Product Datasheet

SmartPurge*II*

Zone 1 / 21
Class I, Zone 1/21

Intelligent Programmable Purge & Pressurization System for Gas and Dust Applications

Highlights

- Most compact X purge system available
- Purges enclosures up to 10.6m^3 (ATEX/IECEx 5 volume changes), 470cu. ft (NFPA 4 volume changes)
- Configurable for Leakage Compensation 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/ Zone1/21 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 two purge modes - Leakage Compensation (LC) with an intrinsically safe solenoid operated air supply unit, or Continuous Flow (CF) with a manually adjusted air supply valve.

When purge is started the system supplies purge gas, to the enclosure usually compressed air, and measures that flow at the relief valve exhaust. Providing that flow is sufficient, the purge timer is started. The purge timing is automatically calculated by the system, but can be set manually if required.

In LC mode, after completion of the purge time, the purge flow stops and the system controls a lower flow to compensate for any enclosure leakage. This flow rate is manually set via a needle valve built into the IS solenoid valve.

For CF mode, the manual air supply valve is set to provide a single air flow rate for both the purge & pressurization phases. CF mode is most frequently used for dilution if the enclosure contains an internal source of release, such as a gas analyser with a flammable sample.

Typical Applications

- Control panel purge
- Process gas analysers
- DCS systems
- Label printers; PCs; monitors
- Painting robots

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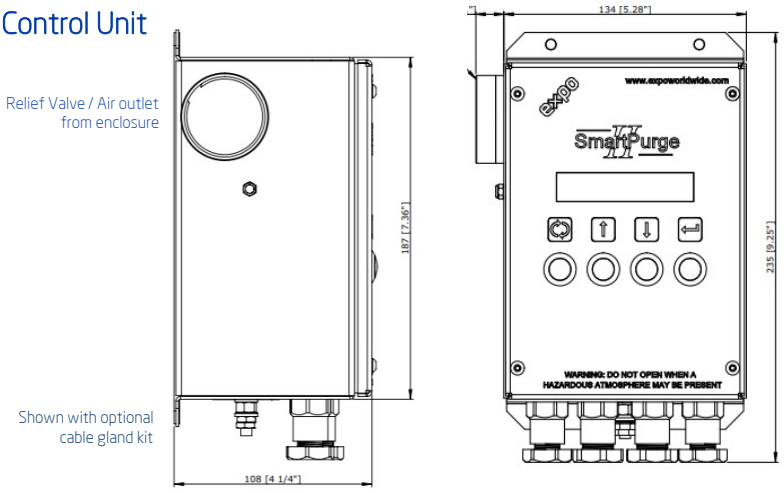
Specifications

Ambient temperature range	Certified for use from –20°C to +60°C (-4°F to +140°F).
Purging modes	Can operate in Leakage Compensation, or Continuous Flow depending on software set-tings & Air Supply Unit selected.
Air supply unit	Leakage Compensation (LC): Digital valve SP2-DV(Intrinsically safe) switches between high purge flow rate and manually adjustable LC flow rate. Continuous Flow (CF): SP2-CF manual valve to set combined purge and CF flow rates
Purge flow rate	Leakage compensation 110-540 Nl/min (3.88-19 SCFM) using interchangeable orifice plates Continuous flow 10-600 Nl/min (0.35-21 SCFM) manually adjustable
Purge time	Selectable1-99 mins
Enclosure pressure:	Selectable 0.8 to 7mbarg (0.3 to 2.8"wc) after purge complete. Enclosure minimum pressure sensor setting 0.5 mbarg (0.2"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. 2.3W, 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/Ingress protection	Housing 316L stainless steel . IP64.
Mounting	Direct mount to the purge enclosure wall or door

Drawings

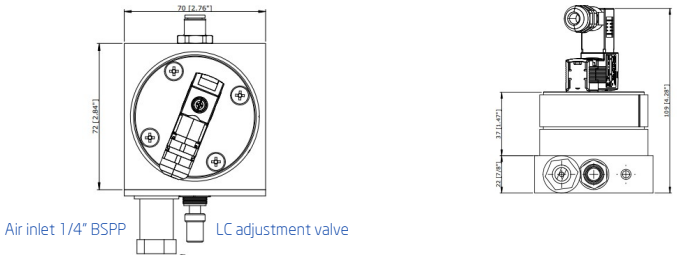
Control Unit



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)

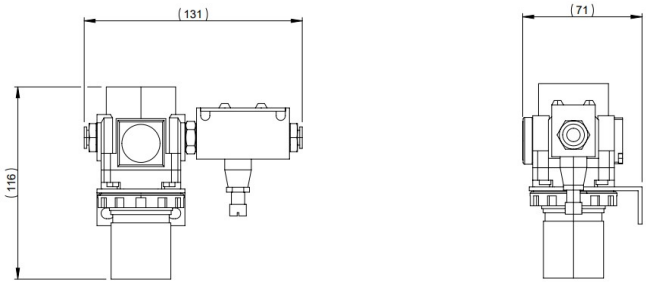
Note a minimum of 50 mm (2in.) clearance is needed for the relief valve/ purge air exit.

Solenoid Valve for LC 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)

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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 135°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-AV4BO-0035
Ex e ib m [p] IIC T4
-20°C <Tamb< 60°C
KSC 19-AV4BO-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 applications
SP2– CF/2: Manual valve for CF applications

System Options

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

SmartPurge Interface Unit (SIU): Flameproof / explosion-proof interface to control high power loads up to 32A and external signals. Available in 3 sizes for a range of power and signal control applications. See separate datasheet.

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