# Pressure Switch
## EDS 300

**Relative pressure** | **Display**

Up to 2 switching outputs
Analogue output

## Description:

The EDS 300 is a compact, electronic pressure switch with integrated digital display. The integrated pressure sensor is based on a measurement cell with thin-film strain gauge on a stainless steel membrane.
Four different output models are available: with one switch point or with two switch points and both models can also have an additional analogue output signal 4 .. 20 mA.

The switch points and the associated hystereses can be adjusted using the key pad. For optimum adaptation to a particular application, the instrument has many additional adjustment parameters, e.g. switching delay times, N/O / N/C function of the outputs.

The main applications of the EDS 300 are to indicate pressures and limits in hydraulics and pneumatics and anywhere where high switching frequency or constant switching accuracy would overburden a mechanical pressure switch.

## Technical data:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Input data** | | | | | | | |
| Measuring ranges | bar | 16 | 40 | 100 | 250 | 400 | 600 |
| Overload pressures | bar | 32 | 80 | 200 | 500 | 800 | 1000 |
| Burst pressure | bar | 200 | 200 | 500 | 1000 | 2000 | 2000 |
| Mechanical connection | | | | G1/4 A ISO 1179-2 | | | |
| Tightening torque, recommended | | | | 20 Nm | | | |
| Parts in contact with fluid | | | | Mech. connection: Stainless steel<br>Seal: FKM | | | |
| **Output data** | | | | | | | |
| Switching outputs | | | | 1 or 2 PNP transistor outputs<br>Switching current: max. 1.2 A per switching output<br>Switching cycles: > 100 million | | | |
| Analogue output, permitted load resistance | | | | 4 .. 20 mA load resist. max. 400 Ω | | | |
| Accuracy acc. to DIN 16086, terminal based | | | | ≤ ± 0.5 % FS typ.<br>≤ ± 1 % FS max. | | | |
| Temperature compensation, zero point | | | | ≤ ± 0.02 % FS / °C typ.<br>≤ ± 0.03 % FS / °C max. | | | |
| Temperature compensation, span | | | | ≤ ± 0.02 % FS / °C typ.<br>≤ ± 0.03 % FS / °C max. | | | |
| Repeatability | | | | ≤ ± 0.5 % FS max. | | | |
| Reaction time | | | | approx. 10 ms | | | |
| Long-term drift | | | | ≤ ± 0.3 % FS typ. / year | | | |
| **Environmental conditions** | | | | | | | |
| Compensated temperature range | | | | -10 .. +70 °C | | | |
| Operating temperature range | | | | -25 .. +80 °C | | | |
| Storage temperature range | | | | -40 .. +80 °C | | | |
| Fluid temperature range | | | | -25 .. +80 °C | | | |
| CE mark | | | | EN 61000-6-1 / 2 / 3 / 4 | | | |
| 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 [1)] | | | | IP 65 | | | |
| **Other data** | | | | | | | |
| Supply voltage | | | | 20 .. 32 V DC | | | |
| Residual ripple of supply voltage | | | | ≤ 5 % | | | |
| Current consumption | | | | approx. 100 mA (inactive switching output) | | | |
| Display | | | | 3-digit, LED, 7 segment, red, height of digits 9.2 mm | | | |
| Weight | | | | ~ 300 g | | | |

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

[1)] With mounted mating connector in corresponding protection class

## Setting options:

All settings available on the EDS 300 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 |
|---|---|---|---|
| 0 .. 16 | 0.3 .. 16 | 0.1 .. 15.8 | 0.1 |
| 0 .. 40 | 0.6 .. 40 | 0.2 .. 39.6 | 0.2 |
| 0 .. 100 | 1.5 .. 100 | 0.5 .. 99.0 | 0.5 |
| 0 .. 250 | 3.0 .. 250 | 1.0 .. 248 | 1.0 |
| 0 .. 400 | 6.0 .. 400 | 2.0 .. 396 | 2.0 |
| 0 .. 600 | 15.0 .. 600 | 5.0 .. 590 | 5.0 |

Window function

| Meas. range in bar | Lower switch value in bar | Upper switch value in bar | Increment* in bar |
|---|---|---|---|
| 0 .. 16 | 0.2 .. 15.9 | 0.3 .. 16 | 0.1 |
| 0 .. 40 | 0.4 .. 39.8 | 0.6 .. 40 | 0.2 |
| 0 .. 100 | 1.0 .. 99.5 | 1.5 .. 100 | 0.5 |
| 0 .. 250 | 2.0 .. 249.0 | 3.0 .. 250 | 1.0 |
| 0 .. 400 | 4.0 .. 398.0 | 6.0 .. 400 | 2.0 |
| 0 .. 600 | 10.0 .. 595.0 | 15.0 .. 600 | 5.0 |

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

## Additional functions:

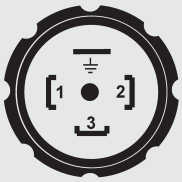
- Switching mode of the switching outputs adjustable (switch point function or window function)
- Switching direction of the switching outputs adjustable (N/C or N/O function)
- Switch-on and switch-off delay adjustable from 0.0 .. 75.0 seconds
- Choice of display (actual pressure, peak value, switch point 1, switch point 2, display off)
- Optional analogue output signal 4 .. 20 mA
- Subsequent correction of zero point in the range ± 3 % FS possible

## Pin connections:

Binder series 714 M18

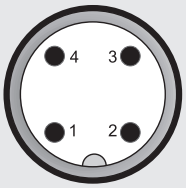

| Pin | EDS 344-2 | EDS 344-3 |
|---|---|---|
| 1 | $+U_B$ | $+U_B$ |
| 2 | 0 V | 0 V |
| 3 | SP1 | SP1 |
| 4 | SP2 | Analogue |

EN175301-803



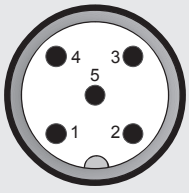

| Pin | EDS 345-1 |
|---|---|
| 1 | $+U_B$ |
| 2 | 0 V |
| 3 | SP1 |
| ⊥ | Housing |

M12x1, 4 pole



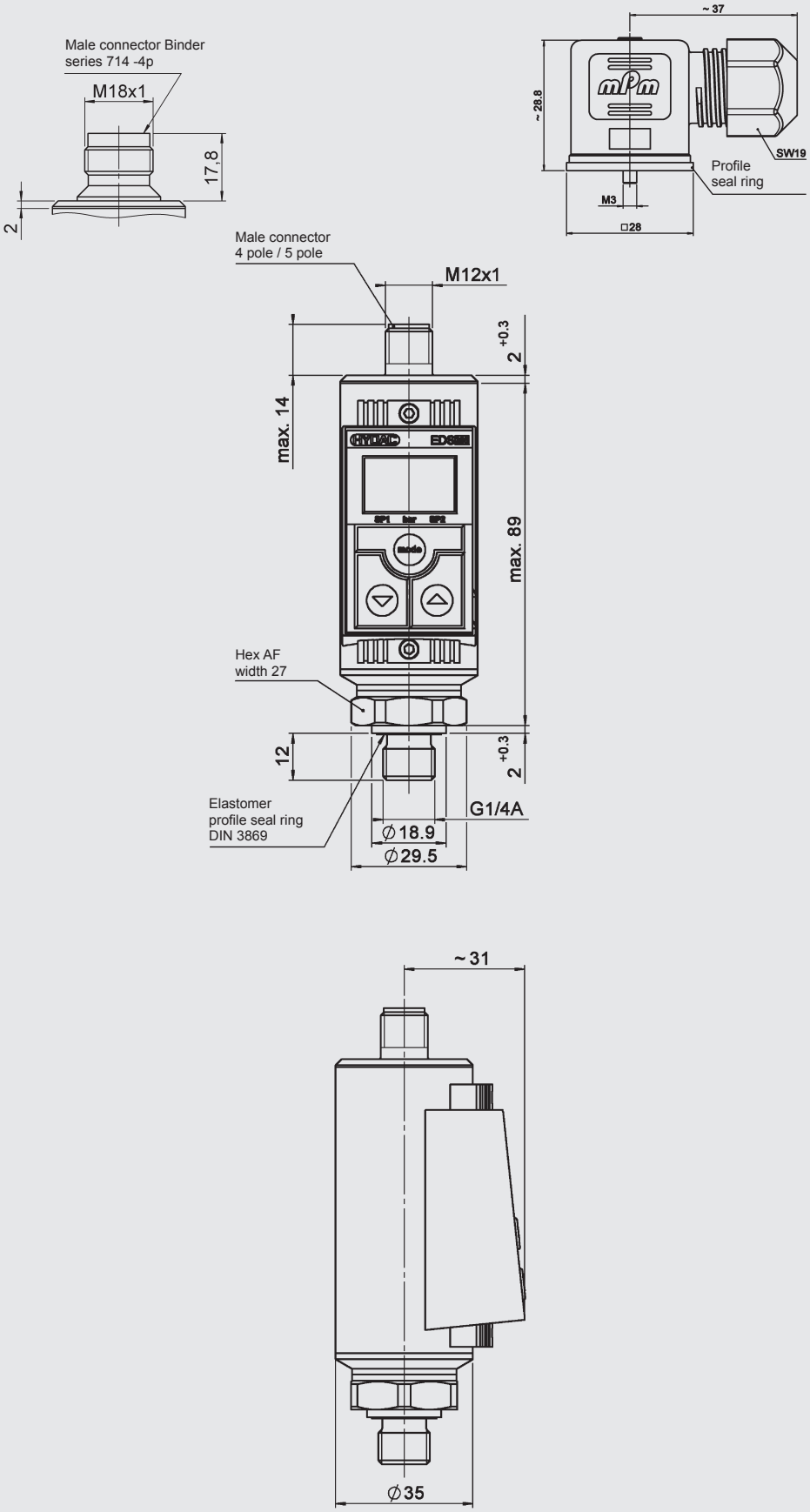

| Pin | EDS 346-1 | EDS 346-2 | EDS 346-3 |
|---|---|---|---|
| 1 | $+U_B$ | $+U_B$ | $+U_B$ |
| 2 | n.c. | SP2 | Analogue |
| 3 | 0 V | 0 V | 0 V |
| 4 | SP1 | SP1 | SP1 |

M12x1, 5 pole




| Pin | EDS 348-5 |
|---|---|
| 1 | $+U_B$ |
| 2 | Analogue |
| 3 | 0 V |
| 4 | SP1 |
| 5 | SP2 |

## Dimensions:


Male connector Binder
series 714 -4p
M18x1
17.8
2
~ 37
~ 28.8
SW19
Profile
seal ring
M3
□28
Male connector
4 pole / 5 pole
M12x1
2 +0.3
max. 14
max. 89
Hex AF
width 27
12
2 +0.3
Elastomer
profile seal ring
DIN 3869
G1/4A
⌀18.9
⌀29.5
~ 31
⌀35

## Model code:

**EDS 3 4 X – X – XXX – 000**

**Mechanical connection**
4 = G1/4 A ISO 1179-2

**Electrical connection**
4 = male, Binder series 714 M18, 4 pole
only possible on output models "2" and "3"
(mating connector not supplied)
5 = male, EN175301-803, 3 pole + PE
only possible on output model "1"
(mating connector supplied)
6 = male M12x1, 4 pole
only possible on output models "1", "2" and "3"
(mating connector not supplied)
8 = male M12x1, 5 pole
only possible on output model "5"
(mating connector not supplied)

**Output**
1 = 1 switching output
only in conjunction with electrical connection type "5" or "6"
2 = 2 switching outputs
only in conjunction with electrical connection type "4" or "6"
3 = 1 switching output and 1 analogue output
only in conjunction with electrical connection type "4" or "6"
5 = 2 switching outputs and 1 analogue output
only in conjunction with electrical connection type "8"

**Measuring ranges in bar**
016; 040; 100; 250; 400; 600

**Modification number**
000 = standard

**Accessories:**
Appropriate accessories, such as mating connectors, mechanical adapters, splash guards and clamps for wall-mounting etc, 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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