



Operating instructions
Electronic pressure sensor
for industrial and mobile applications

GB

PT50

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1 Preliminary note

You will find instructions, technical data, approvals and further information using the QR code on the unit / packaging or at documentation.ifm.com.

1.1 Symbols used

- ✓ Requirement
- Instructions
- ▷ Reaction, result
- [...] Designation of keys, buttons or indications
- Cross-reference
-  Important note
Non-compliance may result in malfunction or interference.
-  Information
Supplementary note

1.2 Warnings

Warnings indicate the possibility of personal injury and damage to property. This enables safe product handling. Warnings are graded as follows:



WARNING

Warning of serious personal injury

- ▷ If the warning is not observed, fatal and serious injuries are possible.



CAUTION

Warning of minor to moderate personal injury

- ▷ If the warning is not observed, minor to moderate injuries are possible.

ATTENTION

Warning of damage to property

- ▷ If the warning is not observed, damage to property is possible.

2 Safety instructions

- The unit described is a subcomponent for integration into a system.
 - The system architect is responsible for the safety of the system.
 - The system architect undertakes to perform a risk assessment and to create 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 architect 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 (→ Intended use).
- 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 product must be carried out by qualified personnel authorised by the machine operator.
- Protect units and cables against damage.



CAUTION

With 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 Intended use

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

3.1 Application area

Type of pressure: relative pressure



The device is vacuum resistant. Adhere to the specifications in the data sheet!



Information on pressure rating and bursting pressure → Data sheet



Avoid static and dynamic overpressure exceeding the indicated pressure rating 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 devices with a measuring range end value of 600 bar the limits of the pressure cycles over the service life apply (→ Technical data).



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):

The devices with a final value of the measuring range of 6...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 media from group 1 fluids on request.



Pressure Equipment Directive (PED):

Devices with a measuring range end value of 600 bar comply with the Pressure Equipment Directive, are designed for group 2 fluids and are manufactured and tested according to module A. Use of media from group 1 fluids on request!

3.2 Use in mobile machines

Restrictor in the process connection:

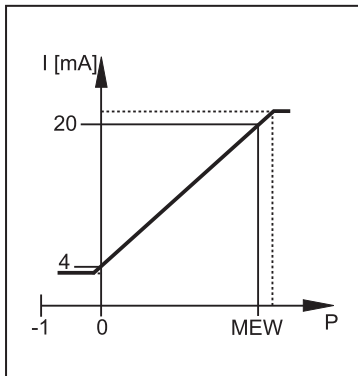
In hydraulic systems of mobile machines, highly dynamic effects such as pressure peaks and cavitation may arise depending on the operating conditions. To reduce these effects on the measuring element of the sensor, a diaphragm attachment is integrated into the process connection. The specific thread pitch of the diaphragm attachment has the effect of a hole of 0.3 mm.



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

4 Function

4.1 Current output 4...20 mA



P =	System pressure
MEW =	Final value of the measuring range

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:

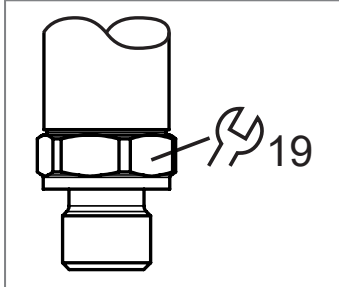
- System pressure above the measuring range: 20...25 mA
- System pressure below the measuring range: 4...3 mA

5 Installation



Before installing and removing the device: make sure that no pressure is applied to the system.

- Insert the device in a G $\frac{1}{4}$ process connection.



Only screw in using the designated spanner flat on the process connection.

- Tighten firmly. Recommended tightening torque:

Final value of the measuring range in bar	Tightening torque in Nm
6...400	25...35
600	30...50
Depends on the lubrication, the seal and the pressure load!	

6 Electrical connection



The unit must be connected by a qualified electrician.

Observe the national and international regulations for the installation of electrical equipment.

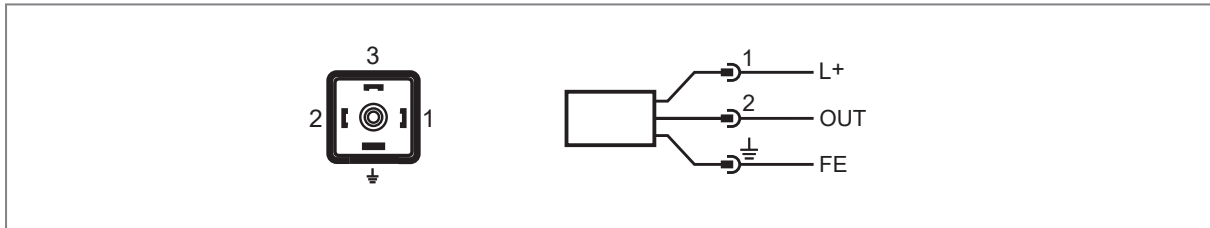
Voltage supply according to SELV, PELV.



For marine applications (if device approval is available), suitable cables and valve plugs that can be assembled must be used in accordance with the respective standards.

► Disconnect power.

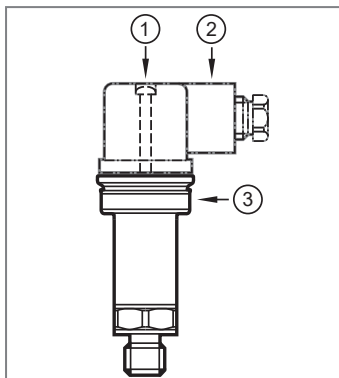
► Connect the unit as follows:



Pin	
1:	L+
2:	Analogue output 4...20 mA
3:	Not used
	functional earth (FE)

► Attach the valve plug.

► Tighten the central screw of the valve plug: Recommended tightening torque: 0.2...0.5 Nm.



- 1: Central screw of the valve plug
- 2: Valve plug
- 3: Pressure sensor



The valve plug is not included in the scope of delivery: Accessories www.ifm.com

7 Technical data



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

PT5060	
Operating voltage [V]	8...36 DC
Analogue output	4...20 mA
Medium temperature [°C]	-40...125
Ambient temperature [°C]	-40...100
Storage temperature [°C]	-40...100
Pressure cycles (min.) during service life	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)

8 Disposal, repair and return

- ▶ After use, dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.
- ▶ In case of return shipment, ensure that the unit is free from soiling, especially from dangerous and toxic substances.
- ▶ For transport only use appropriate packaging to avoid damage of the unit.