

PFT - the flexible pressure transmitter



The pressure transmitter PFT is designed for pressure measurement in liquid and gaseous media. The PFT targets industrial applications such as in machine and plant engineering, in machine tool systems, in hydraulic and pneumatic systems, for pressure control systems and for pumps and compressors.

Starting from a smallest measurement range of 0...0.1 bar, there is a large number of measurement ranges available up to 600 bar. In addition, the PFT offers absolute and compound ranges. The PFT has a very good measurement accuracy across the entire operating temperature range. Its accuracy is $\leq \pm 0.5\%$ of the span ($\leq \pm 0.25\%$ of span optionally available). A version with an extended temperature range up to 150 °C is available upon request.

The PFT has a circularly welded stainless steel membrane. Hence, there are no internal sealing elements and it is well suited for a large variety even of corrosive media. As there is a large multitude of customary process connectors available as standard, no additional adapters are needed. The PFT is wear-free and does not require maintenance. The pressure in specific media such as sludges, slurries, pulp or highly viscous liquids can be measured through an optionally available flush-mounted stainless steel membrane.

The PFT offers the industry standard output signals 4...20mA, 0...10V, or 0...5V. The transmitter's span and zero point can be adjusted. For electrical connection, M12x1 connectors, L-connectors according to DIN 175301-803 A, and cable outlets are available.

Benefits

- Wide application range
- High accuracy across wide temperature range
- Large number of configurations possible to meet customer requirements
- Trouble-free as no moving parts:
No mechanical wear, fatigue-proof, maintenance-free
- Insensitive against corrosive media through hermetically sealed stainless steel membrane
- Quick and simple installation

Technical Data

Configurations	Unit	Pressure ranges	Overpressure safety	Burst pressure	Pressure ranges	Overpressure safety	Burst pressure
	bar	0...0.1	2	5	0...10	35	42
	bar	0...0.16	1.5	2	0...16	80	96
	bar	0...0.25	2	2.4	0...25	50	96
	bar	0...0.4	2	2.4	0...40	80	400
	bar	0...0.6	4	4.8	0...60	120	550
	bar	0...1	5	6	0...100	200	800
	bar	0...1.6	10	12	0...160	320	1000
	bar	0...2.5	10	12	0...250	500	1200
	bar	0...4	17	20.5	0...400	800	1700 ^{*)}
	bar	0...6	35	42	0...600	1200	2400 ^{*)}
	bar abs	0...0.25	2	2.4	0...4	17	20.5
	bar abs	0...0.4	2	2.4	0...6	35	42
	bar abs	0...0.6	4	4.8	0...10	35	42
	bar abs	0...1	5	6	0...16	80	96
	bar abs	0...1.6	10	12	0...25 ^{*)}	80	96
	bar abs	0...2.5	10	12			
	bar	-1...0	5	6	-1...+9	35	42
	bar	-1...+0.6	10	12	-1...+15	80	96
	bar	-1...+1.5	10	12	-1...+24	50	96
	bar	-1...+3	17	20.5	-1...+30 ^{*)}	80	400
	bar	-1...+5	35	42			
Unit	Pressure ranges	Overpressure safety	Burst pressure	Pressure ranges	Overpressure safety	Burst pressure	
MPa	0...0.01	0.1	0.2	0...1	3.5	4.2	
MPa	0...0.016	0.15	0.2	0...1.6	8	9.6	
MPa	0...0.025	0.2	0.24	0...2.5	5	9.6	
MPa	0...0.04	0.2	0.24	0...4	8	40	
MPa	0...0.06	0.4	0.48	0...6	12	55	
MPa	0...0.1	0.5	0.6	0...10	20	80	
MPa	0...0.16	1	1.2	0...16	32	100	
MPa	0...0.25	1	1.2	0...25	50	120	
MPa	0...0.4	1.7	2.0	0...40	80	170 ^{**)}	
MPa	0...0.6	3.5	4.2	0...60	120	240 ^{**)}	
MPa abs	0...0.025	0.2	0.24	0...0.4	1.7	2.05	
MPa abs	0...0.04	0.2	0.24	0...0.6	3.5	4.2	
MPa abs	0...0.06	0.4	0.48	0...1.0	3.5	4.2	
MPa abs	0...0.1	0.5	0.6	0...1.6	8	9.6	
MPa abs	0...0.16	1	1.2	0...2.5 ^{*)}	8	9.6	
MPa abs	0...0.25	1	1.2				
MPa	-0.1...0	0.5	0.6	-0.1...+0.9	3.5	4.2	
MPa	-0.1...+0.15	1	1.2	-0.1...+2.4	5	9.6	
MPa	-0.1...+0.3	1.7	2.0	-0.1...+1.5	8	9.6	
MPa	-0.1...+0.5	3.5	4.2				

*) not available with flush-mounted membrane

**) with flush-mounted membrane: the value specified in the table applies only when sealing is realised with the sealing ring underneath the hex. Otherwise max. 1500 bar applies

Technical Data

Configurations	Unit	Pressure ranges	Overpressure safety	Burst pressure	Pressure ranges	Overpressure safety	Burst pressure
	psi	0...5	29	34.8	0...300	1160	1390
	psi	0...10	29	34.8	0...500	1160	5800
	psi	0...15	72.5	87	0...1000	1740	7980
	psi	0...25	145	170	0...1500	2900	11600
	psi	0...30	145	170	0...2000	4600	14500
	psi	0...50	240	290	0...3000	7200	17400
	psi	0...100	500	600	0...5000	11600	24650**)
	psi	0...160	500	600	0...8000	17400	34800**)
	psi	0...200	1160	1390			
	psi abs	0...15	72.5	87	0...100	500	600
	psi abs	0...25	145	170	0...250	1160	1390
	psi abs	0...50	240	290			
	psi	-30 InHg...0	72.5	87	-30 InHg...+160	1160	1390
	psi	-30 InHg...+30	240	290	-30 InHg...+200	1160	1390
	psi	-30 InHg...+60	240	290	-30 InHg...+300	1160	1390
	psi	-30 InHg...+100	500	600			
Unit	Pressure ranges	Overpressure safety	Burst pressure	Pressure ranges	Overpressure safety	Burst pressure	
	kg/cm ²	0...0.1	1	2	0...10	35	42
	kg/cm ²	0...0.16	1,5	2	0...16	80	96
	kg/cm ²	0...0.25	2	2.4	0...25	50	96
	kg/cm ²	0...0.4	2	2.4	0...40	80	400
	kg/cm ²	0...0.6	4	4.8	0...60	120	550
	kg/cm ²	0...1	5	6	0...100	200	800
	kg/cm ²	0...1.6	10	12	0...160	320	1000
	kg/cm ²	0...2.5	10	12	0...250	500	1200
	kg/cm ²	0...4	17	20.5	0...400	800	1700**)
	kg/cm ²	0...6	35	42	0...600	1200	2400**)
	kg/cm ² abs	0...0.25	2	2.4	0...4	17	20.5
	kg/cm ² abs	0...0.4	2	2.4	0...6	35	42
	kg/cm ² abs	0...0.6	4	4.8	0...10	35	42
	kg/cm ² abs	0...1	5	6	0...16	80	96
	kg/cm ² abs	0...1.6	10	12	0...25 ^{*)}	80	96
	kg/cm ² abs	0...2.5	10	12			
	kg/cm ²	-1...0	5	6	-1...+5	35	42
	kg/cm ²	-1...+0.6	10	12	-1...+9	35	42
	kg/cm ²	-1...+1.5	10	12	-1...+15	80	96
	kg/cm ²	-1...+3	17	20.5	-1...+24	50	96
Unit	Pressure ranges	Overpressure safety	Burst pressure	Pressure ranges	Overpressure safety	Burst pressure	
	bar abs	800...1200	10000	12000			
	mbar	-600...0	4000	4800	-160...0	1500	2000
	mbar	-400...0	2000	2400	-100...0	1000	2000
	mbar	-250...0	2000	2400			

*) not available with flush-mounted membrane

**) with flush-mounted membrane: the value specified in the table applies only when sealing is realised with the sealing ring underneath the hex. Otherwise max. 1500 bar applies

Technical Data

Materials

■ Wetted parts

Standard	Stainless steel	
With flush-mounted diaphragm	Stainless steel	O-ring: NBR ¹⁾ {FPM/FKM}

■ Internal transmission fluid ²⁾

Synthetic oil	¹⁾ O-ring made of FPM/FKM for version with flush-mounted membrane with integrated cooling element
	²⁾ Not available for version with standard membrane for pressure ranges > 25 bar

■ Housing

Stainless steel

Power supply L ⁺	10 VDC < L ⁺ ≤ 30 VDC	(14 ... 30 VDC with signal output 0 ... 10 V)
-----------------------------	----------------------------------	---

Signal output and maximum ohmic load R _A	4 ... 20 mA, 2-wire	R _A ≤ (L ⁺ - 10 V) / 0.02 A [Ohm]
	0 ... 5 V, 3-wire	R _A > 5 k Ohm
	0 ... 10 V, 3-wire	R _A > 10 k Ohm

other signal outputs on request

Adjustability zero/span	± 5% using potentiometers inside the instrument
-------------------------	---

Response time (10 ... 90 %)	≤ 1ms (≤ 10 ms at medium temperatures below < -30 °C for pressure ranges up to 25 bar or with flush-mounted membrane)
-----------------------------	---

Dielectric strength	500 VDC ³⁾
---------------------	-----------------------

³⁾ NEC Class O2 power supply (low voltage and low current max. 100 VA even under fault conditions)

Accuracy	≤ 0.5 % of span ⁴⁾
	≤ 0.25 % of span ⁴⁾ optionally available for pressure ranges ≥ 0.25 bar

⁴⁾ Including non-linearity, hysteresis, zero point and full scale error (corresponds to error of measurement per IEC 61298-2)

Non-linearity	≤ ± 0.2 % of span (BFSL) according to IEC 61298-2
---------------	---

Non-repeatability	≤ ± 0.1 % of span
-------------------	-------------------

1-year stability	≤ ± 0.2 % of span (at reference conditions)
------------------	---

Permissible temperature of ⁵⁾	PFT standard version	PFT with flush-mounted membrane and cooling element:
--	----------------------	--

■ Medium	-30 ... +100 °C -40 ... +125 °C optional	-20 ... +150 °C (on request)
■ Ambience	-20 ... +80 °C	-20 ... +80 °C
■ Storage	-40 ... +100 °C	-20 ... +100 °C

⁵⁾ Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3

Compensated temp. range	0 ... +80 °C
-------------------------	--------------

Temperature coefficients within compensated temp range

■ Mean TC of zero	≤ 0.2 / 10 K % of span (< 0.4 for pressure range ≤ 0.25 bar)
-------------------	--

■ Mean TC of span	≤ 0.2 / 10 K % of span
-------------------	------------------------

CE-conformity

■ Pressure equipment directive	97/23/EC
■ EMC directive	89/336/EEC emission (class B) and immunity according to EN 61 326

Shock resistance	1000g according to IEC 60068-2-27 (mechanical shock)
------------------	--

Vibration resistance	20g according to IEC 60068-2-6 (vibration under resonance)
----------------------	--

Wiring protection

■ Overvoltage protection	36 VDC
■ Short-circuit proofness	Q _A towards M
■ Reverse polarity protection	L ⁺ towards M

Weight	Approx. 200g
	Approx. 300g with option accuracy 0.25% of span (due to longer housing)

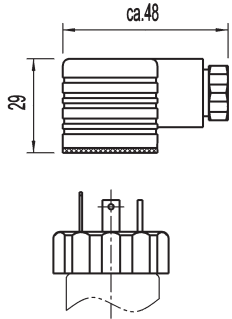
{ } Items in curved brackets are optional extras at additional price

Dimensions in mm

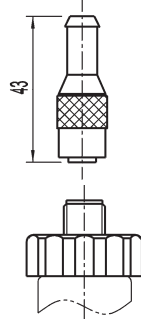
Ingress protection IP per IEC 60529. The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection.

Electrical connectors^{*)}

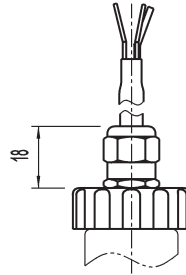
DIN 175301-803 A
L-connector for conductor cross section up to max. 1.5 mm², conductor outer diameter 6-8 mm, IP 65
Order code: L



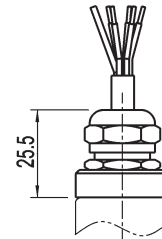
M 12x1
Circular connector 4-pin, IP 67
Order code: M



Flying leads
for conductor cross section 0.5 mm², AWG 20 with end splices, conductor outer diameter 6.8 mm, IP 67
Order code: 1.5m cable: 1
3.0m cable: 3



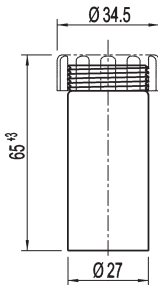
Flying leads
zero/span not adjustable, for conductor cross section up to max. 0.5 mm², AWG 20 with end splices, conductor outer diameter 6.8 mm, IP 68
Order code: 1.5m cable: 4
3.0m cable: 5



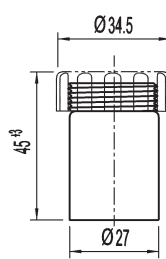
*) Connectors are not included in delivery.
Others on request

Housing

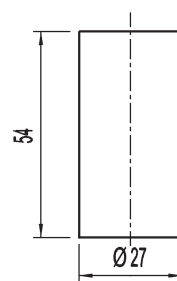
Housing at 0.25 % accuracy



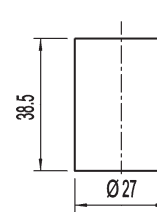
Housing at 0.5 % accuracy



Housing at 0.25 % accuracy

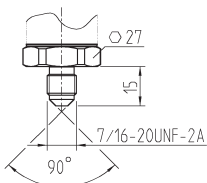


Housing at 0.5 % accuracy

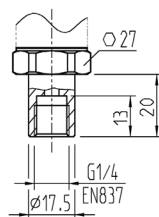


Pressure connections

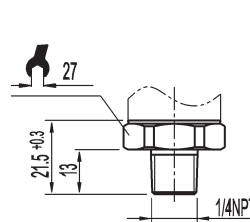
7/16" -20 UNF
Order code: U1



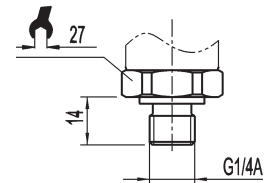
G1/4 female
Order code: G2



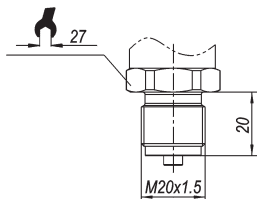
1/ 4" NPT
Order code: N1



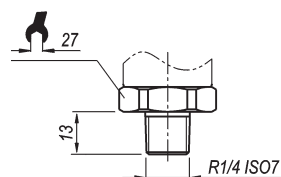
G 1/4
DIN 3852-E
(over pressure safety max. 600 bar)
Order code: G1



M 20 x 1,5
with sealing copper or stainless steel
Order code: M2

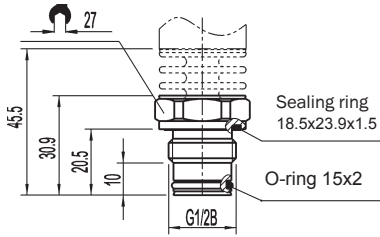


R 1/4 ISO 7
Order code: R1

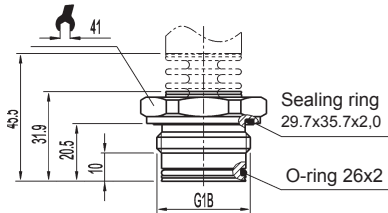


Pressure connections, flush-mounted membrane

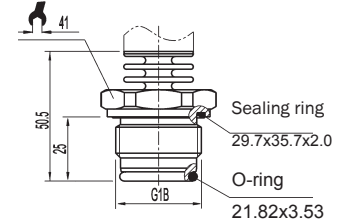
G 1/2 B
with or without cooling element
0 ... 2.5 up to 0 ... 600 bar
Order code: F2



G 1B
with or without cooling element
0 ... 0.1 up to 0 ... 1.6 bar
Order code: F1



G 1B
with cooling element, up to
150 °C up to 25 bar
Order code: F3



For installation and safety instructions see the operating instructions for this product.

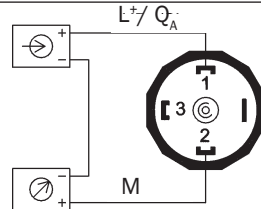
Integrated cooling elements only for flush-mounted membrane and medium temperature -20 °C ... +150 °C (on request)

Pressure Ports (0.3 or 0.6mm) on request

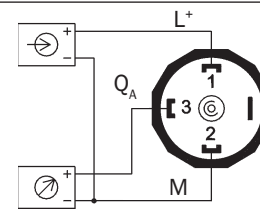
Electrical connections

DIN 175301-803 A
L-Connector

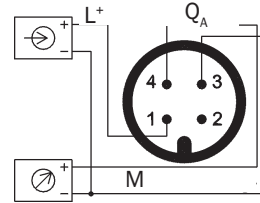
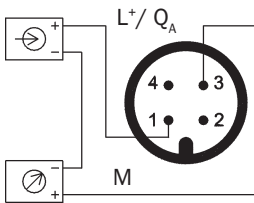
2-wire



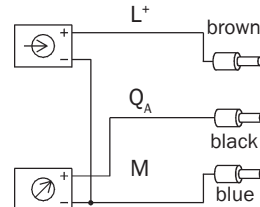
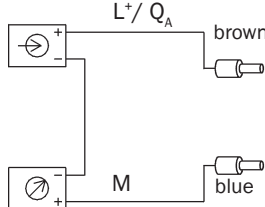
3-wire



M 12x1, 4-pin
Circular connector



Flying leads with 1.5 m cable length



Legend:

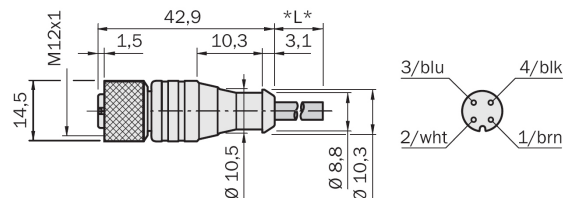
- Power supply:
- load (e.g. display):

Accessories

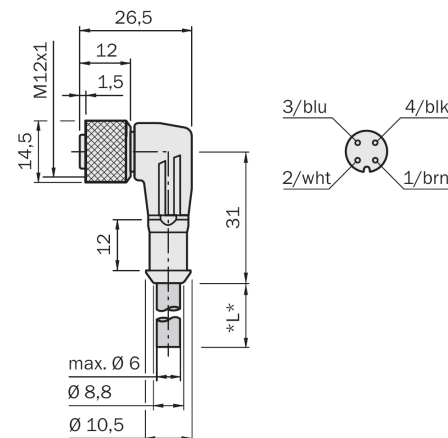
PVC circular plug-in connector, M12, 4-pin



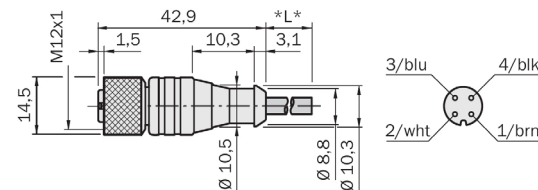
DOL	-	12	04	-	G	02M	6009382	2 m
DOL	-	12	04	-	G	05M	6009866	5 m
DOL	-	12	04	-	G	10M	6010543	10 m
DOL	-	12	04	-	G	15M	6010753	15 m
DOL	-	12	04	-	G	20M	6034401	20 m



DOL	-	12	04	-	W	02M	6009383	2 m
DOL	-	12	04	-	W	05M	6009867	5 m
DOL	-	12	04	-	W	10M	6010541	10 m
DOL	-	12	04	-	W	15M	6036474	15 m
DOL	-	12	04	-	W	20M	6033559	20 m



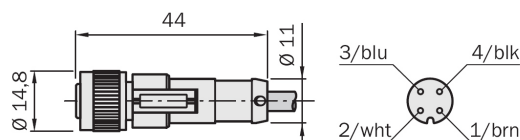
DOL	-	12	04	-	G	01M	S02	6033686	1 m, coating colour gray
DOL	-	12	04	-	G	04M	S02	6033687	4 m, coating colour gray
DOL	-	12	04	-	G	05M	S02	6033688	5 m, coating colour gray
DOL	-	12	04	-	G	07M	S02	6033690	7 m, coating colour gray



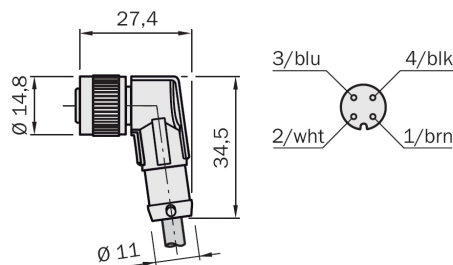
PUR circular plug-in connector M12, 4-pin



DOL	-	12	04	-	G	02M	C	6025900	2 m
DOL	-	12	04	-	G	05M	C	6025901	5 m
DOL	-	12	04	-	G	10M	C	6025902	10 m
DOL	-	12	04	-	G	15M	C	6034749	15 m
DOL	-	12	04	-	G	20M	C	6034750	20 m
DOL	-	12	04	-	G	25M	C	6034751	25 m



DOL	-	12	04	-	W	02M	C	6025903	2 m
DOL	-	12	04	-	W	05M	C	6025904	5 m
DOL	-	12	04	-	W	10M	C	6025905	10 m
DOL	-	12	04	-	W	15M	C	6034752	15 m
DOL	-	12	04	-	W	20M	C	6034753	20 m
DOL	-	12	04	-	W	25M	C	6034754	25 m

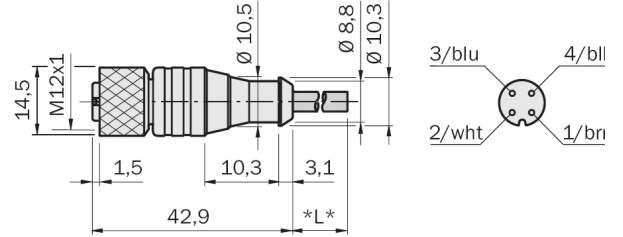


PUR circular plug-in connector M12, 4-pin



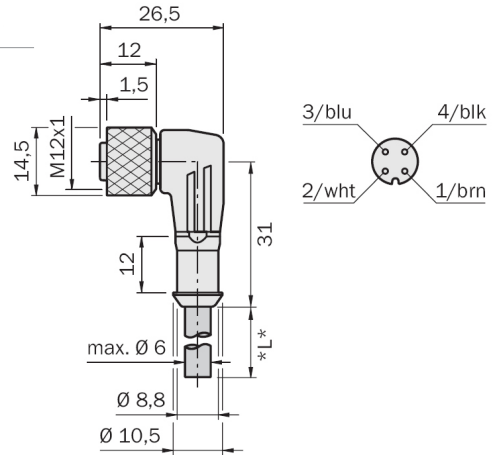
DOL - 12 04 - G 05M D

6026250 5 m, welding spark-proof



DOL - 12 04 - W 05M D

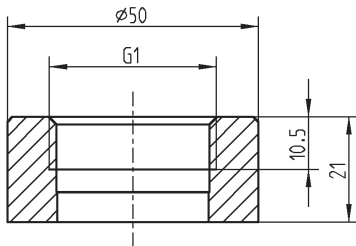
6020399 5 m, welding spark-proof



Weld-in flanges for version with flush-mounted membrane

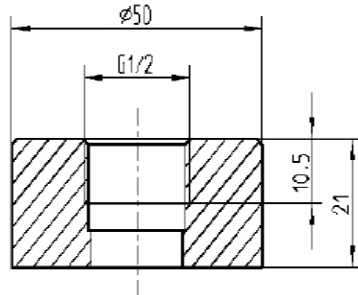
Flanges	
Thread	Order-No.
G 1B	5322450

For process connector
order code F1



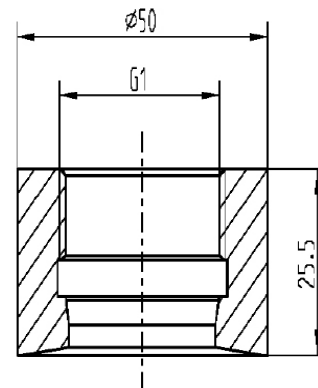
Thread	Order-No.
G 1/2B	5322449

For process connector
order code F2



Thread	Order-No.
G 1/2B	5322453

For process connector
order code F3



Type code	PFT-																			
Typ																				
Standard		S																		
Front-flush membrane		F																		
Pressure type																				
Gauge				R																
Absolute				A																
Compound				C																
Pressure unit																				
bar						B														
Mpa						M														
psi						P														
kg/cm ²						K														
mbar						A														
Measurement Range																				
bar / Gauge Pressure																				
0...0.1 bar						x	1	0												
0...0.16 bar						x	1	6												
0...0.25 bar						x	2	5												
0...0.4 bar						x	4	0												
0...0.6 bar						x	6	0												
0...1 bar						1	x	0												
0...1.6 bar						1	x	6												
0...2.5 bar						2	x	5												
0...4 bar						4	x	0												
0...6 bar						6	x	0												
0...10 bar						0	1	0												
0...16 bar						0	1	6												
0...25 bar						0	2	5												
0...40 bar						0	4	0												
0...60 bar						0	6	0												
0...100 bar						1	0	0												
0...160 bar						1	6	0												
0...250 bar						2	5	0												
0...400 bar						4	0	0												
0...600 bar						6	0	0												
bar / Absolute																				
0...0.25 bar abs						x	2	5												
0...0.4 bar abs						x	4	0												
0...0.6 bar abs						x	6	0												
0...1 bar abs						1	x	0												
0...1.6 bar abs						1	x	6												
0...2.5 bar abs						2	x	5												
0...4 bar abs						4	x	0												
0...6 bar abs						6	x	0												
0...10 bar abs						0	1	0												
0...16 bar abs						0	1	6												
0...25 bar abs ¹⁾						0	2	5												
bar / Compound Range																				
-1...0 bar						1	x	0												
-1...+0.6 bar						1	x	6												
-1...+1.5 bar						2	x	5												
-1...+3 bar						4	x	0												
-1...+5 bar						6	x	0												
-1...+9 bar						0	1	0												
-1...+15 bar						0	1	6												
-1...+24 bar						0	2	5												
-1...+30 bar ¹⁾						0	3	1												

¹⁾ Not with flush-mounted membrane

PFT-															
Measurement Range															
psi Gauge Pressure															
0...5 psi				5	X	0									
0...10 psi				0	1	0									
0...15 psi				0	1	5									
0...25 psi				0	2	5									
0...30 psi				0	3	0									
0...50 psi				0	5	0									
0...100 psi				1	0	0									
0...160 psi				1	6	0									
0...200 psi				2	0	0									
0...300 psi				3	0	0									
0...500 psi				5	0	0									
0...1000 psi				1	K	0									
0...1500 psi				1	K	5									
0...2000 psi				2	K	0									
0...3000 psi				3	K	0									
0...5000 psi				5	K	0									
0...8000 psi				8	K	0									
psi Absolute Pressure															
0...15 psi abs				0	1	5									
0...25 psi abs				0	2	5									
0...50 psi abs				0	5	0									
0...100 psi abs				1	0	0									
0...250 psi abs				2	5	0									
psi Compound Range															
-30 InHg...0 psi				0	1	5									
-30 InHg...+30 psi				0	4	5									
-30 InHg...+60 psi				0	7	5									
-30 InHg...+100 psi				1	1	5									
-30 InHg...+160 psi				1	7	5									
-30 InHg...+200 psi				2	1	5									
-30 InHg...+300 psi				3	1	5									
mbar / Absolute Pressure															
800...1200 mbar abs				4	0	0									
mbar Compound Range															
-600...0 mbar ¹⁾				6	0	0									
-400...0 mbar ¹⁾				4	0	0									
-250...0 mbar ¹⁾				2	5	0									
-160...0 mbar				1	6	0									
-100...0 mbar ¹⁾				1	0	0									

¹⁾ Not with flush-mounted membrane

PFT-									
Accuracy									
≤ +/- 0.25 % of Span (BFSL) ²⁾									S
≤ +/- 0.5 % of Span (BFSL)									A
Process Connector									
G 1/4 A according to DIN 3852-E									G1
G 1/4 female									G2
1/4" NPT									N1
M20 x 1.5									M2
7/16"-20 UNF SAE #4 J514 male									U1
R 1/4 ISO 7 (DIN2999)									R1
G 1 B flush-mounted with O-ring ³⁾									F1
G 1/2 B flush-mounted with O-ring ⁴⁾									F2
G 1 flush-mounted, up to 150 °C, on request ⁵⁾									F3
Pressure Port									
Standard									S
0.3 mm pressure port ⁶⁾									N
0.6 mm pressure port ⁶⁾									M
Process Temperature									
-30...+100 °C									S
-40 ... +125 °C									E
-20...+150 °C (on request) ⁷⁾									H
Output Signal									
4...20mA, 2-wire									A
0...10V, 3-wire									V
0...5V, 3-wire									U
Electrical Connector									
M12 x 1, 4-pin, IP 67									M
L-connector DIN EN 175301-803 A, IP 65									L
flying leads, 1.5 m, IP67									1
flying leads, 3 m, IP67									3
flying leads, 1.5 m, IP68 (zero and span not adjustable)									4
flying leads, 3 m, IP68 (zero and span not adjustable)									5

²⁾ Only with p ≥ 0.25 bar

³⁾ Only with p ≤ 1.6 bar

⁴⁾ Only with p ≥ 2.0 bar

⁵⁾ Only with p ≤ 25 bar

⁶⁾ Only with process connector order code G1

⁷⁾ Only with process connector order code F3

Australia

Phone +61 3 9497 4100
1800 33 48 02 - tollfree
E-Mail sales@sick.com.au

Belgium/Luxembourg

Phone +32 (0)2 466 55 66
E-Mail info@sick.be

Brasil

Phone +55 11 3215-4900
E-Mail sac@sick.com.br

Ceská Republika

Phone +420 2 57 91 18 50
E-Mail sick@sick.cz

China

Phone +852-2763 6966
E-Mail ghk@sick.com.hk

Danmark

Phone +45 45 82 64 00
E-Mail sick@sick.dk

Deutschland

Phone +49 211 5301-250
E-Mail info@sick.de

España

Phone +34 93 480 31 00
E-Mail info@sick.es

France

Phone +33 1 64 62 35 00
E-Mail info@sick.fr

Great Britain

Phone +44 (0)1727 831121
E-Mail info@sick.co.uk

India

Phone +91-22-4033 8333
E-Mail info@sick-india.com

Israel

Phone +972-4-999-0590
E-Mail info@sick-sensors.com

Italia

Phone +39 02 27 43 41
E-Mail info@sick.it

Japan

Phone +81 (0)3 3358 1341
E-Mail support@sick.jp

Nederlands

Phone +31 (0)30 229 25 44
E-Mail info@sick.nl

Norge

Phone +47 67 81 50 00
E-Mail austefjord@sick.no

Österreich

Phone +43 (0)22 36 62 28 8-0
E-Mail office@sick.at

Polska

Phone +48 22 837 40 50
E-Mail info@sick.pl

Republic of Korea

Phone +82-2 786 6321/4
E-Mail kang@sickkorea.net

Republika Slovenija

Phone +386 (0)1-47 69 990
E-Mail office@sick.si

România

Phone +40 356 171 120
E-Mail office@sick.ro

Russia

Phone +7 495 775 05 34
E-Mail info@sick-automation.ru

Schweiz

Phone +41 41 619 29 39
E-Mail contact@sick.ch

Singapore

Phone +65 6744 3732
E-Mail admin@sicksgp.com.sg

Suomi

Phone +358-9-25 15 800
E-Mail sick@sick.fi

Sverige

Phone +46 10 110 10 00
E-Mail info@sick.se

Taiwan

Phone +886 2 2375-6288
E-Mail sickgrc@ms6.hinet.net

Türkiye

Phone +90 216 587 74 00
E-Mail info@sick.com.tr

USA/Canada/México

Phone +1(952) 941-6780
1 800-325-7425 - tollfree
E-Mail info@sickusa.com

More representatives and agencies
in all major industrial nations at
www.sick.com