



Operating instructions
Electronic pressure sensor
for mobile applications

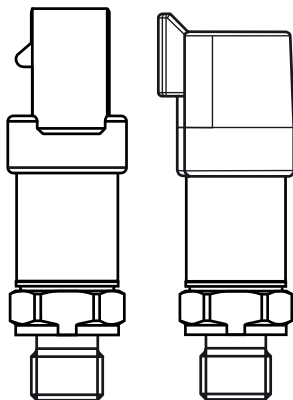
PT56xx/PU56xx

PT57xx/PU57xx

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1 Preliminary note

Symbols used

► Instructions

→ Cross-reference



Important note

Non-compliance can result in malfunction or interference.



Information

Supplementary note.



CAUTION

Warning of personal injury.
Slight reversible injuries may result.

2 Safety instructions

- The device described is a subcomponent for integration into a system.
 - The manufacturer of the system is responsible for the safety of the system.
 - The system manufacturer undertakes to perform a risk assessment and to create a documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the manufacturer of the system.
- Read this document before setting up the product and keep it during the entire service life.
- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.
- Only use the product for its intended purpose (→ Functions and features).
- Only use the product for permissible media (→ Technical data).
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.
- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the product or incorrect use by the operator.
- Installation, electrical connection, set-up, operation and maintenance of the unit must be carried out by qualified personnel authorised by the machine operator.
- Protect units and cables against damage.

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CAUTION

For high medium temperatures, parts of the unit may heat up.

> Risk of burns

▶ Do not touch the unit

▶ Protect the housing against contact with flammable substances and unintentional contact.

3 Functions and features

The pressure sensor detects the system pressure and converts it into an analogue output signal.

3.1 Applications

- Type of pressure: relative pressure



Information on pressure rating and bursting pressure → data sheet.



Avoid overload pressure exceeding the specified maximum permissible pressure by taking appropriate measures.

The indicated bursting pressure must not be exceeded.

Even if the bursting pressure is exceeded only for a short time, the unit may be destroyed. ATTENTION: Risk of injury!



For units with a final value of the measuring range of 600 bar the limits of the pressure cycles across the lifetime apply (→ 7).



If the cable length exceeds 30 m or if used outside buildings, there is a risk of overvoltage pulses from external sources. We recommend to use the unit in protected operating environments and to limit overvoltage pulses to max. 500 V.



Pressure Equipment Directive (PED):

- Units with a final value of the measuring range of 10...400 bar comply with the Pressure Equipment Directive and are designed and manufactured for group 2 fluids in accordance with the sound engineering practice.

Use of group 1 fluids on request!



Pressure Equipment Directive (PED):

The units with a final value of the measuring range of 600 bar comply with the Pressure Equipment Directive. They are designed for group 2 fluids and manufactured and tested according to Module A.

Use of group 1 fluids on request!

3.2 Use in hydraulic systems of mobile machines

Restrictor in the process connection:

In hydraulic systems of mobile machines, highly dynamic effects such as pressure peaks, cavitation etc. may arise depending on the operating conditions. To reduce these effects on the measuring element of the sensor, a diaphragm attachment is integrated into the process connection.

The specific thread pitch of the diaphragm attachment has the effect of a hole of 0.3 mm.



Please note:

High viscosity may reduce the response time by some milliseconds. Heavy soiling may affect the functionality.

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4 Functions

Current output 4..20 mA (PT5xxx)	Voltage output 0 ... 10 V (PU5xxx)
<p>The graph shows the current output I in mA on the y-axis and pressure P on the x-axis. The y-axis has tick marks at 4 and 20. The x-axis has tick marks at -1, 0, and MEW. A solid line starts at $(0, 4)$ and rises linearly to $(MEW, 20)$. From $P = MEW$, the line continues horizontally at $I = 20$ mA. Dotted lines indicate the coordinates of the end of the linear range.</p>	<p>The graph shows the voltage output U in V on the y-axis and pressure P on the x-axis. The y-axis has a tick mark at 10. The x-axis has tick marks at -1, 0, and MEW. A solid line starts at $(0, 0)$ and rises linearly to $(MEW, 10)$. From $P = MEW$, the line continues horizontally at $U = 10$ V. Dotted lines indicate the coordinates of the end of the linear range.</p>
P = system pressure, MEW = final value of the measuring range	
<p>In the measuring range the output signal is between 4 and 20 mA. If the system pressure is above or below the measuring range, the analogue output behaves, without achieving the accuracy, as follows:</p> <ul style="list-style-type: none">• System pressure above the measuring range: 20...25 mA.• System pressure below the measuring range: 4...3 mA.	<p>In the measuring range the output signal is between 0 and 10 V. If the system pressure is above the measuring range, the analogue output behaves, without achieving the accuracy, as follows:</p> <ul style="list-style-type: none">• System pressure above the measuring range: 10...11.5 V.

5 Installation



Before installing and removing the unit: Make sure that no pressure is applied to the system.

- ▶ Insert the unit in a G $\frac{1}{4}$ process connection.
- ▶ Tighten firmly. Recommended tightening torque:

Final value of the measuring range in bar	Tightening torque in Nm
10...400	25...35
600	30...50
Depends on lubrication, seal and pressure rating!	

6 Electrical connection




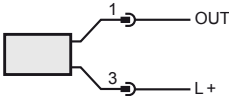
The unit must be connected by a qualified electrician.

The national and international regulations for the installation of electrical equipment must be adhered to.

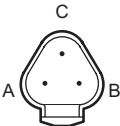
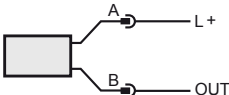
Voltage supply to EN 50178, SELV, PELV.

- ▶ Disconnect power.
- ▶ Connect the unit as follows:


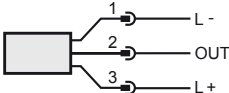
PT56xx (4...20 mA analogue)

AMP Superseal	
	
OUT: Analogue output 4...20 mA.	

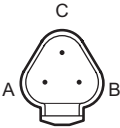
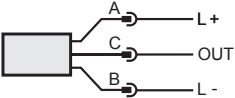
PT57xx (4...20 mA analogue)

Deutsch DT04 3P	
	
OUT: Analogue output 4...20 mA	

PU56xx (0...10 V analogue)

AMP Superseal	
	
OUT: Analogue output 0...10 V	

PU57xx (0...10 V analogue)

Deutsch DT04 3P	
	
OUT: Analogue output 0...10 V	

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7 Technical data



Pressure Equipment Directive (PED) stipulates that the following technical data must be provided for units with a final value of the measuring range of 600 bar.

PT5660 / PT5760	
Operating voltage [V].....	8...32 DC
Analogue output	4...20 mA
PU5660 / PU5760	
Operating voltage [V].....	16...32 DC
Analogue output	0...10 V
Medium temperature [°C]	-40...125
Ambient temperature [°C].....	-40...100
Storage temperature [°C].....	-40...100
Pressure cycles (min.) across lifetime	60 million for 1.2 x nominal pressure
Shock resistance [g].....	500 (DIN EN 60068-2-27, 1 ms)
Vibration resistance [g].....	20 (DIN EN 60068-2-6, 10...2000 Hz)

More information at www.ifm.com