



Pressure Transmitter

HDA 4800 for iron and steel works

Including test protocol

Relative pressure

Accuracy 0.125 %



Features

- Accuracy $\leq \pm 0.125$ % FS typ.
- Specially designed for steel and rolling mill applications
- Very robust sensor cell
- Very low temperature error
- Excellent EMC characteristics
- Excellent long-term stability

Description

The pressure transmitter series HDA 4800 for iron and steel works have a very robust sensor cell with a thin-film strain gauge on a stainless steel membrane for the measurement of relative pressures in the high-pressure range.

Its outstanding specifications in respect of temperature effect (temperature drift for zero point and span are in each case max. $\leq \pm 0.01$ % FS / °C) and accuracy ($\leq \pm 0.125$ % FS typ.) make it ideally suited for the use in the environmental conditions found in steel works.

The excellent EMC characteristics guarantee signal stability during the harshest high-frequency electromagnetic interference.

Additional protection against humidity and vibrations is achieved by encapsulation. A heat shrink sleeve is used to protect the sensor from bending.

Fields of application

This high-precision pressure transmitter was specially developed and adapted for the sophisticated measurement demands of steel works technology.

Technical data

Input data												
Measurement ranges ¹⁾	bar	16	60	100	150	250	300	350	400	500	600	1000
Overload pressures	bar	32	120	200	500	800	800	1000	1000	1000	1000	1600
Burst pressure	bar	200	300	500	1000	2000	2000	3000	3000	3000	3000	3000
Mechanical connection ¹⁾	G1/4 A ISO 1179-2 with orifice G1/2 A ISO 1179-2 with orifice											
Tightening torque, recommended	20 Nm (G1/4); 45 Nm (G1/2)											
Parts in contact with fluid	Connector: Stainless steel Seal ring: FKM at G1/4, NBR at G1/2											
Output data												
Output signal, permitted load resistance	4 .. 20 mA, 2 conductor $R_{L,max} = (U_B - 10 \text{ V}) / 20 \text{ mA} [\text{k}\Omega]$ 0 .. 20mA, 3 conductor source $R_{L,max} = (U_B - 4 \text{ V}) / 20 \text{ mA} [\text{k}\Omega]$											
Accuracy acc. to DIN 16086, Terminal based ²⁾	$\leq \pm 0.125 \% \text{ FS typ.}$ $\leq \pm 0.25 \% \text{ FS max.}$											
Accuracy acc. to minimum value setting (B.F.S.L.)	$\leq \pm 0.06 \% \text{ FS typ.}$ $\leq \pm 0.125 \% \text{ FS max.}$											
Temperature compensation Zero point	$\leq \pm 0.005 \% \text{ FS} / ^\circ\text{C typ.}$ $\leq \pm 0.01 \% \text{ FS} / ^\circ\text{C max.}$											
Temperature compensation Span	$\leq \pm 0.005 \% \text{ FS} / ^\circ\text{C typ.}$ $\leq \pm 0.01 \% \text{ FS} / ^\circ\text{C max.}$											
Rise time	$\leq 1 \text{ ms}$											
Long-term drift	$\leq \pm 0.1 \% \text{ FS typ.} / \text{ year}$											
Environmental conditions / Approvals / Tests												
Compensated temperature range	-25 .. +85 °C											
Operating temperature range ³⁾	-40 .. +85 °C / -25 .. +85 °C											
Storage temperature range	-40 .. +100 °C											
Fluid temperature range ³⁾	-40 .. +100 °C / -25 .. +100 °C											
EMC	2014/30/EC EN 61006-6-1 / 2 / 3 / 4											
Vibration resistance	DIN EN 60068-2-6						$\leq 250 \text{ m/s}^2 (10 \dots 500 \text{ Hz})$					
Shock resistance	DIN EN 60068-2-27 $\leq 100 \text{ g} / 6 \text{ ms}$											
Protection type	DIN EN 60529						IP 67 ⁴⁾ (Plug M12x1 with mounted IP67 mating connector) IP 68 (jacketed cable)					
CE / UK CA conformity	Provided											
UL approval ⁵⁾	Provided											
Other data												
Supply voltage	8 .. 30 V DC 2-conductor 10 .. 30 V DC 3-conductor											
Supply voltage when applied acc. to UL specifications	- limited energy – acc. to 9.3 UL 61010; Class 2 UL 1310/1585; LPS UL 60950											
Residual ripple of supply voltage	$\leq 5 \%$											
Current consumption	$\leq 25 \text{ mA}$											
Additional protection against water, humidity and vibration	Encapsulation of the device, cable outlet with strain relief, shrink sleeve											
Life expectancy	$> 10 \text{ million load cycles} (0 \dots 100 \% \text{ FS})$											
Weight	$\sim 180 \text{ g plus } 90 \text{ g} / \text{ m cable}$											

Note: Reverse polarity protection of the supply voltage, overvoltage, override and short circuit protection are provided.

FS (Full Scale) = relative to complete measuring range

B.F.S.L. = Best Fit Straight Line

¹⁾ 1000 bar only with mech. connection G1/2 A ISO 1179-2 and vice-versa

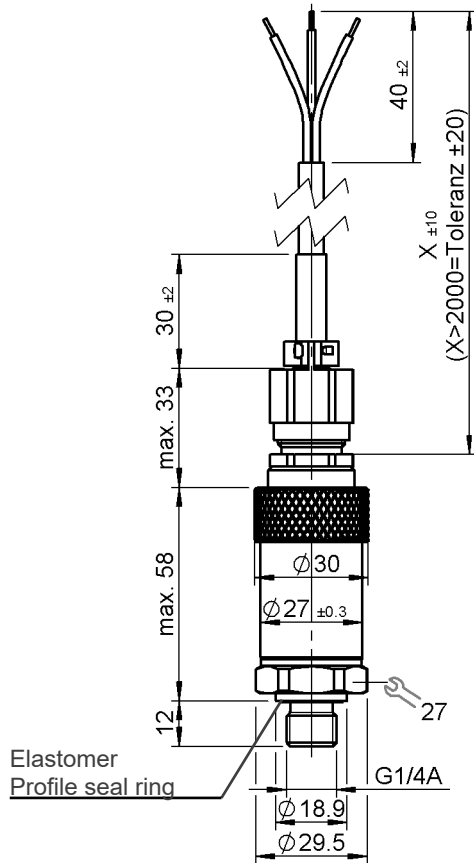
²⁾ Including non-linearity, hysteresis, offset and final value deviation

³⁾ In the standard up to -25 °C with FKM seal, -40 °C on request

⁴⁾ With mounted mating connector in corresponding protection type

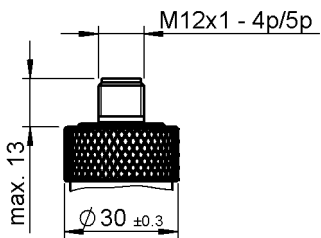
⁵⁾ Environmental conditions acc. to 1.4.2 UL 61010-1; C22.2 no. 61010-1

Dimensions



Electrical connection variants

Plug connector M12x1, 4 pole

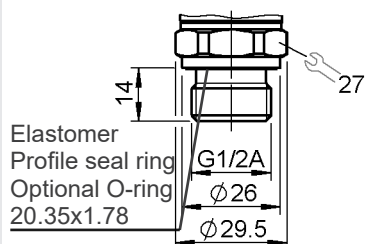


Mechanical connection variants

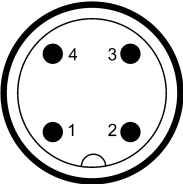
G1/2 A ISO 1179-2

Male thread

Tightening torque, recommended: 45 Nm



Pin connections

M12x1, 4 pole	Pin	Output signal A	Output signal E
	1	Signal +	+U _B
	2	n.c.	n.c.
	3	Signal -	0 V
	4	n.c.	Signal

Cable assignment

Cable outlet 3 leads	Lead	Output signal: A	Output signal: E
	Black	n.c.	+U _B
	brown	Signal +	Signal
	blue	Signal -	0 V

Cable type

Ölfon cable 3 x 0.75 mm² shielded.
Outer sheath FEP black
Outer diameter 5.9 ± 0.15 mm

Model code

HDA 4 8 X X - X - XXXX - 424 (XXM)

Mechanical connection

2 = G1/2 A ISO 1179-2
4 = G1/4 A ISO 1179-2

Electrical connection

0 = Jacketed cable
6 = Plug connector M12x1, 4 pole (without mating connector)

Output signal

A = 4 .. 20 mA, 2 conductor
E = 0 .. 20 mA, 3 conductor source

Measuring ranges in bar

0016; 0060; 0100; 0150; 0250; 0300; 0350; 0400; 0500; 0600
1000 bar (only with mech. port "G1/2")

Modification number

424 = Iron and steel works

Cable lengths in m (only with electrical connection type "0")

06; 10; 15; 20; 25; 30

Accessories:

Appropriate accessories, such as mating connectors, can be found in the Accessories brochure.

Note

The information in this brochure relates to the operating conditions and applications described.
For applications and operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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