

Intrinsically Safe Barrier Panels

Drivecon now offers a solution for explosion proof pendants - Intrinsically safe barrier panels utilizing our ergonomic PB series pushbutton pendants.

Benefits include:

- True explosion proof protection for pendant switch and pendant cord.
- Hazardous area rating for Class 1, Division 1, Groups A-G.
- Utilizes PB series ergonomic pendant switch.
- Barrier relay panel to be mounted in safe, non hazardous area.
- Available in standard configurations from 8 to 36 channels.
- Quick delivery.
- UL508A approved.

Introduction

Switch isolators supply power to the pendant switch in a hazardous area, receiving the path proportional current, to convert the input signals into digital output signals and to transfer the switching signal to a control device (drive, PLC, etc...) The intrinsically safe interface of the switch isolator is designed for Class 1, Div. 1 ([EEx ia] IIC) areas.

Essentially, the isolator consists of three components: the power supply, the transistor switch amplifier and the output stage. The input and the output are separated from one another through galvanic isolation.

The isolator's input stage is achieved through a transistor switch amplifier which provides the intrinsically safe interface. This input stage is designed in accordance with DIN 19 234 (NAMUR). This means that the residual voltage in normal operation equals approximately 8 VDC and the short circuit current equals approximately 8 mA. The switch points are in a range between 1.2mA and 2.1mA and the hysteresis equals 0.2 mA. Typical values are 1.6 mA and 1.8 mA.

The output stage of an isolator, depending on the application, can be set to monitor the presence or absence of a target. This flexibility is guaranteed through the mode of operation switch.

By using the reversible mode of operation, the same unit can be used in both cases. The mode of operation is selected with a slide switch on the barrier relay.

The hazardous area circuit is monitored for lead breakage. If lead breakage monitoring is bypassed, a 10Kohm resistor must be connected across the input circuit. This resistor is integrated in these modules and is activated by the S3, S1b or S2b slide switches depending on the barrier. Please refer to individual data sheets for further details.

For relay outputs, Form 'C' contacts (N.O. / N.C.) are available and can be reversed using the mode of operation switch. The contacts are rated 250VAC, 2A @ cos. > 0.7 and 40VDC, 2A resistive. The energizing / de-energizing delay equals approximately 20ms and the maximum switching frequency is 10 Hz.



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Pendants

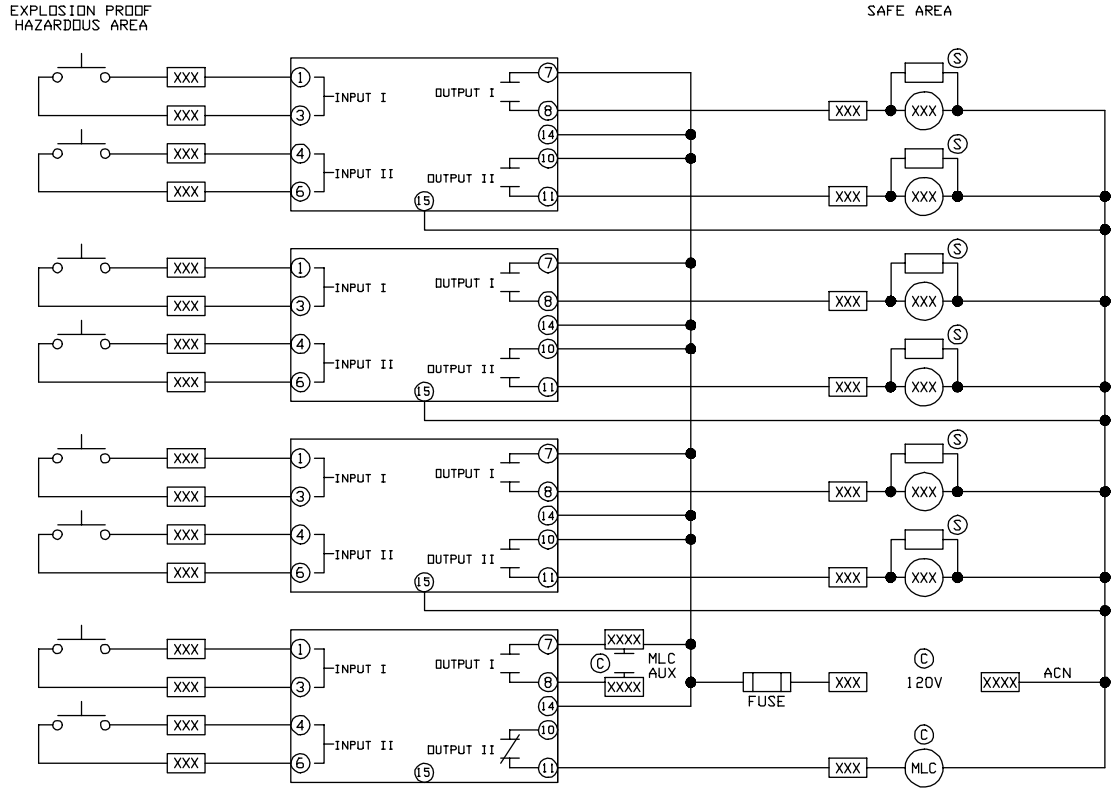
Specifications:

Technical data for Barrier Relay	
Power Supply nominal voltage	Terminals 14, 15. AC 103.5V.....126V. 45 Hz.....65 Hz
Maximum voltage U_m	DC 126.5 V
Power consumption	Less than or equal to 1.3 W
Input (Intrinsically safe)	Terminals 1+, 3-, 4+, 6-
Nominal data	per DIN 19 234 or NAMUR, = DC 8V / =8mA
Input pulse length / Input pulse interval	Greater than or equal to 20ms
Lead breakage (LB) monitoring	Breakage J less than or equal to 0.1ma
Details of Certificate of Conformity	
$U_0 / I_0 / P_0$	10.6V / 19mA / 51 mW
Permissible circuit values	
Ignition protection method, category	[EEx ia]
Explosion group	IIB / IIC
Maximum external capacitance	2.1 uF / 0.59 uF
Maximum external inductance	5 mH / 3 mH
Ignition protection method, category	[EEx ia]
Explosion group	IIB / IIC
Maximum external capacitance	20 uF / 2.9 uF
Maximum external inductance	360 mH / 100 mH
Entity Parameters	FM Control Drawing No. 116-0035. Terminals 4+, 6-; 5+, 6-
Suitable for Division 2 installation / mounting	No
Voltage V_{oc}	12.9 V
Current I_{sc}	19.8 mA
Explosion group	A&B, C&E, D, F&G
Maximum external capacitance (C_a)	1.273uF, 3.82uF, 10.18uF
Maximum external inductance (L_a)	84.88mH, 298.7mH, 744.4mH
Safety Parameters	CSA Control Drawing No. 116-0047
Safety Parameters	12.6V / 650 Ohms
Output (Not intrinsically safe)	
Output I:	Terminals 7, 8, 9
Output II:	Terminals 10, 11, 12
Contact load	AC: 253V / 2A / $\cos > 0.7$; DC: 40V / 2A resistive load
Mechanical life	10^7 operations
Energizing delay / De-energizing delay	= 20ms / = 20ms
Transfer characteristics	
Switching frequency	Less than or equal to 10 Hz
Galvanic isolation	
Input / Output	Safe galvanic isolation per EN 50 020, FM 3610, CSA C22.2 No. 157, UL 913
Input / Power supply	Safe galvanic isolation per EN 50 020, FM 3610, CSA C22.2 No. 157, UL 913
Output / Power supply	Safe isolation per DIN VDE 0106, ISA S82, CSA C22.2 No. 142, UL 508
Output / Output	Basic insulation per DIN EN 50 178, ISA S82, CSA C22.2 No. 142, UL 508
Ambient temperature	-4°F... 140°F (-20°C...+60°C)

Pendants

Schematic:

(part # 304ISP8 shown)

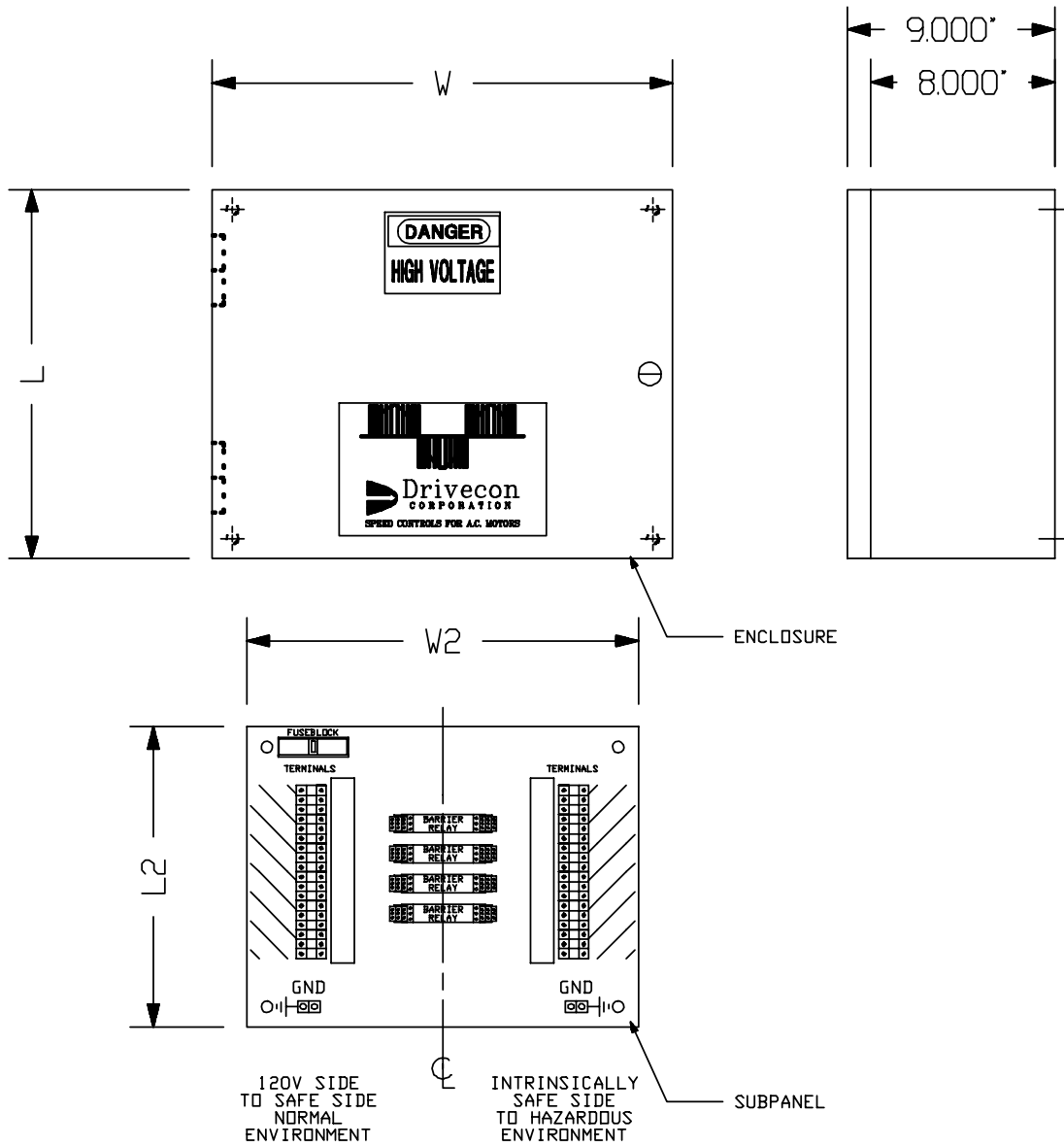


Ⓒ PROVIDED BY CUSTOMER

Ⓢ SUPPRESSORS REQUIRED ON ALL COILS

Pendants

Dimensions:



Number of Channels	Part #	Enclosure dimensions		Subpanel dimensions		Approximate Weight (lbs.)
		L	W	L2	W2	
8	304ISPB8	16	20	13	17	40
12	304ISPB12	20	20	17	17	46
16	304ISPB16	24	20	21	17	52
24	304ISPB24	30	20	27	17	70
36	304ISPB36	36	24	33	21	85