HYDAC INTERNATIONAL

OEM Products

OEM PRODUCTS FOR LARGE VOLUME PRODUCTION

Areas of application for our OEM products for large volume production range from mobile and stationary industrial hydraulics, to pneumatics, machine building, automotive and mobile technology through to mining, oil depots, marine and the off-shore industry.
Our sensors are available in a variety of electrical output signals, connector and fluid port connection options. This versatility, combined with certification to ATEX, CSA and IECEx or E13, ensures an almost limitless range of applications for our products.

OEM Products for Large Volume Production:

Pressure transmitters

- HDA 8700
- HDA 8400
- HDA 8700 for appl. with increased functional safety
- HDA 7400
- HDA 9300

Electronic pressure switches

- EDS 810
- EDS 710
- EDS 410
- EDS 4400 ATEX, CSA, IECEx Flameproof encl.
- EDS 4400 ATEX Intrinsically safe
- EDS 4300 ATEX Intrinsically safe
- EDS 4100 ATEX Intrinsically safe

Temperature transmitters

- HTT 8000

Electronic temperature switch

- HTS 8000

Electronic position switch

- HLS 100 for appl. with increased functional safety

Special products

- Position switches IES 2010 / 2015 / 2020
- Position sensor IWE 40
- Position switch HLS 200 for applications with increased functional safety

Electronic Pressure Transmitter
HDA 8700

Description:

The pressure transmitter series HDA 8700 has been specifically developed for the OEM market, e.g. in mobile applications. Like most of our pressure transmitter series, the HDA 8700 is based on a robust, long-life thin-film sensor.

All parts (sensor and pressure connection) which are in contact with the fluid are made of stainless steel and are welded together. This means that there are no sealing points in the interior of the sensor and the possibility of leakage is excluded.

The pressure transmitters are available in various pressure ranges from 0 .. 500 psi to 0 .. 9000 psi. For integration into modern controls, standard analog output signals are available, e.g. 4 .. 20 mA, 0 .. 5 V, 1 .. 6 V or 0 .. 10 V. Ratiometric output signals are also available.

For the electrical connection, various integrated connections are available.

A basic accuracy of max. ≤ ± 0.25 % FS B.F.S.L., combined with a small temperature drift, ensures a broad range of applications for the HDA 8700.

Special features:

- Accuracy ≤ ± 0.25 % FS B.F.S.L.
- Outstanding performance in terms of temperature effect and EMC
- Very compact design
- ECE type approval E13 (approved for road vehicles)

Technical data:

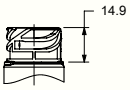
Input data	
Measuring ranges	500; 750; 1000; 1500; 3000; 5000; 6000; 9000 psi
Overload ranges	1160; 1740; 2900; 2900; 7250; 11600; 11600; 14500 psi
Burst pressures	2900; 4350; 7250; 7250; 14500; 14500; 29000; 29000 psi
Mechanical connection (Torque value)	SAE 4, 7/16-20 UNF 2A (11 lb-ft; 15 Nm) SAE 6, 9/16-18 UNF 2A (15 lb-ft; 20 Nm) G1/4 A DIN 3852 (15 lb-ft; 20 Nm) each with orifice 0.5 mm
Parts in contact with medium	Mech. conn.: Stainless steel Seal: FPM
Output data	
Output signal	e.g.: 4 .. 20 mA, 0 .. 5 V, 1 .. 6 V, 0 .. 10 V, ratiometric: 0.5 .. 4.5 V for U_B = 5 V DC (10 .. 90 % U_B ± 5 %), etc.
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	≤ ± 0.006% FS/°F typ. ≤ ± 0.012% FS/°F max.
Temperature compensation Over range	≤ ± 0.006% FS/°F typ. ≤ ± 0.012% FS/°F max.
Non-linearity at max. setting to DIN 16086	≤ ± 0.3 % FS max.
Hysteresis	≤ ± 0.1 % FS max.
Repeatability	≤ ± 0.1 % FS
Rise time	≤ 1.5 ms
Long-term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensated temperature range	-13 .. +185 °F
Operating temperature range[1)]	-40 .. +212 °F/ -13 .. +212 °F
Storage temperature range	-40 .. +212 °F
Fluid temperature range[1)]	-40 .. +257 °F / -13 .. +257 °F
CE mark	EN 61000-6-1 / 2 / 3 / 4
cULus mark[2)]	Certificate No. E318391
Vibration resistance to DIN EN 60068-2-6 at 5 .. 2000 Hz	≤ 25 g
Shock resistance to DIN EN 60068-2-27	100 g / 6 ms / half sine 500 g / 1 ms / half sine
Protection class to IEC 60529 to ISO 20653	IP 65, IP 67 (depending on the electrical connection) IP 69 K (depending on the electrical connection)
Other data	
Electrical connection	M12x1, 4 pole AMP DIN 72585 code 1, 3 pole Packard Metri Pack Series 150, 3 pole Deutsch DT 04, 3 pole AMP Superseal, 3 pole. AMP Junior Power Timer, 3 pole Flying leads, 1 m cable length EN175301-803 (DIN 43650), 3 pole
Supply voltage for use acc. to UL specification	8 .. 30 V DC 12 .. 30 V DC for output signal 0 .. 10 V 5 V ± 5 % for ratiometric output signal - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Current consumption	max. 22 mA total
Residual ripple of supply voltage	≤ 5 %
Life expectancy	> 10 million cycles 0 .. 100 % FS
Weight	~ 55 g

Note: Reverse polarity protection of the supply voltage, excess voltage, override, 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

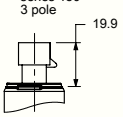
1) -13 °C with FPM seal, -40 °F on request
2) Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No 61010-1

Dimensions:

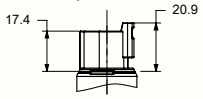
Male connection
DIN 72585
3 pole



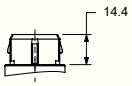
Male connection
Metri-Pack
series 150
3 pole



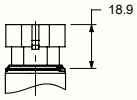
Male connection
Deutsch DT04
3 pole



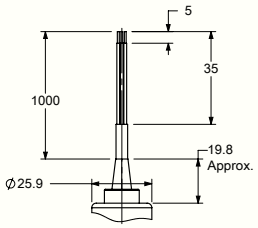
Male connection
Junior Power Timer
3 pole



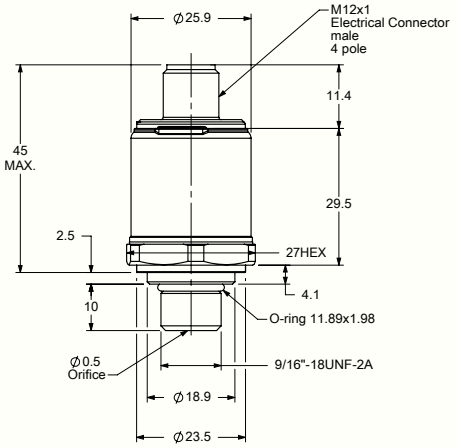
Male connection
Superseal
series 1.5
3 pole

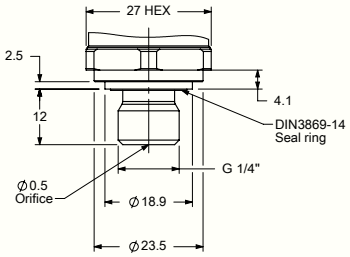


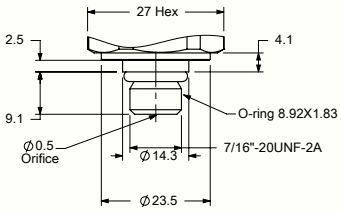
Flying leads



Male connection
EN175301-803 (DIN 43650)
3 pole







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For bar ranges see European Catalog

Order details:

For exact specification, please contact the Sales Department of HYDAC ELECTRONIC.

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Electronic Pressure Transmitter
HDA 8400

Description:

The pressure transmitter series HDA 8400 has been specifically developed for the OEM market, e.g. in mobile applications. Like most of our pressure transmitter series, the HDA 8400 is based on a robust and long-life, thin-film sensor.

All parts (sensor and pressure connection) which are in contact with the fluid are made of stainless steel and are welded together. This means that there are no sealing points in the interior of the sensor. The possibility of leakage is excluded.

The pressure transmitters are available in various pressure ranges from 0 .. 500 psi to 0 .. 9000 psi. For integration into modern controls, standard analog output signals are available, e.g. 4 .. 20 mA, 0 .. 5 V, 1 .. 6 V or 0 .. 10 V. Ratiometric output signals are also available.

For the electrical connection, different types of integrated connections are available.

A basic accuracy of max. ≤ ± 0.5 % FS B.F.S.L., combined with a small temperature drift, ensures a broad range of applications for the HDA 8400.

Special features:

- Accuracy ≤ ± 0.5 % FS B.F.S.L.
- Outstanding performance in terms of temperature effect and EMC
- Very compact design
- ECE type approval (E13) (approved for road vehicles)

Technical data:

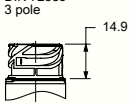
Input data	
Measuring ranges	500; 750; 1000; 1500; 3000; 5000; 6000; 9000 psi
Overload ranges	1160; 1740; 2900; 2900; 7250; 11600; 11600; 14500 psi
Burst pressures	2900; 4350; 7250; 7250; 14500; 14500; 29000; 29000 psi
Mechanical connection (Torque value)	SAE 4, 7/16-20 UNF 2A (11 lb-ft; 15 Nm) SAE 6, 9/16-18 UNF 2A (15 lb-ft; 20 Nm) G1/4 A DIN 3852 (15 lb-ft; 20 Nm) each with orifice 0.5 mm
Parts in contact with medium	Mech. conn.: Stainless steel Seal: FPM
Output data	
Output signal	e.g.: 4 .. 20 mA, 0 .. 5 V, 1 .. 6 V, 0 .. 10 V, ratiometric: 0.5 .. 4.5 V for U_B = 5 V DC (10 .. 90 % U_B ± 5 %), etc.
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
Rise time	≤ 1.5 ms
Long-term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensated temperature range	-13 .. +185 °F
Operating temperature range[1)]	-40 .. +212 °F / -13 .. +212 °F
Storage temperature range	-40 .. +212 °F
Fluid temperature range[1)]	-40 .. +257 °F / -13 .. +257 °F
CE mark	EN 61000-6-1 / 2 / 3 / 4
cULus mark[2)]	Certificate No. E318391
Vibration resistance to DIN EN 60068-2-6 at 5 .. 2000 Hz	≤ 25 g
Shock resistance to DIN EN 60068-2-27	100 g / 6 ms / half sine 500 g / 1 ms / half sine
Protection class to IEC 60529 to ISO 20653	IP 65, IP 67 (depending on the electrical connection) IP 69 K (depending on the electrical connection)
Other data	
Electrical connection	M12x1, 4 pole AMP DIN 72585 code 1, 3 pole Packard Metri Pack Series 150, 3 pole Deutsch DT 04, 3 pole AMP Superseal, 3 pole. AMP Junior Power Timer, 3 pole Flying leads, 1 m cable length EN175301-803 (DIN 43650), 3 pole
Supply voltage for use acc. to UL specification	8 .. 30 V DC 12 .. 30 V DC for output signal 0 .. 10 V 5 V ± 5 % for ratiometric output signal - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Residual ripple of supply voltage	≤ 5 %
Life expectancy	> 10 million cycles 0 .. 100 % FS
Weight	~ 55 g

Note: Reverse polarity protection of the supply voltage, excess voltage, override, 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

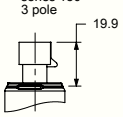
1) -13 °F with FPM seal, -40 °F on request
2) Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No 61010-1

Dimensions:

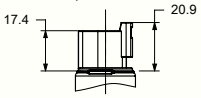
Male connection
DIN 72585
3 pole



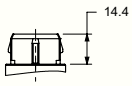
Male connection
Metri-Pack
series 150
3 pole



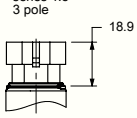
Male connection
Deutsch DT04
3 pole



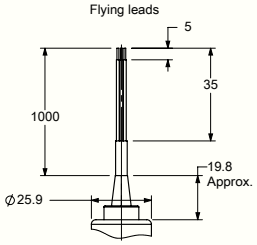
Male connection
Junior Power Timer
3 pole



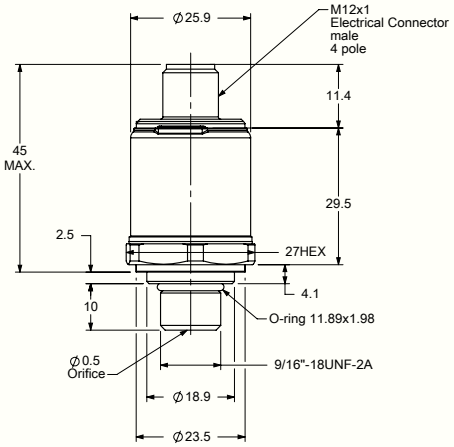
Male connection
Superseal
series 1.5
3 pole

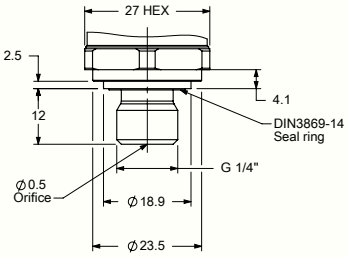


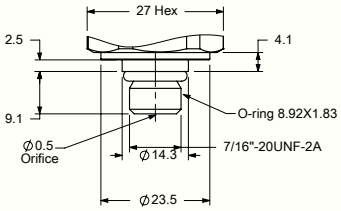
Flying leads



Male connection
EN175301-803 (DIN 43650)
3 pole







Order details:

For exact specification, please contact the Sales Department of HYDAC ELECTRONIC.

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Subject to technical modifications.

For bar ranges see European Catalog

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Electronic Pressure Transmitter
HDA 8700
for Applications with Increased Functional Safety

Functional Safety
PL d
SIL 2

Description:

This version of the pressure transmitter series HDA 8700 has been developed specifically for use in safety circuits / safety functions as part of the functional safety of machinery and equipment up to SIL 2 (IEC 61508) or PL d (ISO 13849).

During normal operation, the pressure transmitter HDA 8700 generates a pressure-proportional output signal. In the background, the pressure transmitter performs cyclical diagnostic tests to detect internal errors.

If an instrument error is detected, the pressure transmitter HDA 8700 supplies an output signal < 3 mA which is recognized by the user as an unacceptable discrepancy.

This means that the pressure transducer HDA 8700 achieves Performance Level d in the Safety category (based on a Category 2 of the architecture) and SIL 2. As a result, the pressure transducer can be recommended for use in applications where safety is critical.

The main areas of application are in mobile and stationary safety-oriented systems such as load torque displays or load torque limitation in loading cranes or working platforms.

Special features:

- SIL 2 / PL d certification
- Accuracy ≤ ± 0.25 % FS B.F.S.L.
- Outstanding performance in terms of temperature effect and EMC
- Very compact design

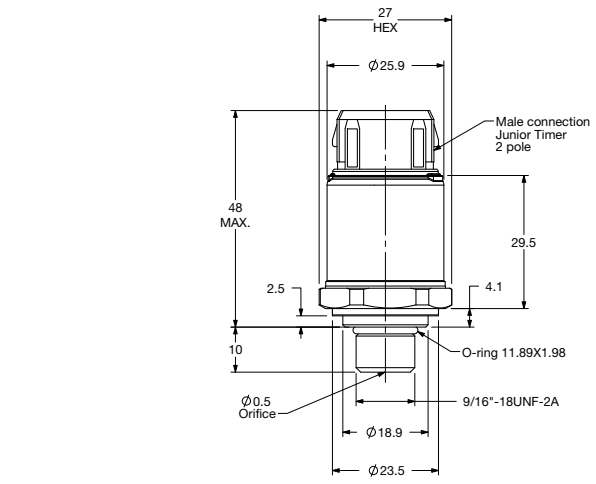
Technical data:

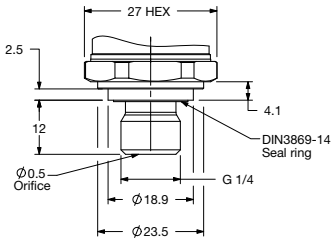
Input data	
Measuring ranges	500; 750; 1000; 1500; 3000; 5000; 6000; 9000 psi
Overload pressures	1160; 1740; 2900; 2900; 7250; 11600; 11600; 14500 psi
Burst pressures	2900; 4350; 7250; 7250; 14500; 14500; 29000; 29000 psi
Mechanical connection (Torque value)	SAE 4, 7/16-20 UNF 2A(11 lb-ft; 15 Nm) SAE 6, 9/16-18 UNF 2A(15 lb-ft; 20 Nm) G1/4 A DIN 3852 (15 lb-ft; 20 Nm) each with orifice 0.5 mm
Parts in contact with medium [1]	Mech. conn.: Stainless steel Seal: FPM
Output data	
Output signal, permitted load resistance	4 .. 20 mA $R_{Lmax} = (U_B - 8\ V) / 20\ mA\ [k\Omega]$
Output signal with error recognition	< 3 mA
Accuracy to DIN 16086 Max. setting	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.
Accuracy at minimum setting (B.F.S.L.)	≤ ± 0.15 % FS typ. ≤ ± 0.25 % FS max
Temperature compensation Zero point	≤ ± 0.006 % FS/ °F typ. ≤ ± 0.0012 % FS/ °F max.
Temperature compensation Over range	≤ ± 0.006 % FS/ °F typ. ≤ ± 0.0012 % FS/ °F max.
Non-linearity at max. setting to DIN 16086	≤ ± 0.03 % FS max.
Hysteresis	≤ ± 0.1 % FS max.
Repeatability	≤ ± 0.1 % FS.
Rise time	≤ 10 ms
Long term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensated temperature range	-13 .. +185 °F
Operating temperature range [2]	-40 .. +212 °F / -13 .. +212 °F
Storage temperature range	-40 .. +212 °F
Fluid temperature range[2]	- 40 .. +257 °F / -13 .. +257 °F
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance according to DIN EN 60068-2-6 at 0 .. 500 Hz	≤ 25 g
Shock resistance according to DIN EN 60068-2-29 (11 ms)	100 g / 6 ms / half-sine 500 g / 1 ms / half-sine
Protection class to IEC 60529	IP 67
Other data	
Electrical connection	AMP Junior Power Timer, 2 pole
Supply voltage	8 .. 32 V DC
Service life	> 10 million cycles (0 .. 100 %)
Weight	~ 75 g
Safety-related data	
Performance level	
Based on	DIN EN ISO 13849-1:2008
PL	d
Architecture	Category 2
Safety Integrity Level	
Based on	DIN EN 61508:2001
SIL	2

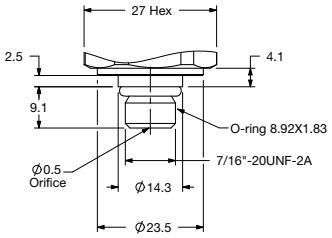
Note.: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range
B.F.S.L. = Best Fit Straight Line

1) Other seal materials on request
2) -13°F with FPM seal, -40°F on request

Dimensions:







Note:

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Subject to technical modifications.

For bar ranges see European Catalog

Order details:

For exact specification, please contact the Sales Department of HYDAC ELECTRONIC.

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Website: www.hydac-na.com

Electronic Pressure Transmitter
HDA 7400

Description:

The pressure transmitter series HDA 7400 combines excellent technical specifications with a highly compact design.

The HDA 7400 was specifically developed for OEM applications e.g. in mobile applications. A stainless steel sensor cell with thin-film strain gauge is the basis for a robust, long-life pressure transmitter.

Various pressure ranges between 0 .. 500 psi and 0 .. 9000 psi provide versatility when adapting to particular applications.

For integration into modern controls (e.g. with PLC), standard analog output signals are available.

Special features:

- Accuracy ≤ ± 0.5 % FS B.F.S.L.
- Highly robust sensor cell
- Highly compact design
- Very small temperature error
- Excellent EMC characteristics
- Excellent durability

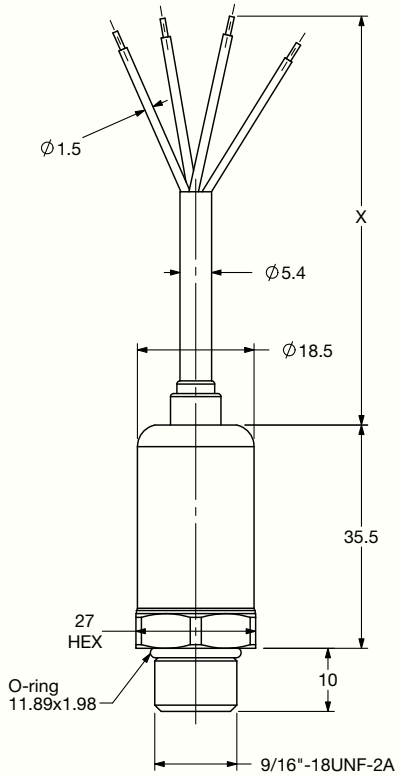
Technical data:

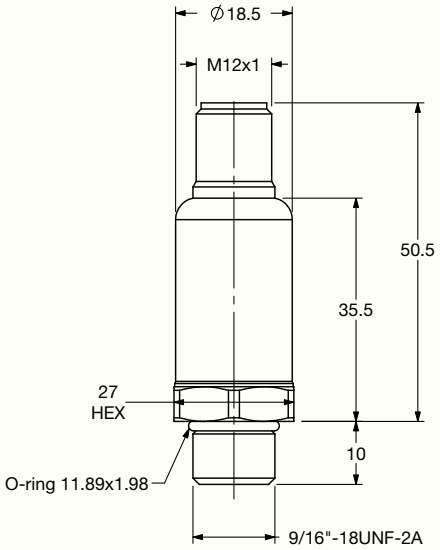
Input data	
Measuring ranges	300; 500; 750; 1000; 1500; 3000; 6000; 9000 psi
Overload ranges	1160; 1160; 1740; 2900; 2900; 7250; 11600; 14500 psi
Burst pressures	2900; 2900; 4350; 7250; 7250; 14500; 29000; 29000 psi
Mechanical connection	SAE 6 9/16-18 UNF 2A G1/4 A DIN 3852
Torque value	15lb-ft (20 Nm)
Parts in contact with medium	Mech. conn.: Stainless steel Seal: FPM
Output data	
Output signal[1)]	e.g.: 4 .. 20 mA, 0 .. 5 V, 0.5 .. 4.5 V, 1 .. 6 V, 0 .. 10 V etc.
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 / 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
Rise time	≤ 2 ms
Long-term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensated temperature range[1)]	-13 .. +185 °F
Operating temperature range[2)]	-40 ..+185 °F / -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 to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Protection class to IEC 60529	IP 65 IP 67 (for M12x1, when an IP 67 connector is used)
Other data	
Electrical connection [1)]	e.g. M12x1 (4 pole) Flying leads
Supply voltage for use acc. to UL specification	10 .. 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	max. 34 mA total
Life expectancy	> 10 million cycles 0 .. 100 % FS
Weight	~ 60 g

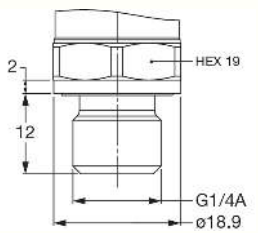
Note: Reverse polarity protection of the supply voltage, excess voltage, override, short-circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range
B.F.S.L.= **B**est **F**it **S**traight **L**ine

1) Other models 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

Dimensions:







Note:

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For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

For bar ranges see European Catalog

Order details:

For exact specification, please contact the Sales Department of HYDAC ELECTRONIC.

HYDAC ELECTRONICS
90 Southland Dr. Bethlehem, PA 18107
Telephone: 610.266.0100
E-mail: electronics@hydacusa.com
Website: www.hydac-na.com

Electronic Pressure Transmitter
HDA 9300

Description:

The pressure transmitter series HDA 9000 has been specially developed for low pressure applications in the industrial and mobile sectors.

The transmitters are available in various pressure ranges from
-14.5 .. 14.5 psi to 0 .. 1000 psi.
For integration into modern controls, standard analog output signals are available, e.g. 4 .. 20 mA,
0 .. 5 V, 1 .. 6 V or 0 .. 10 V.

Ratiometric output signals are also available.
For the electrical connection, different types of integrated connections are available.

A basic accuracy of ≤ ± 0.5 % FS B.F.S.L., combined with a small temperature drift, ensures a broad range of applications for the HDA 9300, e.g. in pump and compressor controls, refrigerating plants and air conditioning, or for pilot controls in the mobile sector.

Special features:

- Accuracy ≤ ± 0.5 % FS B.F.S.L.
- Outstanding performance in terms of temperature effect and EMC
- Very compact design

Technical data:

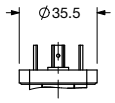
Input data	
Measuring ranges	-14.5 to 14.5; -14.5 to 135; 15; 25; 50; 100; 150; 250; 500; 750; 1000 psi
Overload pressures	46.4; 450; 45; 75; 170; 300; 450; 750; 1700; 2900; 2900 psi
Burst pressures	69.6; 650; 65; 100; 250; 400; 650; 1000; 2500; 4500; 4500 psi
Mechanical connection [1] (Torque value)	1/4-18 NPT, external thread (30lb-ft; 40 Nm) SAE 4, 7/16-20 UNF 2A (11lb-ft; 15 Nm) SAE 6, 9/16-18 UNF 2A (15lb-ft; 20 Nm) G1/4 A DIN 3852 (15 lb-ft; 20 Nm)
Parts in contact with medium	Connector: Stainless steel Measuring cell: Ceramics Seal: FPM, EPDM
Output data	
Output signal	e.g.: 4 .. 20 mA, 0 .. 5 V, 1 .. 6 V, 0 .. 10 V, ratiometric: 0.5 .. 4.5 V for U_B = 5 V DC
Accuracy to DIN 16086, max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.
Accuracy at minimum setting (B.F.S.L.)	≤ ± 0.25 % FS typ. ≤ ± 0.5 % FS max.
Temperature compensation zero point	≤ ± 0.012 % FS / °F typ. ≤ ± 0.024 % FS / °F typ.
Temperature compensation over range	≤ ± 0.012 % FS / °F typ. ≤ ± 0.024 % FS / °F typ.
Non-linearity at max. setting to DIN 16086	≤ ± 0.5 % FS max.
Hysteresis	≤ ± 0.25 % FS max.
Repeatability	≤ ± 0.1 % FS max.
Rise time	≤ 4 ms
Long term drift	≤ ± 0.3 % FS / year typ.
Environmental conditions	
Compensated temperature range	-13 .. +185 °F
Operating temperature range [2]	-40 .. +212 °F / -13 .. +212 °F
Storage temperature range	-40 .. +212 °F
Fluid temperature range [2]	- 40 .. +257 °F / -13 .. +257 °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 5 .. 2000 Hz	≤ 25 g
Shock resistance to DIN EN 60068-2-27	100 g / 6 ms / half-sine 500 g / 1 ms / half-sinus
Protection class to IEC 60529 to ISO 20653	IP 65, IP 67 (depending on electrical connection) IP 69K (depending on electrical connection)
Other data	
Electrical connection	M12x1, 4 pol. Packard Metri Pack Series 150, 3 pole. Deutsch DT 04, 3 pole EN 175301-803 (DIN 43650), 3 pole + PE
Supply voltage	8 .. 36 V DC 12 .. 36 V DC for 0 .. 10 V, 5 V DC ± 5 % (ratiometric)
Residual ripple of supply voltage	≤ 5 %
Service life	> 10 million cycles, 0 .. 100 % FS
Weight	~ 100 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

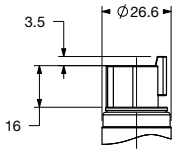
1) Other mechanical connections on request
2) -13 °F with FPM or EPDM seal, -40 °F on request
3) Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No 61010-1

Dimensions:

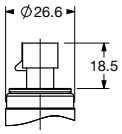
Male connection
EN175301-803 (DIN 43650)
3 pole

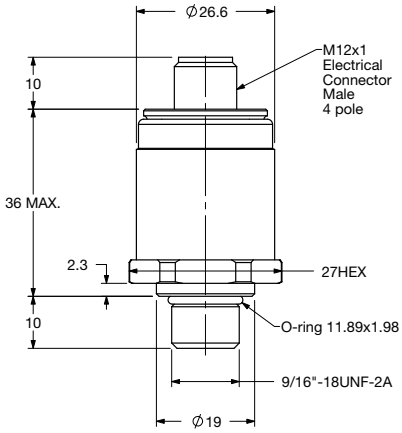


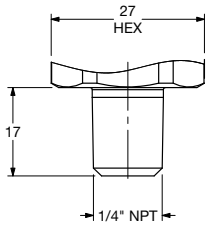
Male connection
Deutsch DT04
3 pole

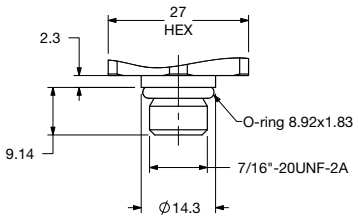


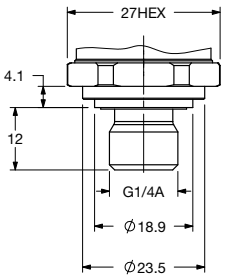
Male connection
Metri-Pack
Series 150
3 pole











Order details:

For exact specification, please contact the Sales Department of HYDAC ELECTRONIC.

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Subject to technical modifications.

For bar ranges see European Catalog

HYDAC ELECTRONICS
90 Southland Dr. Bethlehem, PA 18017
Telephone: 610.266.0100
E-mail: electronics@hydacusa.com
Website: www.hydac-na.com

Electronic Pressure Switch EDS 810

Description:

The electronic pressure switch EDS 810 has been specially developed for use in volume production machines.

The highly compact instrument is equipped with a very robust pressure sensor with thin-film strain gauge on a stainless steel membrane.

The transistor switching output is available with either N/C or N/O function.
The switching and switch-back point of the EDS 810 is factory-set according to customer specification (not field-adjustable).

Various pressure ranges between 0 .. 500 psi and 0 .. 9000 psi are available.

Special features:

- Accuracy ≤ ± 0.5 % FS B.F.S.L.
- Outstanding performance in terms of temperature effect and EMC
- Very compact design
- ECE type approval (E13) (approved for road vehicles)

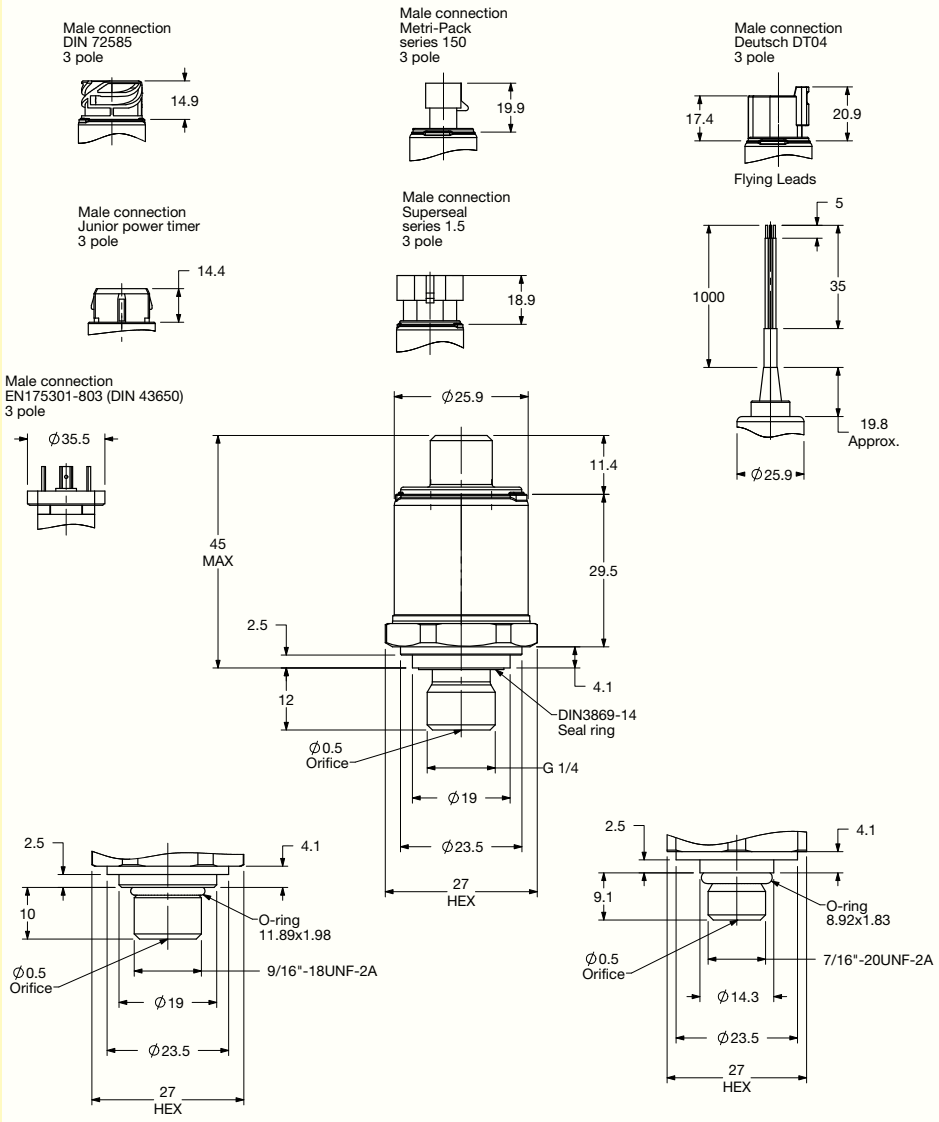
Technical data:

Input data	
Measuring ranges	500; 750; 1000; 1500; 3000; 6000; 9000 psi
Overload pressures	1160; 1740; 2900; 2900; 7250; 11600; 14500 psi
Burst pressures	2900; 4350; 7250; 7250; 14500; 29000; 29000 psi
Mechanical connection (Torque value)	SAE 4, 7/16-20 UNF 2A (11 lb-ft; 15 Nm) SAE 6, 9/16-18 UNF 2A (15 ib-ft; 20 Nm) G1/4 A DIN 3852 (15 lb-ft; 20 Nm) each with orifice 0.5 mm
Parts in contact with medium	Mech. conn.: Stainless steel Seal: FPM
Output data	
Switch output	Either: - 1 PNP or 1 NPN transistor switching output - 2 PNP transistor switching outputs (only in conjunction with electrical connection M12x1, 4 pole)
Switching direction	N/C / N/O function (according to customer specification)
Output load	≤ 500 mA per switching output
Switching points	according to customer specification
Switch-back points	according to customer specification
Accuracy to DIN 16086, Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.
Repeatability (at 13 °F)	≤ ± 0.1 % FS max.
Temperature drift	≤ ± 0.017 % FS / °F max. zero point ≤ ± 0.017 % FS / °F max. range
Rising switch point and falling switch point delay	8 ms to 2000 ms (standard 32 ms); factory-set according to customer spec.
Long-term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensated temperature range	-13 .. +185 °F
Operating temperature range [1]	-40 .. +212 °F / -13 .. +212 °F
Storage temperature range	-40 .. +212 °F
Fluid temperature range [1]	-40 .. +257 °F / -13 .. +257 °F
CE mark	EN 61000-6-1 / 2 / 3 / 4
cULus mark [2]	Certificate No. E318391
Vibration resistance to DIN EN 60068-2-6 at 5 .. 2000 Hz	≤ 25 g
Shock resistance to DIN EN 60068-2-27	100 g / 6 ms / half sine 500 g / 1 ms / half sine
Protection class to IEC 60529 to ISO 20653	IP 65, IP 67 (depending on the electrical connection) IP 69 K (depending on the electrical connection)
Other data	
Electrical connection	M12x1, 4 pole AMP DIN 72585 code 1, 3 pole Packard Metri Pack series 150, 3 pole Deutsch DT 04, 3 pole AMP Superseal, 3 pole AMP Junior Power Timer, 3 pole Flying leads, 1 m cable length EN175301-803 (DIN 43650), 3 pole
Supply voltage for use acc. to UL spec.	8 .. 32 V DC - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Current consumption	1 PNP max. 0.52 A total/max. 20 mA with inactive switch output 2 PNP max. 1.02 A total/max. 20 mA with inactive switch outputs NPN max. 20 mA total
Residual ripple of supply voltage	≤ 5 %
Life expectancy	> 10 million cycles 0 .. 100 % FS
Weight	~ 55 g

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

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

Dimensions:



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Subject to technical modifications.

For bar ranges see European Catalog

Order details:

For precise specifications, please contact our the Sales Department of HYDAC ELECTRONIC.

HYDAC ELECTRONICS
90 Southland Dr. Bethlehem, PA 18107
Telephone: 610.266.0100
E-mail: electronics@hydacusa.com
Website: www.hydac-na.com

Electronic Pressure Switch EDS 710

Description:

The electronic pressure switch EDS 710 has been specially developed for use in large volume production machines.

The highly compact unit has a very robust pressure sensor with thin-film strain gauge on a stainless steel membrane.
The EDS 710 is available with 1 transistor switching output (PNP) which can be defined either as N/C or N/O.
Switching and switch-back points of the EDS 710 are factory-set according to customer specification (not field-adjustable).

Various pressure ranges between 0 .. 500 psi and 0 .. 9000 psi are available.

Special features:

- 1 transistor switch output (PNP), either as N/C or N/O
- Factory-set according to customer specification (not field-adjustable)
- Accuracy ≤ ± 0.5 % FS B.F.S.L.
- Highly robust sensor cell
- Highly compact design
- Very small temperature error

Technical data:

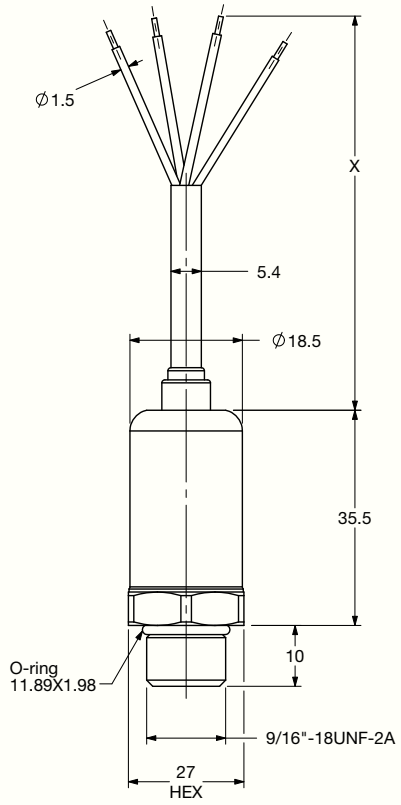
Input data	
Measuring ranges	500; 750; 1000; 1500; 3000; 6000; 9000 psi
Overload ranges	1160; 1740; 2900; 2900; 7250; 11600; 14500 psi
Burst pressures	2900; 4350; 7250; 7250; 14500; 29000; 29000 psi
Mechanical connection	SAE 6, 9/16-18 UNF 2A G1/4 A DIN 3852 (15 lb-ft; 20 Nm)
Torque value	15 lb-ft (20 Nm)
Parts in contact with medium	Mech. conn.: Stainless steel Seal: FPM
Output data	
Switch output	1 transistor switching output (N/C or N/O)
Output load	400 mA
Switching points	according to customer specification
Switch-back points	according to customer specification
Accuracy to DIN 16086, Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.
Repeatability (at 13 °F)	≤ ± 0.1 % FS max.
Temperature drift	≤ ± 0.017 % FS / °F max. zero point ≤ ± 0.017 % FS / °F max. range
Rising switch point and falling switch point delay	8 ms to 2000 ms (standard 32 ms); factory-set according to customer spec.
Long-term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensated temperature range	-13 .. +185 °F
Operating temperature range[1)]	-40 .. +185 °F / -13 .. +185 °F
Storage temperature range	-40 .. +212 °F
Fluid temperature range[1)]	-40 .. +212 °F / -13 .. +212 °F
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Shock resistance to DIN EN 60068-2-29 (1 ms)	≤ 100 g
Protection class to IEC 60529	IP 67
Other data	
Electrical connection [2)]	e.g. M12x1 (4 pole) Flying leads
Supply voltage	10 .. 30 V DC
Residual ripple of supply voltage	≤ 5 %
Life expectancy	> 10 million cycles 0 .. 100 % FS
Weight	~ 60 g

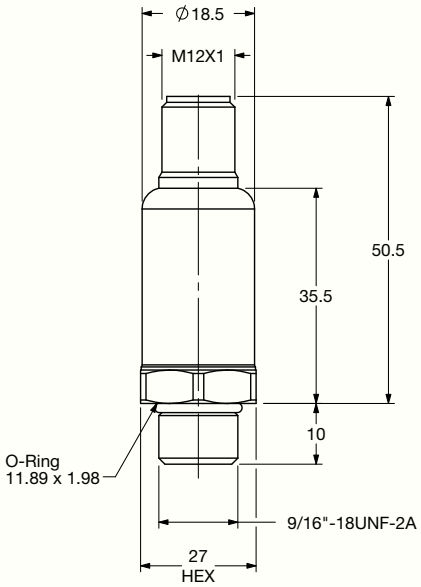
Note: Reverse polarity protection of the supply voltage, excess voltage, override, short-circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range

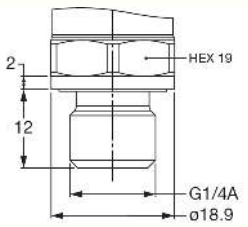
1) -13 °F with FPM seal, -40 °F on request

2) Other electrical connection options, e.g. cables with different types of connector, available on request.

Dimensions (examples):







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For bar ranges see European Catalog

Order details:

For precise specifications, please contact the Sales Department of HYDAC ELECTRONIC.

HYDAC ELECTRONICS
90 Southland Dr. Bethlehem, PA 18107
Telephone: 610.266.0100
E-mail: electronics@hydacusa.com
Website: www.hydac-na.com

Electronic Pressure Switch EDS 410

Description:

The electronic pressure switch EDS 410 has been specially developed for use in volume production machines, and is based on the EDS 4000 pressure switch series.

The EDS 410 is available with 1 or 2 transistor switching outputs (PNP), which can be defined as either N/C or N/O.

The switching and reset points of the EDS 410 are factory-set according to customer specification (not field-adjustable).
As with the EDS 4000 standard model, the EDS 410 has a ceramic measurement cell with thick-film strain gauge for measuring relative pressure in the low pressure range, and a stainless steel measurement cell with thin-film strain gauge for measuring in the high pressure range.

Various pressure ranges between -14.5 .. 75 psi and 0 .. 9000 psi as well as different electrical and mechanical connection types are available.

Special features:

- 1 or 2 transistor switching outputs (PNP), either as N/C or N/O
- Factory-set according to customer specification (not field-adjustable)
- Accuracy ≤ ± 0.5 % FS B.F.S.L.
- Highly robust sensor cell
- Very small temperature error
- Excellent EMC characteristics
- Excellent durability

Technical data:

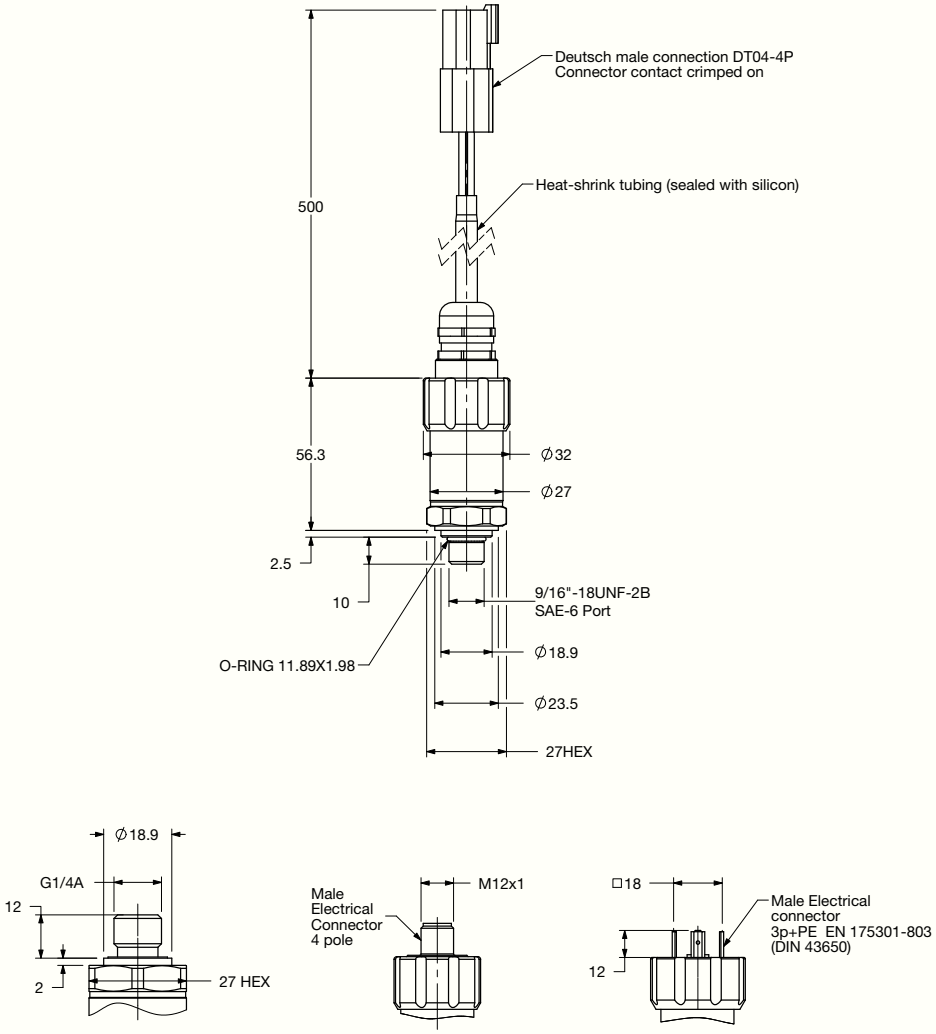
Input data	
Measuring ranges	14.5 to 75; 15; 30; 50; 100; 150; 250; 500; 1000; 1500; 3000; 5000; 6000; 9000 psi
Overload pressures	290; 45; 100; 150; 290; 450; 725; 1160; 2900; 2900; 7250; 11600; 11600; 14500 psi
Burst pressures	400; 70; 150; 250; 400; 650; 1000; 2900; 7250; 7250; 14500; 29000; 29000; 29000 psi
Mechanical connection[2]	SAE 6, 9/16-18 UNF 2A G1/4 A DIN 3852 (15 lb-ft; 20 Nm)
Torque value	15 lb-ft (20 Nm)
Parts in contact with medium	Mech. connection: Stainless steel Sensor cell: Ceramic or stainless steel Seal: FPM or EPDM
Output data	
Switch output	1 or 2 PNP transistor switching outputs (N/C or N/O)
Output load	1.2 A per switching output
Switching points	according to customer specification
Switch-back points	according to customer specification
Accuracy to DIN 16086, Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.
Repeatability (at -13 °F)	≤ ± 0.1 % FS max.
Temperature drift	≤ ± 0.017 % FS / °F max. zero point ≤ ± 0.017 % FS / °F max. range
Rising switch point and falling switch point delay	8 ms to 2000 ms (standard 32 ms); factory-set according to customer spec.
Long-term drift	≤ ± 0.3 % FS typ. / year
Environmental conditions	
Compensated temperature range	-13 .. +185 °F
Operating temperature range[1]	-40 .. +185 °F / -13 .. +185 °F
Storage temperature range	-40 .. +212 °F
Fluid temperature range[1]	-40 .. +212 °F / -13 .. +212 °F
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g
Shock resistance to DIN EN 60068-2-29 (1 ms)	≤ 100 g
Protection class to IEC 60529	IP 65 IP 67 (M12x1, when an IP 67 connector is used)
Other data	
Electrical connection [2]	e.g. EN175301-803 (DIN 43650) M12x1 (4 pole) Flying lead
Supply voltage	8 .. 32 V DC
Residual ripple of supply voltage	≤ 5 %
Life expectancy	> 10 million cycles 0 .. 100 % FS
Weight	~ 145 g

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

1) -13 °F with FPM or EPDM seal, -40 °F on request

2) Other connection options available on request.

Dimensions:



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Order details:

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HYDAC ELECTRONICS
90 Southland Dr. Bethlehem, PA 18107
Telephone: 610.266.0100
E-mail: electronics@hydacusa.com
Website: www.hydac-na.com

Electronic Pressure Switch

EDS 4400
ATEX, CSA, IECEx
Flameproof Enclosure

Description:

The electronic pressure switch EDS 4400 with flameproof enclosure and triple approval according to ATEX, CSA and IECEx ensures the instrument is universally suitable for use in potentially explosive environments around the world.
Each device is certified by the three approval organizations and is labelled accordingly. Therefore it is no longer necessary to stock multiple devices with separate individual approvals.
The switching point and switch-back point, the function of the switching output as N/C or N/O and the switching delay are permanently set in accordance with the customer's requirements.
As with the industrial version of the EDS 4400, those with triple approval have a field-proven, all-welded stainless steel measurement cell with thin film strain gauge without internal seals.
Its main applications are in mining and the oil and gas industry, e.g. in underground vehicles, hydraulic power units, blow-out preventers (BOPs), drill drives or valve actuation stations as well as in areas with high dust loads.

Protection types and applications:

cCSAus Explosion Proof - Seal Not Required

Class I Group A, B, C, D, T6, T5
Class II Group E, F, G
Class III
Type 4

ATEX Flame Proof

I M2 Ex d I Mb
II 2G Ex d IIC T6, T5 Gb
II 2D Ex tb IIIC T110 .. 130 °C Db

IECEx Flame Proof

Ex d I Mb
Ex d IIC T6, T5 Gb
Ex tb IIIC T110 .. 130 °C Db

Special features:

- Accuracy ≤ ± 0.5% FS B.F.S.L.
- Certificates:
  ATEX KEMA 10ATEX100 X
  CSA MC 224264
  IECEx KEM 10.0053X
- Robust design
- Very small temperature error
- Excellent EMC characteristics
- Excellent durability

Technical data:

Input data		
Measuring ranges	100, 300, 500, 1000, 1500, 3000, 5000, 6000, 9000, 10000, 15000, 20000, 30000 psi	
Overload pressures	290, 1160, 1160, 2900, 2900, 7250, 11600, 11600, 14500, 14500, 23200, 38400, 43500 psi	
Burst pressure	1450, 2900, 2900, 7250, 7250, 14500, 29000, 29000, 29000, 29000, 43500, 43500, 58000 psi	
Mechanical connection [1]	1/4-18 NPT, male 1/4-18 NPT, female G1/4A DIN 3852 SAE 6 9/16-18 UNF 2A SF 250 CX20, Autoclave(7/16-20-UNF 2B)	
Torque value	G1/4, SAE 6: 15lb-ft(20Nm) SF 250 CX20, 1/4 NPT: 30lb-ft(40Nm)	
Parts in contact with medium	Stainless steel:	1.4542; 1.4571; 1.4435; 1.4404; 1.4301
	Seal:	FPM
Conduit and housing material	1.4404; 1.4435 (316L)	
Output data		
Accuracy to DIN 16086, Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1.0 % FS max.	
Repeatability	≤ ± 0.1 % FS max.	
Temperature drift	≤ ± 0.017% FS/°F max. zero point ≤ ± 0.017% FS/°F max. range	
Switch output [2]	1 or 2 PNP transistor switch outputs	
Output load	max. 1.2 A on 1 switch output version max. 1 A each on 2 switch output version	
Switch points / hysteresis / N/C or N/O function	permanently pre-set acc. to customer spec.	
Rising switch point and falling switch point delay	32 ms standard (8 .. 2000 ms pre-set to customer spec.)	
Long-term drift	≤ ± 0.3 % FS typ. / year	
Environmental conditions		
Compensated temperature range	T5: -13..+176°F T6: -13..+140°F	
Operating temperature range [3]	T5: -40..+176°F/ -4°F to +175°F T6: -40..+140°F/-4..+140°F	
Storage temperature range	-40 to 212°F	
Fluid temperature range [3]	T5: -40..+176°F/ -4..+176°F T6: -40..+140°F/-4..+140°F	
CE mark	EN 61000-6-1 / 2 / 3 / 4 EN 60079-0 / 1 / 31	
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g	
Protection class to IEC 60529 to ISO 20653	IP 65 IP 69K	(Vented Gauge) (Sealed Gauge)
Other data		
Voltage supply	12 .. 30 V DC	
Current consumption	~ 25 mA (plus switching current)	
Residual ripple of supply voltage	≤ 5 %	
Life expectancy	> 10 million cycles 0 .. 100 % FS	
Weight	~ 300 g	

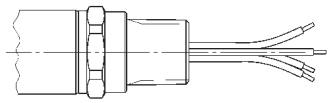
Note: Reverse polarity protection of the supply voltage, overvoltage, override and and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to complete measuring range
[1] Other mechanical connection options available on request
[2] Other output signals available on request
[3] -4°F with FPM seal, -40°F on request

US 18.388.1/10.17

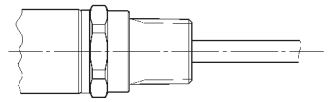
Pin connections:

Pin connections are configured according to customer specification.

Conduit (single cores)



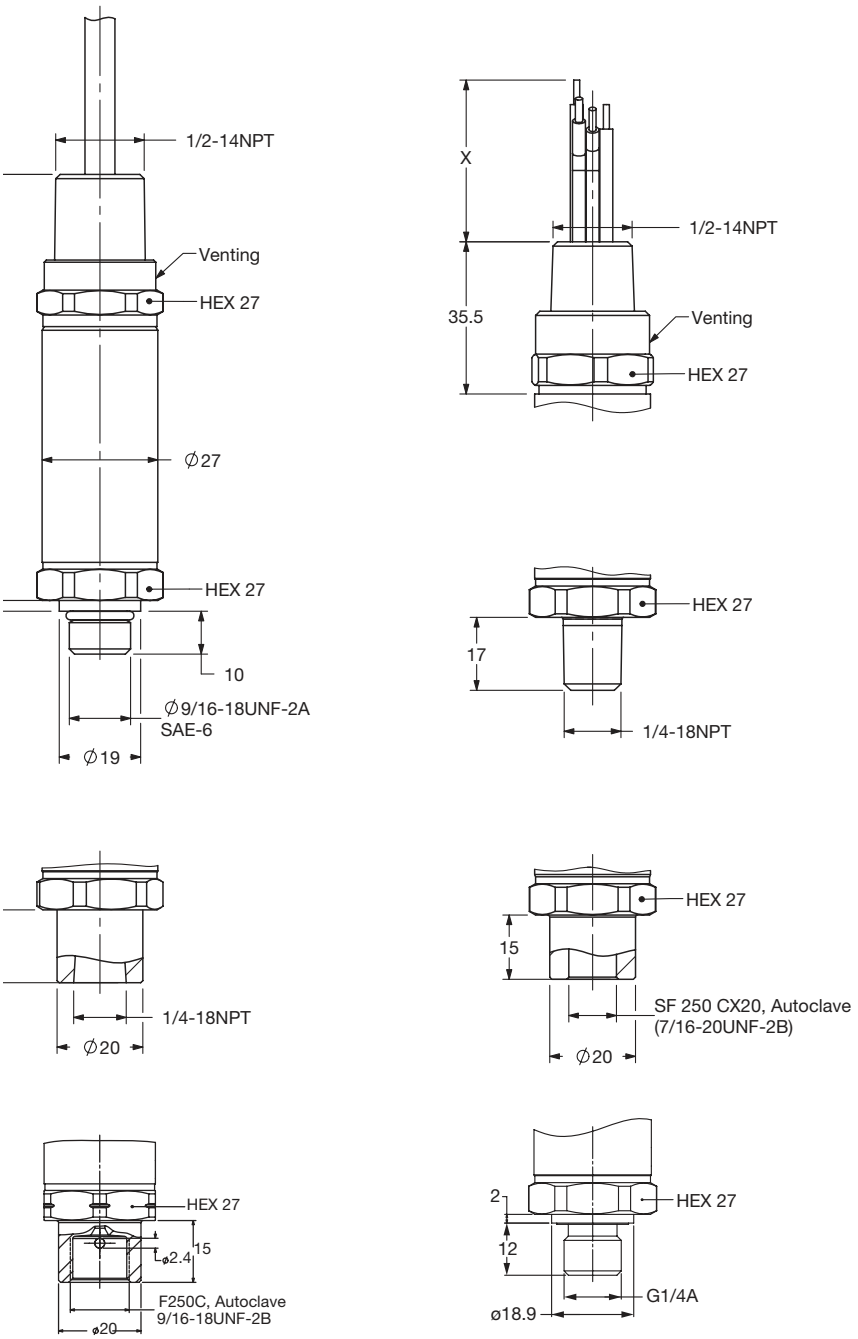
Conduit (flying leads)



Areas of application:

Approvals	cCSAus: Explosion Proof - Seal not required ATEX: Flame Proof IECEx: Flame Proof
Certificate	ATEX KEMA 10ATEX100X CSA MC 224264 IECEx KEM 10.0053X
Applications / Protection types	c**CSA**us: Class I Group A, B, C, D, T6, T5 Class II Group E, F, G Class III Type 4 **ATEX**: I M2 Ex d I Mb II 2G Ex d IIC T6, T5 Gb II 2D Ex tb IIIC T110 .. 130 °C Db **IECEx**: Ex d I Mb Ex d IIC T6, T5 Gb Ex tb IIIC T110 .. 130 °C Db

Dimensions:



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 ELECTRONIC GMBH
90 Southland Dr. Bethlehem, PA 18107
Telephone: 610.266.0100
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Website: www.hydac-na.com

Electronic Pressure Switch
EDS 4400
ATEX Intrinsically Safe

Description:

The pressure switch EDS 4400 in ATEX version, has been specially developed for use in potentially explosive atmospheres, and is based on the EDS 4000 series.

The switching point and switch-back point, the function of the switching outputs as N/C or N/O and the switching delay are factory-set according to customer requirement (not field-adjustable).
As with the industry model, the EDS 4400 in ATEX version has a stainless steel measurement cell with thin-film strain gauge for measuring relative pressure in the high pressure range.

With approval for the following
Protection types and applications:

I M1	Ex ia I
II 1G	Ex ia IIC T4, T5, T6
II 1/2G	Ex ia IIC T4, T5, T6
II 2G	Ex ia IIC T4, T5, T6
II 1 D	Ex iaD 20 T100°C

almost all requirements are covered regarding ignition group, error class and temperature class.

Versions for other Protection types and applications are available upon request.

Special features:

- Switching point and switch-back point factory-set according to customer specification (not field-adjustable)
- Accuracy ≤ ± 0.5% FS B.F.S.L.
- Certificates: DEKRA EXAM BVS 07 ATEX E 041 X
- Various types of electrical connection
- Very small temperature error
- Excellent EMC characteristics
- Excellent durability

Technical data:

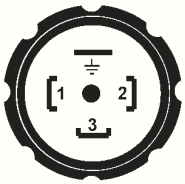
Input data		
Measuring ranges	1000, 3000, 6000, 9000 psi	
Overload pressures	2900, 7250, 11600, 14500 psi	
Burst pressures	7250, 14500, 29000, 29000 psi	
Mechanical connection	SAE 6 9/16-18 UNF 2A G1/4A DIN 3852	
Torque value	Torque value: 15lb-ft(20Nm)	
Parts in contact with medium	Stainless steel: 1.4542; 1.4571; 1.4435; 1.4404; 1.4301 Seal: FPM	
Output data		
Switch output	1 x PNP N/C or N/O	
Output load	during operation: Imax ≤ 34 mA	
Switching point	Factory-set acc. to customer specification	
Switch-back point	Factory-set acc. to customer specification	
Accuracy to DIN 16086, Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.	
Repeatability	≤ ± 0.1 % FS at 77°F	
Temperature drift	≤ ± 0.017% FS/°F max. zero point ≤ ± 0.017% FS/°F max. range	
Rising switch point and falling switch point delay	32 ms standard (8 .. 2000 ms factory-set to customer spec.)	
Long-term drift	≤ ± 0.3 % FS typ. / year	
Environmental conditions		
Storage temperature range	-40 to 212°F	
Fluid temperature range	-4...+140°F/+158°F/+185°F	
CE mark	EN 61000-6-1 / 2 / 3 / 4 EN 60079-0 / 11 / 26 EN 61241-0 / 11 EN 50303	
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g	
Protection class to IEC 60529	IP 65 (male to EN175301-803 (DIN 43650)) IP 67 (M12x1 male, when an IP 67 connector is used)	
Relevant data for Ex applications		
	I M1 II 1G, 1/2G, 2G	**II 1 D**
Supply voltage	14 .. 28 V DC	
Compensated temperature range	T6: -4..+140°F T5, T4: -4..+158°F T100: -4..+158°F	
Operating temperature range	T6: -4..+140°F T5, T4: -4 to 158°F T100: -4..+158°F	
Max. ambient temperature T_a	T6: +140°F T5, T4: +158°F	T100: +158°F
Max. input current	100 mA	93 mA
Max. input power	0.7 W	0.65 W
Max. internal capacitance	33 nF	33 nF
Max. internal inductance	0 mH	0 mH
Insulation voltage [1]	50 V AC, with integrated overvoltage protection EN 61000-6-2	
Approved intrinsic safety barriers	Pepperl & Fuchs: Z 787 Telematic Ex STOCK: MTL 7087	
Other data		
Residual ripple of supply voltage	≤ 5 %	
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 the full measuring range
[1] 500 V AC on request

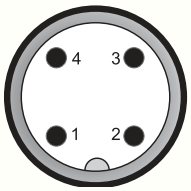
Pin connections:

Pin connections are configured according to customer specification.

EN175301-803 (DIN 43650)



M12x1



Safety instructions:

- The switching output draws the switching energy from the power supply to the pressure switch. No additional energy is introduced into the electrical circuit from the switching output.
- Dual Zener barriers specified and approved in the technical data must be used to connect the pressure switch. These have a reverse polarity diode to decouple the signal. The signal path may only be passively loaded.
- Ensure that measured fluids in contact with the pressure switch are compatible with the materials used.

Note:

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For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

For bar ranges see European Catalog

HYDAC ELECTRONIC
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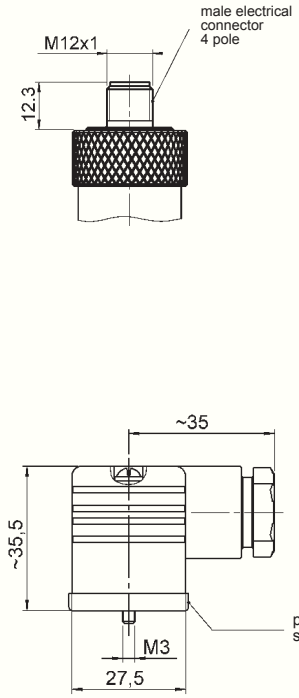
Areas of application:

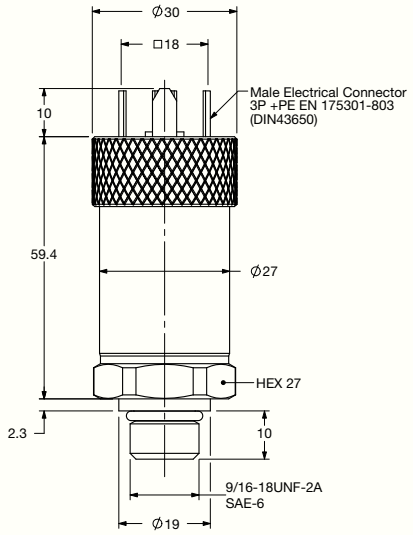
Protection Type	I M1 Ex ia I	II 1G Ex ia IIC T4, T5, T6	II 2G Ex ia IIC II 1/2G Ex ia IIC T4, T5, T6	II 1D Ex iaD 20 T100 °C
Certificate	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X
Zones / Categories	Group I Category M1 Mining Protection class: intrinsically safe ia with barrier	Group II Category 1G Gases Protection class: intrinsically safe ia with barrier For use in Zone 0 T4, T5: T_a = 158°F T6: T_a = 140°F	Group II Category 2G, 1/2G Gases Protection class: intrinsically safe ia with barrier For use in Zone 1, 2 For mounting to Zone 0 T4, T5: T_a = 158°F T6: T_a = 140°F	Group II Category iD Dusts Protection class: intrinsically safe ia with barrier For use in Zone 20, 21, 22 For mounting to Zone 20 T100: T_a = 158°F

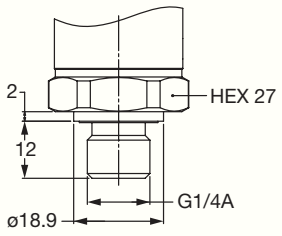
Instruments for other Protection types and applications are available upon request. Please contact our technical sales department for more information.

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

Dimensions:







Electronic Pressure Switch
EDS 4300
ATEX Intrinsically Safe

Description:

The pressure switch EDS 4300 in ATEX version, has been specially developed for use in potentially explosive atmospheres, and is based on the EDS 4000 series.

The switching point and switch-back point, the function of the switching outputs as N/C or N/O and the switching delay are factory-set according to customer requirement (not field-adjustable).
As with the industry model, the EDS 4300 in ATEX version has a ceramic measurement cell with thick-film strain gauge for measuring relative pressure in the low pressure range.

With approval for the following **Protection types and applications:**

I M1	Ex ia I
II 1G	Ex ia IIC T4, T5, T6
II 1/2G	Ex ia IIC T4, T5, T6
II 2G	Ex ia IIC T4, T5, T6
II 1 D	Ex iaD 20 T100°C

almost all requirements are covered regarding ignition group, error class and temperature class.

Versions for other Protection types and applications are available upon request.

Special features:

- Switching output factory-set (not field-adjustable)
- Accuracy ≤ ± 0.5% FS B.F.S.L.
- Certificates: DEKRA EXAM BVS 07 ATEX E 041 X
- Various types of electrical connection
- Very small temperature error
- Excellent EMC characteristics
- Excellent durability

Technical data:

Input data		
Measuring ranges	15, 50, 100, 150, 250, 500 psi	
Overload pressures	45, 150, 290, 450, 725, 1500 psi	
Burst pressures	70, 250, 400, 650, 1000, 2500 psi	
Mechanical connection	1/4-18 NPT G1/4A DIN 3852	
Torque value	15lb-ft (20 Nm)	
Parts in contact with medium	Sensor: Mech. connection: Seal:	Ceramic 1.4301 FPM / EPDM
Output data		
Switch output	1 x PNP N/C or N/O	
Output load	during operation: I_{max} ≤ 34 mA	
Switching point	factory-set to customer specification	
Switch-back point	factory-set to customer specification	
Accuracy to DIN 16086, Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.	
Repeatability	≤ ± 0.1 % FS at 77°F	
Temperature drift	≤ ± 0.017% FS/°F max. zero point ≤ ± 0.017% FS/°F max. range	
Rising switch point and falling switch point delay	32 ms standard; (8 .. 2000 ms factory-set to customer spec.)	
Long-term drift	≤ ± 0.3 % FS typ. / year	
Environmental conditions		
Storage temperature range	-40 to 212°F	
Fluid temperature range	-4...+140°F/+158°F/+185°F	
CE mark	EN 61000-6-1 / 2 / 3 / 4 EN 60079-0 / 11 / 26 EN 61241-0 / 11 EN 50303	
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g	
Protection class to IEC 60529	IP 65 (male to EN175301-803 (DIN 43650)) IP 67 (M12x1 male, when an IP 67 connector is used)	

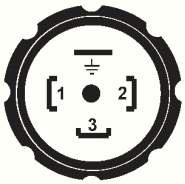
Relevant data for Ex applications	**I M1 II 1G, 1/2G, 2G**	**II 1 D**
Supply voltage	14 .. 28 V DC	
Compensated temperature range	T6: -4..+140°F T5, T4: -4..+158°F T100: -4..+158°F	
Operating temperature range	T6: -4..+140°F T5, T4: -4 to 158°F T100: -4 to 158°F	
Max. ambient temperature T_a	T6: +140°F T5, T4: +158°F	T100: +158°F
Max. input current	100 mA	93 mA
Max. input power	0.7 W	0.65 W
Max. internal capacitance	33 nF	33 nF
Max. internal inductance	0 mH	0 mH
Insulation voltage [1]	50 V AC, with integrated overvoltage protection EN 61000-6-2	
Approved intrinsic safety barriers	Pepperl & Fuchs: Telematic Ex STOCK:	Z 787 MTL 7087
Other data		
Residual ripple of supply voltage	≤ 5 %	
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 the full measuring range
[1] 500 V AC on request

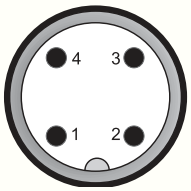
Pin connections:

Pin connections are configured according to customer specification.

EN175301-803 (DIN 43650)



M12x1



Safety instructions:

- The switching output draws the switching energy from the power supply to the pressure switch. No additional energy is introduced into the electrical circuit from the switching output.
- Dual Zener barriers specified and approved in the technical data must be used to connect the pressure switch. These have a reverse polarity diode to decouple the signal. The signal path may only be passively loaded.
- Ensure that measured fluids in contact with the pressure switch are compatible with the materials used.

Note:

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

For bar ranges see European Catalog

HYDAC ELECTRONIC
90 Southland Dr. Bethlehem, PA 18107
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Website: www.hydac-na.com

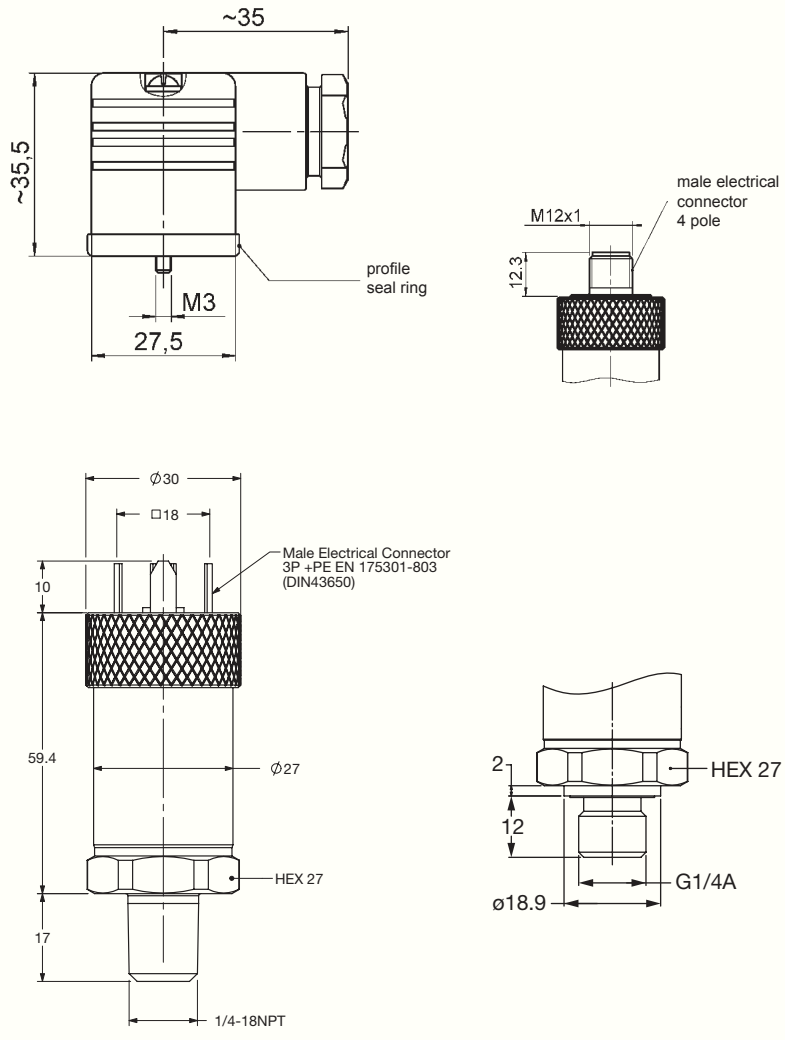
Areas of application:

Protection Type	I M1 Ex ia I	II 1G Ex ia IIC T4, T5, T6	II 2G Ex ia IIC II 1/2G Ex ia IIC T4, T5, T6	II 1D Ex iaD 20 T100 °C
Certificate	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X
Zones / Categories	Group I Category M1 Mining Protection class: intrinsically safe ia with barrier	Group II Category 1G Gases Protection class: intrinsically safe ia with barrier For use in Zone 0 T4, T5: T_a = 158°F T6: T_a = 140°F	Group II Category 2G, 1/2G Gases Protection class: intrinsically safe ia with barrier For use in Zone 1, 2 For mounting to Zone 0 T4, T5: T_a = 158°F T6: T_a = 140°F	Group II Category iD Dusts Protection class: intrinsically safe ia with barrier For use in Zone 20, 21, 22 For mounting to Zone 20 T100: T_a = 158°F

Instruments for other Protection types and applications are available on request. Please contact our technical sales department for more information.

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

Dimensions:



Electronic Absolute Pressure Switch
EDS 4100
ATEX Intrinsically Safe

Description:

The pressure switch EDS 4100 in ATEX version, has been specially developed for use in potentially explosive atmospheres, and is based on the EDS 4000 series.

The switching point and switch-back point, the function of the switching outputs as N/C or N/O and the switching delay are factory-set according to customer requirement (not field-adjustable).
As with the industry model, the EDS 4100 in ATEX version has a ceramic measurement cell with thick-film strain gauge for measuring absolute pressure in the low pressure range.

With approval for the following
Protection types and applications:

I M1	Ex ia I
II 1G	Ex ia IIC T4, T5, T6
II 1/2G	Ex ia IIC T4, T5, T6
II 2G	Ex ia IIC T4, T5, T6
II 1 D	Ex iaD 20 T100 °C

almost all requirements are covered regarding ignition group, error class and temperature class.

Versions for other Protection types and applications are available on request.

Special features:

- Switching output factory-set (not field-adjustable)
- Accuracy ≤ ± 0.5% FS B.F.S.L.
- Certificates: DEKRA EXAM BVS 07 ATEX E 041 X
- Various types of electrical connection
- Very small temperature error
- Excellent EMC characteristics
- Excellent durability

Technical data:

Input data		
Measuring ranges	15, 50 psia	
Overload pressures	40, 150 psia	
Burst pressures	70, 250 psia	
Mechanical connection	1/4-18 NPT G1/4A DIN 3852	
Torque value	1/4 NPT: 30lb-ft(40Nm), G1/4:15lb-ft(20Nm)	
Parts in contact with medium	Sensor: Mech. connection: Seal:	Ceramic 1.4301 FPM / EPDM
Output data		
Switch output	1 x PNP N/C or N/O	
Output load	during operation: I_{max} ≤ 34 mA	
Switching point	factory-set to customer specification	
Switch-back point	factory-set to customer specification	
Accuracy to DIN 16086, Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.	
Repeatability	≤ ± 0.1 % FS at 77°F	
Temperature drift	≤ ± 0.017% FS/°F max. zero point ≤ ± 0.017% FS/°F max. range	
Rising switch point and falling switch point delay	32 ms standard (8 .. 2000 ms factory-set to customer spec.)	
Long-term drift	≤ ± 0.3 % FS typ. / year	
Environmental conditions		
Storage temperature range	-40 to 212°F	
Fluid temperature range	-4...+140°F/+158°F/+185°F	
CE mark	EN 61000-6-1 / 2 / 3 / 4 EN 60079-0 / 11 / 26 EN 61241-0 / 11 EN 50303	
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g	
Protection class to IEC 60529	IP 65 (male to EN175301-803 (DIN 43650)) IP 67 (M12x1 male, when an IP 67 connector is used)	

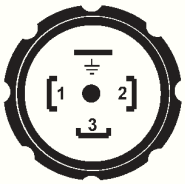
Relevant data for Ex applications	**I M1 II 1G, 1/2G, 2G**	**II 1 D**
Supply voltage	14 .. 28 V DC	
Compensated temperature range	T6: -4..+140°F T5, T4: -4..+158°F T100: -4..+158°F	
Operating temperature range	T6: -4..+140°F T5, T4: -4 to 158°F T100: -4..+158°F	
Max. ambient temperature T_a	T6: +140°F T5, T4: +158°F	T100: +158°F
Max. input current	100 mA	93 mA
Max. input power	0.7 W	0.65 W
Max. internal capacitance	33 nF	33 nF
Max. internal inductance	0 mH	0 mH
Insulation voltage [1]	50 V AC, with integrated overvoltage protection EN 61000-6-2	
Approved intrinsic safety barriers	Pepperl & Fuchs: Telematic Ex STOCK:	Z 787 MTL 7087
Other data		
Residual ripple of supply voltage	≤ 5 %	
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 the full measuring range
[1] 500 V AC on request

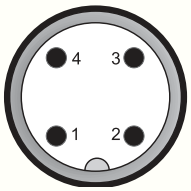
Pin connections:

Pin connections are configured according to customer specification.

EN175301-803 (DIN 43650)



M12x1



Safety instructions:

- The switching output draws the switching energy from the power supply to the pressure switch. No additional energy is introduced into the electrical circuit through the switching output.
- Dual Zener barriers specified and approved in the technical data must be used to connect the pressure switch. These have a reverse polarity diode to decouple the signal. The signal path may only be passively loaded.
- Ensure that the measured fluids in contact with the pressure switch are compatible with the materials used.

Note:

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

For bar ranges see European Catalog

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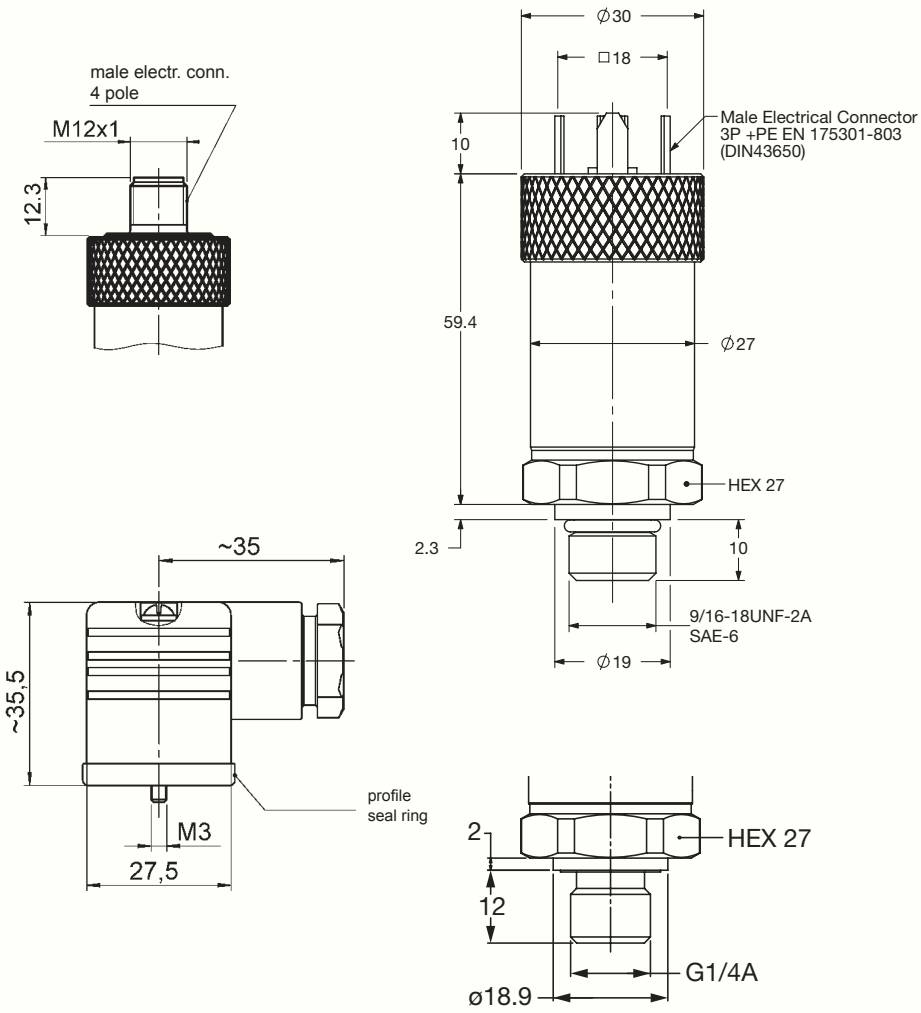
Areas of application:

Protection Type	I M1 Ex ia I	II 1G Ex ia IIC T4, T5, T6	II 2G Ex ia IIC II 1/2G Ex ia IIC T4, T5, T6	II 1D Ex iaD 20 T100 °C
Certificate	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X
Zones / Categories	Group I Category M1 Mining Protection class: intrinsically safe ia with barrier	Group II Category 1G Gases Protection class: intrinsically safe ia with barrier For use in Zone 0 T4, T5: T_a = 158°F T6: T_a = 140°F	Group II Category 2G, 1/2G Gases Protection class: intrinsically safe ia with barrier For use in Zone 1, 2 For mounting to Zone 0 T4, T5: T_a = 158°F T6: T_a = 140°F	Group II Category iD Dusts Protection class: intrinsically safe ia with barrier For use in Zone 20, 21, 22 For mounting to Zone 20 T100: T_a = 158°F

Instruments for other protection types and applications are available on request.
Please contact our technical sales department for more information.

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

Dimensions:



Electronic Temperature Transmitter HTT 8000

Description:

The HTT 8000 series of temperature transmitters was specifically developed for OEM applications e.g. in mobile applications. It is based on a silicon semiconductor device with corresponding evaluation electronics.

All parts in contact with the medium are in stainless steel, and are welded together.

For integration into modern controls, standard analog output signals are available, e.g. 4 .. 20 mA, 0 .. 5 V, 1 .. 6 V or 0 .. 10 V. Ratiometric output signals are also available.

For the electrical connection, various built-in connections are available.

The pressure resistance up to 8700 psi and excellent EMC characteristics make the HTT 8000 ideal for use in harsh conditions.

Special features:

- Accuracy ≤ ± 1.5 % FS B.F.S.L.
- Small, compact design
- Excellent EMC characteristics
- Long-term stability

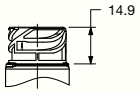
Technical data:

Input data	
Measuring principle	Silicon semiconductor device
Measuring range [1]	-13 .. +257 °F
Probe length	16 mm
Pressure resistance	8700 psi
Mechanical connection [2] (Torque value)	SAE 6, 9/16-18 UNF 2A (15 lb-ft; 20 Nm) G1/4 A DIN 3852 (15 lb-ft; 20 Nm)
Parts in contact with medium	Mech. conn.: Stainless steel Seal: FPM
Output data	
Output signal	e.g.: 4 .. 20 mA, 0 .. 5 V, 1 .. 6 V, 0 .. 10 V, ratiometric: 0.5 .. 4.5 V for U_B = 5 V DC (10 .. 90 % U_B ± 5 %), etc.
Accuracy (at room temperature)	≤ ± 1.0 % FS typ. ≤ ± 2.0 % FS max.
Temperature drift (environment)	≤ ± 0.012 % FS / °F
Rise time to DIN EN 60751	t_{50}: ~ 4 s t_{90}: ~ 8 s
Environmental conditions	
Ambient temperature range [3]	-40 .. +185 °F / -13 .. +185 °F
Storage temperature range	-40 .. +212 °F
Fluid temperature range [3]	-40 .. +257 °F / -13 .. +157 °F
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	≤ 25 g
Shock resistance to DIN EN 60068-2-27	100 g / 6 ms / half sine 500 g / 1 ms / half sine
Protection class to IEC 60529	IP 67
Other data	
Electrical connection	M12x1, 4 pole AMP DIN 72585 code 1, 3 pole Packard Metri Pack Series 150, 3 pole Deutsch DT 04, 3 pole AMP Superseal, 3 pole AMP Junior Power Timer, 3 pole Flying leads, 1 m cable length EN175301-803 (DIN 43650), 3 pole. + PE
Supply voltage for use acc. to UL spec.	8 .. 30 V DC 12 .. 30 V DC for 0 .. 10 V, 5 V DC ± 5 % (ratiometric) - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Current consumption	≤ 25 mA
Residual ripple of supply voltage	≤ 5 %
Weight	~ 145 g

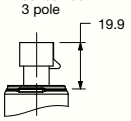
Note: Reverse polarity protection of the supply voltage, excess voltage, override, short circuit protection are provided.
FS (**F**ull **S**cale) = relative to the complete measuring range
[1] Other measuring ranges on request
[2] Other mechanical connections on request
[3] -13 °F with FPM seal, -40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

Dimensions:

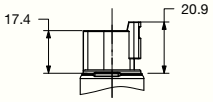
Male connection
DIN 72585
3 pole



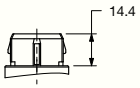
Male connection
Metri-Pack
series 150
3 pole



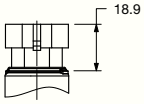
Male connection
Deutsch DT04
3 pole



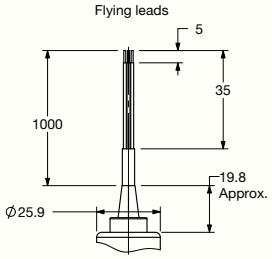
Male connection
Junior Power Timer
3 pole



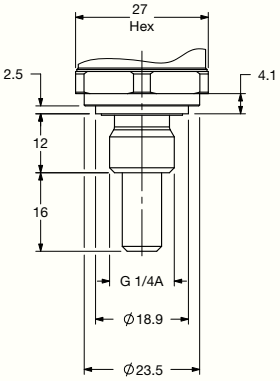
Male connection
Superseal
series 1.5
3 pole

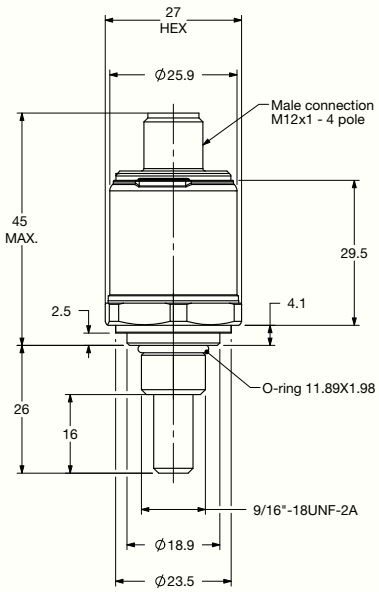


Flying leads



Male connection
EN175301-803 (DIN 43650)
3 pole





Note:

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For applications and operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

Order details:

For precise specifications, please contact the Sales Department of HYDAC ELECTRONIC.

HYDAC ELECTRONICS
90 Southland Dr. Bethlehem, PA 18107
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Website: www.hydac-na.com

Electronic Temperature Switch HTS 8000

Description:

The temperature switch series HTS 8000 has been specifically developed for the OEM market, e.g. in mobile applications. It is based on a silicon semiconductor device with corresponding evaluation electronics.

All parts in contact with the medium are in stainless steel, and are welded together.

The transistor switching output is available with either a N/C or a N/O function.
The switching and switch-back point of the HTS 8000 is factory-set according to customer specification.

For the electrical connection, various built-in connections are available.

With a pressure resistance of 8700 psi and excellent EMC characteristics, the HTS 8000 is ideal for use in harsh conditions.

Special features:

- Accuracy ≤ ± 1.5 % FS B.F.S.L.
- Small, compact design
- Excellent EMC characteristics
- Long-term stability

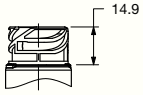
Technical data:

Input data	
Measuring principle	Silicon semiconductor device
Measuring range	-13 .. +257 °F
Probe length	16 mm
Pressure resistance	8700 psi
Mechanical connection (Torque value)	SAE 6, 9/16-18 UNF 2A (15 lb-ft; 20 Nm) G1/4 A DIN 3852 (15 lb-ft; 20 Nm)
Parts in contact with medium	Mech. conn.: Stainless steel Seal: FPM
Output data	
Output signal	Either - 1 PNP transistor switching output - 2 PNP transistor switching outputs (only in conjunction with electr. conn. M12x1, 4 pole)
Switching direction	N/C / N/O function (according to customer specification)
Output load	≤ 500 mA per switching output
Switching points / switch-back points	according to customer specification
Accuracy (at room temperature)	≤ ± 1.0 % FS typ. ≤ ± 2.0 % FS max.
Temperature drift (environment)	≤ ± 0.012 % FS / °F
Accuracy to DIN 16086, Max. setting	≤ ± 3.0 % FS max. ≤ ± 1.5 % FS typ.
Repeatability (at 77 °F)	≤ ± 1 % FS max.
Rising switch point and falling switch point delay	32 ms standard (8 .. 2000 ms pre-set to customer spec.)
Environmental conditions	
Ambient temperature range[1)]	-40 .. +185 °F / -13 .. +185 °F
Storage temperature range	-40 .. +212 °F
Fluid temperature range[1)]	-40 .. +257 °F / -13 .. +257 °F
CE mark	EN 61000-6-1 / 2 / 3 / 4
cULus mark[2)]	Certificate No. E318391
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 25 g
Shock resistance to DIN EN 60068-2-27	100 g / 6 ms / half sine 500 g / 1 ms / half sine
Protection class to IEC 60529	IP 67
Other data	
Electrical connection	M12x1, 4 pole AMP DIN 72585 code 1, 3 pole Packard Metri Pack Series 150, 3 pole Deutsch DT 04, 3 pole AMP Superseal, 3 pole AMP Junior Power Timer, 3 pole Flying lead, 1 m cable length EN175301-803 (DIN 43650), 3 pole + PE
Supply voltage for use acc. to UL spec.	8 .. 32 V DC - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
Current consumption	≤ 20 mA with inactive switching outputs ≤ 0.52 A with 1 switching output ≤ 1.02 A with 2 switching outputs
Residual ripple of supply voltage	≤ 5 %
Weight	~ 145 g

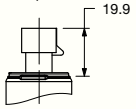
Note: Reverse polarity protection of the supply voltage, excess voltage, override, short-circuit protection are provided.
FS (**F**ull **S**cale) = relative to the complete measuring range
1) -13 °F with FPM seal, -40 °F on request
2) Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No 61010-1

Dimensions:

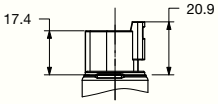
Male connection
DIN 72585
3 pole



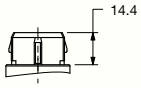
Male connection
Metri-Pack
series 150
3 pole



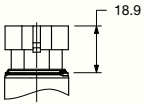
Male connection
Deutsch DT04
3 pole



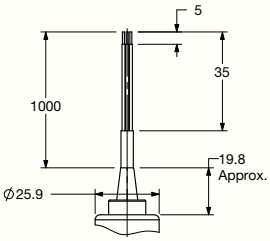
Male connection
Junior Power Timer
3 pole



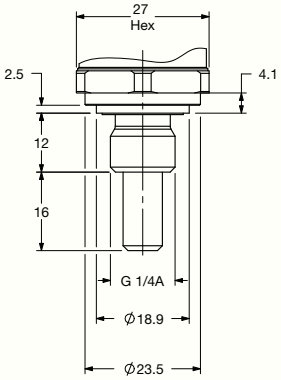
Male connection
Superseal
series 1.5
3 pole

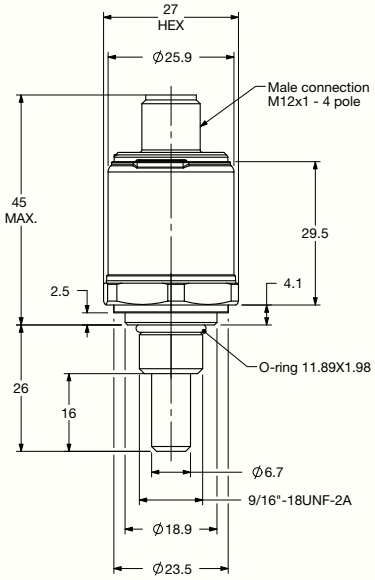


Flying leads



Male connection
EN175301-803 (DIN 43650)
3 pole





Order details:

For a precise specification, please contact the Sales Department of HYDAC ELECTRONIC.

Note:

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For applications and operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

HYDAC ELECTRONICS
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Electronic Position Switch
HLS 100
for Applications with Increased Functional Safety

(Minimum order quantity 100 units)

Functional Safety
PL d
SIL 2

Description:

The position switch series HLS 100 has been specifically developed to detect the end position of safety-related devices on mobile machinery.

The position switches are designed for continuous use in safety circuits/ safety functions as part of the functional safety of machines up to SIL 2 (IEC 61508) or PL d (ISO 13849).

The HLS 100 consists of two parts, the encoder magnet and the sensor unit.

Using two Hall sensors integrated into the sensor unit, the sensor detects the defined position (end position) of the magnet and transmits the switching condition "ON" if this position is detected, or otherwise the switching condition "OFF".

Switching conditions are output as permanent PWM signals.

During stable normal operation, the position switch cyclically performs internal diagnostic steps, which identify systematic and random errors.

Errors which occur are therefore detected immediately. The output signal is then deactivated completely and the sensor is restarted.

Special features:

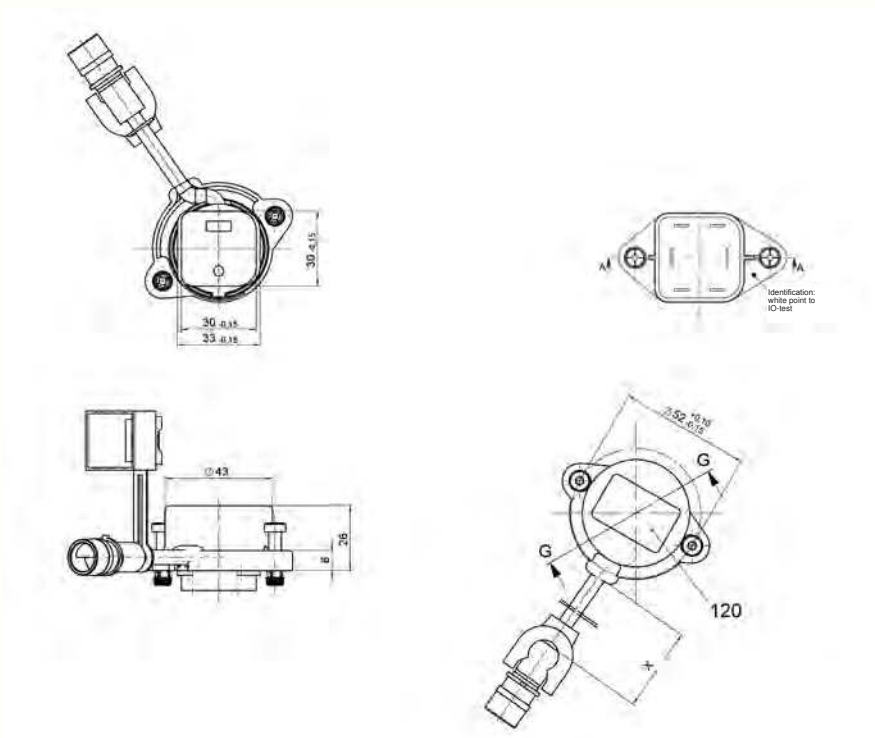
- Compact design
- Robust housing suitable for mobile applications
- High operating temperature range
- PWM output
- IP 67 male connector
- SIL 2 / PL d certification

Technical data:

Input data	
Switching range [1]	± 3 .. ± 9 mm
Switching distance magnet – sensor [1]	0 .. 11 mm
Lateral offset magnet – sensor [1]	± 6 mm
Steel plate thickness	Magnet: min. 5 mm Sensor: 6 .. 8 mm
Output data	
Type	PWM 50 Hz ± 3 % (Push-Pull)
Duty cycle of the output signal OFF (magnet outside the switching range)	26 ± 1 %
Duty cycle of the output signal ON (magnet within the switching range)	74 ± 1 %
Output current consumption High level Low level	 60 mA min. / 150 mA max. 30 mA min. / 110 mA max.
Output voltage High level Low level	 > +U_B – 1.2 V at I = 10 mA < GND + 0.2 V at I = 10 mA
Response times after activation	0.5 .. 1.5 s
Output signal response time	< 100 ms
Internal diagnostic interval	≤ 500 ms typ. (hardware) ≤ 1 s (memory modules)
Environmental conditions	
Nominal temperature range (function)	-22 °F to 185 °F
Operating temperature range (failsafe)	-40 °F to 212 °F
Storage temperature range	-76 °F to 230 °F
CE mark	EN 61000-6-1 / 2 / 3 / 4
Functional safety	SIL 2 to EN 61508 PL d to ISO 13849
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	25 g
Shock resistance to DIN EN 60068-2-29 (6 ms)	50 g (half sine)
Protection class to IEC 60529	IP 67
Other data	
Electrical connection [2]	Male ITT Canon Sure Seal, 3 pole
Supply voltage	8 .. 32 V DC
Current consumption	< 10 mA (inactive output)
Residual ripple of supply voltage	≤ 5 %
Life expectancy	10 years
Weight	Sensor ~ 75 g Magnet ~ 25 g
Safety-related data	
Performance level	
Based on	DIN EN ISO 13849-1: 2008
PL	d
Architecture	Category 2
Safety Integrity Level	
Based on	DIN EN 61508: 2001 1oo1 - B
SIL	2

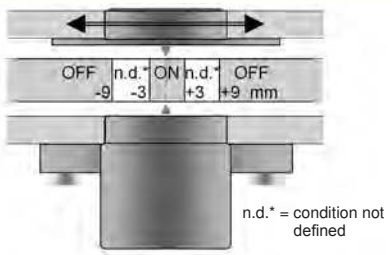
Note: Reverse polarity protection of the supply voltage, excess voltage, override, short circuit protection are provided.
FS (**F**ull **S**cale) = relative to the complete measuring range
[1] All values apply to installation in magnetic steel plate of the required material thickness. If installed in thicker steel plate or other materials, the entire system must be tested thoroughly.
[2] Other connectors available on request

Dimensions:

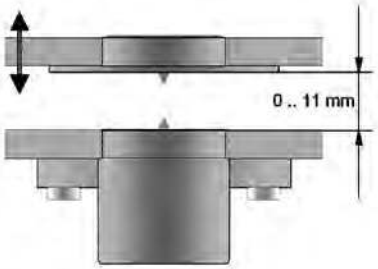


Switching ranges:

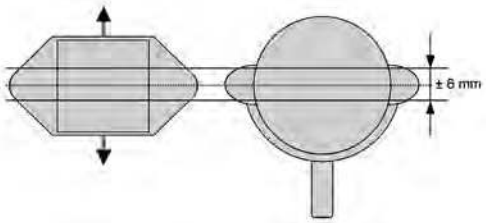
Switching range:



Switching distance:



Lateral offset:



Order details:

The electronic positioning switch HLS 100 has been especially developed for OEM customers and is available for minimum order quantities of 100 units per type.

For a precise specification, please contact the Sales Department of HYDAC ELECTRONIC.

Note:

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Subject to technical modi ications.

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Special Products
Position Sensors and Position Switches

The position sensors and switches have been developed for short distance monitoring and can be used on the one hand for monitoring valve settings and on the other as part of a control. Based on different measuring techniques, HYDAC provides different variants for a diverse range of applications.

Position switch IES 2010 / 2015 / 2020

The position switch for monitoring valve settings (end or center position) is primarily used in stationary applications such as:

- Hydraulic presses
- Plastics machines
- Machine tools

Special features:

- Pressure resistant to 5800 psi
- Inductive measurement (LVDT)
- Various stroke sizes
- Output: 2 switching outputs with change-over function
- Electrical connection: M12x1 (4 pole)

Position sensor IWE 40

The IWE 40 position sensors for short distance detection are primarily used in stationary applications such as:

- Hydraulic presses
- Plastics machines
- Machine tools

Special features:

- Pressure resistant to 5800 psi
- Inductive measurement (LVDT)
- Different measuring ranges (up to max. ±7 mm)
- Output: Analogue 4 .. 20 mA
- Electrical connection: M12x1 (4 pole)

Position switch HLS 200 with increased functional safety

Functional Safety PL d

The position switch HLS 200 is used for reliable detection of valve center positions. They are used both in mobile and in stationary applications.

Special features:

- PL d certification
- Measuring technique: IR light barriers
- Output: 2 switching outputs with change-over function
- Electrical connection: M12x1 (4 pole); Deutsch DT 04 (4 pole)

Order details:

The position sensors and position switches are OEM products which have been especially developed for volume production customers.
For a precise specification, please contact the Sales Department of HYDAC ELECTRONIC.

Note:

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