

# ASSURIX Shunt-diode safety barrier MZB12-15V-20MA

## Operating Manual and Control Drawing No. MZB12-15V-20MA



II (3) G [Ex ic Gc] IIB  
II (3) D [Ex ic Dc] IIIA

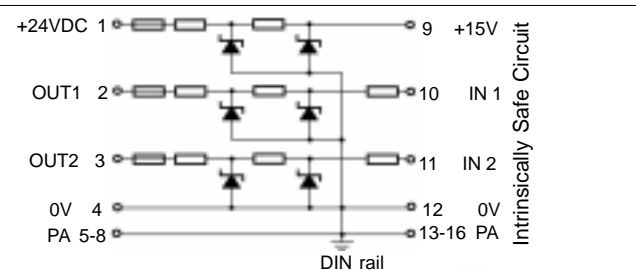
- 15V, intrinsically safe barrier for connection at intrinsically safe sensors in Ex zones 2, 22
- Type of Ex protection: Intrinsically safe II (3) G [Ex ic Gc] IIB  
II (3) D [Ex ic Dc] IIIA
- ATEX certification: Declaration by manufacturer
- 2 channels in the same package

Technical Data	Type	MZB12-15V-20MA
Type		Intrinsically safe shunt-diode barrier, mount out of hazardous locations
Supply voltage, not intrinsically safe		24VDC +/- 10%
Maximum safe-area voltage Um		30VDC
Maximum current consumption		130mA
Maximum intrinsically safe output voltage, Kl. 9		Uo = 16.8V
Maximum intrinsically safe output current, Kl. 9		Io = 129mA
Maximum intrinsically safe output power, Kl. 9		Po = 676mW
Usable intrinsically safe output current		22mA
Maximum permissible external inductance at Kl. 9		Co = 100nF
Maximum permissible external capacity at Kl. 9		Lo = 1mH
Intrinsically safe inputs, Kl. 10 and 11		2, Ri= 1200R
Intrinsically safe voltage at the inputs, Kl. 10 and 11		Uo = 16.8V
Intrinsically safe current at the inputs, Kl. 10 and 11		Io = 17mA
Intrinsically safe power at the inputs, Kl. 10 and 11		Po = 72mW
Maximum permissible external capacity at Kl. 10/11		Co = 200nF
Maximum permissible external inductance at Kl. 10/11		Lo = 2mH

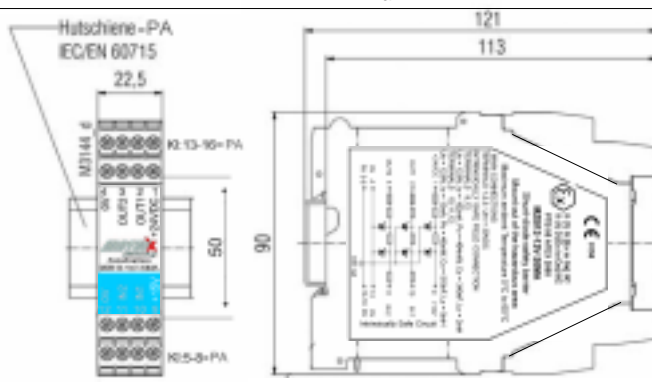
Switching frequency	5kHz
Housing	Enclosure material: Polycarbonate PC-GF
Enclosure rating at EN 60529	IP 20
Continuous working temperature range Tamb	0°C < Tamb < +60°C
Mounting	Simple snap on DIN-rail, at EN 60715
Connection	Terminal screws, protected according to VBG 4

**Elementary diagram / Equipotential bonding PA**

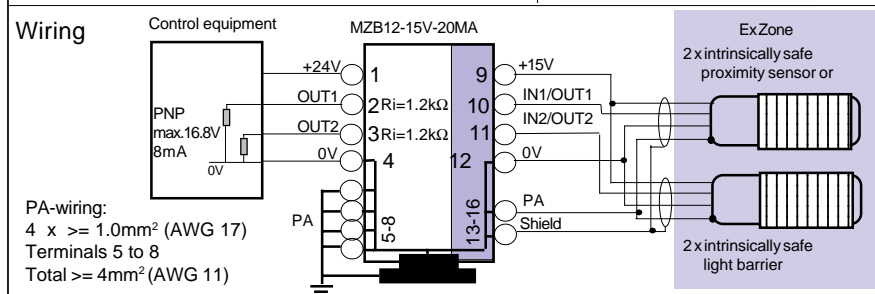
The equipotential bonding must be realized by connection of the terminals 5 to 8 to PA. Isolated wires 4 x >= 1.0mm<sup>2</sup> must be used.



**Dimensions**



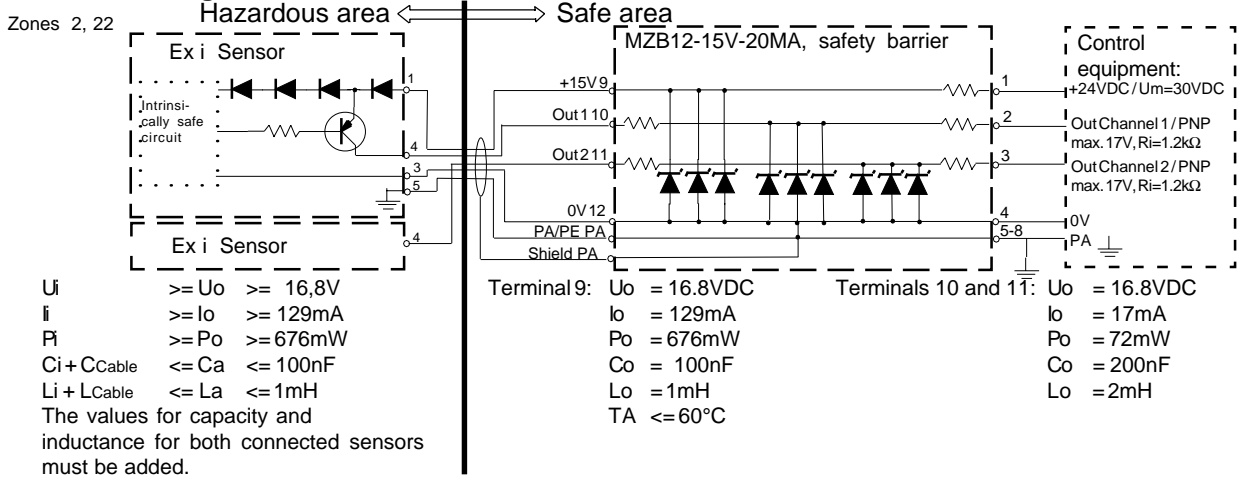
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**Safety values for connected sensors:**

Ui	≧	16.8VDC
Ii	≧	129mA
Pi	≧	676mW
Li + LCable	≧	1mH
Ci + CCable	≧	100nF

## Control Drawing for Hazardous Areas, MZB12-15V-20MA:



### ATEX RELATED MARKINGS:

CE 0158 Manufacturer with address: Matrix Elektronik AG  
 Device: MZB12-15V-20MA  $\text{Ex}$  II (3)G [Ex ic Gc] IIB, II (3)D [Ex ic Dc] IIIA  
 Certification No.: ATEX declaration by manufacturer, directive 2014/34/EU  
 Ta: 0°C < Tamb < +60°C Electrical data according to the chart  
 Date of production (Year/Week): Numbers 5 to 8 of the serial number

## Operating Manual, EC-/EU - Declaration of Conformity:

### Mounting prescriptions:

### Installation prescriptions for Ex hazardous locations:

#### WARNING:

"To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing". It is necessary to take into consideration the valid international and national rules and regulations (IEC 60079-14). Do not exceed the maximum ratings. The safety barrier must be installed out of the explosion risk area. The connection for the intrinsically safe circuit is marked in blue and must be connected outside of hazardous locations. The safety values of the connected sensors must be observed. The maximum allowed capacity and inductance of the connected cable must be observed. The maximum input voltage Um=30VDC must not be exceeded. The equipotential bonding must be realized by wiring the terminals No PA5 to PA8 to PE/PA. It must be used 4 wires >= 1mm<sup>2</sup>. The total cross section must be >= 4mm<sup>2</sup>.

### Application, Function

The shunt-diode safety barrier MZB12-15V-20MA limit the power (energy) that can be delivered from a safe area into a hazardous area and is used to interface control room equipment with devices in hazardous locations. The maximum 2 connected sensors must also be "intrinsically safe", for use in Ex zones 2, 22, related to the her certification. The connected intrinsically safe photoelectric proximity switches or light barriers must have a PNP- or push-pull outputs. The outputs are suitable to connect at various electronic control equipment. They can not drive electro-mechanical relay.

### Maintenance

The shunt-diode safety barrier MZB is maintenance-free. It can not be repaired.

### General Notes

We reserve the right to modify our equipment. The shunt-diode safety barrier MZB12-15V-20MA is designed such way, that it has the least possible adverse effect on the environment. It neither emit or contain any damaging or siliconized substances and use a minimum of energy and resources. No longer usable or irreparable units must be disposed of in accordance with local waste disposal regulations.

### Safety Informations, standards

The mounting, wiring, application and maintenance must be realized in accordance with this operating manual and the other relevant rules and prescriptions. It is necessary to take into consideration the relevant international and other national regulations. Under others are this: IEC 60079-14, Directive 1999/92/EC. The shunt-diode safety barrier MZB12-15V-20MA corresponds to the following standards:  
 EN 60079-0:2012, EN 60079-11:2012,  
 EN 60079-26:2007,  
 EN 61000-6-2:2001, EN 61000-6-3:2001  
 ATEX directive: 2014/34/EU  
 Machine directive: 2006/42/EC  
 RoHS directive: 2011/65/EC  
 EMC directive: 2014/30/EU

### EC-/EU-Declaration of Conformity

ATEX certification ba manufacturer according to the ATEX directive 2014/34/EU.  
 ATEX certification of quality management type production of Ex devices according to the ATEX directive 2014/34/EU. Certification No: BVS 15 ATEX ZQS / E118. The conformity of the devices with the EC standards and directives and the observation of the Quality Safety Management system ISO 9001:2008 with the ATEX module "Production", declares:

Hans Bracher, Matrix Elektronik AG

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