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Application Engineering Europe

PRESSURE TRANSMITTER PT5N

A1 A2L A3

General information

PT5N Pressure Transmitters convert a pressure into a linear electrical 4...20 mA output signal suitable for controlling simple compressor and fan switching to the more sophisticated application of superheat modulation of Electronic Control Valves.
With competitive performance to price characteristics and an easy to install pre-fabricated M12 cable assembly, PT5N transmitters are the designers choice for all heat pump, refrigeration and air conditioning applications.

Features

- Hybrid film technology where the pressure measuring cell is fully welded with the pressure transducer without seals.
- With output signal 4…20 mA and 2-wire connection for the precise operation of superheat, compressor or fan control systems
- Fully hermetic
- Calibrated for specific temperature and pressure ranges
- Easy install M12 electrical connection with pre-assembled cable assemblies available in various lengths
- Vibration, shock and pulsation resistant
- Protection class IP67 with mounted Plug and Cable Assembly
- PT5N-xxM with 7/16”-20UNF pressure connection and Schrader valve opener
- PT5N-xxT with 6x40 mm stainless steel tube and integrated brazing neck for easy mounting in applications requiring a fully hermetic system solution
- PT5N-150D with pressure connection 1/4“-18 NPT male suitable for subcritical and transcritical CO_2 systems
- PT5N-xxP-FLR with 6x40 mm stainless steel tube and integrated brazing neck for easy mounting in applications requiring a fully hermetic system solution and can only be used in hazardous area defined by zone 2 (category 3).

PT5N-…-FLR : **II 3 G**
Ex ec IIC T4 Gc

PT4-M60-FLR: **II 3 G**
Ex nA IIA T4 Gc U

PT5N-xxM

PT5N-xxT / PT5N-xxP-FLR

Type code

PT5N	-	X	X	-	X
Product Name					FLR (Ex) ATEX version

Pressure Range (Signal output)

07	-0.8…7 bar	**30**	0…30 bar
10	-0.8…10 bar	**50**	0…50 bar
18	0…18 bar	**150**	0…150 bar

Pressure Connection

M	7/16”-20 UNF
T	6 mm tube, solder & 40 mm long
D	1/4”-18 NPT (male)
P	6 mm tube, solder & 40 mm long

Selection Table

Type	Part No.		Pressure Range for Signal Output (bar)*	Output Signal	Medium Temperature Range	Max. allowable Pressure PS (bar)*	Pressure Connection
	Single pack	Multipack 25 pcs					
PT5N-07M	**805350**	**805350M**	-0.8…7	4…20 mA	-40...+135 °C	27	7/16” – 20 UNF (with Schrader valve opener)
PT5N-18M	**805351**	**805351M**	0...18			48	
PT5N-30M	**805352**	**805352M**	0...30			60	
PT5N-50M	**805353**	**805353M**	0...50			75	
PT5N-07T	**805380**	**805380M**	-0.8...7			27	6 mm tube x 40 mm long
PT5N-18T	**805381**	**805381M**	0...18			48	
PT5N-30T	**805382**	**805382M**	0…30			60	
PT5N-50T	**805383**	**805383M**	0…50			75	
PT5N-150D	**805379**	**805379M**	0…150			150	1/4”-18 NPT (male)
PT5N-07P-FLR	**805390**	**805390M**	-0.8...7		-30...+120 °C	27	6 mm tube x 40 mm long
PT5N-10P-FLR	**805391**	**805391M**	-0.8...10			27	
PT5N-30P-FLR	**805389**	**805389M**	0…30			60	

NOTE 1: *) Sealed gauge pressure
NOTE 2: When selecting also observe the information in the operating instructions. Available on EMERSON website.
For assistance with selection or to place an order, please contact your local Emerson Sales offices.

Selection Table Accessory

Type	Part No.		Cable Length**	Description	Temperature Range	Illustration
	Single pack	Multipack 20 pcs				
PT4-M15	**804803**	**804803M**	1.5 m	M12, Connector, loose wires angled	-50…+80 °C static application -25…+80 °C mobile application	
PT4-M30	**804804**	**804804M**	3.0 m			
PT4-M60	**804805**	**804805M**	6.0 m			
PT4-M60 FLR	**804806**	-	6.0 m	M12, Connector, loose wires angled (Ex) **II 3 G Ex nA IIA T4 Gc U**	-40…+70 °C	

NOTE 1: **) Longer length of the electrical connection cable beyond 6.0 m must be verified by user in term of output signal as well as EMC within installed system.
NOTE 2: The qualification /certification of PT5N-…P-FLR is valid only in conjunction with PT4-M60-FLR connector.

Technical Data

Supply voltage (polarity protected) PT5N-… PT5N-…FLR	Nominal: 24 VDC Range: 7…33 VDC Range: 10…30 VDC
Operating current*	Maximum ≤ 23 mA 4…20 mA output
⚠ **A3**:	Ui ≤ 30 V, Ii ≤ 100 mA, Pi ≤ 750 mW internal inductance Li = 0 nH, internal capacitance Ci = 0 nF
Applicable Driver/controller must contain intrinsically safe resistive circuit and insured maximum supply voltage below 30 VDC and maximum current below 100 mA.	
Load resistance	$R_L \leq \frac{Ub - 7.0V}{0.02A}$
Response time	≤ 2 ms
Temperatures Storage/ Transport Operation Medium	 All types -50…+100°C PT5N-…: -30…+85 °C PT5N-…P-FLR: -25…+85 °C PT5N-…: -40…+135 °C (UL: -40…+100 °C) PT5N-…P-FLR: -30…+120 °C
Medium compatibility **Fluid group II** **Fluid group I** **Fluid group I**	 R134a, R410A, R407C, R404A, R507, R448A, R449A, R513A, R450A, R452A, R23, R124, R744 A1 R32 A2L R290 A3

Electrical connection PT5N-… PT5N-…P-FLR	M12 plug and cable assembly PT4-M… (IEC 61076-2-101:2012) PT4-M60-FLR (ATEX)
Mounting position	Non position sensitive; details see operating instructions
Weight (without plug and cable assembly)	PT5N-…T: ~ 103 g PT5N-…P-FLR: ~ 103 g PT5N-…M: ~ 87 g PT5N -150D: 73 g
Protection class (EN 60529)	IP67 with mounted plug and cable assembly
Vibration at 15…2000 Hz	20 g according to IEC 60068-2-6
Sensor Lifetime	30 Million Load Cycles with 1.3 Times of Nominal Pressure
Materials Housing pressure connection (PT5N-…T/ PT5N-…P-FLR)	 Stainless steel 1.4404 / AISI316L Stainless steel 1.4301 / AISI 304
Marking PT5N-…T/M/D PT5N-…P-FLR	 CE acc. EMC Directive EN 61326-2-3 : 2013 c UL us LISTED (E499688), UKCA, EAC CE 2014/34/EU: EN 60079-0: 2012 + A11:2013 EN 60079-0: 2014 EN 60079-7: 2016 EN 60079-26: 15 2014/30/EU: EN 61326-2-3 : 2013 Ex **II 3 G** **Ex ec IIC T4 Gc**

Accuracy performance

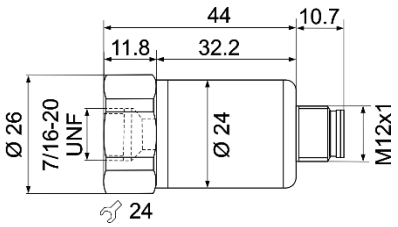
Type	Total error[1]	Temperature range
PT5N-07 / -18	≤ ±1 % FS	-40…+20 °C
PT5N-07P-FLR	≤ ±1 % FS	-30…+20 °C
PT5N-10P-FLR	≤ ±1 % FS	-10…+60 °C
	≤ ±1.4 % FS	-30…+80 °C
PT5N-30 / -50 PT5N-30P-FLR	≤ ±1 % FS	+10…+50 °C
	≤ ±2 % FS	-10…+80 °C
PT5N-150D	≤ ±1 % FS	+10...+50 °C
	≤ ±2 % FS	-10...+90 °C

NOTE:
[1]) Total error includes non-linearity, hysteresis, repeatability as well as offset and span drift due to the temperature changes.

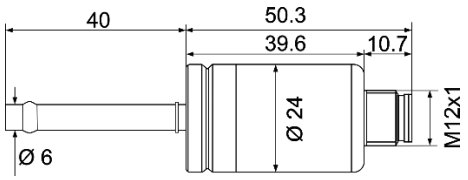
% FS is related to **P**ercentage of Full sensor **S**cale.

Dimension (mm)

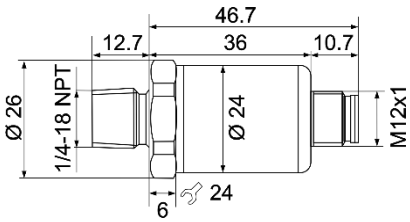
PT5N-…M



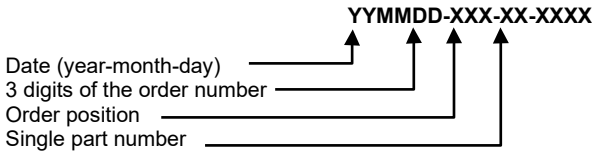
PT5N-…T / PT5N-…P-FLR



PT5N-150D



Date of manufacture visible on PT5N-…P-FLR label



PT4-M… / PT4-M60-FLR

M12 Plug