



Characteristics

- 👉 **Compact system, mounting inside hazardous area or inside Ex p-Enclosure**
- 👉 **Standards for safety**
 - Explosion proof with I.S. Outputs, Class I, Division 1, Groups B, C, D, T6, Purge Type X
 - UL 1203-4th Ed., NFPA 496 2003 Ed., UL 913 6th Ed., UL 508 7th Ed., UL 840 3rd Ed.
 - Certificate UL E258617
- 👉 **Menu guided, programmable operation modes:**
 - Leakage compensation or continuous flow
 - Proportional or digital solenoid valve
- 👉 **Ex p- system with patented proportional pressure and flow measurement**
 - No ageing of membrane switches, no screws or potentiometers to adjust pressure or flow thresholds or purging time!
- 👉 **High availability due to PID- regulated pressure and proportional valve**
 - High availability based on constant cabinet pressure
 - No waste of purge medium. Only the minimum quantity is needed to hold the cabinet pressure
 - Increasing leakage caused by e.g. enclosure ageing is balanced and system availability is assured
 - No flow noise and only small gas consumption in combination with solid enclosures
- 👉 **Purging with regulated pressure**
 - No overload of pressure sensitive enclosure parts, like membrane switch keyboards or windows
 - Shortest purging times by 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
- 👉 **High operation safety**
 - Alarm messaging at LC-display
 - In- and outputs for external safety chains
- 👉 **Ex i- operator panel BT851.xU**
 - For ergonomically control of the Ex p- system
 - Connection to the control unit over 3 wires



Description

The use of pressurized enclosures allows the operation of 'non explosion protected' devices in hazardous areas. The protection type 'pressurization' is based on the principle of maintaining a constant overpressure using air or a protective gas to prevent an explosive mixture forming near the apparatus inside the pressurized enclosure.

The integration of proportional working valve technology makes this purge system unique:

- Pressure regulated purging phase
- Integration of flow during purging
- PID controlled cabinet pressure during normal operation phase with minimum purging gas consumption

Optionally, the system can be combined with digital working inlet valves.

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

Technical Details

		Control unit FS850U
General	Mounting	inside hazardous area
	Ex protection class	Explosion proof with I.S. Outputs, Class I, Division 1, Groups B, C, D, T6, Purged Type X
	Environment protection	NEMA 4X / IP65
Housing	Dimensions	H x W x D: 10.51 inch x 5.24 inch x 4.33 inch 267 mm x 133 mm x 110 mm
	Material	Aluminum, lacquered, light grey (RAL 7035)
Electrical specifications	Power consumption	About 2.5 VA (without peripherals)
	Main voltage	110V AC, 120V AC, 230V AC 48 ... 62 Hz
	Working circuits Terminal 11, 12, 13, 14	AC: U ≤ 250VAC, I ≤ 5 (16) A at cos φ > 0,7 DC: U ≤ 30 VDC, I ≤ 5 A, P ≤ 150 W
	Control circuits, Plugs for p. components	Ex protection class: intrinsically safe, see declaration of conformity in UL certificate for further details
Pneumatic	Pressure range	0 ... 7 inH2O (0 .. 1744 Pa)
	Flow rate range	0.14 up to 4.17 l/s, depending on orifice plate size
Mounting	Position	Position independent, only in and outlet of the control unit should be lined up on a horizontal axis.
	Environment temp.	-10°C ...+40°C at T6 -10°C ...+55°C at T4
	Humidity	5-95%, non-condensing
Configuration	Parameter input	LC-Display, menu guided Different languages : German, English, French, Dutch, Spanish
	Parameter storage	by EEPROM, double saved with CRC

Resulting flow rates

Depending on supply pressure and effectively nozzle

Flow in [l/s] (ρ Air = 1,293 g/liter)					
Supply pressure		Nozzle diameter			
[10 ⁵ Pa]	[inH2O]	[mm]			
[bar]		1,5	2	3	4
1,5	602,2	0,7	1,2	2,7	4,9
2	802,9	0,8	1,5	3,4	
2,5	1003,7	1,0	1,7	3,9	
3	1204,4	1,1	1,9	4,4	
3,5	1405,1	1,2	2,1		
4	1605,9	1,3	2,3		
5	2007,4	1,5	2,6		

Orifice plate selection

Minimum orifice plate [mm]					
Supply pressure		Nozzle diameter			
[10 ⁵ Pa]	[inH2O]	[mm]			
[bar]		1,5	2	3	4
1,5	602,2	6	10	14	18
2	802,9	6	10	14	
2,5	1003,7	10	10	18	
3	1204,4	10	14	18	
3,5	1405,1	10	14		
4	1605,9	10	14		
5	2007,4	10	14		

Type codes

- Control unit FS850U

Control unit FS850U			
Mains:	230 VAC .....	.0	
	120 VAC .....	.2	
Orifice plate:	6 mm .....	.2	
	10 mm .....	.4	
	14 mm .....	.6	
	18 mm .....	.8	
Additional alarm output:	Installed .....	.1	

Additional orifice plates and flow rates on demand

- Solenoid valves

solenoid valve SV			.. U
Proportional working principle	P		
Digital working principle	D.L		
Nozzle: 1,5 mm .....		.1,5U	
2 mm .....		.2U	
3 mm .....		.3U	
4 mm .....		.4U	

Supply pressure 0,5.. 4 bar

- Operator panels

Intelligent Operator panel		BT851.
For flush mounting		BT851.0U
With IP65 housing		BT851.5U

Application

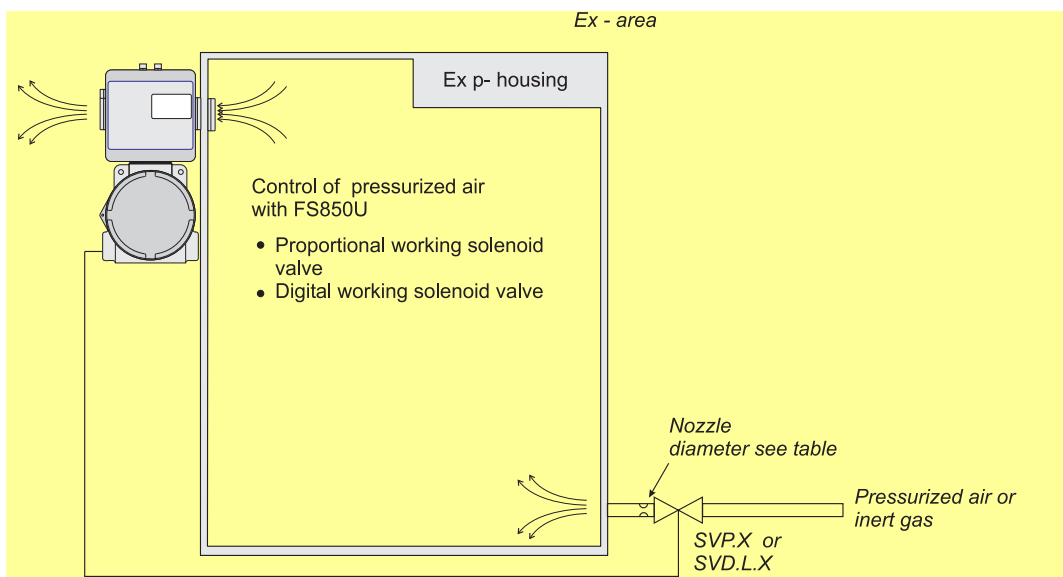


Figure 1:
Application

Block diagram

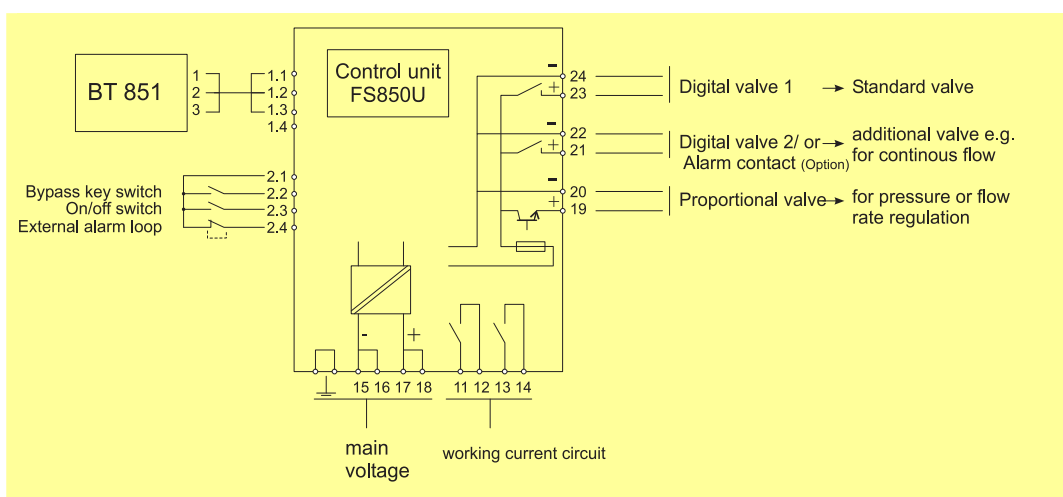


Figure 2:
Electrical Block diagram

Examples for mounting

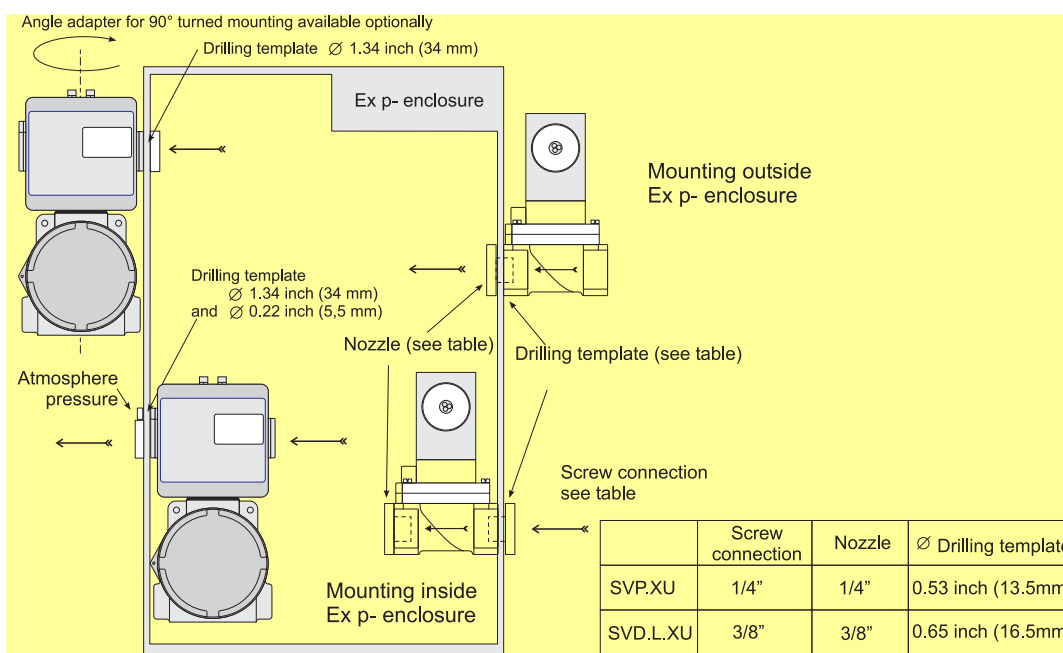


Figure 3:
Examples for mounting

Dimensions

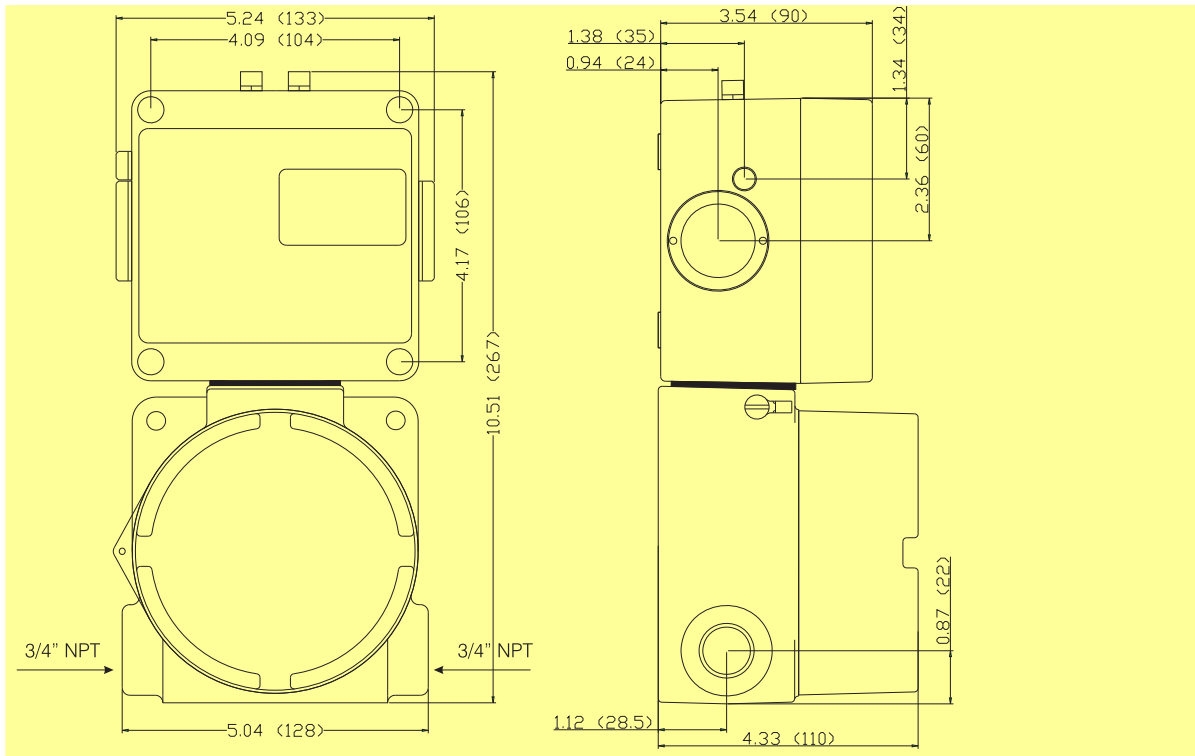


Figure 4:
Dimensions
FS850
[inch, (mm)]

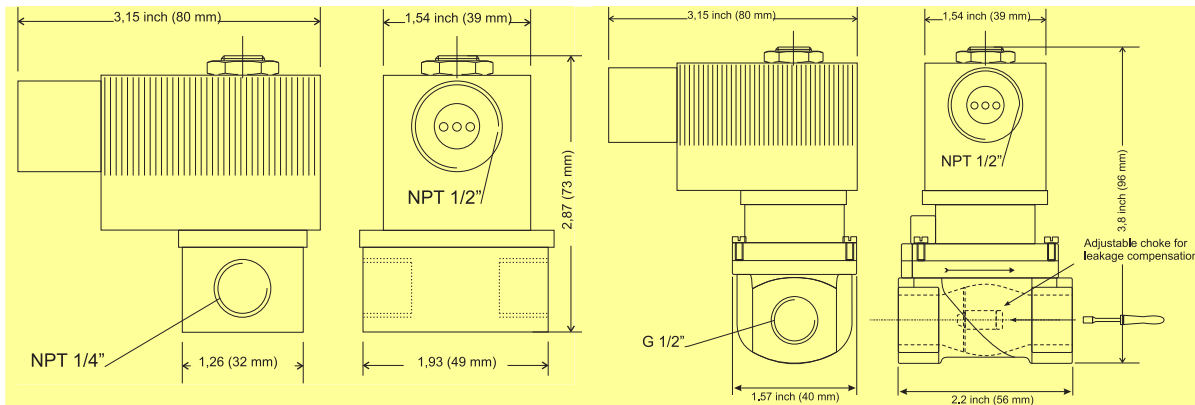


Figure 5:
Dimensions
Solenoid
valves
[inch, (mm)]

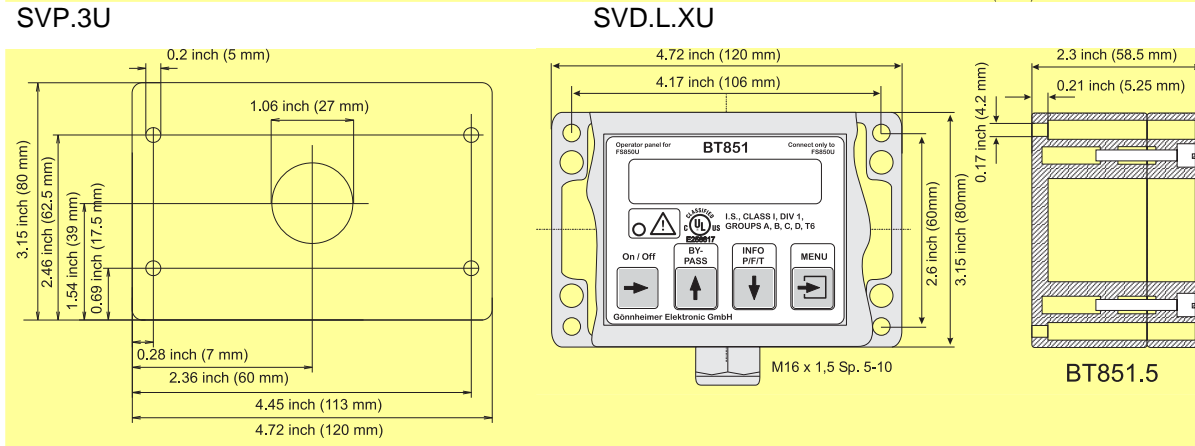


Figure 6:
Cutout and
Dimensions
Operator
panel BT851
[inch, (mm)]

BT851.0U

Front template, Installation height 0.79 inch (20 mm)

BT851.5U

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I.S. CLASS I, DIV 1,
GROUPS A, B, C, D, T6

Zertifiziertes
Qualitäts-
Managementsystem
nach
DIN EN ISO 9001

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