

EDS 4100 Programmable Series Absolute Pressure Switch Intrinsically Safe with ATEX Approval



Applications



Description

The programmable pressure switch EDS 4100 in ATEX version, has been specially developed for use in potentially explosive atmospheres, and is based on the EDS 4000 series.

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

As with the industry model, the programmable EDS 4100 in ATEX version has a ceramic measurement cell with thick-film strain gauge for measuring absolute pressure in the low pressure range.

Special Features

- Switching point and switch-back point user-programmable
- Accuracy $\leq \pm 0.5\%$ BFSL
- Certificates:
DEKRA EXAM BVS 07 ATEX E 041 X
- Very small temperature error
- Excellent EMC characteristics
- Excellent long-term properties

Approvals

ATEX Approvals

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 T00°C

CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

Ex mark is a specific marking for explosive protection equipment

Technical Details

Sensor Specifications	
Measuring ranges - psi	15, 50
Overload pressure - psi	40, 150
Burst pressure - psi	70, 250
Mechanical connection	G1/4A DIN 3852 male (<i>bar ranges only</i>) 1/4"-18 NPT male (<i>psi ranges only</i>) other connections upon request
Tightening torque	G1/4: 15 lb-ft (20 Nm) 1/4" NPT: 30 lb-ft (40 Nm)
Parts in contact with media	Sensor: Ceramic Mechanical connection: Stainless steel Seal: FPM or EPDM
Accuracy (B.F.S.L.) including linearity, hysteresis, and repeatability	$\leq \pm 0.5\%$ BFSL.
Temperature compensation zero point	$\leq \pm 0.0085\%$ / °F typ. $\leq \pm 0.017\%$ / °F max.
Temperature compensation over range	$\leq \pm 0.0085\%$ / °F typ. $\leq \pm 0.017\%$ / °F max.
Long-term drift	$\leq \pm 0.3\%$ FS typ. / year
Life expectancy	10 million load cycles (0 to 100% FS)
Weight	Approximately 150 g
Switching Specifications	
Type	1 x PNP transistor output
Repeatability	$\leq \pm 0.1\%$ FS max.
Switching current	Max. 34 mA
Set point / reset point / NO / NC	Programmed using HPG 3000 Programming Unit
Switch on/off delay	8 to 2000 ms programmed using HPG 3000
Switching cycles	≥ 100 million
Environmental Condition	
Compensated temperature range	T6: -4° to 140°F T100: -4° to 185°F T4/T5: -4° to 158°F
Operating temperature range	T6: -4° to 140°F T100: -4° to 185°F T4/T5: -4° to 158°F
Ambient temperature	T6: -4° to 140°F T100: -4° to 185°F T4/T5: -4° to 158°F
Storage temperature range	-40° to 212°F
Media temperature range	T6: -4° to 140°F T100: -4° to 185°F T4/T5: -4° to 158°F
CE mark	EN 61000-6-1 / 2 / 3 / 4, EN 60079-0 / 11 / 26, IEC 61241-11
Vibration resistance to DIN EN 60068-2-6 at 10 to 500 Hz	$\leq 20g$
Environmental Protection	IP 67 (<i>M12x1, when an IP 67 connector is used</i>)
Electrical Specifications	
Supply voltage	14 to 28 VDC
Residual ripple supply voltage	$\leq 5\%$
	I M1 / II 1G, 1/2G, 2G II 1D
Max input current	100 mA 93 mA
Max input	0.7 W 0.65 W
Max capacitance of transmitter	33 nF 33 nF
Max inductance of transmitter	0 H 0 H
Isolation Voltage	125 VAC to housing (<i>standard</i>)
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard

Model Code

EDS 4 1 X 8 - XXXX - X - A X X - 000 - X1 (PSI)

Mechanical Connection

- 4 = G1/4A DIN 3852 male (bar ranges only)
- 8 = 1/4"-18 NPT (psi ranges only)
- Other connections upon request

Electrical Connection

- 8 = M12x1 plug, 5 pole (connector not included)

Pressure Range

- For EDS 4186 (1/4"-18 NPT only)
- 0015, 0050 psi

Switching Output

- P = Programmable

Approval

- A = ATEX (for details see description of approvals)

Isolation Voltage

- N = 125 VAC to housing (standard)

Types of Protection and Application Areas

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

Modification Number

- 000 = Standard

Seal Material

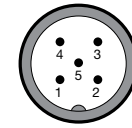
- F1 = FPM Seal (hydraulic oil)
- E1 = EPDM Seal (coolant, ammonia, water)

(psi)

psi version (Leave blank for bar version)

Pin Connections

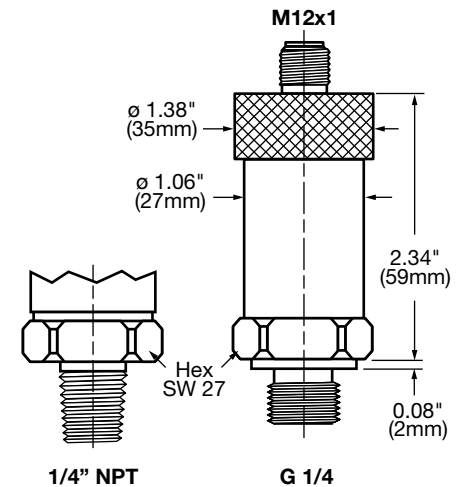
M12x1, 5 pole



Pin	Process Connection	HPG Connection
1	+U _B	+U _B
2	0 V	COM port 1
3	0 V	0 V
4	Out 1	nc
5	0 V	COM port 2

In process a 4 pole mating connector (e.g. ZBE 06) has to be used.

Dimensions



Adjustment Ranges

Set point in psi	5% to 100% of measuring ranges
Hysteresis in psi	1% to 96% of measuring ranges

Application Areas

Code Type Code	1	2	3	8
Protection class	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 number	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X
Zones / Categories	Group I Category M1 Mining Protection type: intrinsically safe ia with barrier	Group II Category 1G Gases Protection type: intrinsically safe ia with barrier Use in Zone 0 T4, T5: T _a = 70°C T6: T _a = 60°C	Group II Category 2G, 1/2G Gases Protection type: intrinsically safe ia with barrier Use in Zone 1, 2 Retrofit in Zone 0 T4, T5: T _a = 70°C T6: T _a = 60°C	Group II Category iD Dusts Protection type: intrinsically safe ia with barrier Use in Zone 20, 21, 22 Retrofit in Zone 20 T100: T _a = 85°C
Electrical Connection (see model code)	8	8	8	8

HPG 3000 Programming Unit

Manual available online
Part #00909422



ZBE 30-02

Part #06040851



HPG 3000 Power Supply with Connector

Part #02091103

EDS 4300 Programmable Series Low Pressure Transducer Intrinsically Safe with ATEX Approval



Applications



Description

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

The switching point and reset point, the function of the switching outputs as N/C or N/O and the switching delay are user programmable 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-film strain gauge for measuring relative pressure in the low pressure range.

Special Features

- Switching point and switch-back point user-programmable
- Accuracy $\leq \pm 0.5\%$ BFSL
- Certificates:
DEKRA EXAM BVS 07 ATEX E 041 X
- Very small temperature error
- Excellent EMC characteristics
- Excellent long-term properties

Approvals

ATEX Approvals

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 T00°C

CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

Ex mark is a specific marking for explosive protection equipment

Technical Details

Sensor Specifications		
Measuring ranges - psi	15, 50, 100, 150, 250, 500	
Overload pressure - psi	45, 150, 290, 450, 725, 1500	
Burst pressure - psi	70, 250, 400, 650, 1000, 2500	
Mechanical connection	G1/4A DIN 3852 male (<i>bar ranges only</i>) 1/4"-18 NPT male (<i>psi ranges only</i>) other connections upon request	
Tightening torque	G1/4: 15 lb-ft (20 Nm) 1/4" NPT: 30 lb-ft (40 Nm)	
Parts in contact with media	Sensor: Ceramic Mechanical connection: Stainless steel Seal: FPM or EPDM	
Accuracy (B.F.S.L.) including linearity, hysteresis, and repeatability	$\leq \pm 0.5\%$ BFSL.	
Temperature compensation zero point	$\leq \pm 0.0085\%$ / °F typ.	$\leq \pm 0.017\%$ / °F max.
Temperature compensation over range	$\leq \pm 0.0085\%$ / °F typ.	$\leq \pm 0.017\%$ / °F max.
Long-term drift	$\leq \pm 0.3\%$ FS typ. / year	
Life expectancy	10 million load cycles (0 to 100% FS)	
Weight	Approximately 150 g	
Switching Specifications		
Type	1 x PNP transistor output	
Repeatability	$\leq \pm 0.1\%$ FS max.	
Switching current	Max. 34 mA	
Set point / reset point / NO / NC	Programmed using HPG 3000 Programming Unit	
Switch on/off delay	8 to 2000 ms programmed using HPG 3000	
Switching cycles	≥ 100 million	
Environmental Condition		
Compensated temperature range	T6: -4° to 140°F T4/T5: -4° to 158°F	T100: -4° to 185°F
Operating temperature range	T6: -4° to 140°F T4/T5: -4° to 158°F	T100: -4° to 185°F
Ambient temperature	T6: -4° to 140°F T4/T5: -4° to 158°F	T100: -4° to 185°F
Storage temperature range	-40° to 212°F	
Media temperature range	T6: -4° to 140°F T4/T5: -4° to 158°F	T100: -4° to 185°F
CE mark	EN 61000-6-1 / 2 / 3 / 4, EN 60079-0 / 11 / 26, IEC 61241-11	
Vibration resistance to DIN EN 60068-2-6 at 10 to 500 Hz	$\leq 20g$	
Environmental protection	IP 67 (M12x1, when an IP 67 connector is used)	
Electrical Specifications		
Supply voltage	14 to 28 VDC	
Residual ripple supply voltage	$\leq 5\%$	
	I M1 / II 1G, 1/2G, 2G	II 1D
Max input current	100 mA	93 mA
Max input	0.7 W	0.65 W
Max capacitance of transmitter	33 nF	33 nF
Max inductance of transmitter	0 H	0 H
Isolation voltage	125 VAC to housing (<i>standard</i>)	
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard	

Model Code

EDS 4 3 X 8 - XXXX - X - A X X - 000 - X1 (PSI)

Mechanical Connection

- 4 = G1/4A DIN 3852 male (bar ranges only)
- 8 = 1/4"-18 NPT (psi ranges only)
- Other connections upon request

Electrical Connection

- 8 = M12x1 plug, 5 pole (connector not included)

Pressure Range

- EDS 438X (1/4"-18 NPT only)
- 0015, 0050, 0100 0150, 0250, 0500 psi

Switching Output

- P = Programmable

Approval

- A = ATEX (for details see description of approvals)

Isolation Voltage

- N = 125 VAC to housing (standard)

Types of Protection and Application Areas

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

Modification Number

- 000 = Standard

Seal Material

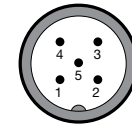
- F1 = FPM Seal (hydraulic oil)
- E1 = EPDM Seal (coolant, ammonia, water)

(psi)

psi version (Leave blank for bar version)

Pin Connections

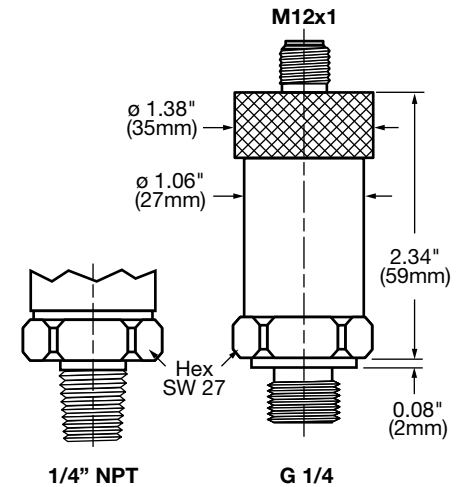
M12x1, 5 pole



Pin	Process Connection	HPG Connection
1	+U _B	+U _B
2	0 V	COM port 1
3	0 V	0 V
4	Out 1	nc
5	0 V	COM port 2

In process a 4 pole mating connector (e.g. ZBE 06) has to be used.

Dimensions



Adjustment Ranges

Set point in psi	5% to 100% of measuring ranges
Hysteresis in psi	1% to 96% of measuring ranges

Application Areas

Code Type Code	1	2	3	8
Protection class	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 number	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X
Zones / Categories	Group I Category M1 Mining Protection type: intrinsically safe ia with barrier	Group II Category 1G Gases Protection type: intrinsically safe ia with barrier Use in Zone 0 T4, T5: T _a = 70°C T6: T _a = 60°C	Group II Category 2G, 1/2G Gases Protection type: intrinsically safe ia with barrier Use in Zone 1, 2 Retrofit in Zone 0 T4, T5: T _a = 70°C T6: T _a = 60°C	Group II Category iD Dusts Protection type: intrinsically safe ia with barrier Use in Zone 20, 21, 22 Retrofit in Zone 20 T100: T _a = 85°C
Electrical Connection (see model code)	8	8	8	8

HPG 3000 Programming Unit

Manual available online
Part #00909422



ZBE 30-02

Part #06040851



HPG 3000 Power Supply with Connector

Part #02091103

EDS 4400 Programmable Series High Pressure Transducer with Medium Accuracy Intrinsically Safe with ATEX Approval



Applications



Description

The programmable electronic pressure switch EDS 4400 in ATEX version, has been specially developed for use in potentially explosive atmospheres, and is based on the EDS 4000 series.

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

As with the industry model, the programmable EDS 4400 in ATEX version has a stainless steel measurement cell with thin-film strain gauge for measuring relative pressure in the high pressure range.

Special Features

- Switching point and switch-back point user-programmable
- Accuracy $\leq \pm 0.5\%$ BFSL
- Certificates:
DEKRA EXAM BVS 07 ATEX E 041 X
- Very small temperature error
- Excellent EMC characteristics
- Excellent long-term characteristics

Approvals

ATEX Approvals

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 T00°C

CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

Ex mark is a specific marking for explosive protection equipment

Technical Details

Sensor Specifications	
Measuring ranges - psi	1000, 3000, 6000, 9000
Overload pressure - psi	2900, 7250, 11600, 14500
Burst pressure - psi	7250, 14500, 29000, 29000
Adjustment pressure range - psi	Min 50, 75, 150, 300, 450 Max 980, 1470, 2940, 5880, 8820
Mechanical connection	G1/4A DIN 3852 male (<i>bar ranges only</i>) SAE 6 9/16-18 UNF 2A (<i>psi ranges only</i>) other connections upon request
Tightening torque	15 lb-ft (20 Nm)
Parts in contact with media	Sensor: Stainless steel 1.4542 Mechanical connection: Stainless steel 1.4542, 1.4301, 1.4435, 1.4571, 1.4404, 316L, 304 Seal: FPM (SAE 6, G1/4)
Accuracy (B.F.S.L.) including linearity, hysteresis, and repeatability	$\leq \pm 0.5\%$ BFSL.
Temperature compensation zero point	$\leq \pm 0.0085\%$ / °F typ. $\leq \pm 0.017\%$ / °F max.
Temperature compensation over range	$\leq \pm 0.0085\%$ / °F typ. $\leq \pm 0.017\%$ / °F max.
Long-term drift	$\leq \pm 0.3\%$ FS typ. / year
Life expectancy	10 million load cycles (0 to 100% FS)
Weight	Approximately 150 g
Switching Specifications	
Type	1 x PNP transistor output
Repeatability	$\leq \pm 0.1\%$ FS max.
Switching current	Max. 34 mA
Set point / reset point / NO / NC	Programmed using HPG 3000 Programming Unit
Switch on/off delay	8 to 2000 ms programmed using HPG 3000
Switching cycles	≥ 100 million
Environmental Condition	
Compensated temperature range	T6: -4° to 140°F T100: -4° to 185°F T4/T5: -4° to 158°F
Operating temperature range	T6: -4° to 140°F T100: -4° to 185°F T4/T5: -4° to 158°F
Ambient temperature	T6: -4° to 140°F T100: -4° to 185°F T4/T5: -4° to 158°F
Storage temperature range	-40° to 212°F
Media temperature range	T6: -4° to 140°F T100: -4° to 185°F T4/T5: -4° to 158°F
CE mark	EN 61000-6-1 / 2 / 3 / 4, EN 60079-0 / 11 / 26, IEC 61241-11
Vibration resistance to DIN EN 60068-2-6 at 10 to 500 Hz	$\leq 20g$
Environmental Protection	IP 67 (M12x1, when an IP 67 connector is used)
Electrical Specifications	
Supply voltage	14 to 28 VDC
Residual ripple supply voltage	$\leq 5\%$
	I M1 / II 1G, 1/2G, 2G II 1D
Max input current	100 mA 93 mA
Max input	0.7 W 0.65 W
Max capacitance of transmitter	33 nF 33 nF
Max inductance of transmitter	0 H 0 H
Isolation voltage	125 VAC to housing (<i>standard</i>)
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard

Model Code

EDS 4 4 X 8 - XXXX - X - A X X - 000 (PSI)

Mechanical Connection

- 4 = G1/4A DIN 3852 male (bar ranges only)
 - 7 = SAE 6 9/16-18 UNF2A (psi ranges only)
- Other connections upon request

Electrical Connection

- 8 = M12x1 plug, 5 pole (connector not included)

Pressure Range

- For EDS 447X (SAE 6 9/16-20 only)
- 1000, 3000, 6000, 9000 psi

Switching Output

- P = Programmable

Approval

- A = ATEX (for details see description of approvals)

Isolation Voltage

- N = 125 VAC to housing (standard)

Types of Protection and Application Areas

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

Modification Number

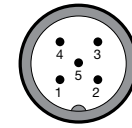
- 000 = Standard

(psi)

psi version (Leave blank for bar version)

Pin Connections

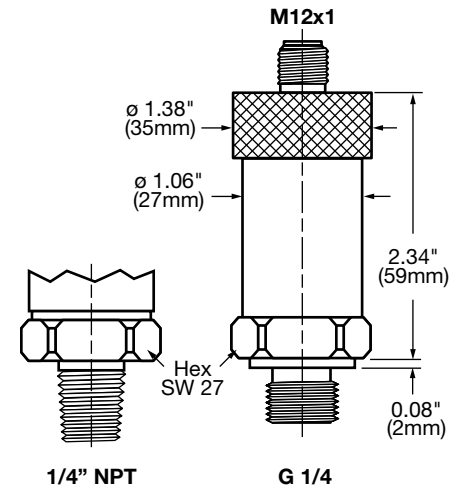
M12x1, 5 pole



Pin	Process Connection	HPG Connection
1	+U _B	+U _B
2	0 V	COM port 1
3	0 V	0 V
4	Out 1	nc
5	0 V	COM port 2

In process a 4 pole mating connector (e.g. ZBE 06) has to be used.

Dimensions



Adjustment Ranges

Set point in psi	5% to 100% of measuring ranges
Hysteresis in psi	1% to 96% of measuring ranges

Application Areas

Code Type Code	1	2	3	8
Protection class	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 number	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X
Zones / Categories	Group I Category M1 Mining Protection type: intrinsically safe ia with barrier	Group II Category 1G Gases Protection type: intrinsically safe ia with barrier Use in Zone 0 T4, T5: T _a = 70°C T6: T _a = 60°C	Group II Category 2G, 1/2G Gases Protection type: intrinsically safe ia with barrier Use in Zone 1, 2 Retrofit in Zone 0 T4, T5: T _a = 70°C T6: T _a = 60°C	Group II Category iD Dusts Protection type: intrinsically safe ia with barrier Use in Zone 20, 21, 22 Retrofit in Zone 20 T100: T _a = 85°C
Electrical Connection (see model code)	8	8	8	8

HPG 3000 Programming Unit

Manual available online
Part #00909422



ZBE 30-02

Part #06040851



HPG 3000 Power Supply with Connector

Part #02091103