pefusafe

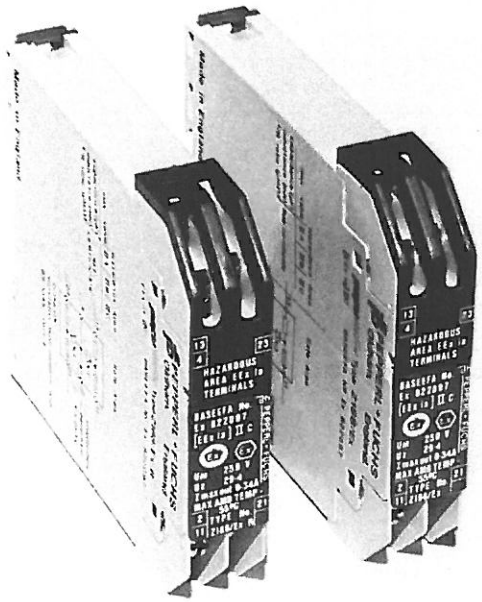
Shunt Zener Diode Safety Barriers
Dual Channel, Positive Polarity

pefusafe dual channel, positive polarity, shunt zener diode safety barriers are 6 terminal assemblies containing the components for 2 completely separate positive polarity barrier circuits. They are designed, built and tested in accordance with clause 8 of BS5501 : Part 7 : 1977 EN50 020 and are therefore regarded as infallible assemblies for use as barriers between intrinsically safe and non-intrinsically safe circuits.

The range of barriers shown is covered by BASEEFA Certificate of Conformity number Ex 822097 and classified [EEx ia] IIC in accordance with CENELEC requirements.

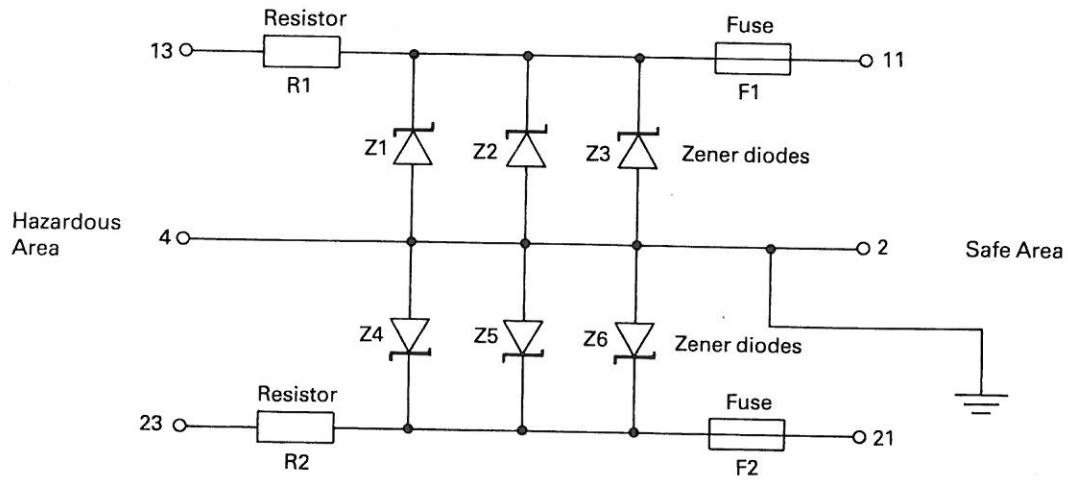
A schematic circuit drawing is shown below. The rail between terminals 2 and 4 must be connected to a high integrity earth in accordance with the relevant Code of Practice (BS5345 in the U.K.). These devices will pass electrical signals which are positive with respect to earth in either direction. Hence the designation – Positive Polarity.

Working voltages at which the leakage currents through the zener diodes will not exceed 10μA are quoted overleaf for each channel of each type. The maximum voltage quoted overleaf is that voltage which can be applied between terminals 11 and 2 or 21 and 2, with no load on terminals 13 and 4 or 23 and 4, without blowing the fuses. Both voltages are given for an ambient temperature of 20°C.



The maximum end to end resistances quoted overleaf for each channel are the sums of all the resistances between terminals 11 and 13 and 21 and 23.

The 2 channels may be used separately in different intrinsically safe circuits or together in the same intrinsically safe circuit. The type Z188/Ex-R has a 250$\Omega \pm 0.1\%$ resistor fitted between terminals 23 and 4 for 4-20 or 0-20mA transmitter applications requiring conversion of the current into voltage.



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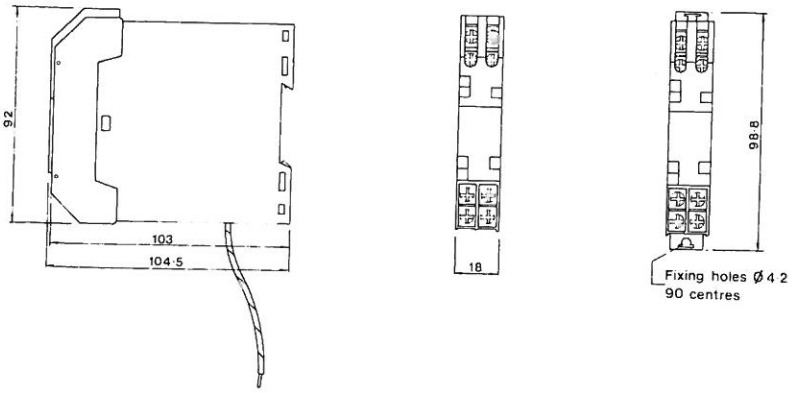
Technical Data

Type No.	Nominal characteristics	Max. end to end resistance	Working voltage at 10μA leakage	Max. voltage	Fuse rating mA	Notes
Z155/Ex	5V 10Ω 5V 10Ω	18.18Ω 18.18Ω	1V (3μA) 1V (3μA)	5.0V 5.0V	250 250	The end to end resistance is specifically set to 18Ω ± 1%
Z175/EX	22V 150Ω 22V 150Ω	202Ω 202Ω	19.7V 19.7V	21.0V 21.0V	50 50	
Z178/Ex	28V 600Ω 28V 600Ω	727Ω 727Ω	25.5V 25.5V	26.5V 26.5V	50 50	
Z179/Ex	28V 300Ω 28V 300Ω	367Ω 367Ω	25.5V 25.5V	26.5V 26.5V	50 50	
Z188/Ex	28V 300Ω 10V 47Ω	367Ω 63Ω	25.5V 6.5V	26.5V 9.1V	50 50	
Z188/Ex-R	28V 300Ω 10V 47Ω	367Ω 63Ω	25.5V –	26.5V 7.5V	50 50	A 250Ω ± 0.1% is fitted between terminals 23 and 4 for transmitter applications.

Ambient temperature range – operating −20 to +55°C
– storage −40 to +80°C

Relative humidity 95% without dewing



Barriers may be mounted either on 35mm transverse symmetrical rail (DIN 46277) or fixed with screws through the extended latches.
Hole centres are 90mm apart.

We recommend that the flying earth lead be connected to 10 × 3mm plated copper earth bar (Klippon type SSch) using clamp type earth terminals (Klippon type ZB4). We further recommend that this earth bar be connected by 2 wires to a high integrity earth. We suggest that the earth bar be mounted about 50mm from the barrier on insulated mounting brackets (Klippon type SH). The installation must comply with BS5345:Part 4:1977 in the U.K.

Head Office: 159 Huddersfield Road, Oldham. OL1 3PP. Tel. 061-633 6431. Telex 667308. Facsimile 061-624 6537
Southern Office: Brighstone House, 123 Reading Road, Farnborough, Hants. GU14 6NZ. Tel. (0252) 517111. Telex 858131