

Pressurized Enclosure-system FS860S

Ex p-system for zone 1, 2
ATEX and IECEx
SIL 2 - safety level
Standard purge rates > 100 m³/h



Characteristics

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

Short purge time due to large throughput volume

Ex-protection

- Ex px system for zones 1, 2
Ex device group II 2 G
- BVS 06 ATEX E 088
- IECEx BVS 12.0033

Operating modes programmable

- Leakage compensation or continuous flow
- Digital valve or proportional valve

Ex p system with proportional pressure and flow sensors

- No membrane switches, no screws or potentiometers for setting pressure and flow switching points or purging times

High availability due to controlled overpressure and proportional valve

- High operational safety due to constant Ex p enclosure pressure
- No purge medium is wasted as only the required quantity is supplied
- Prevents sudden system shutdown due to age-related increase in the leakage rate of the Ex p housing
- Very low operating costs with a sealed housing, practically no flow noise during operation

Purging with pressure control

- Prevents overloading of sensitive housing parts, such as membrane keypads
- Purging volume is measured by integrating the discharge volume

Proportional valve technology for continuous purging mode

- Prevents overloading and risk of bursting of the Ex p enclosure in the event of faults at the outlet openings

Intrinsically safe control panel BT851

- Enables remote operation and visualization of the operating status of the Ex p system
- Connection cable for controlling FS860S requires only 3 wires



Visualisation

- Online reporting of operating and error statuses in plain text
- System information such as pressure or flow rate can be called up on the display at any time
- Menu navigation and messages in plain text
- Language selectable: German, English, French, Spanish, Dutch

Connection specifications

- 2-pole potential-free switching contacts
- Switching capacity: 250 V~, 5A, cos phi > 0.7
- Intrinsically safe interfaces available for other safety-relevant sensors
- Replaceable valve fuse integrated in the FS860S control unit - no separate Ex e fuse box required
- Certified spark and particle barrier allows the purge air to escape directly into the hazardous area

High safety standard

- Approved functional safety SIL 2 in accordance with IEC 61508
- Alarm on LC display in case of occurring errors

Description

The FS860S was developed for applications in which large volumes have to be purged in a short time. The 2" technology makes it possible to achieve purging rates of up to 33 liters per second (approx. 120 m³/h) at a low pressure level in the Ex p housing.

Technical data

		Control unit FS860S
General	Mounting	inside hazardous area
	Ex protection	II 2G Ex e mb [ib] [px] IIC T4/T6 Gb or Ex eb mb [ib] [pxb] IIC T4/T6
	Ambient temperature	standard: -20°C ...+45°C at T6 and -20°C ...+60°C at T4
	Ex- certificates	BVS 06 ATEX E 088 / IECEx BVS 12.0033
Housing	Dimensions	H x W x D: 202 mm x 232 mm x 111 mm
	Material	Aluminium, powder-coated, RAL 7035
	Enclosure protection	IP65 (without consideration of the outlet opening)
	Purge gas inlet and outlet	G2" - inside- thread
	Tightening torque for cable glands and their cap nuts	M16 x 1,5, cable diameter 5-10 mm : 3 Nm M16 x 1,5, cable diameter 4-8 mm : 2 Nm M20 x 1,5, cable diameter 10- 14 mm : 4,5 Nm
Electrical specifications	Connection voltages [V]	24VDC, 24VAC, 110VAC, 120VAC, 220VAC, 230VAC +/- 10% AC: 48 ...62 Hz
	Power consumption	approx. 2,5 VA without external load
	Working circuits terminal 11, 12, 13,14	AC: U ≤ 250VAC, I ≤ 5A bei cos φ > 0,7 DC: U ≤ 30 VDC, I ≤ 5 A, P ≤ 150 W
	Ex i control circuits	see EC type examination certificate
Ex e terminals	Min. and max. tightening torque	min. 0,4 Nm max. 0,5 Nm
	Min. and max. wire cross-sections	rigid: 0,2 – 2,5 mm ² flexible: 0,2 – 2,5 mm ²
Pneumatic	Pressure range	standard: 0...18 mbar optional 0... 27 mbar
	Flow measuring range	depending on measuring orifice
Mounting	Installation position	position freely selectable, care should be taken to ensure that the purge air inlet and outlet are on a horizontal axis
	Relative humidity	5-95 %, non-condensing
	Air quality	Class 533 compressed air according to ISO 8573-1 = solids 40µm (class 5) / dew point -20°C (class 3) / oil quality 1 mg/m ³ (class 3)
Configuration	Parameter input	via menu navigation on LC display, language selectable: German, English, French, Spanish, Dutch
Functional Safety	SIL characteristics	HFT = 1 device category 3 PFH = 170 FIT SIL 2

Inflow into the Ex p- housing; SVD.L.x

Depending on inlet pressure and effective nozzle

Nozzle	Inflow [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 measuring range of the orifices

Orifice	Measuring range	
	l/s	m ³ /h
25	8- 20	29- 72
30	13- 33	46- 120

Type code

- Control unit FS860S

Control unit FS860S		
Mains voltage:	230 VAC.....	.0
	110 - 120 VAC2
	24 VDC6
Orifice plate:	25 mm25
	30 mm30

Other orifice plates and flow rates on request

- Purge valves

Proportionally operating purge valve SVP Pre-pressure 0,5.. 6 bar	.12
Digitally operating purge valve SVD	.x
Nozzle: 6 mm6
8 mm8
10 mm10

- Control panel

Control panel	BT
Intelligent Control panel, Ex ib IIC T6, for front installation	BT851.0
in surface-mounted housing IP65	BT851.5

Block diagram

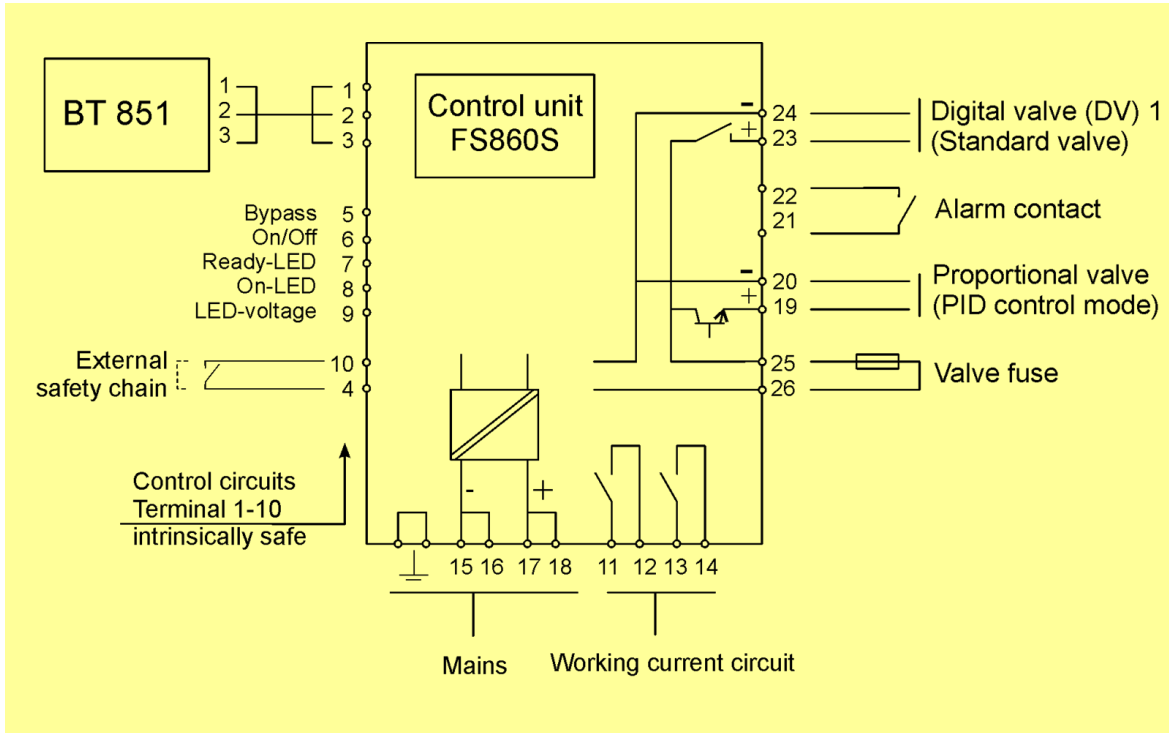


Figure 1:
Electrical
block diagram

Installation examples

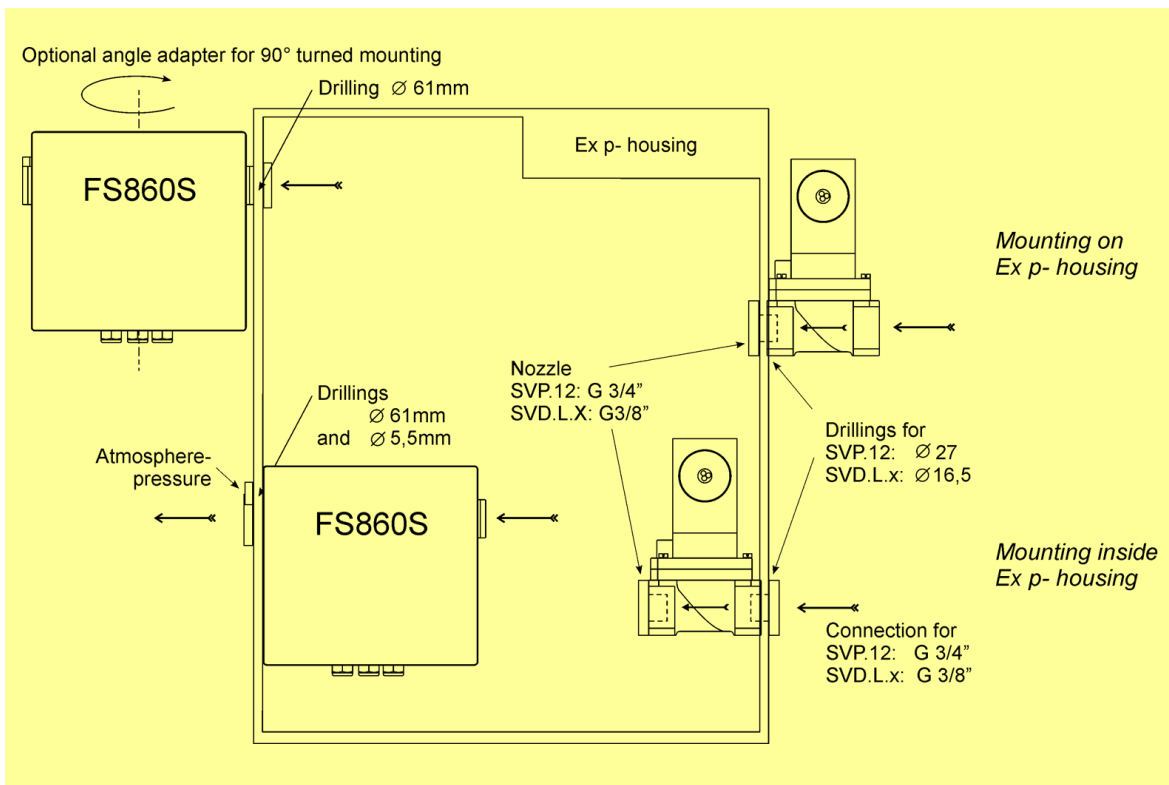


Figure 2:
Installation
examples

Dimension drawing

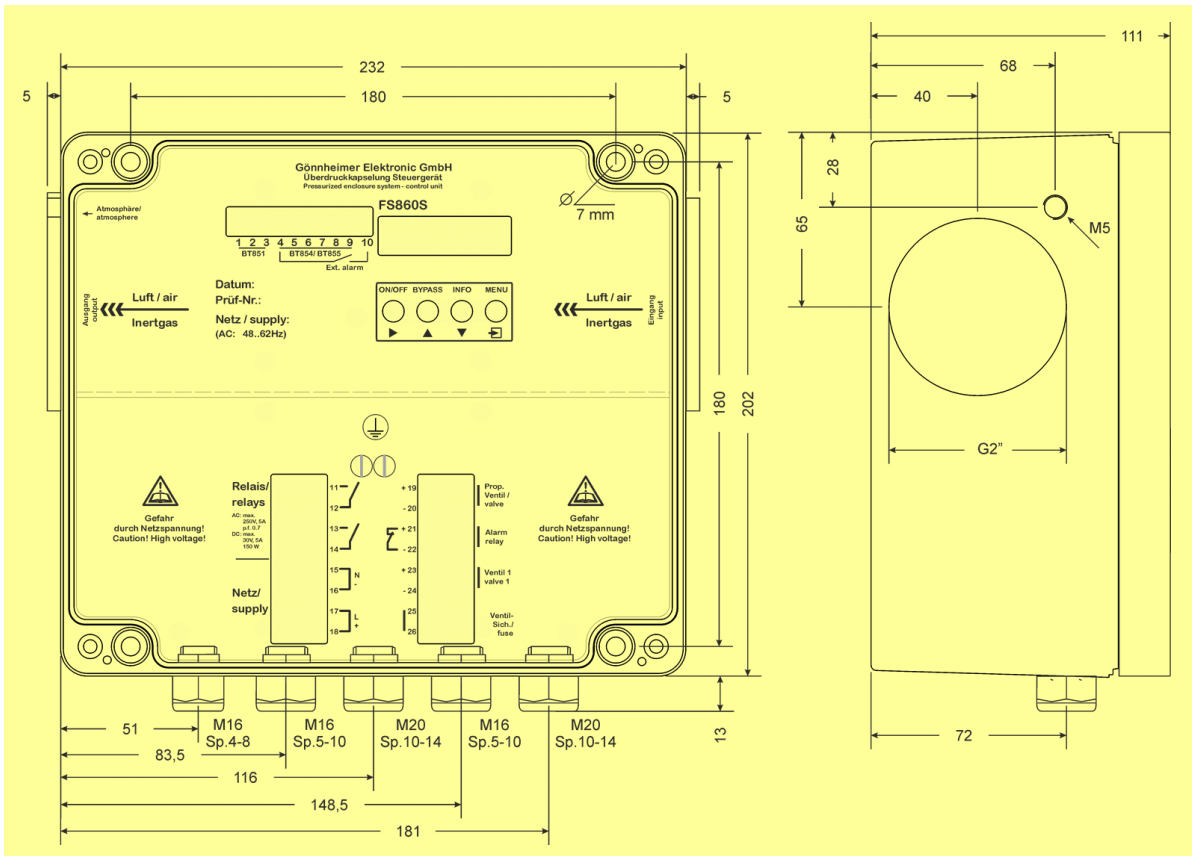


Figure 3:
Dimension drawing FS860S (mm)

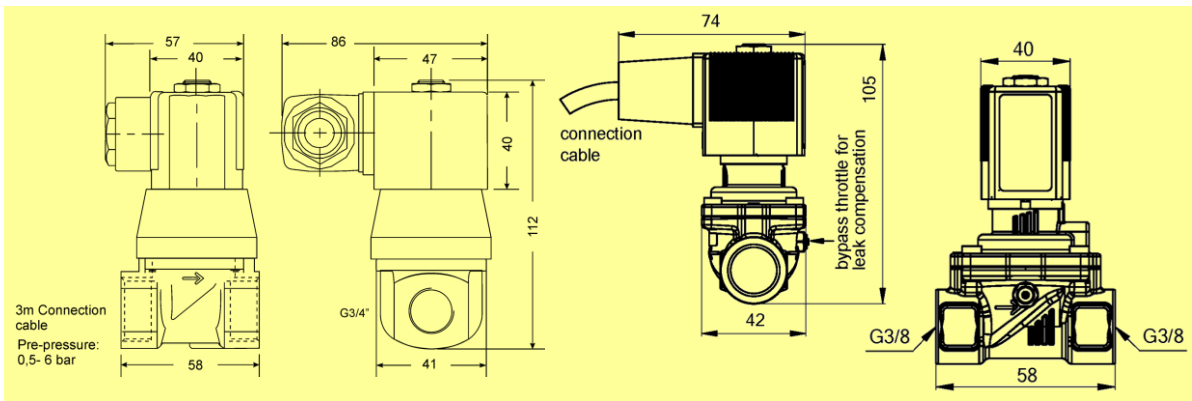


Figure 4:
Purge valves (mm)

SVP.12

SVD.L.x

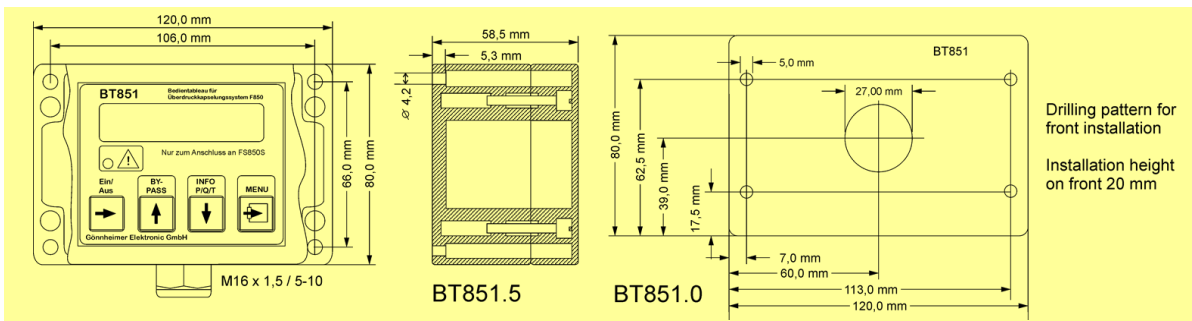


Figure 5:
Dimension control panel (mm)

BT851.x



Gönnheimer Elektronik GmbH

http://www.goennheimer.de Email: info@goennheimer.de



Zertifiziertes
Qualitäts-
Managementsystem
nach
DIN EN ISO 9001

Dr.-Julius-Leber-Straße 2
67433 Neustadt/Weinstraße
Postfach 10 05 07
67405 Neustadt
phone: +49 (6321) 49919- 0
fax: +49 (6321) 49919 - 41