

Pressurized Enclosure System F860S

X-Purge system
 In accordance to;
 EN 60079-2:2005
 Standard purging rates >100m³/h
 DMT 99 ATEX E 003
 IECex BVS 12.0033

Characteristics

Compact system, mounting inside hazardous area or inside Ex p-Enclosure

ATEX certified

- Ex p- function test according to EN 60079-2:2005
- Safety standards fulfils EN 954-1, Cat.3
- II 2 G, Ex em [ib] IIC T6

Ambient temperature:

- -20°C...+50°C at T6
- -20°C...+60°C at T4

Menu guided programmable operation modes:

- Leakage compensation ⇔ Continuous flow
- Digital solenoid valve ⇔ Proportional solenoid valve

Ex p- system with patented proportional pressure and flow measurement:

- No ageing membrane switches, no screws or potentiometer to adjust pressure or flow thresholds or purging time

High availability because of regulated pressure and proportional valve:

- High service reliability because of constant pressure
- No waste of purge medium, just the minimum quantity to hold the cabinet pressure is needed
- Increasing leakage caused by e.g. enclosure ageing is balanced and therefore system failure will be prevented
- Almost no flow noise and only a small protective gas consumption using a solid enclosure



Purging with pressure regulation:

- No overload pressure sensitive enclosure parts, like membrane switch panels or windows
- Exact measurement of purge volume by integration of the outlet-sided gas flow.

Display:

- Menu navigation and messages in clear text
- Online messages for operation and failure states
- Permanent pressure and flow monitoring
- Available Languages: German, English, French, Spanish, Dutch

Description:

The FS860S is designed for applications in which large volumes have to be purged within a short time. Main applications are e.g. enclosures of electrical machines (motors) as well as large control cabinets. The 2 inch-technology allows purging rates of 33 litres per second ($\sim 120 \text{ m}^3/\text{h}$) at low pressure levels inside the Ex p- housing.

Optionally the FS860S can be designed for a pressure range up to 27 mbar, which enables purging rates beyond $120 \text{ m}^3/\text{h}$. It is the first compact electronic purging system, which is able to realize these high purging quantities, with only one (single) integrated output. Thereby the FS860S represents a modern and compact alternative to obsolete pneumatically working purging systems.

The integration of proportionally working valve technology (known from the FS850S) makes the 2 inch-system singular in its purging rate class:

- Pressure regulated purging phase
- Integration of flow while purging
- Pressure regulated normal operation phase with minimum purging gas consumption

Optionally the system can be combined with digitally working inlet valves or blower (fan) compression. The security level of the FS860S corresponds to the category 3 (EN 954-1). This level is required for all devices inside the Ex zone 1 and 21 compliant to IEC 60079-2 !

Occurring errors lead to a direct alerting at the LC- display. Additionally, alarm inputs for external safety chains as well as an optional, programmable reporting output are implemented.

Technical details

		Control unit FS860S
General	Mounting	Inside Hazardous Area (Zone 1/21)
	Device group	II 2 G / D
	Ingress protection	IP65 (without regard of outlet opening)
	EC- type examination certificate	DMT 99 ATEX E 003
Housing	Dimensions	H x W x D: 220 mm x 232 mm x 111 mm
	Material	Aluminium, painted / RAL 7035
Electrical specifications	Mains	24VDC; 24VAC; 110VAC, 120VAC, 220VAC, 230VAC AC: 48...62Hz
	Power consumption	ca. 2,5VA (without peripherals)
	Working circuits Terminal 11, 12, 13, 14	AC: $U \leq 250\text{VAC}$ $I \leq 5\text{A}$, $\cos \varphi > 0,7$ DC: $U \leq 30\text{VDC}$ $I \leq 5\text{A}$ $P \leq 150\text{W}$
	Control circuits Terminal 1..10	Ex protection class: intrinsically safe Ex ib IIC see declaration of conformity for further details (DMT 99 ATEX E 003)
Pneumatics	Pressure range	0 ... 18 mbar [hPa] Optional: 0...27mbar
	Flow rate range	Depending on orifice plate, see table below
Mounting	Ambient temperature	-20°C ... +45°C at T6 -20°C ... +60°C at T4
	Humidity	5-95%, non-condensing
Ex p-configuration	Parameter input	LC-Display, menu guided Different languages: German, English, French, Spanish, Dutch

Fuse Solenoid Valve

(Ex- version)			nominal	Order.Nr.
U _{Nominal}	SVP.12	SVD.X	100 mA	SI850.0
			160mA	SI850.1
			200 mA	SI850.2
230 VAC, 220 VAC	100mA	100mA	315 mA	SI850.3
			500 mA	SI850.4
120 VAC, 110 VAC	200 mA	160mA	630 mA	SI850.5
			1000 mA	SI850.6
24 VAC, 24 VDC	1,0 A	630mA	1600 mA	SI850.7
			2000mA	SI850.8

Flow rates using SVD.L.X

Depending on prepressure and effectively nozzle

x mm	Flow [l/s]		
	2 bar	4 bar	6 bar
6 mm	13,5	20,7	26,6
8 mm	24,0	36,8	46,3
10 mm	37,5	57,5	72,3

Flow span of the orifice plates

plate orifice	Flow	
	l/s	m³/h
25	8- 18	29- 64
30	13- 33	46- 120

Type codes

• Control unit FS860S

Control unit FS860S		
Mains:	230 VAC.....	.0
	120 VAC	.2
	110 VAC	.3
	24 VDC	.6
Orifice plate:	25 mm	.25
	30 mm	.30

Additional orifice plates and flow rates on demand

• Solenoid valves

Proportional working solenoid valve SVP	.12
Prepressure 0,5.. 6 bar	
Digital working solenoid valve SVD	.x
Nozzle: 6 mm	.6
8 mm	.4
10 mm	.10

• Operation panels

Operation panel	BT
Intelligent operation panel, Ex ib IIC T6, for flush mounting	BT851.0
with IP65 housing	BT851.5
Operation panel, Ex ib IIC T6, for flush mounting	BT854.0
with key switch	BT854.1
Operation panel, Ex ib IIC T6, with IP65 housing	BT855.0
with key switch	BT855.1

Application

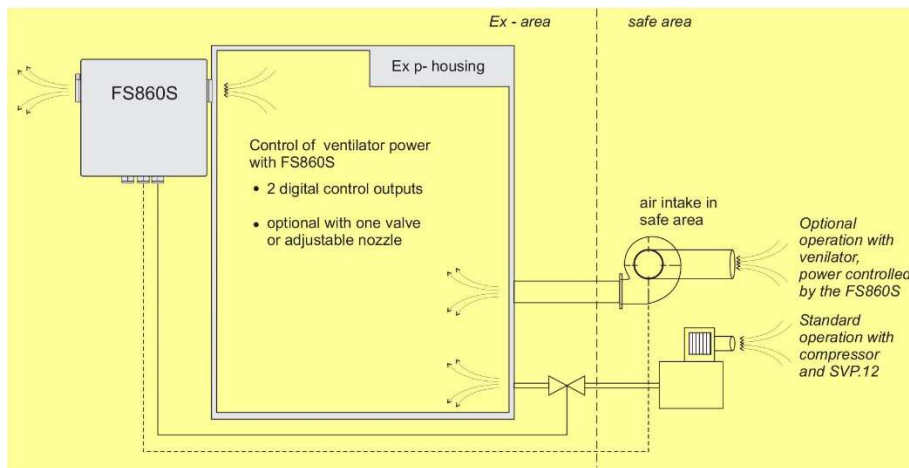


Figure 1:
Application

Block diagram

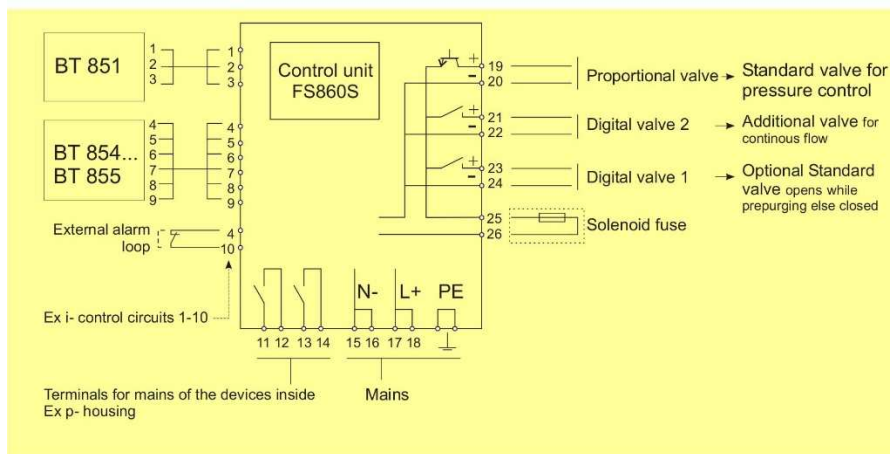


Figure 2:
Electrical Block diagram

Examples for mounting

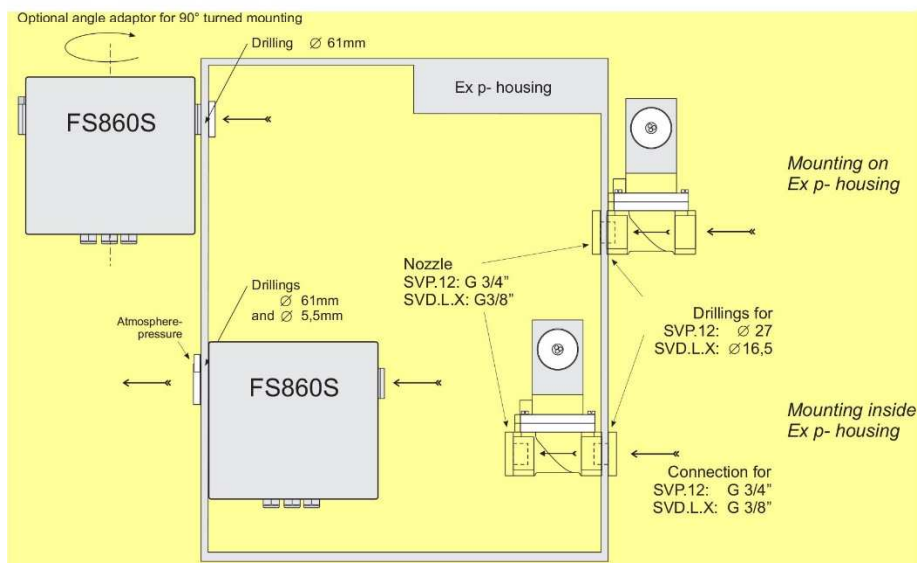


Figure 3:
Examples for mounting

Dimensions

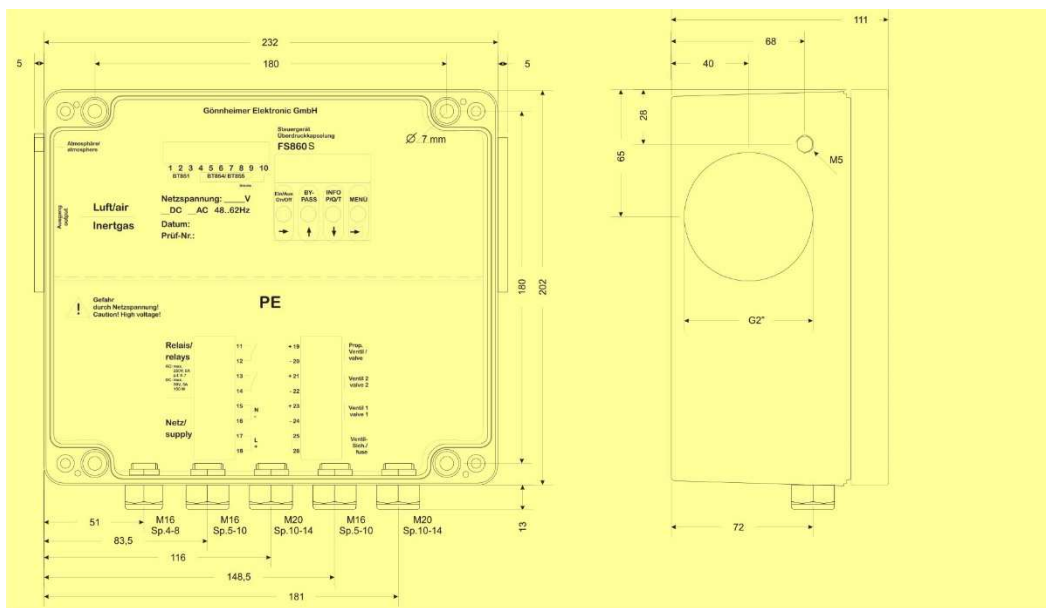


Figure 4:
Dimensions
FS860S [mm]

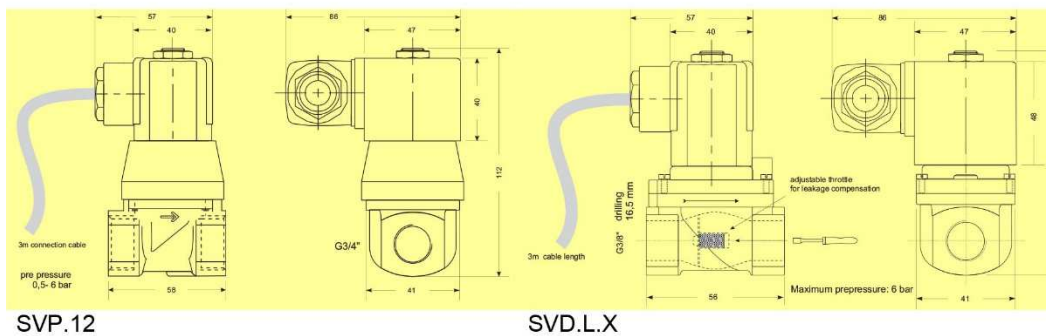


Figure 5:
Dimensions
Solenoid
valves [mm]

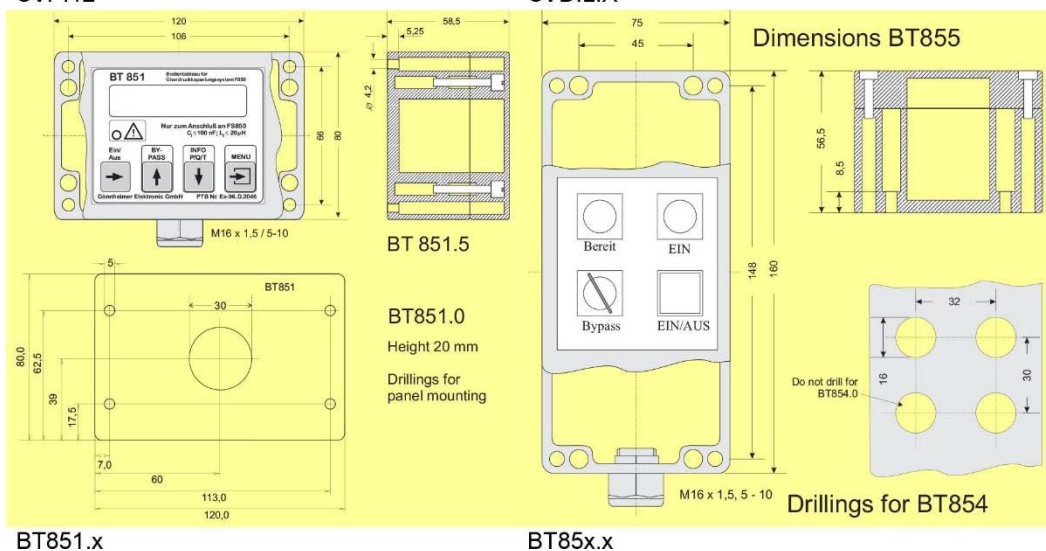


Figure 6:
Dimensions
Operator
panels [mm]