

Pressurized Enclosure system

FS830

Ex pzc- system for zones 2 and 22
ATEX / IECEx



Properties of the Ex pzc- System

- Flexible, compact Ex pzc- system with separate outlet vent, mounting in hazardous area, Zones 2 and 22
- Approvals
 - BVS 15 ATEX E 048 X
 - IECEX BVS 15.0037 X
- Ex- protection:
 - II 3G Ex ec nC ic [pzc] IIC T5/T6 Gc
 - II 3D Ex tc ic [pzc] IIIB/IIIC T85°C Dc
- Mounting of the control unit FS830 and vent LA830 directly in the cabinet wall
- Easy and fast installation of the vent LA830 (Similar to mounting of a cable gland M40)
- Two free programmable output relay contacts (250V / 5A)
- Solenoid valve fuse mounted inside the FS830 for easy exchange
- Proportional pressure measurement with high overpressure safety (no membrane switches)
- Visualization of operation status, cabinet pressure, remaining purge time and failure states via integrated LC- display
- Selectable menu language: German, English, French, Spanish, Dutch
- Input for passive contacts: Bypass, External alert or External thermostat

Description

The use of pressurized enclosures allows the operation of 'non explosion protected' standard devices inside hazardous areas.

The protection type 'pressurization' (Ex p) is based on the principle of keeping a constant cabinet pressure with a protective purge gas, to prevent the hazardous area from entering the cabinet.



The pressurized enclosure system F830 is featured with a flexible system configuration with separate installation of the inlet valve, outlet valve and control unit.

The inlet valve (solenoid valve SVD.L) and the outlet valve (LA830) can be mounted at various places at the pressurized cabinet.

The control unit FS830 can be integrated user-friendly directly into the cabinet wall.

In case of higher flow rates during the purging phase, multiple outlet valves LA830 can be installed to shorten the purge time.

Due to the integrated spark barrier inside the LA830, the purge air can leave the cabinet directly into the hazardous area.

The control unit FS830 can be connected from the inside of the Ex pzc- housing without the need of additional cable glands or tube connections.

If no pre-purging is required within an application the solenoid valve (SVD.L) can be replaced by the adjustable leakage compensation nozzle SD840.

The nozzle SD840 is also used for dust- Ex, Zone 22 applications.

Technical Details

		Ex pzc- control unit FS830
General	Mounting	Inside hazardous area, Zone 2 / 22
	Ex protection class	II 3G - Ex ec nC ic [pzc] IIC T6 Gc II 3G - Ex ec nC ic [pzc] IIC T5 Gc II 3D - Ex tc ic [pzc] IIIB T85°C Dc II 3D - Ex tc ic [pzc] IIIC T85°C Dc
	Certificates	BVS 15 ATEX E 048 X, IECEx BVS 15.0037 X
	Ambient temperature	-20°C ...+40°C at T6 -20°C ...+60°C at T5
Housing	Dimensions	H x W x D: 120 mm x 80 mm x 20 mm
	Material	Aluminum, powder-coated, RAL 7035
	Protection	IP65 (front sided)
Electrical specifications	Supply voltage	AC: 100 – 230V; 48 ..62 Hz +/- 10% DC: 24V +/- 10%
	Power consumption	approx. 2 VA, without solenoid valve
	Signal contacts terminals 1-4 (potential free)	U _m = 250V AC, I _m = 5 A at AC1, P _m = 1500VA U _m = 250V AC, I _m = 1,2 A at AC15, P _m = 300VA U _m = 30V DC; I _m = 4 A at DC1, P _m = 150W
	Solenoid valve connection terminals 5/6	Output voltage is equal to supply voltage, protected by internal fuse
Ex terminals	Min. and Max. clamping torque	min. 0,4 Nm max. 0,5 Nm
	Min. and Max. wire cross-section	stiff: 0,2 – 2,5 mm ² flexible: 0,2 – 2,5 mm ²
Pneumatic	Pressure range	standard: 0 ... 22 mbar / extended: 0 ... 27 mbar
	Air quality	Pressurized air, class 533 according to ISO 8573-1 = Solids 40µm (class 5) / Dew point -20°C (class 3) / Oil 1 mg/m ³ (class 3)

Flow rate table, dependent on supply pressure and nozzle diameter

The table below shows the inflow rate, depending on the supply pressure and nozzle diameter

Pre pressure [bar] [10 ⁵ Pa]	Flow rate [l/s] ρ _{air} = 1,293 kg/m ³									
	Nozzle diameter [mm]									
	0,3	0,5	0,7	1	1,5	2	3	4	5	6
1,5	0,027	0,076	0,149	0,305	0,686	1,220	2,745	4,880	7,625	10,980
2	0,034	0,094	0,184	0,375	0,844	1,501	3,376	6,002	9,378	13,505
2,5	0,039	0,109	0,213	0,434	0,977	1,736	3,907	6,945	10,852	15,627
3	0,044	0,121	0,238	0,486	1,093	1,944	4,373	7,775	12,148	17,494
3,5	0,048	0,133	0,261	0,533	1,199	2,131	4,795	8,524	13,319	19,180
4	0,052	0,144	0,282	0,576	1,296	2,303	5,182	9,213	14,395	20,729
4,5	0,055	0,154	0,302	0,616	1,386	2,463	5,542	9,853	15,396	22,170

Dimensions (x [mm], if not indicated differently)

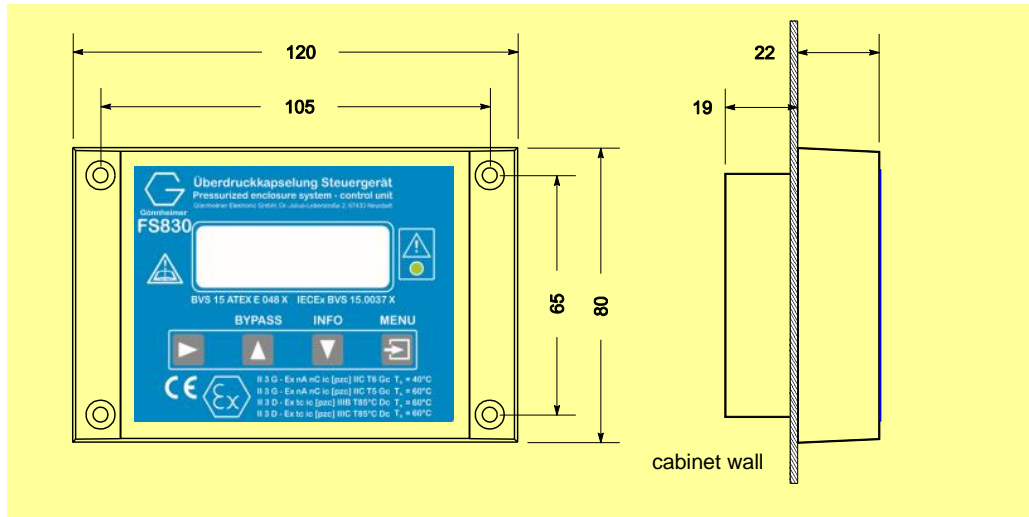


Figure 1:
Dimension FS830

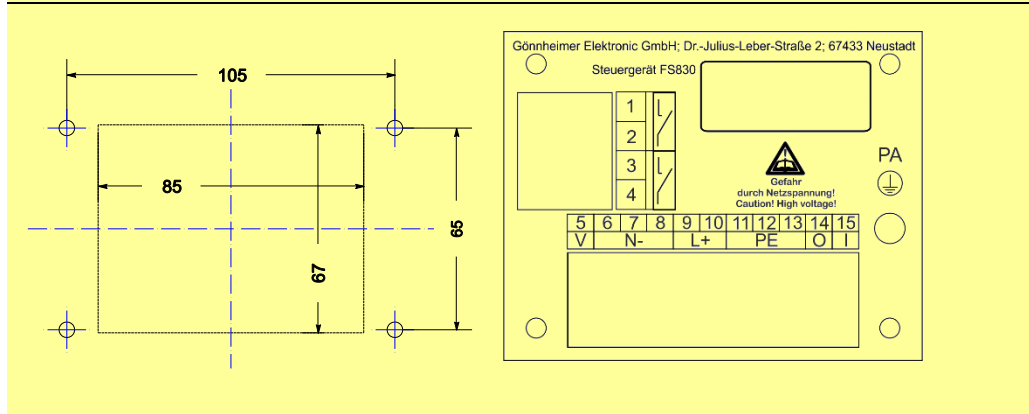


Figure 2:
Cutout dimensions
FS830

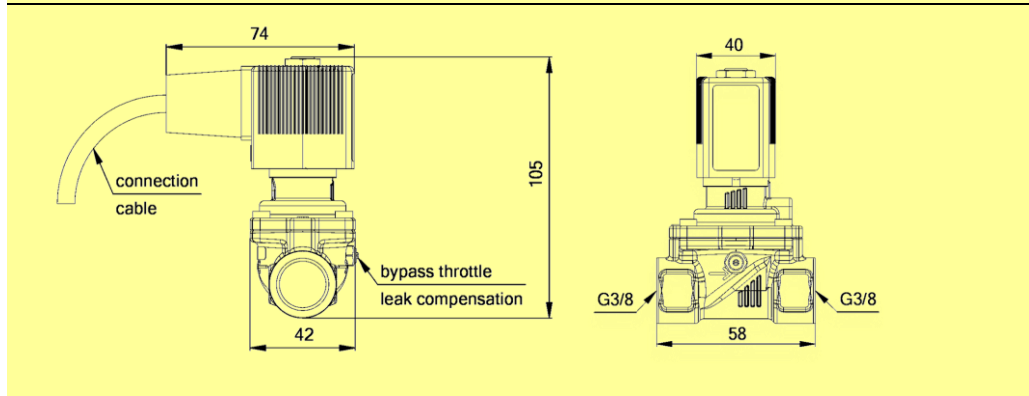


Figure 3: solenoid valve
SVD.L.x-Alxx

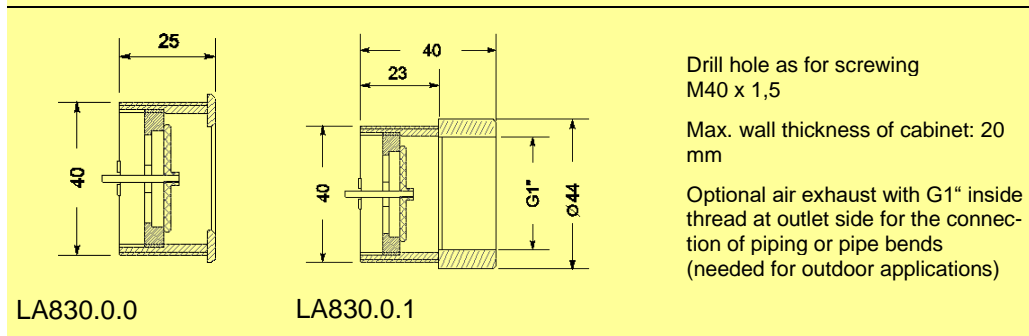


Figure 4: Dimension
LA830

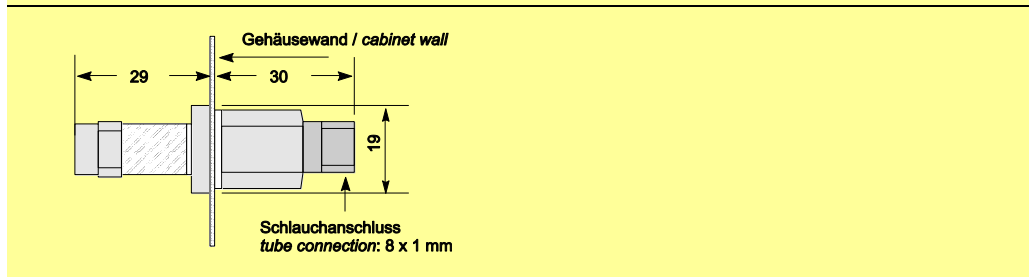
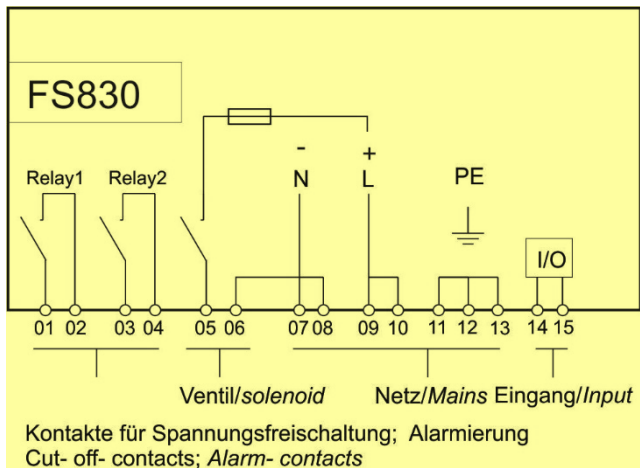


Figure 5:
Sinter metal throttle
SD840



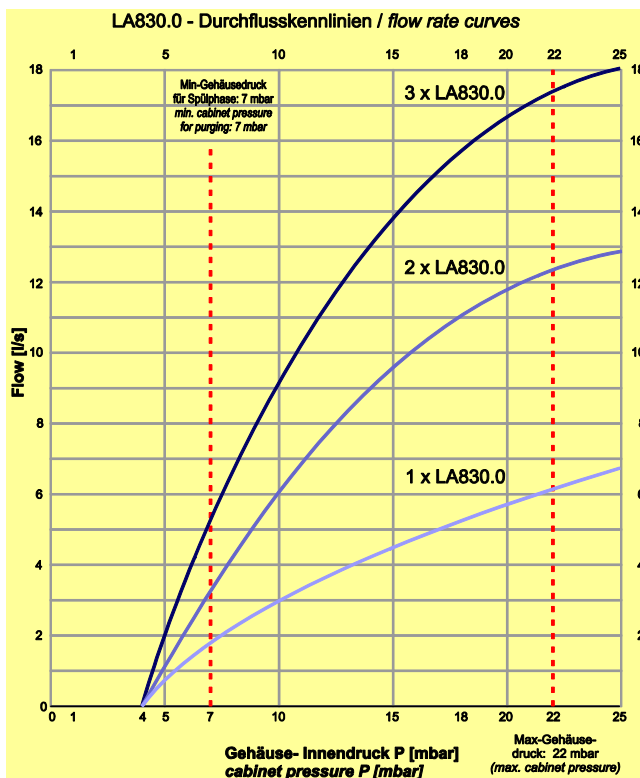
Block diagram



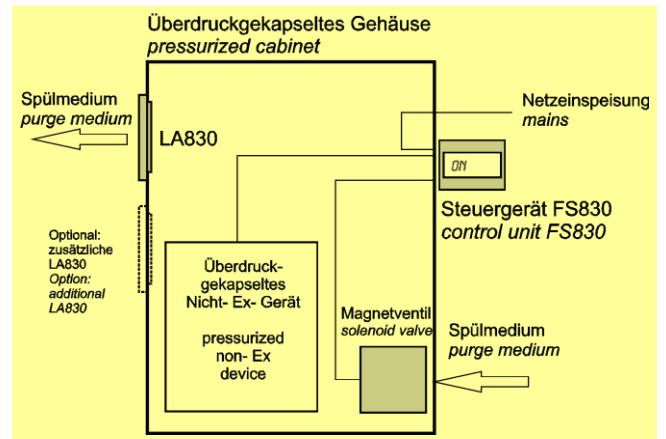
Electrical diagram of the FS830

Flow chart

The diagram shows the relationship between the pressure inside the enclosure and the resulting flow rate. The diagram is only valid, without input or output sided reductions (like flow reducing pipes, etc.)



Application



Pressurization system FS830 / LA830

Type designation

- Control unit FS830

Control unit	FS830	.	.
Mains voltage:			
24 V DC .....		.6	
100-230 V AC .....		.8	
Pressure measurement range:			
Standard 0 - 22 mbar .....		.0	
Extended 0 - 27 mbar .....		.1	

Further pressure ranges on demand

- Solenoid valve SVD.L.x-

Solenoid valve: SVD.L	.	AI	0
Inner diameter / nozzle:			
2 mm .....	.2		
3 mm .....	.3		
4 mm .....	.4		
n mm .....	.n		
Scope:			
ATEX / IECEx	-AI		
Mains voltage:			
230 V AC	0		
110-120 V AC	3		
24 V DC	6		

- Air exhaust LA830

Air exhaust	LA830	.	.
Size:			
Diameter 40 mm .....	.0		
Type:			
Standard .....	.0		
G1"- Inside thread (for outdoor applications e.g. with elbow) .....	.1		

Fixing nut and gasket in scope of delivery

- Adjustable sinter metal nozzle SD840.0



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Zertifiziertes
Qualitäts-
Managementsystem
nach
DIN EN ISO 9001

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