HYDAC INTERNATIONAL

Pressure Switch
EDS 3300

Flush membrane
Up to 2 switching outputs
Analogue output

Description:

The electronic pressure switch EDS 3300 with a flush membrane was designed specifically for applications in which a standard pressure port could become blocked, clogged or frozen by the particular medium used.

Further applications include processes where the medium changes frequently and any residues could cause mixing or contamination of the media.

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

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

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

Technical data:

Input data							
Measuring ranges	bar	-1 .. 1	1	2.5	6	10	16
Overload pressures	bar	3	3	8	18	30	48
Burst pressure	bar	5	5	12	30	50	80
Mechanical connection		See model code					
Tightening torque, recommended		20 Nm (G1/4); 45 Nm (G1/2)					
Parts in contact with fluid		Mech. connection: Stainless steel Sensor cell: Ceramic Seal: FKM O-ring: FKM					
Pressure transfer fluid		Silicone-free oil					
Output data							
Switching outputs		1 or 2 PNP transistor outputs Switching current: max. 1.2 A per output Switching cycles: > 100 million					
Analogue output, permitted load resistance		Selectable: 4 .. 20 mA load resist. max. 500 Ω 0 .. 10 V load resist. min. 1 kΩ					
Accuracy acc. to DIN 16086, terminal based		≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.					
Temperature compensation, zero point		≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.					
Temperature compensation, span		≤ ± 0.015 % FS / °C typ. ≤ ± 0.025 % FS / °C max.					
Repeatability		≤ ± 0.25 % FS max.					
Reaction time		< 10 ms					
Long-term drift		≤ ± 0.3 % FS typ. / year					
Environmental conditions							
Compensated temperature range		-10 .. +70 °C					
Operating temperature range		-25 .. +80 °C (-25 .. +60 °C for UL spec.)					
Storage temperature range		-40 .. +80 °C					
Fluid temperature range		-25 .. +80 °C / -25 .. +150 °C with cooling section					
CE mark		EN 61000-6-1 / 2 / 3 / 4					
cULus mark [1]		Certificate no.: E318391					
Vibration resistance acc. to DIN EN 60068-2-6 at 10 .. 500 Hz		≤ 10 g					
Shock resistance acc. to DIN EN 60068-2-27 (11 ms)		≤ 50 g					
Protection class acc. to DIN EN 60529[2]		IP 67					
Other data							
Supply voltage when applied acc. to UL specifications		9 .. 35 V DC without analogue output 18 .. 35 V DC with analogue output – limited energy – acc. to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950					
Residual ripple of supply voltage		≤ 5 %					
Current consumption		max. 2.455 A total max. 35 mA with inactive switching output max. 55 mA with inactive switching output and analogue output					
Display		4-digit, LED, 7-segment, red, height of digits 7 mm					
Weight		~ 150 g					

Note: Overvoltage, override, short circuit protection are provided
FS (**F**ull **S**cale) = relative to complete measuring range

[1] Environmental conditions acc. to 1.4.2 UL 61010-1; C22.2 No 61010-1
[2] With mounted mating connector in corresponding protection class

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Setting options:

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

Setting ranges for the switching outputs:

Switch point function

Meas. range in bar	Switch point in bar	Hysteresis in bar	Increment* in bar
-1 .. 1	-0.97 .. 1	-0.99 .. 0.98	0.01
0 .. 1	0.016 .. 1	0.006 .. 0.99	0.002
0 .. 2.5	0.04 .. 2.5	0.015 .. 2.475	0.005
0 .. 6	0.09 .. 6	0.3 .. 5.94	0.01
0 .. 10	0.16 .. 10	0.06 .. 9.9	0.02
0 .. 16	0.25 .. 16	0.1 .. 15.8	0.05

Window function

Meas. range in bar	Lower switch value in bar	Upper switch value in bar	Increment* in bar
-1 .. 1	-0.97 .. 0.96	-0.95 .. 0.98	0.01
0 .. 1	0.016 .. 0.982	0.024 .. 0.99	0.002
0 .. 2.5	0.04 .. 2.455	0.06 .. 2.475	0.005
0 .. 6	0.09 .. 5.89	0.14 .. 5.94	0.01
0 .. 10	0.16 .. 9.82	0.24 .. 9.9	0.02
0 .. 16	0.25 .. 15.7	0.4 .. 15.8	0.05

* All ranges given in the table can be adjusted by the increments shown.

Additional functions:

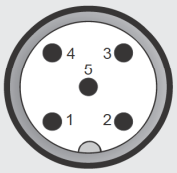
- Switching mode of the switching outputs adjustable (switch point function or window function)
- Switching direction of the switching outputs adjustable (N/C or N/O function)
- Switch on and switch off delay adjustable from 0.00 .. 99.99 seconds
- Choice of display (actual pressure, peak value, switch point 1, switch point 2, display off)
- Display filter for smoothing the display value during pressure pulsations
- Analogue 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.

Pin connections:

M12x1, 4 pole

Pin	EDS 33Z6-1	EDS 33Z6-2	EDS 33Z6-3
1	$+U_B$	$+U_B$	$+U_B$
2	n.c.	SP2	Analogue
3	0 V	0 V	0 V
4	SP1	SP1	SP1

M12x1, 5 pole



Pin	EDS 33Z8-5
1	$+U_B$
2	Analogue
3	0 V
4	SP1
5	SP2

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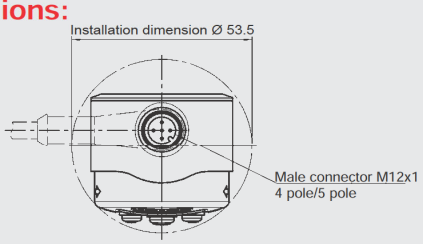
Dimensions:



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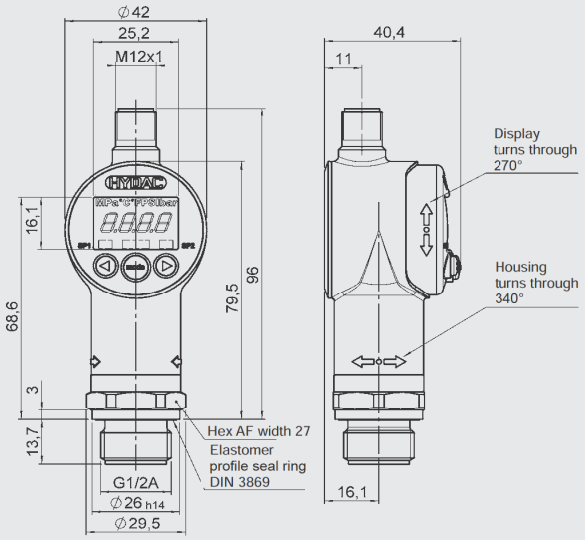

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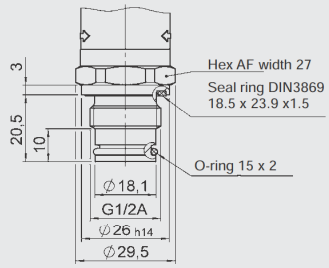

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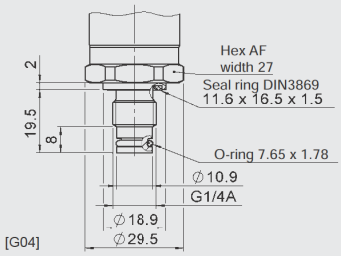

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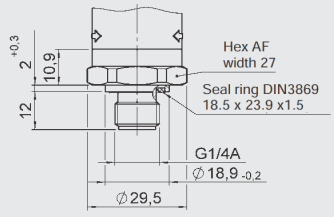

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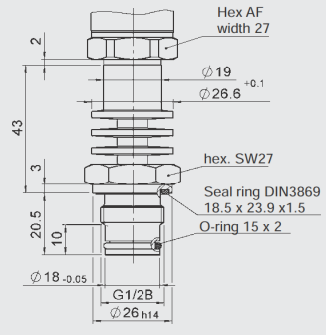

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Model code:

EDS 3 3 Z X – X – XXXX – XXX – 000

Mechanical process connection
Z = flush membrane

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

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

Measuring ranges in bar
01.0; 02.5; 06.0; 0010; 0016
0001 (-1 .. 1)

Mechanical connection
G01 = G1/2 A ISO 1179-2
G02 = G1/2 with additional front O-ring seal
G04 = G1/4 with additional front O-ring seal
G05 = G1/4 A ISO 1179-2
G12 = G1/2 with additional front O-ring seal and cooling section

Modification number
000 = standard

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

Note:

The information in this brochure relates to the operating conditions and applications described.

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

Subject to technical modifications.

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