

HYDAC INTERNATIONAL

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Pressure Switch EDS 4300 Ex applications

Intrinsically Safe
ATEX approval
1 switching output



Description:

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

The switch point and switch-back point, the function of the switching outputs as N/C or N/O and the switching delay are user-programmable in conjunction with the HYDAC Programming Unit HPG 3000.

As with the industry model, the programmable EDS 4300 in ATEX version has a ceramic measurement cell with thick-layer strain gauge for measuring relative pressure in the low pressure range.

The main fields of application are in the oil and gas industry, in mining and in locations with high dust contamination.

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 1D | Ex iaD 20 T100 °C |

Technical data:

| Input data | | | | | | | | | |
|--|--|---|-----|----|----|----|--------|-----|-----|
| Measuring ranges | bar | 1 | 2.5 | 4 | 6 | 10 | 16 | 25 | 40 |
| Overload pressures | bar | 3 | 8 | 12 | 20 | 32 | 50 | 80 | 120 |
| Burst pressure | bar | 5 | 12 | 18 | 30 | 48 | 75 | 120 | 180 |
| Mechanical connection | G1/4 A ISO 1179-2 | | | | | | | | |
| Tightening torque, recommended | 20 Nm | | | | | | | | |
| Parts in contact with fluid | Sensor: Ceramic Mech. connection: 1.4301 Seal: FKM / EPDM (as per model code) | | | | | | | | |
| Output data | | | | | | | | | |
| Switching output | 1 transistor output: PNP Switching current: during operation: $I_{\max} \leq 34$ mA Switching cycles: > 100 million Switch point/hysteresis: user-programmable with HYDAC Programming Unit HPG 3000 Switch-on and switch-off delay: 8 .. 2000 ms; user-programmable with HYDAC Programming Unit HPG 3000 | | | | | | | | |
| Accuracy acc. to DIN 16086, terminal based | $\leq \pm 0.5$ % FS typ. $\leq \pm 1$ % FS max. | | | | | | | | |
| Temperature compensation | $\leq \pm 0.02$ % FS / °C typ. | | | | | | | | |
| Zero point | $\leq \pm 0.03$ % FS / °C max. | | | | | | | | |
| Temperature compensation | $\leq \pm 0.02$ % FS / °C typ. | | | | | | | | |
| Span | $\leq \pm 0.03$ % FS / °C max. | | | | | | | | |
| Repeatability | $\leq \pm 0.1$ % FS max. | | | | | | | | |
| Long-term drift | $\leq \pm 0.3$ % FS typ. / year | | | | | | | | |
| Environmental conditions | | | | | | | | | |
| Compensated temperature range | -25 .. +85 °C | | | | | | | | |
| Operation, ambient, fluid temperature range | T6: $T_a = -20 .. +60$ °C T5, T4, T100: $T_a = -20 .. +70$ °C | | | | | | | | |
| Storage temperature range | -40 .. +100 °C | | | | | | | | |
| CE mark | EN 61000-6-1 / 2 / 3 / 4 EN 60079-0 / 11 / 26 EN 61241-0 / 11 EN 50303 | | | | | | | | |
| Vibration resistance acc. to DIN EN 60068-2-6 at 10 .. 500 Hz | ≤ 20 g | | | | | | | | |
| Shock resistance acc. to DIN EN 60068-2-27 (1 ms) | ≤ 100 g | | | | | | | | |
| Protection class acc. to DIN EN 60529 ¹⁾ | IP 67 | | | | | | | | |
| Relevant data for Ex applications | | | | | | | | | |
| | I M1 II 1G, 1/2G, 2G | | | | | | II 1 D | | |
| Supply voltage | 14 .. 28 V DC | | | | | | | | |
| Max. input current | 100 mA | | | | | | 93 mA | | |
| Max. input power | 0.7 W | | | | | | 0.65 W | | |
| Max. internal capacity | 33 nF | | | | | | 33 nF | | |
| Max. internal inductance | 0 mH | | | | | | 0 mH | | |
| Insulation voltage to housing ²⁾ | 50 V AC, with integrated overvoltage protection acc. to 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 % | | | | | | | | |
| Weight | ~ 150 g | | | | | | | | |

Note: Reverse polarity protection of the supply voltage, overvoltage, override and short circuit protection are provided.

FS (Full Scale) = relative to complete measuring range

¹⁾ With mounted mating connector in corresponding protection class

²⁾ 500 V AC on request

Setting options:

In conjunction with the HYDAC Programming Unit HPG 3000, all the settings are combined in an easy-to-follow menu.

Setting ranges for the switching outputs:

| Measuring range in bar | Increment in bar |
|------------------------|------------------|
| 0 ... 1 | 0.002 |
| 0 ... 2.5 | 0.005 |
| 0 ... 4 | 0.01 |
| 0 ... 6 | 0.01 |
| 0 ... 10 | 0.02 |
| 0 ... 16 | 0.05 |
| 0 ... 25 | 0.1 |
| 0 ... 40 | 0.1 |

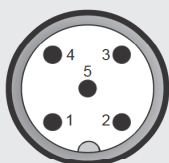
The switch point (upper switch value) on all instruments is between 5 % and 100 % of the measuring range and the switch-back point (lower switch value) is between 1 % and 96 % of the measuring range.

| | Minimum value in ms | Maximum value in ms |
|----------------------------|---------------------|---------------------|
| Switch-on delay Ton1/Ton2 | 8 | 2040 |
| Switch-off delay ToF1/ToF2 | 8 | 2040 |

The increment for all instruments is 8 ms.

Pin connections:

M12x1, 5 pole



| Pin | Process connection | HPG connection |
|-----|--------------------|-----------------|
| 1 | +U _B | +U _B |
| 2 | 0 V | Comport 1* |
| 3 | 0 V | 0 V |
| 4 | Out 1 | n.c. |
| 5 | 0 V | Comport 2* |

* Comport = programming connection

Fields of application:

| Code no. for use in model code | 1 | 2 | 3 | 8 |
|--------------------------------|---|--|---|--|
| 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 | | | |
| Application fields | Group I Category M1 Mining Protection type: intrinsically safe ia with barrier | Group II Category 1G Gases Protection type: intrinsically safe ia with barrier For use in Zone 0, 1, 2 | Group II Category 2G, 1/2G Gases Protection type: intrinsically safe ia with barrier For use in Zone 1, 2 For mounting to Zone 0 | Group II Category 1D Dusts Protection type: intrinsically safe ia with barrier For use in Zone 20, 21, 22 For mounting to Zone 20 |

Model code:

EDS 4 3 4 8 - XXXX - P - A N X - 000 - X 1

Mechanical connection

4 = G1/4 A ISO 1179-2

Electrical connection

8 = male M12x1, 5 pole
(mating connector not supplied)

Measuring ranges in bar

01.0; 02.5; 04.0; 06.0; 0010; 0016; 0025; 0040

Output technology

P = programmable

Approval

A = ATEX

Insulation voltage

N = 50 V AC to housing

Protection types and applications (code)

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

Modification number

000 = standard

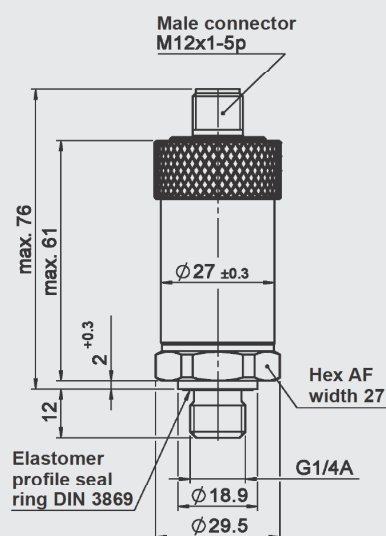
Sealing material (in contact with fluid)

F = FKM seal (e.g. for hydraulic oils)
E = EPDM seal (e.g. for refrigerants)

Connection material (in contact with fluid)

1 = stainless steel

Dimensions:



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.

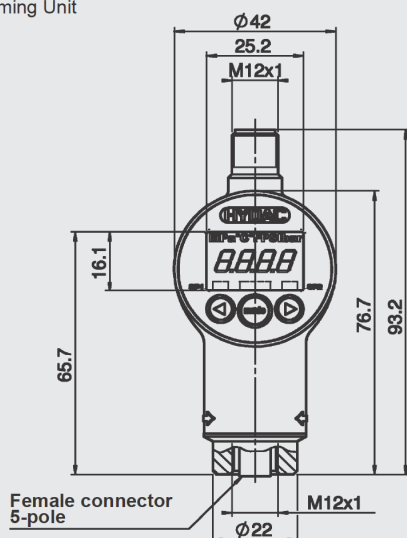
Subject to technical modifications.

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Programming Unit:

(to be ordered separately)

HPG 3000 – 000
Portable Programming Unit
Part No. 909422



Important note:

The HPG 3000 Programming Unit may only be used outside the explosion risk zone.

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EN 18.340.2/02.18

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