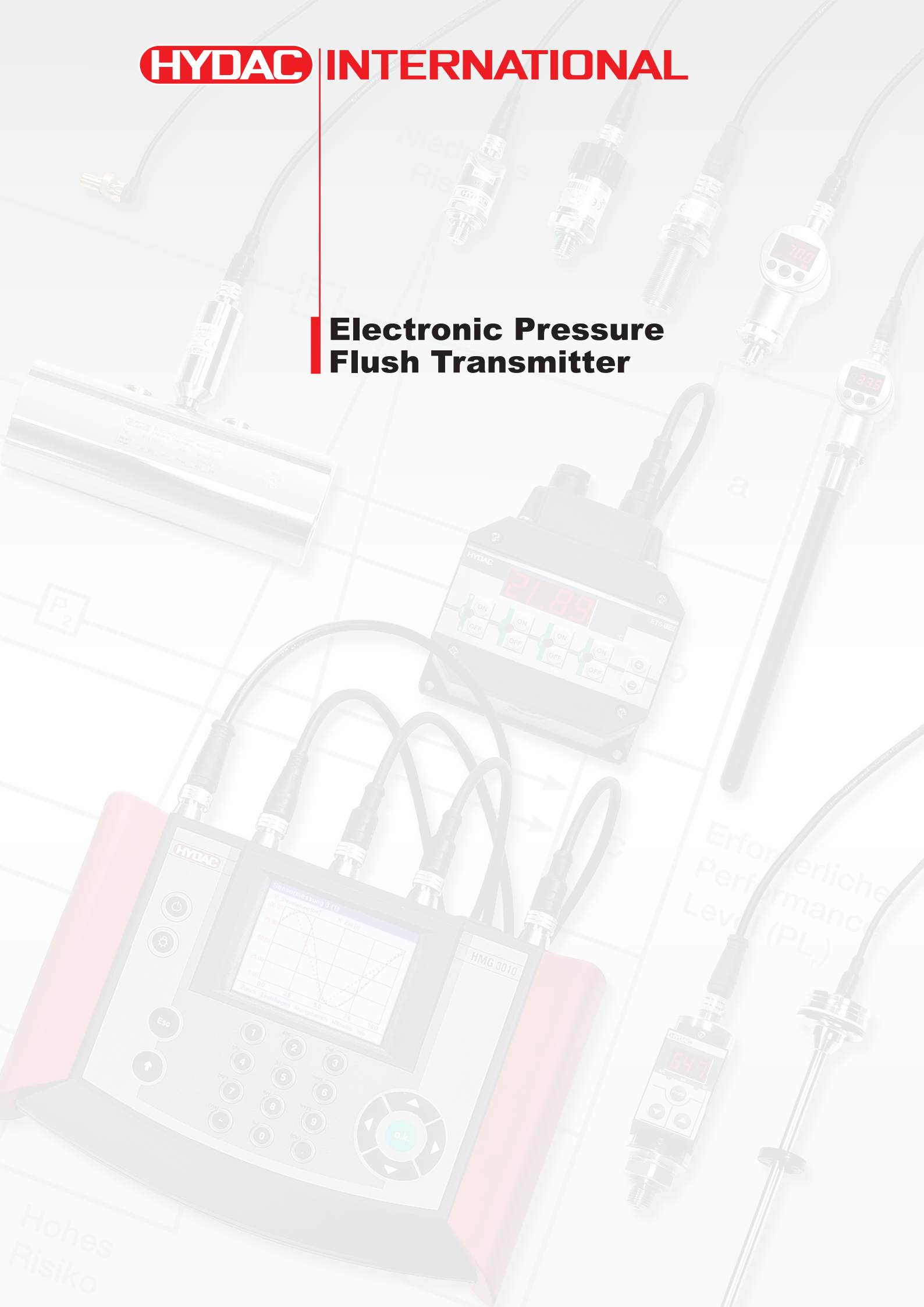
HYDAC INTERNATIONAL

Electronic Pressure Flush Transmitter



PRESSURE SENSORS WITH FLUSH MEMBRANES

Depending on the application and the medium used, it is not always possible to use standard pressure connections.
This is the case, for example, with media which can cause the standard pressure connection to become blocked, clogged or frozen, or for applications where the medium changes frequently and residues can result in mixing or contamination of the media.

For such applications, HYDAC ELECTRONIC provides pressure sensors with flush membranes. On these, the pressure connection is closed off at the end with a flush-fitting, fully-welded stainless steel membrane and is filled internally with a special pressure transfer fluid. The process pressure being measured is transmitted hydrostatically to the sensor cell via the transfer pressure fluid.

Electronic pressure transmitters with flush membrane:

HDA 4700
HDA 4400
HDA 4300
HDA 7400

Electronic pressure switches with flush membrane:

EDS 3400
EDS 3300

You can find more sensors with flush membranes for special applications in the Section on *"Sensors for potentially explosive atmospheres"*.

Electronic Pressure Transmitter

HDA 4700
with Flush Membrane

Description:

Pressure transmitter HDA 4700 with a flush membrane was designed specifically for applications in which a standard pressure connection could become blocked, clogged or frozen by the particular medium used. Further applications include processes where the medium changes regularly and any residues could cause mixing or contamination of the media.

Like the standard model, the HDA 4700 with flush membrane has a stainless steel measurement cell with a thin film strain gauge for relative pressure measurement in the high pressure range.

The pressure connection is achieved with a fully-sealed stainless steel front membrane filled internally with a pressure transfer fluid. The process pressure is transmitted hydrostatically to the measurement cell via the pressure transfer fluid.

The 4 .. 20 mA or 0 .. 10 V enable connection to all HYDAC measurement and control devices as well as connection to standard evaluation systems (e.g PLC controls).

Special features:

- Pressure connection has a flush membrane
- Accuracy ≤ 0.25% FS B.F.S.L.
- Highly robust sensor cell
- Very small temperature error
- Excellent EMC characteristics
- Small, compact design

Technical data:

Input data	
Measuring ranges	500, 750, 1000, 1500, 3000, 5000, 6000, 9000 psi
Overload pressures	1160, 1740, 2900, 2900, 7250, 11600, 11600, 13050 psi
Burst pressures [1]	2900, 4350, 7250, 7250, 14500, 29000, 29000, 29000 psi
Mechanical connection	G1/2 A DIN 3852 G1/2 with add. front O-ring seal G1/2 with add. front O-ring seal and cooling section
Pressure transfer fluid	Silicone-free oil
Torque value	33lb-ft (45 Nm)
Parts in contact with medium [2]	Mech. conn.: Stainless steel Seal: FPM O-ring: FPM
Output data	
Output signal, permitted load resistance	4 .. 20 mA, 2 conductor $R_{Lmax.} = (U_B - 8\ V) / 20\ mA\ [k\Omega]$ 0 .. 10 V, 3 conductor $R_{Lmin.} = 2\ k\Omega$
Accuracy to DIN 16086 Max. setting	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.
Accuracy at min. setting (B.F.S.L)	≤ ± 0.15 % FS typ. ≤ ± 0.25 % FS max.
Temperature compensation Zero point	≤ ± 0.0045% FS / °F typ. ≤ ± 0.0085% FS / °F max.
Temperature compensation Over range	≤ ± 0.0045% FS / °F typ. ≤ ± 0.0085% FS / °F max.
Non-linearity at max. setting to DIN 16086	≤ ± 0.3 % FS max.
Hysteresis	≤ ± 0.1 % FS max.
Repeatability	≤ ± 0.05 % FS max.
Rise time	≤ 1 ms
Long-term drift	≤ ± 0.1 % FS typ. / year
Environmental conditions	
Compensated temperature range	-13..+185 °F
Operating temperature range [3]	-40..+185 °F / -13..+185 °F
Storage temperature range	-40..+212 °F
Fluid temperature range [3]	-40..+212 °F / -13..+212 °F -40..+302 °F / -13..+302 °F for G1/2 with cooling section
CE mark	EN 61000-6-1 / 2 / 3 / 4
cULus mark [4]	Certificate No. E318391
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Protection class to IEC 60529	IP 65 (for EN175301-803 (DIN 43650)) IP 67 (for M12x1, when an IP 67 female connector is used)
Other data	
Supply voltage for use acc. to UL spec.	8 .. 30 V DC 2 conductor 12 .. 30 V DC 3 conductor - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Residual ripple of supply voltage	≤ 5 %
Current consumption	≤ 25 mA
Life expectancy	> 10 million cycles (0 .. 100 % FS)
Weight	~ 150 g

Note: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range, **B.F.S.L.** = **B**est **F**it **S**traight **L**ine

[1] G1/2 with additional front O-ring seal max. 21750 psi
[2] Other seal materials on request
[3] -13 °F with FPM seal, -40 °F on request
[4] Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No. 61010-1

Model code:

HDA 4 7 Z X – X – XXXX – XXX – 000 – PSI

Mechanical process connection
Z = Flush membrane

Electrical connection
5 = Male, 3 pole + PE, EN175301-803 (DIN 43650) (female connector supplied)
6 = Male M12x1, 4 pole (female connector not supplied)

Signal
A = 4 .. 20 mA, 2 conductor
B = 0 .. 10 V, 3 conductor

Pressure ranges in psi
0500, 0750, 1000, 1500, 3000, 5000, 6000, 9000

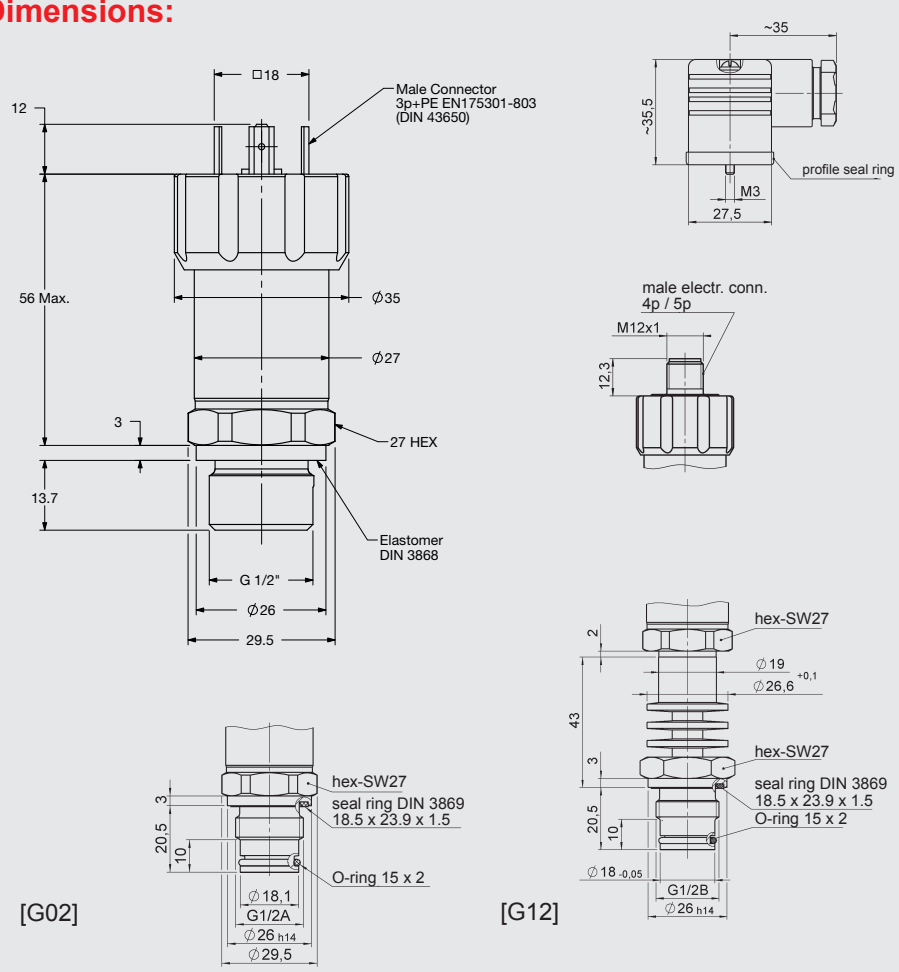
Mechanical connection
G01 = G1/2 A, DIN 3852
G02 = G1/2 with additional front O-ring seal
G12 = G1/2 with additional front O-ring seal and cooling section

Modification number
000 = Standard

Version
PSI = Pounds per square inch

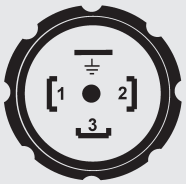
Accessories:
Appropriate accessories such as female electrical connectors can be found in the Accessories brochure.

Dimensions:



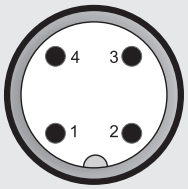
Pin connections:

EN175301-803 (DIN 43650)



Pin	HDA 47Z5-A	HDA 47Z5-B
1	Signal+	$+U_B$
2	Signal-	0V
3	n.c.	Signal
⊥	Housing	Housing

M12x1



Pin	HDA 47Z6-A	HDA 47Z6-B
1	Signal+	$+U_B$
2	n.c.	n.c.
3	Signal-	0V
4	n.c.	Signal

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.
For bar ranges see European Catalog

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Electronic Pressure Transmitter

HDA 4400
with Flush Membrane

Description:

Pressure transmitter HDA 4400 with a flush membrane was designed specifically for applications in which a standard pressure connection could become blocked, clogged or frozen by the particular medium used. Further applications include processes where the medium changes frequently and any residues could cause mixing or contamination of the media.

Like the standard model, the HDA 4400 with flush membrane has a stainless steel measurement cell with a thin film strain gauge for relative pressure measurement in the high pressure range.

The pressure connection is achieved with a fully-sealed stainless steel front membrane filled internally with a pressure transfer fluid. The process pressure is transmitted hydrostatically to the measurement cell via the pressure transfer fluid.

The output signals 4 .. 20 mA or 0 .. 10 V enable connection to all HYDAC measurement and control devices as well as connection to standard evaluation systems (e.g PLC controls).

Special features:

- Pressure connection has a flush membrane
- Accuracy ≤ 0.5% FS B.F.S.L.
- Highly robust sensor cell
- Very small temperature error
- Excellent EMC characteristics
- Small, compact design

Technical data:

Input data	
Measuring ranges	500, 750, 1000, 1500, 3000, 5000, 6000, 9000 psi
Overload pressures	1160, 1740, 2900, 2900, 7250, 11600, 11600, 13050 psi
Burst pressures [1]	2900, 4350, 7250, 7250, 14500, 29000, 29000, 29000 psi
Mechanical connection	G1/2 A DIN 3852 G1/2 with addit. front O-ring seal G1/4 with addit. front O-ring seal G1/2 with add. front O-ring seal and cooling section
Pressure transfer fluid	Silicone-free oil
Torque value	33lb-ft (45 Nm) for G1/2, G1/2 A 15lb-ft (20 Nm) for G1/4
Parts in contact with medium [2]	Mech. conn.: Stainless steel Seal: FPM O-ring: FPM
Output data	
Output signal, permitted load resistance	4 .. 20 mA, 2 conductor $R_{Lmax.} = (U_B - 8\ V) / 20\ mA\ [k\Omega]$ 0 .. 10 V, 3 conductor $R_{Lmin.} = 2\ k\Omega$
Accuracy to DIN 16086 Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.
Accuracy at min. setting (B.F.S.L)	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.
Temperature compensation Zero point	≤ ± 0.0085% FS / °F typ. ≤ ± 0.014% FS / °F max.
Temperature compensation Over range	≤ ± 0.0085% FS / °F typ. ≤ ± 0.014% FS / °F max.
Non-linearity at max. setting to DIN 16086	≤ ± 0.3 % FS max.
Hysteresis	≤ ± 0.4 % FS max.
Repeatability	≤ ± 0.1 % FS max.
Rise time	≤ 1 ms
Long-term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensation temperature range	-13..+185 °F
Operating temperature range	-40..+185 °F
Storage temperature range	-40..+212 °F
Fluid temperature range [3]	-40..+212 °F / -13..+212 °F -40..+302°F/ -13..+302°F for G1/2 with cooling section
CE mark	EN 61000-6-1 / 2 / 3 / 4
cULus mark [4]	Certificate No. E318391
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Protection class to IEC 60529	IP 65 (for EN175301-803 (DIN 43650)) IP 67 (for M12x1, providing an IP 67 female connector is used)
Other data	
Supply voltage for use acc. to UL spec.	8 .. 30 V DC 2 conductor 12 .. 30 V DC 3 conductor - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Residual ripple of supply voltage	≤ 5 %
Current consumption	≤ 25 mA
Life expectancy	> 10 million cycles (0 .. 100 % FS)
Weight	~ 150 g

Note: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range, **B.F.S.L.** = **B**est **F**it **S**traight **L**ine

[1] G1/2 with additional front O-ring seal max. 21750 psi
[2] Other seal materials on request
[3] -13 °F with FPM seal, -40 °F on request
[4] Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No. 61010-1

Model code:

HDA 4 4 Z X – X – XXXX – XXX – 000 – PSI

Mechanical process connection
Z = Flush membrane

Electrical connection
5 = Male, 3 pole + PE, EN 175301-803 (DIN 43650)(female connector supplied)
6 = Male M12x1, 4 pole (female connector not supplied)

Signal
A = 4 .. 20 mA, 2 conductor
B = 0 .. 10 V, 3 conductor

Pressure ranges in psi
0500, 0750, 1000, 1500, 3000, 5000, 6000, 9000

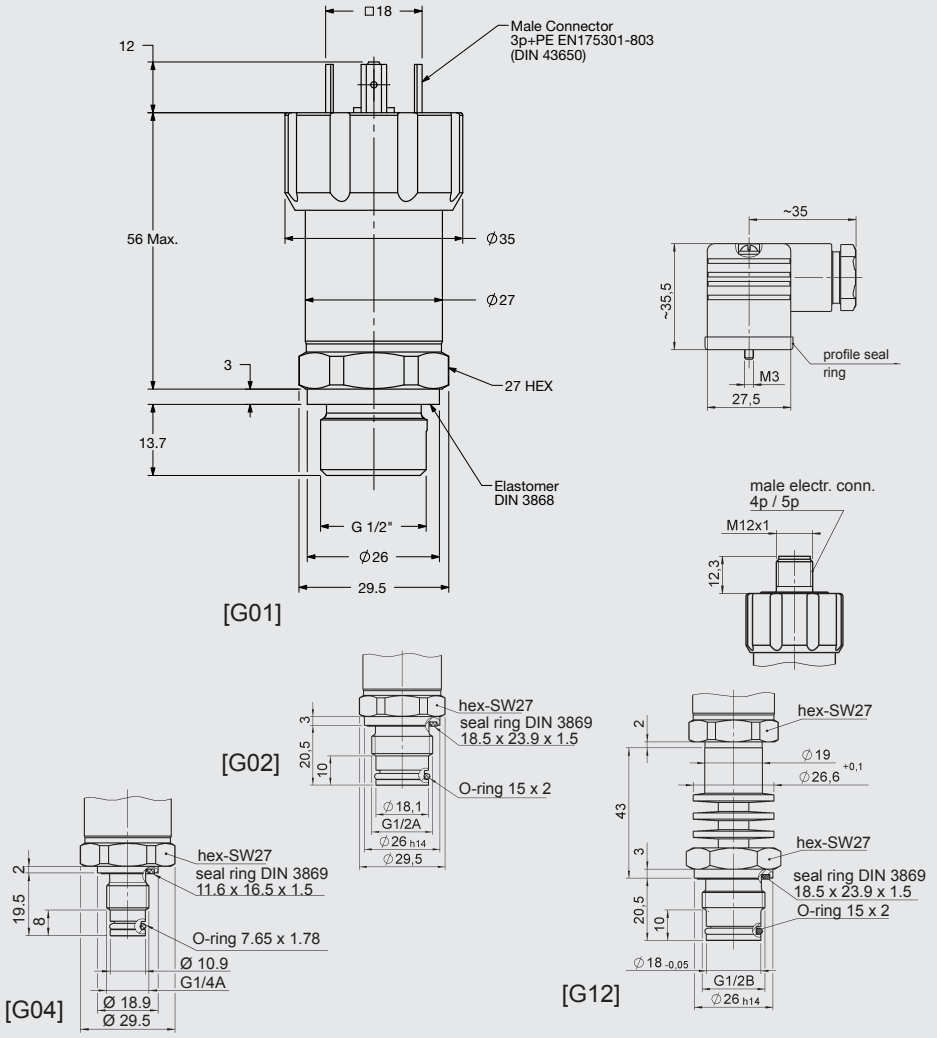
Mechanical connection
G01 = G1/2 A, DIN 3852
G02 = G1/2 with additional front O-ring seal
G04 = G1/4 with additional front O-ring seal
G12 = G1/2 with additional front O-ring seal and cooling section

Modi ication number
000 = Standard

Version
PSI = Pounds per square inch

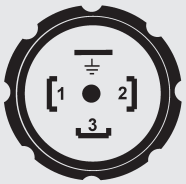
Accessories:
Appropriate accessories such as female electrical connectors can be found in the Accessories brochure.

Dimensions:



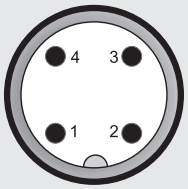
Pin connections:

EN175301-803 (DIN 43650)



Pin	HDA 44Z5-A	HDA 44Z5-B
1	Signal+	$+U_B$
2	Signal-	0V
3	n.c.	Signal
⊥	Housing	Housing

M12x1



Pin	HDA 44Z6-A	HDA 44Z6-B
1	Signal+	$+U_B$
2	n.c.	n.c.
3	Signal-	0V
4	n.c.	Signal

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.
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Electronic Pressure Transmitter
HDA 4300
with Flush Membrane

Description:

Pressure transmitter HDA 4300 with a flush membrane was designed specifically for applications in which a standard pressure connection could become blocked, clogged or frozen by the particular medium used. Further applications include processes where the medium changes regularly and any residues could cause mixing or contamination of the media.

Like the standard model, the HDA 4300 with a flush membrane has a ceramic measurement cell with a thick film strain gauge for relative pressure measurement in the low pressure range.

The pressure connection is achieved with a fully-sealed stainless steel front membrane filled internally with a pressure transfer fluid. The process pressure is transmitted hydrostatically to the measurement cell via the pressure transfer fluid.

The 4 .. 20 mA or 0 .. 10 V enable connection to all HYDAC measurement and control devices as well as connection to standard evaluation systems (e.g PLC controls).

Special features:

- Pressure connection has a flush membrane
- Accuracy ≤ 0.5% FS B.F.S.L.
- Highly robust sensor cell
- Very small temperature error
- Excellent EMC characteristics
- Very compact design

Technical data:

Input data	
Measuring ranges	-14.5 to 135.5, 15, 30, 50, 100, 150, 250, 500 psi
Overload pressures	450, 45, 150, 150, 290, 450, 725, 1500 psi
Burst pressures	650, 70, 250, 250, 400, 650, 1000, 2500 psi
Mechanical connection	G1/2 A DIN 3852 G1/2 with add. front O-ring seal G1/4 with add. front O-ring seal G1/2 with add. front O-ring seal and cooling section
Pressure transfer fluid	Silicone-free oil
Torque value	33lb-ft (45 Nm) for G1/2, G1/2 A 15lb-ft (20 Nm) for G1/4
Parts in contact with medium [1]	Mech. conn.: Stainless steel Seal: FPM O-ring: FPM
Output data	
Output signal, permitted load resistance	4 .. 20 mA, 2 conductor $R_{Lmax.} = (U_B - 8\ V) / 20\ mA\ [k\Omega]$ 0 .. 10 V, 3 conductor $R_{Lmin.} = 2\ k\Omega$
Accuracy to DIN 16086 Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.
Accuracy at min. setting (B.F.S.L)	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.
Temperature compensation Zero point	≤ ± 0.012% FS/°F typ. ≤ ± 0.017% FS/°F max.
Temperature compensation Over range	≤ ± 0.012% FS/°F typ. ≤ ± 0.017% FS/°F max.
Non-linearity at max. setting to DIN 16086	≤ ± 0.5 % FS max.
Hysteresis	≤ ± 0.4 % FS max.
Repeatability	≤ ± 0.1 % FS max.
Rise time	≤ 1 ms
Long-term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensated temperature range	-13..+185°F
Operating temperature range	-13..+185°F
Storage temperature range	-40..+212°F
Fluid temperature range[2]	-40..+212°F/-13..+212°F -40..+302°F/ -13..+302°F for G1/2 with cooling section
CE mark	EN 61000-6-1 / 2 / 3 / 4
cULus mark[3]	Certificate No. E318391
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Protection class to IEC 60529	IP 65 (for EN175301-803 (DIN 43650)) IP 67 (for M12x1, providing an IP 67 female connector is used)
Other data	
Supply voltage for use acc. to UL spec.	8 .. 30 V DC 2 conductor 12 .. 30 V DC 3 conductor - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Residual ripple of supply voltage	≤ 5 %
Current consumption	≤ 25 mA
Life expectancy	> 10 million cycles (0 .. 100 % FS)
Weight	~ 150 g

Note: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range, **B.F.S.L.** = **B**est **F**it **S**traight **L**ine

[1] Other seal materials on request
[2] -13 °C with FPM seal, -40 °F on request
[3] Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No. 61010-1

Model code:

HDA 4 3 Z X – X – XXXX – XXX – 000 – PSI

Mechanical process connection
Z = Flush membrane

Electrical connection
5 = Male, 3 pole + PE, EN 175301-803 (DIN 43650)
(female connector supplied)
6 = Male M12x1, 4 pole
(female connector not supplied)

Signal
A = 4 .. 20 mA, 2 conductor
B = 0 .. 10 V, 3 conductor

Pressure ranges in psi
0135(-14.5 to 135.5psi), 0015, 0030, 0050, 0100, 0150, 0250, 0500

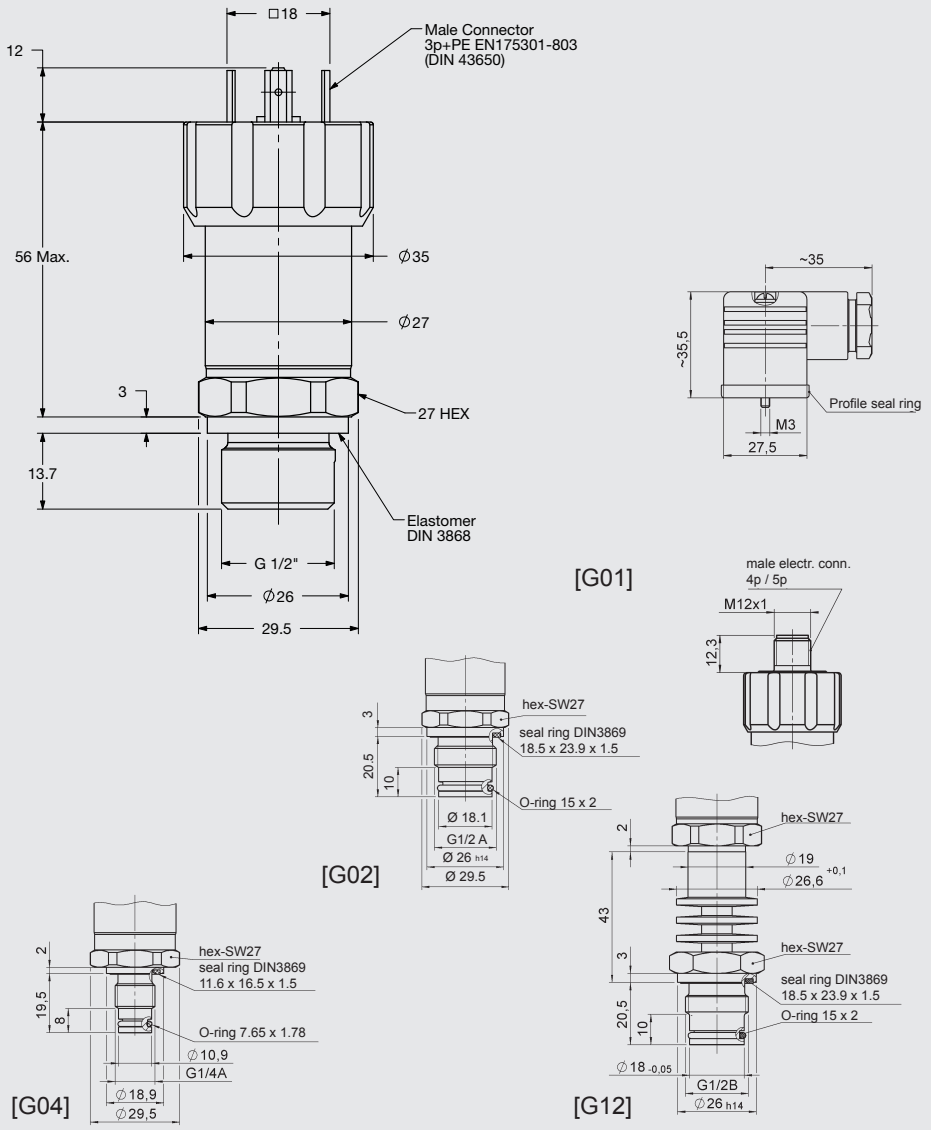
Mechanical connection
G01 = G1/2 A DIN 3852
G02 = G1/2 with additional front O-ring seal
G04 = G1/4 with additional front O-ring seal
G12 = G1/2 with additional front O-ring seal and cooling section

Modification number
000 = Standard

Version
PSI = Pounds per square inch

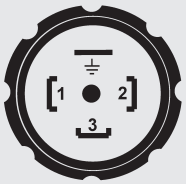
Accessories:
Appropriate accessories such as female electrical connectors can be found in the Accessories brochure.

Dimensions:



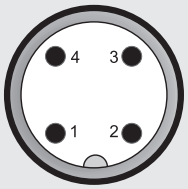
Pin connections:

EN175301-803 (DIN 43650)



Pin	HDA 43Z5-A	HDA 43Z5-B
1	Signal+	$+U_B$
2	Signal-	0V
3	n.c.	Signal
⊥	Housing	Housing

M12x1



Pin	HDA 43Z6-A	HDA 43Z6-B
1	Signal+	$+U_B$
2	n.c.	n.c.
3	Signal-	0V
4	n.c.	Signal

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.
For bar ranges see European Catalog

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Electronic Pressure Transmitter
HDA 7400
with Flush Membrane

Description:

Pressure transmitter HDA 7400 with a flush membrane was designed specifically for applications in which a standard pressure connection could become blocked, clogged or frozen by the particular medium used. Further applications include processes where the medium changes regularly and any residues could cause mixing or contamination of the media.

Like the standard model, the HDA 7400 with flush membrane has a stainless steel measurement cell with a thin-film strain gauge for relative pressure measurement in the high pressure range.
The pressure connection is achieved with a fully-sealed stainless steel front membrane filled internally with a pressure transfer fluid. The process pressure is transmitted hydrostatically to the measurement cell via the pressure transfer fluid.

The output signals 4 .. 20 mA or 0 .. 10 V permit connection to all HYDAC measuring and control devices, as well as connection to standard evaluation systems (e.g. PLC controls).

Special features:

- Pressure connection has a flush membrane
- Accuracy ≤ 0.5% FS B.F.S.L.
- Highly robust sensor cell
- Very compact design
- Very small temperature error
- Excellent EMC characteristics

Technical data:

Input data	
Measuring ranges	300, 500, 750, 1000, 1500, 3000, 6000, 9000 psi
Overload pressures	1160, 1160, 1740, 2900, 2900, 7250, 11600, 13050 psi
Burst pressures	2900, 2900, 4350, 7250, 14500, 29000, 29000 psi
Mechanical connection	G1/4 A DIN 3852 G1/4 with additional front O-ring seal
Pressure transfer fluid	Silicone-free oil
Torque value	15lb-ft (20Nm)
Parts in contact with fluid[1)]	Connection part: Stainless steel Seal: FPM O-ring: FPM
Output data	
Output signals, permitted load resistance	4 .. 20 mA, 2 conductor $R_{Lmax} = (U_B - 8\ V) / 20\ mA\ [k\Omega]$ 0 .. 10 V, 3 conductor $R_{Lmin} = 2\ k\Omega$
Accuracy to DIN 16086, max. setting	≤ ± 0.5 % FS typ. ≤ ± 1.0 % FS max.
Accuracy at minimum setting (B.F.S.L.)	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.
Temperature compensation zero point	≤ ± 0.0085% FS/°F typ. ≤ ± 0.017% FS/°F max.
Temperature compensation over range	≤ ± 0.0085% FS/°F typ. ≤ ± 0.017% FS/°F max.
Non-linearity at max. setting to DIN 16086	≤ ± 0.3 % FS max.
Hysteresis	≤ ± 0.4 % FS max.
Repeatability	≤ ± 0.1 % FS max.
Rise time	≤ 2 ms
Long term drift	≤ ± 0.3 % FS / year typ.
Environmental conditions	
Compensated temperature range	-13..+185°F
Operating temperature range	-13..+185°F
Storage temperature range	-40..+212°F
Fluid temperature range[2)]	-40..+212°F/-13..+212°F
CE mark	EN 61000-6-1 / 2 / 3 / 4
cULus mark[3)]	Certificate No.: E318391
Vibration resistance according to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Protection class to IEC 60529	IP 67 (when an IP 67 female connector is used)
Other data	
Supply voltage when applied according to UL specifications	8 .. 30 V DC 2 conductor 12 .. 30 V DC 3 conductor – limited energy – according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Residual ripple of supply voltage	≤ 5 %
Current consumption	≤ 25 mA
Life expectancy	> 10 million cycles (0 .. 100 % FS)
Weight	~ 80 g

Note: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range
B.F.S.L. = Best Fit Straight Line
[1)] Other seal materials on request
[2)] -13 ºF with FPM seal, -40 °F on request
[3)] Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No. 61010-1

Model code:

HDA 7 4 Z 6 – X–XXXX – XXX – 000 – PSI

Mechanical process connection
Z = Flush membrane

Electrical connection
6 = Male M12x1, 4 pole
(female connector not supplied)

Signal
A = 4 .. 20 mA, 2 conductor
B = 0 .. 10 V, 3 conductor

Pressure ranges in psi
0300, 0500, 0750, 1000, 1500, 3000, 5000, 6000, 9000

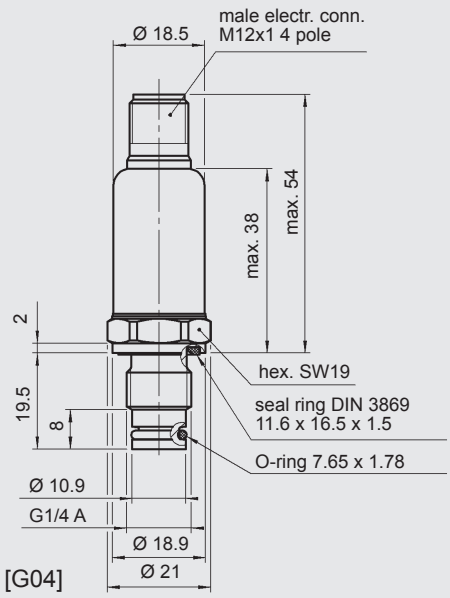
Mechanical connection
G04 = G1/4 with additional front O-ring seal
G05 = G1/4 A DIN 3852

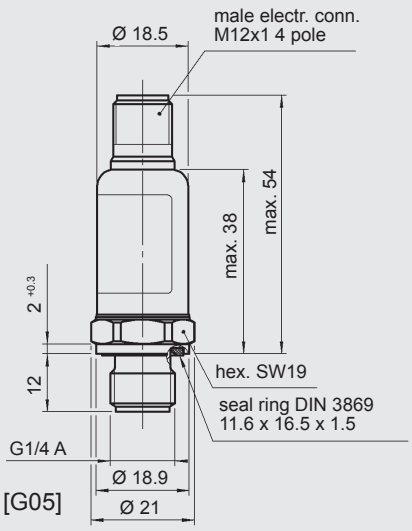
Modification number
000 = Standard

Version
PSI = Pounds per square inch

Accessories:
Appropriate accessories, such as electrical female connectors, can be found in the Accessories brochure.

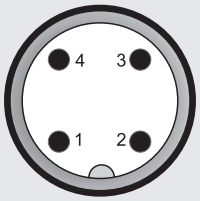
Dimensions:





Pin connections:

M12x1



Pin	HDA 74Z6-A	HDA 74Z6-B
1	Signal+	$+U_B$
2	n.c.	n.c.
3	Signal-	0 V
4	n.c.	Signal

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.
For bar ranges see European Catalog

HYDAC ELECTRONICS
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Electronic Pressure Switch
EDS 3400
with Flush Membrane

Description:

The electronic pressure switch EDS 3400 with a flush membrane was designed specifically for applications in which a standard pressure connection could become blocked, clogged or frozen by the particular medium used. Further applications include processes where the medium changes frequently and any residues could cause mixing or contamination of the media.

Like the standard model, the EDS 3400 with flush membrane has a stainless steel measurement cell with a thin film strain gauge for relative pressure measurement in the high pressure range.

The pressure connection is achieved with a fully-sealed stainless steel front membrane filled internally with a pressure transfer fluid. The process pressure is transmitted hydrostatically to the measurement cell via the pressure transfer fluid.

Depending on the type, the instrument can have up to 2 switching outputs and a switchable analog output (4 .. 20 mA or 0 .. 10 V).

Special features:

- Pressure connection has a flush membrane
- 1 or 2 PNP transistor switching outputs, up to 1.2 A load per output
- Accuracy ≤ 0.5% FS B.F.S.L.
- Optional analog output selectable (4 .. 20 mA / 0 .. 10 V)
- 4-digit digital display
- Rotation in two planes (axes) for optimum alignment
- Measured value can be displayed in bar, psi or MPa
- Simple operation with key programming
- Switching points and switch-back hystereses can be adjusted independently
- Many useful additional functions
- Option of Desina®-compliant pin configuration with diagnostic function

Technical data:

Input data		
Measuring ranges	1000, 3000, 6000, 9000 psi	
Overload pressures	2900, 7250, 11600, 13050 psi	
Burst pressures[1)]	7250, 14500, 29000, 29000 psi	
Mechanical connection	G1/2 A DIN 3852 G1/2 with additional front O-ring seal G1/4 with additional front O-ring seal G1/4 A DIN 3852 G1/2 with add. front O-ring seal and cooling section	
Pressure transfer fluid	Silicone-free oil	
Torque value	33lb-ft (45 Nm) for G1/2, G1/2 A 15lb-ft (20 Nm) for G1/4	
Parts in contact with medium[2)]	Mech. conn.: Seal: O-ring:	Stainless steel FPM FPM
Output data		
Accuracy to DIN 16086, Max. setting (display, analog output)	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.	
Repeatability	≤ ± 0.25 % FS max.	
Temperature drift	≤ ± 0.017% / °F max zero point ≤ ± 0.017% / °F max. range	
Analog output (optional)		
Output signal (selectable)	4 .. 20 mA 0 .. 10 V	load resistance max. 500 Ω load resistance min. 1 kΩ
Switch outputs		
Type	PNP transistor output	
Switching current	max. 1.2 A per output	
Switching cycles	> 100 million	
Reaction time	< 10 ms	
Long-term drift	≤ ± 0.3 % FS typ. / year	
DESINA® diagnostic signal (Pin 2)		
Function	OK: HIGH level / not OK: LOW level	
Level	HIGH: approx. $+U_B$ / LOW: < +0.3 V	
Environmental conditions		
Compensated temperature range	14 .. 158 °F, 14 .. +140 °F for UL spec.	
Operating temperature range	-13 .. +176 °F, -13 .. +140 °F for UL spec.	
Storage temperature range	-40..176 °F	
Fluid temperature range[3)]	-40 .. +176 °F / -13 .. +176 °F -40 .. +302 °F / -13 .. +302 °F for G1/2 with cooling section	
CE mark	EN 61000-6-1 / 2 / 3 / 4	
cULus mark[4)]	Certificate No. E318391	
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 10 g	
Shock resistance to DIN EN 60068-2-29 (11 ms)	≤ 50 g	
Protection class to IEC 60529	IP 67	
Other data		
Supply voltage for use acc. to UL spec.	9 .. 35 V DC without analog output 18 .. 35 V DC with analog output - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950	
Current consumption	max. 2.455 A total max. 35 mA with inactive switching output max. 55 mA with inactive switching output and analog output	
Display	4-digit, LED, 7 segment, red, height of digits 7 mm	
Weight	~ 120 g	

Note: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to the full measuring range

1) G1/2 with additional front O-ring seal max. 21750 psi
2) Other seal materials on request
3) -13 °F with FPM seal, -40 °F on request
4) Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No. 61010-1

Setting options:

All settings offered by the EDS 3400 are grouped in 2 easy-to-navigate menus.

In order to prevent unauthorized adjustment of the device, a programming lock can be set.

Setting ranges for the switch outputs:

Switching point function

Meas. range in psi	Switch point in psi	Hysteresis in psi	Increment* in psi
0 .. 1000	16..1000	6..990	2
0 .. 3000	45..3000	15..2970	5
0 .. 6000	90..6000	30..5940	10
0 .. 9000	140..9000	60..8900	20

Window function

Meas. range in psi	Lower switch value in psi	Upper switch value in psi	Increment* in psi
0 .. 1000	6..990	16..1000	2
0 .. 3000	15..2970	45..3000	5
0 .. 6000	30..5940	90..6000	10
0 .. 9000	60..8900	140..9000	20

* All ranges given in the table are adjustable by the increments shown.

Additional functions:

- Switching mode of the switching outputs adjustable (switching point function or window function)
- Switching direction of the switching outputs adjustable (N/C or N/O function)
- Switch-on and switch-off delay adjustable from 0.00 .. 99.99 seconds
- Choice of display (current pressure, peak value, switch point 1, switch point 2, display off)
- Display filter for smoothing the display value during pressure pulsations
- Analog output signal selectable 4 .. 20 mA or 0 .. 10 V
- Pressure can be displayed in the measurement units bar, psi, MPa. The scaling can also be adapted to indicate force, weight, etc.

Model code:

EDS 3 4 Z X – X – XXXX – XXX – 400

Mechanical process connection
Z = Flush membrane

Electrical connection
6 = Male M12x1, 4 pole
only possible on output models "1", "2" and "3"
8 = Male M12x1, 5 pole
only possible on output model "5"

Output
1 = 1 switching output
only in conjunction with electrical connection type "6"
2 = 2 switching outputs
only in conjunction with electrical connection type "6"
3 = 1 switching output and 1 analog output
only in conjunction with electrical connection type "6"
5 = 2 switching outputs and 1 analog output
only in conjunction with electrical connection type "8"

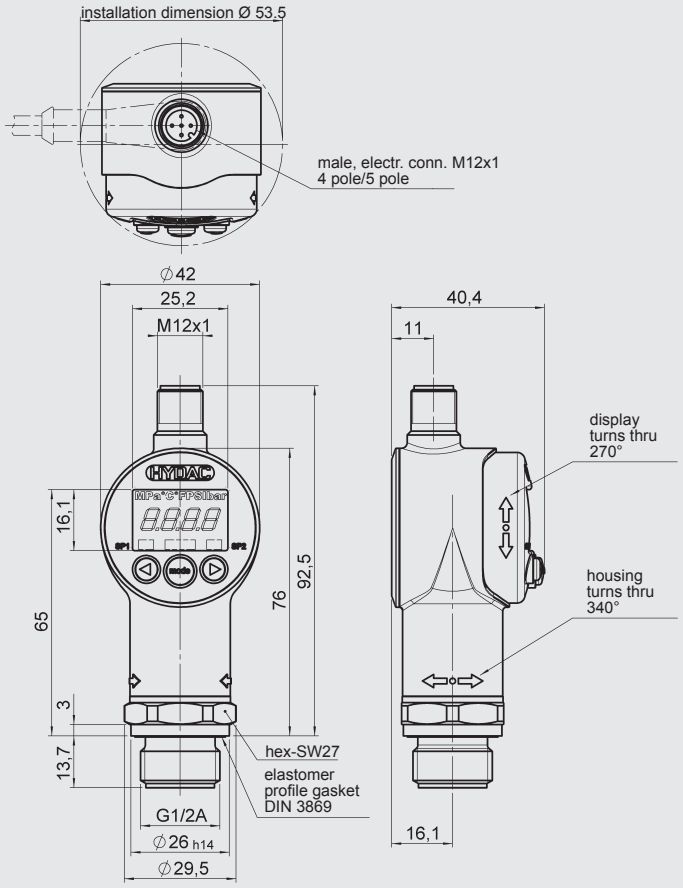
Pressure ranges in psi
1000, 3000, 6000, 9000

Mechanical connection
G01 = G1/2 A DIN 3852
G02 = G1/2 with additional front O-ring seal
G04 = G1/4 with additional front O-ring seal
G05 = G1/4 A DIN 3852
G12 = G1/2 with add. front O-ring seal and cooling section

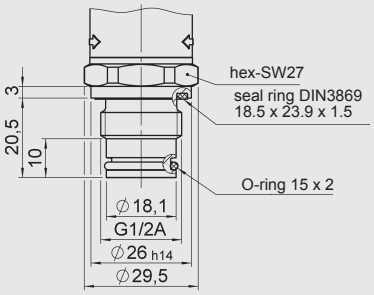
Modification number
400 = Standard in psi

Accessories:
Appropriate accessories, such as electrical connectors, mechanical adapters, splash guards, clamps for wall-mounting etc can be found in the Accessories brochure.

Dimensions:



[G01]



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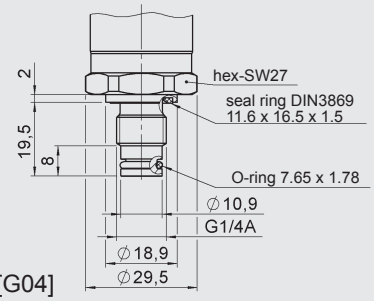
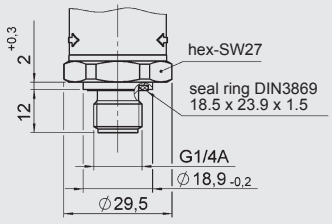


[G04]



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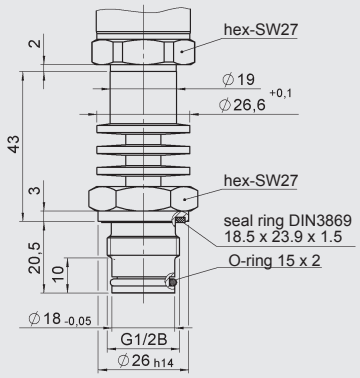

[G12]

Note:

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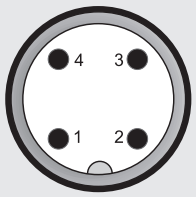
Subject to technical modifications.
For bar ranges see European Catalog

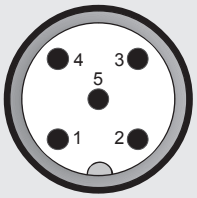
Pin connections:

M12x1, 4 pole



Pin	EDS 34Z6-1	EDS 34Z6-2	EDS 34Z6-3
1	$+U_B$	$+U_B$	$+U_B$
2	n.c.	SP 2	Analog
3	0 V	0 V	0 V
4	SP 1	SP 1	SP 1

M12x1, 5 pole



Pin	EDS 34Z8-5
1	$+U_B$
2	Analog
3	0 V
4	SP 1
5	SP 2

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Electronic Pressure Switch
EDS 3300
with Flush Membrane

Description:

The electronic pressure switch EDS 3300 with a flush membrane was designed specifically for applications in which a standard pressure connection could become blocked, clogged or frozen by the particular medium used. Further applications include processes where the medium changes frequently and any residues could cause mixing or contamination of the media.

Like the standard model, the EDS 3300 with flush membrane has a ceramic measurement cell with a thick film strain gauge for relative pressure measurement in a low pressure range.

The pressure connection is achieved with a fully-sealed stainless steel front membrane filled internally with a pressure transfer fluid. The process pressure is transmitted hydrostatically to the measurement cell via the pressure transfer fluid.

Depending on the type, the instrument can have up to 2 switching outputs and a switchable analog output (4 .. 20 mA or 0 .. 10 V).

Special features:

- Pressure connection has a flush membrane
- 1 or 2 PNP transistor switching outputs, up to 1.2 A load per output
- Accuracy ≤ 0.5% FS B.F.S.L.
- Optional analog output selectable (4 .. 20 mA / 0 .. 10 V)
- 4-digit digital display
- Rotation in two planes (axes) for optimum alignment
- Measured value can be displayed in bar, psi or MPa
- Simple operation with key programming
- Switching points and switch-back hysteresis can be adjusted independently
- Many useful additional functions
- Optional Desina®-compliant pin configuration with diagnostic function

Technical data:

Input data		
Measuring ranges	-14.5 to 75, 15, 30, 50, 150, 250, 500 psi	
Overload pressures	290, 45, 100, 150, 450, 725, 1500 psi	
Burst pressures	400, 70, 150, 250, 650, 1000, 2500 psi	
Mechanical connection	G1/2 A DIN 3852 G1/2 with additional front O-ring seal G1/4 with additional front O-ring seal G1/4 A DIN 3852 G1/2 with add. front O-ring seal and cooling section	
Pressure transfer fluid	Silicone-free oil	
Torque value	33lb-ft (45 Nm) for G1/2, G1/2 A 15lb-ft (20 Nm) for G1/4	
Parts in contact with medium[1]	Mech. conn.: Seal: O-ring:	Stainless steel FPM FPM
Output data		
Accuracy to DIN 16086, Max. setting (display, analog output)	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.	
Repeatability	≤ ± 0.25 % FS max.	
Temperature drift	≤ ± 0.017% / °F max zero point ≤ ± 0.017% / °F max. range	
Analog output (optional)		
Output signal (selectable)	4 .. 20 mA 0 .. 10 V	load resistance max. 500 Ω load resistance min. 1 kΩ
Switch outputs		
Type	PNP transistor output	
Switching current	max. 1.2 A per output	
Switching cycles	> 100 million	
Reaction time	< 10 ms	
Long-term drift	≤ ± 0.3 % FS typ. / year	
DESINA® diagnostic signal (Pin 2)		
Function	OK: HIGH level / not OK: LOW level	
Level	HIGH: approx. $+U_B$ / LOW: < +0.3 V	
Environmental conditions		
Compensated temperature range	14..158°F, 14..+140°F for UL spec.	
Operating temperature range	-13..+176°F, -13..+140°F for UL spec	
Storage temperature range	-40..176°F	
Fluid temperature range[2]	-40..+176°F/-13..+176°F -40..+302°F/ -13..+302°F for G1/2 with cooling section	
CE mark	EN 61000-6-1 / 2 / 3 / 4	
cULus mark[3]	Certificate No. E318391	
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 10 g	
Shock resistance to DIN EN 60068-2-29 (11 ms)	≤ 50 g	
Protection class to IEC 60529	IP 67	
Other data		
Supply voltage for use acc. to UL spec.	9 .. 35 V DC without analog output 18 .. 35 V DC with analog output - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950	
Current consumption	max. 2,455 A total max. 35 mA with inactive switching output max. 55 mA with inactive switching output and analog output	
Display	4-digit, LED, 7 segment, red, height of digits 7 mm	
Weight	~ 120 g	

Note: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.
FS (Full Scale) = relative to complete measuring range

[1] Other seal materials on request
[2] -13 °F with FPM seal, -40 °F on request
[3] Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No. 61010-1

Setting options:

All settings offered by the EDS 3300 are grouped in 2 easy-to-navigate menus. In order to prevent unauthorized adjustment of the device, a programming lock can be set.

Setting ranges for the switch outputs:

Switching point function

Meas. range in psi	Switch point in psi	Hysteresis in psi	Increment* in psi
-14 .. 75	-12.6 .. 75	0.6 .. 74.0	0.2
0 .. 15	0.25 .. 15	0.10 .. 14.85	0.05
0 .. 30	0.45 .. 30	0.15 .. 29.70	0.05
0 .. 50	0.8 .. 50	0.3 .. 79.5	0.1
0 .. 150	2.5 .. 150	1.0 .. 148.5	0.5
0 .. 250	4.0 .. 250	1.5 .. 247.5	0.5
0 .. 500	8 .. 500	3 .. 495	1

Window function

Meas. range in psi	Lower switch value in psi	Upper switch value in psi	Increment* in psi
-14 .. 75	0.6 .. 74.0	-12.6 .. 75	0.2
0 .. 15	0.10 .. 14.85	0.25 .. 15	0.05
0 .. 30	0.15 .. 29.70	0.45 .. 30	0.05
0 .. 50	0.3 ..79.5	0.8 .. 50	0.1
0 .. 150	1.0 .. 148.5	2.5 .. 150	0.5
0 .. 250	1.5 .. 247.5	4.0 .. 250	0.5
0 .. 500	3 .. 495	8 .. 500	1

* All ranges given in the table are adjustable by the increments shown.

Additional functions:

- Switching mode of the switching outputs adjustable (switching point function or window function)
- Switching direction of the switching outputs adjustable (N/C or N/O function)
- Switch-on and switch-off delay adjustable from 0.00 .. 99.99 seconds
- Choice of display (actual pressure, peak value, switch point 1, switch point 2, display off)
- Display filter for smoothing the display value during pressure pulsations
- Analog output signal selectable 4 .. 20 mA or 0 .. 10 V
- Pressure can be displayed in measurement units bar, psi or MPa. The scaling can also be adapted to indicate force, weight, etc.

Model code:

EDS 3 3 Z X – X – XXXX – XXX – 400

Mechanical process connection
Z = Flush membrane

Electrical connection
6 = Male M12x1, 4 pole
only possible on output models "1", "2" and "3"
8 = Male M12x1, 5 pole
only possible on output model "5"

Output
1 = 1 switching output
only in conjunction with electrical connection type "6"
2 = 2 switching outputs
only in conjunction with electrical connection type "6"
3 = 1 switching output and 1 analog output
only in conjunction with electrical connection type "6"
5 = 2 switching outputs and 1 analog output
only in conjunction with electrical connection type "8"

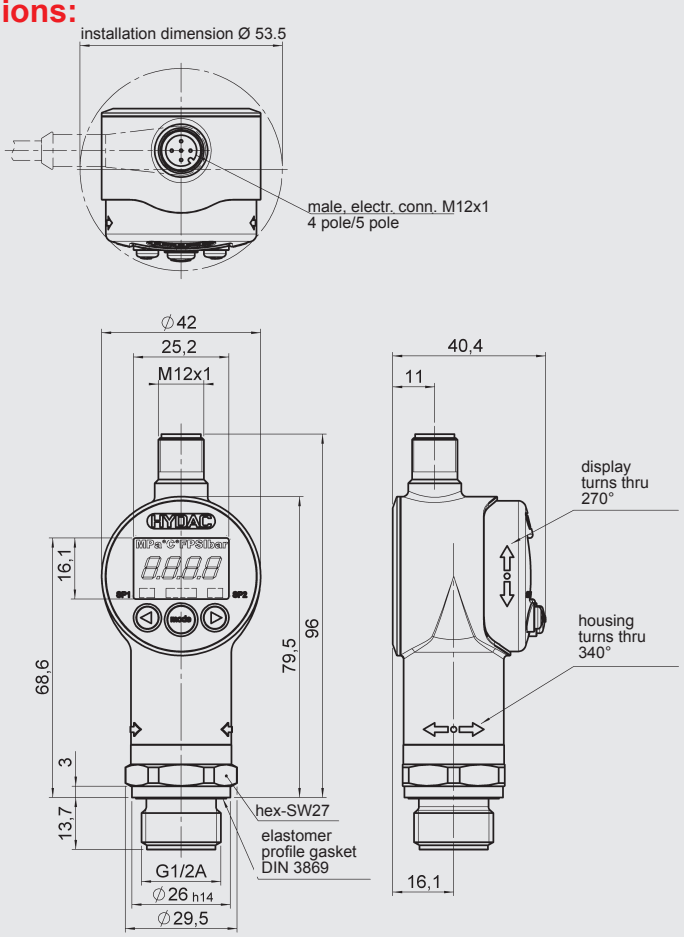
Pressure ranges in psi
0089(-14.5..75), 0015, 0030, 0050, 0150, 0250, 0500

Mechanical connection
G01 = G1/2 A DIN 3852
G02 = G1/2 with additional front O-ring seal
G04 = G1/4 with additional front O-ring seal
G05 = G1/4 A DIN 3852
G12 = G1/2 with additional front O-ring seal and cooling section

Modification number
400 = Standard in psi

Accessories:
Appropriate accessories, such as electrical connectors, mechanical adapters, splash guards, clamps for wall-mounting etc can be found in the Accessories brochure.

Dimensions:



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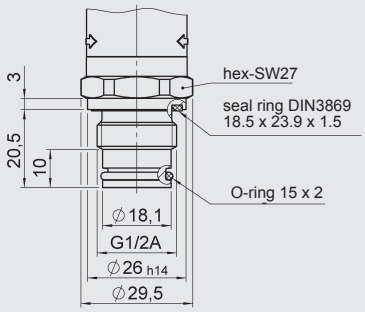

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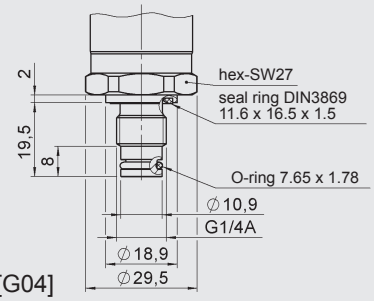

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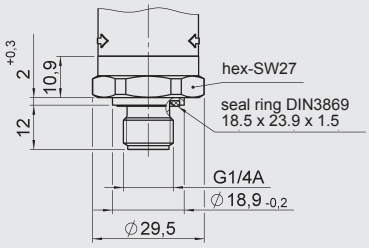

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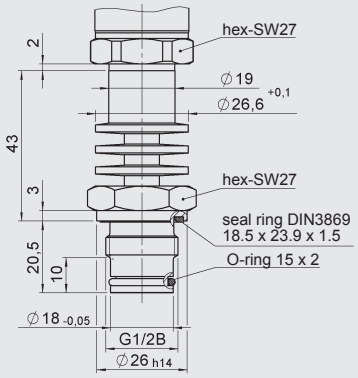


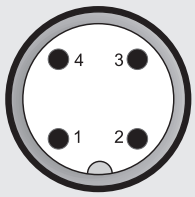
[G12]

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 modi ications.
For bar ranges see European Catalog

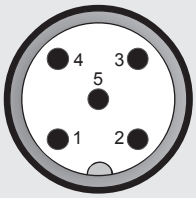
Pin connections:

M12x1, 4 pole



Pin	EDS 33Z6-1	EDS 33Z6-2	EDS 33Z6-3
1	$+U_B$	$+U_B$	$+U_B$
2	n.c.	SP 2	Analog
3	0 V	0 V	0 V
4	SP 1	SP 1	SP 1

M12x1, 5 pole



Pin	EDS 33Z8-5
1	$+U_B$
2	Analog
3	0 V
4	SP 1
5	SP 2

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