Electronic Absolute Pressure Switch
EDS 3100

Description:

The EDS 3100 is a compact electronic pressure switch with integrated digital display for absolute pressure measurement in the low-pressure range. It has a ceramic measuring cell with thick-film strain gauge. The instrument can have one or two switching outputs, and there is the option of an additional switchable analog output signal (4 .. 20 mA or 0 .. 10 V).
A special design feature of the EDS 3100 is that the display can be rotated in two planes. The instrument can be installed in almost any mounting position and the display can be turned to the optimum position without the usual additional expense of a mechanical adapter. The 4-digit display can indicate the pressure in **bar, psi** or **MPa**. The user can select the particular unit of measurement. When changing to a different measurement unit, the instrument automatically converts all the switching settings to the new unit of measurement. In addition, the EDS 3100 is also available in a DESINA® -compliant version.
The main applications of the EDS 3100 are primarily in hydraulics and pneumatics, as well as in refrigeration and air conditioning technology.

Special features:

- 1 or 2 PNP transistor switching outputs, up to 1.2 A load per output
- Accuracy ≤ ± 0.5% FS B.F.S.L.
- Optional switchable analog output (4 .. 20 mA / 0 .. 10 V)
- 4-digit digital display
- Optimum alignment - can be rotated in two axes
- Measured value can be displayed in bar, psi or MPa
- User-friendly due to 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	15, 50 psia
Overload pressures	45, 150 psia
Burst pressures	70, 250 psia
Mechanical connection	1/4-18 NPT (male)
Torque value	30lb-ft (40 Nm)
Parts in contact with medium	Mech. connection: Stainless steel Sensor cell: Ceramic Seal: FPM / EPDM (as per model code)
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	≤ ± 0.014% /°F max zero point ≤ ± 0.014%/°F max. range
Analog output (optional)	
Signal	selectable: 4 .. 20 mA load resistance max. 500 Ω 0 .. 10 V load resistance min. 1 kΩ
Switch outputs	
Type	PNP transistor output
Switching current	max. 1.2 A
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
Operating temperature range	-13..+176°F (-13..+140°F acc. to UL spec.)
Storage temperature range	-40..176°F
Fluid temperature range	-13..176°F
CE mark	EN 61000-6-1 / 2 / 3 / 4
cULus mark[1)]	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 outputs max. 55 mA with inactive switching outputs and analog output
Display	4-digit, LED, 7 segment, red, height of digits 7 mm
Weight	~ 120 g

Note: Excess voltage, override protection and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to the complete measurement range
1) Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No 61010-1

Setting options:

All settings available on the EDS 3100 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	Incre-ment* in psi
0 .. 15	0.25 .. 15.00	0.10 .. 14.85	0.05
0 .. 50	0.8 .. 50.00	0.3 .. 49.5	0.1

Window function

Meas. range in psi	Lower switch value in psi	Upper switch value in psi	Incre-ment* in psi
0 .. 15	0.25 .. 15.00	0.10 .. 14.85	0.05
0 .. 50	0.8 .. 50.00	0.3 .. 49.5	0.1

* 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, MPa. The scaling can also be adapted to indicate force, weight, etc.

Model code:

EDS 3 1 X X – X – XXXX – 400 – X 1

Mechanical connection
8 = 1/4-18 NPT (male)

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 psia
0015, 0050

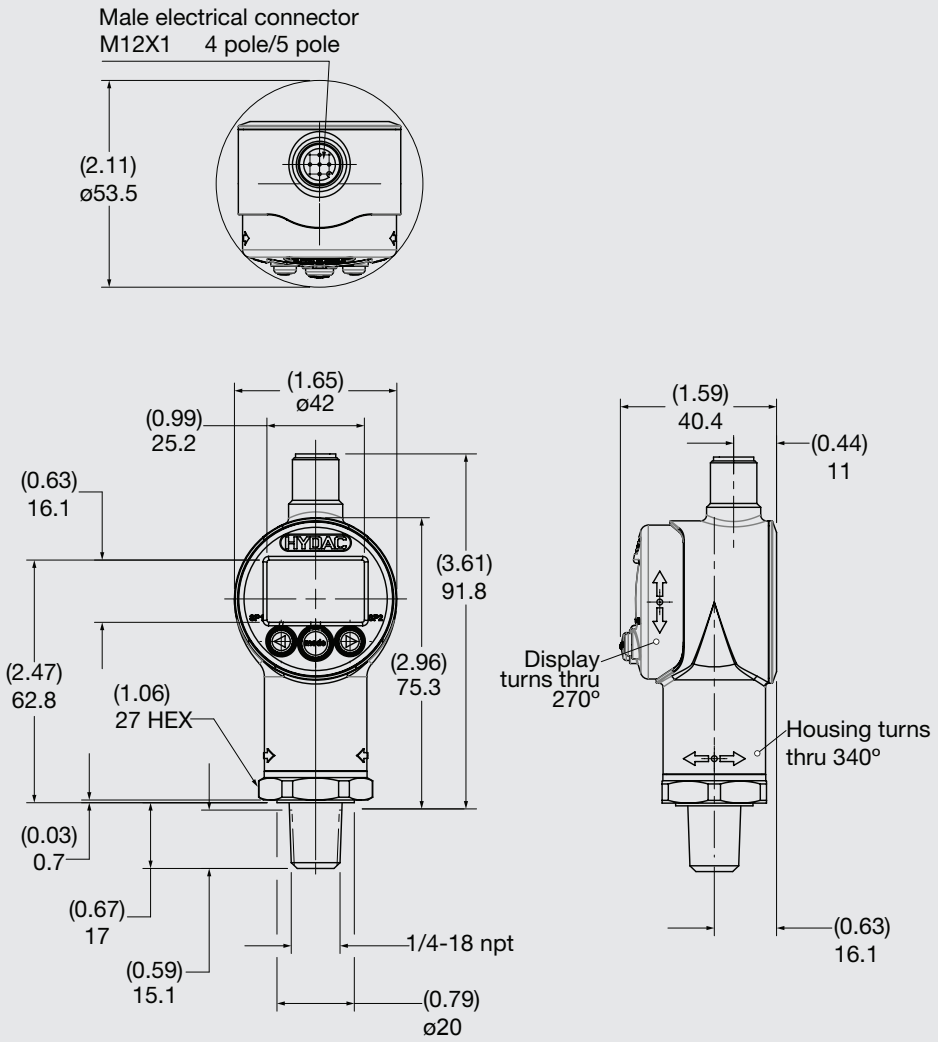
Modification number
400 = Standard

Seal material (in contact with fluid)
F = FPM seal (e.g.: for hydraulic oils)
E = EPDM seal (e.g.: for water, refrigerants)

Material of connection (in contact with fluid)
1 = Stainless steel

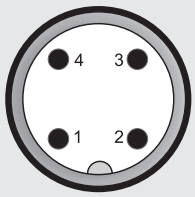
Accessories:
Appropriate accessories, such as electrical connectors, mechanical adapters, splash guards, clamps for wall-mounting etc can be found in the Accessories brochure.

Dimensions:



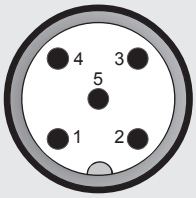
Pin connections:

M12x1, 4 pole



Pin	EDS 31X6-1	EDS 31X6-2	EDS 31X6-3
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 31X8-5
1	$+U_B$
2	Analog
3	0 V
4	SP 1
5	SP 2

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 European mechanical connection and bar ranges see European Catalog

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