



Process Automation



Process Automation

Level Sensors | Level Detectors | Overfill Prevention

Sensors and Systems: www.fafnir.com



Accuracy



Flexible



Reliable

FAFNIR Sensors and Systems

Reliable, Universal Solutions for Your Level Measurement Requirements

FAFNIR prides itself on providing the highest-quality measurement solutions to all its customers, regardless of application complexity and size. After trading for more than 50 years, driving industry innovation, listening to our customers and their requirements, we are pleased to present FAFNIR's German-made, high-precision level measurement devices for the petroleum, pharmaceutical and chemical industries to you, our customer.

FAFNIR: Our Strengths!



Reliability, Accuracy and Ease of Installation as Standard

- + All our sensors are calibrated and stringently tested before they reach you, ensuring you receive only the best
- + With FAFNIR's Plug & Play sensors, installation is quick and easy
- + With pre-calibration, once installed, no adaption to the liquid is required



With 50 Years' Engineering and Manufacturing Experience, Customer Service is Key

- + Regardless of order complexity or size, we will find a solution for your project
- + The FAFNIR team are experts. We design, manufacture and calibrate all of our products at highest quality standards
- + FAFNIR sensors are installed worldwide



Difficult Installation Conditions Are No Challenge For FAFNIR

- + Designed to meet every requirement, our sensors fit the smallest to the largest openings
- + Our extensive range of sensors means we will have a solution for you, even when other suppliers don't

Extreme Process Conditions

- + Our sensors have proven to work in temperatures of up to 450 °C, or at pressures up to 120 bar.
- + With a response time of less than 0.2 s and information regarding the filling levels with an accuracy of ± 0.3 mm, you have constant visibility of your liquid stock
- + Reliability assured in corrosive, toxic and viscous substances

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TORRIX

The Accurate Solution for your Application: Magnetostrictive Level Sensor

The most adaptable level sensor in our range, TORRIX can be used across a multitude of sophisticated level measurement applications. Users benefit from quick and easy installation, proven reliability and simple troubleshooting. With its highly precise magnetostrictive measuring principle, TORRIX achieves outstanding accuracy of up to ± 0.3 mm, among the very best in its class.

Why Choose TORRIX?

Quick and Precise

- + Easy to install; easy to use: TORRIX provides accurate level measurement across most stored liquids, saving your time and enabling to plan ahead for even the most challenging application
- + Simple field calibration and testing: No additional calibration equipment required.

Solution for the Most Complex Applications

- + The solution for interface measurement: With its two floats, the sensor measures both the filling and the interface accurately, even when an emulsion layer is present at the interface or when there is only a small difference of the dielectric constant value
- + Flexible use: TORRIX can be installed almost anywhere with its small probe head and tube with a diameter of just 6 mm

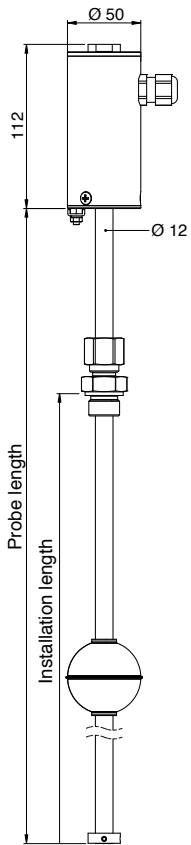
Main Features and Benefits

- + Easy to install and configure
- + Measuring the interface and fill level via HART®
- + 2-wire terminal (4 ... 20 mA / HART®)
- + Robust long-life design
- + Versions available from 100 mm to 6,000 mm
- + Resistant to shock and vibration (OIML D11)
- + Use in Ex zone 0 (ATEX and IECEx approval)
- + SIL 2 certified

Applications

- + Storage tanks and containers
 - + Interface measurements with emulsions
 - + Pilot plants and prototype systems
 - + Manufacturing plants
-

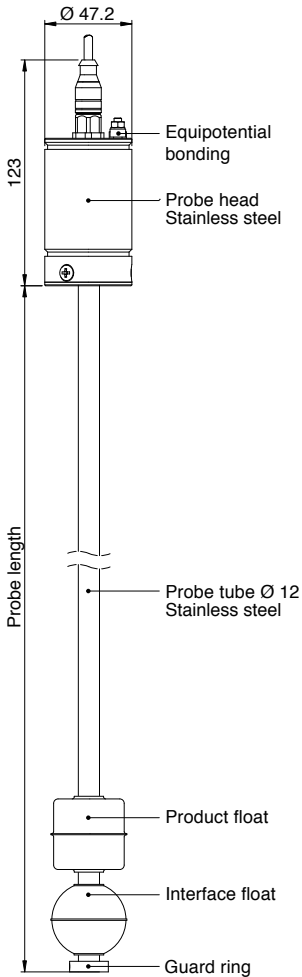
TORRIX – Technical Data



Probe head	
Protection class	IP68
Material	Stainless steel 1.4305 (303)
Cable terminal	M16 x 1.5 cable gland for cable diameter 5 to 10 mm ½" NPT threads for conduit cabling; M12 connector
Ambient temperature	-40 °C ... +85 °C
Probe tube	
Material	Stainless steel 1.4571 (316Ti); Hastelloy® C4/C22; Titan
Accuracy	
Filling level	Up to ±0.3 mm or ±0.01 %
Resolution (HART®)	0.1 mm
Electrical connection	
Connection	2-wire
Voltage	8 ... 30 V _{DC} , Ex version 10 ... 30 V _{DC}
Signal	Output power: 4 ... 20 mA / HART® Failure mode in accordance with NAMUR NE43
HART® functions	Float position in mm, cm, m, inches or feet; positioning of second float; interface (difference between floats); sensor status information; remote configuration
Process conditions	
Temperature	Up to 450 °C
Pressure	Up to 120 bar
Options	Vibration-resistant design (to OIML D11) ATEX and IECEx approval Qualified for SIL 2 (IEC 61508)



TORRIX RS485 – Technical Data

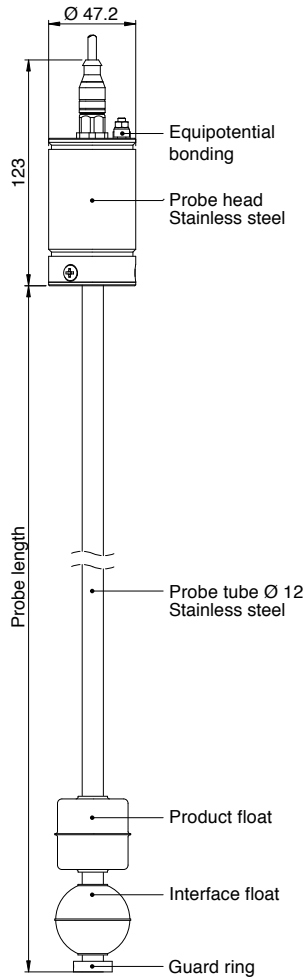


Probe head	
Protection class	IP68
Material	Stainless steel 1.4305 (303)
Cable terminal	M12 connector
Ambient temperature	-40 °C ... +85 °C
Probe tube	
Material	Stainless steel 1.4571 (316Ti)*
Accuracy	
Filling level	Up to ± 0.3 mm or ± 0.01 %
Temperature	Up to ± 0.3 °C
Electrical connection	
Connection	4-wire with RS485 interface
Voltage	24 V _{DC}
Protocol	Modbus (ASCII); FAFNIR Universal Device Protocol*
Functions	Positioning of up to two floats Temperature (optional) Sensor status information, configuration
Process conditions	
Temperature	Up to 450 °C For probes with integrated temperature sensors: -40 °C ... +85 °C
Pressure	Up to 120 bar
Options	
As Advanced version with increased measuring accuracy and 5 temperature sensors; (TORRIX RS485 and TORRIX RS485 flange) Vibration-resistant design (to OIML D11) ATEX and IECEx approval	

* Others on request



TORRIX SC – Technical Data



Probe head

Protection class	IP68
Material	Stainless steel 1.4305 (303)
Cable terminal	M12 connector
Ambient temperature	-40 °C ... +85 °C

Probe tube

Material	Stainless steel 1.4571 (316Ti)*
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Accuracy

Filling level	Up to ± 0.3 mm or ± 0.01 %
Temperature	Up to ± 0.3 °C

Electrical connection

Connection	4-wire, serial interface
Voltage	$< 10 V_{DC}$
Protocol	FAFNIR serial protocol (LOGI-X and VISY-X)
Functions	Positioning of up to two floats Temperature (optional) Sensor status information, configuration

Process conditions

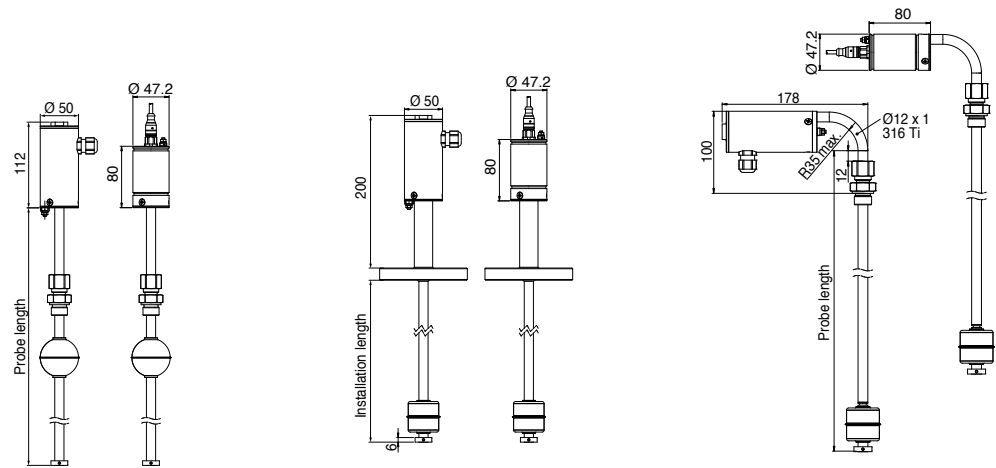
Temperature	Up to 450 °C For probes with integrated temperature sensors: -40 °C ... +85 °C
Pressure	Up to 120 bar

Options

As Advanced version with increased measuring accuracy and 5 temperature sensors; (TORRIX SC and TORRIX SC flange)
Vibration-resistant design (to OIML D11)
ATEX and IECEx approval

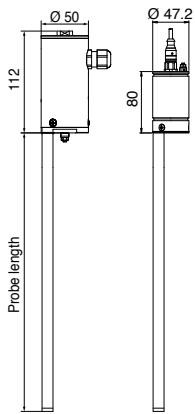
* Others on request





Name	TORRIX	TORRIX Flange	TORRIX 90
Type	4 ... 20 mA / HART®; SC; RS485	4 ... 20 mA / HART®; SC; RS485	4 ... 20 mA / HART®; SC; RS485
Description	Our standard sensor, with a variable process fitting. The installation length can be adjusted directly on the tank during installation.	The process connection is airtight welded to the sensor. This makes it especially suitable for applications in toxic liquids or at high pressures and temperatures.	The probe tube is bent by 90° which reduces the needed head space significantly. The best solution where head space is limited, i.e. for barrels stored under a table or in a safety cabinet.
Probe tube			
Diameter	12 mm	12 mm	12 mm
Length	100 mm ... 6,000 mm Highest temperature version (HHT) up to 3,000 mm	100 mm ... 6,000 mm Highest temperature version (HHT) up to 3,000 mm	150 mm ... 1,000 mm
Accuracy	Standard: ±0.5 mm or ±0.025 % Precision: ±0.3 mm or ±0.010 % (only NT)	Standard: ±0.5 mm or ±0.025 % Precision: ±0.3 mm or ±0.010 % (only NT)	Standard: ±0.75 mm or ±0.025 %
Process conditions			
Temperature	Normal temperature (NT): -40 °C ... +125 °C High temperature (HT): -40 °C ... +250 °C Highest temperature (HHT): -40 °C ... +450 °C Low temperature (LT): -65 °C ... +125 °C Lowest temperature (LLT)*: -200 °C ... +85 °C	Normal temperature (NT): -40 °C ... +125 °C High temperature (HT): -40 °C ... +250 °C Highest temperature (HHT): -40 °C ... +450 °C Low temperature (LT): -65 °C ... +125 °C Lowest temperature (LLT)*: -200 °C ... +85 °C	Normal temperature (NT): -40 °C ... +85 °C
Pressure (probe tube)	-1 bar ... 120 bar (20 °C) -1 bar ... 95 bar (250 °C) -1 bar ... 82 bar (450 °C)	-1 bar ... 120 bar (20 °C) -1 bar ... 95 bar (250 °C) -1 bar ... 82 bar (450 °C)	-1 bar ... 120 bar (20 °C)
Minimum process connection	G 3/8"	DN 25	G 3/8"

* Only as TORRIX M12: pressure range -1 bar ... +3 bar.



TORRIX Bypass

4 ... 20 mA / HART®;
SC; RS485

Our best solution for mounting on the outside of a magnetic level indicator. The TORRIX Bypass picks up the magnetic field of the floater. The ideal solution for retrofitting most brands of magnetic level indicators.

12 mm

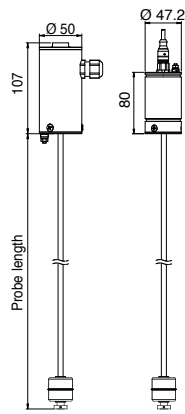
200 mm ... 6,000 mm
Highest-temperature version (HHT) up to 3,000 mm

Standard: ±0.50 mm or ±0.025 %

Normal temperature (NT):
-40 °C ... +125 °C
High temperature (HT):
-40 °C ... +250 °C
Highest temperature (HHT):
-40 °C ... +450 °C
Low temperature (LT):
-65 °C ... +125 °C

n.a.

n.a.



TORRIX 6

4 ... 20 mA / HART®;
SC; RS485

Where space is limited, our compact version of the TORRIX is ideal for applications in small containers, such as in the lab or in pilot plants.

6 mm

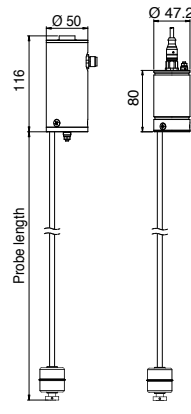
100 mm ... 1,000 mm

Standard: ±0.75 mm or ±0.025 %

Normal temperature (NT):
-40 °C ... +125 °C

-1 bar ... 16 bar (125 °C)

G ¼"



TORRIX 6B

4 ... 20 mA / HART®;
SC; RS485

If there is just a little space on the container cap, the TORRIX 6B is the ideal solution, because the probe head is not installed centrally.

6 mm

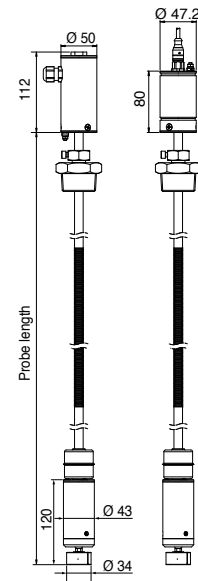
100 mm ... 1,000 mm

Standard: ±0.75 mm or ±0.025 %

Normal temperature (NT):
-40 °C ... +125 °C

-1 bar ... 16 bar (125 °C)

G ¼"



TORRIX Flex T / F

4 ... 20 mA / HART®; SC;
RS485; C (4 ... 20 mA)

The flexible version of our sensor for tall tanks. The sensor is shipped rolled in a compact package and then unrolled during installation.

12 mm / 13 mm (Version T/F)

Version T:
3,500 mm ... 10,000 mm /
... 15,000 mm (SC; RS485; C)
Version F:
1,500 mm ... 5,000 mm

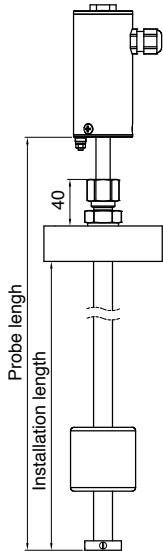
Standard: ±2 mm or ±0.025 %

Normal temperature (NT):
-40 °C ... +85 °C

-1 bar ... 2 bar (85 °C)

G ¾"

TORRIX Installation Kit



Function

The installation kit consists of a jacketed pipe with process fitting and float. The installation kit is installed in the tank, and the TORRIX measuring sensor is then inserted into the jacketed pipe. TORRIX picks up the magnetic field of the float on the installation kit and can thereby determine the product filling level. The sensor does not come in contact with the medium.

Aggressive liquids

The plastic installation kit (PP, PVDF, PVC) is the best solution for use in aggressive liquids, because it separates the TORRIX measuring sensor from the liquid.

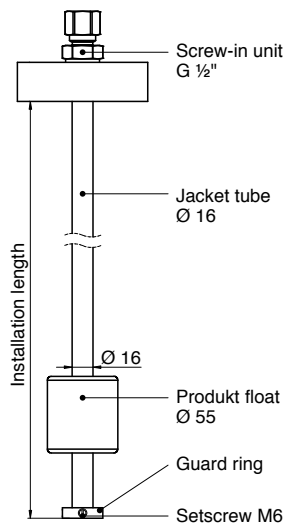
Mobile containers

Applications in which containers or barrels are delivered to the customer by the supplier can be excellently monitored using an installation kit. TORRIX can be used to monitor the filling level constantly both when the supplier fills the tanks and when the customer draws from the tanks, without the need to open the container.

Pressure tanks

The measuring sensor is located outside the pressurized area. This allows pressure testing without impeding sensor. The sensor can be installed or replaced later without the need to open the tank.

Installation Kit Options



For Applications in Aggressive Liquids

Jacket tube

Length 150 mm ... 5,000 mm

Material PVDF, PP or PVC

Process conditions

Temperature PP: -20 °C ... +85 °C; PVC: -20 °C ... +60 °C; PVC: -20 °C ... +100 °C

Pressure Max. 1 bar

Minimum process connection

Screwing G 2"; G 3"

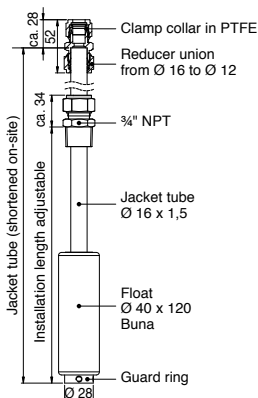
Flange DN65 to DN100

Product float

Shape Cylinder 55 x 69 mm

Material PVDF, PP or PVC

Medium density > 0.82 g/cm³



For Applications in LPG Tanks

Jacket tube

Length 150 mm ... 4,500 mm

Material Stainless steel 1.4571 (303)

Process conditions

Temperature -40 °C ... +85 °C

Pressure Max. 16 bar

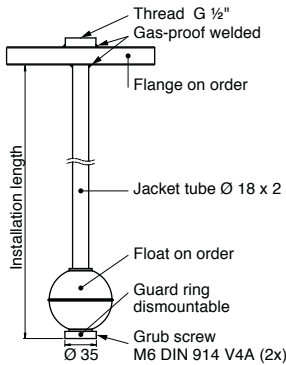
Product float

Shape Cylinder 40 x 120 mm

Material Buna

Medium density > 0.45 g/cm³

Installation Kit Options



Heavy-Duty Installation Kit

Jacket tube

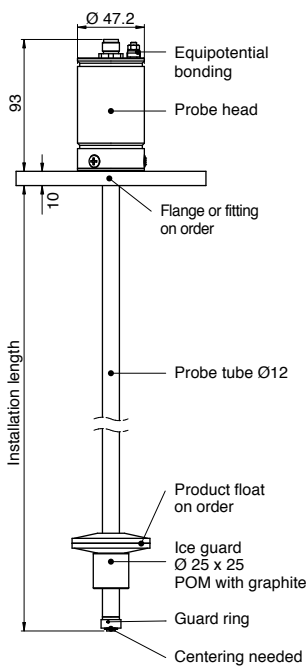
Length	1,000 mm ... 6,000 mm
Material	Stainless steel 1.4571 (303)
Diameter	18 x 2 mm
Process connection	Welded flange or thread

Process conditions

Temperature	-40 °C ... +450 °C
Pressure	Max. 60 bar

TORRIX Mobile – Technical Data

A vibration-resistant version for use in tank trucks, mobile tanks, tank wagons and other applications in which containers are subject to strong vibration.



Probe head

Protection class	IP68
Material	Stainless steel 1.4305 (303)
Cable terminal	M12 connector
Ambient temperature	-40 °C ... +85 °C

Tube

Material	Stainless steel 1.4571 (303)
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Accuracy

Filling level	0.5 mm or ±0.025 %
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Output signal

TORRIX CVT	4 ... 20 mA
TORRIX RS485VT	RS485 interface
TORRIX SCVT	Serial interface

Process conditions

Temperature	-40 °C ... +85 °C
Pressure	-1 bar ... +3 bar

Minimum process connection

Minimum process connection	Welded flange; welded thread; Screwing (cutting ring)
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Configuration

Configuration	Programming of TORRIX CVT with FAFNIR USB adapter (available separately) TORRIX RS485VT and TORRIX SCVT with programming software
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CONDURIX

The Ultimate Solution for Sticky Liquids: Potentiometric Level Sensor

Even in the most viscous or dirty liquids, CONDURIX delivers the most reliable tank-level information. Its small probe head makes it especially suitable for tight spaces. This means that CONDURIX can be used for a wide range of applications in all electrically conductive liquids with conductivity at or above 1 $\mu\text{S}/\text{cm}$.

Why Choose CONDURIX?

Quick and Precise

- + Easy installation, no configuration: This saves time and prevents errors

Solution for the Most Complex installation

- + With its small probe head, CONDURIX can be installed almost anywhere
- + The CONDURIX level sensor is suitable not only for fill level measurement, but also for interface level measurement

Ideal for Adhesive and the Most Viscous Liquids

- + Contaminants in waste water have no effect on measurement reliability

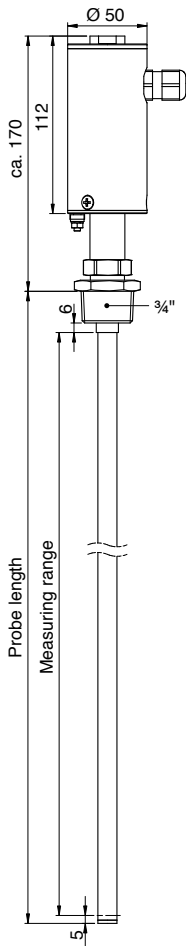
Main Features and Benefits

- + 2-wire terminal (4 ... 20 mA / HART®)
- + Level measurement result independent of pressure, temperature and density
- + Fill level and/or interface measurement
- + Response time of 0.2 seconds
- + Use in all electrically conductive liquids $\geq 1 \mu\text{S}/\text{cm}$
- + Robust long-life design
- + Versions available from 100 mm to 4,000 mm
- + ATEX approval for zone 0

Applications

- + Sticky and viscous media
 - + Aqueous solutions
-

CONDURIX – Technical Data



Probe head

Protection class	IP68
Material	Stainless steel 1.4305 (303)
Cable terminal	M16 x 1.5 cable gland for cable diameter 5 to 10 mm 1/2" NPT threads for conduit cabling; M12 connector
Ambient temperature	-40 °C ... +85 °C

Probe tube

Tube	Stainless steel 1.4571 (316Ti); Hastelloy® C4/C22
Sealing	PEEK, PTFE or FFKM and Ceramic (Al ₂ O ₃ 99.7 %)

Accuracy

Filling level	±1 mm or ±1 %
Resolution (HART®)	0.1 mm

Electrical connection

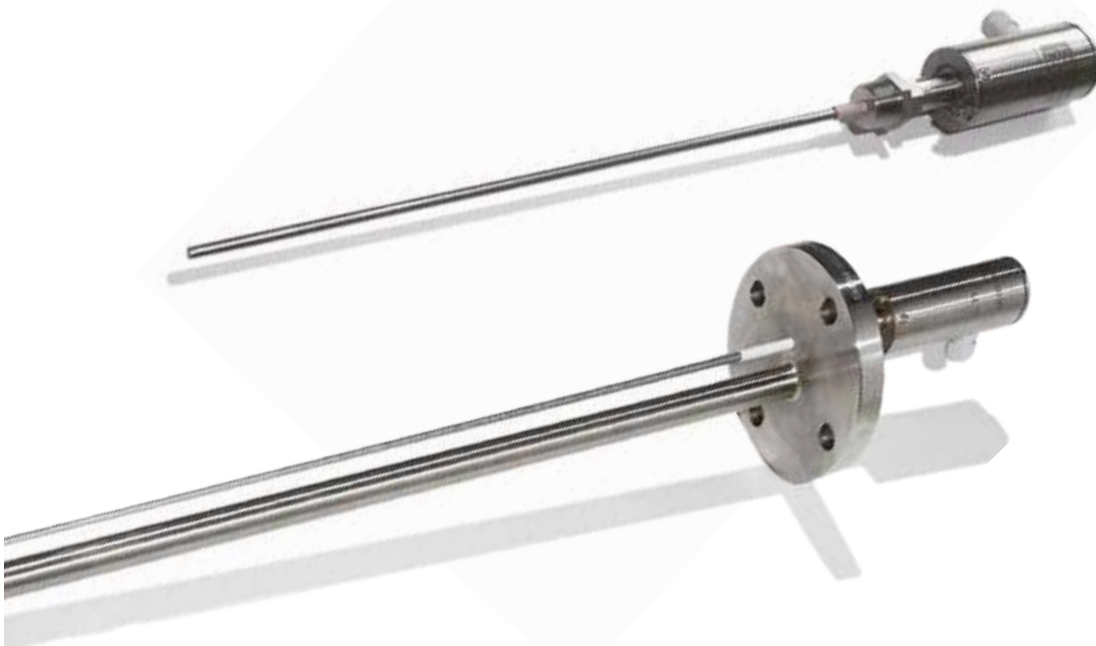
Connection	2-wire
Voltage	8 ... 30 V _{DC} , Ex version 10 ... 30 V _{DC}
Signal	Output power: 4 ... 20 mA / HART® Failure mode in accordance with NAMUR NE43
HART® functions	Fill level in mm, cm, m, inch or feet; configuration

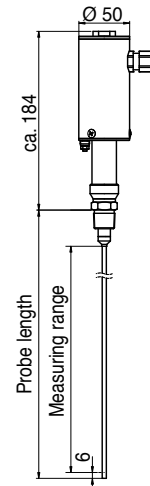
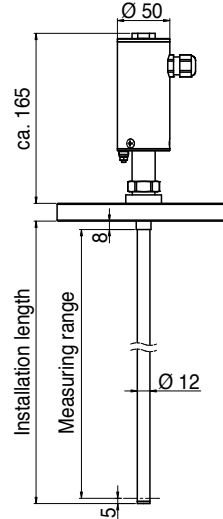
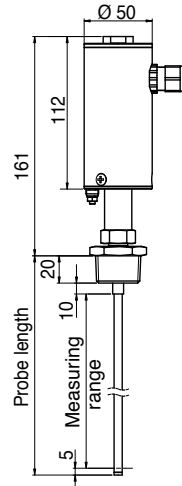
Process conditions

Temperature	Up to 200 °C
Pressure	Up to 100 bar

Options

Options	ATEX approval
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Name
CONDURIX MONO HART NT
CONDURIX MONO HART HT
Description

Our standard CONDURIX, ideal for use in conductive tanks. Available with two different probe diameters.

Our high-temperature and high-pressure version. Ideal for small conductive tanks, such as in pilot plants.

Probe tube

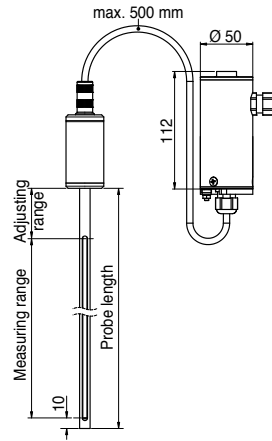
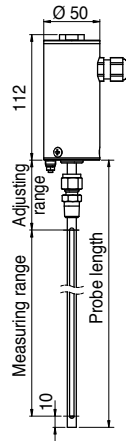
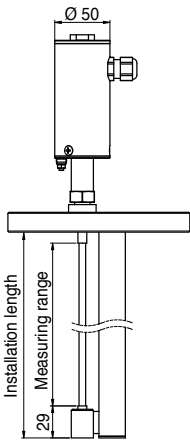
	6 mm	12 mm	4 mm
Diameter	6 mm	12 mm	4 mm
Length	150 mm ... 1,500 mm	500 mm ... 4,000 mm	100 mm ... 600 mm
Sealing material	PEEK	PEEK	FFKM and Ceramic (Al ₂ O ₃ 99.7 %)

Process conditions

	Normal temperature (NT): -40 °C ... +125 °C	Normal temperature (NT): -40 °C ... +125 °C	High temperature (HT): 0 °C ... +200 °C
Temperature	Normal temperature (NT): -40 °C ... +125 °C	Normal temperature (NT): -40 °C ... +125 °C	High temperature (HT): 0 °C ... +200 °C
Pressure (probe tube)	-1 bar ... 100 bar (room temperature) -1 bar ... 25 bar (125 °C)	-1 bar ... 100 bar (room temperature) -1 bar ... 25 bar (125 °C)	-1 bar ... 100 bar (100 °C) -1 bar ... 50 bar (200 °C)

Minimum process connection

	R ¾" DN 25	R 1" DN 25	R ½" DN 25
Minimum process connection	R ¾" DN 25	R 1" DN 25	R ½" DN 25



CONDURIX DU HART NT

Our CONDURIX with an integrated counter electrode, ideal for non-conductive or coated tanks. Also the best solution if strong lateral forces are in the tank due to strong turbulences.

CONDURIX MA HART NT

Our best solution for small, non-conductive containers, i.e. glass reaction containers. Since the height can be adjusted, the same sensor can be used in different container sizes.

CONDURIX MA HART NT Steck

The sensor with the detachable head: Where space is limited or in applications where the probe tube needs to be cleaned regularly, this can be done without the risk of damaging the electronics.

Probe tube: 6 mm Counter electrode: 24 mm	Outer tube: 8 mm (counter electrode) Inner tube: 4 mm (measuring tube)	Outer tube: 8 mm (counter electrode) Inner tube: 4 mm (measuring tube)
200 mm ... 6,000 mm	100 mm ... 600 mm	100 mm ... 600 mm
PEEK	PEEK/PTFE	PEEK/PTFE
Normal temperature (NT): -40 °C ... +125 °C	Normal temperature (NT): -40 °C ... +125 °C	Normal temperature (NT): -40 °C ... +125 °C
-1 bar ... 100 bar (room temperature) -1 bar ... 25 bar (125 °C)	-1 bar ... 10 bar (room temperature)	-1 bar ... 10 bar (room temperature)
R 1 3/4" DN 50	G 1/4"	G 1/4"

DIVELIX

The Ideal Solution for Oily Liquids: Hydrostatic Level Sensor

DIVELIX continuously measures filling levels of liquids in storage tanks and containers. It is also especially designed to provide accurate measurement of oil liquids such as brake fluid, glycerine, glycol ...

DIVELIX is used in diesel, fuel oil and oil tanks of trade and industry, as well as in domestic tanks with non-hazardous liquids and low solids content; a very versatile sensor.

Why Choose DIVELIX?

Quick and Precise

+ DIVELIX operates according to a hydrostatic measuring principle. The pressure sensor integrated into the immersion probe measures the pressure and thus supplies a signal proportionally to the filling level.

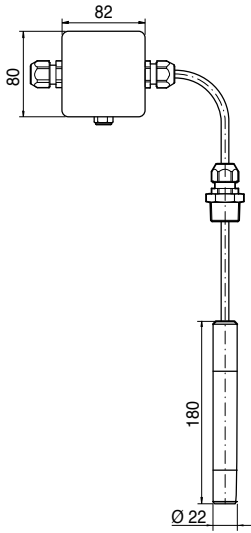
Main Features and Benefits

- + Compact design
- + Suitable for small installation openings
- + Robust and corrosion-resistant
- + Maintenance-free

Applications

- + Diesel and heating oil tanks in trade and industry
- + Domestic tanks





Filling level	±0.2 % ±0.05 % (temperature compensated)
Electrical connection	
Connection	2-wire
Voltage	9 ... 32 V _{DC}
Signal	4 ... 20 mA
Process conditions	
Temperature	-25 °C ... +80 °C 0 °C ... +50 °C (temperature compensated)
Pressure	Overpressure max 1 bar
Options	
Pressure range	0 ... 400 mbar (0 ... 4 m for water) Other on request

LS 300 and LS 500

Protect Your Most Valuable Assets with the LS 300 and LS 500 Level Detection and Overfill Solution: Thermal Level Detector

With the FAFNIR thermal level detector (LS 300 with LS 500) with ATEX approval, your business and valuable liquid assets are protected. Our solution comprises a sensor, LS 300, which sits inside the tank and a transducer, LS 500, which manages the output relays. For polluting, corrosive and expensive liquids, the LS 300 with LS 500 certified as overfill prevention is an indispensable component for environmental and business protection.

Why Choose LS 300 with LS 500?

Quick and Precise

- + Easy installation due to a 2-wire connection to the transducer, protected against reverse polarity
- + The level detector requires no maintenance after installation, no hidden costs
- + No on-site calibration required

Dependable

- + Full and empty alarms for containers, storage tanks, underground and above-ground tanks, IBCs, tank wagons, barrels, bottles and collecting vats
- + Proven: tens of thousands of installations across Europe
- + Self-testing sensors
- + The overfill prevention fulfills the requirements of the German Water Resources Act (WHG)
- + SIL 2 certified

Durable

- + With no moving parts, the LS 300 boasts excellent life expectancy and outstanding reliability
- + Space-saving, robust and corrosion-free design
- + Adaptable, flexible; with an intermediate flange which is only 3mm in diameter or with DN 200 flange, we have a solution for almost any application

Applications

- + Any tank type or size
- + Collecting vats
- + Pilot plants and prototype systems
- + Tank arms for filling



LS 300 Sensor – Technical Data

Process temperature	Standard temperature: -25 °C ... +50 °C High temperature: -25 °C ... +80 °C Low temperature: -40 °C ... +50 °C (pressure-free)
Process pressure	0 bar ... 25 bar
Immersion switch delay	< 2 s
Heating-up time	At -20 °C < 2 min., At +60 °C < 15 s
Probe tube	
Wetted parts	Stainless steel 1.4571 (316Ti); Hastelloy C4/C22; Titan



LS 500 (wall housing)



LS 500 H Duo

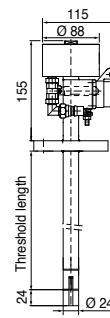
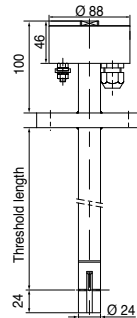
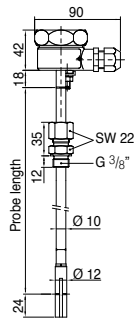
LS 500 Transducer – Technical Data

Name	LS 500	LS 500 H	LS 500 H Duo
Number of connections	1 Level detector	1 Level detector	2 Level detector
Auxiliary power	230 V _{AC} ; 115 V _{AC} ; 24 V _{DC} ; 24 V _{AC}	24 V _{DC}	24 V _{DC}
Power input	Max. 5 W	Max. 5 W	Max. 10 W
Ambient temperature	-25 °C ... +50 °C	-25 °C ... +50 °C	-25 °C ... +50 °C
Protection class	IP40		
Dimensions	H 150 x W 75 x D 110 [mm]	H 114.5 x W 22.5 x D 99 [mm]	H 114.5 x W 22.5 x D 99 [mm]
Outputs	Potential-free changeover contact: AC: U ≤ 250 V, I ≤ 5 A, P ≤ 100 VA DC: U ≤ 250 V, I ≤ 5 A, P ≤ 100 W	Potential-free changeover contact: AC: U ≤ 250 V, I ≤ 5 A, P ≤ 100 VA DC: U ≤ 250 V, I ≤ 5 A, P ≤ 100 W	Potential-free changeover contact: AC: U ≤ 250 V, I ≤ 5 A, P ≤ 100 VA DC: U ≤ 250 V, I ≤ 5 A, P ≤ 100 W
Output 1	Response to level detector 1	Response to level detector 1	Response to level detector 1
Output 2	Function S (interference) Optional: Option Z (Level detector 1 response)	Function S (interference) Optional: Option Z (Level detector 1 response)	Level detector 2 response
Options	Approval for LPG	SIL 2*	

* no second output, available in 3rd quarter 2017

Versions

Our LS 300 Standard sensor is suitable for most process connections, with variable screw-in unit or welded flange. For mobile applications with plug, for very critical applications also with pneumatic test connection, to test the sensor not only electronically, but the real physical measurement principal. For vehicles, tank containers and tanks which are moved frequently, we also offer our level detector with a plug. This allows a quick coupling and decoupling of the level detector.

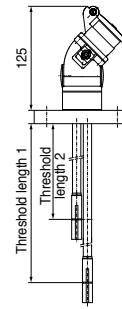
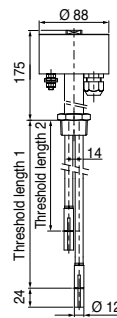
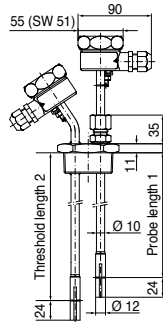


Name	LS 300 Standard	LS 300 FSU	LS 300 FSPU-Steck
Connection housing	Brass chrome-plated	Stainless steel	Stainless steel
Cable terminal	Cable gland	Cable gland	DD28 connector
Probe tube	10 mm / protective sleeve 12 mm	24 mm	24 mm
Minimum process connection			
Screwing	G 3/8"	G 1"	G 1"
Flange	DN 15	DN 25	DN 25

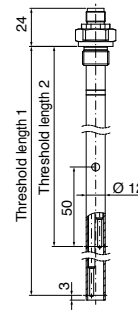
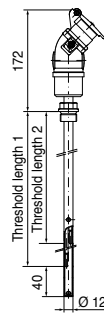
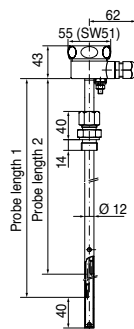


Steck and Duo Versions

For all applications where you need more than one level detector for your process control or as a warning in addition to the overflow protection. For vehicles, tank containers, and tanks which are moved frequently, we also offer our level detector with a plug. This allows a quick coupling and decoupling of the level detector.



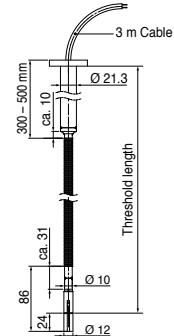
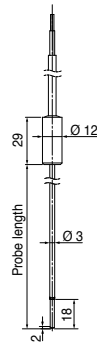
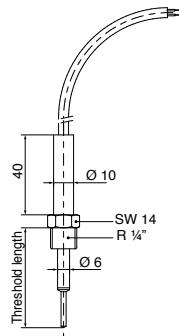
Name	LS 300 EU Duo	LS 300 ESU Duo	LS 300 FU Duo Steck
Connection housing	Brass chrome-plated	Stainless steel	Stainless steel
Cable terminal	Cable gland	Cable gland	DD28 connector
Probe tube	2 x 10 mm / protective sleeve 12 mm	2 x 10 mm / protective sleeve 12 mm	2 x 10 mm
Minimum process connection			
Screwing	R 1"	R 1"	R 1"
Flange	DN 25	DN 25	DN 25



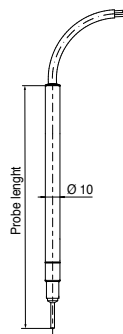
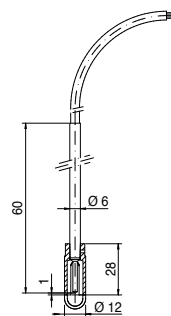
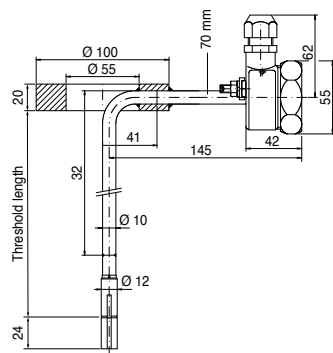
Name	LS 300 E Duo	LS 300 EXU Steck Duo	LS 300 Ex Steck (Mono/Duo)
Connection housing	Brass chrome-plated		
Cable terminal	Cable gland	DD28 connector	M12 connector
Probe tube	12 mm	12 mm	12 mm
Minimum process connection			
Screwing	G 1/2" (variable)	G 3/4"	G 3/8"

Special Design

We offer a variety of special designs that are designed where space is limited or installation conditions are difficult and challenging. Here are some examples from our portfolio of special designs – challenge us!



Name	LS 300 E B6	LS 300 B3	LS 300 FUX
Connection housing			
Cable terminal	Cable is moulded and fixed	Cable is moulded and fixed	Cable is moulded and fixed
Probe tube	6 mm	3 mm	10 mm / socket 12 mm
Minimum process connection			
Screwing	R 1/4"		



Name	LS 300 Intermediate Flange	LS 300 Interstitial	LS 300
Connection housing	Brass chrome-plated		
Cable terminal	Cable gland	Cable is moulded and fixed	Cable is moulded and fixed
Probe tube	10 mm / sleeve 12 mm	6 mm / 12 mm	10 mm
Minimum process connection			
Flange	DN 50		

76 A and NB 220

Protect Your Business and Environment: with 76 A and NB 220 Overfill Solution for Polluting Liquids

FAFNIR's thermal overfill prevention device; the combination of the level detector 76 A and the measuring transducer NB 220 H is the ideal solution for overfill prevention of your tanks with water-polluting liquids.

Flexibility is key; with the option of having acoustic or visual signals directly integrated into the transducer, the FAFNIR solution adapts to your needs.

Why Choose 76 A with NB 220?

Quick and Precise

- + Easy installation due to a 2-wire connection to the transducer, protected against reverse polarity
- + The overfill prevention requires no maintenance after installation; no hidden costs
- + No on-site calibration required
- + Self-testing sensor

Dependable

- + The overfill prevention fulfills the requirements of the German Water Resources Act (WHG)
- + Proven: tens of thousands installations across Europe

Durable

- + With no moving parts, the 76 A and the NB 220 have excellent life expectancy and outstanding reliability
- + Space-saving, robust and corrosion-free design

Applications

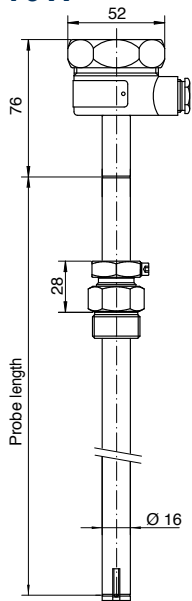
- + Diesel tanks
- + Storage tanks
- + Oil containers
- + Collection basins and safety pans



76 A – Technical Data

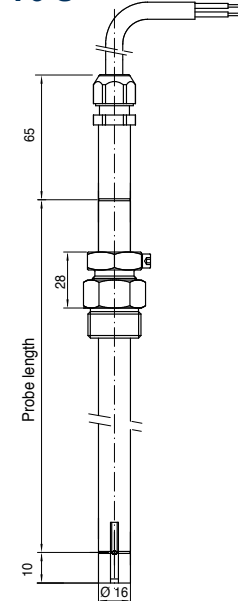
	76 A / 76 C	76 N
Process temperature	Standard: -25 °C ... +50 °C High temperature: -25 °C ... +80 °C	
Process pressure	0 bar ... 2 bar	
Immersion switch delay	< 2 s	
Heating-up time	At -20 °C < 2 min. At +60 °C < 15 s	
Material		
Connection housing	Brass	Brass, chrome-plated
Wetted parts (without test prod)	Stainless steel Spring steel, zinc-plated Vulkollan	Stainless steel 1.4301 (304) to 1.4571 (316Ti)
Test prod	POM; stainless steel 1.4301 (304) to 1.4571 (316Ti)	POM; stainless steel 1.4301 (304) to 1.4571 (316Ti)
Protection class	IP67	IP67
Cable terminal	Cable gland	Cable gland
Probe tube (outer Ø)	16 mm	16 mm
Probe length	100 ... 3,000 mm	100 ... 3,000 mm
Minimum process connection	G ¾"	G ¾"

76 A



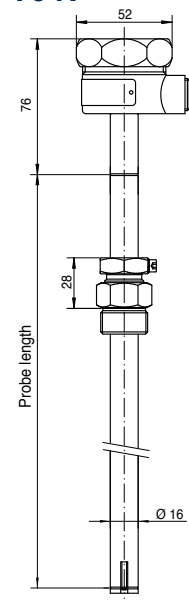
Our standard device for all applications. Easy installation as the sensor can be fitted independently of polarity.

76 C



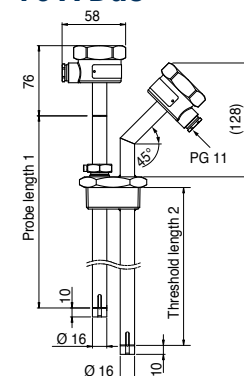
The version with the fixed cable, wherever there is no space for the housing, or for OEM applications with a pre-configured cable.

76 N

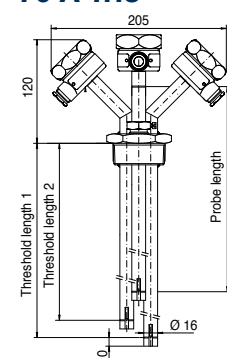


All media wetted parts are made of high-quality stainless steel this means the sensor is suitable, for example, for AdBlue.

76 A Duo



76 A Trio





NB 220 – Technical Data

Name	NB 220 H	NB 220 QS	NB 220 QSF
Number of connections	1 Level detector	1 Level detector	1 Level detector
Auxiliary power	230V _{AC} ; 115V _{AC} ; 24V _{DC} ; 24V _{AC}	230V _{AC} ; 115V _{AC} ; 24V _{DC} ; 24V _{AC}	230V _{AC} ; 115V _{AC} ; 24V _{DC} ; 24V _{AC}
Power input	Max. 6 W or 4 VA	Max. 6 W or 4 VA	Max. 6 W or 4 VA
Ambient temperature	-25 °C ... +60 °C	-25 °C ... +60 °C	-25 °C ... +60 °C
Protection class	IP40	IP40	IP40
Dimensions	H 110 x W 51 x D 110 [mm]	H 150 x W 75 x D 110 [mm]	H 163 x W 97 x D 62 [mm]
Outputs	Potential-free changeover contact: AC: U ≤ 250 V, I ≤ 4 A, P ≤ 100 VA; DC: U ≤ 250 V, I ≤ 250 mA, P ≤ 50 W	Switched power supply	Potential-free changeover contact: AC: U ≤ 250 V, I ≤ 4 A, P ≤ 100 VA; DC: U ≤ 250 V, I ≤ 250 mA, P ≤ 50 W
Output 1	Not acknowledgeable	Changeover contact; potential of auxiliary power, not acknowledgeable *	Not acknowledgeable
Output 2		NO switch, potential of auxiliary power, acknowledgeable *	Acknowledgeable
Input		External potential-free acknowledge button	External potential-free acknowledge button
Acoustic signal		Integrated horn	Integrated horn
Acknowledge button		Integrated acknowledge button	Integrated acknowledge button
Test button			Available
Option	Dry run protection	Dry run protection	Dry run protection

* Outputs are protected with a 2 A fuse (total).

Display

HPH Ex d

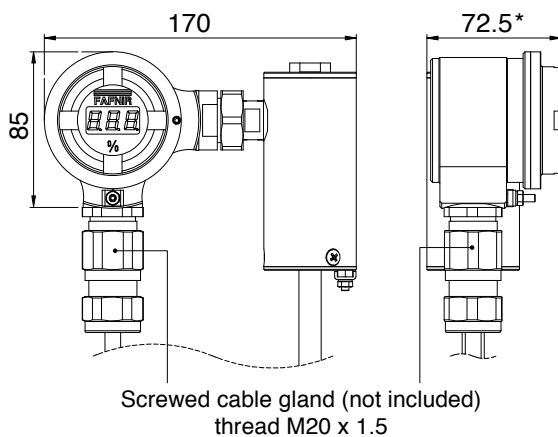
High Pressure Connection Housing for the TORRIX and CONDURIX

HPH Ex d is a connection housing with ignition protection "Ex d" (flameproof enclosure) for the supply of intrinsically safe sensors with non-intrinsically safe power supply units.



Main Features and Benefits

- + On-site display for level indication
- + 10mm LED, adjustable display
- + Easy to install
- + Intrinsically safe power supply for Ex zone 0
- + ATEX and IECEx approval
- + Robust design



* with display: 72.5 mm
without display: 65.5 mm

HPH Ex d – Technical data

Operating data

Ambient temperature	0 °C ... +85 °C
Protection class	IP68
Auxiliary power	21 ... 26 V without display 21 ... 29 V with display
Voltage drop	8 V without display (Ex) 11 V with display (Ex) 4 V with display
Accuracy	0.1 % (4 ... 20 mA)
Display	3-digit display 10 mm 0 % [4 mA] ... 100 % [20 mA]
Display range	-9.9 % ... +199 %

UM-X

Standalone Measuring Transducer for Continuous Level Measurement

In field housing, the UM-X offers a convenient, stand-alone display for your level measurement.



Main Features and Benefits

- + Easy, menu-driven graphical user interface
- + Compatible for use with all sensors with 4 ... 20 mA interface
- + Intrinsically safe electrical circuit with ATEX approval (Ex ia)
- + In combination with TORRIX, approved as overflow prevention fulfilling the requirement of the German Water Resources Act (WHG)
- + Pump control (alternating)
- + Continuous display of the filling level
- + Filling level can be displayed in mm, inches, % or mA

UM-X – Technical Data

Operating data

Auxiliary power 230 V_{AC}, 115 V_{AC}, 24 V_{DC} or 24 V_{AC}

Maximum power input < 5 W, < 8 VA

Ambient temperature -20 °C ... +50 °C

Protection class IP64

Accuracy 0.1 % (4 ... 20 mA)

Sensor electrical circuit 4 ... 20 mA; U₀ = 28 V
Short circuit proof

Output

Five relays each with potential-free changeover contact Load
AC: U ≤ 250 V, I ≤ 5 A, P ≤ 100 VA
DC: U ≤ 250 V, I ≤ 250 mA, P ≤ 50 W

Dimensions H 130 x W 180 x D 50 [mm]

Accessories

Collective Acknowledgement Unit Sam 8

The collective acknowledgement unit can connect to a maximum of 8 transducers. The signal from just one of the eight transducers trigger the alarm. This switches two relay terminals, one acknowledgeable (e.g. an audible alarm) and one not (e.g. an optical alarm).



SAM 8 – Technical Data

Name	Description
Auxiliary power	230 V _{AC}
Power input	8 VA
Ambient temperature	+5 °C ... +40 °C
Protection class	IP20
Dimensions	H 75 x W 100 x D 63 [mm]
Outputs	230 V switched; 1 x acknowledgeable changeover contact, 1 x non-acknowledgeable changeover contact; Load: max. 1 A
Inputs	1 x Acknowledge button (NC normally closed contact), switching capacity: 230 V (50 Hz), 10 mA; 8 x Switching input; switching capacity: 230 V _{AC} (50 Hz), 1.7 mA

Acknowledgement Unit QE 200

The acknowledgement unit extends the functionality of the LS 500 and NB 220 H measuring transducers with two auxiliary power supply loaded changeover contacts and an acknowledgement function. Acoustic and visual alarm transmitters can therefore be integrated into the system.



QE 200 – Technical Data

Name	Description
Auxiliary power	230 V _{AC} ; 24 V _{DC}
Power input	Max. 2 VA, 2 W
Ambient temperature	-25 °C ... +60 °C
Protection class	IP40
Dimensions	H 110 x W 50 x D 125 [mm]
Outputs	Switched auxiliary power supply; 1 x acknowledgeable alarm, 1 x non-acknowledgeable alarm; Load: together, max. 100 W
Inputs	Acknowledgement button (NO), control input (for connecting the LS 500 or the NB 220 H)

Wall Fitting 907 Z

In combination with the Wall Fitting 907 Z, our overflow prevention device (76 with NB 220) can be used as limit sensor for the filling from a tanker. The plug in the Wall Fitting serves as the counterpart for the 903 junction boxes usual in the tankers. The Wall Fitting is connected to the relay output of the NB 220. This allows the overflowing to be signalled back to the tank truck.

Sample application:

Delivering fresh oil (motor oil, transmission oil, etc.) by tank trucks with amplifiers.





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