

Smart SN DIFF

DIFFERENTIAL PRESSURE TRANSMITTERS

PRODUCT DATA



GENERAL

Honeywell FEMA's Smart SN DIFF Differential Pressure Transmitters are microprocessor-controlled pressure measurement devices for a differential pressure range of 0...20 bar. They are suitable for an extremely wide range of applications, including the precision recording and monitoring of system pressures. They come complete with an angled M12x1 plug and are mounted directly to the pipe via two G1/4" internal thread connections. 2- and 3-wire versions available.

FEATURES

Versions with HMI

- Configurable as 0/2...10 V or 0/4...20 mA (3-wire)
- Adjustable attenuation filter
- LCD graphical display (**H**uman-**M**achine-**I**nterface models, only) can be rotated (in 90° steps, by software) for better readability; HMI can be freely swiveled 310°
- Self-monitoring electronics

Versions without HMI

- Configurable as 0...10 V
- Self-monitoring electronics

TECHNICAL DATA

Materials

Parts contacting medium	Stainless steel 1.4404 (AISI 316L)
Chemical resistance	4C4 as per EN 60721-3-4
HMI	PA66 GB30
Total weight	520 g without, 600 g with HMI
Sensor type	Piezo

Storage temperature

Versions without HMI	-40...+100 °C
Versions with HMI	-30...+80 °C

Ambient (operating) temperature and humidity

Versions without HMI	-20...+80 °C
Versions with HMI	-20...+70 °C
Humidity	0...95% r.h., non-condensing
Temperature of medium	-20...+80 °C

Climate class

Indoors	4K4H as per EN 60721-3-4
Outdoors	3K8H as per EN 60721-3-3

Mechanical stability

Vibration	10 g as per IEC 68-2-6 (up to 2000 Hz)
Mechanical shock	50 g as per IEC 68-2-27
Pressure resistance	see Table 1.

Pressure meas. range	0...20 bar (differential)
Cycle time	100 ms

Protection rating

EMC	according to EN 61326
Safety class	II as per EN 61010
Protection class (with M12 connection)	
without HMI	IP67 as per EN 60529-2
with HMI	IP65 as per EN 60529-2
Process connection	2 x G1/4" internal thread
Electrical connection	4-prong A-coded M12x1 plug

Transmitter (analog) output

Current (2-wire)	4...20 mA
Voltage / current (3-wire)	0/2...10 V, 0/4...20 mA
Versions without HMI	0...10 V
Voltage supply (2-wire)	18...35 Vdc
Voltage supply (3-wire)	18...35 Vdc, 24 Vac +10%/-20%, max. 50 mA
Current output	max. load = $(V_{SUPPLY} - 16 V) / 22 mA$ (max. error $\pm 0.25\% FS$)
Voltage output	min. load = 15 k Ω (max. error $\pm 0.25\% FS$)
Transient response	approx. 200 ms

Sensor accuracy, span, offset, and long-term drift: see Table 2.

MODEL KEY

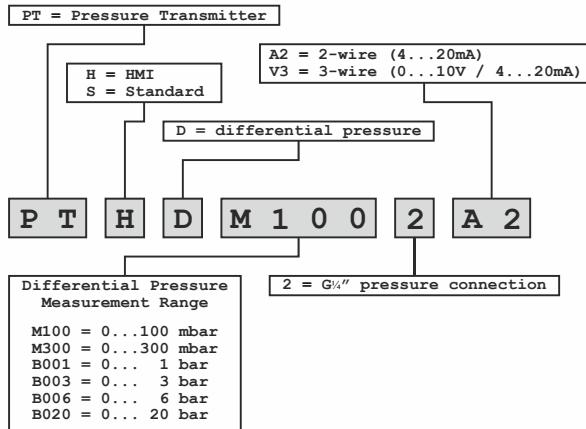


Fig. 1. Overview of models

SPECIFICATIONS

Differential Pressure Measurement Range

The differential pressure measurement range is defined as the range of differential pressures which the device can reliably measure. Within this range, the sensor will perform at its functional specifications.

Overrange Pressure

The overrange pressure is defined as the maximum allowable difference between the higher pressure input "H" and the lower pressure input "L". Specifically, differential pressures exceeding the overrange pressure may permanently damage the sensor and impair sensor accuracy.

Differential Burst Pressure

The differential burst pressure is defined as the differential pressure which will permanently damage the sensor, resulting in total failure.

Maximum Allowable System Pressure

The max. allowable system pressure is the max. absolute pressure that can be applied to the pressure inputs "H" and/or "L" without impairing sensor accuracy and/or permanently degrading sensor functional specifications.

NOTE: The actual pressure applied to the pressure input "H" can exceed the maximum allowable system pressure by a value equal to the overrange pressure without impairing sensor accuracy and/or permanently degrading sensor functional specifications.

Table 1. Sensor properties

2-wire, with HMI	3-wire, with HMI	3-wire, 0...10 V, w/o HMI	diff. pressure measurement range	overrange pressure	overrange pressure ("Err. 13")*	sensor burst pressure (Hi > Lo)**	max. allowable sys. pressure
PTHDM1002A2	PTHDM1002V3	PTSDM1002V3	0 ... 100 mbar	200 mbar	200...400 mbar	≥ 400 mbar	70 bar
PTHDM3002A2	PTHDM3002V3	PTSDM3002V3	0 ... 300 mbar	600 mbar	600...1200 mbar	≥ 1200 mbar	70 bar
PTHDB0012A2	PTHDB0012V3	PTSDB0012V3	0 ... 1 bar	2.0 bar	2.0...4.0 bar	≥ 4 bar	70 bar
PTHDB0032A2	PTHDB0032V3	PTSDB0032V3	0 ... 3 bar	6.0 bar	6.0...12.0 bar	≥ 12 bar	70 bar
PTHDB0062A2	PTHDB0062V3	PTSDB0062V3	0 ... 6 bar	12 bar	12.0...24.0 bar	≥ 24 bar	70 bar
PTHDB0202A2	PTHDB0202V3	PTSDB0202V3	0 ... 20 bar	40 bar	40.0...80.0 bar	≥ 80 bar	70 bar

* Err. 13, recoverable (R); ** Err. 13, unrecoverable (U)

Table 2. Accuracy (combined non-linearity, hysteresis, and repeatability at 20 °C,) temperature effect on span and on offset, as well as long-term drift (within temp. compensation range of 0...80 °C)

devices with diff. pressure measurement ranges of...	parameter	max.	typical
0 ... 100 mbar	accuracy	±1.0% FS	--
	temperature effect on span	±1.2% FS / 10 K	±0.5% FS / 10 K
	temperature effect on offset	±1.2% FS / 10 K	±0.5% FS / 10 K
	long-term drift	±0.5% FS / year	±0.25% FS / year
0 ... 300 mbar, 0 ... 1 bar, 0 ... 3 bar, 0 ... 6 bar, 0 ... 20 bar	accuracy	±1.0% FS	--
	temperature effect on span	±0.4% FS / 10 K	±0.2% FS / 10 K
	temperature effect on offset	±0.4% FS / 10 K	±0.2% FS / 10 K
	long-term drift	±0.5% FS / year	±0.25% FS / year

INSTALLATION

Dimensions

The geometry of the two G1/4" connections conform to DIN EN 837. See also Fig. 2.

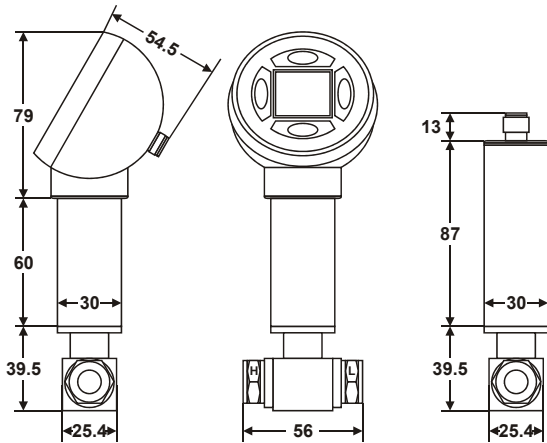


Fig. 2. Dimensions (in mm)

Mounting and Electrical Wiring

The device is secured in place and mounted directly to the pipe via two G1/4" internal thread connections (size 19 wrench). Alternatively, mounting can be effected via the MAU8 adapter or the VKD3A/5A valve combinations. All mounting orientations are permitted.

Electrical Protection

Up to 35 Vdc, the device is protected against pole-reversal. The input pins of the M12 plug are protected against miswiring (device will not work when miswired).

Pin Assignment of Plug

The plug is an A-coded, four-prong M12 plug (see Fig. 3).

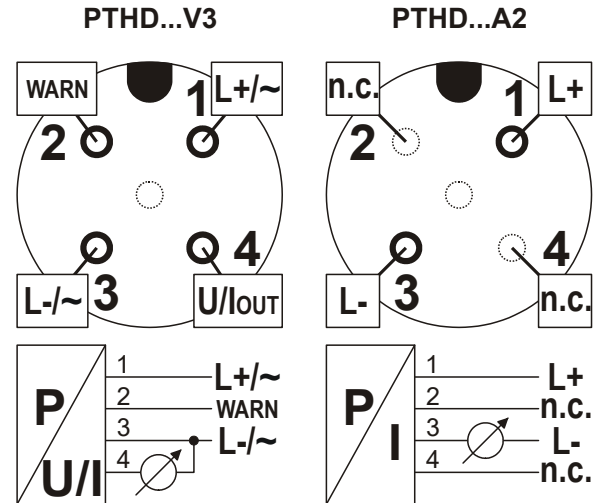


Fig. 3. A-coded M12 plug

LCD (HMI-MODELS, ONLY)

HMI models feature a 19 X 19 mm LCD equipped with a bicolor backlight (white = normal operation; red = fault mode; 2-wire models without backlight). LCD display information refresh is time adjustable to between 1 and 9 seconds.

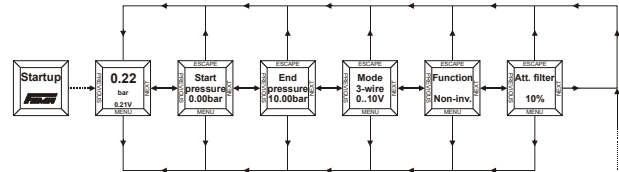


Fig. 4. Menu structure (excerpt)

Accessories

- Included in delivery:** M12x1 Angled plug.
- Optional:** ST12-5-G Straight M12x1 plug.
- MAU8/Ms adapter, 8 mm, yellow brass
- MAU8/Nst adapter, 8 mm, stainless steel

Honeywell