Gönnheimer
Elektronic GmbH

Simplified Pressurized Enclosure system

F830

II 3 GD, Ex pz / pD (Zone 2, 22)
EN 60079 – 2
TÜV 03 ATEX 2095 X

Properties of the pz / pD- System

- Flexible, compact Ex pz- system with separate outlet vent, mounting in hazardous area, Zone 2, 22
- Approvals
  - EN 60079 – 2 (pz / pD)
  - ATEX: TÜV 03 ATEX 2095 X
- Ex- protection:
  - II 3 G Ex nA nC ic [pz] IIC T6/T5 Gc
  - II 3 D Ex tc ic [p] IIIC/IIIB T85 °C Dc
- Mounting of the control unit FS830 and vent LA830 directly into 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

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 compact control unit FS830 can be integrated user-friendly direct 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 pz- housing without the need of additional cable glands or tube connections.

In some applications, the Ex- protection by a simplified pressurization system allows an operation without pre- purging of the cabinet.

Thereby 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

		Control unit FS830
General	Mounting	Inside hazardous area, Zone 2 / 22
	Ex-protection class	II 3 G, Ex nA nC ic [pz] IIC T6 Gc -20°C ≤ TA ≤ 40°C II 3 G, Ex nA nC ic [pz] IIC T5 Gc -20°C ≤ TA ≤ 60°C II 3 D, Ex tc ic [p] IIIC/IIIB T85 °C Dc -20°C ≤ TA ≤ 60°C
	EC- type certificate	TÜV 03 ATEX 2095 X
	Ambient temperature	-20°C ...+40°C at T6 -20°C ...+60°C at T5
	Humidity	5-95 %, non-condensing
Housing	Dimensions	H x W x D: 120 mm x 80 mm x 20 mm
	Material	Aluminum, powder coated, RAL 7035
	Potection class	IP65 (front sided)
Electrical specifications	Main voltage	AC: 115V, 230V - 48..62 Hz DC: 24V
	Power consumption	~ 2 VA, without solenoid valve
	Working circuits Terminals1-4, potential free	U_m = 250VAC, I_m = 5A at AC1, P_m = 1500VA U_m = 250VAC, I_m = 1,2A at AC15, P_m = 300VA U_m = 30V DC; I_m = 4A at DC1, P_m = 150W
	Solenoid valve (terminals 5 / 6)	Output voltage equal to main voltage, protected by internal fuse
	Max. wire diameter	2,5 mm²
Pneumatic	Pressure range	0 ... 22 mbar
	Air quality	Pressurized air, class 533 according to ISO 8573-1 = particles 40µm (class 5) / dew-point -20°C (class 3) / oil 1 mg/m³ (class 3)
Ex p Configuration	Parameter input	LC-Display, menu guided Different languages : German, English, French, Spanish, Dutch
	Memory	EEPROM, double saved with 32- bit checksum

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] [10^5Pa]	Flow rate [l/s] ρ_{Luft} = 1,293 kg/m³									
	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)

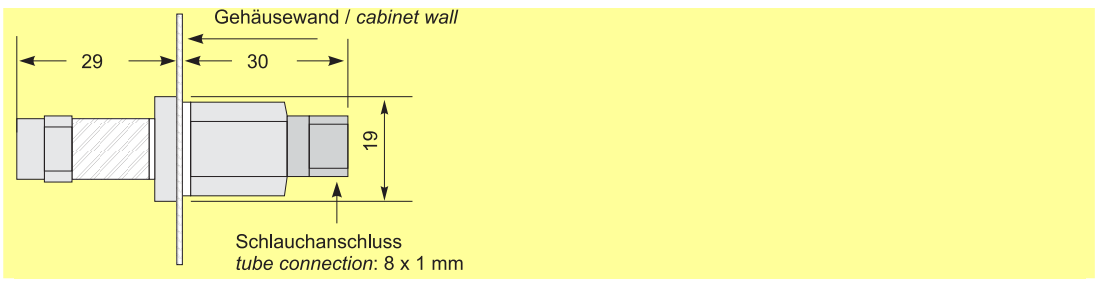


Figure 1:
Sinter metal nozzle SD840

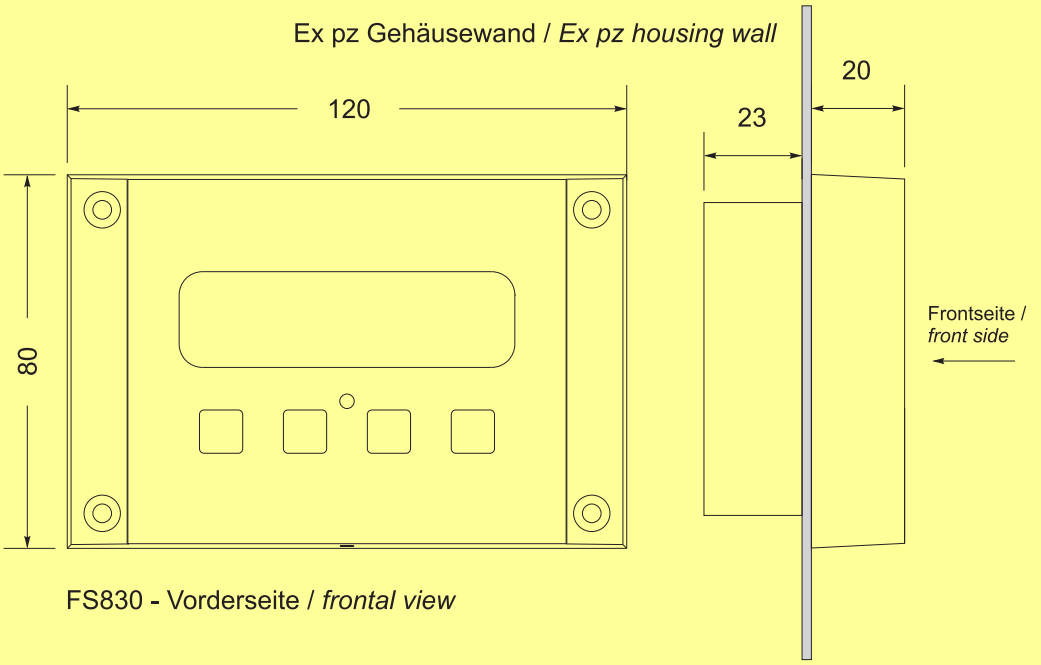
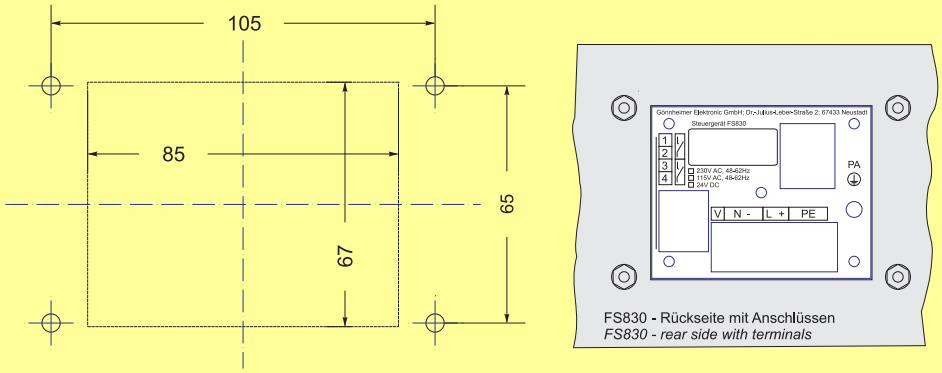


Figure 2:
Dimensions FS830



FS830 – cut-out dimensions

Figure 3:
cut out FS830

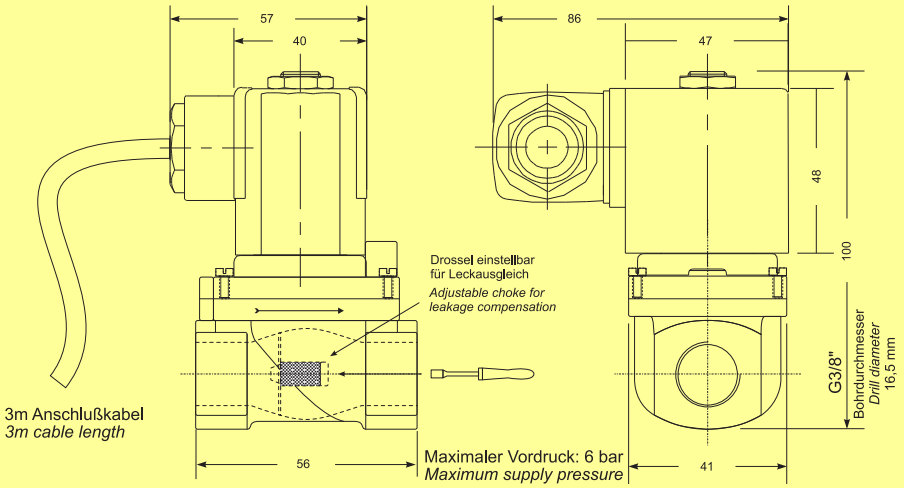
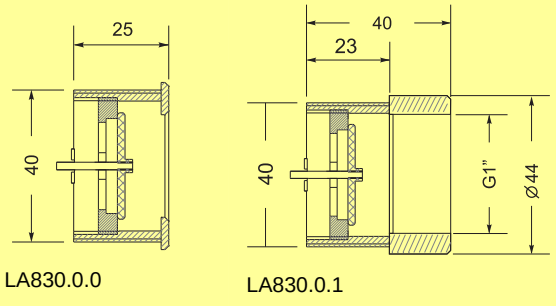


Figure 4:
solenoid valve
SVD.L.x



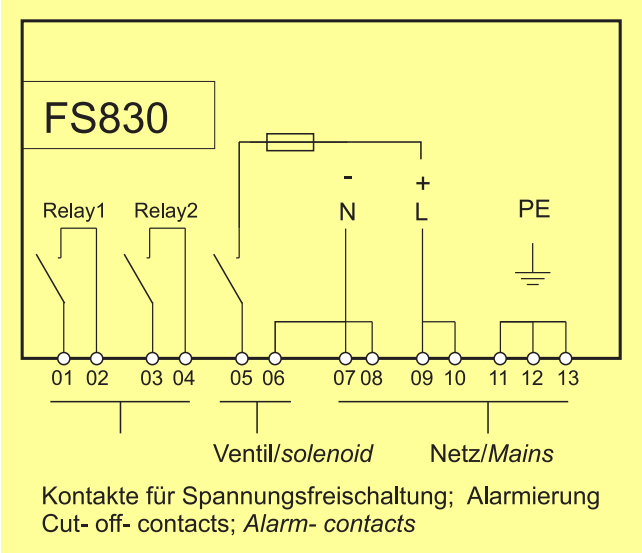
Mounting similar to cable gland M40 x 1,5

Max. cabinet wall thickness: 20 mm

Optional: Vent LA830.x.1 with G1“ inside thread for connection of tubes or elbows at the output side. (necessary for all outdoor applications)

Figure 5:
Dimensions
Vent LA830

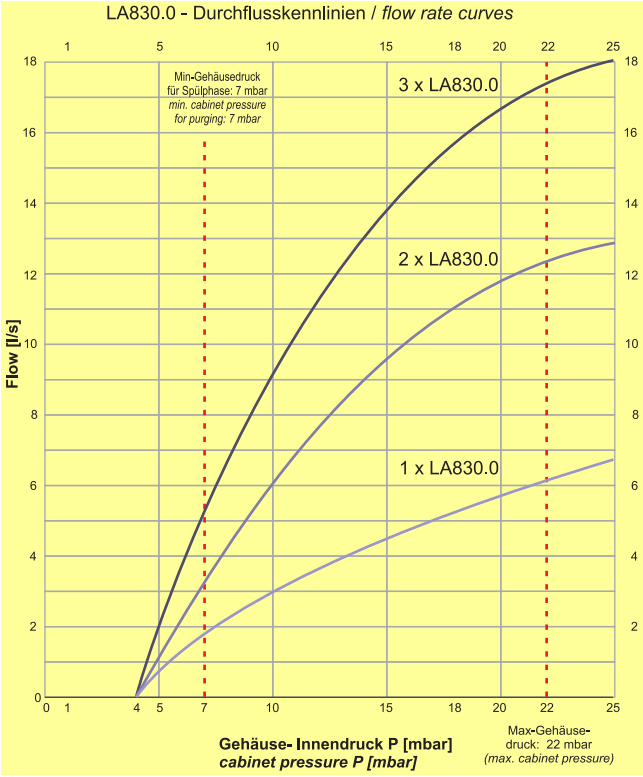
Block diagram



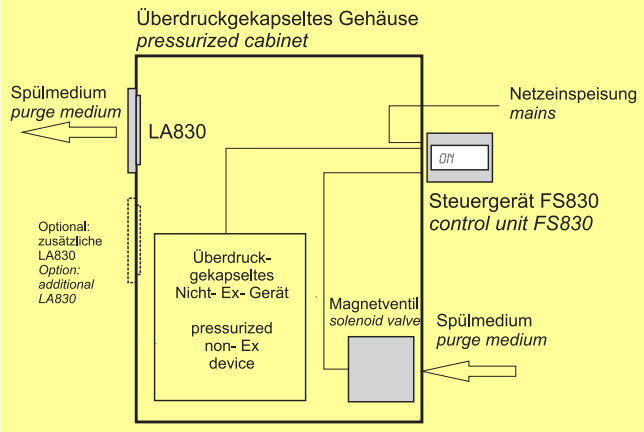
Electrical Block diagram FS830

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



Simplified pressurization system **FS830** / **LA830**

Type code

- Control unit FS830

Control unit	**FS830**	.	.
Mains:			
230 V AC		**.0**	
115V AC		**.2**	
24 V DC		**.6**	
Pressure measuring range:			
Standard 0 - 22 mbar			**.0**

Further ranges on demand

- Solenoid valve SVD.L.x

Solenoid valve:	**SVD.L**	.	**-A**	.	**.0**
Inner diameter / nozzle:					
2 mm		**.2**			
3 mm		**.3**			
4 mm		**.4**			
n mm		**.n**			
Scope					
Europe (ATEX)			**-A**		
Mains					
230V AC				**.0**	
115V AC				**.2**	
24 V DC				**.6**	

- Outlet valve / vent LA830

Vent LA830	.	.
Size:		
Diameter 40 mm	**.0**	
Type:		
Standard		**.0**
G1" inside thread (for outdoor applications e.g. with elbow pipe)		**.1**

Fixing nut and gasket in scope of delivery

- Adjustable sinter metal nozzle **SD840**

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