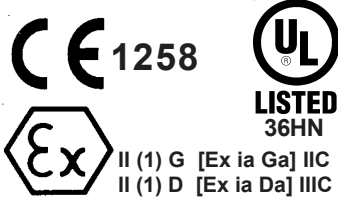


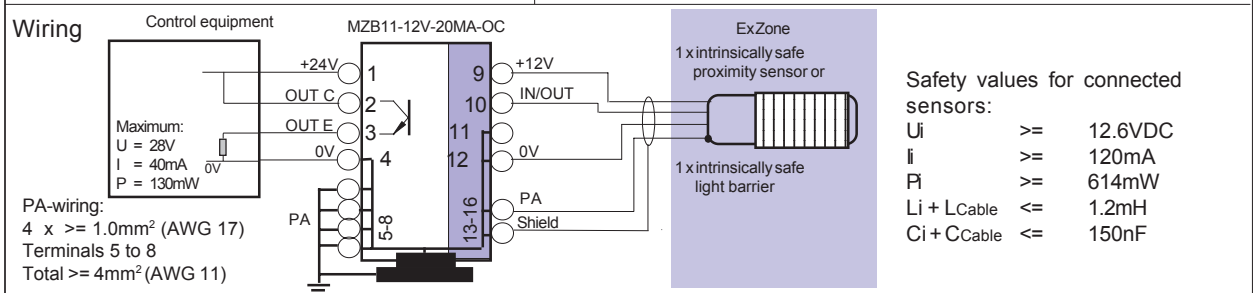
# ASSURIX Shunt diode safety barrier MZB11-12V-20MA-OC

## Operating Manual and Control Drawing No. MZB11-12V-20MA-OC-UL\_e14



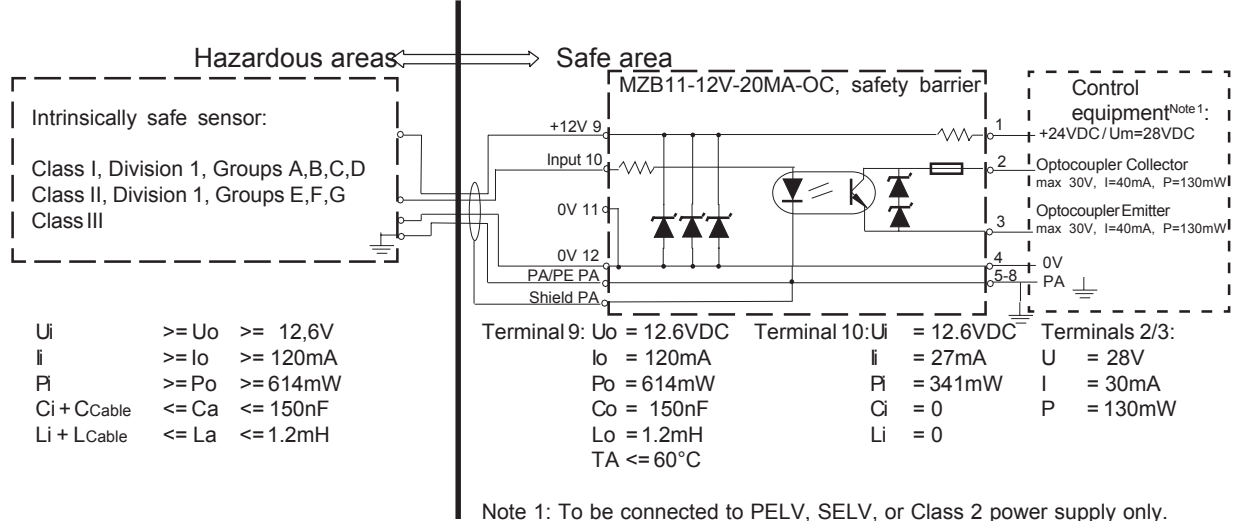
- 12V, intrinsically safe barrier with opto isolated output for connection at intrinsically safe sensors in Ex zones 0, 1, 2, 20, 21, 22
- Type of Ex protection: Intrinsically safe II (1) G [Ex ia Ga] IIC II (1) D [Ex ia Da] IIIC
- ATEX certification: PTB 05 ATEX 2068
- UL LISTED: E210500

Technical Data	Type	MZB11-12V-20MA-OC
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 = 12.6V
Maximum intrinsically safe output current, Kl. 9		Io = 120mA
Maximum intrinsically safe output power, Kl. 9		Po = 614mW
Usable intrinsically safe output current		22mA
Maximum permissible external inductance at Kl. 9		Lo = 1.2mH
Maximum permissible external capacity at Kl. 9		Co = 150nF
Intrinsically safe input, Kl. 10		PNP compatible
Intrinsically safe voltage at the input, Kl. 10		Ui = 12.6V
Intrinsically safe current at the input, Kl. 10		Ii = 27mA
Intrinsically safe power at the input, Kl. 10		Pi = 341mW
Maximum permissible external capacity at Kl. 10		Ci = 0
Maximum permissible external inductance at Kl. 10		Li = 0
Optocoupler output (Not intrinsically safe output)		Connection terminal for emitter and collector
Maximum voltage at the optocoupler		U = 28VDC
Maximum optocoupler current		I = 30mA
Maximum optocoupler power dissipation		P = 130mW
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		
Dimensions		



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**Control Drawing for Hazardous Areas, MZB11-12V-20MA-OC:**



Note 1: To be connected to PELV, SELV, or Class 2 power supply only.

ATEX RELATED MARKINGS:	CE 1258	Manufacturer with address: Matrix Elektronik AG
	Device: MZB11-12V-20MA-OC	II (1) G [Ex ia Ga] IIC, II (1) D [Ex ia Da] IIIC
	ATEX Certification No.:	PTB 05 ATEX 2068
	$T_{amb}: 0^\circ C < T_{amb} < +60^\circ C$	Electrical data according to the chart
	Date of production (year/calendar week):	Numbers 5 to 8 of the serial number

**Operating Manual, EU/UL - 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), National Electrical Code ANSI/NFPA 70 and Society of America Recommended Practice ISA RP12.6 (installing intrinsically safe equipment). 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  $U_m=30VDC$  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  $\geq 1mm^2$ . The total cross section must be  $\geq 4mm^2$ .

**Application, Function**

The shunt-diode safety barrier MZB11-12V-20MA-OC 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 connected sensors must also be "intrinsically safe", applicable for ATEX Ex zones 0, 1, 2, 20, 21, 22, related to the her certification. The connected intrinsically safe photoelectric proximity switch or light barrier must have a PNP- or push-pull output. The optocoupler output is suitable to connect at various electronic control equipment. It can not drive electromechanical 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 MZB11-12V-20MA-OC 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. The safety shunt-barrier must be connected to PELV, SELV, or Class 2 power supply only. It is necessary to take into consideration the relevant international and other national regulations. Under others are this: IEC 60079-14, ANSI/NFPA 70, ISA RP12.6, Direction 1999/92/EC.

The shunt-diode safety barrier MZB11-12V-20MA-OC corresponds to the following standards and directives:

- UL 913 Edition 7, UL 61010-1 Edition 2,
- 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**

EC-Type-Examination Certificate: PTB 05 ATEX 2068  
 UL-LISTED, ASSIGNED CONTROL No. 36HN/E210500.  
 QUZW -PROCESS CONTROL EQUIPMENT FOR USE IN HAZARDOUS LOCATIONS.

ATEX certification of quality management type production of Ex devices according to the ATEX directive 2014/34/EU, CE 1258, Eurofins. Certification No: SEV 21 ATEX 4580. The conformity of the devices with the EC/UL standards and directives and the EC/UL-type examination certificate and the observation of the Quality Safety Management system ISO 9001:2015 with the ATEX module "Production", declares:

Pablo Ledergerber, Matrix Elektronik AG

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