

## HYDAC INTERNATIONAL



### Electronic Pressure Switch EDS 3400

#### Description:

The EDS 3400 is a compact electronic pressure switch with integrated digital display for relative pressure measurement in the high-pressure range. The instrument has a stainless steel measurement cell with thin-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 3400 is that the display can be moved in two planes. The device can be installed in almost any 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 3400 is also available in a DESINA®-compliant version. The main applications of the EDS 3400 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  $\leq \pm 0.5\%$  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 planes (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:

|                                                          |                                                                                                                                  |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Input data</b>                                        |                                                                                                                                  |
| Measuring ranges                                         | 1000, 3000, 6000, 9000 psi                                                                                                       |
| Overload pressures                                       | 2900, 7250, 11600, 14500 psi                                                                                                     |
| Burst pressures                                          | 7250, 14500, 29000, 29000 psi                                                                                                    |
| Mechanical connection                                    | 9/16-18 UNF 2A (SAE 6 male)                                                                                                      |
| Torque value                                             | 15 lb-ft (20 Nm)                                                                                                                 |
| Parts in contact with medium                             | Mech. connection: Stainless steel<br>Seal: FPM (9/16-18 UNF 2A, SAE-6 male)                                                      |
| <b>Output data</b>                                       |                                                                                                                                  |
| Accuracy to DIN 16086,                                   | $\leq \pm 0.5\%$ FS typ.                                                                                                         |
| Max. setting (display, analog output)                    | $\leq \pm 1\%$ FS max.                                                                                                           |
| Repeatability                                            | $\leq \pm 0.25\%$ FS max.                                                                                                        |
| Temperature drift                                        | $\leq \pm 0.014\%$ /°F max zero point<br>$\leq \pm 0.014\%$ /°F max. range                                                       |
| <b>Analog output (optional)</b>                          |                                                                                                                                  |
| Signal                                                   | selectable:<br>4 .. 20 mA load resistance max. 500 $\Omega$<br>0 .. 10 V load resistance min. 1 k $\Omega$                       |
| <b>Switch outputs</b>                                    |                                                                                                                                  |
| Type                                                     | PNP transistor output                                                                                                            |
| Switching current                                        | max. 1.2 A                                                                                                                       |
| Switching cycles                                         | > 100 million                                                                                                                    |
| Reaction time                                            | < 10 ms                                                                                                                          |
| Long-term drift                                          | $\leq \pm 0.3\%$ FS typ. / year                                                                                                  |
| <b>DESINA® diagnostic signal (Pin 2)</b>                 |                                                                                                                                  |
| Function                                                 | OK: HIGH level / not OK: LOW level                                                                                               |
| Level                                                    | HIGH: approx. +U <sub>B</sub> / LOW: < +0.3 V                                                                                    |
| <b>Environmental conditions</b>                          |                                                                                                                                  |
| 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                                                                                                         |
| UL mark <sup>1)</sup>                                    | Certificate No. E318391                                                                                                          |
| Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz | $\leq 10$ g                                                                                                                      |
| Shock resistance to DIN EN 60068-2-29 (11 ms)            | $\leq 50$ g                                                                                                                      |
| Protection class to IEC 60529                            | IP 67                                                                                                                            |
| <b>Other data</b>                                        |                                                                                                                                  |
| Supply voltage                                           | 9 .. 35 V DC without analog output<br>18 .. 35 V DC with analog output                                                           |
| for use acc. to UL spec.                                 | - limited energy - according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950                                                |
| Current consumption                                      | max. 2.455 A total<br>max. 35 mA with inactive switching outputs<br>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 (Full Scale) = 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 3400 are grouped in 2 easy-to-navigate menus. In order to prevent unauthorized adjustment of the device, a programming lock can be set.

## Setting ranges for the switch outputs:

Switching point function

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

Window function

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

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

## Additional functions:

- Switching mode of the switching outputs are adjustable (switching point function or window function)
- Switching direction of the switching outputs are 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
- Optional analog output signal selectable 4 .. 20 mA or 0 .. 10 V
- Pressure can be displayed in the measurement units bar, psi, MPa. The scaling can also be adapted to indicate force, weight, etc.

## Model code:

EDS 3 4 X X - X - XXXX - 400

### Mechanical connection

7 = 9/16-18 UNF 2A (SAE 6 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 psi

1000, 3000, 6000, 9000

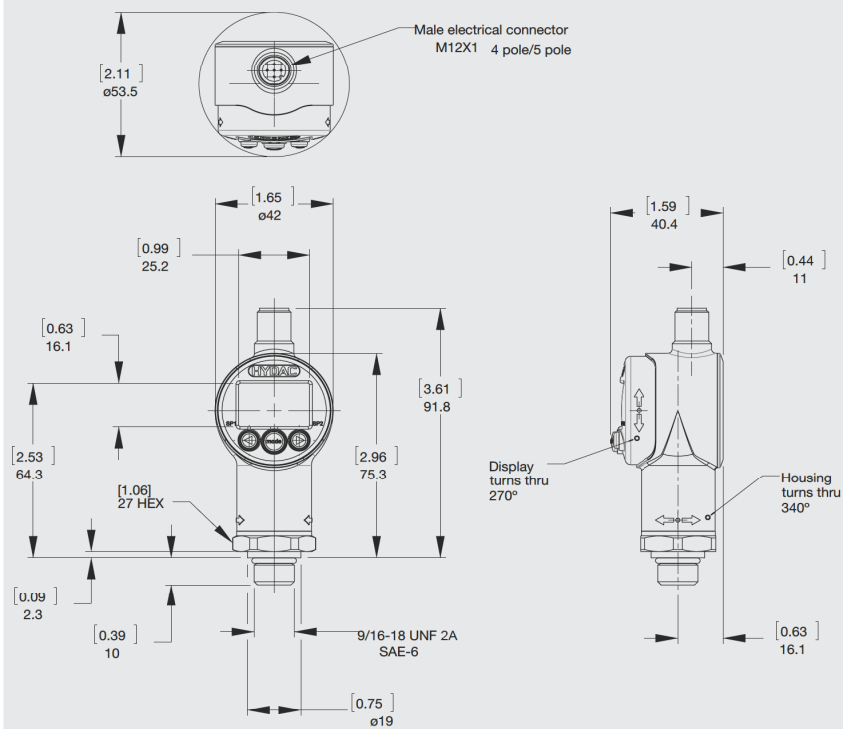
### Modification number

400 = Standard in psi

### Accessories:

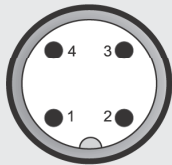
Appropriate accessories, such as electrical connectors, mechanical adapters, splash guards, clamps for wall-mounting etc can be found in the Accessories brochure.

Dimensions:



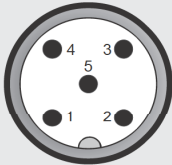
Pin connections:

M12x1, 4 pole



| Pin | EDS<br>34X6-1   | EDS<br>34X6-2   | EDS<br>34X6-3   |
|-----|-----------------|-----------------|-----------------|
| 1   | +U <sub>B</sub> | +U <sub>B</sub> | +U <sub>B</sub> |
| 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<br>34X8-5   |
|-----|-----------------|
| 1   | +U <sub>B</sub> |
| 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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