BZB20 Zener Barrier

For load cell connection of ATEX weighing systems

IP20

Application Areas

- For accurate measurement in Zone 0/1/2 or Zone 20/21/22 explosive atmospheres; Connection of load cells, force sensors and strain gauge based pressure sensors,
- All kinds of industrial scales, scales and weighing systems.

Benefits

- The Zener barrier design is intended for the load cell.
- It eliminates the sensitivity and accuracy degradation, measurement and thermal stability problems caused by standard zener barriers in weighing with load cells.
- Load cell excitation, signal and sense connections are all made via a single BZB20.

BZB20 zener barrier is a compact, three-channel safety barrier. It is designed to connect the analogue load cells of a scale or weighing system installed in an ATEX environment to a weighing indicator in a safe area. By using the BZB20, you can eliminate the problems of weight change with temperature, measurement stability, and weighing sensivity degradation that are caused by standard zener barriers in weight measurements.

When using the BZB20 zener barrier in scales or weighing systems with multiple load cells, the voltage at the load cell excitation terminals will be 1.7 times higher than when using a standard zener barrier. As a result, more sensitive measurements will be obtained at the signal terminals of the load cells in the same ratio.

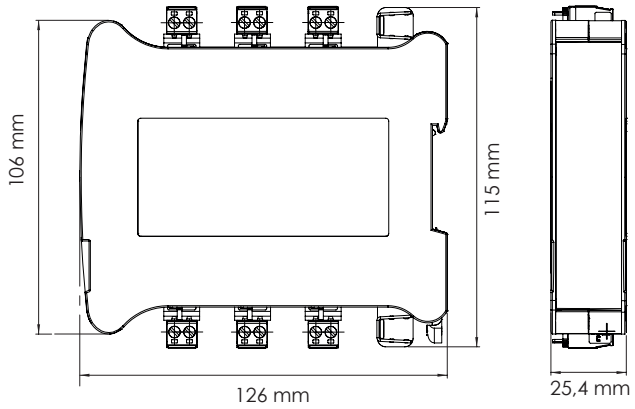
With the use of BZB20, the drift in weight caused by standard zener barriers is eliminated, and in the hazardous area, the scale weighing performance and sensitivity used in non-hazardous areas are obtained.

BAYKON
Industrial Weighing Systems

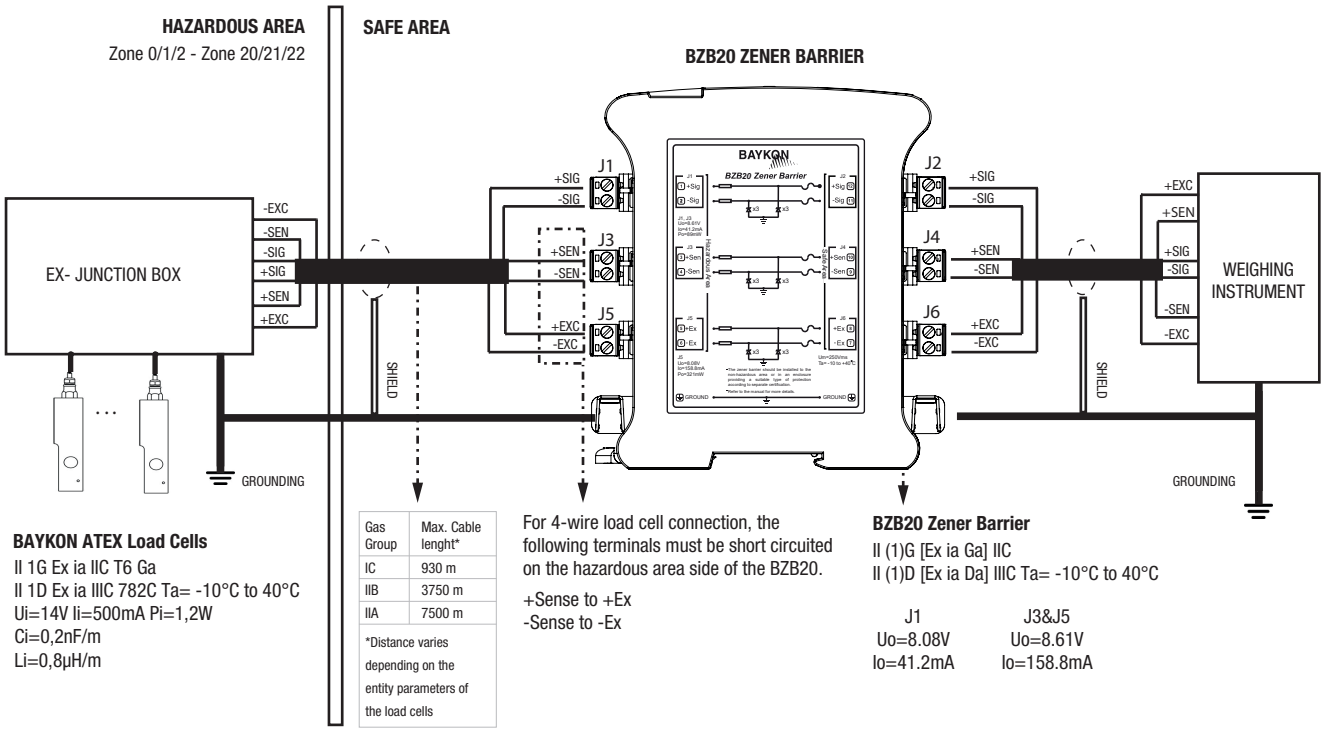
Technical Specifications

Model	BZB20
ATEX approval	II (1)G [Ex ia Ga] IIC -10°C ≤ Ta ≤+40°C II (1)D [Ex ia Da] IIIC -10°C ≤ Ta ≤+40°C
Normative references	EN IEC 60079-0:2018 (Explosive atmospheres Part 0: Equipment - General requirements) EN 60079-11:2012 (Explosive atmospheres Part 11: Equipment protection by intrinsic safety "I")
Installation area	Safe Area
Number of load cells	Up to 4 load cells of 350 Ω or up to 12 load cells of 1000 Ω. Minimum 80 Ω
Load cell connection	Connection of 4 or 6-wire load cells to the weighing instrument with 6 wires.
Excitation voltage (max.)	5.3 VDC
Series resistance	39 Ω
Operation temperature / Humidity	-10°C to 40°C / maximum 90% RH without condensation
Housing / IP rating	Made of PC-ABS plastic complying with UL94 V0 flammability rating, mounting on 35mm DIN rail / IP20 rated
Conductor cross - section	0,2 mm² (24 AWG) to 2,5 mm² (14 AWG)
Ground cable cross - section (min.)	4 mm² (12 AWG)

Dimensions (mm)



Connection Diagram



BAYKON ATEX Load Cells
II 1G Ex ia IIC T6 Ga
II 1D Ex ia IIIC 782C Ta= -10°C to 40°C
Ui=14V Ii=500mA Pi=1,2W
Ci=0,2nF/m
Li=0,8µH/m

Gas Group	Max. Cable lenght*
IC	930 m
IIB	3750 m
IIA	7500 m

*Distance varies depending on the entity parameters of the load cells

For 4-wire load cell connection, the following terminals must be short circuited on the hazardous area side of the BZB20.

+Sense to +Ex
-Sense to -Ex

BZB20 Zener Barrier
II (1)G [Ex ia Ga] IIC
II (1)D [Ex ia Da] IIIC Ta= -10°C to 40°C

J1	J3&J5
Uo=8.08V	Uo=8.61V
Io=41.2mA	Io=158.8mA

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