NOSHOK

PTI10 Series

IO-Link Transmitter

c UL us LISTED

IO-Link

Operating Instructions

Table Of Contents

1. General information

Read these operating instructions before installing and utilizing the pressure transmitter. Keep the operating instructions in a place that is accessible to all users at any time.

The instrument described in the operating instructions has been designed and manufactured using state-of-the-art technology. All components are subject to stringent quality and environmental criteria during production. Our management systems are certified to ISO 9001:2015.

The operating instructions contain important information on handling the instrument. Working safely requires that all safety instructions and work instructions are followed. Follow the relevant local accident prevention regulations and general safety regulations for the instrument's range of use.

Skilled personnel must have carefully read and understood the operating instructions prior to beginning any work.

The general terms and conditions contained in the sales documentation apply.

Subject to technical modifications.

If questions remain regarding a specific application, please contact us at:

T: 440.243.0888
F: 440.243.3472
info@noshok.com

2. Symbol definitions

WARNING!
Potential danger to life or of severe injuries.

CAUTION!
Instructions for hazardous areas: "Potential danger of explosion, to life or of severe injuries!

CAUTION!
Potential danger of burns due to hot surfaces.

Notice
Important information, malfunction.

3. Design and function

Scope of delivery

- Pressure sensor
- Operating instructions

Cross-check scope of delivery with delivery note.

Overview

① Electrical connection (depending on version)
② Three-colored status display (depending on version)
③ Case, product label
④ Process connection, wrench flats
⑤ Process connection, thread (depending on version)

4. Safety information

Intended use

The instrument has been designed and built solely for the intended use described here, and may only be used accordingly.
The manufacturer shall not be liable for claims of any type based on operation contrary to the intended use.

Intended use

The NOSHOK PTI10 Series IO-Link Transmitter is used for the switching of circuits as a function of the measured pressure via a PNP or NPN output signal. In addition, the pressure value can be output to appropriate read-out units as a standardized digital signal (IO-Link 1.1). The switching conditions can optionally be programmed using IO-Link 1.1 (switch and reset points, switching functions, time response, …) or configured using the teach function (switch point 1, switching function).
The NOSHOK PTI10 Series IO-Link Transmitter has been developed for the pressure measurement of non-hazardous fluids, liquids and gases (classification in accordance with Directive 2014/68/EU Article 13, Regulation (EC) No. 1272/2008, or GHS[1)]) which are mainly used for cooling, lubrication, cleaning or power transmission in industrial machines.

1) Globally Harmonized System of Classification, Labelling and Packaging of Chemicals

WARNING!
Physical injuries and damage to property and the environment through exceeding the performance limits
Exceeding the performance limits can destroy the instrument and lead to danger in the end-use application.

- ► Only use the instrument in applications that lie within its technical performance limits. → For performance limits, such as derating (maximum current consumption at a corresponding medium temperature), see chapter 10 “Specifications”.
- ► Any permanent operation in the overload range is not permitted. Above the highest permissible operating pressure, up to the overload limit, the pressure sensor is operating outside its specification. The overload range is intended to prevent damage to the pressure sensor, as part of a pressure vessel system, during the pressure containment test.
- ► The overload limit must never be exceeded, even when failures occur in the end-use

application. Loads above the overload limit can cause irreversible damage, which can lead, for example, to permanent measuring errors.

- ► The manufacturer or operator of the machine or plant in which the product is used must ensure the compatibility of the materials of the wetted parts with the medium used.
- ► The pressure switch should not be used with abrasive or unstable fluids, in particular not with hydrogen.

The (dis-)mounting, installation, parameterisation and maintenance of the NOSHOK PTI10 Series IO-Link Transmitter in industrial environments requires suitably skilled personnel in accordance with section “Personnel qualification”.

- ■ Pressure surges below the nominal pressure and shorter than 1 ms can cause measuring errors.
- ■ For applications where pressure spikes can occur, the use of a restrictor is recommended. The restrictor narrows the pressure port to 0.4 mm and thus increases the resistance against pressure spikes.
- ■ With media that could block the pressure port (e.g. through particles), it is recommended to use a wider pressure port of 6 or 12 mm.
- ■ It must be ensured that no atomic hydrogen can form in the pressure port of the pressure sensor.

4. Safety information, continued

Personnel qualification

Skilled personnel

Skilled personnel, authorized by the operator, are understood to be personnel who, based on their technical training, knowledge of measurement and control technology and on their experience and knowledge of country-specific regulations, current standards and directives, are capable of carrying out the work described and independently recognising potential hazards.

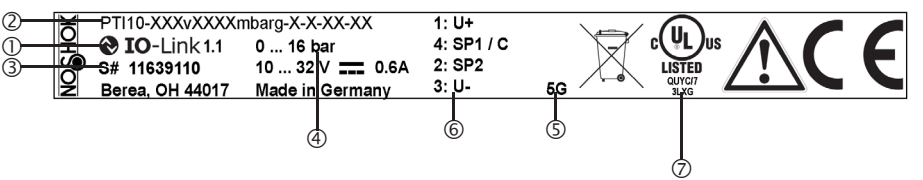
Use of accessories and spare parts

It is recommended to use original accessories and original spare parts from NOSHOK. Using accessories and spare parts from third parties can lead to damage to the instrument or accidents, due to quality defects or other reasons.
NOSHOK assumes no liability for damage or accidents caused by a malfunction or unsuitability of accessories and spare parts which do not originate from NOSHOK (e.g. non-compliance with the IP ingress protection of connectors). No warranty claims can be made which arise due to a malfunction or unsuitability of any accessory or spare part from a third party.

Labelling, safety marks

Product label

If the serial number becomes illegible (e.g. due to mechanical damage or overpainting), traceability will no longer be possible.



① IO-Link (option)
② P# Product No.
③ S# Serial No.
④ Measuring range
⑤ Coded date of manufacture
⑥ Pin assignment and specifications
⑦ Approvals

5. Packaging and storage

Symbols

Before mounting and commissioning the instrument, ensure you read the operating instructions!

Transport

Check the pressure sensor for any damage that may have been caused by transport.
Obvious damage must be reported immediately.

Packaging and storage

Do not remove packaging until just before mounting.
Keep the packaging as it will provide optimum protection during transport (e.g. change in installation site, sending for repair).

Permissible conditions at the place of storage:

- Storage temperature: -40 ... +70 °C [-40 ... +158 °F]
- Humidity: 45 ... 75 % relative humidity (non-condensing)

6. General operation

Checking the instrument

Prior to commissioning, the pressure sensor must be subjected to a visual inspection.

- Leaking fluid is indicative of damage.
- Only use the pressure sensor if it is in perfect condition with respect to safety.

Requirements for mounting point

The mounting point must meet the following conditions:

- Protected from weather influences. Permanent exposure to UV light/sunlight can lead to a change in the colour of the plastic parts and a clouding/yellowing of the status display. Therefore, a possible limitation of the visibility of the status display cannot be excluded.
- Under corrosive environmental conditions (such as salty, humid air), reductions in the gloss level of the metal surfaces, or even corrosion on the instrument, may occur, which make readability of the product label more difficult.
- Sealing faces are clean and undamaged.
- Sufficient space for a safe electrical installation.
- The instrument is vented to the atmosphere. Therefore, no coating or other covering may be applied which might restrict the venting.

WARNING!

Physical injuries and damage to property and the environment through running above or below the temperature limits

Running above or below the temperature limits can destroy the instrument and lead to danger in the end-use application.

► Permissible ambient and medium temperatures remain within the performance limits. Consider possible restrictions on the ambient temperature range caused by mating connector used.

For performance limits, such as derating (maximum current consumption at a corresponding medium temperature), see chapter 10 “Specifications”.

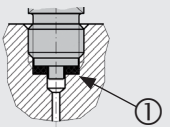
6. General operation, continued

Mechanical mounting

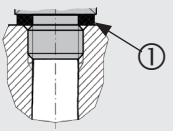
The max. torque depends on the mounting point (e.g. material and shape). If you have any questions, please contact our application consultant.
→ For contact details see chapter 1 “General information” or the back page of the operating instructions.

1. Seal the sealing face (→ see “Sealing variants”).
2. At the mounting point, screw the pressure sensor in hand-tight.
3. Tighten with a torque spanner using the spanner flats.

Parallel threads
Seal the sealing face ① with flat gasket, lens-type sealing ring.

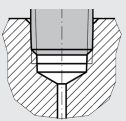


per EN 837



per ISO 1179-2 (formerly DIN 3852-E)

Tapered threads
Wrap threads with sealing material (e.g. PTFE tape).



NPT, R and PT

6. General operation, continued

Electrical mounting

Requirements for voltage supply

→ For supply voltage see product label

For instruments without UL approval:
This equipment is intended for operation with low voltages which are separated from the AC 230 V (50 Hz) mains voltage or voltages greater than AC 50 V or DC 120 V for dry environments. A connection to an SELV circuit is recommended, or alternatively to circuits with a different protective measure in accordance with IEC 60364-4-41 installation standard.

For instruments with UL approval and for use in North America:
The power supply for the pressure switch must be made via an energy-limited electric circuit in accordance with section 9.4 of UL/EN/IEC 61010-1, or an LPS per UL/EN/IEC 60950-1/CSA C22.2 no. 60950-1, or class 2 in accordance with UL1310/UL1585 (NEC or CEC). The voltage supply must be suitable for operation above 2,000 m should the pressure switch be used at this altitude.

Requirements for electrical connection

- Ingress protection of the mating connector corresponds to the ingress protection of the pressure sensor.
- Cable diameter matches the cable bushing of the mating connector.
- Cable gland and seals of the mating connector are correctly seated.
- No humidity can ingress at the cable end.

Requirement for shielding and grounding

The pressure sensor must be grounded via the process connection.
When working during a running process operation, measures to prevent electrostatic discharge on the connection terminals should be taken, as a discharge could lead to temporary corruption of the measured value.

Connecting the instrument

1. Assemble the mating connector or cable outlet.
   → For pin assignment see product label
2. Establish the plug connection.

Teach function (optional)

With the teach function, the instrument can be configured by short-circuiting the teach pin with U-.

Setting the switch point and window values

To adopt the prevailing process pressure as a new switch point or high value (window).

Short-circuit the teach pin with U- for 2 ... 5 seconds.

- ► Blinking yellow: Teach mode for switch point active, remove short-circuit.
- ► Blinking green: New switch point adopted.
- ► Blinking red: Teach pin not short-circuited for long enough or error in teach process.

The reset point and the low value for the window function will be corrected automatically. The previously set hysteresis (for default value, see Annex 1 “Default values”) or the difference between the window high and window low will be restored. In the event that the prevailing pressure is below 5 % of the measuring range end value, no teach process will be carried out. Should the prevailing pressure be less than the set hysteresis or the set window band, the reset point or the low value of the window function will be set to the start of measuring range.

Setting the switching function

To change the switching function between normally open and normally closed.
Short-circuit the teach pin with U- for 10 ... 20 seconds.

- ► 2 ... 5 seconds: Blinking yellow: Teach mode for switch point active, do not remove short-circuit.

- 5 ... 10 seconds: Permanently lit yellow: Teach mode changes to switching function, do not remove short-circuit.
- 10 ... 20 seconds: Blinking yellow: Teach mode for switching function active, remove short-circuit.
- > 20 seconds: Permanently lit yellow, teach process failed.
- Blinking green: Switching function changed.
- Blinking red: Teach pin not short-circuited for long enough or error in teach process.

Color codes of status display

Color	Interval	Description
Green	Lit permanently	Instrument is ready for operation, no error
	Blinking (5 seconds)	Teach successful
Yellow	Blinking (continuously)	Temporary error, operation outside of the specification (e.g. under- or overpressure, under- or overtemperature).
	Lit permanently	Time exceeded, teach signal applied longer than 20 s
	Blinking (during teach)	Instrument blinks so long as the teach is running
Red	Blinking (continuously)	“Locate me” function active or permanent error; In case of a permanent error, the instrument must be replaced
	Blinking (5 seconds)	Teach failed

Switching functions

Hysteresis function (configurable via teach function or IO-Link)
If the system pressure fluctuates around the set point, the hysteresis keeps the switching status of the outputs stable. With increasing system pressure, the output switches when reaching the switch point (SP).

- Normally open contact (HNO): Active
- Normally closed contact (HNC): Inactive

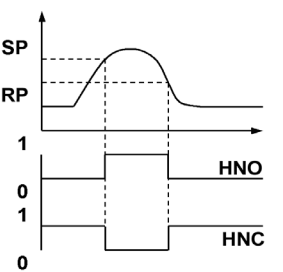


Fig.: Hysteresis function

6. General operation, continued

With system pressure falling again, the output will not switch back before the reset point (RP) is reached.

- Normally open contact (HNO): Inactive
- Normally closed contact (HNC): Active

Window function (configurable via teach function or IO-Link)
The window function allows for the control of a defined range. When the system pressure is between window high (FH) and window low (FL), the output switches on.

- Normally open contact (FNO): Active
- Normally closed contact (FNC): Inactive

When the system pressure is outside window high (FH) and window low (FL), the output does not switch on.

- Normally open contact (FNO): Inactive
- Normally closed contact (FNC): Active

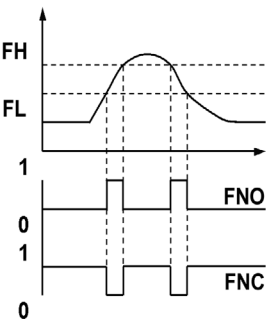


Fig.: Window function

Adjustability:

- Switch point/Window High

  The value must be higher than the reset point or window low. The minimum difference is 0.25 % of the measuring range. With a setting less than 0.25 %, the reset point will be adjusted automatically.
- Reset point/window low

  The value must be lower than the switch point or window high. The minimum difference is 0.25 % of the measuring range. With a setting less than 0.25 %, the switch point will be adjusted automatically.

6. General operation, continued

Delay times (0 … 65 s) (configurable via IO-Link)
This makes it possible to filter out unwanted pressure peaks of a short duration or a high frequency.
The pressure must be present for at least a certain pre-set time for the output to switch on. The output does not immediately change its status when it reaches the switching event (SP), but rather only after the pre-set delay time (DS).

The output only switches back when the system pressure has fallen down to the reset point (PR) and stays at or below the reset point (RP) for at least the pre-set delay time (DR).

If the switching event is no longer present after the delay time, the switch output does not change.

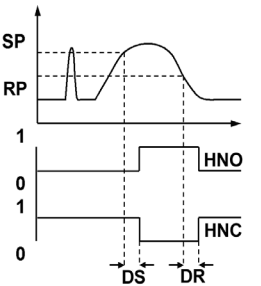


Fig.: Delay times

Damping function (0 ... 65 s) (configurable via IO-Link)

With this, the time span between a pressure change and the change of the switching state can be set.

Zero point setting

A zero point offset can be reset with the 0SET parameter via IO-Link. Only carry out zero point setting for gauge and vacuum pressure measuring ranges at the start of the measuring range.

Carry out the zero point setting of absolute pressure measuring ranges at 0 bar absolute (vacuum). Since appropriate references are required for this, we recommend that this is only carried out by the manufacturer.

Description of the IO-Link functionality (optional)

IO-Link is a point-to-point connection for the communication of the instrument with an IO-Link master.
IO-Link specification: Version 1.1
A detailed description of the IO-Link functionality and the device description file (IODD) can be found online on the product details page at www.noshok.com.

7. Faults/Troubleshooting?

CAUTION!
Physical injuries and damage to property and the environment
If faults cannot be eliminated by means of the listed measures, the pressure sensor must be taken out of operation immediately.

- ► Ensure that pressure or signal is no longer present and protect against accidental commissioning.
- ► Contact the manufacturer.
- ► If a return is needed, please follow the instructions given in chapter 9 "Dismounting, Return and Disposal".

WARNING!
Physical injuries and damage to property and the environment caused by hazardous media
Upon contact with hazardous media (e.g. oxygen) and also with refrigeration plants and compressors, there is a danger of physical injuries and damage to property and the environment.

- ► Should a failure occur, media with extremely high temperature and under high pressure or vacuum may be present at the instrument.
- ► For these media, in addition to all standard regulations, the appropriate existing codes or regulations must also be followed.
- ► Wear the requisite protective equipment.

For contact details see chapter 1 “General information” or the back page of the operating instructions.

In the event of any faults, first check whether the pressure sensor is mounted correctly, mechanically and electrically.
If complaint is unjustified, the handling costs will be charged.

7. Faults/Troubleshooting?

Fault	Possible cause	Measure
No output signal	Cable break	Check the continuity
No output signal	No/wrong supply voltage	Rectify the supply voltage
No/wrong output signal	Wiring error or switching of switching logic	Observe the pin assignment
		Check the output configuration
Constant output signal upon change in pressure	Mechanical overload caused by overpressure	Replace instrument; if it fails repeatedly, contact the manufacturer
Deviating zero point signal	Overload safety exceeded	Observe the permissible overload safety
Signal span too small	Mechanical overload caused by overpressure	Replace instrument; if it fails repeatedly, contact the manufacturer
Signal span too small	Supply voltage too high/low	Rectify the supply voltage
Signal span drops	Moisture has entered	Fit the cable correctly

Warnings and errors

Via the three-coloured status display, internal instrument warnings (yellow) and errors (red) are shown, see chapter 6 “General operation”. An extended error diagnosis is possible via IO-Link.

8. Maintenance and cleaning

Maintenance

This pressure sensor is maintenance-free.
Repairs must only be carried out by the manufacturer.

Cleaning

CAUTION!
Unsuitable cleaning agents
Cleaning with unsuitable cleaning agents may damage the instrument and the product label.

- ► Do not use any aggressive cleaning agents.
- ► Do not use any hard or pointed objects.
- ► Do not use any abrasive cloths or sponges.

Suitable cleaning agents

- Water
- Conventional dishwashing detergent

Cleaning the instrument

Wipe the instrument surface using a soft, damp cloth.

9. Dismounting, return and disposal

Dismounting

WARNING!
Physical injuries and damage to property and the environment caused by hazardous media
Upon contact with hazardous media (e.g. oxygen), there is a danger of physical injuries and damage to property and the environment.

- ► Should a failure occur, media with extremely high temperature and under high pressure or vacuum may be present at the instrument.
- ► Wear the requisite protective equipment.

WARNING!
Risk of burns
During dismounting there is a risk of dangerously hot media escaping.
The pressure sensor may have heated up severely due to hot media.

- ► Let the instrument cool down sufficiently before dismounting it.
- ► Wear the requisite protective equipment.

Dismounting the instrument

1. Depressurize and de-energize the pressure sensor.
2. Disconnect the electrical connection.
3. Unscrew the pressure sensor with a spanner using the spanner flats.

Return

Strictly observe the following when shipping the instrument:
All instruments delivered to NOSHOK must be free from any kind of hazardous substances (acids, bases, solutions, etc.) and must therefore be cleaned before being returned.

9. Dismounting, return and disposal

WARNING!
Physical injuries and damage to property and the environment through residual media
Residual media in the dismounted instrument can result in a risk to persons, the environment and equipment.

- ► With hazardous substances, include the material safety data sheet for the corresponding medium.
- ► Clean the instrument, see chapter 8 “Maintenance and Cleaning”.

When returning the instrument, use the original packaging or a suitable transport packaging.

Information on returns can be found under the heading “Return Material Authorization (RMA) Policy” on our local website.

Disposal

Incorrect disposal can put the environment at risk.
Dispose of instrument components and packaging materials in an environmentally compatible way and in accordance with the country-specific waste disposal regulations.

Do not dispose of with household waste. Ensure a proper disposal in accordance with national regulations.

10. Specifications

Specifications

Measuring range	
Measuring range	see product label
Overload safety	The overload safety is based on the sensor element used. Depending on the selected process connection and sealing, restrictions in overload safety can result. Measuring ranges ≤ 600 bar (< 8,000 psi): 2x Measuring ranges to 1.000 bar (≥ 8,000 psi): 1.5x
Increased overload safety (option)	Deviating temperature errors and long-term stability with respect to the selected measuring range apply here.
Vacuum-tight	Yes
LED status display (option)	
Visibility	360°
Status displays	see chapter 5.6 “Status displays”
Mean time to failure	Mean time to failure of the LEDs at 105 °C and continuous operation over 50,000 h: L50[1)]/ B50[2)] 1) 50 % of the output light flux available after 50,000 h 2) 50 % of the LEDs failed after 50,000 h
Output signal	
Output signal	see product label
IO-Link	
Revision	1.1
Transmission rate	38.4 kBaud (COM2)
Min. cycle time	2.3 ms
Master port class	A
Zero point setting	max. 3 % of span (via IO-Link)
Damping of switching outputs	0 ms ... 65 s (adjustable via IO-Link)

10. Specifications

Switch-on time	1 s
Switching thresholds	Switch point 1 and switch point 2 are individually adjustable via IO-Link. Switch point 1 can be set to the prevailing pressure value using the teach function.
Switching functions	Normally open, normally closed, window, hysteresis (adjustable via IO-Link) The switching function of switch point 1 can be set to normally closed or normally open using the teach function.
Switching voltage	Supply voltage - 1 V
Switching current	max. 250 mA For details, see the derating curve on page 28
Response time of switching output	≤ 5 ms
Service life	100 million switching cycles
Voltage supply	
Supply voltage	DC 10 ... 32 V The power supply for the pressure sensor must be made via an energy-limited electric circuit in accordance with section 9.3 of UL/EN/IEC 61010-1 or an LPS to UL/EN/IEC 60950-1 or class 2 in accordance with UL1310/UL1585 (NEC or CEC). The voltage supply must be suitable for operation above 2,000 m should the pressure sensor be used at this altitude.
Current consumption	20 mA
Total current consumption	≤ 0.3 A incl. switching current (with one switching output) ≤ 0.6 A incl. switching current (with two switching outputs)
Accuracy specifications	
Accuracy, switching output	≤ ±1 % of span (option: ≤ ±0.5 % of span)
Long-term drift, switching output	≤ ±0.1 % ≤ ±0.2 % for measuring ranges ≤ 0.4 bar [10 psi] and for increased overload safety
Switching current dependency	
With switching currents greater than 50 mA	≤ ±0.05 % per 50 mA additional applied switching current

10. Specifications

Versions without teach function, LED status display and IO-Link 1.1	≤ ±0.075 % per 50 mA additional applied switching current
Temperature error in rated temperature range	≤ ±1.5 % of span ≤ ±2.5 % of span for increased overload safety
Temperature coefficients in rated temperature range	
Mean TC zero point	≤ ±0.16 % of span/10 K
Mean TC span	≤ ±0.16 % of span/10 K
Reference conditions (per IEC 61298-1)	
Ambient temperature	15 ... 25 °C [59 ... 77 °F]
Atmospheric pressure	950 ... 1,050 mbar [13.78 ... 15.23 psi]
Air humidity	45 ... 75 % r. h.
Supply voltage	DC 24 V
Mounting position	Process connection: lower mount
Operating conditions	
Permissible temperature ranges	Higher values available. For valid values, see order documentation.
Medium	-30 ... +100 °C [-22 ... +212 °F] (option: -40 ... +125 °C [-40 ... +257 °F]) Option only for circular connector M12 x 1, metal
Ambient	-30 ... +85 °C [-22 ... +185 °F] (option:-40 ... +85 °C [-40 ... +185 °F]) Option only for circular connector M12 x 1, metal
Storage	-40 ... +70 °C [-40 ... +158 °F]
Rated temperature	-20 ... +80 °C [-4 ... +176 °F]
Air humidity	45 ... 75 % r. h.
Vibration resistance	25 g, 10 ... 2,000 Hz (IEC 60068-2-6, under resonance)
Shock resistance	100 g, 6 ms (IEC 60068-2-27, mechanical) 1,000 g, 1 ms (IEC 60068-2-27, mechanical) for electrical connection, M12 x 1, metal
Service life	100 million load cycles (10 million load cycles for measuring ranges > 600 bar/7,500 psi)

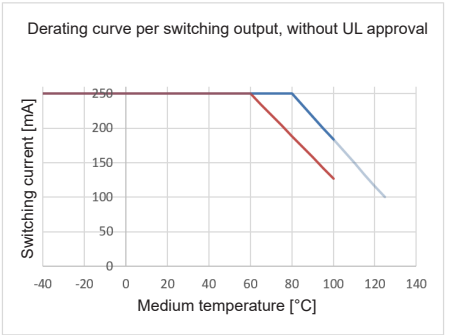
10. Specifications

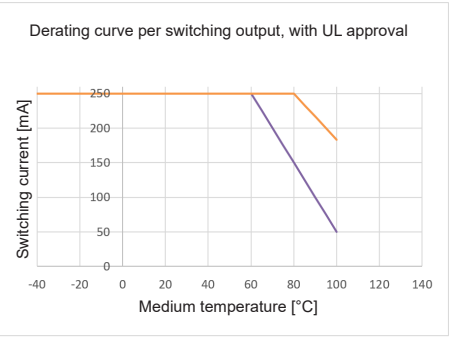
Ingress protection (per IEC 60529)	see “Electrical connections”
Mounting position	as required
Electrical connections	
Plug connection	■ Circular connector M12 x 1, metal (4-pin), IP65 and IP67 ■ Circular connector M12 x 1 (4-pin), IP65 and IP67 The stated ingress protection (per IEC 60529) only applies when plugged in using mating connectors that have the appropriate ingress protection.
Short-circuit resistance	SP1/SP2 vs. U-
Reverse polarity protection	U+ vs. U-
Insulation voltage	DC 500 V
Overvoltage protection	DC 36 V
Pin assignment	see product label
Materials	
Wetted parts	Stainless steel
Non-wetted parts	
Case	316L
Circular connector M12 x 1, metal	316L
Circular connector M12 x 1	PBT GF30
LED status display	PC
Pressure transmission medium	Synthetic oil for all gauge pressure measuring ranges < 10 bar [150 psi] and all absolute pressure measuring ranges. < 16 bar [250 psi] with increased overload safety

10. Specifications

Process connections		
Standard	**Thread size**	**Max. nominal pressure**
DIN EN ISO 1179-2 (formerly DIN 3852-E)	G ¼ A	600 bar [8,700 psi]
	G ½ A	400 bar [5,800 psi]
EN 837	G ¼ B [1)]	1,000 bar [14,500 psi]
	G ¼ female [1)]	1,000 bar [14,500 psi]
	G ½ B [1)]	1,000 bar [14,500 psi]
ANSI/ASME B1.20.1	¼ NPT [1)]	1,000 bar [14,500 psi]
	½ NPT [1)]	1,000 bar [14,500 psi]
ISO 7	R ¼ [1)]	1,000 bar [14,500 psi]

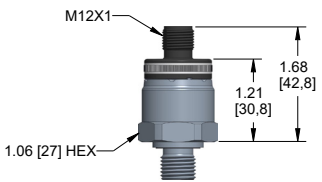
10. Specifications



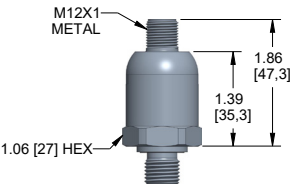


Dimensions in mm (inch)

PTI10-25 (M12 x 1 4-pin)

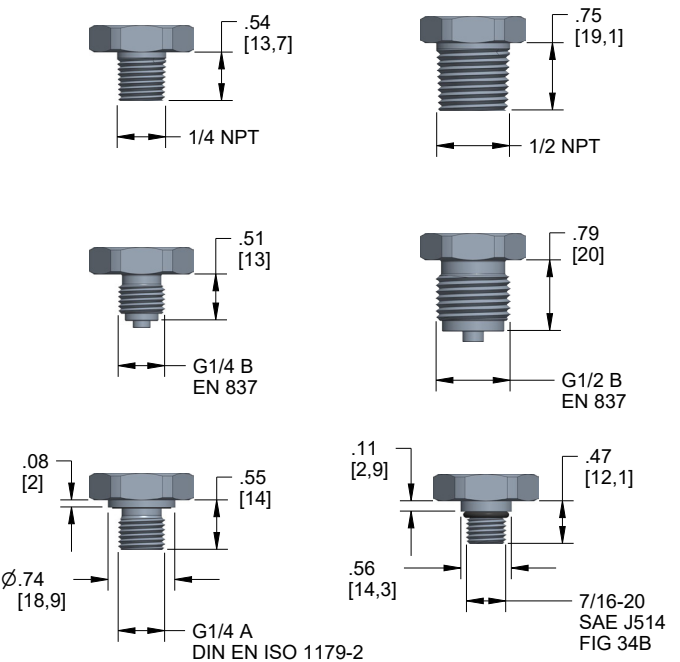


PTI10-25M (M12 x 1 4-pin), heavy-duty



10. Specifications

PTI10 Process Connections



10. Specifications

Connection diagram

Circular connector M12 x 1 (4-pin)		
	U+	1
	U-	3
	SP1/C	4
	SP2/Teach	2

Legend:

U+	Positive power supply terminal
U-	Negative power supply terminal
SP1	Switching output 1
SP2	Switching output 2
C	Communication with IO-Link
Teach	Teach input for switching output/switching function

For special models, other technical specifications apply. Please note the specifications stated on the order confirmation and the delivery note. For further specifications see NOSHOK data sheet and the order documentation.

10. Specifications, Annex 1: Default values

Annex 1: Default values

Function	Default value
Switching output	
Switching delay and reset delay	0 s
Switch point setting	Switch point (SP): 100 % Reset point (RP): 90 %
Switching function	HNO = Hysteresis, normally open
Damping	0 s

The default values can deviate due to the customer-specific definition. See the order confirmation and delivery note if the default values do deviate.