Pressure Switch
EDS 4400 Ex applications

Intrinsically Safe
ATEX approval
1 switching output

Description:

The programmable pressure switch EDS 4400 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 4400 in ATEX version has a measurement cell with thin-film strain gauge on a stainless steel membrane for measuring relative pressure in the high 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	60	100	250	400	600
Overload pressures	bar	120	200	500	800	1000
Burst pressure	bar	300	500	1000	2000	2000
Mechanical connection		G1/4 A ISO 1179-2				
Tightening torque, recommended		20 Nm				
Parts in contact with fluid		Stainless steel: 1.4542; 1.4571; 1.4435; 1.4404; 1.4301, 1.4548 Seal: FKM				
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		≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.				
Temperature compensation Zero point		≤ ± 0.02 % FS / °C typ. ≤ ± 0.03 % FS / °C max.				
Temperature compensation Span		≤ ± 0.02 % FS / °C typ. ≤ ± 0.03 % FS / °C max.				
Repeatability		≤ ± 0.1 % FS max.				
Long-term drift		≤ ± 0.3 % FS typ. / year				
Environmental conditions						
Compensated temperature range		-25 .. +85 °C				
Operation, ambient, fluid temperature range		T6: Ta = -20 .. +60 °C T5, T4, T100: Ta = -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 (**F**ull **S**cale) = 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 .. 60	0.1
0 .. 100	0.2
0 .. 250	0.5
0 .. 400	1
0 .. 600	1

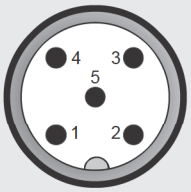
The switch point (upper switch value) on all instruments is between 5 % and 100 % of the measuring range and the switch-back point (lower switch value) is between 1 % and 96 % of the measuring range.

	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 4 4 8 – XXXX – P – A N X – 000

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

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

Measuring ranges in bar
0060; 0100; 0250; 0400; 0600

Output technology
P = programmable

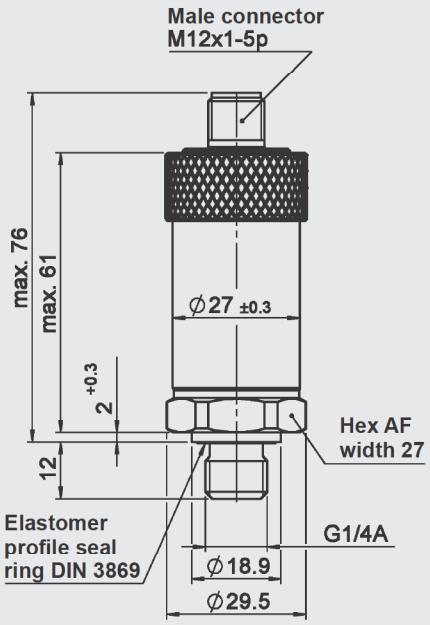
Approval
A = ATEX

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

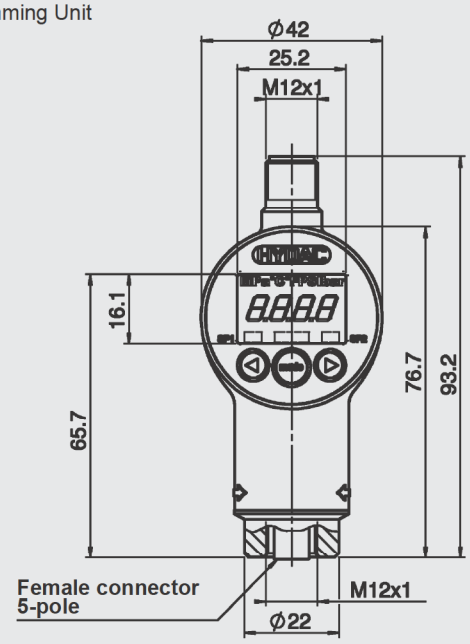
Dimensions:



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.

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.