

	Type	Relay	Electronic
Output type		SPDT	SPST
Output rating		250 V AC, 8 A, AC1	250 V AC, 50 V DC
Output protection		-	Overvoltage, overcurrent and overload

Ex INFORMATION

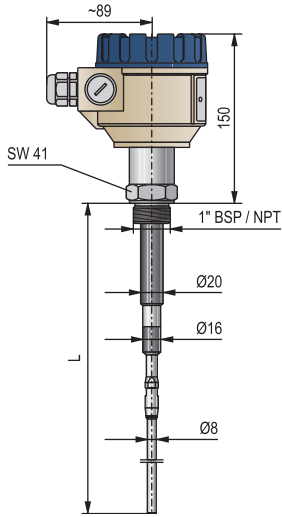
Protection		Dust Ex							
Ex marking	ATEX	Ⓔ II 1/2D Ex ta/tb IIIC T85°C...T220°C Da/Db							
	IEC Ex ⁽¹⁾	Ex ta IIIC T85°C...T220°C Da/Db							
Electrical connection		2× M20×1.5 metal cable glands for Ø8...Ø13 mm cable							
Thermal properties		Cable-extended			Standard or rod-extended				
		Standard					High-temperature		
Process temperature min.: -30 °C; Max:		+60 °C	+70 °C	+80 °C	+60 °C	+70 °C	+95 °C	+110 °C	+220 °C
Ambient temperature min.: -30 °C; Max:		+65 °C	+60 °C	+60 °C	+65 °C	+60 °C	+60 °C	+50 °C	+35 °C
Highest permissible surface temperature of the process connection		+80 °C	+80 °C	+90 °C	+80 °C		+90 °C	+95 °C	+195 °C
Temperature classes		T85°C		T95°C	T85°C		T95°C	T110°C	T220°C

⁽¹⁾ IEC Ex compliance is optional; must be requested in the order.

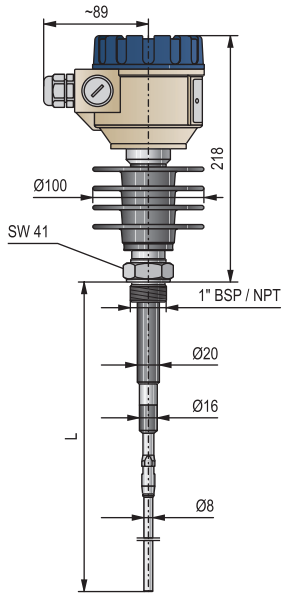
NIVOCAP CK-100 standard version **5 years**

High-frequency (RF) capacitance level switch for powders and granular solids, and for liquids
Standard probe length: 300...600 mm

Version	
C ☐ ☐ - 1 ☐ ☐ - ☐	
K	Standard version
M	High-temperature version
Probe version / Process connection	
C ☐ ☐ - 1 ☐ ☐ - ☐	
D	Standard / 3/4" BSP
G	Standard / 3/4" NPT
M	Standard / 1" BSP
P	Standard / 1" NPT
B	Standard / 1 1/4" NPT
H	Standard / 1 1/2" BSP
N	Standard / 1 1/2" NPT
Housing	
C ☐ ☐ - ☐ ☐ - ☐	
1	Painted aluminum
Probe length	
C ☐ ☐ - 1 ☐ ☐ - ☐	
n n	Standard version 0.3...0.6 m
nn = 03...06 : 0.3...0.6 m	
Output / Certificates	
C ☐ ☐ - 1 ☐ ☐ - ☐	
1	SPDT, relay; 250 V AC, 8 A
3	SPST, solid-state output
5	SPDT, relay; 250 V AC, 8 A / Ex ta/tb D
7	SPST, solid-state output / Ex ta/tb D
Available on request (must be specified in the text of the order)	
X32	2" TriClamp (ISO 2852) process connection
Accessories	
CKM-106-1M-300-00	Stainless steel probe rod



CKM / CKP-103 / 106



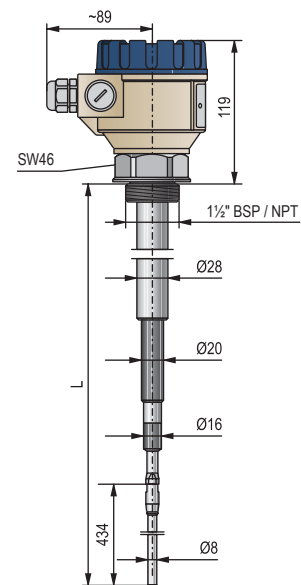
CMM / CMP-103 / 106

NIVOCAP CK-100 rod-extended version**5 years**

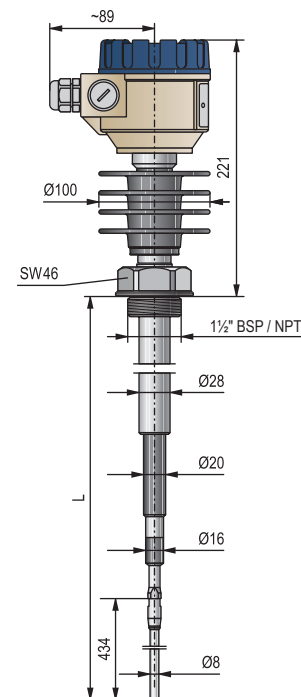
High-frequency (RF) capacitance level switch for powders and granular solids, and for liquids with stainless steel rod-extended probe up to 3 m

VersionC ☐ ☐ - 1 ☐ ☐ - ☐**K** Standard version**M** High-temperature version**Probe version / Process connection**C ☐ ☐ - 1 ☐ ☐ - ☐**E** Rod-extended / 3/4" BSP (max. 1.5 m)**F** Rod-extended / 3/4" NPT (max. 1.5 m)**V** Rod-extended / 1" BSP**Z** Rod-extended / 1" NPT**J** Rod-extended / 1 1/4" NPT**R** Rod-extended / 1 1/2" BSP**L** Rod-extended / 1 1/2" NPT**Housing**C ☐ ☐ - ☐ ☐ ☐ - ☐**1** Painted aluminum**Probe length**C ☐ ☐ - 1 ☐ ☐ ☐ - ☐**0 7** 0.7 m**n n** 0.8...3 m rod-extended probe; sold by the 0.1 m

nn = 08...30 : 0.8...3 m

Output / CertificatesC ☐ ☐ - 1 ☐ ☐ ☐ - ☐**1** SPDT, relay; 250 V AC, 8 A**3** SPST, Solid-state output**5** SPDT, relay; 250 V AC, 8 A / Ex ta/tb D**7** SPST, solid-state output / Ex ta/tb D**Available on request (must be specified in the text of the order)****X32** 2" TriClamp (ISO 2852) process connection

CKR / CKL-107 / 130

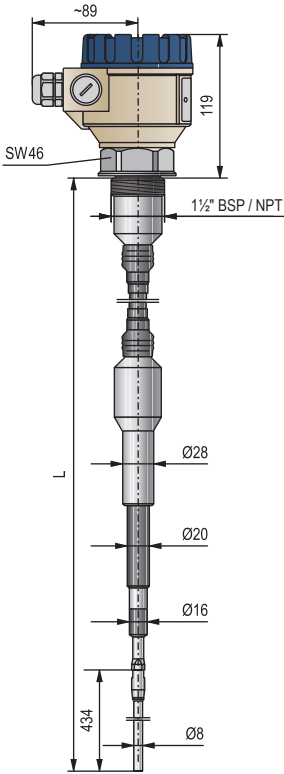


CMR / CML-107 / 130

NIVOCAP CK-100 cable-extended version 5 years

High-frequency (RF) capacitance level switch for powders and granular solids, and for liquids with PE-coated stainless steel cable-extended probe up to 10 m

Version		
C	☐ ☐ - 1 ☐ ☐ - ☐	
K		Standard version
Probe version / Process connection		
C	K ☐ ☐ - 1 ☐ ☐ - ☐	
K		Cable-extended / 1½" BSP
C		Cable-extended / 1½" NPT
Housing		
C	K ☐ ☐ - ☐ ☐ ☐ - ☐	
1		Painted aluminum
Probe length		
C	K ☐ ☐ - 1 ☐ ☐ ☐ - ☐	
n	n	1...10 m cable-extended probe; sold by the 0.5 m
nn = 10...A0 : 1...10 m		
Output / Certificates		
C	K ☐ ☐ - 1 ☐ ☐ ☐ - ☐	
1		SPDT, relay; 250 V AC, 8 A
3		SPST, Solid-state output
5		SPDT, relay; 250 V AC, 8 A / Ex ta/tb D
7		SPST, solid-state output / Ex ta/tb D
Available on request (must be specified in the text of the order)		
X32		2" TriClamp (ISO 2852) process connection



CKK / CKC-110 / 1A0

ANALYTICAL TRANSMITTERS

There is a constant demand for analytical measurements in practically all industries.

Analysis of fluids and reliable control over the feeding of various chemicals is especially crucial in the water and wastewater, pharmaceutical, chemical, food and beverage, power industries. NIVELCO's AnaCONT analytical range provides HART®-capable transmitters for dissolved oxygen and conductivity measurement.

AnaCONT LED DISSOLVED OXYGEN TRANSMITTER

page 165



- 2-wire DO transmitter
- Compact design
- Measuring range 0...20 ppm
- Replaceable probe
- Temperature-compensated
- 4...20 mA + HART® communication
- Power relay output
- Remote-mount versions up to 10 m
- IP67 protection
- Ex versions

AnaCONT LCK CONDUCTIVITY TRANSMITTER

page 172



- 2-wire EC transmitter
- Measuring range 1 µS/cm...2 mS/cm
- Optional plug-in 4-digit LED display
- 4...20 mA + HART® communication
- IP68/IP65 protection



The dissolved oxygen (DO) measurement gives the quantity of dissolved oxygen in a liquid, in ppm or mg/l values. The sensor with an oxygen-permeable membrane is submerged in the liquid and it provides an electronic signal proportional to the oxygen concentration.

The electronics calculates and transmits the DO value normalized to +25 °C on the basis of the output current of the DO sensor and the potential of the temperature sensor immersed in the medium.

FEATURES

- Compact DO transmitter
- Remote mount versions up to 10 m
- Measurement range: 0...20 ppm
- Replaceable probe
- Temperature compensation
- Graphical display
- 4...20 mA, HART®, relay output
- Wide range of accessories
- IP67
- Ex version available
- Sensor should be ordered separately
- 5-year warranty

APPLICATIONS

- Checking of water quality
- Wastewater treatment
- Pharmaceutical industry
- Food and beverage industry
- Effluent treatment
- Checking of aeration in potable water
- Pools

CERTIFICATES

- ATEX (Ex ia G)



SAT-504
HART® modem



SAP-300
graphic display



LED-100



DO measurement sensor
LAD-40□-0

PROBES

DO sensors (should be ordered separately)			
		LAD-402-0	LAD-401-0
DO sensor	Application area	Fish and crawfish farms; water conditioning in large aquariums. Control of oxygen concentration in water treatment plants; determination of biological conditions in surface waters. Interchangeable with HACH-LANGE 085G0023 sensor.	Potable water production, river monitoring, and water treatment plants. Control of dissolved oxygen levels in wastewater treatment plants; determination of biological conditions in surface waters. Interchangeable with HACH-LANGE 085G0022 sensor.
	DO range	0...20 ppm	0...10 ppm
	Process temperature	Up to +50 °C	
	Process pressure	Maximum 1 bar	
	Flow speed	Minimum 0.05 m/s	
	Material / thickness of membrane	PTFE / 125 µm	PTFE / 50 µm

TECHNICAL DATA

		AnaCONT LED – DO transmitter
Measurement data	Range	0...20 ppm / 0...10 ppm ⁽¹⁾
	Reserve	20%
	Resolution	0.01 ppm (internal resolution: 0.005 ppm)
	Linearity	±0.05 ppm
	Accuracy ⁽²⁾	0.5% of the measured value ±1 digit ±0.01% / °C
	Measuring cycle	300 msec, on display: 1 s
Temperature measuring (semiconductive sensor)		Range: -50...+130 °C, Accuracy: ±0.5 °C, Resolution: 0.1 °C
Liquid potential (complementary) electrode		Housing of the temperature sensor: stainless steel (1.4571/1.4404), connection: SN6
Electrode input		DO sensor input: galvanically isolated current input, 0.725 V polarization voltage, connection: SN6
Supply voltage / Power consumption		12...36 V DC / 48...720 mW, galvanically isolated, transient overvoltage protection
Output	Analog	4...20 mA, (3.9...20.5 mA), $R_{Lmax} = 1200 \Omega$ galvanically isolated, transient overvoltage protection
	Relay	SPDT: 30 V DC, 1 A DC
	Display	LCD graphic display (SAP-300), units of measure and bar graph
	Digital communication	HART®
Process temperature (pressure dependent) ⁽²⁾		PP probe housing: -10...+90 °C, PVDF probe housing: -15...+100 °C
Pressure (absolute) ⁽²⁾		Max. 1 bar @ +25 °C
Ambient temperature		Aluminum housing: -30...+70 °C, Plastic housing: -25...+70 °C, with display: -20...+70 °C
Seal		PP probe housing: EPDM, all other probe housing: FPM (Viton®)
Ingress protection		Probe housing: IP68, Electronic housing: IP67
Housing material		Plastic (PBT) or painted aluminum
Material of probe housing		Polypropylene (PP), PVDF
Electrical connection		2× M20×1.5 plastic cable glands for cable: Ø6...Ø12 mm, or 2× M20×1.5 metal cable glands for cable: Ø7...Ø13 mm wire cross section: 0.5...1.5 mm ² (shielded cable is recommended), + 2× internally threaded ½" NPT connection for protective pipes
Electrical protection		Class III electric shock protection

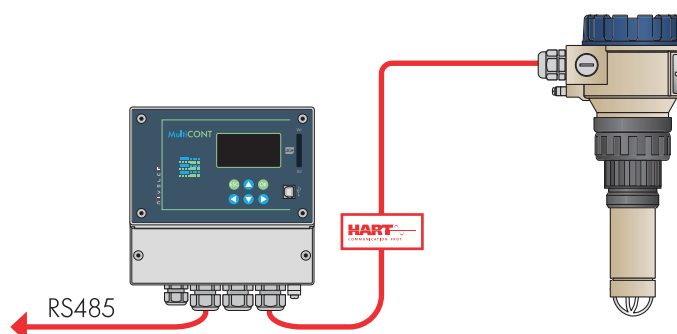
⁽¹⁾Sensor should be ordered separately.⁽²⁾Depending on probe.

Ex INFORMATION

Protection	Intrinsic safety
Ex marking	III G Ex ia IIB T6 Ga
Intrinsic safety data	$C_i \leq 15 \text{ nF}$, $L_i \leq 200 \text{ µH}$, $U_i \leq 30 \text{ V}$, $I_i \leq 140 \text{ mA}$, $P_i \leq 1 \text{ W}$ Ex transmitters must use an Ex ia power supply
Process temperature	0...+50 °C
Ambient temperature	Aluminum housing: -30...+70 °C, Plastic housing: -20...+70 °C, With display: -20...+70 °C

AnaCONT IN SYSTEM WITH MultiCONT

The **MultiCONT** can handle digital data from up to 15 HART® transmitters measuring different values (e.g., DO temperature, level, pressure). The digital (HART®) information is processed, displayed, and – if necessary – it can be transmitted via RS485 to a PC. The transmitter can also be programmed remotely. Data can be visualized on a computer using the **NIVISION** process visualization software.



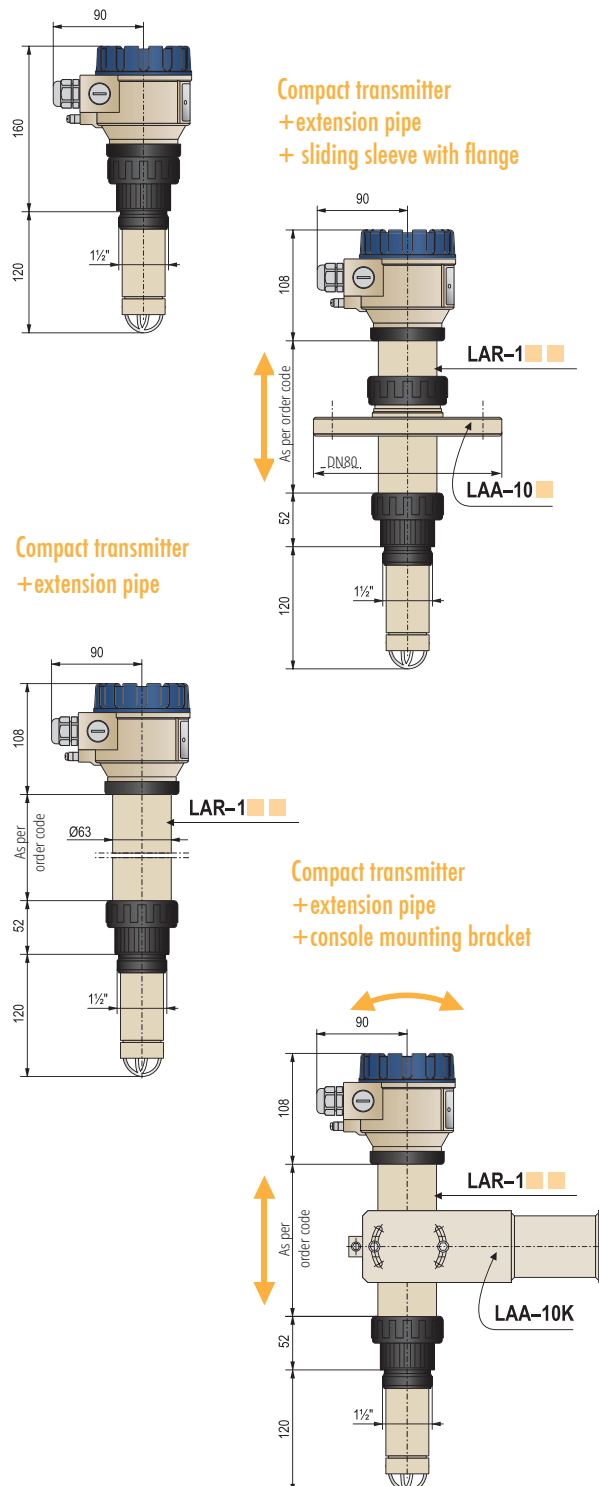
MOUNTING VERSIONS

The construction of the sensors of the compact and integrated versions are identical, so all accessories can be used with both types.

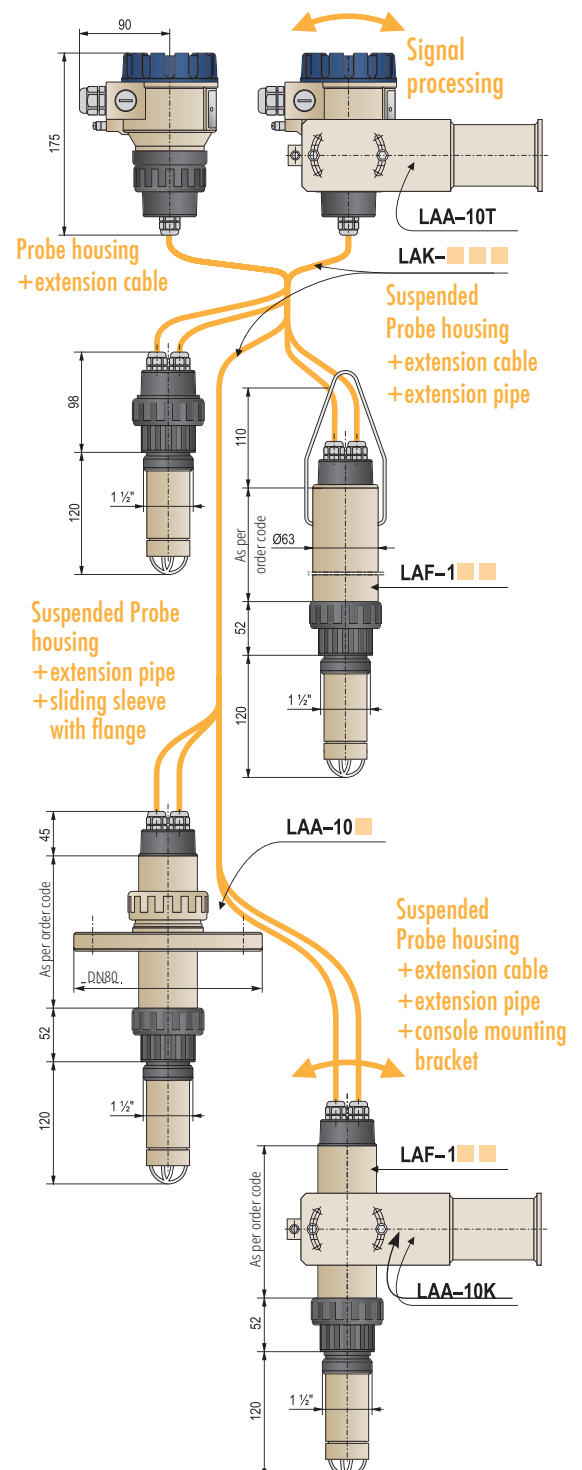
Using the accessories designed specifically for the AnaCONT family helps optimize the installation of the transmitters making the installation process easier.

By using extension pipes and extension cables, the remote-mount versions allow mounting the electronics and the sensor at any distance from each other.

COMPACT TRANSMITTER



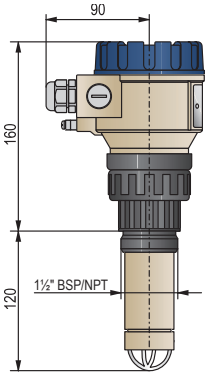
DETACHED COMPACT TRANSMITTER



AnaCONT LED-100 5 years

2-wire compact liquid analytical DO (dissolved oxygen) transmitter with current / HART® and SPDT relay output
DO measurement range: 0 ppm or 20 ppm, without sensor

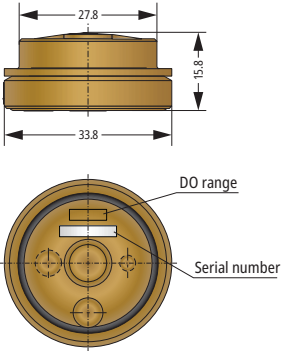
Type	
L - - 	D Compact DO transmitter
Version	
L D - - 	E Transmitter
G	Transmitter with plug-in display
Housing	
L D - - 	1 Fiberglass-reinforced plastic (PBT)
Probe*	
L D - - 	2 For 10 ppm sensor
1	For 20 ppm sensor
*Sensor should be ordered separately	
Process connection / Material	
L D - - 	1 1½" BSP / PP
Output / Certificates	
L D - - 	2 4...20 mA
4	4...20 mA + HART®
Accessories sold separately; see relevant page for details	
S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 - 	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - 	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



LED-100

DO probes 1 year

Type	
L A D - 4 0 - 0	
1	DO Sensor 10 ppm
2	DO Sensor 20 ppm



LAD-40□-0

NIV24
LGD-111-4, LGD-121-4
LAD-401-0, LAD-402-0

AnaCONT accessories to order

5 years

Various installations can be achieved with the use of accessories

Material

L A R - □ □ □ - 0

1

PP

Extension length

L A R - 1 □ □ - 0

n n

0.2...3 m; sold by the 0.1 m

nn = 02...30 : 0.2...3 m

Extension pipe = L

All cables of required length and terminals are included!

Material

L A F - □ □ □ - 0

1

PP

Extension length

L A F - 1 □ □ - 0

n n

0.2...3 m; sold by the 0.1 m

nn = 02...30 : 0.2...3 m

Extension pipe = L

Attention! Cables and terminals are NOT included! The cable and terminal set LAK-___ for the version with an extension pipe for separate mounting is ordered separately (L + the distance between the mounting point and the electronics)!

Material

L A K - □ □ □ - 0

1

PP

Extension length

L A K - 1 □ □ - 0

n n

1...10 m cable set; sold by the meter

nn = 10...A0 : 1...10 m

Terminals are included in the cable set!

Process connection / Material

L A A - 1 0 □ - 0

2

DN80 PN16 / PP

3

DN100 PN16 / PP

4

DN125 PN16 / PP

5

DN150 PN16 / PP

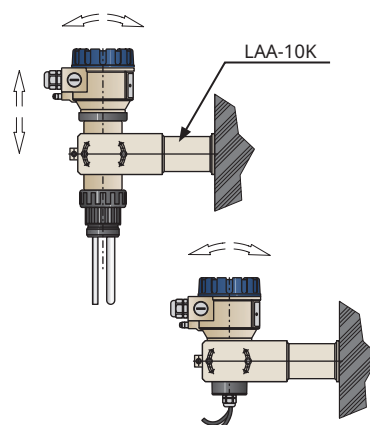
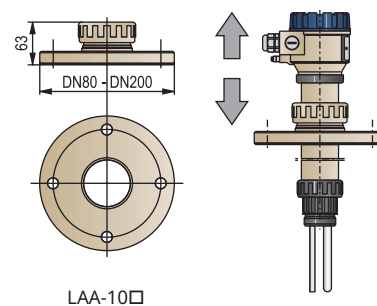
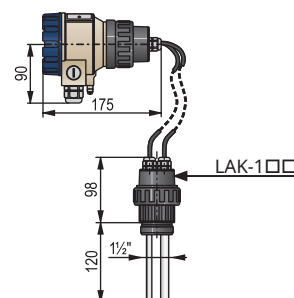
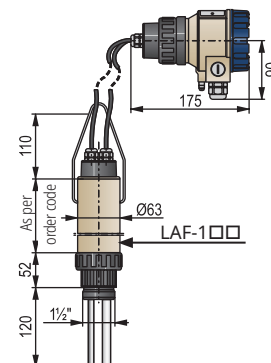
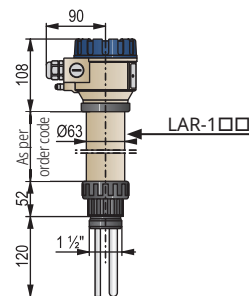
6

DN200 PN16 / PP

Consoles

L A A - 1 0 K - 0 200 mm mounting bracket for extended version

L A A - 1 0 T - 0 200 mm mounting bracket for basic version



The AnaCONT 2-wire mini compact conductivity transmitters are designed to measure the conductivity of liquids and convert the signal to 4...20 mA output. They are suitable for measuring clean, non-crystallizable liquids. The design and the small size of the transmitter, and the wide temperature range make the device useful in diverse industrial applications. The two probes are immersed in the measured liquid. The distance between the probes and their surface defines the cell constant (K) of the device. The cell constant determines the measurement range and thus the application area.

FEATURES

- Mini compact version
- Application oriented measurement range
- Optional plug-in display
- 4...20 mA, HART®
- PACTware™ compatible
- IP68
- 5-year warranty

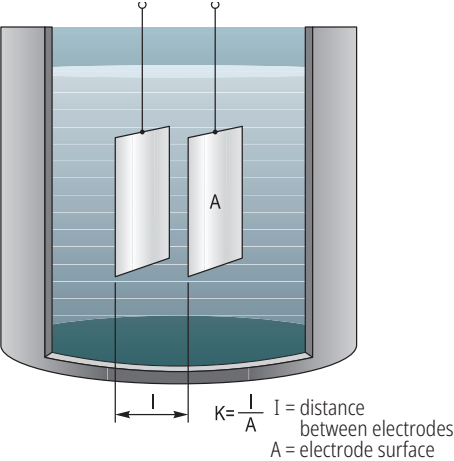
APPLICATIONS

- Water production
- Water processing
- Water purification
- Wastewater treatment
- Pharmaceutical industry
- Food and beverage industry



LCK-21□ + PLK-501

PROBE



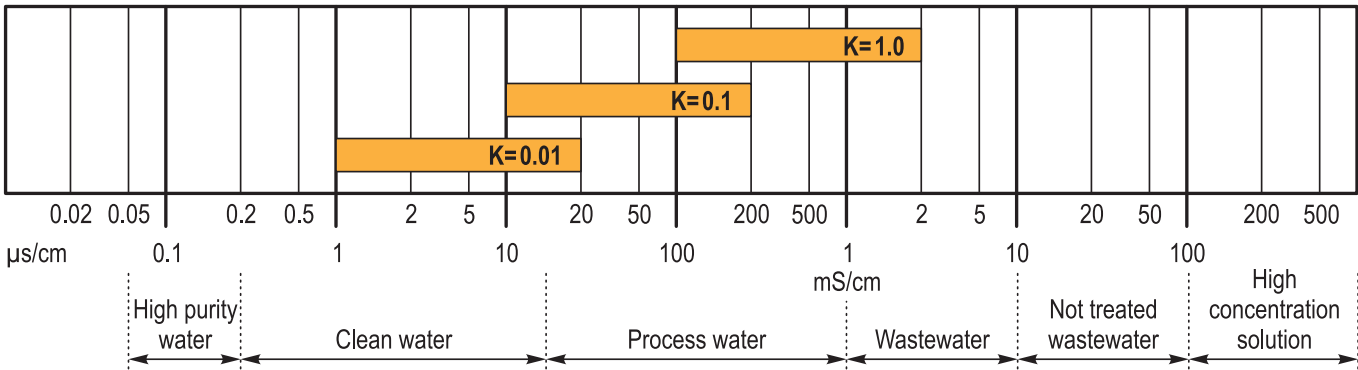
TECHNICAL DATA

AnaCONT LCK – mini compact		
Measurement data	Range	1...20 µS/cm 10...200 µS/cm 100...2000 µS/cm
	Margin of error	Typically 3% ± 1 digit, max. 5%
Supply voltage		12...36 V DC galvanically isolated, transient overvoltage protection
Probe		2-electrodes, built-in
Cell constant		K = 0.01; K = 0.1; K = 1
Output	Analog	4...20 mA
	Display	UNICONT PLK-501 display (optional)
	Digital communication	HART®
Process temperature		-10...+70 °C
Process pressure		0...16 bar
Ambient temperature		0...+70 °C
Seal		Viton®
Process connection		As per order code
Ingress protection		Probe: IP68, Connector: IP65
Housing material		stainless steel 1.4571/1.4404
Probe housing material		1.4571/1.4404 + PP
Electrical connection		ISO 4400 connector
Electrical protection		Class III
Weight		~350 g



LCK-232-2

OPERATION



AnaCONT LCK-200

5 years

2-wire mini compact liquid analytical conductivity transmitter with 4...20 mA / 4...20 mA + HART® output
Conductivity measurement range: 1...20 µS/cm or 10...200 µS/cm or 100...2000 µS/cm

Measurement range

L C K - 2 ■ ■ - ■

1	1...20 µS/cm
2	10...200 µS/cm
3	100...2000 µS/cm (¾" version not available)

Process connection

L C K - 2 ■ ■ - ■

1	¾" BSP
2	1" BSP
3	¾" NPT
4	1" NPT
T	1½" TriClamp (ISO 2852)
R	2" TriClamp (ISO 2852)

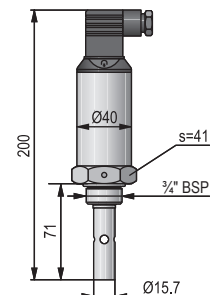
Output

L C K - 2 ■ ■ - ■

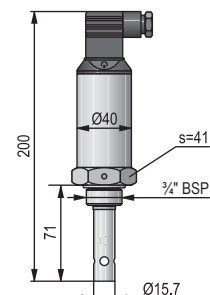
2	4...20 mA
4	4...20 mA + HART®

Accessories (sold separately; see relevant page for details)

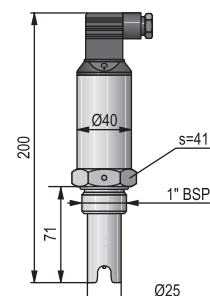
P L K - 5 0 1 - 2	Plug-in display
P L K - 5 0 1 - 3	Plug-in display with PNP output
E A A - 1 5 9 - 0	¾" BSP / 1" NPT (1.4571/1.4404)
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
P ■ F - ■ 1 ■ - ■	Smart Field Display and Data Logger
P ■ F - ■ 0 1 - ■	Loop Display



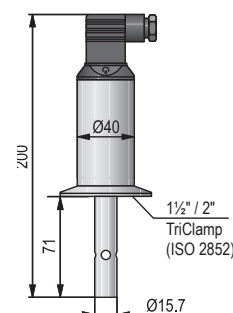
LCK-211



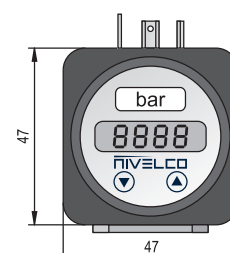
LCK-221



LCK-232



LCK-20T/R



PLK-501

NIV24

LCK-232-2, PLK-501-2



FLOW MEASUREMENT

NIVELCO's open-channel flow metering system offers 9 different sizes, compact types of **Parshall** flumes made of plastic (PP). The flume together with **PiloTREK**, **EasyTREK**, **EchoTREK** ultrasonic level transmitters and **MultiCONT** universal process controller, or **MonoCONT** smart field display & data logger makes a complete flow-measurement system.

The **NIVOSONAR GPA** enables flow measurements on gravitational sewers, brook channels, irrigation channels or any other open-channel with the help of a **Parshall** flume.

NIVOSONAR OPEN-CHANNEL FLOW MEASUREMENT

page 176



- 9 different sizes, compact versions of Parshall flumes made of plastic (PP)
- Factory calibrated dimensions
- Measurement range: 0.94...6627 m³/h
- Level transmitters are sold separately: PiloTREK, EasyTREK, EchoTREK
- 4...20 mA, HART® communication
- For open-channels, treated effluent sewage measurements
- Certification of measurement

The NIVOSONAR GPA open-channel flow metering system is designed for measuring liquid flow in open channels and gravity sewers. The system consists of **PiloTREK**, **EasyTREK** or **EchoTREK** ultrasonic level transmitters and a Parshall flume as the primary measuring element. Depending on the application, nine flume sizes are available, covering a total measurement range of 0.94 to 6627 m³/h.

The Parshall flume is a rigid structure made of welded polypropylene, manufactured with tight tolerances to ensure high accuracy. Care must be taken during transport and installation to avoid deformation. The flumes are delivered as compact units and can be installed easily without special tools or skills.

Proper installation requires laminar flow conditions. Measurement in closed channels is possible only if the pipe is not completely filled (e.g. gravity sewers). In such cases, installation of a measuring shaft is required.

APPLICATION

When a Parshall flume is used, the flow creates a level increase proportional to the flow rate. The ultrasonic transmitters measure this level and transmit the data to a **MultiCONT** Multichannel Process Controller, **MonoCONT** Smart Field Display & Data Logger, or a PC via HART® using a **UNICOMM** modem. The transmitters provide programmable output signals (4...20 mA, RS485), relay outputs, and remote display. The flow calculation formulas for the selected Parshall flume are pre-programmed in the transmitters.

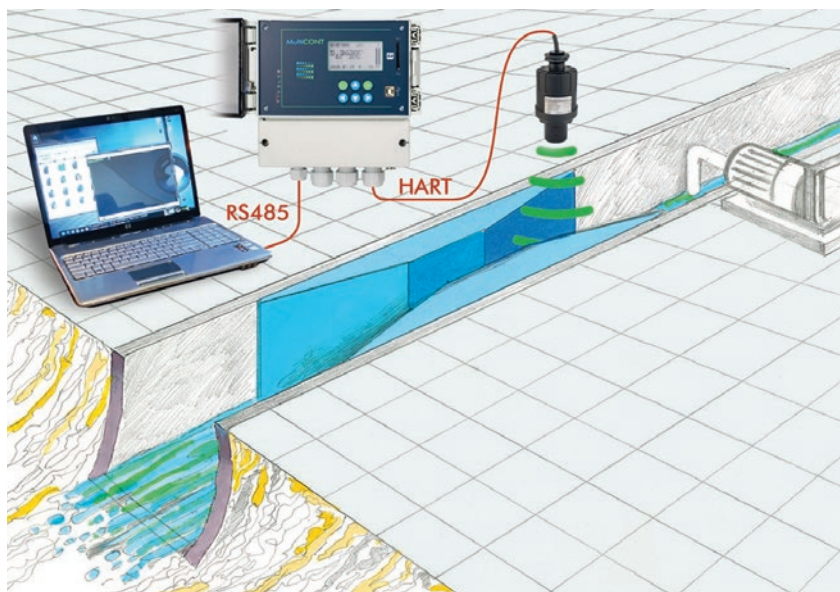
System components (*ultrasonic transmitters and controllers*) are available separately to build a complete measuring system.

FEATURES

- 9 different sizes of compact Parshall flumes made of polypropylene (PP)
- Reliable measurement with ultrasonic level transmitters
- Level transmitter can be used with all flume types
- Display of flow rate, totalized flow, and average flow

APPLICATIONS

- Open channels and gravity channels
- Measurement of feed or process water
- Flow measurement in irrigation canals
- Measurement of treated sewage effluent



PROPERTIES

Type	NIVOSONAR GPA									
		P1	P2	P3	P4	P5	P6	P7	P8	P9
Q _{min}	m ³ /h	0.94	1.88	2.8	5.5	8.1	10.5	15.8	20.8	31.3
Q _{max}	m ³ /h	22.3	54.4	196	604	1324	2152	3232	4359	6627
W	cm	2.54	5.08	7.62	15.24	22.86	30.48	45.7	61	91.4
B	cm	30	34	39	53	75	120	130	135	150
C	cm	9.29	13.49	17.8	39.4	38.1	61	76.2	91.44	121.9
D	cm	16.75	21.35	25.88	39.69	57.47	84.46	102.6	120.7	157.2
E	cm	23	26.4	46.7	62	80	92.5	92.5	92.5	92.5
L	cm	63.5	77.5	91.5	152.4	162.6	286.7	294.3	301.9	316.9
O	cm	5	5	5	10	10	10	10	10	10
U	cm	24.8	28.6	49.2	69.6	87.6	100.1	100.1	100.1	100.1
V	cm	30.7	35.35	39.9	54	80	100	120	140	180
m	kg	9	10.6	19.1	49	81	146	183	231	252
h _d / h _o		0.6					0.7			
a		0.0609	0.1197	0.1784	0.354	0.521	0.675	1.015	1.368	2.081
b		1.552	1.553	1.555	1.558	1.558	1.556	1.560	1.564	1.569

$Q = a \cdot h_o^b$ [m³/s], where h_o: the measured level in meters, a: see table, b: see table

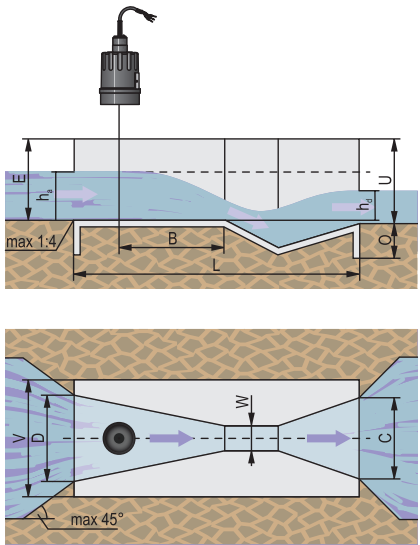
NIVOSONAR GPA 3 years

Parshall flume for open channel flow metering through liquid level measurement
Welded construction of PP-sheets

Prices on request

Measurement range

G P A - 1 P □ - 0		
1	Qmin = 0.94 m³/h, Qmax = 22.3 m³/h	
2	Qmin = 1.88 m³/h, Qmax = 54.4 m³/h	
3	Qmin = 2.8 m³/h, Qmax = 196 m³/h	
4	Qmin = 5.5 m³/h, Qmax = 604 m³/h	
5	Qmin = 8.1 m³/h, Qmax = 1324 m³/h	
6	Qmin = 10.5 m³/h, Qmax = 2152 m³/h	
7	Qmin = 15.8 m³/h, Qmax = 3232 m³/h	
8	Qmin = 20.8 m³/h, Qmax = 4359 m³/h	
9	Qmin = 31.3 m³/h, Qmax = 6627 m³/h	



GPA-1P□

NIV24
GPA-1P1-0
GPA-1P2-0

APPLICATIONS



TEMPE RATURE MEASU REMENT

Temperature is the most frequently measured parameter in process automation.

NIVELCO offers a wide range of temperature instruments, from simple Pt100 sensors to high-temperature, explosion-proof transmitters with digital communication and multi-point measurement.

Thanks to the large number of available designs and options, an optimal solution can be provided for virtually any application.

THERMOPOINT MULTI-POINT TRANSMITTER

page 180



- 2-wire multi-point temperature transmitter
- Temperature measurement in powdered, granular solids and liquids
- Up to 15 sensors per probe
- Probe length up to 50 m
- Temperature range $-40...+125\text{ }^{\circ}\text{C}$
- Temperature trend monitoring
- HART® communication
- Ex versions available

THERMOCONT TT TEMPERATURE TRANSMITTER

page 185



- Temperature range $-50...+600\text{ }^{\circ}\text{C}$
- Probe length up to 3 m
- Built-in Pt100 temperature sensor
- Plug-in display module
- $4...20\text{ mA}$, HART® communication
- Stainless steel or PFA-coated probes
- Heavy-duty housing
- Multiple head positions
- Ex versions available

THERMOCONT T TEMPERATURE SENSOR

page 189



- Resistance Temperature Detector (RTD)
- Temperature measurement in gases
- 2- or 4-wire versions
- Probe length up to 3 m
- Temperature range $-50...+600\text{ }^{\circ}\text{C}$
- Fast response sensor version
- Stainless steel or PFA-coated probe
- Ex versions available

THERMOPOINT 2-wire temperature transmitters are designed for multipoint, continuous temperature measurement, indication and transmission in normal and hazardous-area liquids, dusty or granular solids, particularly for preserving the quality of grain and feed stored in silos. Digitally addressed temperature sensors integrated into the rope probe measure the temperature, and the measured values are transmitted via HART® communication to a MultiCONT universal process controller, MonoCONT smart field display & data logger or a computer; in bulk solids monitoring, temperature changes indicate product spoilage, allowing ventilation or reclaiming to be started on alarm.

The system can be combined with level measurement using common cabling and signal processing, and existing level monitoring systems can be easily upgraded with silo temperature monitoring functionality for a wide range of industrial applications.

FEATURES

- 2-wire multi-point temperature transmitter
- Communicates via HART®
- PACTware™ compatible
- Up to 50 m probe length
- Up to 15 sensors
- Max. 35 kN tensile force
- Plug-in display
- Replaceable sensors
- Digitally addressed sensors
- -40...+125 °C process temperature
- IP67
- Ex version available
- 5-year warranty

APPLICATIONS

- For normal and hazardous materials
- Temperature measurement of powdered, granular or free-flowing solids
- For transmitting temperature data from remote locations
- Grain, feed and food industry

CERTIFICATES

- ATEX (Ex ia G)
- ATEX (Ex ia D)
- ATEX (Ex ta/tb D)
- ATEX (Ex ta D)



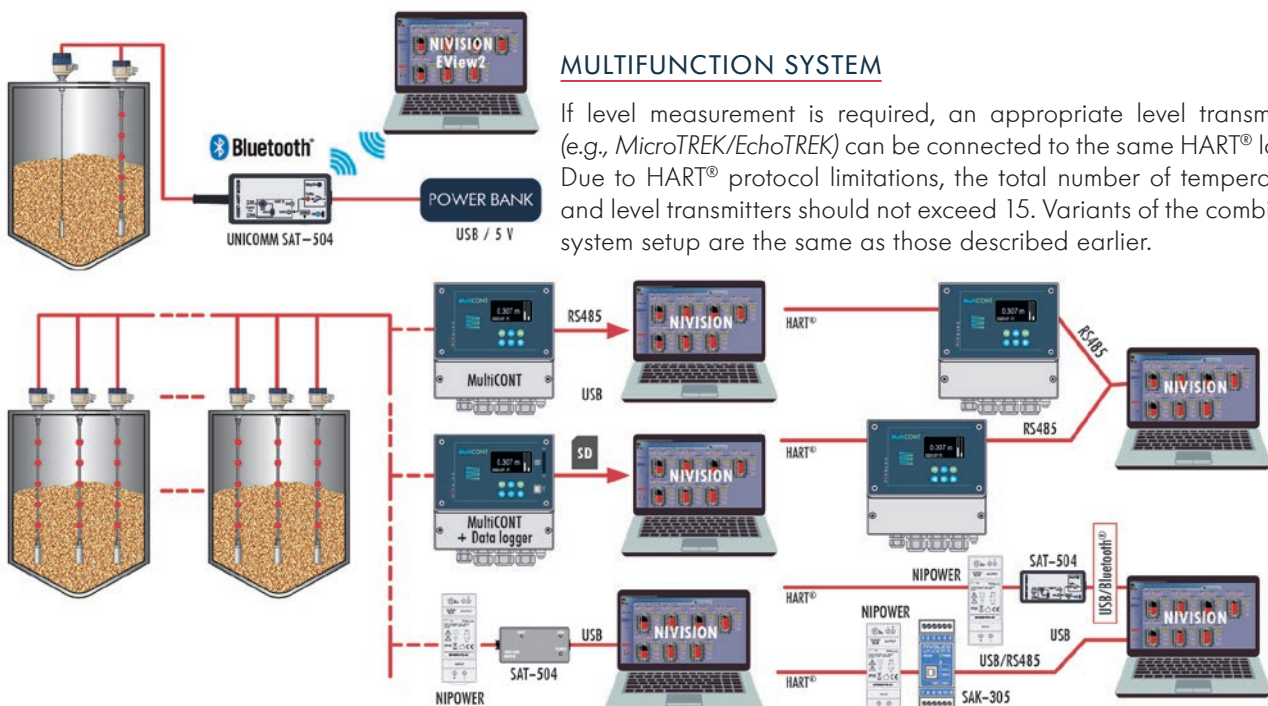
SYSTEM CONFIGURATION

The THERMOPOINT system can be configured in three ways depending on the signal processing method:

1. Temperature data received via HART® communication is processed by the MultiCONT, then forwarded to the PC via RS485 bus, while relay outputs signal alarms.
2. The MultiCONT with data logging function records measurements, saves them to an SD card, and generates continuous temperature trends from data transmitted via RS485 bus, while outputs provide alarms.
3. HART® signals are transmitted to the PC via UNICOMM SAK-305 USB/RS485 modem or SAT-504 wireless Bluetooth® modem. Transmitters can be programmed from the PC using EView2 configuration software and integrated into process control systems with NIVISION display software. If more than 15 transmitters are required, they must be connected to separate cable pairs and individual MultiCONT units or HART® modems.

MULTIFUNCTION SYSTEM

If level measurement is required, an appropriate level transmitter (e.g., MicroTREK/EchoTREK) can be connected to the same HART® loop. Due to HART® protocol limitations, the total number of temperature and level transmitters should not exceed 15. Variants of the combined system setup are the same as those described earlier.



TECHNICAL DATA

		For liquids		For solids
		Rigid Probe	Flexible Probe	Flexible plastic-coated Probe
Insertion length		1...4 m		1...50 m
Number of temperature sensors		Up to 15		
Position of sensors		Up to 10 m: 1 sensor at every one meter, between 11 and 50 m: 1 sensor at every two meters from the bottom positioned sensor		
Temperature range		-40...+105 °C (for max. 1 hour @ +125 °C)		-40...+80 °C (for max. 1 hour @ +85 °C)
Highest process pressure		25 bar	16 bar	3 bar
Resolution (digital)		0.1 °C		
Accuracy		-40...-10 °C: ±2 °C; -10...+85 °C: ±0.5 °C; +85...+125 °C: ±2 °C		
Measurement cycle		Maximum (Nx1) seconds, where N is the number of sensors		
Probe	Tensile force	-		35 kN
	Dimension	Ø14 mm	Ø16 mm	Ø17 mm + 1 mm coating
Material of wetted parts		Stainless steel: 1.4571/1.4404	Stainless steel: 1.4571/1.4404 + 1.4301	Stainless steel: 1.4571/1.4404 + Antistatic PE-coated steel + 1.4301
Ambient temperature		With plastic housing: -30... +65 °C; with metal housing: -30...+65 °C; with SAP-300 display: -20...+65 °C		
Output	Analog	4...20 mA		
	Digital	HART®		
	Display	SAP-300 LCD		
Output load		$R_{\max} = (U_{\text{Supply}} - U_{\text{Supply min}})/0.02 \text{ A } [\Omega]$, load during HART® communication: $R_{\min} = 250 \text{ }\Omega$		
Supply voltage		11...36 V DC (in case of HART® multi-drop: 10...36 V DC)		
Electrical protection		Class III		
Ingress protection		Electronic housing: IP67		
		Probe: IP68 (up to process pressure)		Probe: IP66
Process connection		As per order code		
Electrical connection		2× M20×1.5 plastic cable gland, cable outer diameter: Ø6...Ø12 mm, wire cross section: max. 1.5 mm ² ; 2× internally threaded ½" NPT connection for protective pipes		
Housing material		Painted aluminum (EN AC-42000), stainless steel (1.4571/1.4404) or plastic (PBT)		
Weight		1.7 kg + probe: 0.6 kg/m	2.9 kg + probe cable: 0.3 kg/m + weight 3 kg	2.9 kg + probe cable: 0.7 kg/m

Ex INFORMATION

	T□□-□□□-6 Ex	T□□-5□□-5 Ex, T□□-7□□-5 Ex	T□□-5□□-8 Ex, T□□-7□□-8 Ex, T□□-5□□-9 Ex, T□□-7□□-9 Ex
Ex marking	II 1 G Ex ia IIB T6...T4 Ga	II 1 D Ex ia IIIC T85°C Da	II 1 D Ex ta IIIC T105°C Da ⁽¹⁾ II 1/2 D Ex ta/tb IIIC T85°C Da/Db
Waiting time for opening the cover	-	-	0 minutes 30 minutes
Ex electrical limits	Only Ex ia power supply may be used! $U_i \leq 30 \text{ V DC}$ $I_i \leq 140 \text{ mA}$ $P_i \leq 1 \text{ W}$ $C_i \leq 15 \text{ nF}$ $L_i \leq 200 \mu\text{H}$		$U_o \leq 30 \text{ V DC}$ $I_o \leq 1 \text{ A}$
Supply voltage	$U_i = 11...30 \text{ V DC}$ (in case of HART® multi-drop $U_i = 10...30 \text{ V DC}$)		
Process temperature	See Thermal Limits of Ex Compliant Models Table		
Ambient temperature	See Thermal Limits of Ex Compliant Models Table, for SAP-300 display: -20...+60 °C		
Cable introduction	M20x1.5 cable gland		certified "Ex ta" protective gland M20x1.5
Cable diameter	Ø7...12 mm		
Electrical connection	Wire cross section: 0.5...1.5 mm ²		

⁽¹⁾ Ex ta IIIC protection class devices are available only with a windowless cap.

THERMAL LIMITS OF Ex COMPLIANT MODELS

Thermal limits of Ex ia IIB compliant models

Housing / probe	Ambient temperature	Process temperature	Temperature class
Metal housing with rigid or flexible probe	-30...+65 °C	-40...+80 °C -40...+95 °C -40...+105 °C	T6 T5 T4
Plastic housing with rigid or flexible probe	-20...+65 °C	-40...+80 °C -40...+95 °C -40...+105 °C	T6 T5 T4
Metal housing with plastic-coated flexible probe	-30...+65 °C	-40...+80 °C	T6

Thermal limits of Ex ta/tb IIIC, Ex ta IIIC and Ex ia IIIC compliant models

Transmitter location	Ambient temperature	Process temperature	Temperature class		
			Ex ta/tb IIIC	Ex ta IIIC	Ex ia IIIC
Outside the bin/silo	-30...+65 °C	-40...+80 °C	T85°C	T105°C	T85°C
Inside the bin/silo	-30...+65 °C	-	-	-	-



THERMOPOINT TM-500 with cable probe **5 years**

2-wire compact multipoint temperature transmitter for liquids
with stainless steel cable probe and weight, max. cable length: 50 m

Version	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
M	Multipoint transmitter
J	Multipoint transmitter with plug-in display

Process connection / Probe length	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
K	1½" BSP / 2...30 m
E	1½" NPT / 2...30 m
N	1½" BSP / 31...50 m
L	1½" NPT / 31...50 m

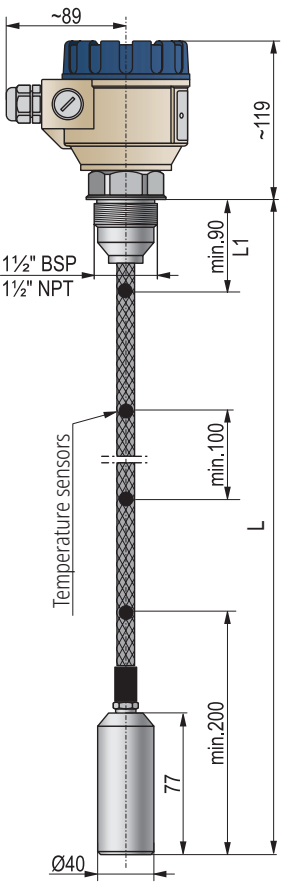
Housing	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
5	Painted aluminum
6	Fiberglass-reinforced plastic (PBT)
7	Stainless steel

Number of sensors	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
n	1...9; each sensor
o	10...15; each sensor
n = 1...9 : 1...9	
o = A...F : 10...15	

Cable length	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
p	2...9 m; sold by the meter
q	10...30 m; sold by the meter
r	31...39 m; sold by the meter
s	40...50 m; sold by the meter
p = 2...9 : 2...9 m	
q = A...Z : 10...30 m (letters I, O, Q, X, Y not used)	
r = 1...9 : 31...39 m	
s = A...L : 40...50 m (letter I not used)	

Output / Certificates	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
4	HART®
6	HART® / Ex ia G

Accessories to order (see relevant page for details)	
TMK-555-4M-200-01	Stainless steel Counterweight (comes with the unit)
S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 - ☐	HART®-USB/Bluetooth® modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



TMK- / TME- / TMN- / TML-□□1/□□Z

THERMOPOINT TM-500 with rod probe**5 years**

2-wire compact multipoint temperature transmitter for liquids
with stainless steel rod probe, max. probe length: 4 m

VersionT ☐ ☐ - ☐ ☐ ☐ ☐ - ☐ ☐

M	Multipoint transmitter
J	Multipoint transmitter with plug-in display

Process connectionT ☐ ☐ - ☐ ☐ ☐ ☐ - ☐ ☐

R	1" BSP
A	1" NPT
J	M20x1.5

HousingT ☐ ☐ - ☐ ☐ ☐ ☐ - ☐ ☐

5	Painted aluminum
6	Fiberglass-reinforced plastic (PBT)
7	Stainless steel

Number of sensors*T ☐ ☐ - ☐ ☐ ☐ ☐ - ☐ ☐

n	1...9; each sensor
o	10...15; each sensor

n = 1...9: 1...9

o = A...F: 10...15

* Number of temperature sensors is depending on the insertion length!

Probe length**T ☐ ☐ - ☐ ☐ ☐ ☐ - ☐ ☐

p	1...4 m; sold by the meter
----------	----------------------------

p = 1...4: 1...4 m

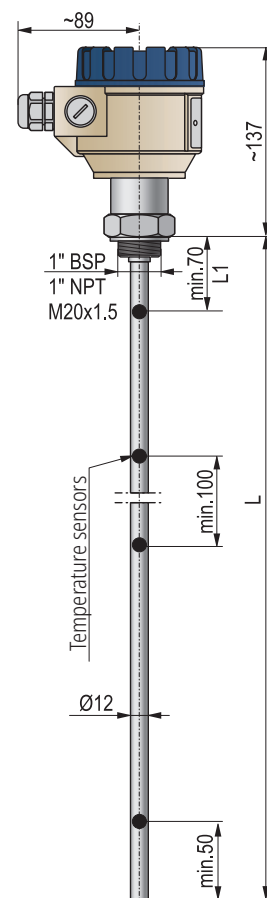
** Special probe length is available on request

Output / CertificatesT ☐ ☐ - ☐ ☐ ☐ ☐ - ☐ ☐

4	HART®
6	HART® / Ex ia G

Accessories sold separately; see relevant page for details

S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 - ☐	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ☐	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



TMR- / TMA- / TMJ-□□1/□□4

THERMOPOINT TM-500 with coated cable probe**5 years**

2-wire compact multipoint temperature transmitter for free-flowing solids with PE-coated stainless steel cable probe and weight, max. cable length: 50 m

Version

T	□	□	-	□	□	-	□
M							Multipoint transmitter
J							Multipoint transmitter with plug-in display

Process connection / Probe length

T	□	□	-	□	□	-	□
H							1½" BSP / 1...30 m
C							1½" NPT / 1...30 m
F							1½" BSP / 31...50 m
G							1½" NPT / 31...50 m

Housing

T	□	□	-	□	□	-	□
5							Painted aluminum
7							Stainless steel

Number of sensors

T	□	□	-	□	□	-	□
n							1...9; each sensor
o							10...15; each sensor

n = 1...9 : 1...9

o = A...F : 10...15

Cable length

T	□	□	-	□	□	-	□
p							2...9 m; sold by the meter
q							10...30 m; sold by the meter
r							31...39 m; sold by the meter
s							40...50 m; sold by the meter

p = 2...9 : 2...9 m

q = A...Z : 10...30 m (letters I, O, Q, X, Y not used)

r = 1...9 : 31...39 m

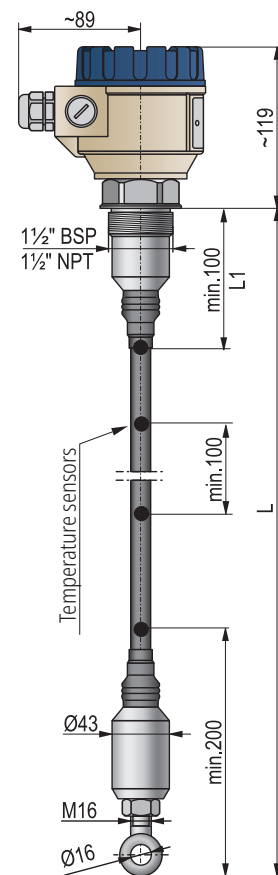
s = A...L : 40...50 m (letter I not used)

Output / Certificates

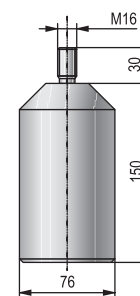
T	□	□	-	□	□	-	□
5							HART® / Ex ia D
6							HART® / Ex ia G
8							HART® / Ex ta/tb D
9							HART® / Ex ta D

Accessories sold separately; see relevant page for details

CTN-103-0M-400-00	Stainless steel Counterweight, Ø80 x 150 mm
S A P - 3 0 0 - 0	Graphic plug-in display module
S A T - 5 0 4 - □	HART®-USB/Bluetooth® modem
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover
S A B - 2 1 1 - 2	Stainless steel shielding cap, clamp-type design, for all instrument covers



TMH- / TMC- / TMF- / TMG-□□1/□□Z



CTN-103-0M-400-00

THERMOCONT TT field devices, incorporating a Pt100 sensor, are 2-wire temperature transmitters with a 4...20 mA analog output or transmitter/indicator if equipped with a plug-in display. Intrinsically safe versions are available in standard and flame-proof housing.

The measured temperature can also be transmitted via HART®. THERMOCONT TT Temperature Transmitters are suitable for measuring the temperature of liquids in tanks and pipes and that of free-flowing, powdered solids and gases. Wall-mounted versions are available for ambient temperature measurement. The PFA-coated stainless steel probes can be used to measure the temperature of aggressive materials. The reinforced probe version is an ideal solution for the oil, gas, and heavy chemical industries and also an excellent choice for jobs where a robust probe is advantageous. A remote version of the transmitter is also available, which can be connected to a standard Pt100 sensor with a simple 4-wire cable.

FEATURES

- Temperature transmitting and displaying
- Measurement range: -50...+600 °C
- 4...20 mA output
- HART® communication
- Variety of head positions
- Stainless steel probe
- Plastic-coated version
- Flame-proof casing
- Plug-in display
- Strengthened probe version
- Ex version available
- NIFLANGE weldable stainless steel flange variants
- IP65
- 5-year warranty

APPLICATIONS

- For normal and hazardous mediums
- For temperature metering of liquids, vapors, gases and granules, powders
- Temperature transmitting for far distances
- Temperature metering in tanks, tubes, furnaces or boilers
- Temperature metering of halls or rooms



CERTIFICATES

- ATEX (Ex ia G)
- ATEX (Ex d G)
- ATEX (Ex d ia G)

DISPLAY POSITION



Requested head position differing from standard ("A") version must be requested in the order

TECHNICAL DATA

			Version	Standard [T□□, TB□]	Plastic-coated [TR□, TW□]	Strengthened probe [T□S, T□Z]	High-temperature [TV□, TLO]
Measurement range				-50...+200 °C T□W: -40...+70 °C	-50...+200 °C	-50...+600 °C ⁽¹⁾	-50...+600 °C ⁽¹⁾
Insertion length				As per order code, up to 3000 mm			
Process connection				As per order code		½" / 1" NPT threaded	As per order code
Highest process pressure				25 bar @ +20 °C, 16 bar @ +400 °C		40 bar	25 bar @ +20 °C, 16 bar @ +400 °C
Material of wetted parts ⁽²⁾				1.4571/1.4404 stainless steel	PFA / (PTFE or PVDF)	1.4571/1.4404 stainless steel	
Probe				Pt100 temperature sensor, as per order code			
Accuracy ⁽³⁾	Output current	Class "A" Pt100	± (0.3+ 0.0025 t) °C				± (1.5+ 0.004 t) °C
		Temperature error	± 0.02 °C / °C				
	Displayed current	Class "A" Pt100	± (0.2+ 0.0025 t) °C				± (1.5+ 0.004 t) °C
		Temperature error	± 0.02 °C / °C				
Supply voltage				10...36 V DC; Ex: 12...30 V DC, see "Ex information"			
Output	Analog		4...20 mA, output limit values: 3.9...20.5 mA				
	Digital communication		HART®				
	Output load		$R_{max} = [(U_{Supply} - U_{Supply min.}) / 0.02 A]$, [Ω]				
	Display	type	SAP-202 plug-in display				
		resolution	0.1 °C	0.1 °C	0.4 °C	0.4 °C	
Error indication				3.8 mA / 22 mA			
Ambient temperature				-40...+70 °C, with display: -25...+70 °C; see "Ex information"			
Electrical protection				Class III			
Ingress protection				Probe: IP68, Housing: IP65			
Electrical connection				Plastic or metal cable gland: M20×1.5; Cable outer diameter: Ø6...Ø12 mm; / see "Ex information" Wire cross section: 0.25...1.5 mm ²			
Housing material				Painted aluminum or plastic (PBT)		Painted aluminum	
Weight	with aluminum housing		~0.9 kg + probe 0.5 kg/m (for T□W types ~0.9 kg total)		~1.55 kg + probe 0.25 kg / 100 mm		~0.9 kg + probe 0.5 kg/m (for T□W types ~0.9 kg total)
	with plastic housing		~500 g + probe 500 g/m (for T□W types ~500 g total)		-		

⁽¹⁾ With heatsink above +200 °C.⁽²⁾ Not valid for T□W types.⁽³⁾ t = measured temperature.

Ex INFORMATION

T□□-5□□-□ Ex			
Protection	Intrinsic safety		Flameproof enclosure
Ex marking	Ⓔ II 1 G Ex ia IIB T6...T1 Ga		Ⓔ II 2 G Ex d IIB T6...T1 Gb
Intrinsic safety data	$U_i = 30 V$ $I_i = 140 mA$ $P_i = 1.0 W$ $C_i < 14 nF$ $L_i < 180 \mu H$		-
Ambient temperature	-40...+70 °C, with display -25...+70 °C		
Cable gland	Metal, M20×1.5, cable outer diameter: Ø6...Ø12 mm		Ex d IIB certified metal M20×1.5, cable outer diameter: Ø9...Ø11 mm

Temperature classes	T6	T5	T4	T3	T2	T1
Ambient temperature	+60 °C	+75 °C	+75 °C	+70 °C	+60 °C	+45 °C
Process temperature	+80 °C	+95 °C	+120 °C	+190 °C	+290 °C	+440 °C

THERMOCONT TT-500 standard

5 years

2-wire compact temperature indicator / transmitter for liquids, gases and free-flowing solids with Pt100 temperature sensor

Version

T ■ ■ - ■ ■ ■ - ■

T	Transmitter, up to +200 °C
V	Transmitter, up to +600 °C
W	Transmitter, up to +200 °C, PFA-coated
B	Transmitter with plug-in display, up to +200 °C
L	Transmitter with plug-in display, up to +600 °C
R	Transmitter with plug-in display, up to +200 °C, PFA-coated

Process connection

T ■ ■ - ■ ■ ■ - ■

W	With console for wall mounting
C	1/2" BSP
D	3/4" BSP
E	1" BSP
H	1/2" NPT
J	M20x1.5
L	1" TriClamp
K	1 1/2" TriClamp
N	2" TriClamp
O	DN25 Pipe coupling (DIN 11851)
P	DN40 Pipe coupling (DIN 11851)
R	DN50 Pipe coupling (DIN 11851)
F	DN50, PN16, 1.4571/1.4404 flange + PTFE lining (only for coated probe versions)
A	2" ANSI, 1.4571/1.4404 flange + PTFE lining (only for coated probe versions)
U	Welded stainless steel flange (MF_---K type flanges [available from size DN15] should be ordered separately)

Housing

T ■ ■ - ■ ■ ■ - ■

5	Painted aluminum
6	Fiberglass-reinforced plastic (PBT) (only for +200 °C versions, not available in Ex version)

Sensor

T ■ ■ - ■ ■ ■ - ■

0	None
1	Class A Pt100
2	Class B Pt100

Probe length

T ■ ■ - ■ ■ ■ - ■

0	60 mm
1	160 mm
2	250 mm
3	400 mm
4	500 mm
5	1000 mm
6	1500 mm
7	2000 mm
8	2500 mm
9	3000 mm

Output / Certificates

T ■ ■ - ■ ■ ■ - ■

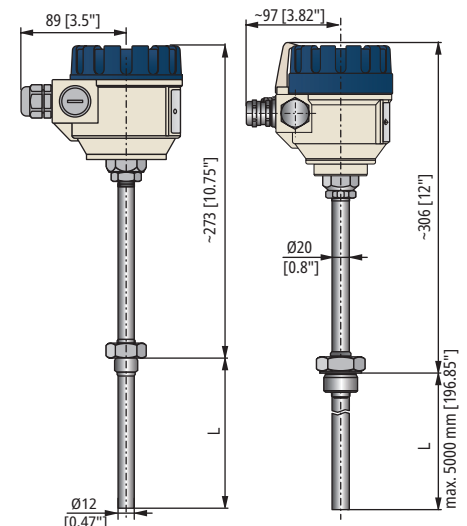
2	4...20 mA
4	4...20 mA + HART®
6	4...20 mA / Ex ia G
8	4...20 mA + HART® / Ex ia G
A	4...20 mA / Ex d G
B	4...20 mA + HART® / Ex d G
C	4...20 mA / Ex d ia G
D	4...20 mA + HART® / Ex d ia G

Available on request (must be specified in the text of the order)

Non-standard, customized 4...20 mA output calibration

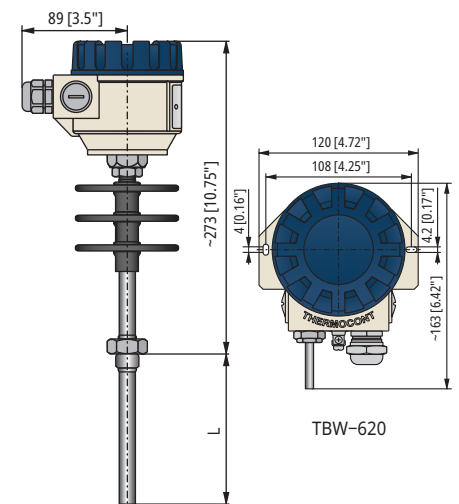
Accessories (sold separately; see relevant page for details)

S A P - 2 0 2 - 0	Plug-in display module
S A T - 5 0 4 - ■	HART®-USB/Bluetooth® modem
S A K - 3 0 5 - ■	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover



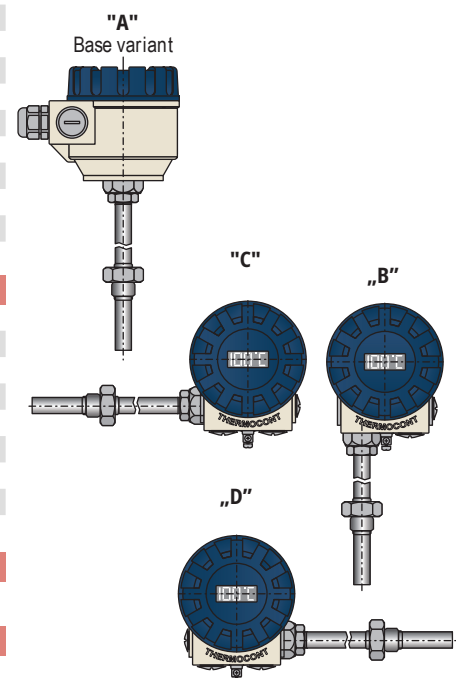
TTD-500/600

TT-500 (Ex d)



TVJ-500

TBW-620



Any head position other than the standard "A" version must be specified when ordering.

THERMOCONT TT-500 with strengthened probe
5 years

2-wire compact temperature indicator / transmitter for liquids, gases and free-flowing solids with strengthened, drilled probe, with Pt100 temperature sensor

Version

T	Transmitter, up to +200 °C
V	Transmitter, up to +600 °C
B	Transmitter with plug-in display, up to +200 °C
L	Transmitter with plug-in display, up to +600 °C

Process connection

T	1" NPT
Z	½" NPT

Housing

T	5	Painted aluminum
	6	Fiberglass-reinforced plastic (PBT) (only for +200 °C versions, not available in Ex version)

Sensor

T	1	Class A Pt100
	2	Class B Pt100

Probe length

T	0	60 mm
	1	160 mm
	2	250 mm
	3	400 mm
	4	500 mm
	5	1000 mm
	6	1500 mm
	7	2000 mm
	8	2500 mm
	9	3000 mm

Output / Certificates

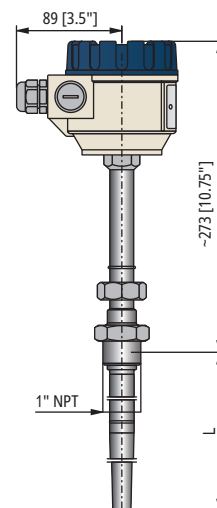
T	2	4...20 mA
	4	4...20 mA + HART®
	6	4...20 mA / Ex ia G
	8	4...20 mA + HART® / Ex ia G
	A	4...20 mA / Ex d G
	B	4...20 mA + HART® / Ex d G
	C	4...20 mA / Ex d ia G
	D	4...20 mA + HART® / Ex d ia G

Available on request (must be specified in the text of the order)

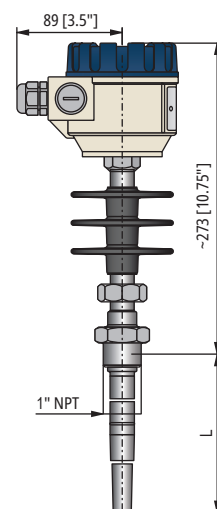
Non-standard, customized 4...20 mA output calibration

Accessories (sold separately; see relevant page for details)

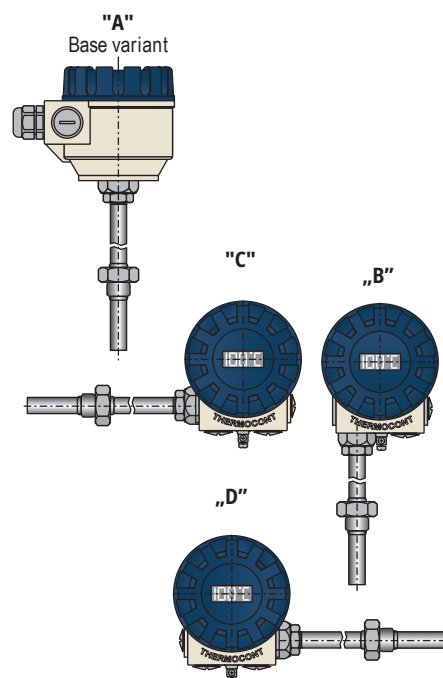
S A P - 2 0 2 - 0	Plug-in display module
S A T - 5 0 4 -	HART®-USB/Bluetooth® modem
S A K - 3 0 5 -	HART®-USB/RS485 modem
S A B - 1 1 2 - 0	3D printed plastic shielding cap, snap-on design for plastic cover
S A B - 1 1 3 - 0	3D printed plastic shielding cap, snap-on design for aluminum cover



TTS-500 / 600



TVS-500



Any head position other than the standard "A" version must be specified when ordering.

The wide range of THERMOCONT temperature sensors covers almost all industrial temperature measurement needs. The large number of available versions and probe designs makes THERMOCONT a suitable choice for a wide range of industries.

The THERMOCONT TFA-□1□-□ platinum temperature sensor is equipped with fiberglass-insulated connecting wires, providing excellent temperature resistance. The measuring leads are protected by a stainless steel braid, which shields the sensor from mechanical damage and provides effective protection against electrical interference.

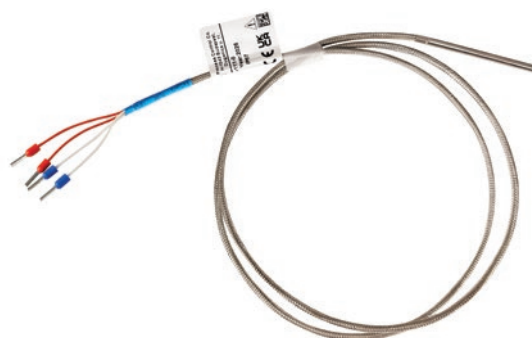
These sensors are primarily used in the temperature control of heated tools and furnaces. Mounting screws can be ordered separately, allowing threaded installation into holes of various diameters.

FEATURES

- Single Pt100 sensor versions
- 4-wire version
- Fast response sensor version
- Stainless steel protection tube
- Insertion length up to 500 mm
- Temperature measurement in bearings and baking trays
- Mounting bolts allow installation into various thread sizes
- 5-year warranty

APPLICATIONS

- Temperature control of heated tools
- Bearing temperature monitoring in motors and pumps
- Water & wastewater industry
- Chemical and pharmaceutical industry
- Food and beverage industry
- Oil and gas industry
- Heavy industry
- Packaging industry



TFA-□1□-□

TECHNICAL DATA

	TFA-□1□-□
Operating temperature	-50...+450 °C
Ambient Temperature	-40...+100 °C
Sensor	Pt100
Sensor diameter	Ø4, Ø6, Ø8 mm
Accuracy class	Class "A", according to EN 60751
Measuring current	up to 1 mA
Material of sensor tube	1.4571/1.4404 stainless steel
Process connection	As per TFS order code
Electrical connection	0.35 mm ² fiberglass insulation wires; ferrules
Cable shielding	Stainless steel protective jacket
Cable length	1 m, 3 m, 10 m
Sensor insertion length	up to 500 mm
Ingress protection	IP54
Overvoltage category	Category I
Electrical protection	Class III
Insulation resistivity	Measured @ 500 V DC, min. 100 MΩ, +20 °C @ ±5 °C
Weight	up to ~600 g
Time constant (9/10)	35...45 s

THERMOCONT TFA Resistance thermometer

5 years

Resistance thermometer (RTD) with single Pt100 temperature sensor with stainless steel protective tube and integrated cable, for -50...+450 °C temperature range

Diameter / Protective tube material

T F A - ■ 1 ■ - ■

1	Ø4 mm / Stainless steel
3	* Ø6 mm / Stainless steel
4	* Ø8 mm / Stainless steel

* Mounting bolts should be ordered separately

Pt100 sensor

T F A - ■ ■ ■ - ■

1	Class A, single, 4-wire
---	-------------------------

Probe length (L)

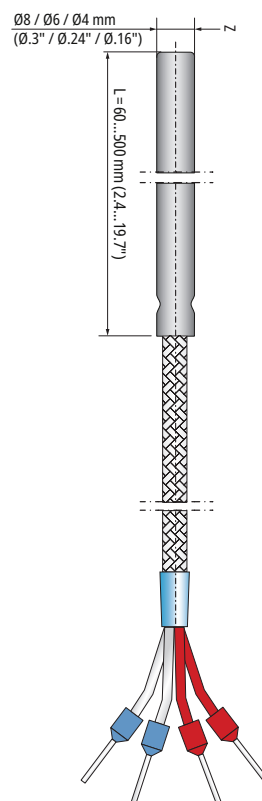
T F A - ■ 1 ■ - ■

1	60 mm
2	100 mm (only for Ø6 mm version)
3	160 mm (only for Ø6 mm version)
4	250 mm (only for Ø6 mm version)
5	400 mm (only for Ø6 mm version)
6	500 mm (only for Ø6 mm version)

Total length with cable

T F A - ■ 1 ■ - ■

0	1 m
3	3 m
A	10 m



TFA-11□ / 31□ / 41□

THERMOCONT TFS Mounting bolts

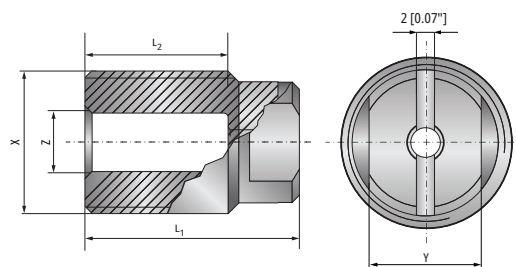
5 years

Mounting bolts for TFA resistance thermometer (RTD), 1.4571/1.4404 stainless steel

Process connection

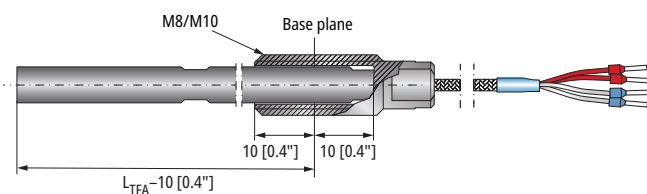
T F S - 1 0 ■ - 0

1	M8 / only for Ø6 mm version
2	M10 / only for Ø6 mm version
3	M12 / for Ø6 mm and Ø8 mm version
4	M20×1,5 / for Ø6 mm and Ø8 mm version
5	¼" BSP / for Ø6 mm and Ø8 mm version
6	⅜" BSP / for Ø6 mm and Ø8 mm version
7	½" BSP / for Ø6 mm and Ø8 mm version
8	M20×1,5 extended / for Ø6 mm and Ø8 mm version
9	½" BSP extended / for Ø6 mm and Ø8 mm version

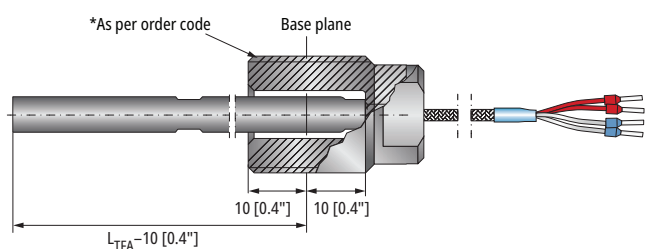


TFS-10□

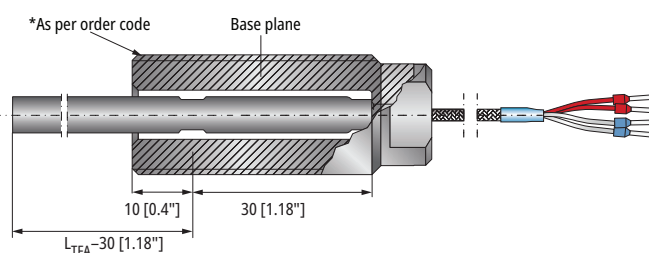
Refer to the TFA manual for exact dimensions.



TFA-31□ + TFS-101 / 102



TFA-31□ / 41□ + TFS-103 / 104 / 105 / 106 / 107



TFA-31□ / 41□ + TFS-108 / 109

NIV24

TFA-311-0, TFA-311-3, TFA-411-0

The THERMOCONT TSP sensors are installed in various kinds of mediums (e.g., liquids, gas, fumes) inside pipes, tanks and furnaces. PFA-coated probe versions having a steel flange with a PTFE-insert can be used in chemical and petrochemical applications where aggressive mediums could damage the steel probes. The stainless steel construction includes the inner and external (double) tube and the welded flange.

FEATURES

- Single or dual Pt100 sensor versions
- 2 or 4-wire types
- Double sensor protection tube
- Fast response sensor version
- Plastic-coated or stainless steel protection tube
- Up to 3 m insertion length
- Explosion-proof variants
- Can be mounted to special technological places, tanks, tubes, furnaces or boilers
- Special versions for unique applications
- 5-year warranty

APPLICATIONS

- Temperature measurement of liquids, gases, vapors
- Coated version for temperature measurement in aggressive media
- Construction Materials
- Chemical Industry
- Food & Beverage
- Oil Industry
- Metallurgy
- Recycling

CERTIFICATES

- ATEX (Ex ia G / Ex d G / Ex d ia G)



TSP
– standard
temperature sensor

TECHNICAL DATA

		Thermo-couples	Resistance thermometers (1 × Pt100, 2 × Pt100)		
		[TSJ (Fe-Cu-Ni)] [TSK (NiCr-Ni)]	Standard [TSP, TSV, TSB]	Fast response [TSG]	Plastic-coated [TPP]
General data	Range		-50...+600 °C		-50...+200 °C
	Process pressure		25 bar @ +20 °C; 16 bar @ +400 °C		1 bar ⁽¹⁾
	Damping time		< 3 min	< 20 s	4.5 min
	Ambient temperature		-20...+80 °C		
	Electrical protection		Class III		
	Ingress protection		IP65		
Head	Housing material		Painted aluminum (EN AC 43100)		
	Electrical connection		Nickel-plated aluminum M20×1.5 cable gland, cable outer diameter: Ø8...10 mm, wire cross section: 0.5...1.5 mm ²		
	Cable connection		Terminal with fixing screw		
Sensor	Accuracy class ⁽²⁾	1 or 2 EN 60584.1	Class A or Class B EN 60751		
	Grounding		Ground-independent		
External Protection	Material		1.4571/1.4404 stainless steel		PFA / (PTFE / PVDF) coating
	Probe length		60...3000 mm (as per order code)		
	Process connection		As per order code		

⁽¹⁾ The maximum allowable pressure with a flanged process connection is 10 bar.

⁽²⁾ In standard temperature ranges (below +400 °C), the margin of error for Class "A" resistance temperature sensors is below ±1 °C.

Ex INFORMATION

	TSG-□□□-□ Ex	TP□-□□□-□ Ex	TSP-□□□-□ Ex (except: TSG)
Ex marking (ATEX)	II 1 G Ex ia IIC T6...T1 Ga	II 1 G Ex ia IIB T6...T1 Ga, II 1/2 G Ex d ia IIB T6...T1 Ga/Gb	II 1 G Ex ia IIC T6...T1 Ga
Intrinsically safe data	$U_{max} = 30 V$ $I_{max} = 100 mA$ $P_{max} = 750 mW$ $C_i = 0 nF$ $L_i = 0 mH$	$U_{max} = 30 V$ $I_{max} = 140 mA$ $P_{max} = 1 W$ $C_i = 0 nF$ $L_i = 0 mH$	$U_{max} = 30 V$ $I_{max} = 100 mA$ $P_{max} = 750 mW$ $C_i = 0 nF$ $L_i = 0 mH$
Ex marking (ATEX)		II 2 G Ex d IIB T6...T1 Gb	II 2 G Ex d IIB T6...T1 Gb
Intrinsically safe data		$U_{max} = 30 V$ $I_{max} = 140 mA$	
Ex marking (ATEX)			II 1/2 G Ex d ia IIB T6...T1 Ga/Gb
Intrinsically safe data			$U_{max} = 30 V$ $I_{max} = 140 mA$ $P_{max} = 1 W$ $C_i = 0 nF$ $L_i = 0 mH$
Electrical connection	For Ex ia, Ex d and Ex d ia versions: M20×1.5 cable gland, cable outer diameter: Ø6...12 mm, wire cross section: 0.5...1.5 mm ²		

Temperature Classes					
T6	T5	T4	T3	T2	T1
Ambient temperature from −20 °C (−4 °F)					
+65 °C (+149 °F)	+70 °C (+158 °F)		+80 °C (+176 °F)		
Process temperature from −20 °C (−4 °F)					
+85 °C (+185 °F)	+100 °C (+212 °F)	+135 °C (+275 °F)	+200 °C (+392 °F)	+300 °C (+572 °F)	+450 °C (+842 °F)

THERMOCONT TSP Encapsulated 5 years

Resistance thermometer (RTD) with single or dual type Pt100 temperature sensor with stainless steel rod probe with or without plastic coating, max. probe length: 3 m

Version	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
S	1.4571/1.4404 (stainless steel)
P	PFA/(PTFE or PVDF)-coated stainless steel (only with flange and M20x1.5 or ½" process connection)

Sensor / Version	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
P	Pt100
V	Pt100 / Shock-proof sensor insert
G	Pt100 / Fast response (only Ex ia version is available)
B	Pt100 / Shock-proof sensor insert, dismantlable version with chain head (Ex version not available)

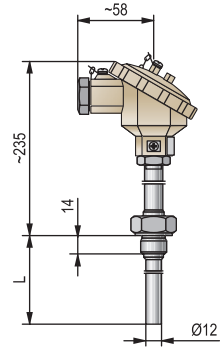
Process connection	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
0	Flange DN25 PN25, 1.4571/1.4404
1	M20x1.5 external thread
2	½" BSP
3	½" NPT
4	¾" BSP
5	Flange DN40 PN25/16, 1.0037
6	Flange DN50 PN25/16, 1.0037
7	Flange DN80 PN25/16, 1.0037
8	Flange DN100 PN25, 1.0037
9	Flange DN150 PN25, 1.0037

Pt100 Sensor	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
1	Class A
2	Class B
4	Class A, dual
5	Class B, dual
6	Class B + 4-wire
7	Class A + 4-wire

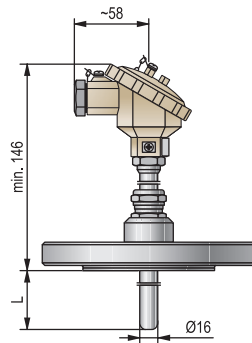
Probe length (L)	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
0	60 mm
1	160 mm
2	250 mm
3	400 mm
4	500 mm
5	1000 mm
6	1500 mm
7	2000 mm
8	2500 mm
9	3000 mm

Ex certificate	
T ☐ ☐ - ☐ ☐ ☐ - ☐	
0	None
7	Ex ia G
8	Ex d ia G
9	Ex d G

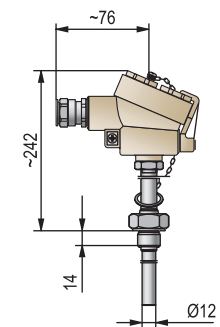
On request: other process connections and probe lengths



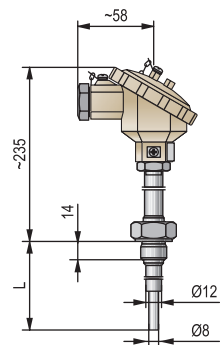
TSP / TSV-□□□



TPP-□□□



TSP / TSV-□□□-8 Ex
TSP / TSV-□□□-9 Ex



TSG-□□□

The wide range of THERMOCONT temperature sensors covers nearly all needs in industrial temperature measurement, both in terms of design and the selection of Pt100 resistance temperature sensors. THERMOCONT TN/TX reinforced-case temperature sensors are used with various media (liquids, gases, vapors) in pipelines, tanks, and furnaces. They are primarily designed for oil, gas, and heavy chemical industry applications but can be used anywhere where a robust protective tube design is an advantage.

A protective assembly, consisting of an outer and an inner tube, is used to shield the thermal sensors and protect them from vibrations. The outer protective tube is made of machined stainless steel welded to the flange for safety reasons. The ribbing on the outer protective tube does not allow the external ambient temperature to interfere with the accuracy of the measurement. The head has a protective chain to prevent falling off. The sensor insert can be replaced without dismantling the technological system.

FEATURES

- Robust design for heavy chemical industry
- Stainless steel, drilled, tapered thermowell case
- Up to 3 m insertion length
- Sensor can be replaced without removing the device from the process
- Welded flange
- Gas thermometer version
- Explosion-proof variants available
- 5-year warranty

APPLICATIONS

- Temperature measurement of liquids, gases, vapors
- Special versions for unique applications
- For applications exposed to mechanical damage
- Chemical and Oil Industry

CERTIFICATES

- ATEX (Ex ia G)
- ATEX (Ex d G)
- ATEX (Ex d ia G)



Temperature sensor for gases (TXP)

TECHNICAL DATA

		Strengthened probe [TN□, TU□]		For gases [TXP]		
		T□P	T□K	TXP-□1□-□	TXP-□4□-□	TXP-□7□-□
Sensor	Accuracy class ⁽¹⁾	Pt100 (EN 60751)	1 / 2 Class NiCr-themo-couple (EN 60584.1)	Pt100 (EN 60751)		
	Type	See order code		single, 2-wire	dual, 3-wire	single, 4-wire
	Grounding	Ground-independent				
	Mounting	Spring loaded				
	Material of inner protective tube	Stainless steel (1.4571/1.4404)		PTFE		
Head	Housing material	Painted EN AC 43100				
	Cable gland	M20×1.5 / ½" NPT		M20×1.5 or without cable glands, ½" NPT interior thread		
	Cable diameter	Ø6...Ø12 mm				
	Electrical connection	Terminal with fixing screw				
External Protection	Material	1.4571/1.4404 stainless steel				
	Probe length	160...3000 mm ⁽²⁾		120...500 mm		
	Process connection	As per order code		M33×2; 1" NPT		
General data	Range	-50...+600 °C		-50...+150 °C		
	Process pressure	1" NPT – 40 bar or pressure rating of flanges		up to 80 bar		
	Ambient temperature	-20...+80 °C		-30...+80 °C		
	Grounding	External, grounding screw on the housing				
	Electrical protection	Class III				
	Ingress protection	IP65		IP67		
	Ex marking	Ⓔ II 1 G Ex ia IIC T6...T1 Ga; Ⓔ II 2 G Ex d IIB T6...T1 Gb Ⓔ II 1/2 G Ex d ia IIB T6...T1 Ga/Gb		Ⓔ II 1 G Ex ia IIB T6...T4 Ga; Ⓔ II 2 G Ex d IIB T6...T4 Gb Ⓔ II 1/2 G Ex d ia IIB T6...T4 Ga/Gb		
	Ex Information	"d": Supply voltage: max. 28 V, Current: max. 100 mA "ia": U _i = 30 V, I _i = 100 mA, P _i = 750 mW, C _i = 0 nF, L _i = 0 mH "d ia": U _i = 30 V, I _i = 140 mA, P _i = 1.4 W, C _i = 0 nF, L _i = 0 mH		U _i : 30 V, I _i : 140 mA, P _i : 1.1W; C _i = 0, L _i = 0		

⁽¹⁾ In standard temperature ranges (below +400 °C, the margin of error for Class A resistance temperature sensors is below ±1 °C.

⁽²⁾ If the measured medium is abrasive, the maximum probe length is limited to 1000 mm.

Temperature classes	T6	T5	T4	T3 ⁽³⁾	T2 ⁽³⁾	T1 ⁽³⁾
Max. ambient temperature	+65 °C	+70 °C		+80 °C		
Max. process temperature	+85 °C	+100 °C	+135 °C	+200 °C	+300 °C	+450 °C
Min. ambient temperature	-20 °C					

⁽³⁾ Only TN/TU types.

THERMOCONT TN Heavy-duty temperature sensor

5 years

Heavy-duty temperature sensor with strengthened probe for liquids, gases and free-flowing solids with single or dual type Pt100 temperature sensor or thermocouple, max. probe length: 1 m

Sensor tube

T ■ ■ ■ - ■ ■ ■ - ■ ■

N	Drilled, tapered
U	Drilled straight

Sensor

T ■ ■ ■ - ■ ■ ■ - ■ ■

K	Thermocouple NiCr-Ni (IEC 584)
P	Resistance Temperature Sensor Pt100 (IEC 751)

Process connection*

T ■ ■ ■ - ■ ■ ■ - ■ ■

1	1" NPT
2	DN40 PN40 (PN25)
5	DN50 PN40 (PN25)
F	2" ANSI 300RF
T	1½" ANSI 300RF

* On request: other process connections

Sensor classification / Arrangement

T ■ ■ ■ - ■ ■ ■ - ■ ■

Thermocouple

1	Class 1, single
4	Class 1, dual

Resistance Temperature Sensor

1	Class A, single, 2-wire
4	Class A, dual, 3-wire
7	Class A, single, 4-wire

Probe length (L)

T ■ ■ ■ - ■ ■ ■ - ■ ■

TN - Drilled, tapered

1	160 mm
3	250 mm
6	400 mm
8	500 mm
9	600 mm
A	700 mm
B	800 mm
C	900 mm
D	1000 mm
H	2000 mm
M	3000 mm

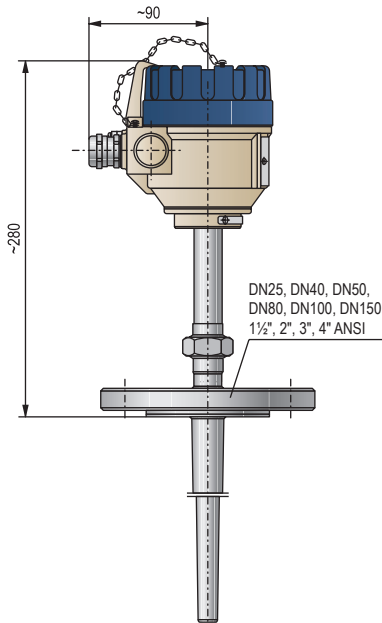
TU - Drilled straight

1	160 mm
3	250 mm
6	400 mm
8	500 mm
9	600 mm
A	700 mm
B	800 mm
C	900 mm
D	1000 mm
H	2000 mm
M	3000 mm

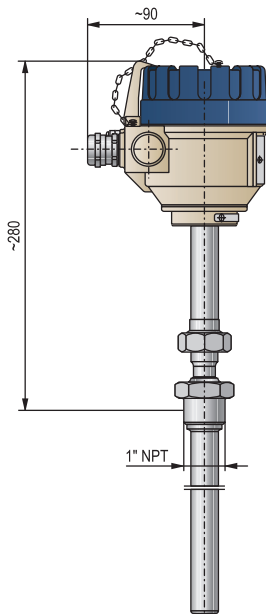
Ex certificate

T ■ ■ ■ - ■ ■ ■ - ■ ■

0	None
7	Ex ia G
8	Ex d ia G
9	Ex d G



TNP / TNK-□□□

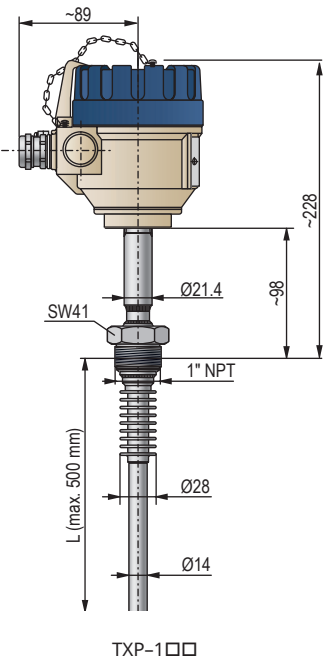


TUP / TUK-□□□

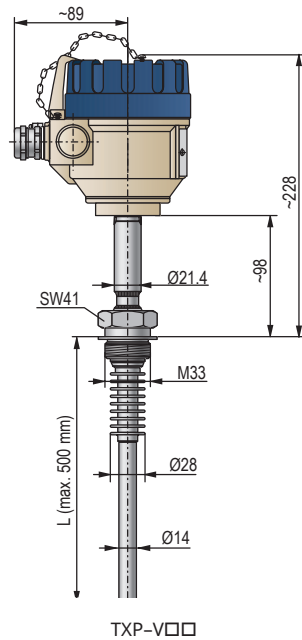
THERMOCONT TX for gases 5 years

Heat stabilized temperature sensor with strengthened case for gases with single or dual type Pt100 temperature sensor, max. probe length: 0.5 m

Sensor		
T X	☐ - ☐ ☐ ☐ - ☐	
P	Resistance Temperature Sensor Pt100 (IEC 751)	
Process connection*		
T X P	☐ ☐ ☐ - ☐	
1	1" NPT	
V	M33x2	
* On request: other process connections		
Sensor classification / Arrangement		
T X P	☐ ☐ ☐ - ☐	
1	Class A Pt100, single, 2-wire	
4	Class A Pt100, dual, 3-wire	
7	Class A Pt100, single, 4-wire	
Probe length (L)		
T X P	☐ ☐ ☐ - ☐	
0	120 mm	
1	160 mm	
2	200 mm	
3	250 mm	
4	300 mm	
5	350 mm	
6	400 mm	
7	450 mm	
8	500 mm	
Ex certificate		
T X P	☐ ☐ ☐ - ☐	
0	None	
8	Ex d ia G	
9	Ex d G	



TXP-1□□



TXP-V□□



NIPRESS DK

Devices with or without display

Measurement range: **-1...600 bar**

NIPRESS pressure switches are used in hydraulic and pneumatic applications for monitoring and controlling the pressure via switching outputs. Due to the simple handling as well as the variety of software features (*switching points and hysteresis freely configurable, delay function, storing min-/max-value, scalable display and analog output signal, etc.*) the pressure switches with display are especially suitable for general plant and machine construction and processing industry applications.

NIPRESS D

Measurement of vacuum, overpressure and absolute pressure

Measurement range: **-1...2200 bar**

NIPRESS pressure transmitters with multiple sensor technologies combined with various housing materials can be used for almost all relative or absolute fluid or gas pressure measurement tasks requiring different accuracy.

Their design, high overload capability and the possibility to install the units in any physical position makes them suitable for a wide range of industrial applications.

NIPRESS DD

For differential pressure measurement

Measurement range: **0...70 bar**

NIPRESS differential pressure transmitters are available with different sensor technologies combined with compact stainless steel or cast aluminum or plastic housings.

The wide variety of the product range can measure the pressure of numerous fluids and gases, monitor ventilation ducts, filters and fans in HVAC areas as well as measure the level in closed, pressurized tanks.

PRESSURE SENSORS

In the world of industrial metrology, monitoring and controlling the pressure of fluids and gases — *along with processing the measured results* — is of the highest priority. NIVELCO meets the needs of numerous industries and applications with the wide NIPRESS family range.

Main categories of the **NIPRESS** device family:

- Pressure switches
- Pressure transmitters
- Differential pressure transmitters

NIPRESS DK PRESSURE SWITCHES

page 198



- Silicon, ceramic or stainless steel sensor
- Relative or absolute measurement
- Up to 4 switch outputs
- Swiveling, configurable 4-digit display module
- Configuration via PC or programming device
- Stainless steel housing versions
- Ex ia versions*
- Integrated cable version

NIPRESS D PRESSURE TRANSMITTERS

page 207



- Ceramic or stainless steel sensor
- Relative or absolute measurement
- High-pressure version up to 2200 bar
- For vacuum, gauge and absolute pressure
- Measurement range downscale
- HART® communication
- Two-chamber cast aluminum or stainless steel housing
- Ex ia / Ex d versions*
- SIL 2 versions*

NIPRESS DD DIFFERENTIAL TRANSMITTERS

page 221



- Piezoresistive silicon or stainless steel sensor
- Relative measurement
- Measurement range downscale
- Up to 2 switch outputs
- Cast aluminum housing
- Static overpressure up to 400 bar
- HART® communication available
- High accuracy
- Mechanically robust versions
- Hastelloy® sensor version
- Ex ia versions*

*Ex or SIL versions are available only on request for custom price.

TECHNICAL DATA

		Ceramic sensor for hydraulics and mechanical engineering applications	Electronic pressure switches with stainless steel internal or flush sensor	Welded stainless steel flush sensor
		Configurable via CIS Set USB kit (PC) or P6 programming device	Combines intelligent switch with digital display	Ideal for viscous and pasty media across industrial sectors
Measurement range		0...400 bar	–1...600 bar	–1...40 bar
Overload capability		As per order code		
Accuracy		1%	p ≥ 0.4 bar: 0.25%; 0.5%	
Process temperature		–25...+85 °C	–40...+125 °C	–40...+125 °C (silicone oil) –10...+125 °C (food grade oil)
Ambient temperature			–40...+85 °C (with integrated cable –5...+70 °C)	
Materials of the wetted parts	Sensor	Ceramic	Stainless steel	Stainless steel (option: Hastelloy® C)
	Sensor seal	FKM (option: EPDM)	FKM, welded	FKM < 200 °C, FFKM > 200 °C
	Process conn.	Stainless steel		
Housing		Stainless steel		
Output		1, 2 PNP	1, 2 PNP 4...20 mA (optional: 0...10 V)	
Supply voltage		12...30 V DC	2-wire: 13...36 V DC, Ex version* 15...28 V DC, 3-wire: 15...36 V DC	
Load resistance		–	2-wire: $R_{\max} = [(U_{\text{Supply}} - U_{\text{Supply min}}) / 0.02 \text{ A}], [\Omega]$ 3-wire: $R_{\min} = 10 \text{ k}\Omega$	
Process connection		¼" BSP	¼", ½", ¾" BSP; ¼", ½" NPT; M20×1.5	As per order code
Electrical connection		M12×1	ISO 4400, M12×1, integrated cable	
Ingress protection		IP67	IP65	
Electrical protection		Class III (SELV)		
Weight		~90 g	~160 g	~160...250 g
				
		DK-200	DK-300	DK-400

TECHNICAL DATA

		Stainless steel sensor with swiveling display PNP contact outputs for broad industrial use	Ceramic sensor with flush diaphragm for viscous, pasty, contaminated media Robust swiveling stainless steel housing for harsh environments Standard PNP contact outputs	Welded stainless steel flush sensor for process industry (food, pharma) Swiveling display with PNP contact outputs	Ceramic sensor for general industrial applications Flush diaphragm version for viscous, pasty, contaminated media PNP outputs and swiveling display
Measurement range		-1...600 bar		-1...40 bar	-1...600 bar
Overload capability		As per order code			
Accuracy		p ≥ 0.4 bar: 0.25%; 0.5%	0.5%	p ≥ 0.4 bar: 0.25%; 0.5%	0.5%
Process temperature		-40...+125 °C		-40...+125 °C (silicone oil) -10...+125 °C (food grade oil)	-40...+125 °C
Ambient temperature		-40...+85 °C			-40...+85 °C (with integrated cable -5...+70 °C)
Materials of the wetted parts	Sensor	Stainless steel	Ceramic	Stainless steel	Ceramic
	Sensor seal	FKM, welded	FKM (option: EPDM, max. 160 bar)	FKM < 200 °C, FFKM > 200 °C	FKM (option: EPDM, max. 160 bar)
	Process connection	Stainless steel	Stainless steel (option: PVDF (½" BSP, max. 60 bar))	Stainless steel	Stainless steel (option: PVDF (½" BSP, max. 60 bar))
Housing		Stainless steel			
Output		1, 2 PNP, 4...20 mA (optional: 0...10 V)			
Supply voltage		2-wire: 13...36 V DC, Ex version*: 15...28 V DC, 3-wire: 24 V DC			2-wire: 13...36 V DC, Ex version*: 15...28 V DC, 3-wire (0...10 V): 15...36 V DC
Load resistance		2-wire: $R_{max} = [(U_{Supply} - U_{Supply min}) / 0.02 A]$, [Ω] 3-wire: $R_{min} = 10 \text{ k}\Omega$			2-wire: $R_{max} = [(U_{Supply} - U_{Supply min}) / 0.02 A]$, [Ω], 3-wire (0...10 V): $R_{min} = 10 \text{ k}\Omega$
Process connection		As per order code	¼", ½" BSP / NPT	As per order code	
Electrical connection		ISO 4400, M12×1, integrated cable			M12×1 /5, M12×1 /8, integrated cable
Electrical protection		Class III (SELV)			
Ingress protection		IP67			IP65
Weight		~400 g		~500 g	~200 g
					
		DK-500	DK-600	DK-700	DK-800

*Ex or SIL versions are available only on request for custom price.

*Ex or SIL versions are available only on request for custom price.

NIPRESS DK-2005 years

3- / 4-wire mini compact pressure switch for absolute and gauge pressure
Output: PNP transistor, diaphragm: ceramic, measurement range: 0...400 bar

Measuring method

D	☐	A	-	2	☐	3	-	☐
K								Switch

Process connection

D	K	☐	-	2	☐	3	-	☐
A								1/4" BSP

Range / Overpressure

D	K	A	-	2	☐	3	-	☐
S								0...2 bar / 7 bar
M								0...5 bar / 12 bar
A								0...10 bar / 25 bar
T								0...20 bar / 50 bar
N								0...50 bar / 120 bar
F								0...100 bar / 250 bar
U								0...200 bar / 400 bar
J								0...400 bar / 600 bar

Accuracy

D	K	A	-	2	☐	☐	-	☐
3								1%

Output

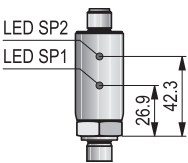
D	K	A	-	2	☐	3	-	☐
7								1 PNP switching output
9								2 PNP switching outputs

Available on request (must be specified in the text of the order)

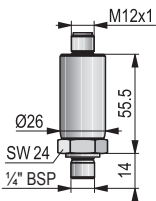
EPDM seal
Absolute pressure measuring method
Oil and grease-free version
Oxygen application (max. 25 bar, FKM seal)
Custom switching points
Custom measurement range (based on prior negotiations)

Accessories to order

JBD-P6D-S6N0	P6 programming device for DK-200 pressure switch
JBD-CIS-685U	USB modem with software



DKA-2□3-□
front view



DKA-2□3-□
side view

NIPRESS DK-300

5 years

3- / 5- / 8-wire mini compact pressure switch for absolute and gauge pressure
Output: 1, 2 PNP transistor, 4...20 mA or 0...10 V, with swiveling display,
Diaphragm: stainless steel flush and inner, measurement range: -1...600 bar

Measuring method

D ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

K Switch

Process connection

D K ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

A	1/4" BSP
C	1/2" BSP
J	M20x1.5
D	3/4" BSP, flush membrane (max. 40 bar)
G	1/4" NPT
H	1/2" NPT

Range / Overpressure

D K ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

0	-1...0 bar / 5 bar
1	0...0.1 bar / 0.5 bar
R	0...0.16 bar / 1 bar
2	0...0.25 bar / 1 bar
3	0...0.4 bar / 2 bar
4	0...0.6 bar / 5 bar
5	0...1 bar / 5 bar
6	0...1.6 bar / 10 bar
7	0...2.5 bar / 10 bar
8	0...4 bar / 20 bar
9	0...6 bar / 40 bar
A	0...10 bar / 40 bar
B	0...16 bar / 80 bar
C	0...25 bar / 80 bar
D	0...40 bar / 105 bar
E	0...60 bar / 210 bar
F	0...100 bar / 210 bar
G	0...160 bar / 600 bar
H	0...250 bar / 1000 bar
J	0...400 bar / 1000 bar
K	0...600 bar / 1000 bar

Accuracy

D K ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

1	0.25% (p ≥ 0.4 bar)
2	0.5%

Output / Certificates

D K ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

7	4...20 mA + 1 PNP switching output
9	4...20 mA + 2 PNP switching outputs (only with M12x1 (5-pin) electrical connection)

* SIL versions are available on request.

Available on request (must be specified in the text of the order)

Absolute pressure measuring method (p ≥ 0.4 bar)

M12x1 (5-pin) electronic connection, plastic

M12x1 (5-pin) electronic connection, metal

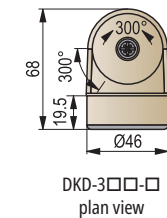
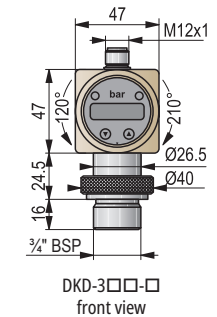
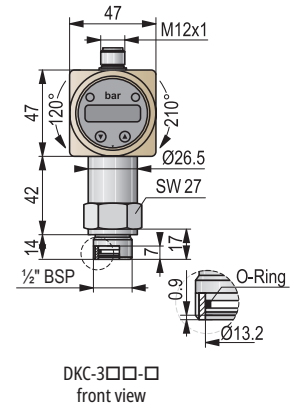
Integrated cable version (IP65), PVC cable (-5...+70 °C), with cable gland

PVC cable add-on price per meter

4...20 mA with 3-wire adjustable output (max. 1 switching outputs, but with M12x1 (5 pin) electric connection)

0...10 V 3-wire (max. 2 switching outputs, but with M12x1 (5 pin) electric connection)

Custom measurement range (based on prior negotiations)



NIPRESS DK-400

5 years

3- / 5- / 8-wire mini compact pressure switch for absolute and gauge pressure
Output: 1, 2 PNP transistor, 4...20 mA or 0...10 V, with swiveling display, diaphragm: stainless steel flush,
Measurement range: -1...40 bar

Measuring method / Temperature

D ☐ ☐ ☐ - 4 ☐ ☐ ☐ - ☐

K	Switch / up to +125 °C
L	Switch / up to +300 °C (in the case of vacuum, up to +150 °C, p ≤ 70 bar max +200 °C permanent)

Process connection

D ☐ ☐ ☐ - 4 ☐ ☐ ☐ - ☐

C	½" BSP (p > 2.5 bar)
J	M20x1.5 (p > 2.5 bar)
D	¾" BSP
E	1" BSP
F	1½" BSP
K	2" BSP
T	¾" TriClamp (4 bar ≤ p ≤ 8 bar)
L	1" TriClamp (0.25 bar ≤ p ≤ 16 bar)
M	1½" TriClamp (p ≤ 16 bar)
N	2" TriClamp (p ≤ 16 bar)
O	DN25 Pipe coupling (DIN 11851) 0.25...40 bar
P	DN40 Pipe coupling (DIN 11851) 0.25...40 bar
R	DN50 Pipe coupling (DIN 11851) 0.25...25 bar
I	DN40 / PN40 1.4404 flange (p ≤ 40 bar)
Q	DN50 / PN40 1.4404 flange (p ≤ 40 bar)
U	DN80 / PN16 1.4404 flange (p ≤ 16 bar)
V	VARIVENT® DN40/50 (p ≤ 25 bar)

Range / Overpressure

D ☐ ☐ ☐ - 4 ☐ ☐ ☐ - ☐

0	-1...0 bar / 5 bar
1	0...0.1 bar / 0.5 bar
R	0...0.16 bar / 1 bar
2	0...0.25 bar / 1 bar
3	0...0.4 bar / 2 bar
4	0...0.6 bar / 5 bar
5	0...1 bar / 5 bar
6	0...1.6 bar / 10 bar
7	0...2.5 bar / 10 bar
8	0...4 bar / 20 bar
9	0...6 bar / 40 bar
A	0...10 bar / 40 bar
B	0...16 bar / 80 bar
C	0...25 bar / 80 bar
D	0...40 bar / 105 bar

Accuracy

D ☐ ☐ ☐ - 4 ☐ ☐ ☐ - ☐

1	0.25% (p ≥ 0.4 bar)
2	0.5%

Output / Certificates

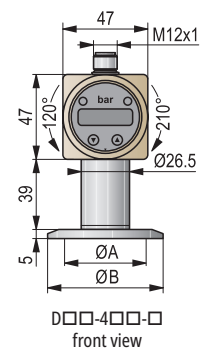
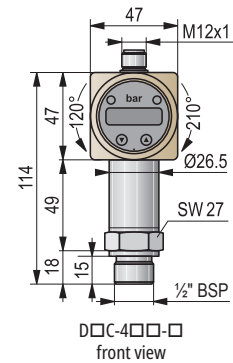
D ☐ ☐ ☐ - 4 ☐ ☐ ☐ - ☐

7	4...20 mA + 1 PNP switching output
9	4...20 mA + 2 PNP switching outputs (only with M12x1 (5-pin) electrical connection)

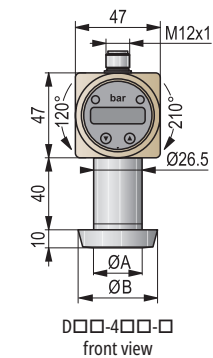
* SIL versions are available on request.

Available on request (must be specified in the text of the order)

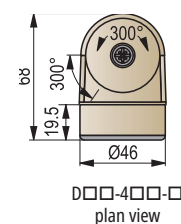
Absolute pressure measuring method (p ≥ 0.4 bar)
M12x1 (5-pin) electronic connection, metal
Integrated cable version (IP65), PVC cable (-5...+70 °C), with cable gland
PVC cable add-on price per meter
4...20 mA with 3-wire adjustable output (max. 1 switching outputs, but with M12x1 (5 pin) electric connection)
0...10 V 3-wire (max. 2 switching outputs, but with M12x1 (5 pin) electric connection)
Hastelloy C membrane
FFKM seal
Filled with food compatible oil (up to +150 °C)
Custom measurement range (based on prior negotiations)



TriClamp	¾"	1"	1½"	2"
A	14	23	32	45
B	25	50.5		64



	DN25	DN40	DN50
A	23	32	45
B	44	56	68.5



NIPRESS DK-500**5 years**

3- / 5-wire mini compact pressure switch for absolute and gauge pressure, with stainless steel housing
 Output: 1, 2 PNP transistor, 4...20 mA, with swiveling display, diaphragm: stainless steel,
 Measurement range: -1...600 bar

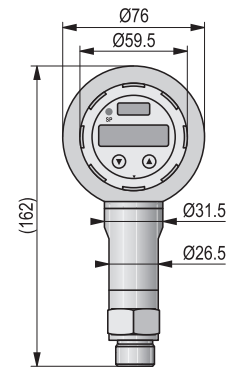
Measuring method**D** ☐ ☐ ☐ - **5** ☐ ☐ ☐ - ☐**K** Switch**Process connection****D** **K** ☐ ☐ - **5** ☐ ☐ ☐ - ☐**A** 1/4" BSP**C** 1/2" BSP**G** 1/4" NPT**H** 1/2" NPT**Range / Overpressure****D** **K** ☐ ☐ - **5** ☐ ☐ ☐ - ☐**0** -1...0 bar / 5 bar**1** 0...0.1 bar / 0.5 bar**R** 0...0.16 bar / 1 bar**2** 0...0.25 bar / 1 bar**3** 0...0.4 bar / 2 bar**4** 0...0.6 bar / 5 bar**5** 0...1 bar / 5 bar**6** 0...1.6 bar / 10 bar**7** 0...2.5 bar / 10 bar**8** 0...4 bar / 20 bar**9** 0...6 bar / 40 bar**A** 0...10 bar / 40 bar**B** 0...16 bar / 80 bar**C** 0...25 bar / 80 bar**D** 0...40 bar / 105 bar**E** 0...60 bar / 210 bar**F** 0...100 bar / 210 bar**G** 0...160 bar / 600 bar**H** 0...250 bar / 1000 bar**J** 0...400 bar / 1000 bar**K** 0...600 bar / 1000 bar**Accuracy****D** **K** ☐ ☐ - **5** ☐ ☐ ☐ - ☐**1** 0.25% ($p \geq 0.4$ bar)**2** 0.5%**Output / Certificates****D** **K** ☐ ☐ - **5** ☐ ☐ ☐ - ☐**7** 4...20 mA + 1 PNP switching output**9** 4...20 mA + 2 PNP switching outputs

* SIL versions are available on special request.

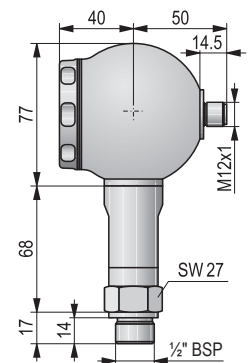
Available on request (must be specified in the text of the order)Absolute pressure measuring method ($p \geq 0.4$ bar)

4...20 mA with 3-wire adjustable output (max. 1 switching outputs)

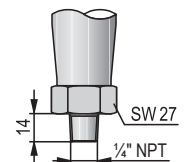
Custom measurement range (based on prior negotiations)



DKC-5□□-□ with display, front view



DKC-5□□-□ side view



DKG-5□□-□ side view

NIPRESS DK-600 5 years

3- / 5-wire mini compact pressure switch for absolute and gauge pressure, with stainless steel housing
Output: 1, 2 PNP transistor, 4...20 mA, with swiveling display, diaphragm: ceramic,
Measurement range: -1...600 bar

Measuring method

D	□	■	-	6	■	2	-	■
K								

Switch

Process connection

D	K	□	-	6	■	2	-	■
A								
C								
G								
H								

1/4" BSP

1/2" BSP

1/4" NPT

1/2" NPT

Range / Overpressure

D	K	■	-	6	□	2	-	■
0								
3								
4								
5								
6								
7								
8								
9								
A								
B								
C								
D								
E								
F								
G								
H								
J								
K								

-1...0 bar / 4 bar

0...0.4 bar / 1 bar

0...0.6 bar / 2 bar

0...1 bar / 2 bar

0...1.6 bar / 4 bar

0...2.5 bar / 4 bar

0...4 bar / 10 bar

0...6 bar / 10 bar

0...10 bar / 20 bar

0...16 bar / 40 bar

0...25 bar / 40 bar

0...40 bar / 100 bar

0...60 bar / 100 bar

0...100 bar / 200 bar

0...160 bar / 400 bar

0...250 bar / 400 bar

0...400 bar / 600 bar

0...600 bar / 800 bar

Accuracy

D	K	■	-	6	□	■	-	■

2

0.5%

Output / Certificates

D	K	■	-	6	■	2	-	□

7

4...20 mA + 1 PNP switching output

9

4...20 mA + 2 PNP switching outputs

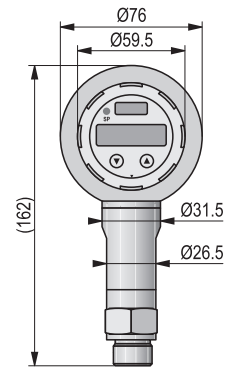
* SIL versions are available on request.

Available on request (must be specified in the text of the order)

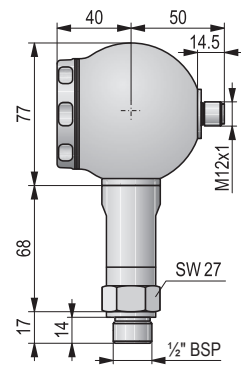
Absolute pressure measuring method
EPDM seal (max. 160 bar)
PVDF process connection (only 1/2" BSP, max. 60 bar)
Oxygen application (max. 25 bar, FKM seal)
4...20 mA with 3-wire adjustable output (max. 1 switching outputs)
Custom measurement range (based on prior negotiations)

Accessories (sold separately)

JBD-TTR-04SA	1/2" BSP / 1/2" BSP shock absorber
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DKC-6□2-□ with display, front view



DKC-6□2-□ side view

NIPRESS DK-700

5 years

3- / 5-wire mini compact pressure switch for absolute and gauge pressure, with stainless steel housing
Output: 1...2 PNP transistor, 4...20 mA, with swiveling display, diaphragm: stainless steel flush,
Measurement range: -1...40 bar

Measuring method / Temperature

D ■ ■ - 7 ■ ■ - ■

K	Switch / up to +125 °C
L	Switch / up to +300 °C (in the case of vacuum, up to +150 °C, p ≤ 70 bar max +200 °C permanent)

Process connection

D ■ ■ - 7 ■ ■ - ■

C	½" BSP (p ≥ 1 bar)
D	¾" BSP
E	1" BSP
T	¾" TriClamp
L	1" TriClamp
M	1½" TriClamp
N	2" TriClamp
O	DN25 Pipe coupling (DIN 11851) 0.25...40 bar
P	DN40 Pipe coupling (DIN 11851) 0.25...40 bar
R	DN50 Pipe coupling (DIN 11851) 0.25...25 bar
V	VARIVENT® DN40/50 (p ≤ 25 bar)

Range / Overpressure

D ■ ■ - 7 ■ ■ - ■

0	-1...0 bar / 5 bar
1	0...0.1 bar / 0.5 bar
R	0...0.16 bar / 1 bar
2	0...0.25 bar / 1 bar
3	0...0.4 bar / 2 bar
4	0...0.6 bar / 5 bar
5	0...1 bar / 5 bar
6	0...1.6 bar / 10 bar
7	0...2.5 bar / 10 bar
8	0...4 bar / 20 bar
9	0...6 bar / 40 bar
A	0...10 bar / 40 bar
B	0...16 bar / 80 bar
C	0...25 bar / 80 bar
D	0...40 bar / 105 bar

Accuracy

D ■ ■ - 7 ■ ■ - ■

1	0.25% (p ≥ 0.4 bar)
2	0.5%

Output / Certificates

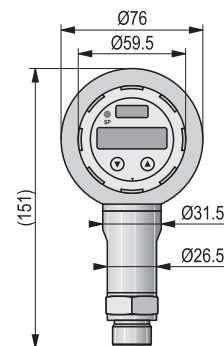
D ■ ■ - 7 ■ ■ - ■

7	4...20 mA + 1 PNP switching output
9	4...20 mA + 2 PNP switching outputs

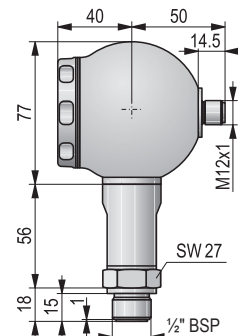
* SIL versions are available on request.

Available on request (must be specified in the text of the order)

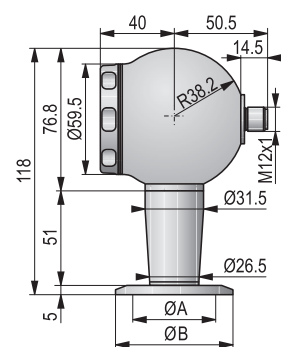
Absolute pressure measuring method (p ≥ 1 bar)
FFKM seal
Filled with food compatible oil (up to +150 °C)
4...20 mA with 3-wire adjustable output (max. 1 switching outputs)
Custom measurement range (based on prior negotiations)



D□C-7□□-□ with display, front view

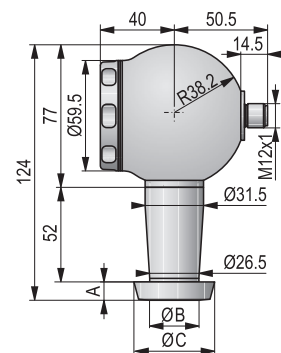


D□C-7□□-□ side view



D□□-7□□-□ side view

TriClamp	¾"	1"	1½"	2"
A	14	23	32	45
B	25	50.5		64



D□□-7□□-□ side view

	DN25	DN40	DN50
A	10		11
B	23	32	45
C	44	56	68.5

NIPRESS DK-800

5 years

5- / 8-wire mini compact pressure switch for absolute and gauge pressure

Output: 1, 2 PNP transistor, with swiveling display, diaphragm: ceramic, 4...20 mA or 0...10 V

Measurement range: -1...600 bar

Measuring method

D ☐ ☐ - 8 ☐ 2 - ☐

K Switch

Process connection

D K ☐ - 8 ☐ 2 - ☐

A 1/4" BSP

C 1/2" BSP

D 3/4" BSP, flush membrane (0.6 bar ≤ p ≤ 60 bar)

G 1/4" NPT

H 1/2" NPT

Range / Overpressure

D K ☐ - 8 ☐ 2 - ☐

0 -1...0 bar / 4 bar

3 0...0.4 bar / 1 bar

4 0...0.6 bar / 2 bar

5 0...1 bar / 2 bar

6 0...1.6 bar / 4 bar

7 0...2.5 bar / 4 bar

8 0...4 bar / 10 bar

9 0...6 bar / 10 bar

A 0...10 bar / 20 bar

B 0...16 bar / 40 bar

C 0...25 bar / 40 bar

D 0...40 bar / 100 bar

E 0...60 bar / 100 bar

F 0...100 bar / 200 bar

G 0...160 bar / 400 bar

H 0...250 bar / 400 bar

J 0...400 bar / 600 bar

K 0...600 bar / 800 bar

Accuracy

D K ☐ - 8 ☐ ☐ - ☐

2 0.5%

Output / Certificates

D K ☐ - 8 ☐ 2 - ☐

7 4...20 mA + 1 PNP switching output

9 4...20 mA + 2 PNP switching outputs (only with M12x1 (5-pin) electrical connection)

* SIL versions are available on request.

Available on request (must be specified in the text of the order)

Absolute pressure measuring method

EPDM (p ≤ 160 bar), NBR seal

PVDF process connection (only 1/2" BSP, max. 60 bar)

Oxygen application (max. 25 bar, FKM seal)

Integrated cable version (IP65), PVC cable (-5...+70 °C), with cable gland

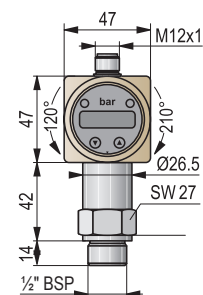
PVC cable add-on price per meter

M12x1 (5-pin) electrical connection, metal

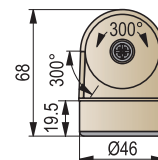
4...20 mA with 3-wire adjustable output (max. 1 switching outputs, but with M12x1 (5 pin) electric connection)

0...10 V 3-wire (max. 2 switching outputs, but with M12x1 (5 pin) electric connection)

Custom measurement range (based on prior negotiations)



DKC-8□2-□ with display, front view



DKC-8□2-□ with display, plan view

TECHNICAL DATA

		Ceramic internal sensor for aggressive gases, steam, and fluids Not for sediment-prone, crystallizing, or stiffening media Overpressure measurement; 2-wire system	Stainless steel internal sensor for static/dynamic stress Not for sediment- prone, crystallizing, or stiffening media Absolute pressure over 0.1 bar	Stainless steel flush sensor for contaminated liquids, bottom pressure High-temp versions: +150 °C or +300 °C Silicone oil standard; food-grade liquid available	Ceramic flush sensor for aggressive, contaminated, pasty media Low-pressure oxygen applications
		Optional UNICONT PLK-501 display			
Measurement range		–1...400 bar	–1...600 bar	–1...400 bar	–1...600 bar
Overload capability		As per order code			
Accuracy		0.5%; –1...0 bar: 1%	0.5%; p ≥ 0.5 bar: 0.25%	(0.4 bar ≤ p ≤ 40 bar): ±0.25%; 0.5%; 0.1%	0.5%; 1%
Process temperature		–25...+125 °C	–40...+125 °C	–40...+125 °C (silicone oil, high-temperature version up to +300 °C, up to max. 160 bar), –10...+125 °C (food grade oil, high-temperature version up to +250 °C, up to max. 160 bar)	–40...+125 °C
Ambient temperature		–25...+85 °C	–40...+85 °C (with integrated cable –5...+70 °C)		
Materials of the wetted parts	Sensor	Aluminum oxide ceramic	Stainless steel		Aluminum oxide ceramic
	Sensor seal	FKM (Viton®) (option: EPDM)	FKM (Viton®, max. 40 bar), NBR (60...600 bar) (option: EPDM (max. 160 bar), FFKM (max. 40 bar))	FKM (Viton®, max. +200 °C) (option: FFKM)	FKM (Viton®) (option: EPDM (p ≤ 160 bar))
	Process connection	Stainless steel			Stainless steel (option: PVDF)
Housing		Stainless steel			
Output		2-wire: 4...20 mA, 3-wire: 0...10 V			
Supply voltage		2-wire: 8...32 V DC, 3-wire: 14...30 V DC	2-wire: standard version 8...32 V DC, Ex version* 10...28 V DC, SIL version* 14...28 V DC, 3-wire: 14...30 V DC		
Load resistance		2-wire: $R_{max} = [(U_{Supply} - U_{Supply min.}) / 0.02 A]$, [Ω]; 3-wire: $R_{min} = 10 kΩ$			
Process connection		As per order code			
Electrical connection		ISO 4400, M12x1 /4	ISO 4400, M12x1 /4, integral cable version		
Ingress protection		IP65 / IP67	IP65 / IP67 / IP68		
Electrical protection		Class III (SELV)			
Weight		~120 g	~140 g	~200 g	~140 g
					
		D-200	D-300	D-400	D-500

*Ex or SIL versions are available only on request for this version

*Ex or SIL versions
are available only
on request for
custom price.

TECHNICAL DATA

		Screw-in with ceramic flush sensor for fluids, oils, gases Ideal for viscous/polluted media; PVDF connection for aggressive media	Screw-in ceramic flush sensor for low-pressure viscous/pasty media PVDF housing/ connection for aggressive media; PTFE coating available	Robust stainless steel flush sensor screw-in transmitters Modular construction for high flexibility	Ceramic internal sensor for plant/ machine engineering, labs Small system pressure; 99.9% Al ₂ O ₃ sensor for high-temp/ overpressure
Optional UNICONT PLK-501 display					
Measurement range		0...60 bar	0...20 bar	0...40 bar	0...20 bar
Overload capability		As per order code			
Accuracy		0.5%	±0.5%; p ≥ 0.6 bar: ±0.25%; ±1% (PTFE-coated)	p ≤ 0.4 bar: 0.5%; p ≥ 0.4 bar: 0.25%;	p ≥ 0.6 bar: 0.25%; 0.5%
Process temperature		-40...+125 °C			
Ambient temperature		-25...+85 °C (with integrated cable: -5...+70 °C)	-40...+85 °C (with integrated cable: -5...+70 °C)		
Materials of the wetted parts	Sensor	Aluminum oxide ceramic		Stainless steel	Aluminum oxide ceramic
	Sensor seal	FKM (Viton®) (option: EPDM, NBR)	FKM (Viton®) (option: EPDM, FFKM)	FKM (Viton®) (option: EPDM)	
	Process connection	Stainless steel (option: PVDF)		Stainless steel	
Housing					
Output		2-wire: 4...20 mA, 3-wire: 0...10 V			
Supply voltage		2-wire: 8...32 V DC, Ex version*: 10...28 V DC, SIL version*: 14...28 V DC, 3-wire: 14...30 V DC	2-wire: 9...32 V DC, Ex version*: 14...28 V DC, 3-wire: 12.5...32VDC	2-wire: 8...32 V DC, Ex version*: 10...28 V DC, SIL version*: 14...28 V DC, 3-wire: 14...30 V DC	2-wire: 9...32 V DC, Ex version*: 14...28 V DC, 3-wire: 12.5...32 V DC
Load resistance		2-wire: $R_{max} = [(U_{Supply} - U_{Supply min.}) / 0.02 A]$, [Ω] 3-wire: $R_{min} = 10 \text{ k}\Omega$			
Process connection		¾" BSP	1½" BSP	¾" BSP	½" BSP / NPT; ¼" BSP; M20×1.5
Electrical connection		ISO 4400, M12x1 /4, integral cable version			
Ingress protection		IP65 / IP67 / IP68			
Electrical protection		Class III (SELV)			
Weight		~150 g		~200 g	
					
		D-600	D-700	D-800	D-900

*Ex or SIL versions are available only on request for stationary applications

*Ex or SIL versions are available only on request for custom price.

TECHNICAL DATA

		Stainless steel internal/flush sensor for process/pharma industry Gases/steam up to 600 bar; HART® communication Multiple connections/housings; high-temp +300°C with cooling	Ceramic flush sensor (99.9% Al₂O₃) with high overpressure resistance Gases, steam, fluids; HART® communication Multiple connections/housings	Stainless steel internal sensor for extreme pressures (2200 bar) Hydraulic applications; thin-film sensor welded to port Optional UNICONT PLK-501 display
Measurement range		0...600 bar (optionally also from -1 bar)	0...20 bar	0...2200 bar
Overload capability		As per order code		
Accuracy		0.1%	p ≥ 1 bar: 0.1%; p < 1 bar: 0.2%; 1% (PTFE-coated)	0.5%
Process temperature		-40...+125 °C (silicone oil) -10...+125 °C (food grade oil)	-25...+125 °C	-40...+140 °C
Ambient temperature		-40...+70 °C (without display) -20...+70 °C (with display)		-25...+85 °C
Materials of the wetted parts	Sensor	Stainless steel (option: Hastelloy® C)	Aluminum oxide ceramic	Stainless steel
	Sensor seal	FKM (optional: FFKM (p ≤ 100 bar))	FKM (optional: EPDM)	–
	Process connection	Stainless steel	Stainless steel (optional: PVDF (1½" BSP))	Stainless steel
Housing		Cast aluminum / stainless steel		
Output		4...20 mA, HART®		2-wire: 4...20 mA, 3-wire: 0...10 V
Supply voltage		2-wire standard version and Ex ia version*: 12...28 V DC, Ex d version*: 13...28 V DC		2-wire: 12...36 V DC, Ex version*: 14...28 V DC, 3-wire: 14...30 V DC
Load resistance		2-wire: $R_{\max} = [(U_{\text{Supply}} - U_{\text{Supply min}}) / 0.02 \text{ A}]$, [Ω], load during HART® communication: $R_{\min}$: 250 Ω		2-wire: $R_{\max} = [(U_{\text{Supply}} - U_{\text{Supply min}}) / 0.02 \text{ A}]$, [Ω], 3-wire: $R_{\min} = 10 \text{ kΩ}$
Process connection		As per order code		
Electrical connection		M20×1.5 (for cable Ø5...Ø14 mm)		ISO 4400, M12×1 /4, integral cable version
Ingress protection		IP67		IP65 / IP67 / IP68
Electrical protection		Class III (SELV)		
Weight		~400 g		~240 g
				
		D-A00	D-B00	D-C00

*Ex or SIL versions
are available only
on request for

*Ex or SIL versions are available only on request for custom price.

NIPRESS D-200

5 years

2- / 3-wire mini compact pressure transmitter for gauge pressure measurement
Output: 4...20 mA, diaphragm: ceramic, measurement range: 0...400 bar

Measuring method

D ■ ■ - 2 ■ ■ - ■

R Gauge
E Absolute

Process connection

D ■ ■ - 2 ■ ■ - ■

A 1/4" BSP according to EN837 (manometer)
C 1/2" BSP according to EN837 (manometer)
G 1/4" NPT

Range / Overpressure

D ■ ■ - 2 ■ ■ - ■

0 -1...0 bar / 3 bar (only with 1% accuracy)
5 0...1 bar / 3 bar
6 0...1.6 bar / 5 bar
7 0...2.5 bar / 5 bar
8 0...4 bar / 12 bar
9 0...6 bar / 12 bar
A 0...10 bar / 20 bar
B 0...16 bar / 50 bar
C 0...25 bar / 50 bar
D 0...40 bar / 120 bar
E 0...60 bar / 120 bar
F 0...100 bar / 200 bar
G 0...160 bar / 400 bar
H 0...250 bar / 400 bar
J 0...400 bar / 650 bar

Accuracy

D ■ ■ - 2 ■ ■ - ■

2 0.5%
3 1% (only -1...0 bar)

Output

D ■ ■ - 2 ■ ■ - ■

2 4...20 mA, 2-wire
3 0...10 V mA, 3-wire

Available on request (must be specified in the text of the order)

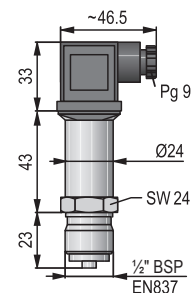
EPDM seal
M12x1 (4-pin) IP67 electrical connection, plastic, including connector plug
Oil and grease-free version
Oxygen application (max. 25 bar, FKM seal)
Custom measurement range (based on prior negotiations)

Accessories * (sold separately)

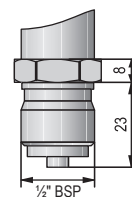
P L K - 5 0 1 - 2 Plug-in display
P L K - 5 0 1 - 3 Plug-in display with PNP output

* Only for 2-wire version and ISO 4400 connector.

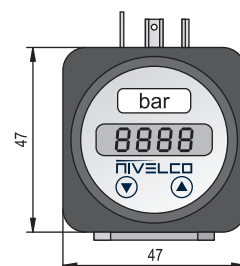
JBD-TTR-04SA 1/2" BSP / 1/2" BSP shock absorber



DRC-2□2



1/2" BSP EN 837



PLK-501

NIV24

DRC-252-2
DRC-272-2
DRC-292-2
DRC-2A2-2
DRC-2B2-2
PLK-501-2

NIPRESS D-300

5 years

2- / 3-wire mini compact pressure transmitter for absolute and gauge pressure measurement
Output: 4...20 mA or 0...10 V, diaphragm: stainless steel, measurement range: -1...600 bar

Measuring method

D ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

R	Gauge
E	Absolute ($p \geq 0.4$ bar)

Process connection

D ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

A	1/4" BSP
C	1/2" BSP
G	1/4" NPT (max. 40 bar)
H	1/2" NPT
J	M20x1.5

Range / Overpressure

D ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

0	-1...0 bar / 5 bar
1	0...0.1 bar / 0.5 bar
R	0...0.16 bar / 1 bar
2	0...0.25 bar / 1 bar
3	0...0.4 bar / 2 bar
4	0...0.6 bar / 5 bar
5	0...1 bar / 5 bar
6	0...1.6 bar / 10 bar
7	0...2.5 bar / 10 bar
8	0...4 bar / 20 bar
9	0...6 bar / 40 bar
A	0...10 bar / 40 bar
B	0...16 bar / 80 bar
C	0...25 bar / 80 bar
D	0...40 bar / 105 bar
E	0...60 bar / 210 bar
F	0...100 bar / 600 bar
G	0...160 bar / 600 bar
H	0...250 bar / 1000 bar
J	0...400 bar / 1000 bar
K	0...600 bar / 1000 bar

Accuracy

D ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

1	0.25% ($p \geq 0.5$ bar)
2	0.5%

Output / Certificates

D ☐ ☐ ☐ - 3 ☐ ☐ ☐ - ☐

2	4...20 mA, 2-wire
3	0...10 V, 3-wire
6 *	4...20 mA, 2-wire / Ex ia G
C *	4...20 mA, 2-wire, SIL 2
D *	4...20 mA, 2-wire, SIL 2 / Ex ia G

* Ex or SIL versions are available on request.

Available on request (must be specified in the text of the order)

EPDM (max. 160 bar), FKM, NBR seal

FFKM (max. 40 bar)

M12x1 (4-pin) IP67 electrical connection, metal

Integrated cable version (IP68), PVC cable (-5...+70 °C)

PVC cable sold separately by the meter

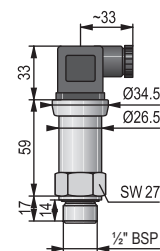
Blue Ex PVC cable sold separately by the meter

Custom measurement range (based on prior negotiations)

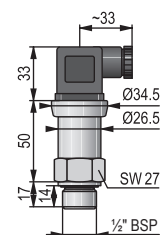
Accessories ** (ordered separately)

P L K - 5 0 1 - 2	Plug-in display
P L K - 5 0 1 - 3	Plug-in display with PNP output

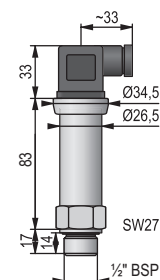
** Only for 2-wire version and ISO 4400 connector.



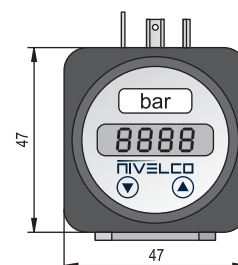
DRC-300, DEO-300
 $p \leq 40$ bar



DRC-300, DEO-300
 $p \geq 60$ bar



DOC-300-C, -D
SIL and SIL-Ex versions



PLK-501

NIV24

DRC-3A2-2

DRC-3B2-2

PLK-501-2

NIPRESS D-400

5 years

2- / 3-wire mini compact pressure transmitter for absolute and gauge pressure measurement
Output: 4...20 mA or 0...10 V, diaphragm: stainless steel flush, measurement range: -1...400 bar

Measuring method / Temperature

D ■ ■ - 4 ■ ■ - ■

R	Gauge / up to +125 °C
E	Absolute / up to +70 °C ($p \geq 0.6$ bar)
H	Gauge / up to +150 °C ($p \leq 160$ bar)
J	Gauge / up to +300 °C ($p \leq 160$ bar, $p \leq 70$ bar up to +200 °C permanent)

Process connection

D ■ ■ - 4 ■ ■ - ■

B	½" BSP ($p > 1.5$ bar)
C	½" BSP (sensor: 1.4404) max. +125 °C, -1...40 bar; without media separator
J	M20x1.5 ($p > 2.5$ bar)
D	¾" BSP ($p > 0.6$ bar)
E	1" BSP ($p > 0.25$ bar)
S	1" NPT (0.25...40 bar)
F	1½" BSP
T	¾" TriClamp (4...8 bar)
L	1" TriClamp (0.25...16 bar)
M	1½" TriClamp ($p \leq 16$ bar)
N	2" TriClamp ($p \leq 16$ bar)
O	DN25 Pipe coupling (DIN 11851; 0.25...40 bar)
P	DN40 Pipe coupling (DIN 11851; 0.25...40 bar)
R	DN50 Pipe coupling (DIN 11851; 0.25...25 bar)
I	DN25 / PN40 1.4404 flange ($p \leq 40$ bar)
Q	DN50 / PN40 1.4404 flange ($p \leq 40$ bar)
U	DN80 / PN16 1.4404 flange ($p \leq 16$ bar)
K	DN100 / PN16 1.4404 flange ($p \leq 16$ bar)
V	VARIVENT® DN40 / 50 ($p \leq 10$ bar)

Range / Overpressure

D ■ ■ - 4 ■ ■ - ■

0	-1...0 bar / 5 bar (up to +70 °C)
1	0...0.1 bar / 0.5 bar
R	0...0.16 bar / 1 bar
2	0...0.25 bar / 1 bar
3	0...0.4 bar / 2 bar
4	0...0.6 bar / 5 bar
5	0...1 bar / 5 bar
6	0...1.6 bar / 10 bar
7	0...2.5 bar / 10 bar
8	0...4 bar / 20 bar
9	0...6 bar / 40 bar
A	0...10 bar / 40 bar
B	0...16 bar / 80 bar
C	0...25 bar / 80 bar
D	0...40 bar / 105 bar
E	0...60 bar / 100 bar
F	0...100 bar / 200 bar
G	0...160 bar / 400 bar
H	0...250 bar / 400 bar
J	0...400 bar / 600 bar

Accuracy

D ■ ■ - 4 ■ ■ - ■

1	0.25% ($0.4 \text{ bar} \leq p \leq 40 \text{ bar}$)
2	0.5%

Output / Certificates

D ■ ■ - 4 ■ ■ - ■

2	4...20 mA, 2-wire
3	0...10 V, 3-wire
6 *	4...20 mA, 2-wire / Ex ia G
C *	4...20 mA, 2-wire, SIL 2
D *	4...20 mA, 2-wire, SIL 2 / Ex ia G

* Ex or SIL versions are available on request.

Available on request (must be specified in the text of the order)

Filled with food grade oil (not available for D_C_...; max. +150 °C)

EPDM seal (max. 160 bar)

FFKM seal (max. 100 bar)

M12x1 (4-pin) IP67 electrical connection, metal

Integrated cable version (IP68), PVC cable (-5...+70 °C; max. 40 bar)

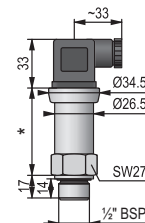
PVC cable add-on price per meter

Custom measurement range (based on prior negotiations)

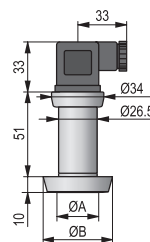
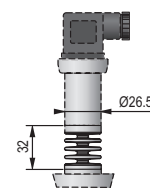
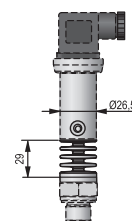
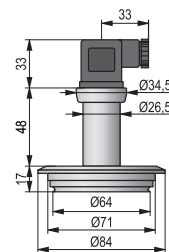
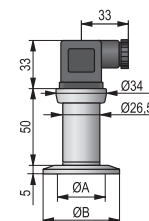
Accessories ** (sold separately)

P L K - 5 0 1 - 2	Plug-in display
P L K - 5 0 1 - 3	Plug-in display with PNP output

** Only for 2-wire version and ISO 4400 connector.



D□C-4□□-□

*Length may vary depending on the pressure range $p \geq 1$ barD□□-, D□P-, D□R-4□□-□
Pipe coupling DIN1185140 bar $\leq p \leq 160$ bar $p \leq 40$ barD□□-, D□J-4□□-□
Cooling element (+300°C)D□T-, D□L-, D□M-,
D□N-4□□-□
TriClampD□V-4□□-□
VARIVENT DN40/50

NIV24

PLK-501-2

NIPRESS D-500

5 years

2- / 3-wire mini compact pressure transmitter, with inner or flush diaphragm ceramic sensor, for absolute and gauge pressure measurement

Output: 4...20 mA or 0...10 V, diaphragm: ceramic flush or inner, measurement range: -1...600 bar

Measuring method

D ☐ ☐ ☐ - 5 ☐ ☐ ☐ - ☐

R Gauge

E Absolute

Process connection

D ☐ ☐ ☐ - 5 ☐ ☐ ☐ - ☐

A 1/4" BSP (inner diaphragm version only)

C 1/2" BSP (inner or optional flush diaphragm version)

G 1/4" NPT (inner diaphragm version only)

H 1/2" NPT (inner diaphragm version only)

J M20x1.5 (inner diaphragm version only)

Range / Overpressure / Membrane design

D ☐ ☐ ☐ - 5 ☐ ☐ ☐ - ☐

0 -1...0 bar / 4 bar / inner (only with 1% accuracy)

3 0...0.4 bar / 1 bar / inner or optional flush diaphragm

4 0...0.6 bar / 2 bar / inner or optional flush diaphragm

5 0...1 bar / 2 bar / inner or optional flush diaphragm

6 0...1.6 bar / 4 bar / inner or optional flush diaphragm

7 0...2.5 bar / 4 bar / inner or optional flush diaphragm

8 0...4 bar / 10 bar / inner or optional flush diaphragm

9 0...6 bar / 10 bar / inner or optional flush diaphragm

A 0...10 bar / 20 bar / inner or optional flush diaphragm

B 0...16 bar / 40 bar / inner or optional flush diaphragm

C 0...25 bar / 40 bar / inner or optional flush diaphragm

D 0...40 bar / 100 bar / inner

E 0...60 bar / 100 bar / inner

F 0...100 bar / 200 bar / inner

G 0...160 bar / 400 bar / inner

H 0...250 bar / 400 bar / inner

J 0...400 bar / 600 bar / inner

K 0...600 bar / 800 bar / inner

Accuracy

D ☐ ☐ ☐ - 5 ☐ ☐ ☐ - ☐

2 0.5%

3 1% (only with underpressure ranges)

Output / Certificates

D ☐ ☐ ☐ - 5 ☐ ☐ ☐ - ☐

2 4...20 mA, 2-wire

3 0...10 V, 3-wire

6 * 4...20 mA, 2-wire / Ex ia G

C * 4...20 mA, 2-wire, SIL 2

D * 4...20 mA, 2-wire, SIL 2 / Ex ia G

* Ex or SIL versions are available on request.

Available on request (must be specified in the text of the order)

Flush diaphragm design (1/2" BSP only, max. 25 bar)

PVDF process connection (only with 1/2" BSP, max. 60 bar, open port)

EPDM seal ($p \leq 160$ bar)

FFKM seal

PTFE coating on the sensor (only with 0.5% accuracy, $p \geq 0$ bar)

Oxygen application (max. 25 bar, FKM seal)

M12x1 (4-pin) IP67 electrical connection, metal

Integrated cable version (IP68), PVC cable (-5...+70 °C)

PVC cable add-on price per meter

Custom measurement range (based on prior negotiations)

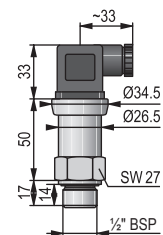
Accessories ** (sold separately)

P L K - 5 0 1 - 2 Plug-in display

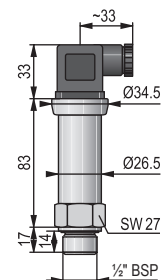
P L K - 5 0 1 - 3 Plug-in display with PNP output

** Only for 2-wire version and ISO 4400 connector.

JBD-TTR-04SA 1/2" BSP / 1/2" BSP shock absorber

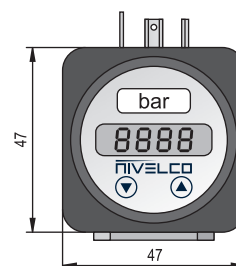


D□C-5□2-□



D□C-5□2-□

for SIL and SIL / Ex ia versions



PLK-501

NIV24

PLK-501-2

NIPRESS D-600 **5 years**

2- / 3-wire mini compact pressure transmitter for gauge pressure measurement
Output: 4...20 mA or 0...10 V, diaphragm: ceramic flush, measurement range: 0...60 bar

Measuring method

D	□	D	-	6	□	□	-	□
R								Gauge

Process connection

D	R	□	-	6	□	□	-	□
D								¾" BSP

Range / Overpressure

D	R	D	-	6	□	□	-	□
				3				0...0.4 bar / 1 bar
				4				0...0.6 bar / 2 bar
				5				0...1 bar / 2 bar
				6				0...1.6 bar / 4 bar
				7				0...2.5 bar / 4 bar
				8				0...4 bar / 10 bar
				9				0...6 bar / 20 bar
				A				0...10 bar / 20 bar
				B				0...16 bar / 40 bar
				C				0...25 bar / 40 bar
				D	*			0...40 bar / 100 bar
				E	*			0...60 bar / 200 bar

* Only available with stainless steel process connection

Accuracy

D	R	D	-	6	□	□	-	□
				2				0.5%

Output / Certificates

D	R	D	-	6	□	□	-	□
				2				4...20 mA, 2-wire
				3				0...10 V, 3-wire
				6	**			4...20 mA / Ex ia G
				C	**			4...20 mA, SIL 2
				D	**			4...20 mA, SIL 2 / Ex ia G

** Ex or SIL versions are available on request.

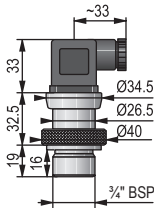
Available on request (must be specified in the text of the order)

PVDF process connection (p ≤ 25 bar)
EPDM, NBR seal
M12x1 (4-pin) IP67 electrical connection, metal
Integrated cable version (IP68), PVC cable (-5...+70 °C)
PVC cable add-on price per meter
Custom measurement range (based on prior negotiations)

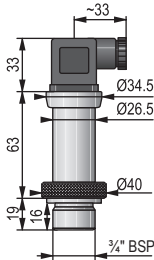
Accessories * (sold separately)**

P	L	K	-	5	0	1	-	2
								Plug-in display
P	L	K	-	5	0	1	-	3
								Plug-in display with PNP output

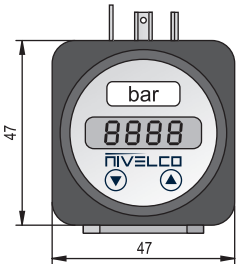
*** Only for 2-wire version and ISO 4400 connector.



DRD-6□2-□



DRD-6□2-□
for SIL and SIL / Ex ia versions



PLK-501

NIV24

PLK-501-2

NIPRESS D-700

5 years

2- / 3-wire mini compact pressure transmitter for gauge pressure measurement
Output: 4...20 mA or 0...10 V, diaphragm: ceramic flush, measurement range: 0...20 bar

Process connection

D R ☐ - **7** ☐ - ☐ ☐ - ☐
F 1½" BSP

Range / Overpressure

D R F - **7** ☐ ☐ - ☐ ☐
O 0...0.04 bar / 2 bar
P 0...0.06 bar / 2 bar
1 0...0.1 bar / 4 bar
R 0...0.16 bar / 4 bar
2 0...0.25 bar / 6 bar
3 0...0.4 bar / 6 bar
4 0...0.6 bar / 8 bar
5 0...1 bar / 8 bar
6 0...1.6 bar / 15 bar
7 0...2.5 bar / 25 bar
8 0...4 bar / 25 bar
9 0...6 bar / 35 bar
A 0...10 bar / 35 bar
B 0...16 bar / 45 bar
T 0...20 bar / 45 bar

Accuracy

D R F - **7** ☐ ☐ - ☐ ☐
1 0.25% ($p \geq 0.6$ bar)
2 0.5%
3 1% (only with PTFE-coated version)

Output / Certificates

D R F - **7** ☐ ☐ - ☐ ☐
2 4...20 mA, 2-wire
3 0...10 V, 3-wire
6 * 4...20 mA, 2-wire / Ex ia G

* Ex or SIL versions are available on request.

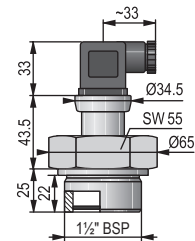
Available on request (must be specified in the text of the order)

With PVDF process connection and housing (only with 0.5% accuracy)
PTFE-coating on sensor (only with 1% accuracy, $p \geq 0.4$ bar)
EPDM seal
FFKM seal
M12x1 (4-pin) IP67 electrical connection, metal
Oxygen application
Integrated cable version (IP68), PVC cable (-5...+70 °C)
PVC cable add-on price per meter
Custom measurement range (based on prior negotiations)

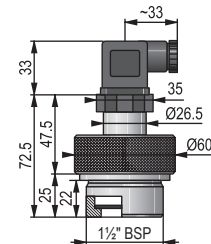
Accessories ** (sold separately)

P L K - **5 0 1** - **2** Plug-in display
P L K - **5 0 1** - **3** Plug-in display with PNP output

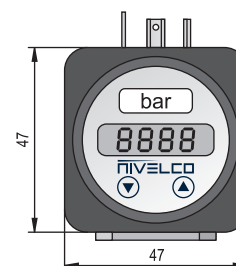
** Only for 2-wire version and ISO 4400 connector.



DRF-700-□



DRF-700-□ / PVDF



PLK-501

NIV24

PLK-501-2

NIPRESS D-800 5 years

2- / 3-wire mini compact pressure transmitter for gauge pressure measurement
Output: 4...20 mA or 0...10 V, diaphragm: stainless steel flush, measurement range: 0...40 bar

Measuring method

D	□	D	-	8	□	□	-	□
R								Gauge

Process connection

D	R	□	-	8	□	□	-	□
D								¾" BSP

Range / Overpressure

D	R	D	-	8	□	□	-	□
1								0...0.1 bar / 0.5 bar
R								0...0.16 bar / 1 bar
2								0...0.25 bar / 1 bar
3								0...0.4 bar / 2 bar
4								0...0.6 bar / 5 bar
5								0...1 bar / 5 bar
6								0...1.6 bar / 10 bar
7								0...2.5 bar / 10 bar
8								0...4 bar / 20 bar
9								0...6 bar / 40 bar
A								0...10 bar / 40 bar
B								0...16 bar / 80 bar
C								0...25 bar / 80 bar
D								0...40 bar / 105 bar

Accuracy

D	R	D	-	8	□	□	-	□
1								0.25% (p ≥ 0.4 bar)
2								0.5% (p ≤ 0.4 bar)

Output / Certificates

D	R	D	-	8	□	□	-	□
2								4...20 mA, 2-wire
3								0...10 V, 3-wire
6	*							4...20 mA, 2-wire / Ex ia G
C	*							4...20 mA, 2-wire, SIL 2
D	*							4...20 mA, 2-wire, SIL 2 / Ex ia G

* Ex or SIL versions are available on request.

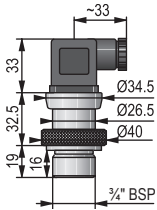
Available on request (must be specified in the text of the order)

EPDM seal
M12x1 (4-pin) IP67 electrical connection, metal
Integrated cable version (IP68), PVC cable (-5...+70 °C)
PVC cable add-on price per meter
Custom measurement range (based on prior negotiations)

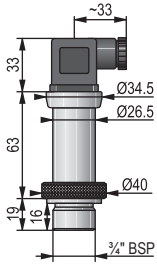
Accessories ** (sold separately)

P	L	K	-	5	0	1	-	2	Plug-in display
P	L	K	-	5	0	1	-	3	Plug-in display with PNP output

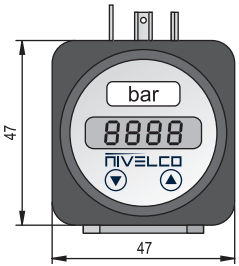
** Only for 2-wire version and ISO 4400 connector.



DRD-8□□-□



DRD-8□□-□
for SIL and SIL / Ex ia versions



PLK-501

NIV24

PLK-501-2

NIPRESS D-900**5 years**

2- / 3-wire mini compact pressure transmitter for absolute and gauge pressure measurement
Output: 4...20 mA or 0...10 V, diaphragm: ceramic, measurement range: 0...20 bar

Measuring methodD ☐ ☐ - 9 ☐ ☐ - ☐**R** Gauge**E** Absolute ($p \geq 1$ bar)**Process connection**D ☐ ☐ - 9 ☐ ☐ - ☐**A** 1/4" BSP**C** 1/2" BSP**H** 1/2" NPT**J** M20x1.5**Range / Overpressure**D ☐ ☐ - 9 ☐ ☐ - ☐**O** 0...0.04 bar / 2 bar**P** 0...0.06 bar / 2 bar**1** 0...0.1 bar / 4 bar**R** 0...0.16 bar / 4 bar**2** 0...0.25 bar / 6 bar**3** 0...0.4 bar / 6 bar**4** 0...0.6 bar / 8 bar**5** 0...1 bar / 8 bar**6** 0...1.6 bar / 15 bar**7** 0...2.5 bar / 25 bar**8** 0...4 bar / 25 bar**9** 0...6 bar / 35 bar**A** 0...10 bar / 35 bar**B** 0...16 bar / 45 bar**T** 0...20 bar / 45 bar**Accuracy**D ☐ ☐ - 9 ☐ ☐ - ☐**1** 0.25% ($p \geq 0.6$ bar)**2** 0.5%**Output / Certificates**D ☐ ☐ - 9 ☐ ☐ - ☐**2** 4...20 mA, 2-wire**3** 0...10 V, 3-wire**6 *** 4...20 mA / Ex ia G, 2-wire

* Ex or SIL versions are available on request.

Available on request (must be specified in the text of the order)PVDF process connection (only 1/2" BSP, $p \leq 10$ bar)

EPDM seal (max. 160 bar)

M12x1 (4-pin) IP67 electrical connection, metal

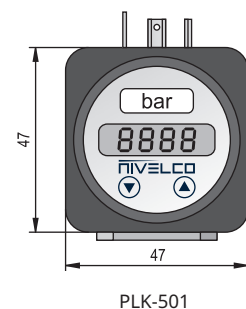
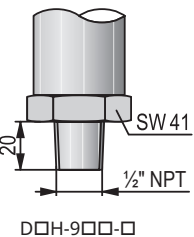
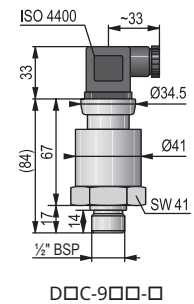
Integrated cable version (IP68), PVC cable (-5...+70 °C)

PVC cable add-on price per meter

Custom measurement range (based on prior negotiations)

Accessories ** (sold separately)**P L K - 5 0 1 - 2** Plug-in display**P L K - 5 0 1 - 3** Plug-in display with PNP output

** Only for 2-wire version and ISO 4400 connector.

**NIV24**

PLK-501-2

NIPRESS D-A00

5 years

2-wire compact pressure transmitter for absolute and gauge pressure measurement

Output: 4...20 mA + HART®, with display, diaphragm: stainless steel flush and inner, measurement range: 0...600 bar

Measuring method / Temperature

D ■ ■ - A ■ 4 - ■

R	Gauge / up to +125 °C
E	Absolute / up to +125 °C (p ≥ 1 bar)
H	Gauge / up to +150 °C
J	Gauge / up to +300 °C (p ≤ 70 bar, max. +200 °C permanent)

Process connection

D ■ ■ - A ■ 4 - ■

A	¼" BSP (max. +125 °C)
C	½" BSP (max. +125 °C)
H	½" NPT (max. +125 °C)
J	M20x1.5 (max. +125 °C)
E	1" BSP (0.25...400 bar)
S	1" NPT (p > 0.25 bar)
F	1½" BSP (max. 40 bar)
T	¾" TriClamp (4...8 bar)
L	1" TriClamp (0.25...16 bar)
M	1½" TriClamp (p ≤ 16 bar)
N	2" TriClamp (p ≤ 16 bar)
O	DN25 Pipe coupling (DIN 11851) 0.25...40 bar
P	DN40 Pipe coupling (DIN 11851) 0.25...40 bar
R	DN50 Pipe coupling (DIN 11851) 0.25...25 bar
I	DN25 / PN40 1.4404 flange (p ≤ 40 bar)
Q	DN50 / PN40 1.4404 flange (p ≤ 40 bar)
U	DN80 / PN16 1.4404 flange (p ≤ 16 bar)
K	DN100 / PN16 1.4404 flange (p ≤ 16 bar)
W	2" RF / 150 psi 1.4404 flange (p ≤ 10 bar)
Z	3" RF / 150 psi 1.4404 flange (p ≤ 10 bar)
V	VARIVENT® DN40 / 50 (p ≤ 25 bar)

Range / Overpressure

D ■ ■ - A ■ 4 - ■

3	0...0.4 bar / 2 bar
5	0...1 bar / 5 bar
S	0...2 bar / 10 bar
8	0...4 bar / 20 bar
A	0...10 bar / 40 bar
T	0...20 bar / 80 bar
D	0...40 bar / 105 bar
F	0...100 bar / 210 bar
U	0...200 bar / 600 bar
J	0...400 bar / 1000 bar
K	0...600 bar / 1000 bar

Accuracy

D ■ ■ - A ■ ■ ■ - ■

4	0.1%
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Output / Certificates

D ■ ■ - A ■ 4 - ■

4	4...20 mA + HART®
8 *	4...20 mA + HART® / Ex ia G
B *	4...20 mA + HART® / Ex d G (stainless steel housing not available)
E *	4...20 mA + HART®, SIL 2 / Ex ia G
F *	4...20 mA + HART®, SIL 2 / Ex d G (stainless steel housing not available)

* Ex or SIL versions are available on request.

Available on request (must be specified in the text of the order)

Filled with food compatible oil (max. +150 °C)

EPDM seal

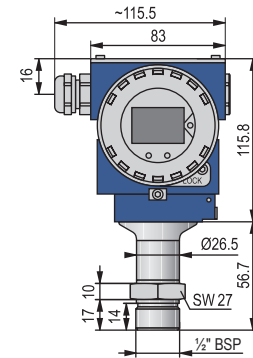
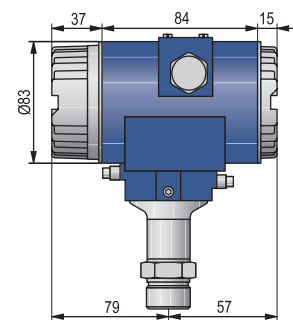
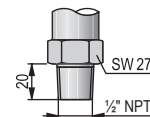
FFKM seal (p ≤ 100 bar, max. +200 °C)

Hastelloy sensor (p ≥ 1 bar)

Tantalum sensor (p ≥ 1 bar, not available with the internal diaphragm version)

Stainless steel housing

Custom measurement range (based on prior negotiations)

D□C-A□4-□
front viewD□C-A□4-□
side view

D□H-A□4-□

NIPRESS D-B00

5 years

2-wire compact pressure transmitter for gauge pressure measurement

Output: 4...20 mA + HART®, with display, diaphragm: ceramic flush, measurement range: 0...20 bar

Measuring method

D ■ ■ - B ■ ■ - ■

R Gauge

Process connection

D R ■ - B ■ ■ - ■

C ½" BSP

H ½" NPT

J M20x1.5 (EN 837)

F 1½" BSP

P DN40 Pipe coupling (DIN 11851)

R DN50 Pipe coupling (DIN 11851)

I DN25 / PN40 1.4404 flange

Q DN50 / PN40 1.4404 flange

U DN80 / PN16 1.4404 flange

W 2" RF / 150 psi 1.4404 flange (p ≤ 10 bar)

Z 3" RF / 150 psi 1.4404 flange (p ≤ 10 bar)

Range / Overpressure

D R ■ - B ■ ■ - ■

P 0...0.06 bar / 2 bar

R 0...0.16 bar / 4 bar

3 0...0.4 bar / 6 bar

5 0...1 bar / 8 bar

S 0...2 bar / 15 bar

I 0...5 bar / 25 bar

A 0...10 bar / 35 bar

T 0...20 bar / 45 bar

Accuracy

D R ■ - B ■ ■ - ■

4 * 0.1% (p ≥ 1 bar)

6 0.2% (p < 1 bar)

3 1% (only with PTFE-coated version)

* versions under 1 bar are available on request

Output / Certificates

D R ■ - B ■ ■ - ■

4 4...20 mA + HART®

8 ** 4...20 mA + HART® / Ex ia G (min. 60 mbar range)

B ** 4...20 mA + HART® / Ex d G (stainless steel housing not available)

** Ex or SIL versions are available on request.

Available on request (must be specified in the text of the order)

Stainless steel housing

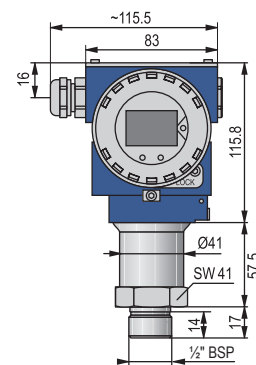
PVDF process connection (only 1½" BSP)

PTFE-coating on sensor (only with 1% accuracy, p ≥ 0.4 bar)

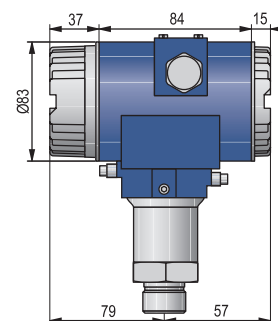
EPDM seal

Oxygen medium application

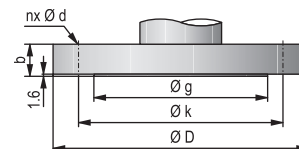
Custom measurement range (based on prior negotiations)



DRC-B00-□ front view



DRC-B00-□ side view



DRW-B00-□ / DRZ-B00-□

	2" / 150	3" / 150
D	152.4	190.5
g	91.9	127
k	120.7	152.4
b	19.1	23.9
n	4	
d	19.1	

NIPRESS D-C00 **5 years**

2- / 3-wire mini compact pressure transmitter for gauge pressure measurement
Output: 4...20 mA or 0...10 V, diaphragm: stainless steel, measurement range: 0...2200 bar

Measuring method

D ☐ ☐ - C ☐ ☐ 2 - ☐	
R	Gauge

Process connection

D R ☐ - C ☐ ☐ 2 - ☐	
A	1/4" BSP (EN 837, p ≤ 1000 bar)
C	1/2" BSP (EN 837, p ≤ 1000 bar)
J	M20x1.5 (inner thread)

Range / Overpressure

D R ☐ - C ☐ ☐ 2 - ☐	
K *	0...600 bar / 800 bar
L	0...1000 bar / 1400 bar
M	0...1600 bar / 2200 bar
N	0...2000 bar / 2800 bar
V	0...2200 bar / 2800 bar

* Available only with BSP 1/2" process connection EN 837

Accuracy

D R ☐ - C ☐ ☐ ☐ - ☐	
2	0.5%

Output / Certificates

D R ☐ - C ☐ ☐ 2 - ☐	
2	4...20 mA, 2-wire, 2-wire
3	0...10 V, 3-wire
6 **	4...20 mA, 2-wire / Ex ia G

** Ex or SIL versions are available on request.

Available on request (must be specified in the text of the order)

M12x1 (4-pin) IP67 electrical connection, metal
Integrated cable version (IP67), PVC cable (-5...+70 °C), with cable gland
PVC cable add-on price per meter
Custom measurement range (based on prior negotiations)

Accessories to order***

P L K - 5 0 1 - 2	Plug-in display
P L K - 5 0 1 - 3	Plug-in display with PNP output

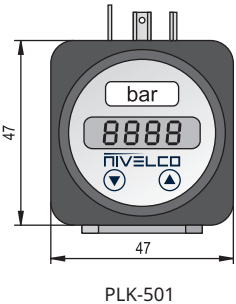
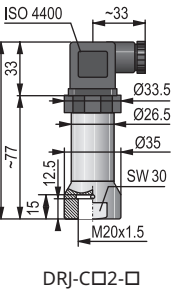
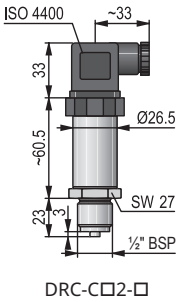
*** Only for 2-wire version and ISO 4400 connector.

Mechanical Adapters **5 years**

Accessories to order

E A A - 1 3 4 - 0	1/2" BSP / 1/2" NPT (1.4571/1.4404)
E A A - 1 3 8 - 0	1/2" BSP / 1" BSP (1.4571/1.4404)
E A A - 1 8 3 - 0	1" BSP / 1/2" BSP (1.4571/1.4404)
E A A - 1 8 5 - 0	1" BSP / 3/4" BSP (1.4571/1.4404)
E A A - 1 8 9 - 0	1" BSP / 1" NPT (1.4571/1.4404)
E A A - 1 8 C - 0	1" BSP / 1 1/2" NPT (1.4571/1.4404)

JBD-500-1372 Weldable socket for 1" BSP tapered gasket



NIV24
PLK-501-2

TECHNICAL DATA

		Stainless steel sensor (Hastelloy® C-276 option) 2-wire HART® communication Process industry; closed pressurized tanks Display and operating module	Stainless steel sensor, pressurizable on both sides (fluids/gases) Measures differential pressure (positive vs. negative side) Compact size for tight spaces	Dual piezoresistive stainless steel sensors Swiveling display Process connections for gas/fluid pressure difference	Silicon sensor; ranges 0...1 bar Wall-mountable for dry, non-aggressive gases/ compressed air Short circuit & reverse polarity protection HVAC apps: heating, ventilation, clean rooms, medical tech, filters, draft metering
Measurement range		0...20 bar	0...16 bar	0...70 bar	0...1 bar
Overload capability		As per order code			
Accuracy		0.1%; 0.075%	0.5%; 1%	2%	1% (p ≥ 6 mbar) 2% (p < 6 mbar)
Process temperature		−40...+100 °C (with silicone oil filling)	−25...+125 °C	−40...+125 °C	0...+50 °C
Ambient temperature		Without display: −40...+85 °C With display: −20...+65 °C	−25...+85 °C		0...+50 °C
Materials of the wetted parts	Sensor	Stainless steel (option: Hastelloy® C)	Stainless steel		Silicon
	Sensor seal	FKM (options: EPDM / PTFE)	FKM		–
	Process conn.		Stainless steel		Brass nickel plated
Housing		Cast aluminum	Aluminum, black anodized	PA 6.6 polycarbonate	ABS
Output		4...20 mA, HART®	2-wire: 4...20 mA, 3-wire: 0...10 V	3-wire: 4...20 mA	2-wire: 4...20 mA, 3-wire: 0...5 V / 0...10 V / 0...20 mA / 4...20 mA (adjustable)
Supply voltage		Ex ia variant ⁽¹⁾ : 12...28 V DC, Ex d variant ⁽¹⁾ : 13...28 V DC	2-wire: 12...36 V DC, Ex ia variant ⁽¹⁾ : 14...28 V DC, 3-wire: 14...36 V DC	24 V DC ±10%	2-wire: 11...32 V DC ⁽²⁾ 3-wire: 19...32 V DC ⁽²⁾
Load resistance		Load during HART® communication: R _{min} : 250 Ω	2-wire: R _{max} = [(U _{Supply} - U _{Supply min.}) / 0.02 A], [Ω], 3-wire: R _{min} = 10 kΩ	500 Ω	2-wire: R _{max} = [(U _{Supply} - U _{Supply min.}) / 0.02 A], [Ω] 3-wire: R _{min} = 10 kΩ
Process connection		1/4" NPT (inner tread)	As per order code		
Electrical connection		M20×1.5 (for cable Ø5...14 mm)	ISO 4400	M12×1 /5	M12×1.5
Ingress protection		IP67	IP65		IP54
Electrical protection		Class III (SELV)			
Weight		~3.5 kg	~250 g	~350 g	~165 g
					
		DD-200	DD-300	DD-400	DD-600

⁽¹⁾Ex or SIL versions are available only on request for custom price.

⁽²⁾With automatic zero adjustment: 24...32 V DC.

⁽¹⁾ Ex or SIL versions are available only on request for custom price.

⁽²⁾ With automatic zero adjustment: 24...32 V DC.

NIPRESS DD-200 **5 years**

2-wire compact differential pressure transmitter for gauge pressure measurement, with dual-compartment housing
Output: 4...20 mA + HART®, with display, diaphragm: stainless steel, measurement range: 0...20 bar

Measuring method

D ☐ G - 2 ☐ ☐ - ☐	
D	Differential

Process connection

D D ☐ - 2 ☐ ☐ - ☐	
G	1/4" NPT (inner thread)

Range / Max. static pressure

D D G - 2 ☐ ☐ - ☐	
7	0...0.06 bar / 160 bar
D	0...0.4 bar / 160 bar
H	0...2.5 bar / 160 bar
M	0...20 bar / 160 bar

Accuracy

D D G - 2 ☐ ☐ - ☐	
4	0.1%
7	0.075%

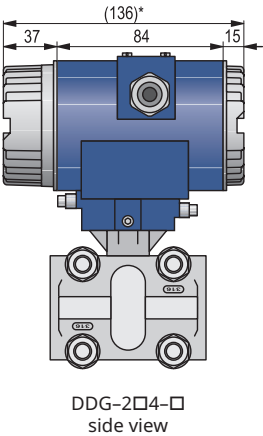
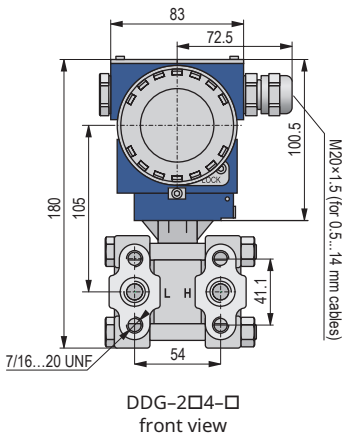
Output / Certificates

D D G - 2 ☐ ☐ - ☐	
4	4...20 mA + HART®
8 *	4...20 mA + HART® / Ex ia G
B *	4...20 mA + HART® / Ex d G

* Ex or SIL versions are available on request.

Available on request (must be specified in the text of the order)

EPDM seal
PTFE seal
Hastelloy C sensor
Special version up to 400 bar static pressure (p ≥ 0.4 bar)
Custom measurement range (based on prior negotiations)



* Without display and control module marked size is 19 mm smaller

NIPRESS DD-300

5 years

2 or 3-wire mini compact differential pressure transmitter for gauge pressure measurement
Output: 4...20 mA or 0...10 V, diaphragm: stainless steel, measurement range: 0...16 bar

Measuring method

D ■ ■ - 3 ■ ■ - ■

D Differential

Process connection

D D ■ - 3 ■ ■ - ■

C 1/2" BSP

J M20x1.5

O 7/16" UNF DIN 3866

A 1/4" BSP (inner thread)

Range / Nominal pressure

D D ■ - 3 ■ ■ - ■

4 0...0.02 bar / 0.2 bar

6 0...0.04 bar / 0.4 bar

9 0...0.1 bar / 1 bar

B 0...0.2 bar / 1 bar

C 0...0.25 bar / 2.5 bar

D 0...0.4 bar / 2.5 bar

E 0...0.6 bar / 6 bar

F 0...1 bar / 6 bar

I 0...1.6 bar / 16 bar

H 0...2.5 bar / 16 bar

Q 0...4 bar / 16 bar

J 0...6 bar / 16 bar

T 0...10 bar / 16 bar

L 0...16 bar / 16 bar

Accuracy

D D ■ - 3 ■ ■ - ■

2 0.5% (available up to 1:5 DP/PN)

3 1%

Output / Certificates

D D ■ - 3 ■ ■ - ■

2 4...20 mA

3 0...10 V

6 * 4...20 mA / Ex ia

* Ex or SIL versions are available on request.

Available on request (must be specified in the text of the order)

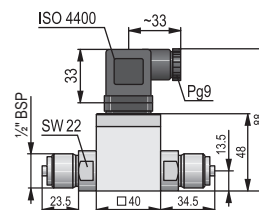
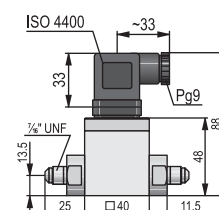
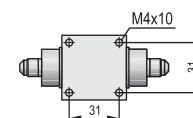
Custom measurement range (based on prior negotiations)

Accessories ** (sold separately)

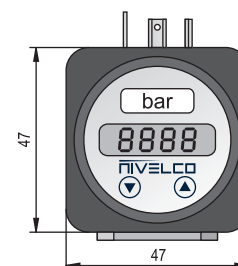
P L K - 5 0 1 - 2 Plug-in display

P L K - 5 0 1 - 3 Plug-in display with PNP output

** Only for 2-wire version and ISO 4400 connector.

DDC-3□2-□
front viewDDO-3□2-□
front viewDDO-3□2-□
bottom view

		Nominal pressure, P_N (Max. static pressure, P_{max}) [bar]					
		0.2 (0.5)	0.4 (1)	1 (3)	2.5 (6)	6 (20)	16 (60)
Differential pressure range, P_D [bar]	0...0.02	±1%					
	0...0.04	±1%	±1%				
	0...0.1	±0.5%	±1%	±1%			
	0...0.2	±0.5%	±0.5%	±1%	±1%		
	0...0.25		±0.5%	±1%	±1%		
	0...0.4		±0.5%	±1%	±0.5%		
	0...0.6			±0.5%	±0.5%	±1%	
	0...1.0			±0.5%	±0.5%	±1%	
	0...1.6				±0.5%	±0.5%	±1%
	0...2.5				±0.5%	±0.5%	±1%
	0...4					±0.5%	±0.5%
	0...6					±0.5%	±0.5%
	0...10						±0.5%
	0...16						±0.5%
Accuracy, $p > 1$ bar:		±0.5%, or $1/5 \leq p_0/p \leq 1/1$					
		±1%, or $1/10 \leq p_0/p \leq 1/5$					
Accuracy, $p \leq 1$ bar:		±0.5%, or $1/2 \leq p_0/p \leq 1/1$					
		±1%, or $1/10 \leq p_0/p \leq 1/2$					



PLK-501

NIV24

PLK-501-2

NIPRESS DD-400

5 years

3-wire mini compact differential pressure transmitter for gauge pressure measurement

Output: 4...20 mA + PNP transistor output, with display, diaphragm: stainless steel, measurement range: 0...70 bar

Measuring method

D ☐ ☐ - 4 ☐ 5 - 2

D Differential

Process connection

D D ☐ - 4 ☐ 5 - 2

A 1/4" BSP

C 1/2" BSP

G 1/4" NPT

H 1/2" NPT

Range / Max. static pressure

D D ☐ - 4 ☐ 5 - 2

F 0...0.1 bar ...1 bar adjustable / 7 bar

G 0...0.2 bar ...2 bar adjustable / 20 bar

O 0...0.35 bar ...3.5 bar adjustable / 35 bar

K 0...0.7 bar ...7 bar adjustable / 70 bar

M 0...2 bar ...20 bar adjustable / 70 bar

N 0...3.5 bar ...35 bar adjustable / 70 bar

P 0...7 bar ...70 bar adjustable / 70 bar

Accuracy

D D ☐ - 4 ☐ 5 - 2

5 2%

Output

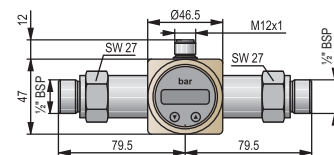
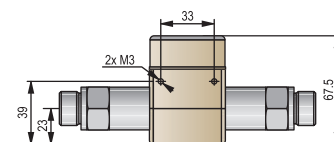
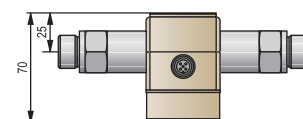
D D ☐ - 4 ☐ 5 - ☐

2 4...20 mA

Available on request (must be specified in the text of the order)

Second PNP switching output

Custom measurement range (based on prior negotiations)

DDC-4□3-□
front viewDDC-4□3-□
bottom viewDDC-4□3-□
plan view

NIPRESS DD-600 5 years

2- / 3-wire wall-mountable differential pressure transmitter for gauge pressure measurement
Output: 4...20 mA or 0...10 V, silicon sensor element, measurement range: 0...1000 mbar

Measuring method

D	Differential
---	--------------

Process connection

D	P	Ø6.6 x 11, for Ø6 flexible tube
D	R	Ø4.45 x 10, for Ø4 flexible tube

Range / Overpressure

D	R	0...1.6 mbar / 200 mbar
D	S	0...4 mbar / 200 mbar
D	2	0...10 mbar / 200 mbar
D	6	0...40 mbar / 345 mbar
D	C	0...250 mbar / 1000 mbar
D	F	0...1000 mbar / 3000 mbar

Accuracy

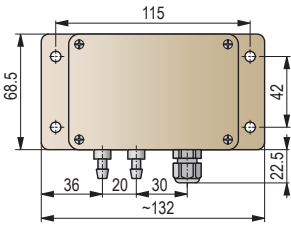
D	3	1% (p ≥ 6 mbar)
D	5	2% (p < 6 mbar)

Output / Certificates

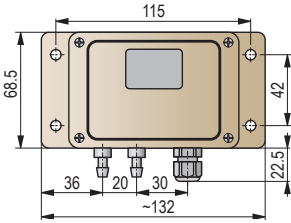
D	2	4...20 mA
D	3	0...5 V / 0...10 V / 0...20 mA / 4...20 mA 3-wire (adjustable)

Available on request (must be specified in the text of the order)

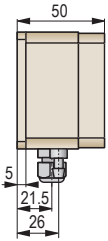
- Display
- 2x switching outputs (2-wire system: PNP; 3-wire system: relay; only with display version)
- Automatic zero adjustment
- Square root extraction function for flow measurement (only with display version)
- Custom measurement range (based on prior negotiations)



DD□-6□□-□
front view



DD□-6□□-□
with display



DD□-6□□-□
side view

MonoCONT

SMART FIELD DISPLAY & DATA LOGGER



FEATURES

- Flexible HART® solution for commissioning process systems
- 4-key user interface
- Supports 1 HART® transmitter
- Field loop display/controller
- Ex version
- Optional Bluetooth® communication
- Internal data logging

APPLICATIONS

- Remote programming and data display
- Process controller for transmitters
- Numeric and bargraph display
- RS485 (Modbus) communication
- Data logging
- Trend and flow logging

CERTIFICATES

- ATEX (Ex ia G), (Ex d G), (Ex d ia G)
- INMETRO (Ex ia G), (Ex d G), (Ex d ia G)

5-YEAR WARRANTY



NIVELCO.COM

SIGNAL PROCESSING UNITS

Integrating NIVELCO's wide range of level devices into process control systems requires intelligent and versatile signal processing and control devices.

Our devices are designed to maximize compatibility with our transmitters and sensors. With our signal processors and controllers, our customers can create complete industrial measurement and process control systems using only NIVELCO devices.

MultiCONT

MULTICHANNEL PROCESS CONTROLLER

page 229



- Programmer, display and controller for HART® transmitters
- 1...15 input channels
- 4...20 mA, HART®, RS485 communication
- Data logging function
- SD card slot
- Expandable with interface modules
- High-resolution dot-matrix display
- Ex versions available

MonoCONT

SMART FIELD DISPLAY & DATA LOGGER

NEW

page 232



- Remote programming and data display
- Process controller for HART® transmitters
- 4-key user interface
- Supports 1 HART® transmitter
- Numeric and bargraph display
- RS485 communication
- Internal data logging
- Optional Bluetooth® communication
- Ex versions available

UNICONT PM

UNIVERSAL CONTROLLER

page 234



- Dual-line, 4-digit, 7-segment LED display
- Wide range of resistance thermometers (Pt, JPt, Cu)
- 0...20 mA, 4...20 mA or 0...10 V input
- Up to 3 power relays
- ON/OFF, PD or PID control
- Auto-tuning
- Heating or cooling control
- Current transformer (CT) input



APPLICATIONS



The MultiCONT is a universal interface that receives, processes, and displays measurement data from instruments via HART® protocol, and when needed, forwards it via RS485 communication line. It connects NIVELCO intelligent transmitters with process control elements — PCs, PLCs, displays, and operating units — making it flexibly adaptable to complex systems or operable as a standalone controller.

The device communicates with up to 15 standard or 4 explosion-proof HART® output transmitters, providing their power supply and data management, while also enabling programming of these transmitters. The large LCD or OLED dot-matrix display ensures detailed, overview-friendly visualization. A unique feature is the "echo map" display, which works with EchoTREK, PiloTREK, MicroTREK, or EasyTREK transmitters to enable visual verification of the measurement process.

Measured and calculated values can control various analog (4...20 mA) or digital outputs. The built-in, freely programmable relays can be adapted to specific transmitters, while internal current outputs can transmit even modified data. Multiple MultiCONT units can be networked in a chain via RS485, allowing simple system expansion and suitability for larger monitoring tasks.

FEATURES

- Provides flexible commissioning for process control systems containing HART®-based intelligent (level, temperature or pressure) transmitters
- Galvanically isolated output for 4...20 mA transmitters
- Depending on the type of the transmitters, 1 to 15 (standard) or 1 to 4 (Ex ia) channels
- Highly informative large LCD or OLED display
- Ex ia variant
- Simple 6-button programming
- Trend logging in internal memory or SD memory card
- USB port for data download from internal FLASH memory
- Universal interface module expansion via RS485
- "Echo-Map" for EchoTREK, PiloTREK, MicroTREK and EasyTREK ultrasonic transmitters
- 5-year warranty

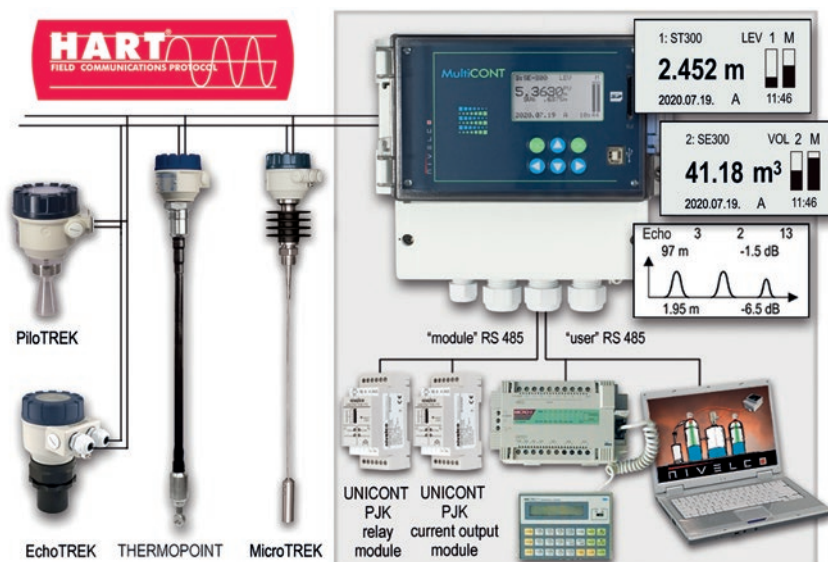


MultiCONT
PRN-200

APPLICATIONS

- Remote programming, transmitter data display
- Power supply for 2-wire transmitters
- Process controller for HART®-capable transmitters
- Displaying measured data in numerical and bargraph mode
- Data transmission via RS485 (via HART® or Modbus protocol)
- Simple data-logging function
- Trend or flow-measurement logging

TYPICAL NETWORK CONTROLLED BY MultiCONT



CERTIFICATES

- ATEX [Ex ia G]
- ATEX [Ex ia D]
- IEC Ex [Ex ia G]
- INMETRO [Ex ia G]
- UKCA Ex [Ex ia G]

TECHNICAL DATA

MultiCONT P□□-2□□-□		
Power supply / power consumption / max. supply voltage		85...255 V AC 50...60 Hz / 12 VA / 255 V _{rms} ; 11.4...28 V AC 50...60 Hz / 12 VA / 28 V _{rms} ; 11.4...40 V DC / 11 W / 40 V DC
Supply voltage for transmitters		30 V DC / 60 mA (Ex version: 25 V DC / 22 mA)
Graphical display		128 × 64 dot-matrix (LCD / OLED) ⁽¹⁾
Relay		Max. 5, SPDT 250 V AC, AC1, 5 A
Analog output		Max. 2, galvanically isolated 4...20 mA, max. load: 500 Ω, with overvoltage protection
Number of powered transmitters		Max. 15× standard, or max. 4× Ex
RS485 interface	"user"	Galvanically isolated, HART® and Modbus protocol
	"module"	Galvanically isolated, HART® protocol
Logger unit		Capacity: flash = 65,000 entries; SD card = depending on card size (max. 32 GB)
Housing material		Polycarbonate (PC)
Mounting		Wall-mountable
Ambient temperature		-20...+50 °C
Ingress protection		IP65
Electrical protection		Class I / Class III
Weight		900 g
Ex information		
Ex marking	ATEX	Ⓔ II (I) G [Ex ia Ga] IIB, Ⓔ II (I) D [Ex ia Da] IIIC
	IEC Ex	[Ex ia Ga] IIB
Intrinsic safety data		U _o = 30 V; I _o = 140 mA; P _o = 1 W; L _o = 4 mH; C _o = 200 nF; U _m = 253 V
Supply voltage for transmitters		25 V DC / 22 mA
Ambient temperature		-20...+50 °C

⁽¹⁾ In the case of OLED, the lifetime of the display depends on the way the user applies the screen saver function and hence it is not covered by the warranty.

SPECIAL FEATURES

Trend logging (optional)

MultiCONT versions with an on-board logger can store the measured values and three additional parameters of the transmitters to the system into the internal flash memory or an SD memory card. There are two logging modes, time-controlled and event-controlled. Monitoring the average, minimum, and maximum value or highest flow values can be used only with NIVELCO transmitters in flow-metering mode. The content of the internal memory is retrievable through USB, within the capacity of 65 000 entries. The unit can handle SD cards up to 32 GB capacity.

NIVISION (optional) Process Visualization Software

RS485-capable versions of the MultiCONT can communicate with NIVELCO's NIVISION process visualization software to graphically indicate parameters of process control systems on a PC. The process, the measured values, or any calculated values can be visualized in tables with NIVISION. NIVISION performs data logging, trend monitoring, database handling, and various other tasks in addition to basic visualization. The software is sold as a custom-tailored product.

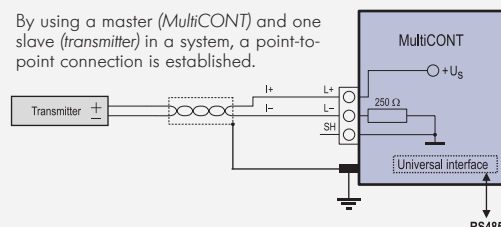
OUTPUT TYPES

Outputs	Display only (without relay)	Number of relays				
		1	2	3	4	5
Only display (w. o. RS485 or current output)	■	■	■	■	■	■
RS485 Interface	■	■	■	■	■	■
1 × 4...20 mA output	■	■	■	■	■	■
2 × 4...20 mA output	■	■	■	■	■	■
RS485 + 1 × 4...20 mA analog output	■	■	■	■	■	■
RS485 + 2 × 4...20 mA analog outputs	■	■	■	■	■	■

COMMUNICATION BETWEEN MultiCONT & TRANSMITTERS

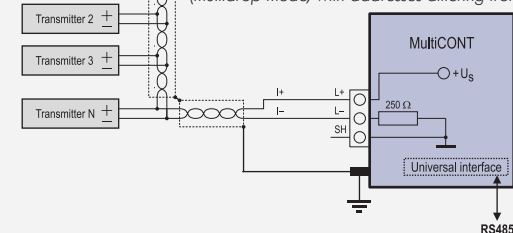
Point-To-Point Connection

By using a master (MultiCONT) and one slave (transmitter) in a system, a point-to-point connection is established.



Multi-point Connection (Multidrop). Multiple slaves connected in parallel

Using this type of connection, the current outputs of the transmitters are automatically set to 4 mA (multidrop mode, with addresses differing from zero).



SYSTEM SET-UP

There is a Master-Slave relation between MultiCONT and the connected transmitters. Through the MultiCONT the transmitters can be programmed or their parameters checked and modified. Reading the process values of the transmitters is easy to do by the MultiCONT. In case of using MultiCONT with multiple transmitters, the units should be addressed with numbers (Short address) differing from zero. Using two transmitters with the same Short address is not possible. MultiCONT can handle a number of max. 15 transmitters with HART® communication. When using 2-wire transmitters, the current output of the transmitters will be limited to 4 mA, because of the capacity of the MultiCONT's power supply, which is rated at 60 mA with standard transmitters.

MultiCONT P-200

5 years

Wall-mountable universal multichannel process controller unit to remote program and read all NIVELCO transmitters featuring HART® communication, expandable with relay and current output modules

Type

P ■ ■ - 2 ■ ■ - ■

E	Standard, non expandable
R	Expandable (with universal interface module)

Version / Display

P ■ ■ - 2 ■ ■ - ■

W	IP65 Enclosure / LCD
A	IP20 Enclosure / Datalogger / LCD
C	IP65 Enclosure, transparent cover / LCD
D	IP65 Enclosure, transparent cover + Datalogger / LCD
L	IP65 Enclosure / OLED
K	IP65 Enclosure, transparent cover / OLED
N	IP65 Enclosure, transparent cover + Datalogger / OLED

Input

P ■ ■ - 2 ■ ■ - ■

1	Single channel for one unit
2	2 channels for up to 2 units
4	4 channels for up to 4 units
8	8 channels for up to 8 units
M	15 channels for up to 15 units

Output

P ■ ■ - 2 ■ ■ - ■

0	Display
1	Display and 1× SPDT Relay
2	Display and 2× SPDT Relays
3	Display and 3× SPDT relays
4	Display and 4× SPDT relays
D	Display and 5× SPDT relays
F	Display, 1× 4...20 mA current output
5	Display, 1× 4...20 mA current output and 1× SPDT relay
6	Display, 1× 4...20 mA current output and 2× SPDT relays
7	Display, 1× 4...20 mA current output and 3× SPDT relays
8	Display, 1× 4...20 mA current output and 4× SPDT relays
Q	Display, 1× 4...20 mA current output and 5× SPDT relays
G	Display and 2× 4...20 mA current output
H	Display, 2× 4...20 mA current output and 1× SPDT relay
J	Display, 2× 4...20 mA current output and 2× SPDT relays
K	Display, 2× 4...20 mA current output and 3× SPDT relays
9	Display, 2× 4...20 mA current output and 4× SPDT relays
A	Display + RS485 interface
L	Display + RS485 interface and 1× SPDT relay
M	Display + RS485 interface and 2× SPDT relays
N	Display + RS485 interface and 3× SPDT relays
P	Display + RS485 interface and 4× SPDT relays
E	Display + RS485 interface and 5× SPDT relays
B	Display + RS485 interface and 1× 4...20 mA current output
R	Display + RS485 interface, 1× 4...20 mA current output and 1× SPDT relay
C	Display + RS485 interface, 1× 4...20 mA current output and 2× SPDT relays
S	Display + RS485 interface, 1× 4...20 mA current output and 3× SPDT relays
T	Display + RS485 interface, 1× 4...20 mA current output and 4× SPDT relays
Z	Display + RS485 interface, 1× 4...20 mA current output and 5× SPDT relays
U	Display + RS485 interface, 2× 4...20 mA current output
V	Display + RS485 interface, 2× 4...20 mA current output and 1× SPDT relay
W	Display + RS485 interface, 2× 4...20 mA current output and 2× SPDT relays
X	Display + RS485 interface, 2× 4...20 mA current output and 3× SPDT relays
Y	Display + RS485 interface, 2× 4...20 mA current output and 4× SPDT relays

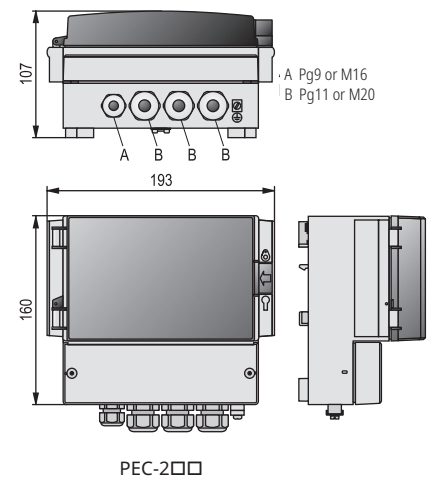
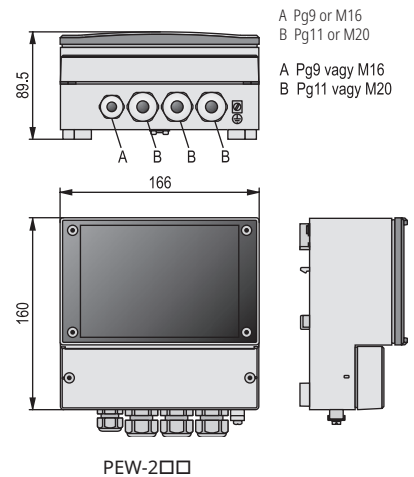
Power supply / Certificates

P ■ ■ - 2 ■ ■ - ■

1	85...255 V AC
2	11.4...28 V AC and 11.4...40 V DC
5	85...255 V AC / [Ex ia G/D] (max. 4 channels)
6	11.4...28 V AC and 11.4...40 V DC / [Ex ia G/D] (max. 4 channels)

Check relevant page for the prices of UNICONT PJK

Need of IEC Ex is to be requested in the text part of the order



MonoCONT is a single-channel HART® smart field display and data logger. It can be integrated as a universal field interface with NIVELCO intelligent level transmitters and other process control system components (e.g. PCs, PLCs and actuators). The MonoCONT can communicate with one transmitter with 4...20mA/HART® output at a time. It can be used with any NIVELCO transmitter with HART® to set up the transmitter, read and display measured data, log data (*data logger*) and transmit data via the RS485 (*Modbus*) communication line.

The LCD allows for on-site reading. It can display an "echo-map" for suitable transmitters. Three product families feature a text menu identical to that of the transmitter to simplify transmitter setup: the PiloTREK (W-200) non-contact microwave level transmitters and the EasyTREK (SP-300 and SP-500 Pro) and EchoTREK (SE-300) ultrasonic level transmitters for liquids.

The unit can also perform stand-alone control functions using one or more outputs that can be controlled based on the measured data, allowing multiple control functions to be implemented. It can also be connected to other process control devices via the optional RS485 (*Modbus*) communication line to perform higher-level tasks. It can also be used with transmitters from other manufacturers, in which case all functions except transmitter setting are available (*readout, display, data logging, transmission (Modbus), output control*).

FEATURES

- Provides a flexible solution for commissioning process control systems containing HART®-compatible intelligent (*level, temperature or pressure*) transmitters
- 4-key user interface"
- Supports 1 HART® transmitter
- Field loop display and controller module
- Ex-approved variant available
- Bluetooth® communication (optional)
- Data logging to internal memory
- 5-year warranty

APPLICATIONS

- Remote programming and transmitter data display
- Process controller for transmitters
- Displaying measured data in numerical and bargraph mode
- Data transmission via RS485 (*Modbus protocol*)
- Simple data logging function
- Trend or flow measurement logging



PDF-410-2

CERTIFICATES

- ATEX (Ex ia G), (Ex d G), (Ex d ia G)
- INMETRO (Ex ia G), (Ex d G), (Ex d ia G)

TECHNICAL DATA

		2-wire version	3-wire version	4-wire version
Power supply		4...20 mA loop powered, voltage drop: 4.5...5.5 V DC	8...30 V DC, max. 250 mW	85...230 V AC, 24 V DC
Housing		Painted aluminum, fiberglass-reinforced plastic (PBT) or stainless steel		
Ambient temperature		−20...+70 °C		
Input		4...20 mA loop, HART® protocol, max. 1 transmitter		
Outputs	Display	SAP-300 graphic display unit		
	Solid-state relay (SSR)	Polarity independent switch, max. 30 V / 320 mA, R _{on} : 2 Ω		
	Relay (optional)	–		SPDT 230 V AC, 6 A
	RS485 (optional)	–	Galvanically isolated Modbus RTU protocol	
	Data logger (optional)	Integrated flash memory (32 MB) ⁽¹⁾		
	Bluetooth® (optional)	BLE, 6.0		
Electrical connection		2× M20×1.5 plastic cable gland + 2× internally threaded ½" NPT connection, cable outer diameter: Ø6...12 mm, wire cross section: 0.5...1.5 mm²		
Electrical protection		Overvoltage Class 1; (Class III [SELV])		
Ingress protection		IP67		
Weight		plastic housing: ~0.55 kg; aluminum housing: ~0.9 kg; stainless steel housing: ~2.5 kg		

⁽¹⁾ Serial read (SAT-506 e-Link module required), or Bluetooth® read with MobileEView or EView2.

MonoCONT PDF-410

5 years

Smart Field Display and Data Logger, Single channel, Wall mounting,
Remote program and read 1 transmitter with 4...20 mA / HART® output

Type

P ■ F - ■ 1 ■ - ■

P Smart Field Display and Data Logger

Function

P ■ F - ■ 1 ■ - ■

D	Display
B	Display + Bluetooth®
C	Without display + Bluetooth®
F	Display + data logging + Bluetooth®

Housing

P ■ F - ■ 1 ■ - ■

4	Painted aluminum
5	Fiberglass-reinforced plastic (PBT)
6	Stainless steel

Output

P ■ F - ■ 1 ■ - ■

0	Solid-state relay (SSR) output
1	Solid-state relay (SSR) output + RS485 (only in 3- or 4-wire version)
2	* Solid-state relay (SSR) output + SPDT relay (only in 4-wire version)
3	* Solid-state relay (SSR) output + SPDT relay + RS485 (only in 4-wire version)

* Under development.

Supply voltage / Ex

P ■ F - ■ 1 ■ - ■

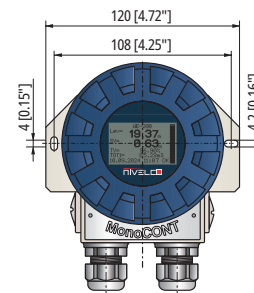
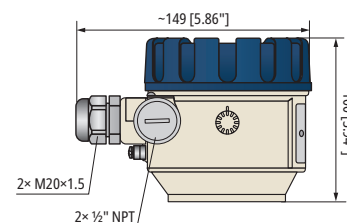
1	*	4-wire 85...230 V AC
2		2-wire loop powered
3		3-wire 8...30 V DC
4	*	4-wire 24 V DC
6	*	2-wire loop powered / Ex ia G/D
7	*	3-wire 8...30 V DC / Ex ia G/D
8	*	4-wire 24 V DC / Ex ia G/D
A	**	4-wire 85...230 V AC / Ex d G/tD
B	**	2-wire loop powered / Ex d G/tD
C	**	3-wire 8...30 V DC / Ex d G/tD
D	**	4-wire 24 V DC / Ex d G/tD
E	**	4-wire 85...230 V AC / Ex d ia G
F	**	2-wire loop powered / Ex d ia G
G	**	3-wire 8...30 V DC / Ex d ia G
H	**	4-wire 24 V DC / Ex d ia G

* Under development.

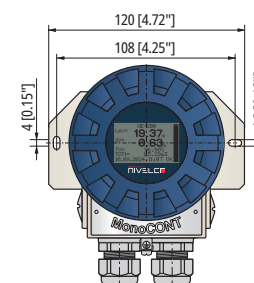
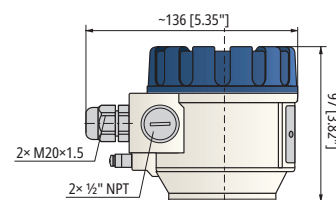
** Under development, only with metal housing.

Accessories sold separately; see relevant page for details

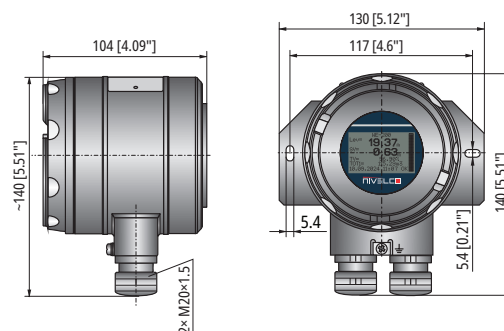
S A T - 5 0 6 - ■ eLink Module



PDF-410



PDF-510



PDF-610

The UNICONT PMM-300 is a universal one or two-channel process controller with relay and analog outputs and a PID algorithm that supports many functions. It can be used for standard to extraordinary temperature control tasks (*cooling, heating*). In addition to the usual inputs, practically all common temperature sensors can be connected. Thanks to the auto-tuning function, the controller can be successfully operated by technicians not used to process control.

The 4-digit displays can be read from a distance. The UNICONT PMM-300 is highly accurate and easy to use, making it suitable as a panel device in laboratory and industrial process control applications.

FEATURES

- Programmable inputs
- 4-digit LED display
- Heavy-duty relay contacts or analog output
- 4...20 mA output
- ON/OFF, PD or PID control algorithm
- Auto-tuning feature
- Relay outputs up to 4
- 32-point linearization
- Window comparator differential metering

APPLICATIONS

- Temperature display
- Switching, control or transmitting tasks
- Power valve control
- Sequence control
- Dual-channel display



PMM-300

TECHNICAL DATA

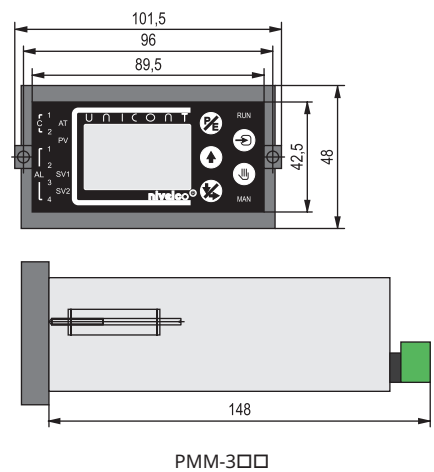
PMM-300			
Universal Inputs	Thermocouples	K, J, T, E, L, U, N, R, S, B, M, A, C	
	Resistive thermal devices (RTD)	Pt100, JPt100, Pt500, JPt500, Pt1000, JPt1000, Cu100, Ni100, KTY81	
	Current	4...20 mA, 0...20 mA	
	Voltage	-5+20 mV, 0...100 mV, 0...500 mV	
	Resistance	0...500 Ω, 0...2000 Ω	
	Input resistance	10 Ω, Voltage input > 10 MΩ	
Output	Control relays (2×)	SPDT 250 V AC 5 A AC11	
	Alarm relays (2×)	SPST (NO/NC programmable) 30 V DC / 250 V AC 3 A AC11	
	Solid-state relay (SSR) drivers (2×)	12 V DC, 15 mA	
	Current outputs (2×)	0/4...20 mA DC (max. load: 600 Ω), galvanically isolated short circuit protected, programmable	
	Power Supply for transmitters	24 V DC, 100 mA, shot circuit protected	
	RS485 Modbus	Bit rate: 600...38,400 bps selectable, device address: 0...254 programmable	
Control	Features	Setting time	Setting unit
	Proportional band (P)	0...409.5%	0.1%
	Integral time (I)	0...4095 s	1 s
	Derivate time (D)	0...4095 s	1 s
	Cycle time(T)	0...255 s	1 s
	Dead band	0...255	in PV resolution
	Hysteresis		
Display		PV (upper display), red, 4 digits, 7 segments, digit height: 10 mm SV (lower display), green, 4 digits, 7 segments, digit height: 10 mm	
Programming PV		Digital, by front panel keys	
Accuracy of setting and displaying		±0.2%FS ±1 digit	
Sensor wire-break alarm		"Er 11." on SV display (only if the controller is on)	
Cold junction compensation		External temperature sensor to be connected to terminal block. The function can be disabled	
Wire resistance compensation		3-wire, automatic	
Ambient humidity		Up to 85% (relative) non-condensing	
Ambient temperature		Operational: 0...+55 °C, storage: -20...+60 °C	
Supply voltage		85...265 V AC, 50/60 Hz, 8 VA, 120 V 375 V DC 8 VA 16...32 V DC, 8 W, 13...30 V AC, 8 VA	
Electrical connection		Plug-in terminal blocks (recommended wire cross section: 0.5...2.5 mm²)	
Electrical protection		Class II	
Ingress protection		Front: IP54, back: IP20	
Memory protection		Data stored in EEPROM	
Dimensions		101.5 × 48 × 156 mm	
Weight		300 g	

UNICONT PMM-300

3 years

Universal panel controller and display unit with 4...20 mA analog, relay, RS485, Usupply
Universal inputs, PID control algorithm, auto tuning (AT) function, size: 96 x 48 mm

Version	
P M - 3 -	
M	Standard
Input	
P M M - 3 -	
1	1× universal input (IN1)
2	2× universal inputs (IN1, IN2)
3	1× universal input (IN1) + linearization
4	2× universal inputs (IN1, IN2) + linearization
Output	
P M M - 3 -	
1	2× relays (C1, C2), Iout 1
2	2× relays (C1, C2), Iout 1, Usupply / Iout 2
3	4× relays (C1, C2, AL3, AL4), Iout 1
4	4× relays (C1, C2, AL3, AL4), Iout 1, Usupply / Iout 2, RS485
Supply voltage	
P M M - 3 -	
1	85...265 V AC, 120...375 V DC
2	24 V AC/DC



The UNICONT PMG-500 series universal controllers are 1/16 DIN (48 × 48 mm) process controllers with relay and analog outputs or a PID algorithm supporting versatile functions. The universal analog PID controllers can be used with popular RTD (P_t , $J P_t$, C_u) resistance thermometers and various thermocouples for temperature measurement, control and processing of signals from transmitters with 0...20 mA, 4...20 mA and 0...10 V DC, 0...5 V DC, 1...5 V DC, 0...100 mV DC output. The controller's output signal can be a relay, a continuous 4...20 mA process current signal, or an SSR driver. An additional alarm relay is provided for limit monitoring. The unit is microprocessor based, has auto-tuning software and its PID controller can find the optimum PID constants. The PMG-500 Series is capable of RS485 communication and has an input to receive the output signal from a current transformer (CT). The large two-color display is easy to read even from a distance.



PMG-500

FEATURES

- Universal input
- 4...20 mA output, relay outputs
- SSR driver output
- RS485 communication
- ON-OFF and PID control
- Auto tuning (AT) feature
- Current transformer (CT) input
- 48 × 48 mm front panel

APPLICATIONS

- Temperature display
- Switching, control tasks
- Simultaneous cooling / heating control
- For automated manufacturing processes
- Alarm indication

TECHNICAL DATA

			PMG-51□
Input	RTDs (3-wire, automatic wire-resistance comp.)		DPt100, DPt50, JPt100 (-199.9...+650 °C), Cu100, Cu50 (-199.9...+200 °C), Ni120 (-80...+200 °C)
			K (-200...+1350 °C); J (-200...+800 °C); E (-200...+800 °C)
	Thermocouples (automatic cold junction compensation)		T (-200...+400 °C); B (0...+1800 °C); R (0...+1750 °C)
			S (0...+1750 °C); N (-200...+1300 °C); C (0...+2300 °C)
			G (0...+2300 °C); L (-200...+900 °C); U (-200...+400 °C); Platine II (0...+1390 °C)
	Voltage		0...10 V DC; 0...5 V DC; 1...5 V DC, 0...100 mV DC
Output	Current		0...20 mA DC; 4...20 mA DC
	Current transformer (CT)		0.0...50.0 mA (1/1000 CT: 0.0...50.0 A)
	PID	Proportional band (P)	0.1...999.9 °C / °F (%)
		Integral time (I)	0...9999 s
		Derivate time (D)	
		Cycle time(T)	Relay, SSR output: 0.1...120.0 s. Optional current or SSR output: 1.0...120.0 s
	Type of output	Relay	250 V AC 3 A AC1, closing contact
		SSR driver	11 V DC ±2 V, max. 20 mA
		Current	DC 0...20 mA or 4...20 mA (max. load: 500 Ω)
	RS485		Modbus RTU
	Alarm output		1× SPST (NO/NC programmable) 250 V AC, 3 A 1a, AC1
Accuracy of setting & displaying			±0.3% ±1 digit of full range or ±3 °C
Display	PV (primary value)		Red, 4-digits, 7 segments; digit height: 14 mm
	SV (secondary value)		Green, 4-digits, 7 segments; digit height: 10 mm
Supply voltage			100...240 V AC 50/60 Hz, max. 8 VA, operational voltage 90...110%
Ingress protection			Front: IP54, back: IP20
Electrical protection			Class II
Ambient temperature			Operational: -10...+50 °C, storage: -20...+60 °C
Ambient humidity			35...85% (relative) non-condensing
Dimensions			48 × 48 × 70.5 mm (front panel cut-out: 45 ^{+0.5} × 45 ^{+0.5} mm)
Weight			105 g

UNICONT PMG-500

3 years

Universal panel controller and display unit with 4...20 mA analog, relay, SSR output
1 universal input, PID and ON/OFF control, size: 48 x 48 mm

Output

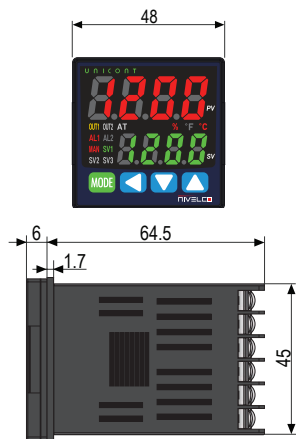
P M G - 5 1 ☐ - ☒	
1	3× relays (R1, R2, AL1), Iout (input current repeater function)
2	2× relays (R1, AL1), 1× solid-state driver / 4...20 mA (control current output)
3	2× relays (R1, AL1), 1× solid-state driver / 4...20 mA (control current output), RS485
4	1× SSR, 1× SSR / 4...20 mA (control current output), AL1 relay (24 V version not available)
5	2× SSR / 4...20 mA (control current output), AL1 relay

Supply voltage

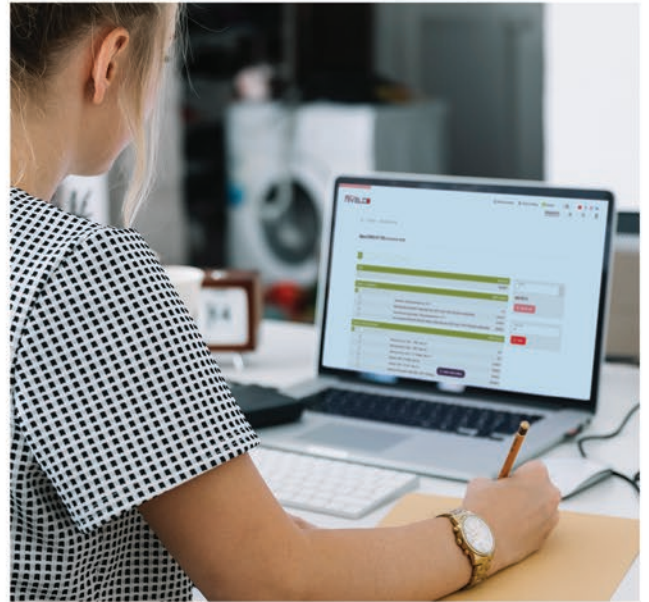
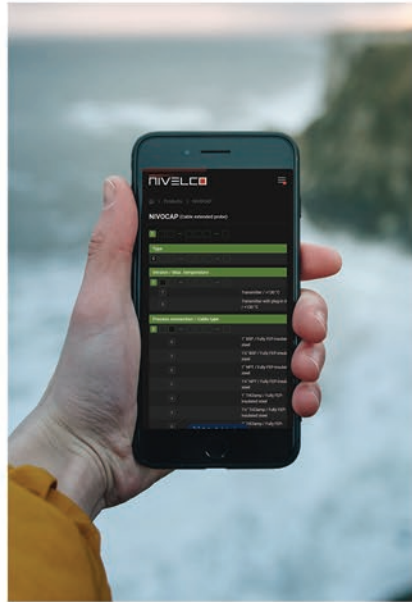
P M G - 5 1 ☒ - ☐	
1	100...240 V AC
2	24 V AC / 24...48 V DC

Accessories to order

P A M - 5 0 0 - 0	Front panel adapter from 96 x 48 mm to 48 x 48 mm anodized aluminum
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PMG-510

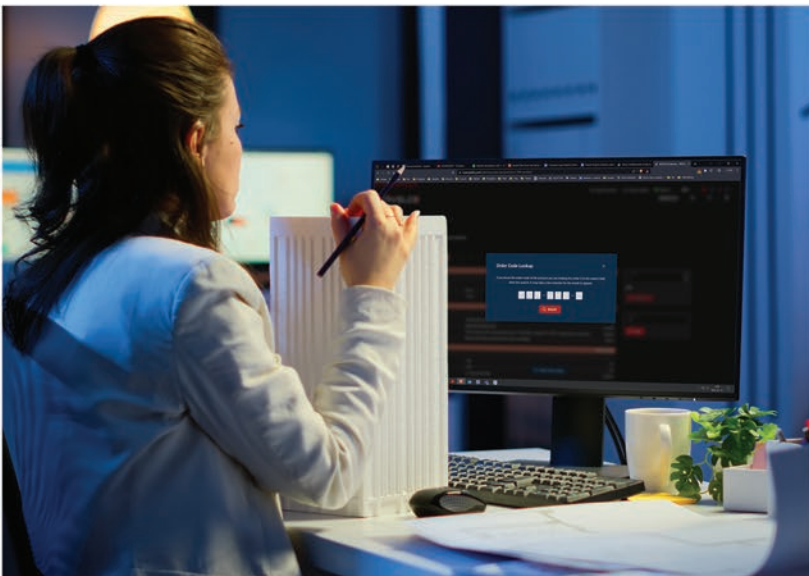


NIVELCO Selector. Next

Simplify Your Selection, Maximize Your Results!

Simplify the product selection process with the NIVELCO Selector to find the perfect product for your application. Our online product catalog provides a comprehensive list of all our products and their features to help you make an informed decision. A responsive interface provides a seamless browsing experience on any device, giving you the flexibility to explore our range anywhere, anytime.

next.nivelco.com



SYSTEM COMPO NENTS

NIVELCO's broad product portfolio requires many types of system accessories. These devices facilitate the integration of NIVELCO level devices into process control systems. The range of system components consists of universal displays, loop displays, interface and other expansion modules, time relays, etc.

UNICONT PJK UNIVERSAL INTERFACE MODULE

page 242



- MultiCONT expansion module
- RS485 communication
- Output options:
 - 2× current outputs
 - 2× relay outputs
 - 1× current output and 1× relay output
- DIN rail mountable
- Galvanic isolation
- Level control and limit indication

UNICONT PKK CURRENT CONTROLLED SWITCH

page 243



- 4...20 mA input
- DIN rail mountable
- Power supply for 2-wire transmitters
- Galvanic isolation
- SPDT relay output
- Switching amplifier for vibrating fork sensors
- Wire monitoring
- Ex version available

UNICONT PDF / PLK LOOP DISPLAYS

page 245



- 4...20 mA loop-powered
- Operation without external power supply
- 6-digit plug-in display
- 20 mm digit height
- Universal field display for transmitters
- 4...20 mA / HART® converter version
- Flameproof stainless steel housing
- Ex version available

UNICONT PGK

INTRINSICALLY SAFE ISOLATOR / POWER SUPPLY MODULES

page 248



- Isolated power supply for intrinsically safe transmitters
- Suitable for hazardous area applications
- 4...20 mA, HART® communication
- For high-precision transmitters
- Response time up to 5 ms
- Transmission accuracy up to 1 µA
- DIN rail mountable
- Ex ia intrinsically safe versions

NITIME

TIME RELAY

page 250



- 2 or 10 function types
- Wide time range: 0.1 s...100 days
- Compact design
- Universal supply voltage
- DIN rail mountable
- Relay output

NIPOWER

SWITCHING-MODE POWER SUPPLY MODULE

page 249



- Output voltage: 12 / 24 V DC
- Output current: 2000 mA / 1250 mA
- Stabilized DC output
- Switching-mode power supply
- Short-circuit protection
- Overload, overvoltage and overcurrent protection
- DIN rail mountable

NIFLANGE

MOUNTING FLANGES

page 253



- Complies with DIN, ANSI and JIS standards
- Materials:
 - Carbon steel
 - Carbon steel + PTFE
 - Stainless steel (1.4571 / 1.4404)
 - Polypropylene
- Size: DN15...DN300
- High-pressure resistance
- BSP, NPT and M20x1.5 process connections
- Welded version available

UNICOMM

COMMUNICATION MODULES

page 251



- HART®-USB/RS485 modem
- Bluetooth® compatibility (SAT-504)
- DIN rail mountable version
- Test clip connector version
- No external power supply required
- Galvanic isolation
- Transmitter software/firmware update (SAT-506)
- Data logger readout (SAT-506)
- Ex ia intrinsically safe versions

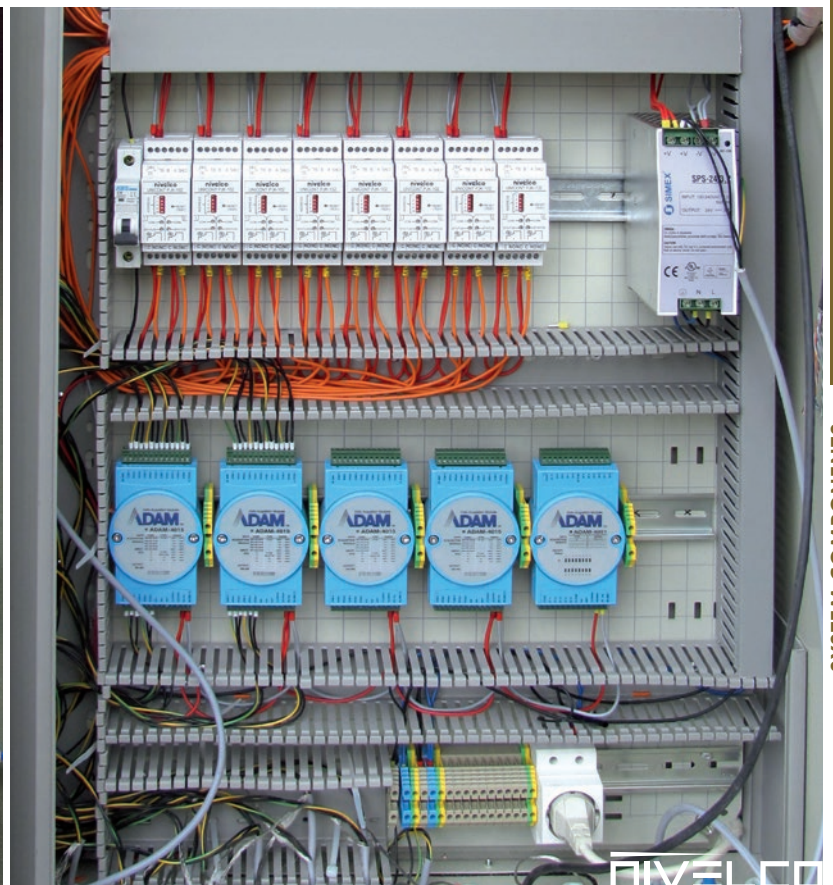
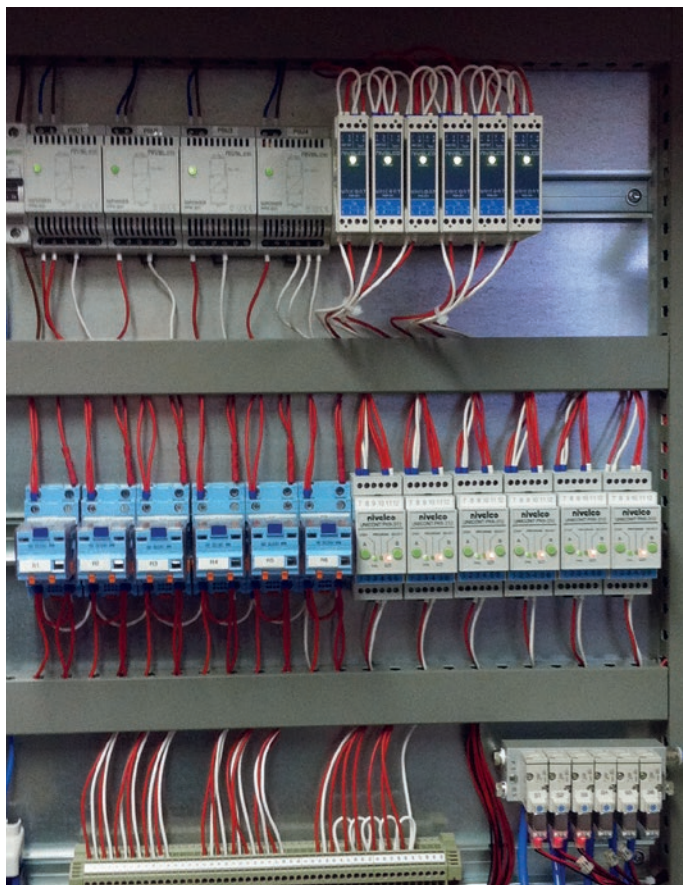
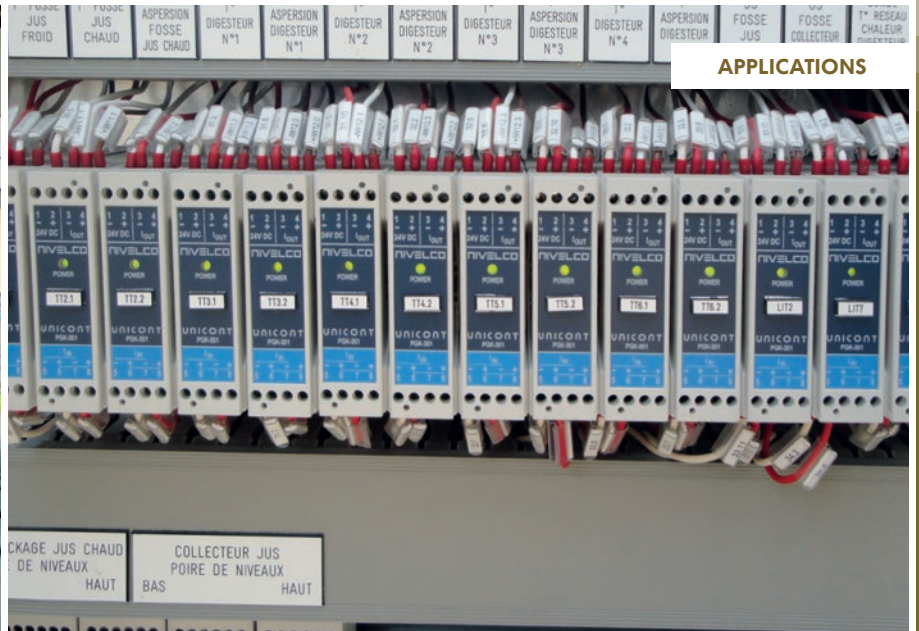
NIFIT

ADAPTERS

page 254



- Complies with DIN standards
- Material: stainless steel (1.4571 / 1.4404)
- Threaded versions up to 1/4"...2", TriClamp versions 3/4"...3"
- High-pressure resistance
- BSP, NPT, M20x1.5 and TriClamp process connections
- Easy installation



The UNICONT PJK series is a universal interface module that can be controlled via RS485 and (depending on the type) provides relay(s) and/or 4...20 mA current output(s). The DIP switch on the module's front panel is for setting the address. The Universal Interface Modules can be widely used as a part of the following applications:

- Expanding MultiCONT multichannel process controller with relays or current outputs
- Peripheral unit of PLC process control systems
- Peripheral unit of PC automated process control systems

The UNICONT PJK-100 universal interface modules provide an essential solution if the number of relays or current outputs of the MultiCONT is not enough in a system. The device can also be used as a peripheral unit for PLC or PC-controlled process control systems communicating via Modbus RTU protocol. The number of relays in the UNICONT PJK-100 extension modules and the MultiCONT together must not exceed 64, and the number of analog outputs (4...20 mA) must not exceed 16. There is a special module with both relay and current output in the variety of the UNICONT PJK-100 series. The maximum number of these modules is 32. The programming of the UNICONT PJK modules can be done via HART® or Modbus protocol with the help of the central unit of the communication network, which can be a process control computer or a MultiCONT device. The switches in the module's front panel are only for setting the address.



PJK-102

FEATURES

- RS485 interface
- Modbus or HART® communication protocol
- Output:
 - 2 current
 - 2 relay
 - Current and relay (for mixed systems)
- DIN-rail-mountable

APPLICATIONS

- Universal Interface Module
 - Expansion module for MultiCONT
 - For PLC process control systems
 - For automated process control systems operating on RS485

TECHNICAL DATA

PJK-1□□-4	
Supply voltage	24 V DC ±10%
Power consumption	10 mA + N _{relay} × 11 mA + N _{current generator} × 25 mA) ±10%
Ambient temperature	–20...+50 °C
Electrical connection	Max. 2.5 mm ² twisted, or max. 4 mm ² solid wire
Electrical protection	Class III
Mechanical connection	EN 60715-35 rail
Ingress protection	IP20
Weight	110 g

Type		PJK-102-4	PJK-111-4	PJK-110-4	PJK-120-4
Output units		2 relays	1 relay + 1 current output	1 current output	2 current outputs
Relay	Relay	SPDT		–	
	Rating	250 V AC, 8 A, AC1		–	
	Insulation voltage	2500 V 50 Hz		–	
	Electrical / mechanical lifespan	10 ⁵ / 2 × 10 ⁶ switchings		–	
	Impulse width in pulse mode	0.1...25.5 s		–	
	Electrical protection	Class II		–	
Current generator	Linear range	–		3.601...21.999 mA	
	Error indication	–		≤ 3.6 mA / ≥ 22 mA	
	Resolution	–		14 bit	
	Accuracy	–		40 µA	
	Temperature dependence	–		Max. 15 µA / 10 °C	

UNICONT PKK-312 series area 4...20 mA current-controlled limit switches featuring galvanic isolation, also available as intrinsically safe units. The input 4...20 mA signals can be transferred from passive or active outputs of 2 or 4-wire transmitters. The value of the input signal will be compared in the unit of the set (*taught*) value, and the state of the galvanically isolated relay changes with the comparison mode programming.

The double throw output relay can be programmed for the following functions:

- Limit switch (*high or low fail-safe*)
- ON-OFF control with selectable switching difference
- Monitoring of discontinuity or short-circuit of the cable
- Window comparison operation mode with energized or de-energized relay state

The UNICONT PKK-312-8 Ex is a special version designed to operate with NIVELCO's Ex-rated, DC-powered 2-wire NIVOSWITCH vibrating fork level switches as an intrinsically safe power supply and amplifier unit. Without programming, the galvanically isolated limit switch can produce relay-switching signals based on monitoring the vibrating fork's output current changes between the freely vibrating and the immersed states.



PKK-312

FEATURES

- 4...20 mA input
- Relay output
- Rail-mountable
- Intrinsic safety Associated Apparatus

APPLICATIONS

- Galvanically isolated limit switch
- Power supply for transmitters
- Cable state monitoring

TECHNICAL DATA

PKK-312-□	
Nominal input current range	1...22 mA
Accuracy of switching level / Threshold level	±0.1 mA
Discontinuity threshold / Lower value fault current	3.7 mA
Short circuit threshold / Upper value fault current	22 mA
Input impedance	10 Ω
Input overload capability	Max. 100 mA (permanent)
Switching delay	0.1 s; 1 s; 2 s; 5 s selectable
Relay	Output
	Rating
	Insulation strength
	Electrical / Mechanical life time
Electrical connection	Max. 2.5 mm ² twisted, or max 4 mm ² solid wire
Mechanical connection	EN 60715-35 rail
Ingress protection	IP20
Weight	~210 g

CERTIFICATES

- ATEX [Ex ia G/D]
- UKCA Ex [Ex ia G/D]

	Standard version				Ex version			
	PKK-312-							
	-1	-2	-3	-4	-5 Ex	-6 Ex	-7 Ex	-8 Ex
Supply voltage (U)	230 V AC ±10% 50...60 Hz	110 V AC ±10% 50...60 Hz	24 V AC ±10% 50...60 Hz	24 V AC ±10%, 50...60 Hz, 24 V DC ±15%	230 V AC ±10% 50...60 Hz	110 V AC ±10% 50...60 Hz	24 V AC ±10%, 50...60 Hz, 24 V DC ±15%	
Power consumption	< 2.7 VA			< 2.5 W	< 2.5 VA		< 2.5 VA / < 2.5 W	
Switching levels	2 values in the range of 1...22 mA				2 values in the range of 1...22 mA			10.5 mA; 12.5 mA
Ex marking	-				Ⓔ II (I) G [Ex ia Ga] IIB Ⓔ II (I) D [Ex ia Da] IIIC		Ⓔ II (I) G [Ex ia Ga] IIIC Ⓔ II (I) D [Ex ia Da] IIIC	
Intrinsic safety data	-				U ₀ = 28.4 V; I ₀ = 140 mA; P ₀ = 1 W; L ₀ = 6 mH; C ₀ = 50 nF		U ₀ = 28.4 V; I ₀ = 80 mA; P ₀ = 0.6 W L ₀ = 4 mH; C ₀ = 50 nF	
Output load capability	U ₀ = 30 V; I _{MAX} = 70 mA; U _{OUT min} = 16 V			U ₀ = 24 V; I _{MAX} = 80 mA; U _{OUT min} = 23 V	I _I = 22 mA; U _{OUT} ≈ 12 V		I _I = 22 mA; U _{OUT} ≈ 15 V	-
Electrical protection	Class II			Class III	Class II		Class III	
Ambient temperature	-25...+55 °C							

UNICONT PJK-100 Interface module**5 years**

DIN-rail-mountable universal interface module that can be controlled via RS485 line and provides relay(s) and/or 4...20 mA current output(s)

Type

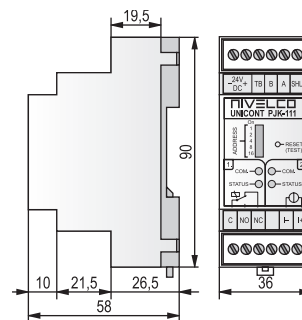
P J K - 1 0 2 - 4	With 2× SPDT relay output
P J K - 1 1 0 - 4	With 1× 4...20 mA current output
P J K - 1 1 1 - 4	With 1× 4...20 mA current output and 1× SPDT relay output
P J K - 1 2 0 - 4	With 2× 4...20 mA current output

UNICONT PKK-300**5 years**

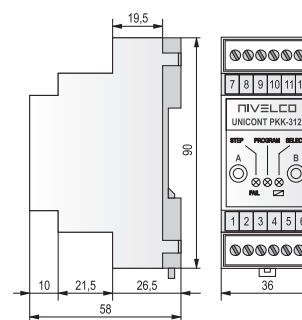
DIN-rail-mountable programmable current controlled remote switching unit featuring 1...22 mA input current and powering capability for transmitters

Type

P K K - 3 1 2 - 1	230 V AC
P K K - 3 1 2 - 2	110 V AC
P K K - 3 1 2 - 3	24 V AC
P K K - 3 1 2 - 4	24 V AC/DC
P K K - 3 1 2 - 5	230 V AC / [Ex ia G/D]
P K K - 3 1 2 - 6	110 V AC / [Ex ia G/D]
P K K - 3 1 2 - 7	24 V AC/DC / [Ex ia G/D]
P K K - 3 1 2 - 8	24 V DC / [Ex ia G/D] (for Ex ia G vibrating forks)



PJK-111



PKK-312

NIV24

PKK-312-1

PKK-312-8 Ex

The **UNICONT** series 2-wire passive loop indicators of NIVELCO are universally scalable process value indicators operating without external power supply. They are ideal for applications where only indication is required and no control function (e.g. *switching or regulation*) is needed.

The 3-wire HART® converter versions combine local display with remote data communication, enabling transmitters with standard 4...20 mA output to be integrated into HART® multidrop systems. All UNICONT devices are compatible with NIVELCO and other standard transmitters. The **UNICONT PDF** series includes digital field indicators in 2-wire passive and 3-wire active versions, featuring a 6-digit SAP-202 display for clear indication of process values such as level, pressure, and temperature. Explosion-proof versions are available.

The HART®-capable 3-wire models require external power supply and convert input signals into HART® communication while displaying process values, allowing integration of analog devices into digital systems. Robust housing ensures reliable operation even under harsh conditions. The UNICONT PDF-600 series with flameproof (Ex d) stainless steel enclosure meets the requirements of demanding industries such as food & beverage, marine, and oil & gas.

FEATURES

- 4...20 mA input
- 2-wire loop display
- 3-wire 4...20 mA + HART® transmitter
- Wall-mountable
- Scalable display
- IP67
- Ex version available

APPLICATIONS

- General display
- For 4...20 mA transmitters
- 4...20 mA-HART® converter
- Displaying level, volume, temperature, pressure, etc.

CERTIFICATES

- ATEX (Ex ia G), (Ex d G), (Ex d ia G)
- INMETRO (Ex ia G), (Ex d G), (Ex d ia G)



PDF-401-2

TECHNICAL DATA

	2-wire version	3-wire version
Measured value (input signal)	4...20 mA current loop	
Measurement range	3.6...22 mA	0...22 mA
Output	–	4...20 mA and/or HART® for 4...20 mA current limit values: 3.9...20.5 mA terminal resistor for HART®: $R_{Lmin} = 250 \Omega$
Supply voltage	–	10...36 V DC Ex version: 10...30 V
Display	SAP-202 display, range of displayed value: -9999...+29,999	
Accuracy	$\pm 0.1\%$ if displayed value is $> 10,000$; $\pm 0.2\%$ if displayed value is $< 10,000$	
Temperature error	$\pm 0.05\%$ / 10°C	
Voltage drop	$< 1.6 \text{ V}$	$< 1 \text{ V}$
Overvoltage capability	140 mA	
Damping time	Selectable: 3 s, 5 s, 10 s or 20 s	
Ambient temperature	Standard: $-40...+70^\circ\text{C}$, with display: $-25...+70^\circ\text{C}$; Ex version: see "Ex Information" table	
Electrical connection	Standard: M20×1.5 cable gland, cable diameter: $\varnothing 6...12 \text{ mm}$; Ex version: see "Ex Information" table	
Electrical protection	Class III	
Ingress protection	IP67	
Housing material	Painted aluminum, fiberglass-reinforced plastic (PBT) or stainless steel	
Weight	With aluminum housing: ~0.9 kg; with plastic housing: ~550 g; with stainless steel housing: ~2500 g	

Ex INFORMATION

	PDF-401 / 501 / 601-6 Ex	P□F-401 / 501 / 601-8 Ex	PDF-401-C Ex PDF-601-C Ex	P□F-401-D Ex P□F-601-D Ex	P□F-401-A Ex P□F-601-A Ex	P□F-401-B Ex P□F-601-B Ex
Protection type	Intrinsic safety		Intrinsic safety with flameproof enclosure		Flameproof enclosure	
Ex marking	Ⓔ II 1 G Ex ia IIC T6 Ga	Ⓔ II 1 G Ex ia IIB T6 Ga	Ⓔ II 1 G Ex d+ia IIB T6 Ga		Ⓔ II 2 G Ex d IIB T6 Gb	
Intrinsic safety data	U _i = 30 V; I _i = 100 mA; P _i = 0.7 W; C _i ≈ 0 nF; L _i < 200 μH	U _i = 30 V; I _i = 140 mA; P _i = 1.1 W; C _i < 20 nF; L _i < 200 μH	U _i = 30 V; I _i = 140 mA; P _i = 1.1 W; L _i < 200 μH		Supply voltage: 10...30 V	
			C _i ≈ 0 nF	C _i < 20 nF		
Electrical connection	Plastic M20×1.5 cable glands, cable: Ø6...Ø12 mm		M20×1.5 Ex d cable glands for Ø8...Ø12 mm cable			
	Shielded twisted cable with 0.25...1.5 mm ² wire cross section					
Ambient temperature	-25...+70 °C	-40...+70 °C, with display: -25...+70 °C	-25...+70 °C	-40...+70 °C, with display: -25...+70 °C	-25...+70 °C	-40...+70 °C, with display: -25...+70 °C
Housing material	Painted aluminum, fiberglass-reinforced plastic (PBT) or stainless steel		Painted aluminum or stainless steel			



Symbols on the display module:

- **M** – metric (Eu) engineering system
- **US** – imperial engineering system
- **°F, °C, m, cm, in, ft, l, m³, gal, ft³**
- **PROG** – programming mode

Displayed values:

- **DIST** – distance
- **LEV** – level
- **VOL** – volume
- **%** – percentage
- **mA and °C** – current and temperature
- **▼ ▲** – arrow (shows the selected symbol)

Plug-in Loop Displays

UNICONT PLK

The **UNICONT PLK-501** plug-in displays are compact field indicators equipped with a 4-digit LED display for clear and reliable visualization of measured values. The devices are designed for direct connection to 2-wire transmitters via a standard DIN 43650 / ISO 4400 connector, ensuring simple installation and wide compatibility with instruments such as the **NIPRESS** pressure transmitters and **AnaCONT LCK** conductivity transmitters. The displayed values can be freely scaled to the input current by the user through adjustable minimum and maximum settings, enabling flexible adaptation to various measurement ranges and accurate indication of process variables directly at the measurement point.

FEATURES

- 4...20 mA input
- 4-digit LED display
- Rotatable display
- No external power supply required
- PNP switching output
- IP65 protection

APPLICATIONS

- Mountable between standard ISO 4400 connectors
- For 2-wire transmitters with 4...20 mA output



UNICONT PLK-501

TECHNICAL DATA

PLK-501-2, PLK-501-3	
Input	4...20 mA
Output	PNP open collector switch, max. rating: 125 mA
Display	4-digit LED with 7 mm height
Ambient temperature	-25...+70 °C
Setting range	-1999...+9999
Damping time	0.3...30 s
Electrical protection	Class III
Ingress protection	IP65
Electrical connection	ISO 4400 connector
Housing	Plastic
Weight	~100 g



AnaCONT
LCK-211 + PLK-501

UNICONT PDF-400

5 years

Wall-mountable universally scalable 2-wire passive process value display and 3-wire active field loop current display / HART converter units, input: 4...20 mA

Type

■ ■ F - ■ 0 1 - ■

P Loop Display

Version

P ■ F - ■ 0 1 - ■

T Without plug-in display

D With plug-in display

Housing

P ■ F - ■ 0 1 - ■

4 Painted aluminum

5 Fiberglass-reinforced plastic (PBT)

6 Stainless steel

Output / Certificates

P ■ F - ■ 0 1 - ■

2 - (2-wire, HART® transparent)

4 4...20 mA + HART® (3-wire, 4...20 mA -> HART® converter)

6 - / Ex ia G (2-wire, HART® transparent)

8 4...20 mA + HART® / Ex ia G (3-wire, 4...20 mA -> HART® converter)

A - / Ex d G (2-wire, HART® transparent)

B 4...20 mA + HART® / Ex d G (3-wire, 4...20 mA -> HART® converter)

C - / Ex d ia G (2-wire, HART® transparent)

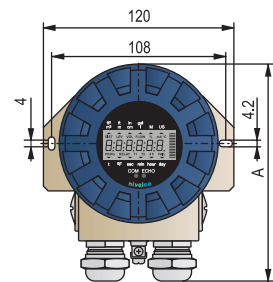
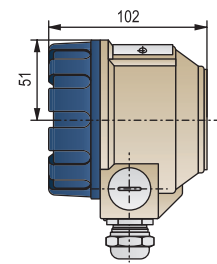
D 4...20 mA + HART® / Ex d ia G (3-wire, 4...20 mA -> HART® converter)

Accessories (sold separately; see relevant page for details)

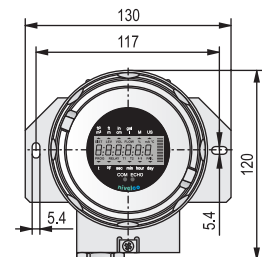
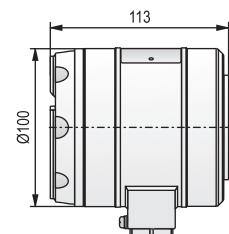
S A P - 2 0 2 - 0 Plug-in display module

S A T - 5 0 4 - ■ HART®-USB/Bluetooth® modem

S A K - 3 0 5 - ■ HART®-USB/RS485 modem



PDF-401 / 501



PDF-601

UNICONT PLK-501

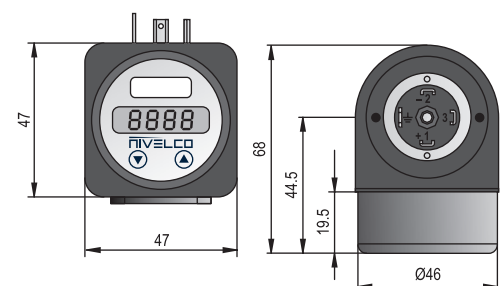
5 years

2-wire plug-in loop display can be inserted between connectors complies with DIN 43650 / ISO 4400 , input: 4...20 mA

Type

P L K - 5 0 1 - 2 Plug-in display

P L K - 5 0 1 - 3 Plug-in display with PNP output



PLK-501

NIV24

PLK-501-2

The UNICONT PGK-301 Ex is a DIN-rail-mountable, partially intrinsically safe device that supplies limited power to two-wire transmitters following intrinsic safety rules. Furthermore, it provides galvanic isolation between explosion-hazardous and non-explosion-hazardous spaces between the power supply, signal input, and signal outputs. Galvanic isolation reduces the risk of ground loops and noise entering the current loop. Depending on the type, signal transmission can be the traditional 4...20 mA input / 4...20 mA output current transmission, or via digital HART® communication, or both simultaneously. The signal of the field current loop is transmitted to the safe space by microprocessor signal processing, which is inherently a high-precision transmission. Such accuracy is required for precision transmitters. If fast conversion is preferred, choose the high-speed types. Intrinsic safety limits determine the maximum number of connected transmitters.



PGK-301

TECHNICAL DATA

		PGK-301-			
		-A Ex	-B Ex	-C Ex	-D Ex
		High-precision		High-speed	
Input		4...20 mA			
Out-put	Normal operation				
	Current error	3.6 mA: I _N =3.6 mA or I _N > 24 mA			
Protection		Input / output: with overcurrent and overvoltage protection			
Loop resistance		300...1000 Ω / 24 V DC			
Communication		-	HART®	-	HART®
Supply voltage		20...35 V DC			
Power supply indication		LED (green)			
Power supply for transmitters		23 V DC galvanically isolated			
Galvanic isolation		> 2 kV			
Power consumption		Max. 2.2 W			
Current signal	Resolution	1 µA		8 µA	
	Accuracy (@ 20 °C)	Typically max. 2.5 µA		Typically max. 20 µA	
Response time		100 ms		5 ms	
Ingress protection		IP20			
Temp. dependence		< 1 µA/ °C			
Ambient temperature		-20...+60 °C			
Electrical connection		Terminal, wire cross section: 0.5...2.5 mm²			
Electrical protection		Class III			
Mechanical connection		EN 60715-rail-mountable, module width: 22.5 mm			
Weight		250 g			

FEATURES

- Intrinsically safe isolation
- Power supply for transmitters
- 20...35 V DC supply voltage
- 4...20 mA, HART® communication
- Up to 1 μ A transmission accuracy
- DIN-rail-mountable
- IP20

APPLICATIONS

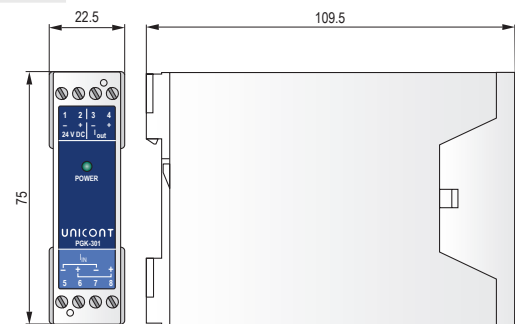
- For high-precision transmitters
- For transmitters operating in hazardous applications
- For certified measurement devices
- Also for temperature and pressure transmitters
- For 2-wire 4...20 mA transmitters

CERTIFICATES

- ATEX [Ex ia G]
- IEC Ex [Ex ia G]

Ex INFORMATION

		PGK-301-A Ex, –C Ex	PGK-301-B Ex, –D Ex
Protection type		Intrinsic safety	
Ex marking	ATEX	II (I) G [Ex ia Ga] IIC	II (I) G [Ex ia Ga] IIB
	IEC Ex	[Ex ia Ga] IIC	[Ex ia Ga] IIB
Intrinsic safety limit data		$L_o = 2$ mH $C_o = 60$ nF	$L_o = 9$ mH $C_o = 450$ nF
		$U_o = 26$ V $I_o = 94$ mA $P_o = 0.65$ W	
		$U_m = 253$ V AC	



PGK-301

UNICONT PGK-301

5 years

DIN-rail-mountable intrinsically safe isolator and power supply module

Function / Output

P G K - 3 0 1 - □

- A** High-precision / 4...20 mA
- B** High-precision / 4...20 mA + HART®
- C** High-speed / 4...20 mA
- D** High-speed / 4...20 mA + HART®

IEC Ex compliance is optional; it must be specified in the order.

NIV24

PGK-301-A, PGK-301-B

The rail-mountable NIPOWER PPK-421 and PPK-431 switching-mode power supply modules provide stabilized 12 or 24 V DC output for low-power consumption devices. The output current is limited by an electronic fuse. Both devices are short-circuit protected.

FEATURES

- Stabilized DC output
- Switching-mode power supply
- DIN-rail-mountable
- Short-circuit protection
- Overload protection
- Overvoltage protection
- IP20

APPLICATIONS

- Any transmitters
- Sensors
- Inductive, capacitive proximity switches
- Infrared sensors
- Ultrasonic Proximity sensors

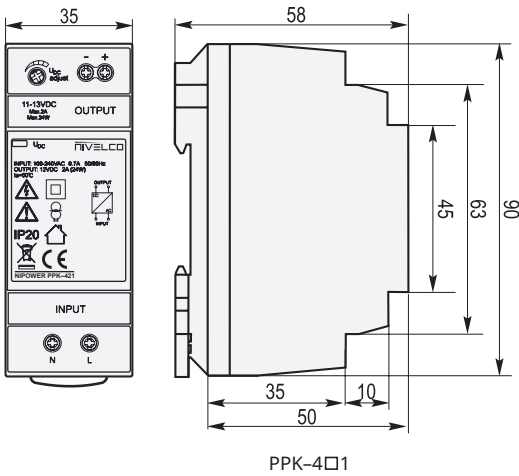


PPK-4□1

TECHNICAL DATA

	PPK-421	PPK-431
Supply voltage (U_{in})	100...240 V AC / 50...60 Hz	
Output voltage (U_{out})	12 V DC (11...13 V DC adjustable)	24 V DC (23...25 V DC adjustable)
Output current ⁽¹⁾	2000 mA	1250 mA
Consumption without load	max. 8 VA / 0.3 W	max. 8 VA / 0.4 W
Consumption with maximum load	max. 50 VA / 30 W	max. 60 VA / 33 W
Rated power	24 W	30 W
Overload capability	Max. 120%	
Efficiency	88%	89%
Electronic output protection	Short-circuit, overload, overvoltage, overcurrent	
Output voltage indicator	LED (blue)	
Ripple & Noise	120 mV	150 mV
Operating temperature	-20...+50 °C	
Electrical strength between input and output	3 kV AC	
Electrical connection	Terminal, wire cross section: max. 2.5 mm ²	
Electrical protection	Class II, reinforced insulation	
Mechanical connection	EN 60715 rail	
Ingress protection	IP20	
Weight	120 g	

⁽¹⁾ Correct air-flow is needed to prevent overheating



NIPOWER PPK-400 3 years

DIN-rail-mountable power supply unit
Power supply: 100...240 V AC / 50...60 Hz, output voltage: 12 V DC or 24 V DC

Type		
P P K - 4 □ 1 - 1		
2	12 V DC / max. 2 A	
3	24 V DC / max. 1.25 A	

NIV24	
PPK-421-1	
PPK-431-1	

NITIME time relays are suitable for all kinds of timing tasks of technological equipments. Microprocessor controlled operation, multiple functions, universal power supply voltage, and slim module width are the main characteristics making NITIME time relays applicable also for automation tasks of lights, pumps, heating, coolers, fans, and motors.

FEATURES

- 2 and 10-function types
- Wide time range
- Small size
- Universal supply voltage
- DIN-rail-mountable
- Relay output
- IP20

APPLICATIONS

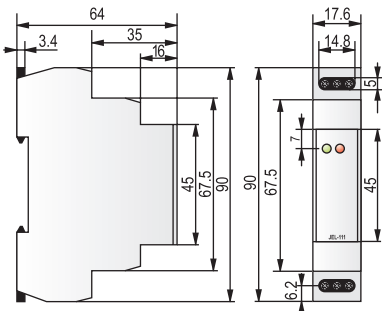
- Process controlling of repeated tasks
- Timed cycling of pumps or compressors
- Timing of technological equipments
- Sequential control



JEL-121 JEL-111

TECHNICAL DATA

		JEL-111	JEL-121
Number of functions		10	2
Time ranges		0.1 s...10 day	0.1 s...100 day
Time setting		Rotary switch and potentiometer	
Reset time		Max. 150 ms	
Time deviation		5%	
Repeat accuracy		0.2%	
Temperature coefficient		0.01% / °C	
Supply voltage		12...240 V AC/DC (AC 50...60 Hz)	
Power consumption		0.7...3 VA AC / 0.5...1.7 W DC	
Outputs	Relay	1× SPDT	
	Rated current	16 A AC1	
	Inrush current	30 A (< 3 s)	
	Output indication	Multifunctional red LED	
	Switching voltage	250 V AC (AC1) / 24 V DC	
	Breaking capacity	4000 VA AC 384 W DC	
	Min. breaking capacity	DC 500 mW	
	Electrical lifespan (AC1)	0.7 × 10 ⁵	
	Mechanical lifespan	3 × 10 ⁷	
Electrical connection		Terminal for cables with max 2.5 mm ² wire cross section	
Electrical protection		Class II	
Mechanical connection		EN 60715 rail	
Ingress protection		IP20	
Ambient temperature		-20...+55 °C	
Weight		63 g	65 g



JEL-1□1

NITIME 3 years

DIN-rail-mountable multifunctional time relay module
12...240 V AC/DC power supply, SPDT output

Type	
J E L - 1 1 1 - 1	Multifunctional timer
J E L - 1 2 1 - 1	Cyclic timer

NIV24	
JEL-111-1	
JEL-121-1	

The **UNICOMM** interface modules can establish communication between HART®-capable field devices and the process-controller computer. The communication can be done via USB or RS485 line, and also via Bluetooth®. The **UNICOMM** HART® modems are applicable not only for NIVELCO transmitters but for all HART®-capable transmitters that use standard HART® communication. The device is galvanically isolated from both (USB and HART®) sides. When it is used as a HART®–USB modem connected to the USB of a PC, the modem does not need an external power supply. The **UNICOMM SAK–305** modules can be connected to a suitable device with an RS485 interface input, used as a HART®–RS485 modem. The communication protocol is HART® on the RS485 line. In this case, the device needs an external power supply. Ex versions can be connected to transmitters placed in hazardous areas.

FEATURES

- Transferring measurement data to PC
- Connecting field transmitter to the PC via USB, RS485 or Bluetooth® (BLE, 5.x)
- 24 V current loop power supply (SAT–504)
- Switchable HART® terminal resistor (SAT–504, 250 Ω)
- DIN-rail-mountable version
- No need for power supply
- Galvanic isolation
- IP20
- Service interface for firmware update of transmitters (*EasyTREK SP–500 Pro*, *PiloTREK WP–200*)
- 5-year warranty

APPLICATIONS

- Communication interface (modem) between HART®-capable transmitters and PC
- Minimal system configuration: Windows XP, USB port

CERTIFICATES

- ATEX [Ex ia G]

TECHNICAL DATA

		SAT–504	SAK–305
Input	HART®		
Output		USB, Bluetooth® (BLE, 6.0)	USB / RS485 (HART® over RS485)
Power supply		Supplied from USB or from power bank	Supplied from USB / 24 V DC (10...30 V) nominal voltage
Current consumption		< 150 mA	USB: current consumption < 60 mA 24 V DC: power consumption < 1.5 W
Current loop power supply		24 V DC ±5% max. 22 mA	–
Ambient temperature		–25...+55 °C	–20...+70 °C
Housing material		Polystyrene	PPO
Electrical connection	PC	Connection: USB 1.1 Type B socket	USB 1.1 Type B socket / RS485 terminal
		Cable: USB A–B, 1.8 m	USB A–B, 1.8 m / RS485 twisted shielded pair, max. 1000 m
	HART® line	Connection: KLEPS2	Screw terminal
		Cable: spiral 0.6 m (1.1 m)	Twisted shielded pair with 0.5...2.5 mm² wire cross section Resistance max. 75 Ω, Capacitance max. 200 nF
Mechanical connection		–	EN 60715 rail-mountable
Ingress protection		IP20	
Electrical protection		Class III (1 kV galvanic isolation)	
Weight		100 g	

Ex INFORMATION

UNICOMM SAK–305–6 Ex	
Ex marking	II (1) G [Ex ia Ga] IIC
Intrinsic safety limit data	$U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$, $L_i = 200 \text{ uH}$, $C_i = 2 \text{ nF}$
U_m	253 V AC



SAT–504–2



SAK–305

eLink Module

The UNICOMM SAT-506 eLink unit can be plugged into the display port to connect compatible NIVELCO devices to a PC. It allows firmware updates and datalogger reading for NiFlash, EView2, and Datascope programs via a mini USB type B connector. It also provides a galvanically isolated power supply and high-speed communication to the device.

UNICOMM SAT-506



TECHNICAL DATA

	SAT-506-0	SAT-506-1
Supply voltage	DC 5 V (USB), Galvanically isolated	
Connection	Mini USB	
Function	Firmware update Data connection (Data logger reading)	Data connection (Data logger reading)
Required software	NiFlash, EView2, Datascope (SE-300 Data logger reading)	EView2, Datascope (SE-300 Data logger reading)
Ambient temperature	-20...+55 °C	
Ingress protection	IP20	
Electrical protection	Class III. Galvanic isolation (500 V rms)	
Weight	100 g	

UNICOMM SAT-504 HART® / Bluetooth® modem

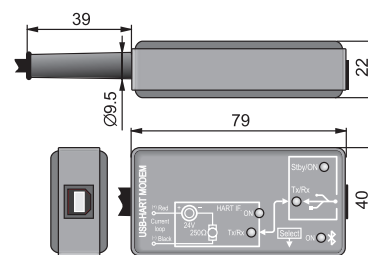
5 years

HART®-USB/Bluetooth® communication modem for transmitters with HART® output. USB 1.1 Type-B connector and KLEPS2 clip-on probes.

Type

S A T - 5 0 4 - □

- | | |
|---|--|
| 0 | HART®-USB modem |
| 1 | HART®-USB modem + power supply for transmitter |
| 2 | HART®-USB modem + power supply for transmitter + Bluetooth® |
| 3 | HART®-USB modem + power supply for transmitter + service port |
| 4 | HART®-USB modem + power supply for transmitter + service port + Bluetooth® |



SAT-504-2

UNICOMM SAK-305 DIN rail mounted modem

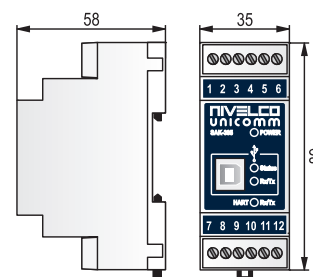
5 years

DIN rail mountable HART®-USB communication modem for transmitters with HART® output. Connection to PC via USB/RS485 interface.

Type

S A K - 3 0 5 - □

- | | |
|---|---------------------------------|
| 2 | HART®-USB/RS485 modem |
| 6 | HART®-USB/RS485 modem / Ex ia G |



SAK-305

UNICOMM SAT-506 eLink Module

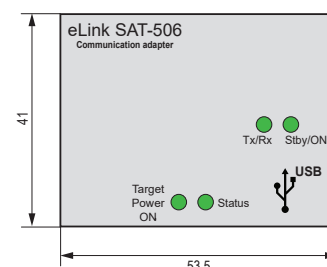
5 years

eLink unit for software/firmware updates and data logger readout, with Type-B mini USB connector. Can be plugged into the socket of the SAP display module. Provides galvanically isolated power and communication to the device, enabling high-speed program loading.

Type

S A T - 5 0 6 - □

- | | |
|---|--|
| 0 | eLink plug-in unit |
| 1 | eLink plug-in unit, for data logger readout only |



SAT-506-□

NIV24

SAT-504-0, SAT-504-1, SAT-504-2

NIFLANGE flanges are suitable for almost any device for installation in an existing flanged connection (e. g., tank, storage containers). With a wide range of internal process connections, it can be fitted to numerous devices. In addition it can be ordered welded to the device on request.

NIFLANGE MFT

5 years

Available in carbon steel, PTFE lined carbon steel, polypropylene (PP), and stainless steel, DIN, ANSI, and JIS flanges

Prices on request

Type

■ F ■ - ■ ■ ■ - ■

M Mounting flange

Version

M F ■ - ■ ■ ■ - ■

A Flat Face (A)

T Raised Face (B1)

C Tongue (C)

D Groove (D)

Standard / Flange material / Form

M F ■ - ■ ■ ■ - ■

1 DIN / Carbon steel / EN 1092 (B1)

2 DIN / Stainless steel / EN 1092 (B1)

3 DIN / Polypropylene / EN 1092 (A)

5 ANSI / Carbon steel / ASME B16.5 (RF)

6 ANSI / Stainless steel / ASME B16.5 (RF)

7 ANSI / PP/ ASME B16.5 (FF)

A JIS / Carbon steel / B 2220 (RF)

B JIS / Stainless steel / B 2220 (RF)

C JIS / PP / B 2220 (FF)

Dimension DIN / ANSI / JIS

M F ■ - ■ ■ ■ - ■

D DN15 / 1/2" / 15A

A DN20 / 3/4" / 20A

B DN25 / 1" / 25A

C DN32 / 1 1/4" / 32A

7 DN40 / 1 1/2" / 40A

0 DN50 / 2" / 50A

1 DN65 / 2 1/2" / 65A

2 DN80 / 3" / 80A

3 DN100 / 4" / 100A

4 DN125 / 5" / 125A

5 DN150 / 6" / 150A

6 DN200 / 8" / 200A

8 DN250 / 10" / 250A

9 DN300 / 12" / 300A

Pressure DIN / ANSI / JIS

M F ■ - ■ ■ ■ - ■

5 PN6 / - / 5K

6 PN10 / - / 10K

1 PN16 / 150 psi / 16K

2 PN25 / 300 psi / 30K

3 PN40 / 600 psi / 40K

4 PN63 / 900 psi / 63K

Internal dimension

M F ■ - ■ ■ ■ - ■

1 1/4" BSP

C 1/2" BSP

D 1/2" NPT

E 3/4" BSP

4 3/4" NPT

2 1" BSP

5 1" NPT

7 1 1/2" BSP

8 1 1/2" NPT

3 2" BSP

6 2" NPT

9 M20x1.5

H Weldable to vibrating fork (stainless steel only)

J Weldable to MK (stainless steel only)

K Weldable to TT (stainless steel only)

L Weldable to WE (stainless steel only)

N Weldable to WT (stainless steel only)

W Tilttable to WT

FEATURES

- Complies with DIN, ANSI, and JIS standards
- Materials:
 - Carbon steel
 - Carbon steel + PTFE
 - 1.4571/1.4404 stainless steel
 - Polypropylene
- Size: DN15...DN300
- High-pressure resistance (max. 63 bar)
- BSP, NPT, M20x1.5 process connections
- Weldable stainless steel variants for:
 - NIVOSWITCH vibrating forks
 - NIVOMAG magnetic coupling switches
 - THERMOCONT TT temperature transmitters
 - PiloTREK WE non-contact radar level transmitters

APPLICATIONS

It can be used with any threaded device, e. g. PiloTREK, NIVOCAP, EasyTREK, EchoTREK, NIVOCONT K, NIVOMAG, NIVOSWITCH, NIVOROTA, NIVOCAP CK, AnaCONT, THERMOCONT, NIPRESS.



MFT-601



MKA-21□-□

NIFIT adapters offer a convenient solution for integrating NIVELCO devices into various existing process connections if the device's connection is incompatible. For instance, if the tank stub is ½" NPT while the device in stock is ½" BSP, or if the optimal device for a measurement task has a different process connection than the existing one at the measurement site. In such cases, modifying the process connection may involve significant additional costs. However, utilizing a NIFIT adapter proves to be a much more cost-effective alternative. These adapters are designed to accommodate a wide range of internal process connections and can be easily fitted to various device designs while ensuring compatibility with commonly used host connections.

In addition, we can provide material quality certification upon request for further assurance.

NIFIT EAA**5 years**

Stainless steel adapters

Prices on request**Type****E A** ☐ - **1** ☐ ☐ - **0****A**

Adapter

Design**E A A** - ☐ ☐ ☐ - **0****1**Internal receiving thread – External process thread
(Not applicable for TriClamp)**Inner connection****E A A** - **1** ☐ ☐ ☐ - **0****1**

¼" BSP

2

¼" NPT

3

½" BSP

4

½" NPT

5

¾" BSP

6

¾" NPT

7

M20x1.5

8

1" BSP

9

1" NPT

A

1¼" NPT

B

1½" BSP

C

1½" NPT

D

2" BSP

E

2" NPT

F

¾" TriClamp

G

1" TriClamp

H

1½" TriClamp

J

2" TriClamp

K

2½" TriClamp

L

3" TriClamp

Outer connection**E A A** - **1** ☐ ☐ ☐ - **0****1**

¼" BSP

2

¼" NPT

3

½" BSP

4

½" NPT

5

¾" BSP

6

¾" NPT

7

M20x1.5

8

1" BSP

9

1" NPT

A

1¼" NPT

B

1½" BSP

C

1½" NPT

D

2" BSP

E

2" NPT

F

¾" TriClamp

G

1" TriClamp

H

1½" TriClamp

J

2" TriClamp

K

2½" TriClamp

L

3" TriClamp

Material**E A A** - **1** ☐ ☐ ☐ - ☐**0**

1.4571/1.4404



EAA-18B-0



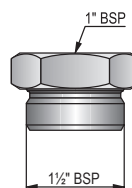
EAA-18D-0

FEATURES

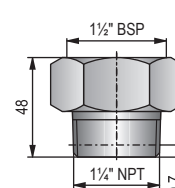
- Complies with DIN standards
- Materials: 1.4571/1.4404 stainless steel
- Size: threaded versions up to ¼"...2",
Triclamp versions ¾"...3"
- High-pressure resistance (up to 1450 psi)
- BSP; NPT; M20x1.5;
TriClamp process connections
- Easy to install

APPLICATIONS

It can be used with any threaded device (e. g. *PiloTREK*, *NIVOCAP*, *EasyTREK*, *EchoTREK*, *NIVOCONT K*, *NIVOMAG*, *NIVOSWITCH*, *NIVOROTA*, *NIVOCAP CK*, *AnaCONT*, *THERMOCONT*, *NIPRESS*).



EAA-18B-0

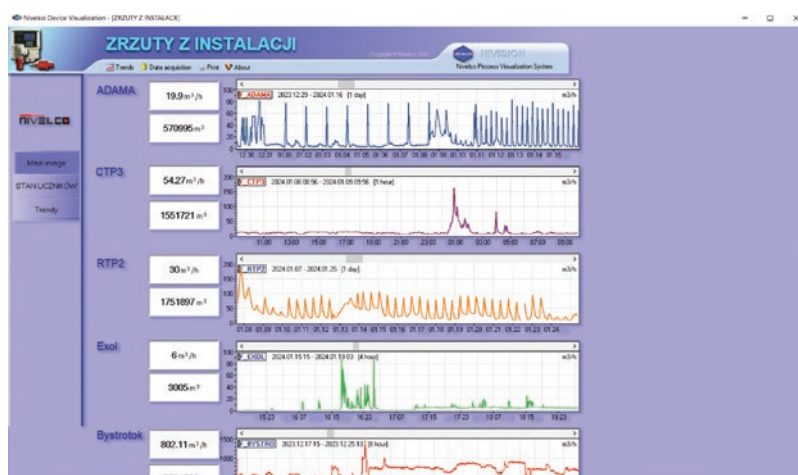


EAA-18A-0

NIVISION is a VISION X9 based process visualization software that uses the XSDL (*Extensible Structure Declaration Language*) programming and configuration language. NIVISION can visualize a process control system built with NIVELCO devices on a PC. The devices can be intelligent transmitters with analog output, digital communication, or various switches based on different measurement principles. The tank farm layout with tanks, instrumentation, and other process devices can be easily visualized. NIVISION offers a wide range of visualization elements for measured values and limits, time-based trends, databases and logs. The export and import of different database types is also a basic feature of the software. A clear and transparent overview of all processes involved in an application makes inventory and material management a simple task with a well-designed NIVISION project. Another great feature of the software is that a NIVISION project can be visualized on a remote computer (*without NIVISION installed*) via a local area network (LAN) or the Internet using a browser. This is a perfect solution for small and medium process control systems.

FEATURES

- Tank Configuration
- Transmitter Configuration
- Tank Farm Visualization
- Display of measured values
- Display of limits
- Trend Monitoring
- Data Logging
- Database Handling
- Archiving
- Other Logging Functions (Alarms)
- Remote connection (LAN / Internet)
- Client-server (1+15) or web browser based
- Multiple alarm setpoints per measuring device



APPLICATIONS

The steps to customize NIVISION for a specific application:

- The end user defines the technological, operational and functional requirements of the application.
- Based on the customer's requirements, the developer graphically configures the visualization project in the NIVISION developer system and performs the necessary programming. The developer mode can only be accessed by the project developer.
- The finished project can be executed by the end user using the NIVISION runtime system.

The basic element of the software is the "UNIT", which contains the applied device (*with graphical representation*), device variables, event handling, communication and data display. Using these units, a complete process instrumentation system can be set up for visualization.



NIVISION

1 year

NIVISION process visualization, measurement logging and database management software for MultiCONT and all NIVELCO transmitters with installation on-the-spot

Price on request

YSNNIVIS00	NIVISION license fee depending on complexity (simple or complex system)
YSNNIVIS01	APPLICATION DEVELOPMENT (For any process controlling task in accordance to order demands)

The HART® configuration software is designed to detect, poll, and display primary measurement data as well as to program NIVELCO's HART®-compatible transmitters remotely.

Installed on a PC the software allows the menu driven remote programming (*device parameters + HART commands*). The software collects data from the detected NIVELCO units, performs cyclic polling, and displays the measurement data.

FEATURES

- Free configuration program
- Remote programming and querying measurement data for up to 15 HART®-compatible transmitters in one multidrop loop
- Linearization tables
- Echo Map
- Sensor calibration
- Measurement data monitoring and gathering
- Handling multiple HART® modems

APPLICATIONS

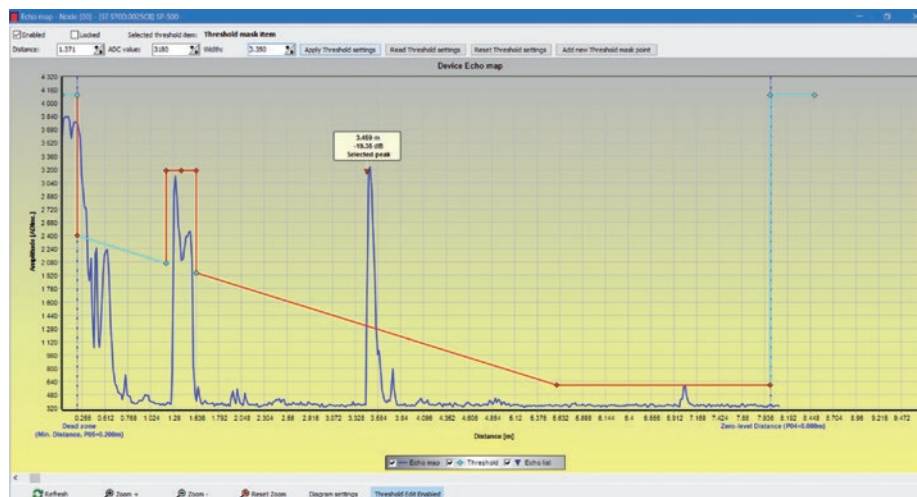
- Commissioning transmitters
- Remote programming
- Displaying measurement data
- Error detection
- Limited trend monitoring

FREE DOWNLOAD

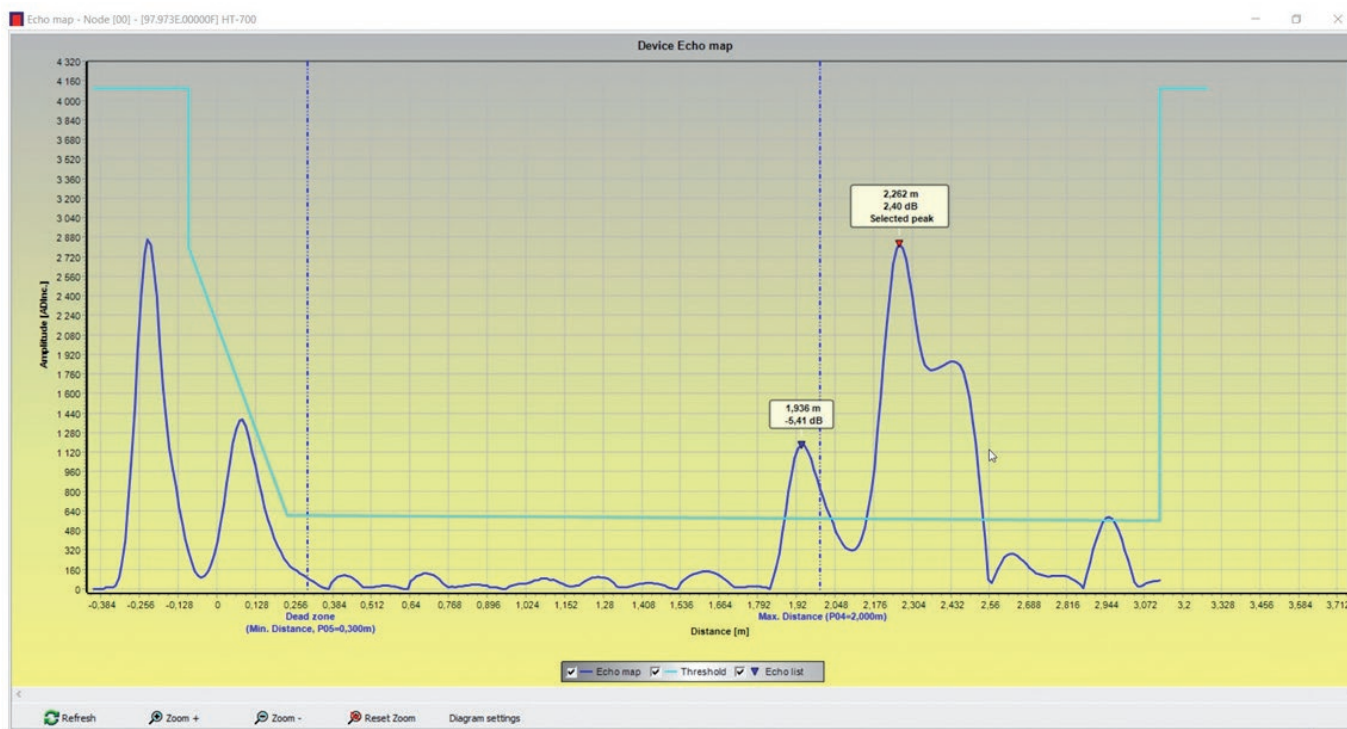


SYSTEM REQUIREMENTS

Operating system	MS Windows 10, 8, 7, Vista, XP, 2000
Connection	RS232, RS485, USB
Disk space	100 MB
Memory	512 MB RAM
HART® modem	UNICOMM SAK-305, SAT-504



SP-500 Pro / EView2 – Threshold edit view. The red corner points can be modified.



HT-700 / EView2 – Displaying the new measurement evaluation process

MobileEView is NIVELCO's first mobile phone application that communicates with devices via Bluetooth®. The new product responds to today's challenges and needs and allows users to use NIVELCO devices easily and efficiently. The MobileEView application allows easy management of transmitter settings using the commissioning and maintenance wizards. Configuration settings can be saved and easily accessed for future use. The application displays data in a clear, structured way, making it easy to review. It also provides the possibility to test and verify.

Various test functions allow you to verify that the device works properly in the application, thus giving you more reliable measurements and guaranteeing optimal device performance. The pages are equipped with help functions and information services to assist the user in using the program and the devices.



PROPERTIES

- Direct connection to transmitters with Bluetooth®
- Live diagram display (*trend*), with automatic (~3 s) update:
 - Flow (PV)
 - Distance (SV)
 - Level% (TV)
 - Temperature (QV)
 - Current value (VV)
 - TOT1, TOT2
 - h Level (*flow measurement*)
 - Echo amplitude
 - Level change rate
- Echo list display with automatic update
- Manually updates echo chart display
- Current PV, SV values of transmitters display already in the device selector's initial screen
- Full product identification, unique user ID
- Log file saving

COMPATIBLE DEVICES

- PiloTREK W-200, WT-300
- EasyTREK SC-500
- MonoCONT P□F-410
- UNICOMM SAT-504

SYSTEM INFORMATION

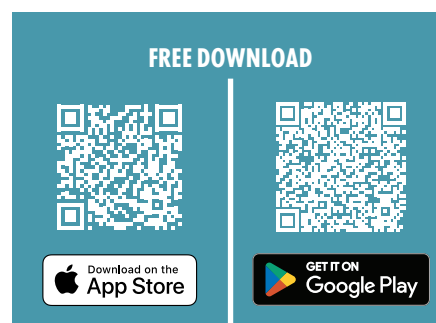
Platform	Android 10+; iOS 12+
Connection	Bluetooth®, HART®
Languages	EN, DE, TR, RO, HR, CZ, HU, PT, PL, FR
Help	WiFi or mobile internet required
Required permissions	Bluetooth®, Location*

* The app does not gather or transfer location data.



FUNCTIONS

- Commissioning wizard (*guides the user through the device settings, eliminating the possibility of errors*);
- Maintenance wizard (*access to all parameter settings, device customization, more information and data about the device*);
- Testing / Verification;
- Settings / Customization.



MAIN INFORMATION

This product catalog is valid from **June 1, 2026***; henceforth, all prior product catalogs are obsolete. NIVELCO reserves the right to make any changes without any prior notice. The product illustrations and technical data in this catalog are for informational purposes only, the exact Ex information is given in the Ex certificate of the products. Doublechecking specifications in the datasheets, user, and programming manuals is recommended.

DELIVERY

There are four kinds of delivery:

Standard delivery:

- Standard products are usually manufactured within three weeks and shipped on the fourth week.**
- Delivery times may differ in the case of custom products. The estimated delivery time is either provided in the quotation or in the confirmation of the custom order.

Fast delivery:

- Units ordered under the NIVEX service are shipped within 5...8 working days from receiving the order if the order is accepted. Before ordering products with a NIVEX mark (in capital letters), availability of the relevant products in the required quantity must be checked and confirmed by NIVELCO. There is a 5% surcharge over the list price for the NIVEX service.
- NIV24 service is available for models indicated in tables at the bottom right of the relevant price sheets. Products ordered with the remark NIV24 will be shipped on the day following the confirmation of the order for a maximum of 5 items. There is a 10% surcharge over the list price for the NIV24 service.

WARRANTY

NIVELCO undertakes a guarantee of 1 to 5 years for its products.*** The warranty periods for each product group (1 year...5 years) are indicated on the price sheets of the respective products. NIVELCO fulfills the warranty obligations on the premises of the company.

ORDER CODES & ARTICLE NUMBERS

All order codes for complete devices have seven characters (with some exceptions for special constructions with seven characters + "X..."). Order codes can be found in this product catalog, brochures, User and Programming Manuals and other marketing documents on our website. Article numbers are found in our Order Confirmations, Offers and Invoices. Article numbers have eight characters, and they are constructed like the order code + "M" (in some cases, this last character may be different). This distinction between order code and article number has relevance only to NIVELCO's internal administration, not to the technical content.

e. g.,
order code: SGP-380-4
article number: SGP3804M

INSPECTION & CLEANING

There is a 35.00 EUR inspection fee for checking returned devices. It is dropped if the repair or replacement is ordered or it is covered by warranty. We charge 35.00 EUR for cleaning returned units that are dirty. If a device is returned without a thorough cleaning, disinfection, and a correctly filled and signed Returned Equipment Handling Form, we reserve the right to return or destroy the device at the purchaser's expense, whichever the purchaser chooses.

* In case of any discrepancies between the corresponding printed and online data or other kind of information, please consider the online information as the valid one.

** The indicated delivery time varies depending on the quantity ordered.

*** Except for analytical sensors!

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TV

mA

SV

PV

Lvl

H

PV

TOT
1/2

CHECK, SET UP, TEST
your devices via



Experience easy device management with NIVELCO MobileEView.



**PiloTREK W-200/300 families
with Bluetooth® Connectivity**

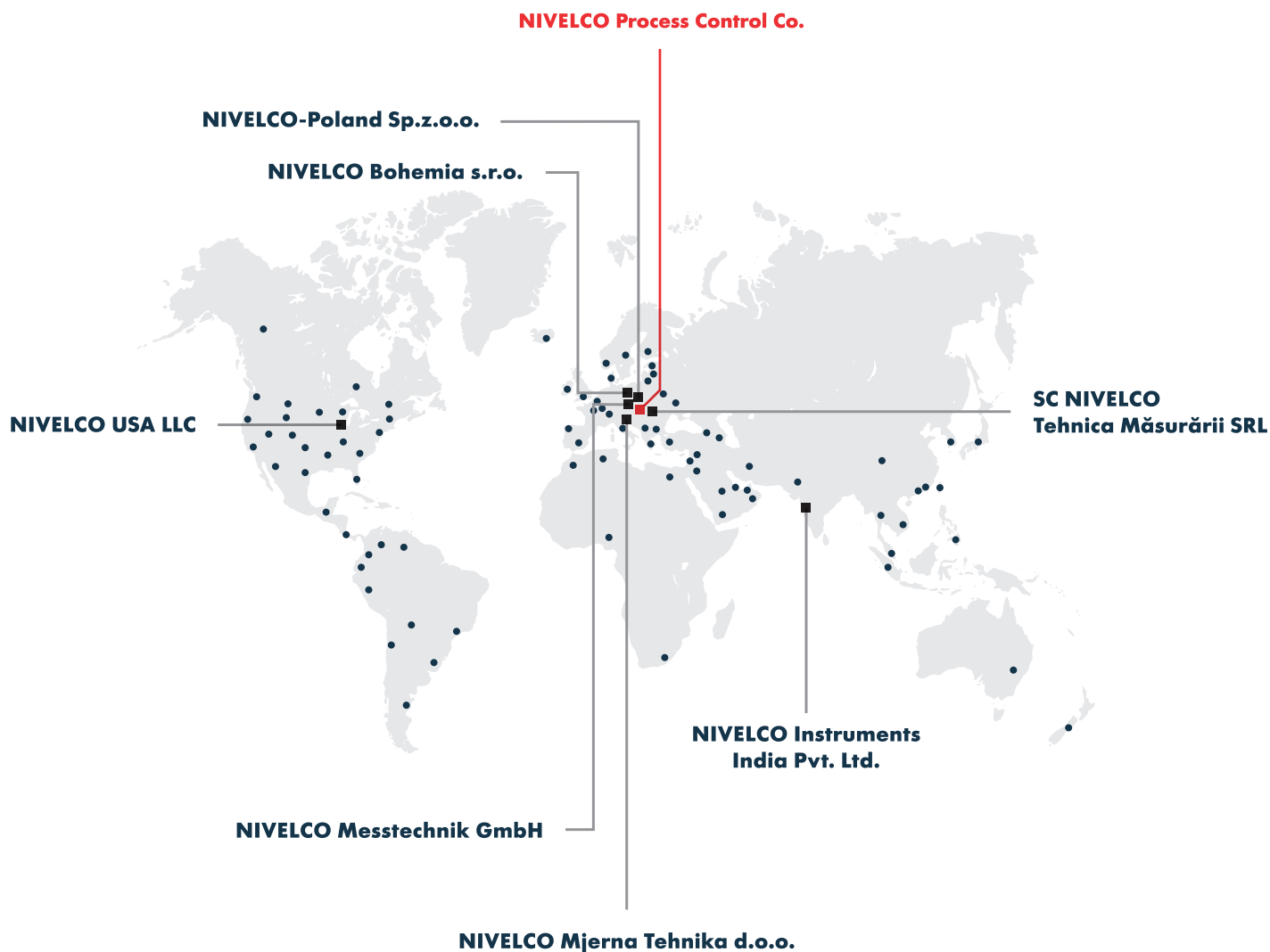
*80 GHz FMCW radar level transmitters
for liquids and bulk solids*



**Get a quote for your
selected PiloTREK now**



Free MobileEView Application
<http://s.nivelco.com/mobileviewinfo>



nicat26en32np // Information is accurate to the best of NIVELCO's knowledge. We reserve the right to change specifications at any time.



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#NivelcoDevices

