ifm electronic

CE

Installation instructions
Electronic pressure sensor
for industrial applications

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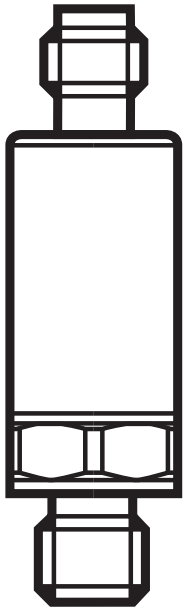
efector500

PT54xx/PU54xx



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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.

2 Safety instructions

- Please read this document prior to set-up of the unit. Ensure that the product is suitable for your application without any restrictions.
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property can occur.
- Improper or non-intended use may lead to malfunctions of the unit or to unwanted effects in your application. That is why installation, electrical connection, set-up, operation and maintenance of the unit must only be carried out by qualified personnel authorised by the machine operator.
- In order to guarantee the correct condition of the device for the operating time it is necessary to use the device only for media to which the wetted materials are sufficiently resistant (→ Technical data).

- The responsibility whether the measurement devices are suitable for the respective application lies with the operator. The manufacturer assumes no liability for consequences of misuse by the operator. Improper installation and use of the devices result in a loss of the warranty claims.

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

Order number	Measuring range		Pressure resistance (max. permissible pressure)		Bursting pressure	
	bar	psi	bar	psi	bar	psi
PT5415 / PU5415	0...6	0...87	15	215	200	2900
PT5404 / PU5404	0...10	0...145	25	360	300	4350
PT5494	-1...10	-14.5...145	25	360	300	4350
PT5414 / PU5414	0...16	0...232	40	580	450	6525
PT5403 / PU5403	0...25	0...360	65	940	600	8700
PT5443 / PU5443	0...40	0...580	100	1450	800	11600
PT5423 / PU5423	0...60	0...870	150	2175	900	13050
PT5402 / PU5402	0...100	0...1450	250	3625	1000	14500
PT5412 / PU5412	0...160	0...2320	400	5800	1100	15950
PT5401 / PU5401	0...250	0...3625	625	9060	1200	17400
PT5400 / PU5400	0...400	0...5800	1000	14500	1700	24650
PT5460 / PU5460	0...600	0...8700	1500	21750	2400	34800

MPa = bar ÷ 10 / kPa = bar × 100

Avoid static and dynamic overpressure exceeding the specified overload 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!

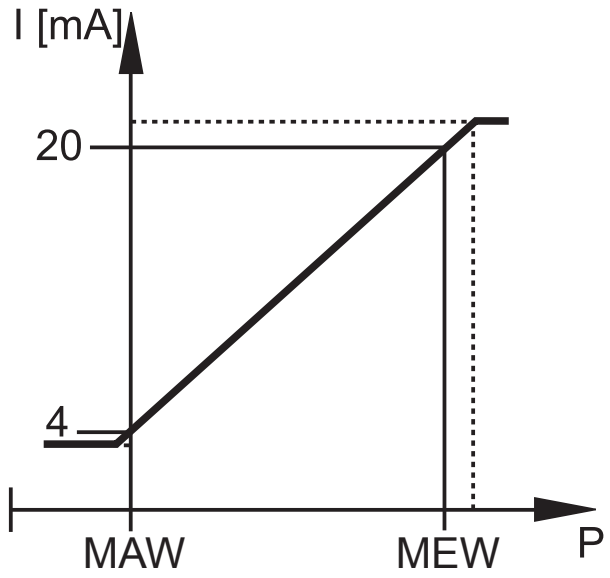
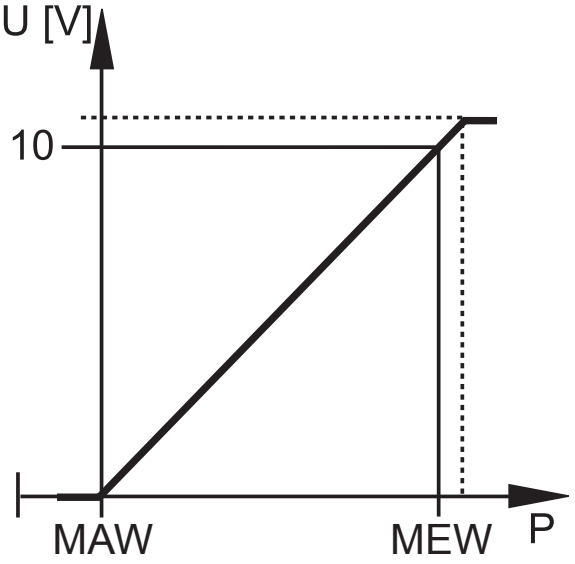
For units with a final value of the measuring range of 600 bar the limits of the pressure cycles across the lifetime apply. (→ Technical data).

Pressure Equipment Directive (PED):
Units 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 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!

The units are vacuum resistant.

4 Functions

Current output 4...20 mA (PT54xx)	Voltage output 0...10 V (PU54xx)
	
P = system pressure, MAW = Initial value of the measuring range, 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.	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: • System pressure above the measuring range: 10...11.5 V.

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5 Installation

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

▶ Insert the unit in a G ¼ process connection.

▶ Tighten firmly. Recommended tightening torque:

Pressure range in bar	Tightening torque in Nm
6...400	25...35
600	30...50
Depends on lubrication, seal and pressure load!	

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.

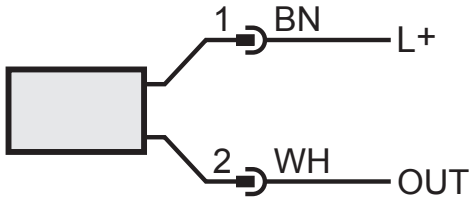
▶ Disconnect power.

▶ Connect the unit as follows:

PT54xx (4...20 mA analogue)

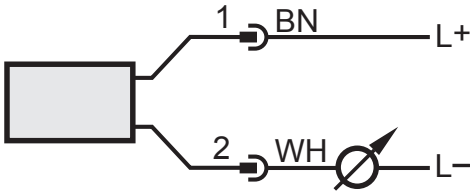
Core colours	
BN	brown
WH	white





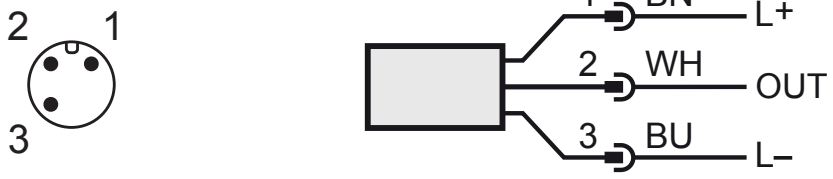
OUT: analogue output 4...20 mA
Colours to DIN EN 60947-5-2

Example circuit



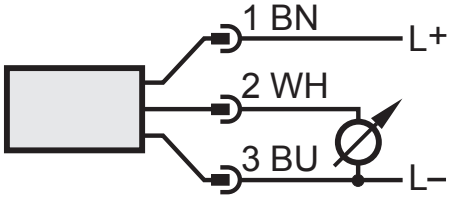
PU54xx (0...10 V analogue)

Core colours	
BN	brown
WH	white
BU	blue



OUT: analogue output 0...10 V
Colours to DIN EN 60947-5-2

Example circuit



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7 Technical data and scale drawing

Directive 97/23/EC (pressure equipment directive) stipulates that the following technical data must be provided for units with a final value of the measuring range of 600 bar.

PT5460	
Operating voltage [V]	8.5...36 DC
Analogue output	4...20 mA
PU5460	
Operating voltage [V]	16...36 DC
Analogue output	0...10 V
Medium temperature [°C]	-40...90
Ambient temperature [°C]	-40...90
Storage temperature [°C]	-40...100
Pressure cycles (min.) across lifetime	60 million for 1.2 x nominal pressure
Shock resistance [g]	50 (DIN EN 60068-2-27, 11 ms)
Vibration resistance [g]	20 (DIN EN 60068-2-6, 10...2000 Hz)

Further technical data and scale drawing at www.ifm.com