

Система продувки и повышения давления Ex рхb серии 6100

Технические характеристики

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Ex pxb motor purge and pressurization control unit

BEBCO EPS®

6100-MP-EX-*

- Certified for ATEX and IECEx Zone 1
- Maximum flow rate of 14,000 l/min
- Intrinsically safe user interface for programming and monitoring the system
- Control Unit monitors system operation and controls enclosure power
- Auxiliary contact outputs for alarm or control
- Multiple temperature inputs for monitoring and control
- Automatic pressure compensation for excess leakage from motor

6100 series Ex pxb motor purge and pressurization system control unit



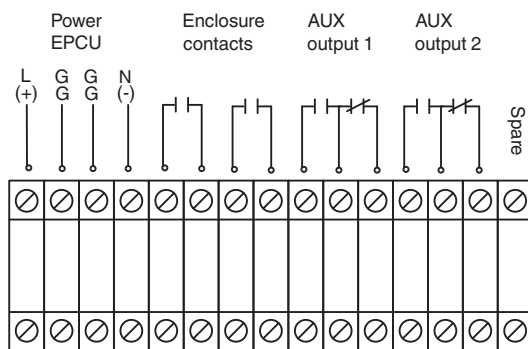
Function

The Bebcos EPS® 6100 series Ex pxb, Zone 1 motor purge and pressurization system consists of the following components in an IP66 housing: a control unit and user interface, intrinsically safe and power terminals, manual pressurization valve, and electro-pneumatic valve for automatic purging and leakage compensation.

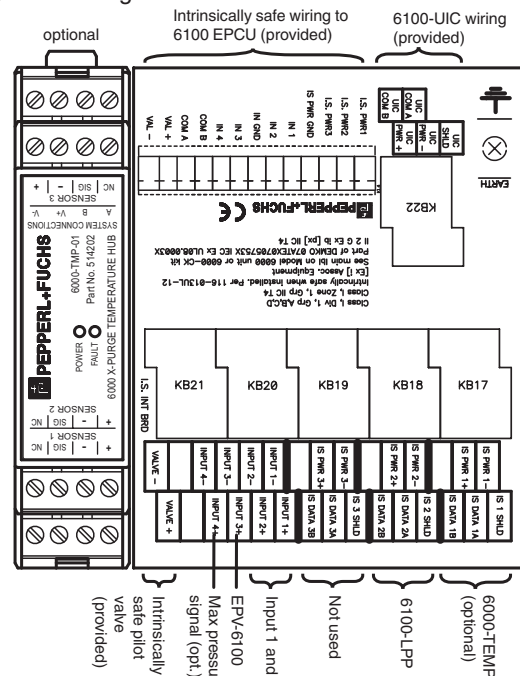
The configurable control unit features temperature and pressure compensation, an extra output for control or alarm, two selectable intrinsically safe inputs for various actions, and up to three temperature sensor inputs that can monitor various points with a motor housing. The intrinsically safe user interface can also be mounted in a separate enclosure near operating personnel for quick access and easy system monitoring. The 6100 purge and pressurization system can also be used to purge and protect large enclosures that require a large flow rate.

Connection

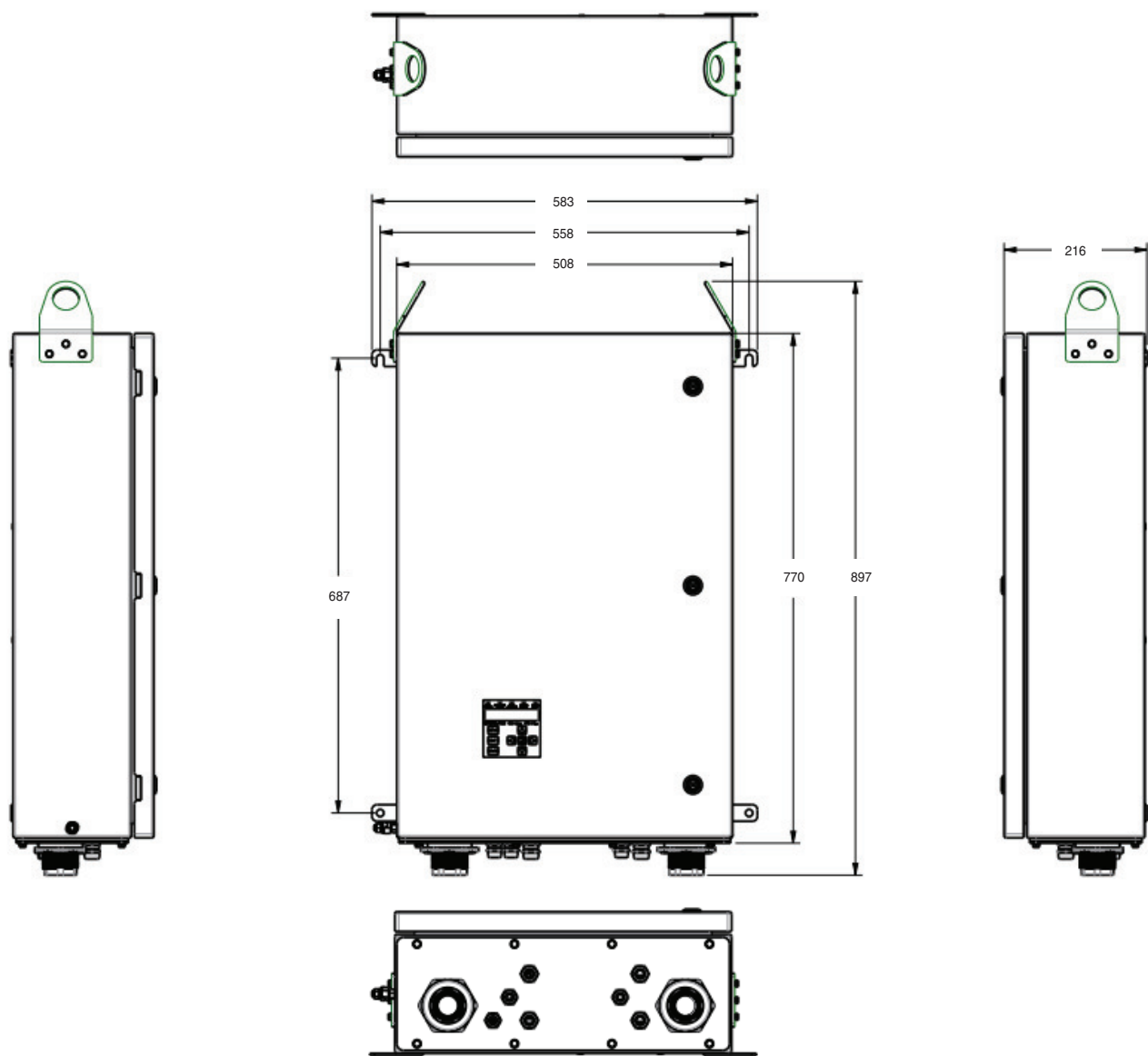
Ex d Wiring



Intrinsically Safe Wiring



Dimensions



Technical Data

General specifications			
Operating mode		manual, semi-automatic, or fully automatic - programmable	
Series		6100 Series	
System		Ex pxb Purge	
Number of volume exchanges		4 to 19	
Hazardous environment		gas	
Supply			
Rated voltage	U _r	100 ... 250 V AC, 50 ... 60 Hz / 0.2 A 20 ... 30 V DC / 0.6 A	
Electrical specifications			
Connection			
Power		Ex e terminal blocks	
Connection		6000-ISB DIN mounted terminal	
Input			

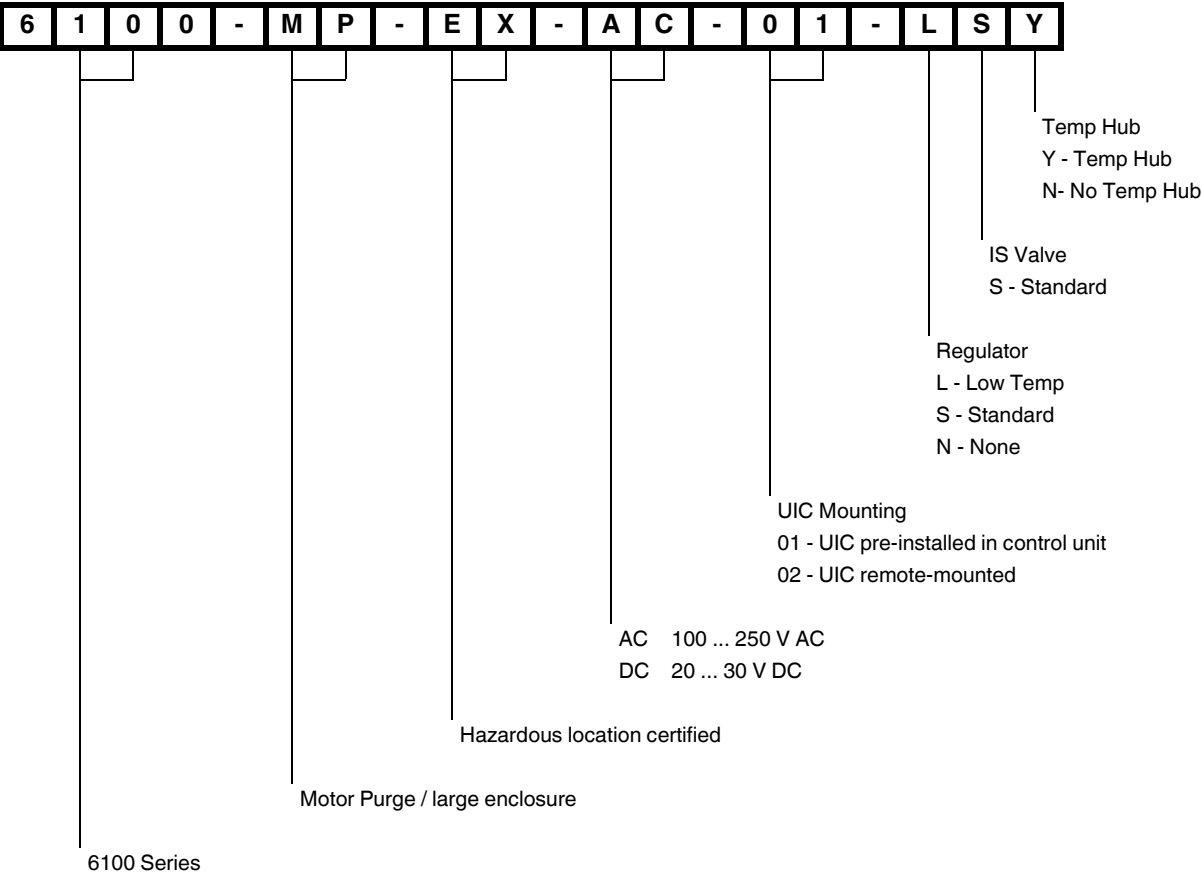
Technical Data

Input type		IS 1: Dedicated for 6000-TEMP-01 (optional) IS 2: Dedicated for 6100-MP-LPP Input 1: SRM, discrete input, Intrinsically Safe Input 2: SRM, discrete input, Intrinsically Safe Input 3: Dedicated for EPV-6100-MP, Flow Signal Input 4: Dedicated high pressure switch, Max Pressure Signal (optional)
Output		
Output I		AUX 1
Output type		Dry contacts, SPDT
Inrush current		5 A
Contact loading		2 A at 240 V AC resistive load 2 A at 24 V DC
Output II		AUX 2
Output type		Dry contacts, SPDT
Inrush current		5 A
Contact loading		2 A at 240 V AC resistive load 2 A at 24 V DC
Output III		enclosure 1 and 2
Output type		Dry contacts (2) SPST, NO
Inrush current		72 A
Contact loading		8 A at 240 V AC / 120 V AC resistive load 8 A at 24 V DC
Indicators/settings		
LED indication		Safe pressure: Blue - safe pressure is achieved Enclosure power: Green - power on; Red - power off Rapid exchange: Blue - purging is running System bypass: Yellow - bypass is activated Alarm fault: Red (blinking) - any alarm input detected; Red (solid) - fault
Pneumatic parameters		
Protective gas supply		regulated and filtered air or inert gas
Pressure requirement		regulated side: 1.4 ... 8.3 bar [20 ... 120 psig) unregulated side: 4.1 ... 8.3 bar [65 ... 120 psig)
Safe pressure		0.62 mbar [0.25 in wc / 6.4 mm wc] minimum for 6100-MP-LPP-*
Purge flow and enclosure pressure rate		2000 l/m ... 14000 l/m see EPV-6100 datasheet for flow rate steps
Valve flows		pressurization valve: manual gate valve purging valve: pilot drive angle seat valve pilot valve: intrinsically safe solenoid valve
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
RoHS		
Directive 2011/65/EU (RoHS)		EN 50581:2012
Ambient conditions		
Ambient temperature		0 ... 60 °C (32 ... 140 °F) Standard version -20 ... 60 °C (-4 ... 140 °F) Low temp version, no regulator version
Storage temperature		0 ... 80 °C (32 ... 176 °F) Standard version -20 ... 80 °C (-4 ... 176 °F) Low temp version, no regulator version
Relative humidity		5 ... 95 %, noncondensing
Vibration resistance		1 g , 10 ... 150 Hz , all axes
Impact resistance		15 g, 11 ms, all axes
Mechanical specifications		
Connection type		Terminals
Core cross section		see manual
Degree of protection		IP66
Cable entry		3 x M16 holes, plugs that are included are not hazardous-location rated 4 x M20 holes, plugs that are included are not hazardous-location rated

Technical Data

Material	inlet and outlet: 1¼ inch NPTF, 316 stainless steel internal piping: copper bulkhead fittings: 316 stainless steel (no regulator model) gate valve: bronze, Grafoil seals purging valve: 316 stainless steel, PTFE seals solenoid valve: brass housing: 316L stainless steel regulator: zinc (standard temp); aluminum (low temp); N/A (no regulator) filter (pneumatic): aluminum tubing (pneumatic): nylon fittings (pneumatic): nickel-plated brass	
Mass		47.2 kg (104 lb)
Dimensions		216 mm x 508 mm x 770 mm (8.5 in x 20 in x 30.3 in)
Height		762 mm
Width		558 mm
Depth		213 mm
Data for application in connection with hazardous areas		
Certificate		CML 19 ATEX 1425X
Marking		Ⓔ II 2G Ex db eb ib [ib Gb][pxb Gb] IIC T4 Gb
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-2:2014 EN 60079-7:2015 EN 60079-11:2012
International approvals		
IECEx approval		IECEx CML 19.0156X Ex db eb ib [ib Gb][pxb Gb] IIC T4 Gb
General information		
Supplementary information		

Type Code





6100 series vent

BEBCO EPS[®]

EPV-6100-MP-*

- Maximum flow rate of 14,000 l/min
- Intrinsically safe when connected to 6100 control unit

6100 series purge and pressurization enclosure protection vent



Function

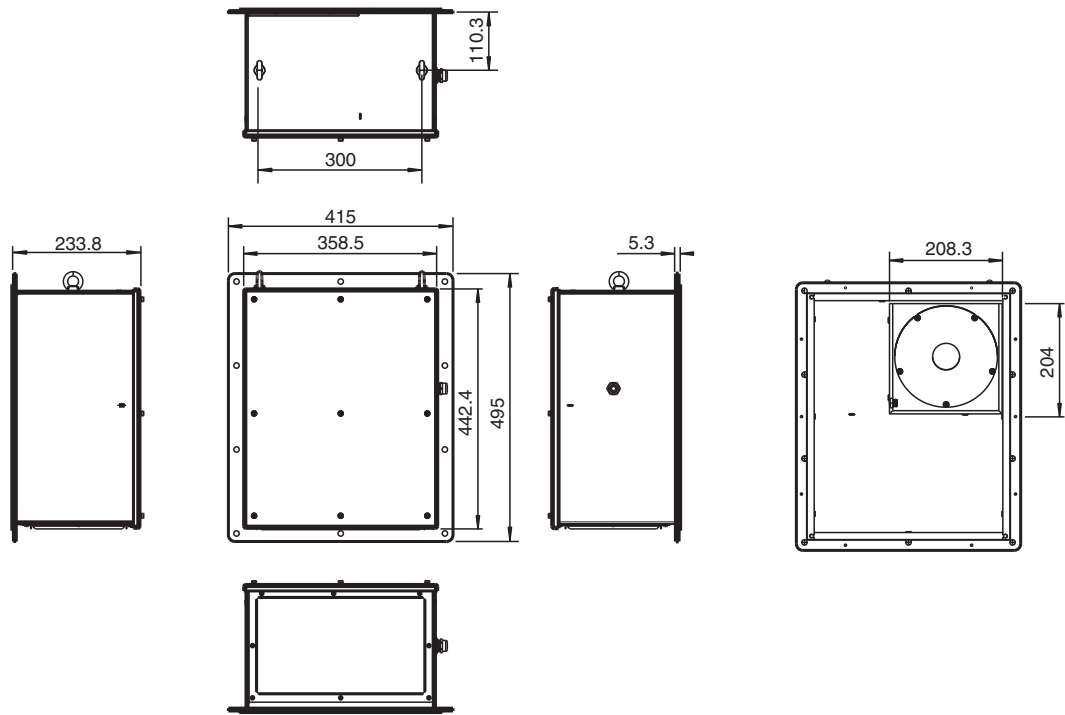
The EPV-6100 vent/pressure relief device exhausts excess pressure from the motor/enclosure. The vent's pressure switch monitors the differential pressure across the vent orifice during the purging cycle. The differential pressure is used to determine the flow through the vent. The pressure switch is connected to the 6100 EPCU. It is intrinsically safe through the galvanic isolation barrier within the 6100 EPCU.

Operation

Purge Pressure & Flow Rate Table											
Model Number		EPV-6100-MP-020-XXX		EPV-6100-MP-050-XXX		EPV-6100-MP-080-XXX		EPV-6100-MP-110-XXX		EPV-6100-MP-140-XXX	
Purge Flow, L/m		2000		5000		8000		11000		14000	
Model	BP (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)
EPV-6100-MP-XXX-010	10	11.6	12.5	11.9	12.5	14.8	15.5	14.2	15.0	14.0	14.5
EPV-6100-MP-XXX-025	25	30.0	36.5	32.9	35.5	25.2	32.5	25.6	30.0	23.5	30.0
EPV-6100-MP-XXX-030	30	37.3	40.0	37.3	40.0	33.1	40.0	31.9	40.0	25.3	40.0
EPV-6100-MP-XXX-040	40	42.7	47.5	43.8	47.5	35.9	47.5	28.2	47.5	25.1	47.5
EPV-6100-MP-XXX-050	50	47.3	53.0	49.6	53.0	41.9	53.0	30.8	53.0	28.6	53.0

Note: Breaking and purge pressures shown above are approximate values.

Dimensions



Technical Data

General specifications		
Series		6100 Series
System		Ex pxb Purge
Hazardous environment		gas
Electrical specifications		
Connection		
Power		Intrinsically safe connection to the 6100 control unit
Signal		2-wire intrinsically safe pressure switch
Connection		2-wire
Pneumatic parameters		
Protective gas supply		Clean air or inert gas
Safe pressure		0.625 mbar [0.25 in wc / 6.4 mm wc)
Enclosure pressure		0 ... 50 mbar (0 ... 20.1 in wc / 0 ... 510.5 mm wc)
Flow rate for leakage compensation		depends on enclosure seal based on completely sealed enclosure
Breaking pressure		Approx. 10 mbar (4.0 in wc) Approx. 25 mbar (10.0 in wc) Approx. 30 mbar (12.1 in wc) Approx. 40 mbar (16.1 in wc) Approx. 50 mbar (20.1 in wc)
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
RoHS		
Directive 2011/65/EU (RoHS)		EN 50581:2012
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-20 ... 80 °C (-4 ... 176 °F)
Relative humidity		5 ... 95 %, noncondensing
Vibration resistance		1 g , 3 ... 150 Hz , all axes
Impact resistance		30g, 11 ms, all axes

Technical Data

Mechanical specifications		
Material		316L stainless steel (housing)
Installation		-gravity dependent -air outlet, screen side must be facing down
Mass		17 kg (37 lb)
Data for application in connection with hazardous areas		
Certificate		CML 19 ATEX 1425X
Marking		II2G Ex db eb ib [ib Gb][pxb Gb] IIC T4 Gb
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-2:2014 EN 60079-7:2015 EN 60079-11:2012
International approvals		
IECEx approval		IECEx CML 19.0156X Ex db eb ib [ib Gb][pxb Gb] IIC T4 Gb
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable.

Type Code

E	P	V	-	6	1	0	0	-	M	P	-	0	2	0	-	0	5	0
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Enclosure Protection Vent

6100 Series

Motor Purge

Flow Rate

020 - 2,000 l/min

050 - 5,000 l/min

080 - 8,000 l/min

110 - 11,000 l/min

140 - 14,000 l/min

ZZZ - Custom option

Breaking Pressure

010 - 10 mbar

025 - 25 mbar

030 - 30 mbar

040 - 40 mbar

050 - 50 mbar

ZZZ - Custom option



6100 series pressure sensor

BEBCO EPS®

6100-MP-LPP-*

- Universal mounting in any orientation
- Measures internal pressures from 0 to 25 mbar
- 1 1/2 inch NPT process connection
- Intrinsically safe when connected to 6100 control unit

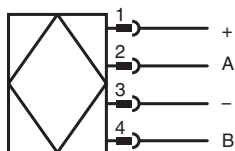
6100 series purge and pressurization system pressure sensor



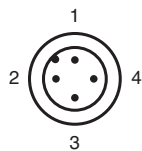
Function

The 6100-MP-LPP-* pressure sensor measures the low pressure section within a motor housing or enclosure. The sensor is connected via the included connector cable back to the 6100 series control unit. The 6100-MP-LPP-* provides accurate enclosure pressure for safe operation in hazardous areas. The sensor is intrinsically safe via the galvanic isolation barrier in the 6000 series EPCU. It can be mounted externally or inside the enclosure.

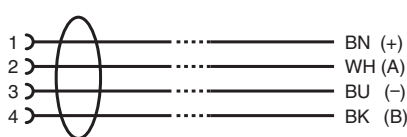
Connection



6100

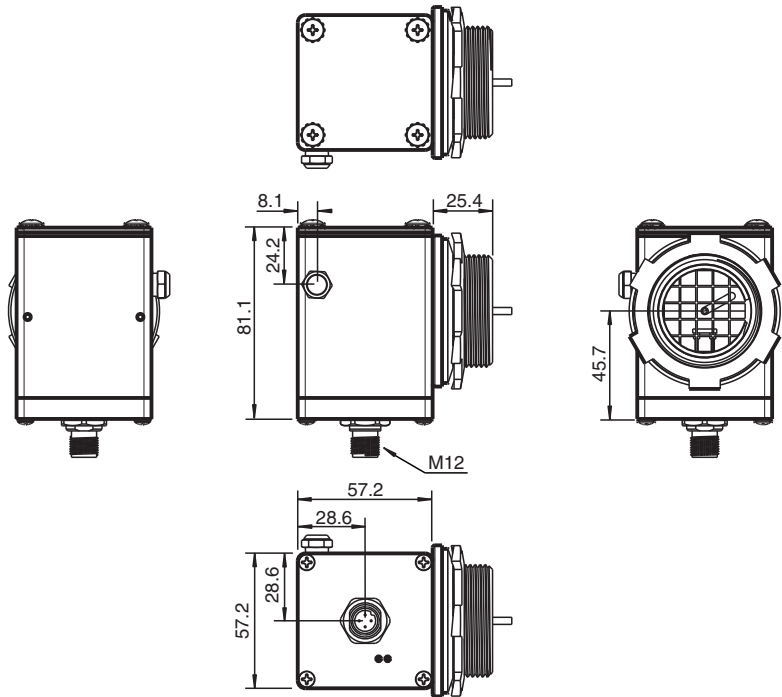


Cordset, M12, 4-pin, shielded



6100 LPP

Dimensions

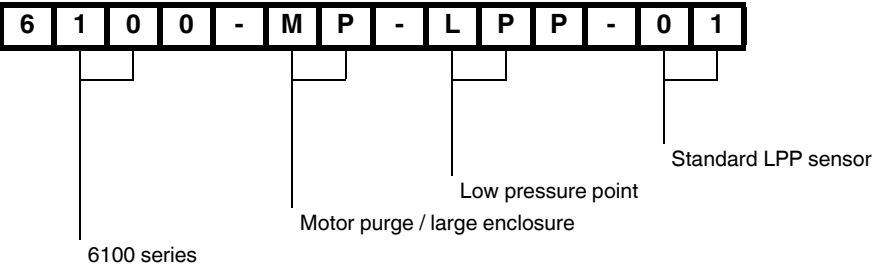


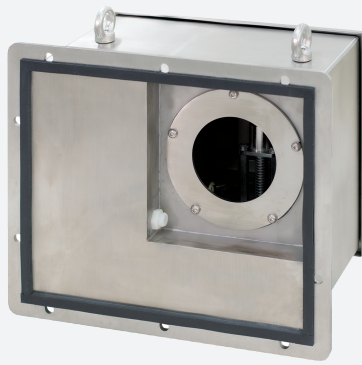
Technical Data

General specifications		
Series	6100 Series	
System		Ex pxb Purge
Hazardous environment	gas	
Electrical specifications		
Connection		
Power		Intrinsically safe connection to the 6100 control unit
Signal	Bus connection to 6100 control unit	
Connection		M12 connector, 4-pin, max length 30 m
Indicators/settings		
LED indication		power: green
Pneumatic parameters		
Maximum pressure		0 ... 25 mbar (0 ... 10 in wc) pressure range
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU	EN 61326-1:2013	
RoHS		
Directive 2011/65/EU (RoHS)	EN IEC 63000:2018	
Ambient conditions		
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)	
Storage temperature		-30 ... 80 °C (-22 ... 176 °F)
Relative humidity	5 ... 95 %, noncondensing	
Vibration resistance		10 ... 100 Hz , 1 g, all axes
Impact resistance	30 g, 11 ms, all axes	
Mechanical specifications		
Material	5052 anodized aluminum, 6061T6 anodized aluminum	
Installation		- any orientation to enclosure - not gravity dependent
Mass	approx. 0.5 kg (1.1 lb)	

Technical Data		
Dimensions		57.2 mm x 81.1 mm x 82.6 mm (2.3" x 3.2" x 3.3")
Height		146 mm
Width		127.5 mm
Depth		82.5 mm
Mounting		1 1/2" NPT knockout (50.8 mm (2") hole) with sealing washer and nut
Data for application in connection with hazardous areas		
Certificate		CML 19 ATEX 1425X
Marking		Ⓔ II 2 G Ex ib [pxb Gb] IIC T4 Gb
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018 EN 60079-2:2014 EN 60079-11:2012
International approvals		
IECEx approval		IECEx CML 19.0156X Ex ib [pxb Gb] IIC T4 Gb
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. Supplemental Standards : EN 61010-1:2010

Type Code





6100 Series Mini Vent

BEBCO EPS®

EPV-6100-MPM-*

- Flow rate: 2,000 ... 6,000 l/min
- Intrinsically safe when connected to 6100 control unit
- Compact footprint

6100 series purge and pressurization enclosure protection mini vent



Function

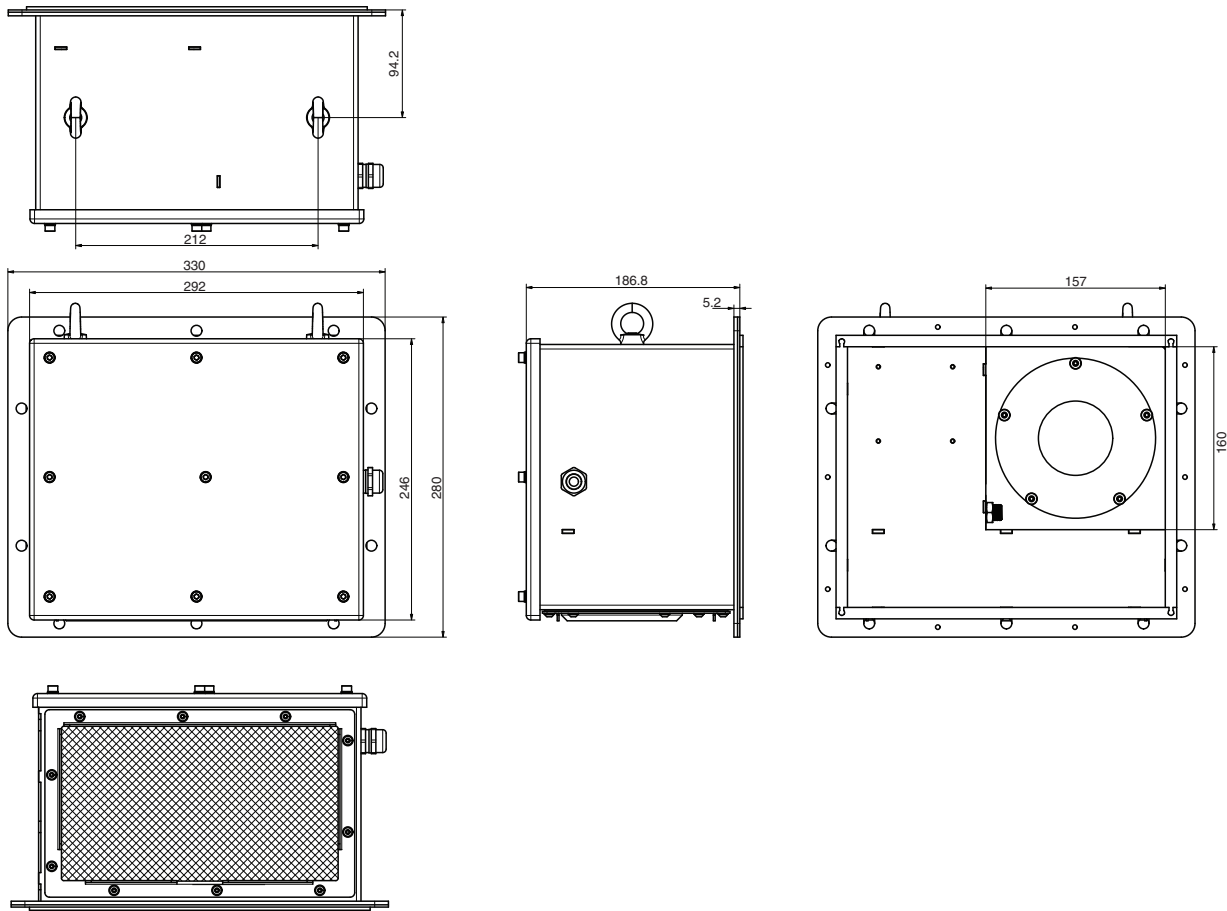
The Motor Purge Mini Vent pressure relief device exhausts excess pressure from the motor/enclosure. It features a pressure switch that monitors the differential pressure across the vent orifice during the purging cycle. The differential pressure is used to verify the flow through the vent. The pressure switch is connected to the 6100 EPCU. It is intrinsically safe through the galvanic isolation barrier within the 6100 EPCU.

Operation

Purge Pressure & Flow Rate Table (Mini Vent)													
Model Number		EPV-6100-MPM-020-XXX		EPV-6100-MPM-250-XXX		EPV-6100-MPM-300-XXX		EPV-6100-MPM-400-XXX		EPV-6100-MPM-500-XXX		EPV-6100-MPM-600-XXX	
Purge Flow, L/m		2000		2500		3000		4000		5000		6000	
Model Number, EPV-6100-MPM-XXX-XXX	BP (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)	Purge Pressure (mbar)	Peak Pressure of Enclosure (mbar)
XXX-010	10	11.9	11.9	12.2	12.2	13.0	13.0	13.3	13.3	13.3	13.4	14.0	14.0
XXX-015	15	16.7	16.7	17.3	17.3	17.7	17.7	--	--	--	--	--	--
XXX-020	20	21.2	22.4	23.3	23.3	23.1	23.2	19.5	22.0	18.7	22.0	19.2	22.0
XXX-030	30	33.7	33.7	34.1	34.1	37.2	37.2	34.2	34.2	33.5	34.0	33.5	34.0
XXX-040	40	41.7	42.9	42.0	42.9	44.2	44.7	39.8	42.3	39.9	42.3	39.9	42.3

Note: Breaking and purge pressures shown above are approximate values.

Dimensions



Technical Data

General specifications		
Series		6100 Series
System		Ex pxb Purge
Hazardous environment		gas
Electrical specifications		
Connection		
Power		Intrinsically safe connection to the 6100 control unit
Signal		2-wire intrinsically safe pressure switch
Connection		2-wire
Pneumatic parameters		
Protective gas supply		Clean air or inert gas
Safe pressure		0.625 mbar [0.25 in wc / 6.4 mm wc)
Enclosure pressure		0 ... 50 mbar (0 ... 20.1 in wc / 0 ... 510.5 mm wc)
Flow rate for leakage compensation		depends on enclosure seal based on completely sealed enclosure
Breaking pressure		Approx. 10 mbar (4.0 in wc) Approx. 15 mbar (6.0 in wc) Approx. 20 mbar (8.0 in wc) Approx. 30 mbar (12.1 in wc) Approx. 40 mbar (16.1 in wc)
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
RoHS		

Technical Data

Directive 2011/65/EU (RoHS)		EN 50581:2012
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Storage temperature		-20 ... 80 °C (-4 ... 176 °F)
Relative humidity		5 ... 95 %, noncondensing
Vibration resistance		EN 60068-2-6
Impact resistance		EN 60068-2-27
Mechanical specifications		
Material		316L stainless steel (housing)
Installation		-gravity dependent -air outlet, screen side must be facing down
Mass		9 kg (20 lb)
Data for application in connection with hazardous areas		
Certificate		CML 19 ATEX 1425X
Marking		Ⓔ II2G Ex db eb ib [ib Gb][pxb Gb] IIC T4 Gb
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-2:2014 EN 60079-7:2015 EN 60079-11:2012
International approvals		
IECEx approval		IECEx CML 19.0156X Ex db eb ib [ib Gb][pxb Gb] IIC T4 Gb
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. plementary Standards : EN 61010-1:2010

Type Code

Structure of the type code

(1)	
1	Model
EPV	Enclosure Protection Vent
2	Series
6100	6100 Series
3	Device Variant
MPM	Ex pxb Motor Purge Mini-Vent
4	Flow Rate
020	2,000 l/min*
025	2,500 l/min*
030	3,000 l/min*
040	4,000 l/min
050	5,000 l/min
060	6,000 l/min
ZZZ	Custom option
5	Breaking Pressure
010	10 mbar
015	15 mbar
020	20 mbar
030	30 mbar
040	40 mbar*
ZZZ	Custom option

*Lower flows are not available at higher breaking pressures.

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