schenckprocess

Load cells Type: RTB
Safety Instructions

BVH2539 GB

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Note: The original manual is in German. This is a translation.

Contents

1 General Load Cell Safety Information

Personnel

Preparation, assembly, commissioning, operation, maintenance and servicing may only be carried out by qualified personnel.

All persons working on the system are required to observe the safety hints and know the parts of the technical documentation relevant to their work.

The operating company is responsible for instructing his operators to observe all regulations and instructions given.

Qualification of personnel

"Qualified personnel" refers to persons familiar with installation, commissioning and operation of the system as well as with the type protection concept, and qualified in accordance with the standards applicable to their professional activities.

Use as Originally Intended

The field of application is defined by the information and technical data supplied by the manufacturer of the corresponding electrical equipment and by the installation provisions. The load cells are intended for use in weighing systems and for weighing purposes. All other uses are unauthorized.

Please observe the respective local legal and safety provisions for the use of load cells in explosion hazard areas. The installation of intrinsically safe circuits requires an inherent safety certificate.

Vibrations during operation must not exceed the specifications in the applicable data sheets.

The load cells must not be exposed to stress associated with vibrations.

When used in open air, it is necessary to prevent ice formation on the load cells.

Changing or modifying load cells is not authorized.

Use of the load cells outside of the areas for which they have been approved is prohibited and is considered unauthorized.

Assembly and Establishing an Electrical Connection

Ensure that the load cells are in direct conductive contact with the surrounding construction which, in turn, must be incorporated into the potential equalization of the entire system.

They are connected as described in the relevant weighing electronics manuals or in the detailed documentation. Load cells designated as intrinsically safe must be connected using Zener barriers or switch amplifiers.

The connecting cable must be laid so that it is protected from damages.

Constraints on the Use of Load Cells of Stainless Steel

Bear in mind for your field of application that stainless steels and their welding seams also may be corroded by aggressive media. If such media are present in your case, take additional protective measures.

Regular Maintenance and Inspection

DANGER

Explosions triggered by electrostatic discharge

Danger of life from explosion.

1. The housing elements must be grounded among themselves.
2. The entire machine must be grounded.
3. The leakage resistance to earth must be $< 10^6\ \Omega$.
4. **In a gas explosion hazard area:** avoid direct electrostatic discharges (e.g. never wipe off plastic surfaces with a dry rag).

Check the protective measures regularly to ensure effectiveness. All components inside explosion-protection areas must be inspected regularly.

We suggest the following intervals:

Activity	Interval
Visual inspection, removal of dust deposits.	monthly
Check clamp and adjust Check load cells for cracks, replace load cells when cracks are discovered.	every 6 Months
Performance test of the electrical system, check cables for damage.	annually

The intervals can be extended or shortened based on the experience of the operator, provided that this does not create a safety risk.

Repair and Replacement

Damaged load cells must be replaced and returned to the manufacturer for inspection. The interior parts of the load cell cannot be repaired by the operator.

Disposal

Observe the relevant national provisions for disposal of devices and components.

2 Basic Information on Explosion Protection

Special Instructions for PWS, RTN and VBB Load Cells

- If the load cells are installed in an environment where the EPL should be Da or Db, the connecting cable must be installed in such a way that prevents electrostatic charge.
- The enclosures of all load cells must be grounded.
- The thickness of the dust deposits must not exceed 5 mm in dust explosion zones.
- If the load cells are not connected to an intrinsically safe electric circuit, the free end of the fixed connected cable must be connected outside of the explosion hazard area. If it is connected inside the explosion hazard area, this connection must be made inside an enclosure of a suitable protection class.
- The screen of the RTN load cells is grounded to the enclosure using a 1 nF condenser. To avoid exceeding the total permissible capacity of 10 nF, no more than 8 load cells can be connected.
- On the PWS and VBB load cells, the screen must be grounded directly to the enclosure.

Fields of Use

The load cells can be used as follows:

- RTB: Zone 20, 21, 22, dust group IIIC
- RTB: Zone 1, 2, gas group IIC

Details concerning the connection are found in the following sections.

3 Connecting the Load Cells

General Information on Connecting Load Cells

- The instructions in the relevant product data sheets must be followed.
- The connecting cable used by the operator should be tested with a testing voltage of at least 500 V.
- The connecting cable must be suitable for use under the planned site conditions with regard to mechanical strength, temperature resistance, and electrical properties. Connecting cables can be obtained from Schenck Process.

Load cell, type RTB

Supply circuit	pink (+) and gray (-)
Output circuit	brown (+) and white (-)
Shield	without

Tab. 1 : Type RTB: cable with 4 connecting wires

4 Protection against Dust Explosion

RTB load cells: Zone 20, 21 and 22 (category 1D, 2D, 3D)

The load cells are operating equipment in **equipment group II** in the protection by enclosure "**tD**" protection class for use in dust explosion zones in **zone 20, 21 and 22 (category 1D, 2D, 3D)**.

The load cells are suitable for connection to a current circuit with the following maximum values.

Type Series	**RTB**
License No.	KEMA 05 ATEX 1130X
Explosion protection designation	**II 1D** **Ex tD A20 IP6x T70 °C** OR **II 2D** **Ex tD A21 IP6x T70 °C**
Protection class	IP66/IP67/IP68
Max. supply voltage	30 VDC
Maximum current	---
Max. surface temperature	70 °C
T_{amb}	-20 °C … +40 °C

When using **RTB**-type load cells in **category 1D, 2D, 3D**, the load cells do not have to be operated intrinsically safe.

5 Protection against Gas Explosions

RTB load cells: Zone 1 and 2 (category 2G, 3G)

Load cells are passive equipment belonging to **equipment group II** in the 'intrinsic safety' protection class "**ia"** for use in gas explosion hazard areas of **zone 1 or zone 2 (category 2G, 3G)**. They are suited for connection to a certified intrinsically safe electric circuit with the following maximum values.

Model series	**RTB**
License No.	KEMA 05 ATEX 1130X
Explosion protection designation	**II 2G** **Ex ib IIC**
U_i	25 V
I_i	1000 mA
P_i	2.75 W
Temperature class	T4
T_{amb}	-20 °C … +40 °C
L_i	0 µH/m
C_i	0.4 nF [1)]

[1)] If the overall length of the fixed connection cable does not exceed max. 25 m

6 Standards Applied

Standards relevant to RTB load cell

- EN 60079-0:2006 Potentially Explosive Atmosphere, Part 0: Devices – General Requirements
- EN 60079-1:2007 Electrical apparatus for use in the presence of combustible dust – part 1: Protection by enclosure "tD"
- EN 60079-11:2007 Explosive Atmosphere – Part 11: Equipment Protection with Intrinsic Safety "i"

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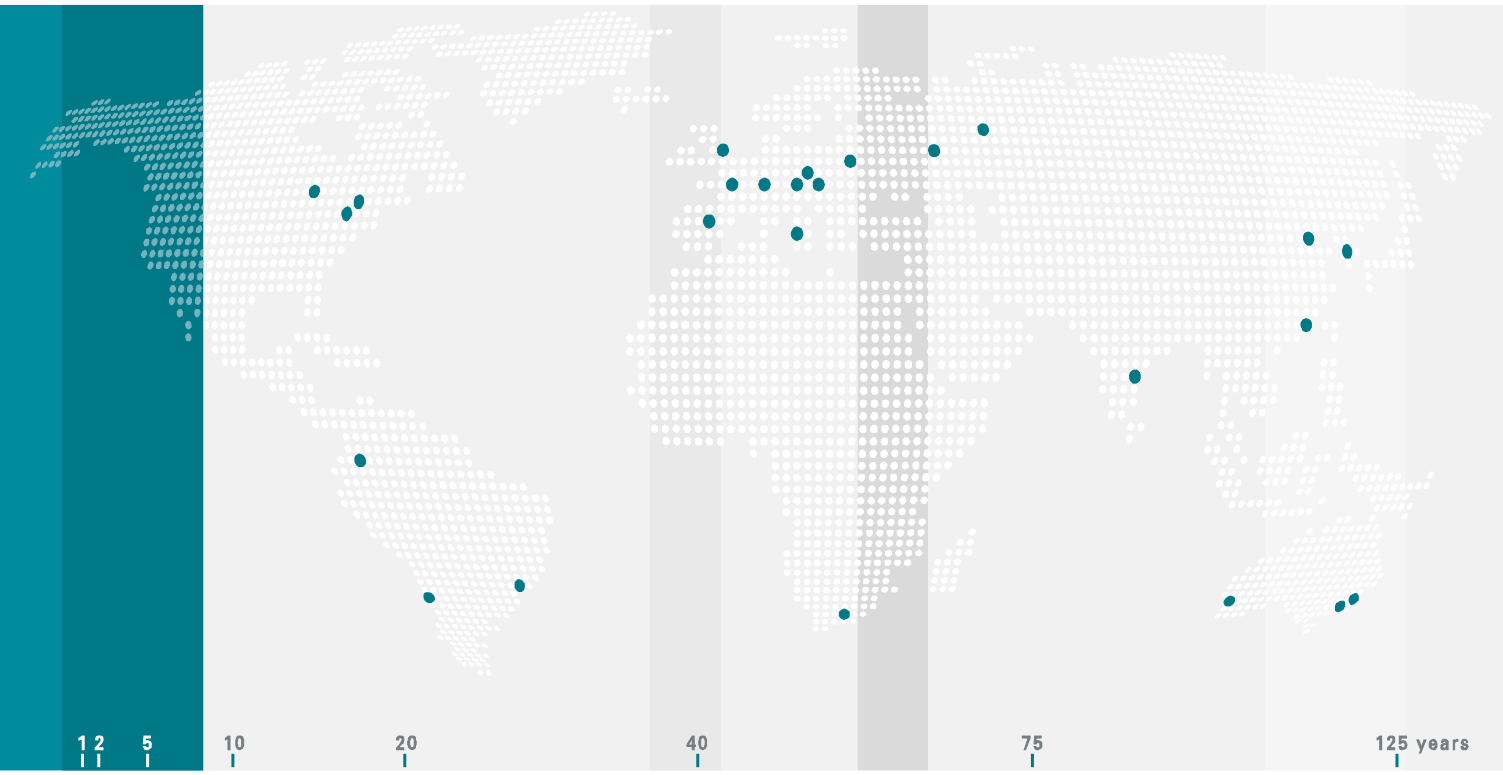

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Schenck Process entwickelt, fertigt, montiert und vermarktet eine Vielfalt an Lösungen, Produkten, Systemen und Komponenten, in denen sich prozesstechnisches Know-how und bewährte Technologien vereinen.

Schenck Process is the global market leader of solutions in screening and process technologies in industrial weighing, feeding, screening and automation.

Schenck Process develops, manufactures, assembles, markets and sells a full range of solutions, products and turnkey systems on the basis of combining process engineering expertise, reliable components and field-proven technology.

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