

DZ-120



KONGSBERG



ZENER BARRIER UNIT

The KONGSBERG DZ-120 Zener Barrier Unit is designed to safely provide signal interface and power supply to Kongsberg instrumentation located in hazardous area. The unit connects intrinsically safe 4-20 mA transmitters, and is prepared for HART communication.

Principle of operation

The Zener Barrier is installed in safe area, designed to limit the amount of energy that could appear in an electric circuit that connects to instrumentation located in hazardous area.

The DZ-120 is a single channel shunt diode safety barrier, intended for protecting a 2-wire, 4-20 mA/HART signal transmitter installed in hazardous area. If a fault voltage occurs between the terminals on the safe side, the Zener diode limits the voltage that risks appearing in the hazardous area, and a resistor limits the current to an acceptable value. The Zener Barrier also permits a short circuit of the cable in hazardous area without danger.

Installation

The Zener Barrier is typically installed in the processing cabinet in control room. The DZ-120 is equipped with blue colored terminals (T4 and T5) for connection of the intrinsically safe circuit in hazardous area. Terminals T2 and T3 connects the Zener Barrier to an analogue input channel in the monitoring system. The Zener Barrier shall be grounded to the Intrinsically Safe busbar in the system (T6), by minimum a 1.5 mm² cable. The DZ-120 mounts to a TS-35 mounting rail (according to DIN46277). End stoppers shall be used to support the units.

Special conditions for safe use :

1. The separation distance of minimum 50 mm between intrinsically and non-intrinsically safe circuits has to be observed for the final installation in a cabinet.
2. The DZ-120 has to be installed in a cabinet with a degree of protection of at least IP22.
3. The ambient temperature range for the DZ-120 is $-20\text{ °C} \leq T_a \leq +70\text{ °C}$
4. A grounding/earthing bar must be mounted at the intrinsically safe side of the barrier. Terminal 3 and/or 6 on each barrier must be connected to this bar by a 1.5 mm² (minimum) cable.

Safety instruction:

For safety instruction see the document 373874 K-Gauge Ex I Safety instructions.

FEATURES

- Intrinsically safe connection of 4 - 20 mA transmitters to safe area
- Prepared for HART communication
- Snap-on installation to DIN rail
- Small size
- ATEX, IECEx and type approved

TECHNICAL SPECIFICATIONS

Power supply:	24 VDC nom. (± 0.5 V)
Nominal resistance:	265 Ω
Max. series resistance:	270 Ω
Max. load resistance:	150 Ω
Fuse rating:	50 mA
Signal interface:	4 - 20 mA / HART
Operating temperature:	- 20 °C to + 70 °C
Storage temperature:	- 25 °C to + 70 °C
Relative humidity:	Max. 75 % (without moisture condensation)
Dimension:	12.5 x 114.5 x 99.0 mm (width x height x depth)
Protection grade:	IP20
Weight:	0.1 kg
Terminal size:	2.5 mm ²
Ex classification:	Ⓔ II (1) G [Ex ia Ga] IIC ATEX directive 2014/34/EU
Ex certification:	Presafe 16 ATEX 7965 IECEX PRE 16.0020
Environmental standards:	IACS E10 CISPR 22

Ex standards:	EN 60079-0:2012 EN 60079-11:2012 IEC 60079-0:2011 IEC 60079-11:2011
---------------	--

Safety data

Max. safe voltage:	Um	= 250 VAC
Max. output voltage:	Uo	= 26.5 VDC
Max. output current :	Io	= 112 mA
Max. output power:	Po	= 0.74 W
Max. external capacitance:	Co	= 95 nF
Max. external inductance:	Lo	= 2.8 mH
Max. ratio:	Lo/ Ro	= 48 μ H/ Ω

Type approvals: ABS, BV, CCS, DNV-GL, KRS, LRS, NK, Rina

Specifications subject to change without any further notice.

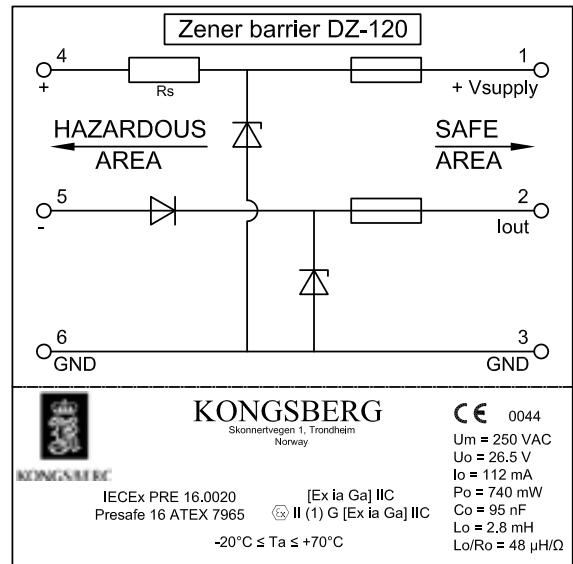


Figure 1: Ex-i information plate for Zener Barrier DZ-120

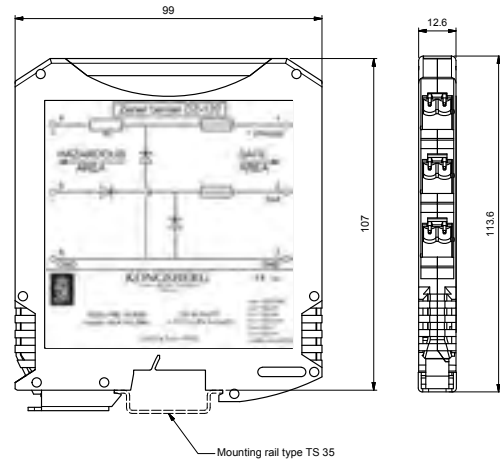


Figure 2: DZ-120 dimensions

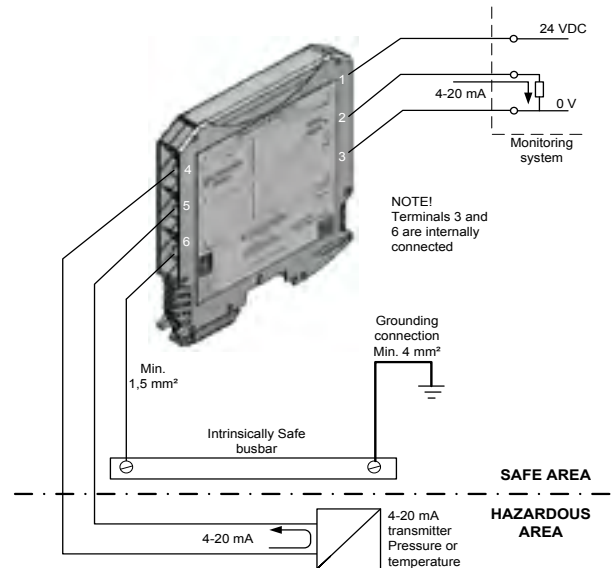


Figure 3: DZ-120 electrical connection layout.

