



Intelligent Programmable Purge & Pressurization System for Gas and Dust Applications

Highlights

- Most compact X purge system available
- Purges enclosures up to 10.6m³ (ATEX/IECEX 5 volume changes), 470cu. ft (NFPA 4 volume changes)
- Configurable for Leakage Compensation, Dilution, or Continuous Flow modes
- ATEX, IECEX, FM, KOSHA, NEPSI, CCC & PESO certified
- Control system and outlet/relief valve all in one unit
- Easy parameter selection & software setup
- Can control equipment AC power loads up to 6A.

What is it?

The SmartPurge II is a fully certified Type X purge and pressurization system for Zone 1/21 and Class I/ Zone 1/21 hazardous area applications. When fitted to a suitable enclosure, the system enables standard uncertified electrical equipment to be operated safely in a hazardous location.

With a wide range of programmable settings, the SmartPurge II is ideally suited for use with OEM systems, gas analysers, DCS systems, and other electrical enclosures.

How does it work?

The system can operate in three purge modes - Leakage Compensation (LC) or Dilution mode using an intrinsically safe solenoid-operated air supply valve or Continuous Flow mode (CF) with a manually adjusted air supply valve.

When the purge is started the air supply valve directs purge gas, usually compressed air, to the enclosure, and measures the flow out of the enclosure at the relief valve outlet. Providing that flow is sufficient, the purge timer is started. The purge timing is automatically calculated by the system or can be set manually if required.

In Leakage Compensation (LC) mode, after completion of the purge time, the high purge flow stops and the system controls a much lower flow to compensate for any enclosure leakage. This flow rate is manually set via a needle valve built into the IS solenoid valve. In Dilution mode after purging, the system provides a flow rate sufficient to dilute a flammable substance inside the enclosure to below the lower flammable limit, in line with hazardous area standards.

For Continuous Flow (CF) mode, the manual air supply valve is set to provide a single air flow rate that is used during both the purge & pressurization phases.

Typical Applications

- Process gas and liquid analysers
- DCS systems
- Robot arms
- Control panel purge



Specifications

Ambient temperature range	Certified for use from -20°C to +60°C (-4°F to +140°F).
Purging modes	Can operate in Leakage Compensation, Dilution, or Continuous Flow modes depending on software settings & Air Supply Unit selected.
Air supply unit	Leakage Compensation (LC) & Dilution: Digital valve SP2-DV (Intrinsically safe), switches between high purge flow rate and manually adjustable LC /Dilution flow rate. Continuous Flow (CF): SP2-CF manual valve to set combined purge and CF flow rates
Flow rates (Based on 6mm ID tube, 2-4 barg inlet pressure).	LC mode - Purge rate : 50 -540 NI/min (1.7-19 SCFM) / Leakage compensation rate : up to 230 NI/min (8.1 SCFM) Dilution mode—Purge rate : 50 -540 NI/min (1.7-19 SCFM) / Dilution rate : up to 230 NI/min (8.1 SCFM) Continuous Flow mode -10-570 NI/min (0.35-20 SCFM) manually adjustable
Purge time	Selectable 1-99 mins
Enclosure pressure:	Selectable 0.8 to 7mbarg (0.3 to 2.8"wc) after purge complete. Enclosure minimum pressure sensor setting 0.8 mbarg (0.32"wc).
Low pressure alarm	Selectable - Immediate trip; Delay trip (up to 99 mins); Alarm only.
Outlet/Relief valve	Integrated into control unit. Lift-Off pressure: 10mbarg (4"wc).
Status indication	Local LCD display
Purge flow measurement	Direct purge flow measurement at relief valve exhaust to ensure full code compliance
Hazardous area approvals	IECEX; ATEX; FM; KOSHA; NEPSI; CCC; PESO
Safety	SIL2 rated
Purge override	Password controlled or via optional key-switch input
Signal outputs	Configurable alarm outputs (2); RS485 capability for communication with 3rd party remote monitoring systems.
External input	External alarm input (1) from an external device such as a gas detector, or fire alarm.
Power requirements	Mains Universal: 90–254 VAC. Low voltage: 11-28 VDC. Power consumption: Max. 2.8W, Nominal 2.0W
Power control	Controls equipment loads up to 6A. For higher power and any signal line control, the use of a SmartPurge Interface Unit (SIU) is required.
Material of construction	Housing 316L stainless steel.
Ingress protection	IEC60529: Control unit & enclosure integrity IP66 (with outlet valve splash cover installed). IEC60079-0: Control unit IP64
Mounting	Direct mount to the pressurized enclosure wall.



Simplifying Complexity. Delivering Safety.

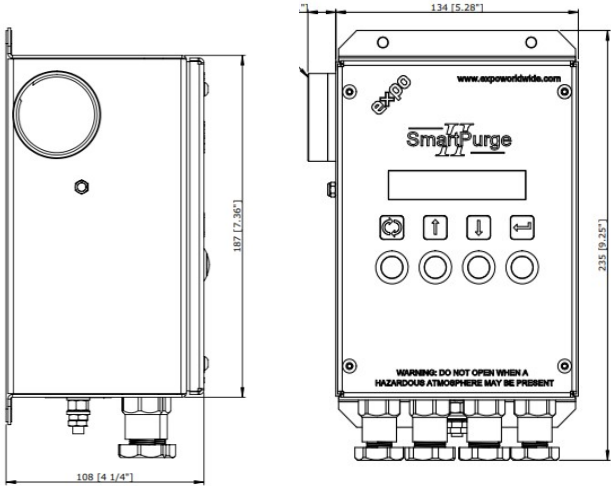


Drawings

Control Unit

Relief Valve / Air outlet from enclosure

Shown with optional cable gland kit

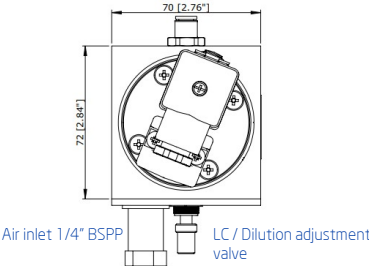


Dimensions

Height h1	187mm (7.4")
Height h2	235mm (9.3")
Width	134mm (5.3")
Depth	108mm (4.3")
Weight	4.2 kg (9.3lbs)

Note a minimum of 50 mm (2in.) clearance is needed for the relief valve/ purge air exit.

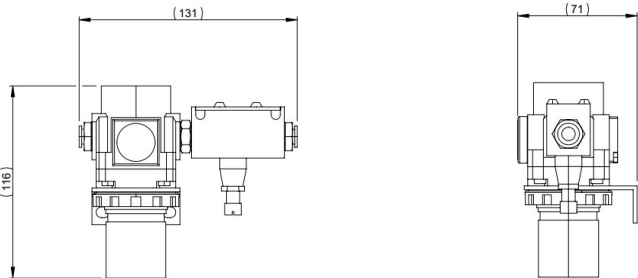
Solenoid Valve for LC & Dilution Mode



Dimensions

Height	109mm (4.3")
Valve Base	72x70mm (2.85x2.75")
Weight	0.75 kg (1.6 lbs)

Manual Valve for CF Mode



Dimensions

Height	116mm (4.6")
Length	131mm (5.2")
Weight	0.6 kg (1.3 lbs)



Hazardous Area Certification

ATEX:

FM11ATEX0060X
 II 2 (2) G Ex eb ib mb [ib Gb] [pxb Gb] IIC T4 Gb
 II 2 (2) D Ex tb [pxb Db] IIIC T135°C Db
 -20°C ≤ Ta ≤ 60°C

IECEX:

Ex eb ib mb [ib Gb] [pxb Gb] IIC T4 Gb
 Ex tb [pxb Db] IIIC T135°C Db
 -20°C ≤ Ta ≤ 60°C

US:

FM23US0049X
 Class I Zone 1 AEx e ib m [p] IIC T4
 Zone 21 AEx tb [pD] IIIC T135°C Ta
 -20°C to 60°C

Canada:

FM23CA0036X
 Ex e ib m [p] IIC T4
 -20°C ≤ Ta ≤ 60°C

China:

CCC 2022322304004431
 Ex eb ib mb [ib Gb] [p] IIC T4 Gb;
 Ex tb [p] IIIC T135°C Db
 NEPSI GY J22.1761X
 Ex e ib mb [ib Gb] [p] IIC T4 Gb
 Ex tD [pD] A21 IP64 T135°C

Korea:

KCS 19-AV4B0-0035
 Ex e ib m [p] IIC T4
 -20°C < Tamb < 60°C
 KSC 19-AV4B0-0034
 Ex tD [pD] A21 T135°C

India:

PESO P374648/1
 Ex e ib mb [p] IIC T4

Order Codes

Control Unit

SP2- PM-SS : Mains universal (90-254VAC)
 SP2- PL-SS : Low voltage (11-28 VDC)

Air Control Valve

SP2- DV: IS solenoid valve for LC & dilution applications
 SP2- CF/2: Manual valve for CF applications

System Options

IP66 outlet valve splash cover: SP2-SC

Cable gland kit: SP2-GK—comprises 2 off M16 cable glands; 2 off M20 cable glands & 1 off M16 Exe blanking plug

Override key switch: SP2-OS—Panel mount key switch

Please note: Whilst every effort has been made to ensure accuracy, no responsibility can be accepted for errors and omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards and guidelines.

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