



Process Automation



Process Automation

Level Sensors | Level Switches | Overfill Prevention
Pressure Sensors | Temperature Sensors



Accurate



Flexible



Reliable

Sensors and Systems: www.fafnir.com

FAFNIR Sensors and Systems

Reliable, Universal Solutions for Your Level, Pressure and Temperature 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 approximately 45 years, driving industry innovation, and listening to our customers and their requirements, we are pleased to present FAFNIR's German-made, high-precision level, pressure and temperature measurement devices for the petroleum, pharmaceutical, chemical and food industries to you, our customers.

Why Buy FAFNIR Sensors and Systems?



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-and-play" sensors, installation is quick and easy
- + With pre-calibration, once installed, no adaptation to the liquid is required
- + Our sensor lifespan and failure rate is second to none. FAFNIR's field-proven sensors are installed globally



With 45 Years' Engineering and Manufacturing Experience, Customer Service is Key

- + Regardless of order complexity or size, we will find a solution for your business
- + We have listened to the market and we know you need the full solution from one supplier
- + We have extended our product portfolio to include pressure and temperature measurement so FAFNIR is at the forefront of your measurement needs
- + The FAFNIR team are experts. We design, manufacture and calibrate all of our products to the highest quality



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 are proven in temperatures of up to 450 °C or with up to 200 bar of pressure
- + 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

Contents

Level Sensors	6
Point Level Sensors and Overfill Prevention	16
Pressure Sensors	25
Temperature Sensors	36
Accessories	44

Level Sensors

TORRIX: Magnetostrictive Level Sensor	6
CONDURIX: Potentiometric Level Sensor	10
DIVELIX: Hydrostatic Level Sensor	14

Point Level Sensors and Overfill Prevention

LS 300/LS 500: ATEX Approved Solution	16
76 A/NB 220: Standard Solution	21

Pressure Sensors

PRESSURIX A: Advanced Pressure Sensor	26
PRESSURIX S: Standard Pressure Sensor	30
PRESSURIX C: Compact Pressure Sensor	34

Temperature Sensors

TEMPERIX S: Standard Temperature Sensor	37
TEMPERIX C: Compact Temperature Sensor	40
TEMPERIX S Clamp: Standard Pipe Temperature Sensor	42

Accessories

Various: Transducers, Wall Mounting	44
HPH Ex d: High Pressure Connection Housing	46
UM-X: Standalone Transducer	47

TORRIX

Highly Versatile, Magnetostrictive Level Sensor Solution

The most adaptable level sensor in our range, TORRIX can be used across a multitude of the most complicated level measurements 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 $\pm 0.3\text{mm}$, 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 all stored liquids, saving you time and enabling you to plan ahead for even the most challenging application
- + Simple to field-calibrate and field-test; no additional calibration equipment required

A Solution for the Most Complex installation

- + The solution for interface layer measurement; equipped with two floats, the sensor measures both the filling and the interface layer precisely, even when an emulsion layer is present at the interface or when there is only a small difference of the DC value
- + TORRIX can be installed almost anywhere with its small sensor head and tube with a diameter of just 6mm

Installed and Tested in Multiple Industries

- + Chemical, petrochemical, liquid gas, pharmaceutical, laboratory, off-shore, ship building, power plants, energy systems, mechanical engineering, process and drinking water treatment

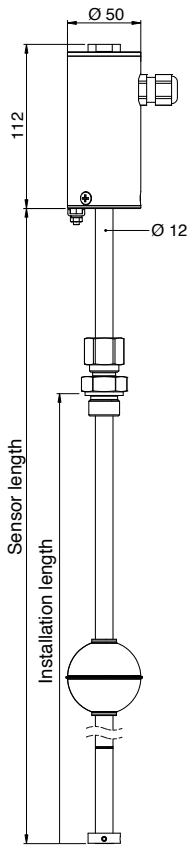
Main Features and Benefits

- + Easy to install and configure
- + Measurement of the interface layer and the filling level via HART®
- + 2-wire terminal (4 to 20 mA/HART®)
- + Robust long-life design
- + Versions available from 100 mm to 10,000 mm
- + Resistant to shock and vibration (OIML D11)
- + Use in Ex zone 0 (ATEX and IECEx approval)
- + Qualified for SIL2 applications

TORRIX Applications

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

TORRIX – Technical Data



Probe head

Protection class	IP68
Material	Stainless steel 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 to + 85 °C

Probe tube

Material	Stainless steel 316 Ti; Hastelloy® C4/C22
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Accuracy

Filling level	up to ±0.3 mm or ±0.01 %
Resolution (HART®)	0.1 mm

Electrical connection

Connection	2-wire
Voltage	8 to 30 V _{DC} , Ex version 10 to 30 V _{DC}
Signal	Power output: 4 to 20 mA/HART®; Failure mode confirmed with NAMUR NE43 Serial Protocol to connect to LOGI-X
HART® functions	Float position in mm, cm, m, inches or feet; positioning of second float; separation layer (difference between floats); sensor status information; Remote Configuration

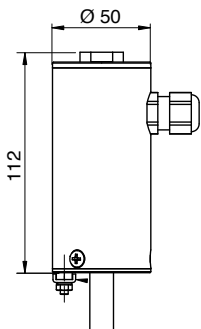
Process conditions

Temperature	Up to 450 °C
Pressure	Up to 200 bar

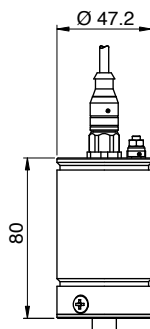
Options

Options	Vibration-resistant design (to OIML D11) ATEX and IECEx approval Qualified for SIL 2 (IEC 61508)
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Sensor Head Options



Standard design for all sensors with 4 to 20 mA/HART® output

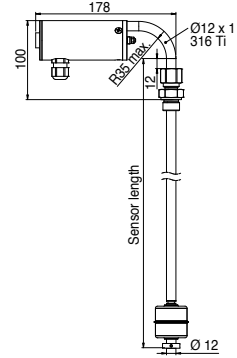
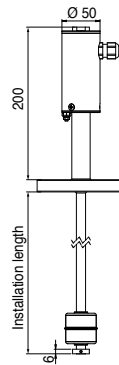
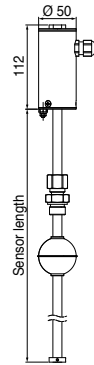


Compact design for all TORRIX SC version with serial interface to connect to the LOGI Command

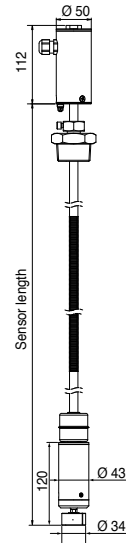
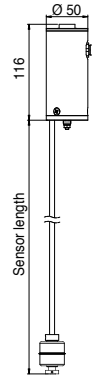
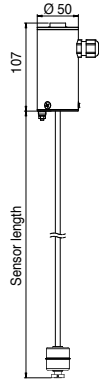
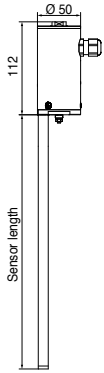


For order code and technical documentation visit:
www.fafnir.com/TORRIX





Name	TORRIX	TORRIX Flange	TORRIX 90
Description	Our standard sensor, with a variable process connection. The sensor length can be adjusted directly on the tank during installation. Most standard threads up to 1.5 are available.	The process connection is airtight welded to the sensor, making it especially suitable for high-pressure application or application with toxic liquid.	The sensor head bends by 90 °C, 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 to 6,000 mm Highest-temperature version (HHT) up to 3,000 mm	100 mm to 6,000 mm Highest temperature version (HHT) up to 3,000 mm	150 mm to 500 mm
Accuracy	Standard: ± 0.5 mm or ± 0.025 % Precision: ± 0.3 mm or ± 0.01 % (only NT)	Standard: ± 0.5 mm or ± 0.025 % Precision: ± 0.3 mm or ± 0.01 % (only NT)	Standard: ± 0.75 mm or ± 0.025 %
Process conditions			
Temperature	Normal temperature (NT): -40 °C to +125 °C High temperature (HT): -40 °C to +250 °C Highest temperature (HHT): -40 °C to +450 °C Low temperature (LT): -65 °C to +125 °C	Normal temperature (NT): -40 °C to +125 °C High temperature (HT): -40 °C to +250 °C Highest temperature (HHT): -40 °C to +450 °C Low temperature (LT): -65 °C to +125 °C	Normal temperature (NT): -40 °C to +125 °C
Pressure	-1 bar to 120 bar (20 °C) -1 bar to 95 bar (250 °C) -1 bar to 82 bar (450 °C)	-1 bar to 120 bar (20 °C) -1 bar to 95 bar (250 °C) -1 bar to 82 bar (450 °C)	-1 bar to 120 bar (20 °C)
Minimal process connection	G 3/8"	DN 25	G 3/8"



TORRIX Bypass

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 indicator.

TORRIX 6

Where space in the process container is limited, our compact version of the TORRIX is ideal for application in small containers, for example in the lab or in pilot plants.

TORRIX 6B

When not only the space in the container is limited, but also at the top of the containers, where the TORRIX sensor tubing and other connection already have taken up most of the space. Our Sensor tube is mounted off-centre.

TORRIX Flex T/F

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

12 mm	6 mm	6 mm	12 mm/13 mm (Version T/F)
200 mm to 6,000 mm Highest-temperature version (HHT) up to 3,000 mm	100 mm to 1,000 mm	100 mm to 1,000 mm	3,500 mm to 10,000 mm (Version T) 1,500 mm to 5,000 mm (Version F)
Standard: ± 0.5 mm or ± 0.025 %	Standard: ± 0.75 mm or ± 0.025 %	Standard: ± 0.75 mm or ± 0.025 %	Standard: ± 2 mm or ± 0.025 %
Normal temperature (NT): -40 °C to +125 °C High temperature (HT): -40 °C to +250 °C Highest temperature (HHT): -40 °C to +450 °C Low temperature (LT): -65 °C to +125 °C	Normal temperature (NT): -40 °C to +125 °C	Normal temperature (NT): -40 °C to +125 °C	Normal temperature (NT): -40 °C to +85 °C
n.a.	-1 bar to 16 bar (125 °C)	-1 bar to 16 bar (125 °C)	-1 bar to 2 bar (85 °C)
n.a.	G 1/4"	G 1/4"	G 3/8"

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. Due to the small sensor head, with a diameter of only 6mm, CONDURIX can be used in a wide range of applications, in all electrically conductive liquids with a conductance $\geq 1 \mu\text{S}/\text{cm}$.

Why Choose CONDURIX?

Quick and Precise

- + As with all FAFNIR solutions, the sensor is easy to install, saving you valuable time with no adjustments to the tank or liquid required

A Solution for the Most Complex Installation

- + CONDURIX can be installed almost anywhere with its small sensor head and tube with a diameter of just 6mm
- + The CONDURIX level sensor is designed not only for filling-level measurement, but also for interface-level measurement

Installed and Tested in Multiple Industries

- + Chemical, petrochemical, liquid gas, pharmaceutical, off-shore, ship building, power plants, energy systems, process & drinking water treatment, laboratory

Ideal for Adhesive and the Most Viscous Liquids

- + Contaminated liquids such as waste water have no impact on the reliability of the measurement

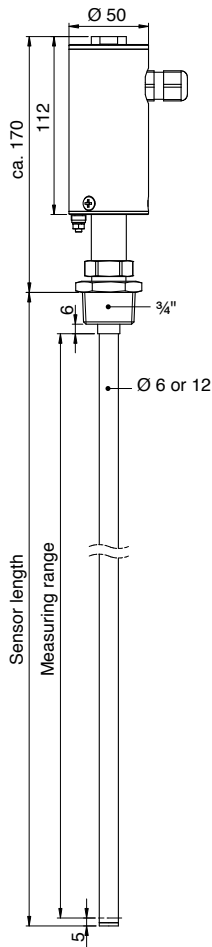
Main Features and Benefits

- + 2-wire terminal (4 to 20 mA/HART®)
- + Level measurement result independent of pressure, temperature and density
- + Filling level or interface layer 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 150 mm to 6,000 mm
- + ATEX approval for zone 0

Tried and Tested

- + Sticky and viscous media
 - + Aqueous solutions
-

CONDURIX – Technical Data



Probe head

Protection class	IP68
Material	Stainless steel 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 to +85 °C

Probe tube

Tube	Stainless steel 316 Ti; Hastelloy® C4/C22
Sealing	PEEK, PTFE or FFKM and Ceramic (Al2O3 99.7 %)

Accuracy

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

Electrical connection

Connection	2-wire
Voltage	8 to 30 V _{DC} , Ex version 10 to 30 V _{DC}
Signal	Power output: 4 to 20 mA/HART®; Failure mode in accordance with NAMUR NE43
HART® functions	Level in mm, cm, m, inches or feet; Remote Configuration

Process conditions

Temperature	Up to 200 °C
Pressure	Up to 100 bar

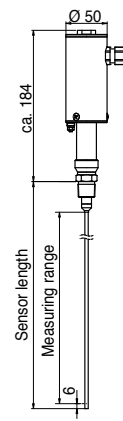
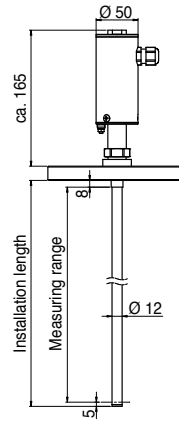
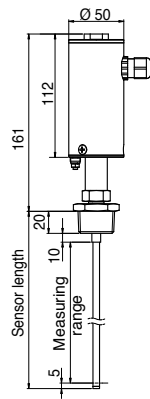
Options

Options	ATEX approval
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For order code and technical documentation visit:
www.fafnir.com/CONDURIX




Name
CONDURIX MONO HART NT
CONDURIX MONO HART HT
Description

Our standard CONDURIX, ideal for any conductive tank. Available with two different tube diameters.

Our high-temperature, high-pressure version. Ideal for small conductive tanks, i.e. in pilot plants.

Probe tube

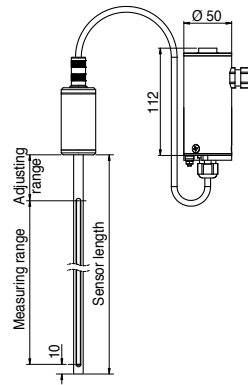
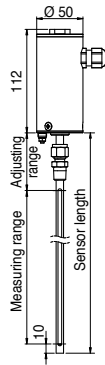
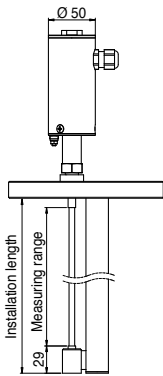
Diameter	6 mm	12 mm	4 mm
Length	150 mm to 1,500 mm	1000 mm to 3,000 mm	150 mm to 500 mm
Sealing material	PEEK	PEEK	FFKM and Ceramic (Al ₂ O ₃ 99.7 %)

Process conditions

Temperature	Normal temperature (NT): -40 °C to +125 °C	Normal temperature (NT): -40 °C to +125 °C	High temperature (HT), 0 °C to +200 °C
Pressure	-1 bar to 120 bar (room temperature) -1 bar to 25 bar (125 °C)	-1 bar to 120 bar (room temperature) -1 bar to 25 bar (125 °C)	-1 bar to 100 bar (100 °C) -1 bar to 50 bar (200 °C)

Minimal process connection

	G ½" DN 25	G ½" DN 25	G ½" DN 25
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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 turbulence.

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 head can be separated; where space is limited or in applications where the sensor tubing needs to be cleaned regularly, this can be done without risking damage to the electronics.

Sensor tube: 6 mm
Counter electrode: 24 mm
200 mm to 6000 mm
PEEK

Outer tube: 8 mm (counter electrode)
Inner tube: 4 mm (Measuring tube)
150 mm to 750 mm
PTFE

Outer tube: 8 mm (counter electrode)
Inner tube: 4 mm (Measuring tube)
150 mm to 500 mm
PTFE

Normal temperature (NT): -40 °C to +125 °C
-1 bar to 120 bar (room temperature) -1 bar to 25 bar (125 °C)
G 1 3/4" DN 50

Normal temperature (NT): -40 °C to +125 °C
-1 bar to 120 bar (room temperature) -1 bar to 25 bar (125 °C)
G 1/4"

Normal temperature (NT): -40 °C to +125 °C
-1 bar to 120 bar (room temperature) -1 bar to 25 bar (125 °C)
G 1/4"

DIVELIX

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, etc.

DIVELIX can also be used in diesel, heating oil and oil tanks by trade and industry as well as in domestic tanks with non-hazardous liquids and a low solid 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 this pressure and thus supplies a signal proportional to the filling level.

Main Features and Benefits

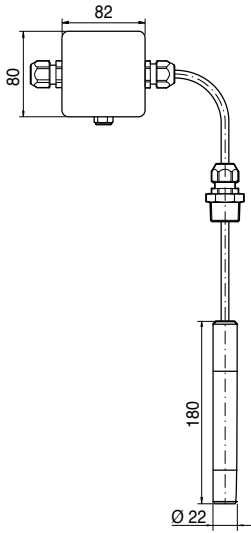
- + High measurement precision
- + Compact design
- + Suitable for small installation opening
- + Robust and corrosion-resistant
- + Maintenance-free
- + Easy adjustability for different tank sizes

Tried and Tested

Installed and Tested in Multiple Industries:

- + Diesel, heating oil tanks by trade and industry
- domestic tanks.





Filling level	±0.2 % ±0.05 % (compensated)
Electrical connection	
Connection	2-wire
Voltage	9 to 32 V _{DC}
Signal	Power output: 4 to 20 mA
Process conditions	
Temperature	-40 °C to +80 °C 0 °C to +50 °C (temperature compensated)
Pressure	Overpressure max 1 bar
Options	
Pressure range	0 to 400 mbar (0 to 4 m for water) Other on request

For order code and technical documentation visit:
www.fafnir.com/DIVELIX



Point Level Switch and Overfill Prevention

Protect Your Most Valuable Assets with the LS 300/LS 500 Point Level and Overfill Solution

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

Why Choose LS 300/LS 500?

Quick and Precise

- + Easy installation with a 2-wire terminal to the transducer, fitted independent of polarity
- + The overfill sensor requires no maintenance after installation; no hidden costs
- + No on-site calibration required

Dependable

- + Full and empty notifications in all containers: storage tanks, underground and above-ground tanks, IBCs, tank wagons, vats, bottles and retention ponds
- + Proven: tens of thousands of installations across Europe
- + Self-testing sensors
- + The overfill prevention device fulfils the requirements of the German Water Resources Act (WHG)
- + Qualified for SIL2 applications

Durable

- + With no moving parts, the LS 300 and LS 500 boast excellent life expectancy and leading reliability
- + Space-saving, robust and corrosion-free design
- + Adaptable, flexible; as the intermediate flange which is only 3mm in diameter or with DN 200 flange, we have a solution for almost any application

Tried and Tested

- + Any tank type and size
- + Sumps
- + Pilot plant and prototype systems
- + Tank arm during filling



LS 300 Sensor – Technical Data

Process temperature	Standard: -25 °C to +50 °C High temperature: -25 °C to +80 °C Low temperature: -40 °C to +50 °C (pressure-free)
Process pressure	0 bar to 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 316 Ti; Hastelloy® C4, C22; Hastelloy® B2, B3



LS 500 (wall housing)



LS 500 19"

LS 500 Transducer – Technical Data

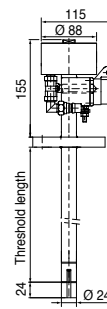
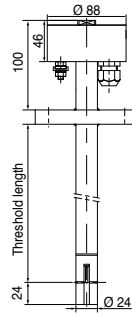
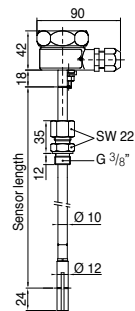
Name	LS 500	LS 500 19"	LS 500 19" Duo
Number of connections	1 Level sensor	1 Level sensor	2 Level sensor
Auxiliary power	230 V _{AC} ; 115 V _{AC} ; 24 V _{DC} ; 24 V _{AC}	230 V _{AC} ; 115 V _{AC} ; 24 V _{DC} ; 24 V _{AC}	230 V _{AC} ; 115 V _{AC} ; 24 V _{DC} ; 24 V _{AC}
Power input	max. 5 W	max. 5 W	max. 10 W
Ambient temperature	-25 °C to +50 °C	-25 °C to +50 °C	-25 °C to +50 °C
Casing protection class	IP40		
Dimensions	H 150 x W 75 x D 110 [mm]	Euroboard 160 x 100; 7 TE	Euroboard 160 x 100; 7 TE
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	Potential-free changeover contact: AC: U ≤250 V, I ≤4 A, P ≤100 VA DC: U ≤250 V, I ≤250 mA, P ≤50 W	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	Response to level sensor 1	Response to level sensor 1	Response to level sensor 1
Output 2	Optional: Option Z (response to level sensor 1) Option S (dysfunction)	Optional: Option Z (response to level sensor 1) Option S (dysfunction)	Response to level sensor 2
Options	Approval for LPG	Approval in accordance with AK5	Approval in accordance with AK5

For order code and technical documentation visit:
www.fafnir.com/LS300/LS500



Standard Versions

Our Standard sensors 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 limit switches with a plug. This allows a quick coupling and decoupling of the limit switch.

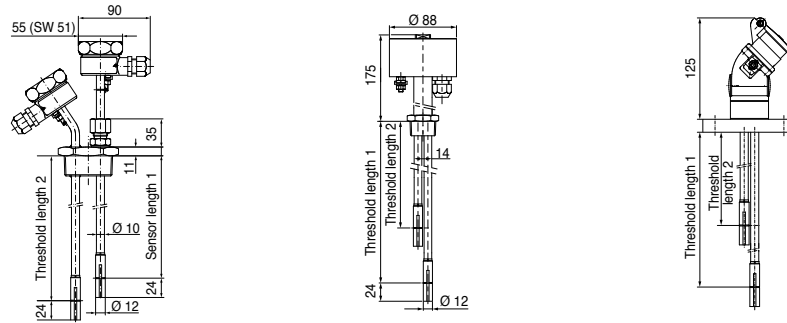


Name	LS 300 Standard	LS 300 FSU	LS 300 FSPU-Steck
Connection housing	Brass chrome-plated	Stainless steel	Stainless steel 316
Cable terminal	Cable gland	Cable gland	DD28 Connector
Probe tube	10 mm/sleeve 12 mm	24 mm	24 mm
Minimum process connection			
Minimal gland	G 3/8"	G 1"	G 1"
Minimal flange	DN 15	DN 25	DN 25

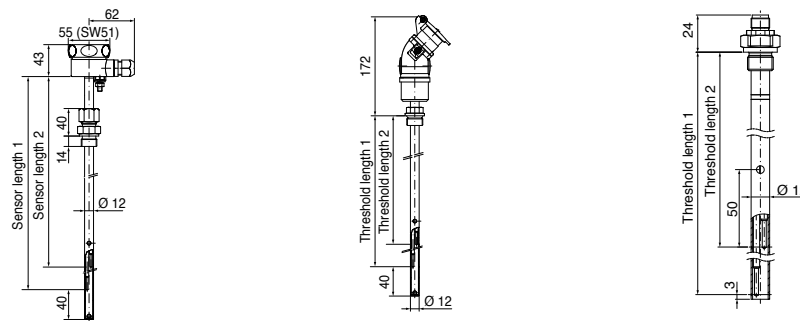


Plugged and DUO Version

For all applications where you need more than one point level for your process control or an additional overflow prevention. For vehicles, tank containers, and tanks which are moved frequently, we also offer our limit switches with a plug. This allows a quick coupling and decoupling of the limit switch.



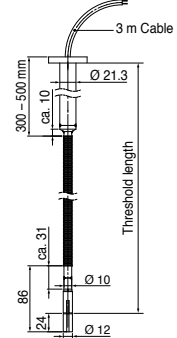
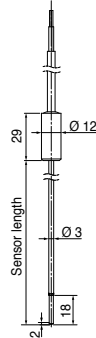
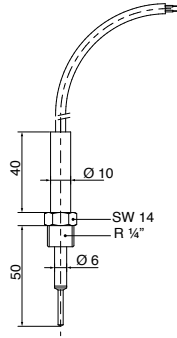
Name	LS 300 EU Duo	LS 300 ESU Duo	LS 300 FU Duo Steck
Connection housing	Brass chrome-plated	Stainless steel 316	Stainless steel 316
Cable terminal	Cable gland	Cable gland	DD28 Connector
Probe tube	2 x 10 mm/sleeve 12 mm	3 x 10 mm/sleeve 12 mm	2 x 10 mm
Minimum process connection			
Minimal gland	G 1"	G 1"	G 1"
Minimal flange	DN 25	DN 25	DN 25



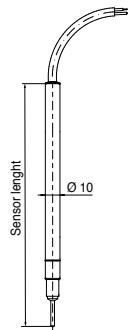
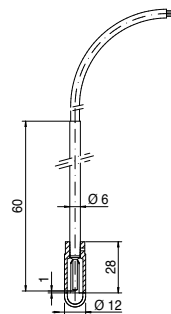
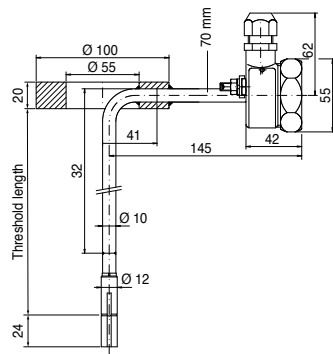
Name	LS 300 E Duo	LS 300 EXU Steck Duo	LS 300 Ex Steck (Mono/Duo)
Connection housing	Stainless steel 316	Stainless steel 316	Stainless steel 316
Cable terminal	Cable gland	DD28 Connector	M12 Connector
Probe tube	12 mm	12 mm	12 mm
Minimum process connection			
Minimal gland	G 1/2" (variable)	G 3/8"	G 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 Compact	LS 300 B	LS 300 FUX
Connection housing	Stainless steel 316	Stainless steel 316	Stainless steel 316
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/sleeve 12 mm
Minimum process connection			
Minimal gland	R 1/4"		



Name	LS 300 Intermediate Flange	LS 300 Interstitial	LS 300 Special
Connection housing	Brass chrome-plated	Stainless steel 316	Stainless steel 316
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			
Minimal flange	DN 50		

Standalone Overfill Prevention

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

FAFNIR's thermal overfill prevention device; a combination of the 76 A and NB 220 is the ideal solution for overfill prevention of your tanks for water-polluting liquids. Flexibility is key; with the option of having acoustic or optic signals directly integrated in the transducer the FAFNIR solution adapts to your needs.

Why Choose 76 A/NB 220?

Quick and Concise

- + Easy installation with a 2-wire terminal to the transducer, fitted independent of polarity
- + The overfill sensor requires no maintenance after installation; no hidden costs
- + No on-site calibration required
- + Self-testing sensors

Durable

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

Dependable

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

Tried and Tested

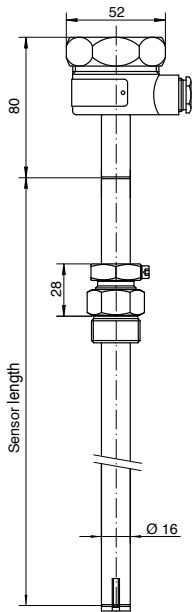
- + Diesel tanks
- + Tall tanks
- + Oil containers
- + Sumps
- + Bottles



76 A – Technical Data

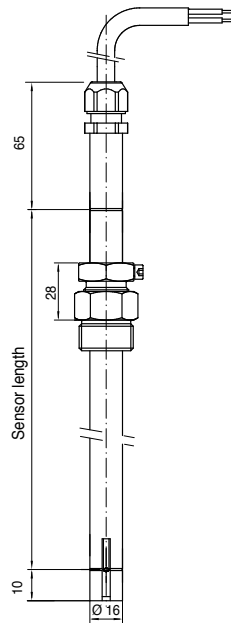
	76 A/76 C	76 N
Process temperature	Standard: -25 °C to +50 °C High temperature: -25 °C to +80 °C	
Process pressure	0 bar to 2 bar	
Immersion switch delay	< 2 s	
Heating-up time	at -20 °C < 2 min. at +60 °C < 15 s	
Material		
Connection housing	Brass	Brass, nickel plated
Wetted parts (without test prod)	Brass; Spring steel, zinc-plated Solder: L-Sn 40 Pb; Vulkolan	Stainless steel 304 to 316 Ti
Test prod	Linear polyester; stainless steel 304 to 316 Ti	
Casing protection class	IP67	
Cable terminal	Cable gland	
Probe tube (Outer Ø)	16 mm	
Probe length	100 to 3,000 mm	
Process connection	G 3/4"	
	Overvoltage protection (76A, 76N)	

76 A



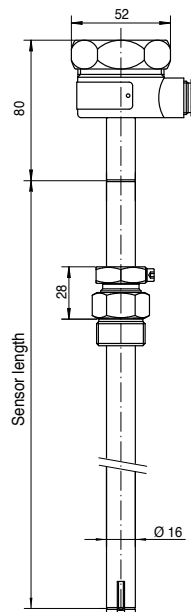
Our standard device for all applications, easy to install with a reverse polarity protected cable.

76 C



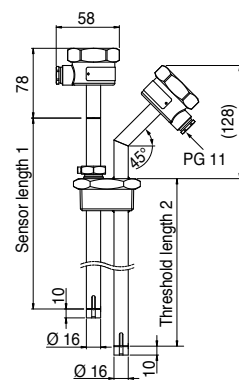
The version with a permanently installed cable, for applications where there is no space for the enclosure, or for OEM applications with a pre-configured cable.

76 N

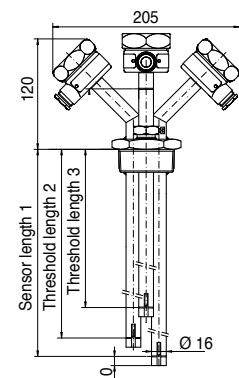


All parts exposed to liquid are manufactured from stainless steel 316 Ti. The enclosure is nickel plated; this means the sensor is suitable, for example, for AdBlue.

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 to +60 °C	-25 °C to +60 °C	-25 °C to +60 °C
Casing protection class	IP40	IP40	IP40
Dimensions (mm)	H 110 x W 51 x D 110	H 150 x W 75 x D 110	H 163 x W 97 x D 62
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 (NO)	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	50 W, e. g. pump, not acknowledgeable	Not acknowledgeable
Output 2		100 W, e. g. lamp, not acknowledgeable	Acknowledgeable
Output 3		50 W, e. g. external horn, acknowledgeable	
Input		Connection for external potential-free acknowledge button	Connection for external potential-free acknowledge button
Acoustic signal		Integrated horn	Integrated horn
Acknowledge button		Integrated acknowledge button	Integrated acknowledge button
Test button			Available
Option	Dry-running protection	Dry-running protection	Dry-running protection

Level Sensors

Level Switches

Overflow Prevention

Pressure Sensors

Temperature Sensors

For order code and technical documentation visit:
www.fafnir.com/76A/NB220





Pressure Measurement

Measuring pressure is one of the most common measurement applications in process technology. However, rarely is one process exactly like another and therefore customized solutions are often superior to off-the-shelf products when it comes to accuracy and safety. These solutions are generally less cost-effective or time-efficient. FAFNIR has designed customer-specific solutions with highly standardized components and processes with exceptional flexibility to ensure each process and OEM application pressure measurement needs are met.

FAFNIR understands that pressure transmitters in Process industries face numerous challenges. Whether an application requires explosion safety, SIL-compliance, or be read-on-site; FAFNIR's portfolio addresses these requirements.

PRESSURIX A

Accurately Measure Pressure in All Scenarios

The pressure transmitter PRESSURIX A, which uses “smart” modular technology, is suited for measuring the relative and absolute pressure of gases, vapours and liquids. The broad range of process connections allows the device to be deployed in a variety of processes. The diaphragm seal with flange connection is applicable for pressure measurement with aggressive, highly viscous, solidifying or crystallizing media.

Why Choose PRESSURIX A?

Main Features and Benefits

- + Modular pressure transmitter (2-wire technology, 4 to 20mA, optionally with HART®)
- + Convenient “plug-and-play” technology
- + Multi-function display
- + Large variety on process connections
- + Measuring range 80 mbar to 400 bar
- + Process temperature up to 350 °C
- + Accuracy $\leq 0.15\%$
- + Turn down 5:1
- + ATEX approval
- + Qualified for SIL2 applications
- + With internal tank table: ideal also for level measurement application

Tried and Tested

- + Chemical and petrochemical industry
- + Process engineering
- + General process technology



PRESSURIX A – Technical Data

Probe head

Protection class	IP66
Material	Stainless steel 304 Makrolon Viton
Head design	Two-chamber system with PTFE pressure compensation filter
Cable terminal	M16 x 1.5 cable gland for cable diameter 5 to 10 mm M12 Connector
Ambient temperature	-25 °C to +85 °C

Probe tube

Material	Stainless steel 316L; Hastelloy® C4; other on request
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Accuracy

Linearity	≤0.15 % of span
Repeatability	≤0.05 % of nominal range
Long-term drift	0.1 %/year of nominal range
Temperature effect	±0.15 %/10 K of nominal range (0 °C to +60 °C) ±0.2 %/10 K of nominal range (<0 °C; > +60 °C)
Influence of mounting position	≥3.5 mbar (if not mounted vertical)

Turn down	5:1
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Response time	>0.2 s
---------------	--------

Measuring technology	Piezoresistive measuring element
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Electrical connection

Connection	2-wire
Voltage	12 to 40 V _{DC} , Ex Version: 12 to 30 V _{DC}
Signal	Power output: 4 to 20 mA/HART®

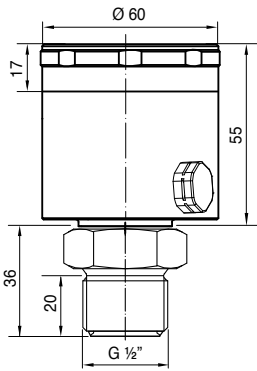
Process conditions

Temperature	up to 350 °C
Pressure	up to 400 bar (overload limit up to 600 bar)

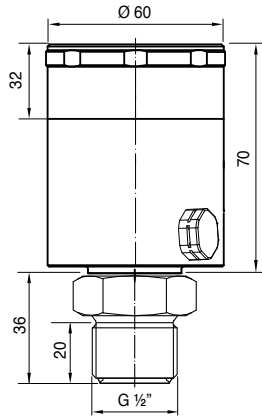
Options

	Display
	ATEX approval
	Qualified for SIL 2 (IEC 61508)
	Tank table with 32 points: ideal also as level measurement





PRESSURIX A ST with a G 1/2" thread.
The housing is for either the display
or the HART® module.

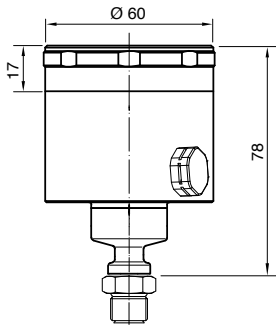


PRESSURIX A ST with a G 1/2" thread.
The housing is for both the display
and the HART® module.

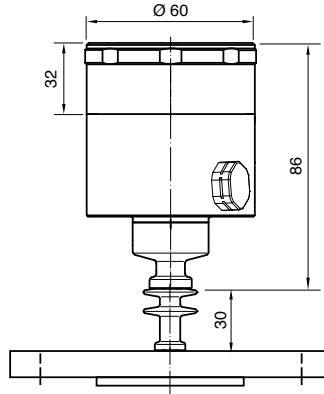
PRESSURIX A

Ideal for most standard applications

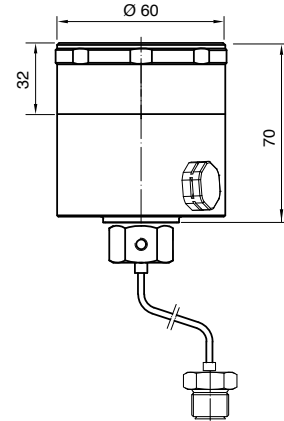
Process connection	G 1/2" B (inline diaphragm)
Process conditions	
Temperature	Standard temperature (ST): -20 °C to +90 °C
Pressure	G 1/2" A (DIN 3852) flush-mounted diaphragm (up to 100 bar) G 1/2" B with O-ring flush-mounted diaphragm (up to 40 bar) -0.4 to 0.4 bar up to -1 to 100 bar (relative) Overload limit (1 bar to 200 bar) 0 to 4 bar up to 0 to 16 bar (absolute) Overload limit (10 bar to 60 bar)



PRESSURIX AD NT with a G 1/2" thread and for up to 125 °C. The housing is for either the display or the HART® module.



PRESSURIX AD NT+ with a flange for up to of 160 °C. The housing is for both the display and the HART® module.



PRESSURIX AD HHT with a G 1/2" thread and a capillary for remote mounting of up to 350 °C. The housing is for both the display and the HART® module.

PRESSURIX AD with Diaphragm Seal

Gives you full flexibility in process connection and installation situations

Process connection	All common process connections
Process conditions	
Temperature	Normal temperature (NT): -20 °C to +125 °C Normal temperature plus (NT+): -20 °C to +160 °C High temperature (HT): -20 °C to +200 °C Highest temperature (HHT): -20 °C to +350 °C
Pressure	0 to 1 bar up to 0 to 400 bar (relative) -1 to 0 bar up to -1 to 15 bar (relative) 0 to 1 bar up to 0 to 25 bar (absolute)
System filling	NT: silicon oil FS standard NT+ and HT: silicon oil FS, high temp HHT: high temperature oil Other oils on request

PRESSURIX S

Pressure Transmitter for Use in Tough Environments

The PRESSURIX S versions of our pressure transmitter for applications where a 4 to 20 mA interface is enough. Because of various variants of process connections and materials, these transmitters are especially suited for pressure measurement with aggressive, highly viscous, solidifying or crystallizing media.

Why Choose PRESSURIX S?

Precise and Adaptable

- + The welded stainless steel housing can be designed up to protection type IP 67 ensuring precise readings
- + The use of temperature decouplers means that the PRESSURIX S pressure transmitter can be used for process temperatures up to 350 °C and are highly adaptable to varying environment conditions

Main Features and Benefits

- + Output signal: 4 to 20 mA
- + Compact stainless steel housing
- + High variety on process connections
- + Measuring ranges from 0 to 160 mbar to 0 to 400 bar
- + Process temperature up to 350 °C
- + Accuracy $\leq 0.2\%$
- + Qualified for SIL2 applications

Tried and Tested

- + Chemical and petrochemical industry
- + Process engineering
- + General process technology



PRESSURIX S – Technical Data

Probe head

Protection class	IP65/IP67
Material	Stainless steel 304
Cable terminal	M16 x 1.5 cable gland for cable diameter 5 to 10 mm Right angle Plug (DIN-EN 175301-803-A) Cable Connection M12 Connector
Ambient temperature	-20 °C to +85 °C

Probe tube

Material	Stainless steel 316L; Hastelloy® C4; other on request
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Accuracy

Linearity	<0.2 % of nominal range <0.3 % of nominal range for sensors ≥60 bar
Temperature effect	Zero point <0.2 %/10 K of nominal range (0 °C to +50 °C)
(in compensated temperature range)	Span <0.2 %/10 K of nominal range (0 °C to +50 °C)

Response time	≤20 ms
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Adjusting range	±5 % f.s. zero point and span independently
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Measurement principle	Piezo-resistive measuring element or above 160 bar thin film technology
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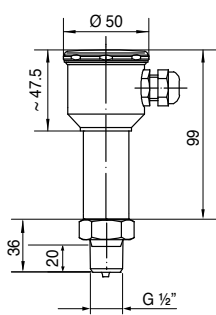
Electrical connection

Connection	2-wire
Voltage	8 to 30 V _{DC} , Ex version 10 to 30 V _{DC}
Signal	Power output: 4 to 20 mA

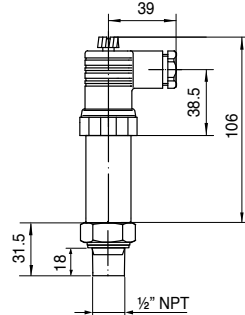
Process conditions

Temperature	up to 350 °C
Pressure	up to 400 bar
	ATEX approval
	Qualified for SIL 2 (IEC 61508)

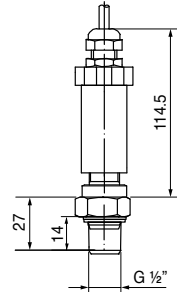




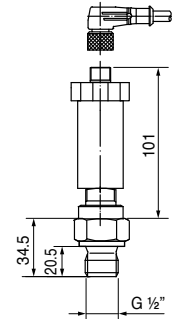
PRESSURIX S ST with G 1/2" thread for to 80 °C and with the field housing option.



PRESSURIX S ST with NPT 1/2" thread for up to 80 °C and an right angle plug (Form A) option.



PRESSURIX S NT with G 1/2" thread for and temperature decoupler up to 140 °C (short term) with the a fixed cable option.



PRESSURIX S NT with G 1/2" thread for up to 140 °C (short term) with the M12 Connector option.

PRESSURIX S

Ideal for most standard applications

Process connection

G 1/2" B; 1/2" NPT (inline diaphragm) up to 400 bar
 G 1/2" A flush-mounted diaphragm with O-Ring (up to 60 bar)
 G 1/2" B flush-mounted diaphragm (up to 160 bar)

Process conditions

Temperature

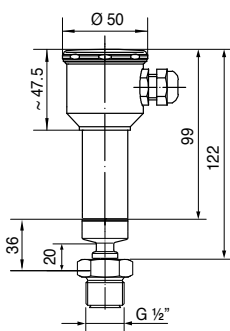
Standard temperature (ST): -10 °C to +80 °C
 High temperature (NT): -10 °C to +140 °C (short term for sterilization process)

Pressure

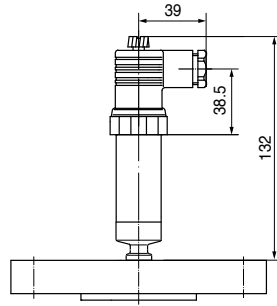
0 to 1 bar to 0 to 400 bar (relative)
 -1 to 0 bar to -1 to 15 bar (relative)
 0 to 1 bar to 0 to 25 bar (absolute)

System filling

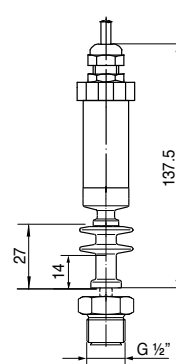
FD1-Oil



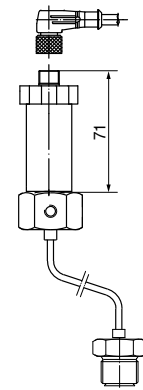
PRESSURIX SD NT with G 1/2" thread for up to 140 °C, shown with the field housing.



PRESSURIX SD NT with a flange for up to 140 °C and the right angle plug (Form A) option.



PRESSURIX SD HT with G 1/2" thread and temperature decoupler for up to 200 °C (short term) with the fixed cable option.



PRESSURIX SD HHT with G 1/2" thread and a capillary for remote mounting for up to 350 °C. Shown with a M12 Connector.

PRESSURIX S with Diaphragm Seal

Gives you full flexibility in process connection and installation situations

Process connection	All common process connections
Process conditions	
Temperature	Normal temperature (NT): -10 °C to +140 °C High temperature (HT): -10 °C to +200 °C Highest temperature (HHT): -10 °C to +350 °C
Pressure	0 to 1 bar to 0 to 400 bar (relative) -1 to 0 bar to -1 to 15 bar (relative) 0 to 1 bar to 0 to 25 bar (absolute)
System filling	NT: silicon oil FS, standard HT: silicon oil FS, high temp HHT: high temperature oil Other oils on request

PRESSURIX C

The Most Economic Digital Pressure Measurement Solution

The PRESSURIX C is the digital cost-efficient alternative to the PRESSURIX S pressure measurement transmitter for full pressure measurement of gases, vapours and liquids.

Why Choose PRESSURIX C?

Main Features and Benefits

- + Measuring ranges 0 to 1 bar up to 0 to 600 bar
- + Accuracy $\leq 0.3\%$
- + Output signal 4 to 20 mA, 2-wire technology
- + Process temperature $-20\text{ }^{\circ}\text{C}$ to $+120\text{ }^{\circ}\text{C}$

Tried and Tested

- + OEM application



PRESSURIX C – Technical Data

Probe head

Protection class	IP65
Material	Stainless steel 304
Cable terminal	M12 connector
Ambient temperature	-20 °C to +85 °C

Probe tube

Material	Stainless steel 304/630
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Accuracy

Linearity	<0.3 % of nominal range
Long-term drift	0.1 %/year of nominal range
Temperature effect	±0.2 %/10 K of nominal range (0 °C to +50 °C) ±0.3 %/10 K of nominal range (-20 °C to 0 °C; +50 °C to +80 °C)
Response time	30 ms

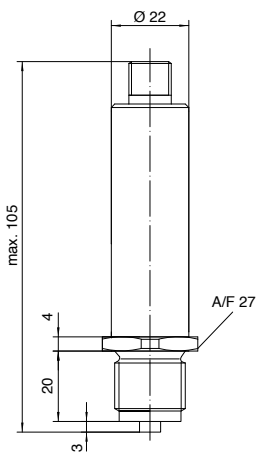
Adjusting range	±5 % f.s. zero point and span independently
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Electrical connection

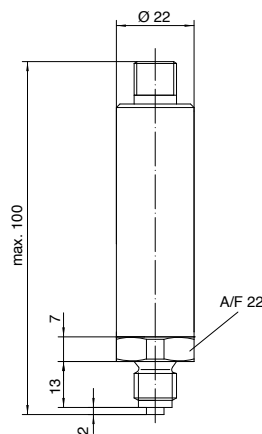
Connection	2-wire
Voltage	8 to 30 V _{DC} , Ex version 10 to 30 V _{DC}
Signal	Power output: 4 to 20mA

Process conditions

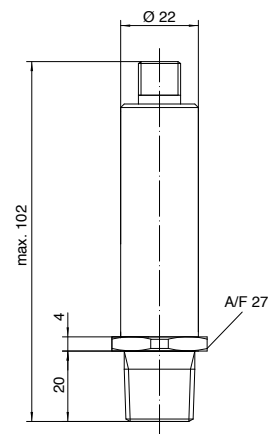
Temperature	-20 °C to +120 °C
Pressure	0 to 1 to 0 to 600 bar relative -1 to 0 to -1 to 15 relative



PRESSURIX C with G 1/4" process connection



PRESSURIX C with G 1/2" process connection



PRESSURIX C with 1/2" NPT process connection

For order code and technical documentation visit:
www.fafnir.com/PRESSURIX-C



Temperature Measurement

Measuring the medium temperature is a common task in the pharmaceutical as well as in the chemical industry.

Due to the need to process the measurement result and meet the documentation requirements, almost all measuring devices used are electronic. This measurement is usually achieved with invasive measuring systems which reach into the process area.

When it comes to relatively small pipe diameters, a sensor tip reaching into the process area can be a significant obstacle to the flow. Therefore, the measurement of the pipe surface can be a better solution, as offered by FAFNIR, without any interference to the process.

TEMPERIX S

Resistance Thermometer with Screw-in Thermowell or Flange Connection

This resistance thermometer is suited for operation on tanks and pipes. All standard types of process connections are available. A variety of transmitters for head mounting (4 to 20 mA/HART®) are available for different applications.

Why Choose the TEMPERIX S?

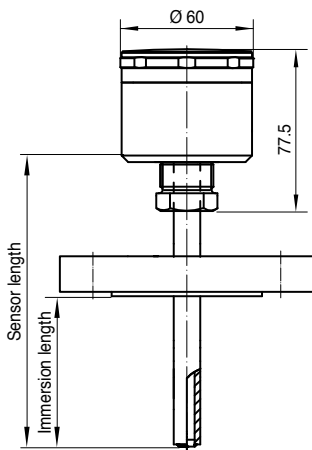
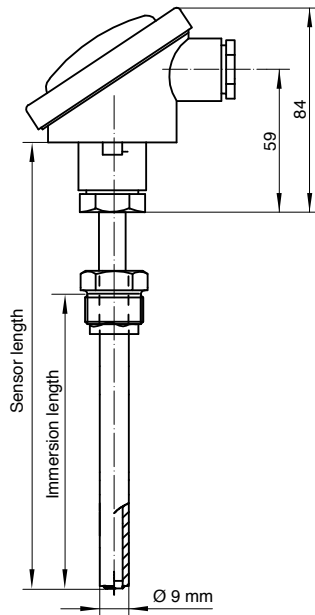
Main Features and Benefits

- + Pt 100 connection in 3-wire technology or a 4 to 20 mA/HART® head transmitter
- + Measuring insert interchangeable
- + Process connection
 - for screw-in
 - with flange connection
- + Various thermowell designs available
- + ATEX approval
- + Qualified for SIL2 applications

Tried and Tested

- + General process application
- + Machinery and tank construction
- + Water and waste-water systems
- + Plant engineering





TEMPERIX S – Technical Data

Probe head

Standard housing

Protection class IP54

Material Aluminium

Field housing

Protection class IP67

Material Stainless steel 303

Cable terminal M12 x 1.5 cable gland for cable diameter 3 to 6.5 mm
M16 x 1.5 cable gland for cable diameter 5 to 10 mm
M12 connector

Ambient temperature

Probe tube

Material Stainless steel 316Ti; other on request

Process connection G 1/2", G 3/4", G1"
1/2" NPT, 3/4" NPT
DN 25, DN 50 Flange

Measurement technology PT 100

Accuracy class A

Temperature range -50 °C to +400 °C

Electrical connection

Output 3-wire PT 100
2-wire 4 to 20 mA (with Transmitter Sitrans T100)
2-wire 4 to 20 mA/HART® (with Transmitter Sitrans T300)

Datasheet Temperature Transmitter

Ambient temperature -40 °C to +85 °C

Voltage 8.5 to 36 V_{DC}, Ex version 8.5 to 30 V_{DC}

Signal Power output: 4 to 20 mA/HART®

Response time <0.7 sec

Offset Configurable -100 °C to +100 °C

Accuracy >0.25 °C or 0.1 % of nominal range

Temperature effect <0.01 %/°C

Optional ATEX certificate





TEMPERIX C

Resistance Thermometer TEMPERIX C for General Application

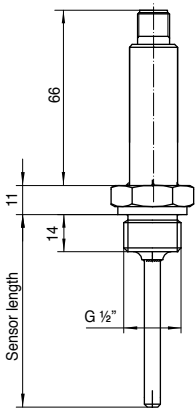
The resistance thermometer TEMPERIX C is suited for temperature measuring in tanks and pipes. Because of its compact design, the resistance thermometer is suitable for use in a great number of technological processes.

Why Choose the TEMPERIX C?

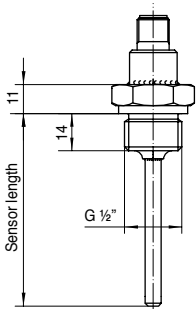
Main Features and Benefits

- + Compact design
- + High measurement accuracy
- + Output signal:
 - Pt 100, 3-wire technology (4-wire optionally)
 - 4 to 20 mA, 2-wire technology
- + Circular connector M12





TEMPERIX C with 2-wire 4 to 20mA output



TEMPERIX C with 3-wire PT-100 output

TEMPERIX C – Technical Data

Probe head

Protection class	IP65
Material	Stainless steel 304
Cable terminal	M12 Connector
Ambient temperature	-40 °C to +85 °C

Probe tube

Material	Stainless steel 316L
Process connection	G 1/4"; G 1/2" 1/4" NPT, 1/2" NPT
Measurement technology	PT 100
Accuracy class	A
Temperature range	-50 °C to +200 °C

Electrical connection

Output	3-wire PT 100 2-wire 4 to 20 mA
Voltage	8.5 to 36 V _{DC} (only for 2-wire 4 to 20 mA output)

For order code and technical documentation visit:
www.fafnir.com/TEMPERIX-C



TEMPERIX S Clamp

Resistance Thermometer Temperature Measurement for Pipes, Featuring "Clamp-On" Technology

The resistance thermometer for pipes; "Clamp-On" technology is used for temperature sensing and process control, mainly for sterile applications.

The resistance thermometer can be quickly and easily fitted to all existing pipework. There are no changes necessary to the piping and no welding required. The resistance thermometer can also be supplied with a built-in transmitter.

Main Features and Benefits

- + Temperature measurement, no contact to medium, for pipe diameter between 4 and 57 mm
- + Measuring system patented
- + High accuracy, fast response
- + Quick and cost-efficient installation
- + No welding, no interruption of process
- + Measuring range: -40 °C up to +150 °C



TEMPERIX S Clamp – Technical Data

Probe head

Protection class	IP68
Material	Stainless steel 303
Cable terminal	M12 x 1.5 cable gland for cable diameter 3 to 6.5 mm M16 x 1.5 cable gland for cable diameter 5 to 10 mm M12 Connector
Ambient temperature	-40 °C to +85 °C

Probe tube

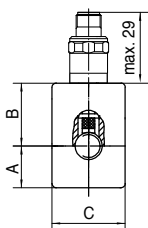
Material	Stainless steel 316 Ti; other on request
Process connection	"Clamp-On" for piping from 4 mm to 57 mm diameter
Measurement technology	PT 100
Accuracy class	A
Temperature range	-40 °C to +150 °C

Electrical connection

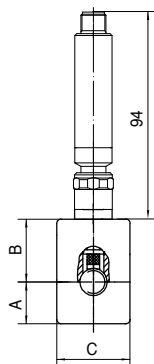
Output	3-wire PT 100 2-wire 4 to 20 mA 2-wire 4 to 20 mA/HART®
Optional	ATEX Certificate

Datasheet temperature transmitter

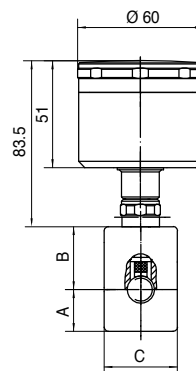
Ambient temperature	Up to +400 °C
Temperature	-40 °C to +85 °C
Signal	8.5 to 36 V _{DC} , Ex version 8.5 to 30 V _{DC}
Response time	Power output: 4 to 20 mA/HART®
Offset	<0.7 sec
Accuracy	Configurable -100 °C to +100 °C
Temperature effect	>0.25 °C or 0.1 % of nominal range
Optional	<0.01 %/°C



TEMPERIX S Clamp with 3-wire PT100 output and an M12 connector



TEMPERIX S Clamp with 2-wire 4-20 mA output and an M12 connector



TEMPERIX S Clamp with field housing (required for HART® output)

Pipe-Ø	A	B	C
4-17.2	20	30	35
18-38	30	40	70
38.1-57	40	50	85

For order code and technical documentation visit:
www.fafnir.com/TEMPERIX-S-Clamp



Accessories

Collective Acknowledgement Unit Type SAM 8

The collective acknowledgement unit can connect to a maximum of 8 transducers. The switch signal of an individual transducer from a cascade triggers an acoustic alarm. The acoustic alarm can be acknowledged and ended by pressing a button.

The optical alarm remains active until the reason for the response is eliminated. Upon retriggering, or triggering of a second transducer, the acoustic alarm is started again and can be acknowledged.



SAM 8 – Technical Data

Name	Descriptions
Auxiliary power	230 V _{AC}
Power input	8 VA
Ambient temperature	+5 °C to +40 °C
Casing protection class	IP20
Dimensions (mm)	H 75 x W 100 x D 63
Outputs	230 V switched; 1 x acoustic alarm; load: max. 1 A
Inputs	Acknowledge button (normally closed contact), breaking capacity: 230 V (50 Hz), 10 mA; Switching input; breaking capacity: 230 V _{AC} (50 Hz), 1.7 mA

Acknowledgement Unit Type QE 200

The acknowledgement unit extends the functionality of the LS 500 and NB 220 H transducer with an acknowledgement function, acoustic alarm and additional optical alarm. The acoustic alarm can be acknowledged and ended by pressing a button. The optical alarm remains active until the reason for the response is eliminated.



QE 200 – Technical Data

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

Wall Mounting 907 Z

In combination with the wall mounting 907 Z, our overflow prevention device (76 with NB 220) can be used as limit sensor for filling from a tank truck. The plug in the wall mounting serves as the counterpart for the 903 junction boxes usually found in the tankers. The wall mounting is connected to the relay output of the NB 220. This allows the overfilling to be signaled back to the tank truck.



For order code and technical documentation visit:
www.fafnir.com/Accessories



HPH Ex d

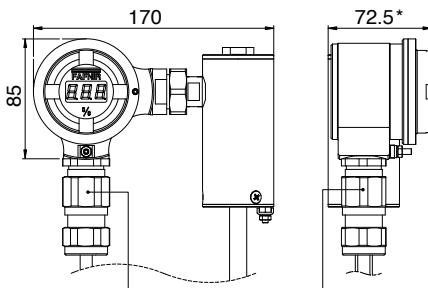
High Pressure Connection Housing for the TORRIX and CONDURIX

The HPH Ex d is pressure-resistant, encapsulated connection housing with safety barriers for connecting our intrinsically safe sensors without an additional ex separator.



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



Screwed cable gland (not included)

* with display: 72,5
without display: 65,5

HPH Ex d – Technical data

Operating data

Ambient temperature	-40 °C to +85 °C
Protection class	IP68
Power supply	21 to 26 V without display; 21 to 29 V with display
Voltage drop	8 V without display (Ex); 11 V with display (Ex); 4 V with display
Accuracy	0.1 % (4 to 20 mA)

Display

3-digit display	10 mm
0.0 % (4 mA) to 100 % (20 mA)	
Display range	-9.9 % to +199 %



UM-X

The Stand-Alone Transducer for Continuous Level Sensors

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



Main Features and Benefits

- + Easy, menu-driven graphical user interface
- + Can be used with all sensors with a 4 to 20 mA interface
- + Intrinsically safe electrical circuit with ATEX approval (Ex ia)
- + Combined with TORRIX, approved as an overflow prevention fulfilling the requirement of the German Water Resources Act (WHG)
- + Pump control (alternating)
- + Continuous display of the filling level
- + Filling levels 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}
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Maximum power input	<5 W, <8 VA
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Ambient temperature	-20 °C to +50 °C
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Protection class	IP64
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Accuracy	0.1 % (4 to 20 mA)
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Sensor electrical circuit	4 to 20 mA; U ₀ ≤ 28 V; short-circuit-proof
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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
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Dimensions (mm)	H 130 x W 180 x D 50
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