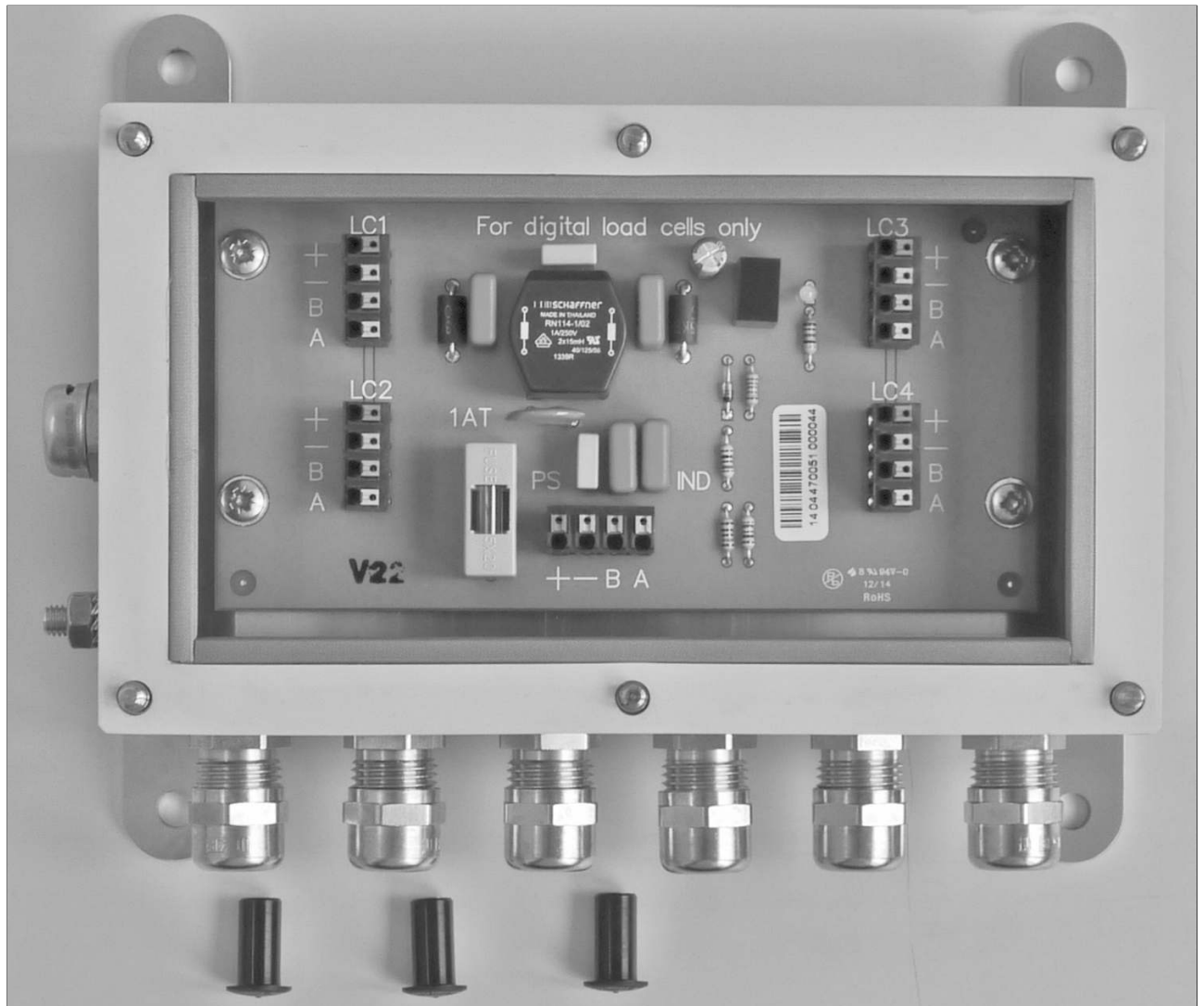


Installation manual

Cable junction box for digital load cells PR 6024/64S



Foreword

Must be followed!

Any information in this document is subject to change without notice and does not represent a commitment on the part of Minebea Intec unless legally prescribed. This product should be operated/installed only by trained and qualified personnel. In correspondence concerning this product, the type, name, and release number/serial number as well as all license numbers relating to the product have to be cited.

Note

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1 Introduction

1.1 Read the manual

- Please read this manual carefully and completely before using the product.
- This manual is part of the product. Keep it in a safe and easily accessible location.

1.2 This is what operating instructions look like

1. - n. are placed before steps that must be done in sequence.
 - ▶ is placed before a step.
 - ▷ describes the result of a step.

1.3 This is what lists look like

- indicates an item in a list.

1.4 This is what menu items and softkeys look like

[] frame menu items and softkeys.

Example:

[Start]- [Applications]- [Excel]

1.5 This is what the safety instructions look like

Signal words indicate the severity of the danger involved when measures for preventing hazards are not followed.

DANGER

Warning of personal injury

DANGER indicates death or severe, irreversible personal injury which will occur if the corresponding safety measures are not observed.

- ▶ Take the corresponding safety precautions.

WARNING

Warning of hazardous area and/or personal injury

WARNING indicates that death or severe, irreversible injury may occur if appropriate safety measures are not observed.

- ▶ Take the corresponding safety precautions.

CAUTION

Warning of personal injury.

CAUTION indicates that minor, reversible injury may occur if appropriate safety measures are not observed.

- ▶ Take the corresponding safety precautions.

NOTICE**Warning of damage to property and/or the environment.**

NOTICE indicates that damage to property and/or the environment may occur if appropriate safety measures are not observed.

- ▶ Take the corresponding safety precautions.
-

Note:

User tips, useful information, and notes.

1.6 Hotline

Phone: +49.40.67960.444

Fax: +49.40.67960.474

eMail: help@minebea-intec.com

2 Safety instructions

2.1 General notes

CAUTION

Warning of personal injury.

The product was in perfect condition with regard to safety features when it left the factory.

- ▶ To maintain this condition and to ensure safe operation, the user must follow the instructions and observe the warnings in this manual.

2.2 Intended use

The junction box is designed for industrial weighing systems and weighing systems for use in legal metrology which use a digital load cell.

It can also be operated in potentially explosive atmospheres.

The power supply PR 6024/62S is used to supply power to the load cells.

Product operation, commissioning and maintenance must be performed by trained and qualified personnel who are aware of and able to deal with the related hazards and take suitable measures for self-protection.

The device reflects the state of the art.

The manufacturer does not accept any liability for damage caused by third-party system components or due to incorrect use of the product. The use of this product signifies recognition of the stipulations listed above.

The following table shows the load cells that should and should not be used for different applications.

Load cells to be used	Load cells not to be used
	PR 6201/.., all types
	Inteco®/.., all types
PR 6204 Pendeo® Process	
	PR 6207/.., all types
	PR 6211/.., all types
	PR 6212/.., all types
	PR 6221/.., all types
PR 6224 Pendeo® Truck	
	PR 6241/.., all types
	Contego®/..D1, /..D1Ex, /..C3, /..C3Ex
	PR 6246/.., all types
	PR 6251/.., all types
	Novego®/..D1, /..D1E, /..C3, /..C3E
	MP load cells, all types

2.3 Initial inspection

Check the contents of the consignment for completeness. Check the contents visually to determine whether any damage has occurred during transport. If there are grounds for rejection of the goods, a claim must be filed with the carrier immediately. The Minebea Intec sales or service organization must also be notified.

2.4 Before operational startup

NOTICE

Perform visual inspection.

- ▶ Before operational startup as well as after storage or transport, inspect the device visually for signs of mechanical damage.

2.5 Repairs and maintenance

2.5.1 General information

Repairs are subject to inspection and must be carried out at Minebea Intec.

In case of defect or malfunction, please contact your local Minebea Intec dealer or service center for repair.

When returning the device for repair, please include a precise and complete description of the problem.

Maintenance work may only be carried out by a trained technician with expert knowledge of the hazards involved and the required precautions.

2.5.2 Changing fuses

⚠ WARNING

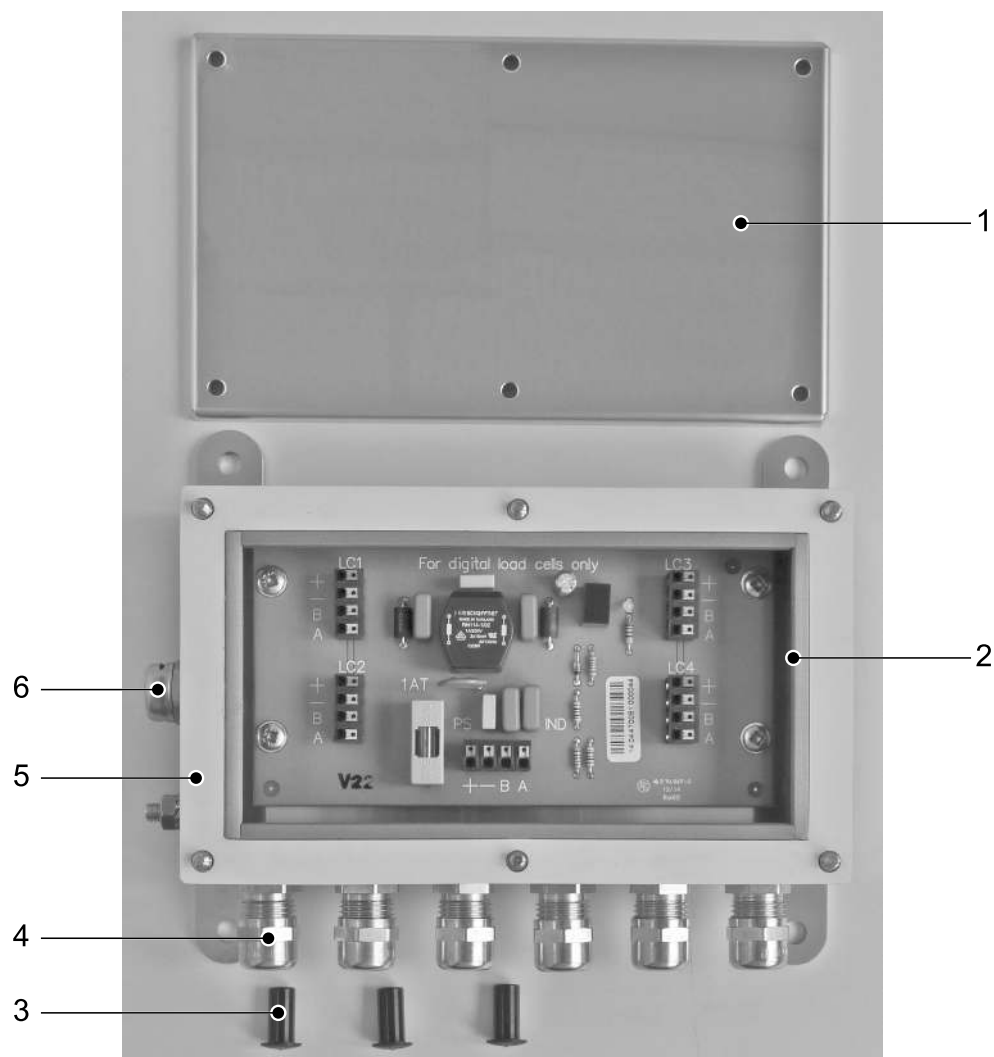
Damage from overheating.

The use of repaired fuses and bypassing the fuse holder is prohibited.

- ▶ Only the fuses listed in Chapter [3.2](#) are permissible.

3 Specifications

3.1 Equipment supplied



No.	Description
1	Cover
2	Box incl. electronics
3	Ex-zone locking pin 6 mm (3x)
4	Cable gland M16 (6x)
5	Gasket
6	Pressure compensation element
The following items are not shown:	
7	Drilling template
8	Installation manual
9	Certificates

3.2 Technical Data

Protection classes	per DIN EN 60529 IP68, IP69: Dust-proof and leak-proof against water, with harmful effects when immersed, (0.5 m water depth, 1,000 h) and water jets (high pressure and temperature). IP66: Dust-proof and leak-proof against strong water jets.
Installation position	Cable entry from below
Quantity of load cells	1..4
Clamping area screw connection M16	5..9 mm
Supply voltage	24 V DC
Overvoltage protection	1× 1 AT
Pressure equalization	Stainless steel pressure equalization element
Material of the junction box	High-grade stainless steel 1.4301 (X5CrNi 18-10) according to EN 10088-3, AISI 304, JIS SUS304
Surface of the junction box	2R according to DIN EN 10088-2 (cold-rolled, bright annealed, flat, blank, reflective)
Net weight	1.1 kg
Shipping weight	1.3 kg
Service temperature area	-30 °C...+80 °C
Service temperature area, in explosion-prone area	-20 °C...+60 °C
Storage temperature range	-30 °C...+80 °C
Cable screw connections	Metal Ex EMC cable screw connections
Ex-connection values	See Chapter 8.1 .
Seal	EMC seal
Cable length	Supply cable PR 6124/xxP for mains supply PR 6024/62S: max. 200 m Data cable PR 6124/xxD for device: max. 300 m
Service temperature area of cables	Supply cable PR 6124/xxP: -30 °C...+90 °C Data cable PR 6124/xxD: -30 °C...+90 °C

3.3 Electromagnetic Compatibility (EMC)

All data in compliance EN 61326 industrial section

Housing	High frequency electromagnetic fields (80...3000 MHz)	EN 61000-4-3	10 V/m
	Electrostatic discharge (ESD)	EN 61000-4-2	6/8 kV
Signal and control lines	Fast transients (burst)	EN 61000-4-4	1 kV
	Peak voltages (surge) 1.2/50 μ s	EN 61000-4-5	1 kV
	Conducted disturbances by high frequency coupling (0.15...80 MHz)	EN 61000-4-6	10 V

3.4 Possible marking for the Ex area

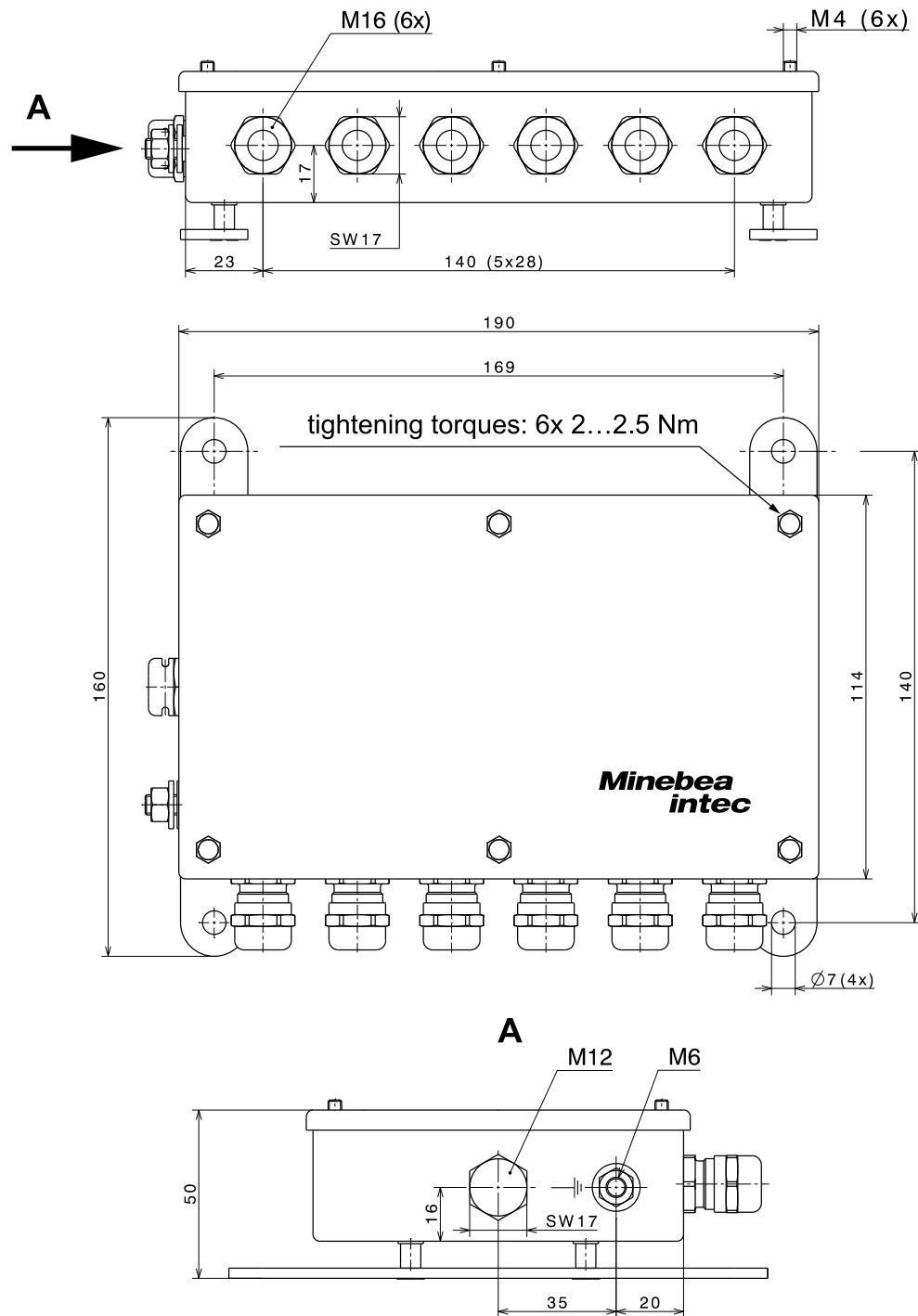
Zone	Marking	Certificate No.
2 and 22	II 3G Ex nA IIC T5 Gc II 3D Ex tc IIIC T90 °C Dc	SWT 12ATEX004 X

NOTICE

Installation in Ex Area

- The Ex safety instructions in the appendices must be observed when installing in the Ex area.

3.5 Dimensions



all dimensions in mm

4 Installation and connection information

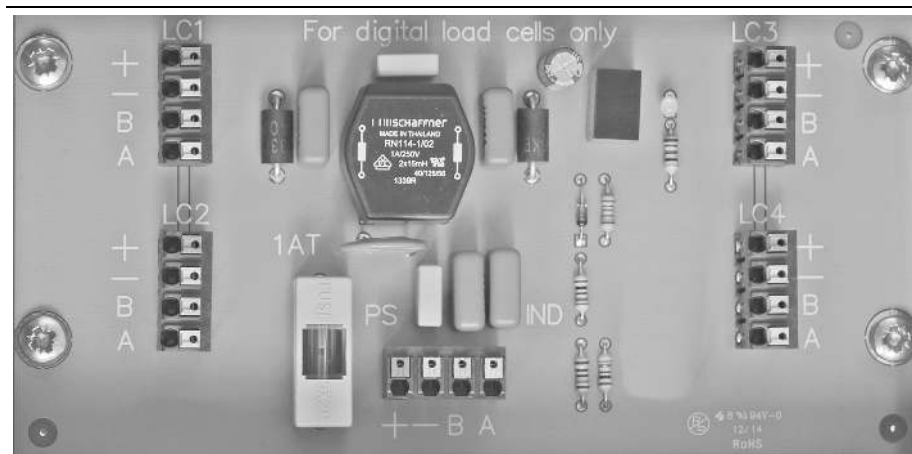
4.1 General information

- The safety instructions in Chapter 8.1 must be followed!
- Only use the metal EX EMC cable glands provided by the manufacturer.
- Install the junction box so that the cable glands are on the bottom.
- Do not open the junction box when connected to the voltage supply.

Note:

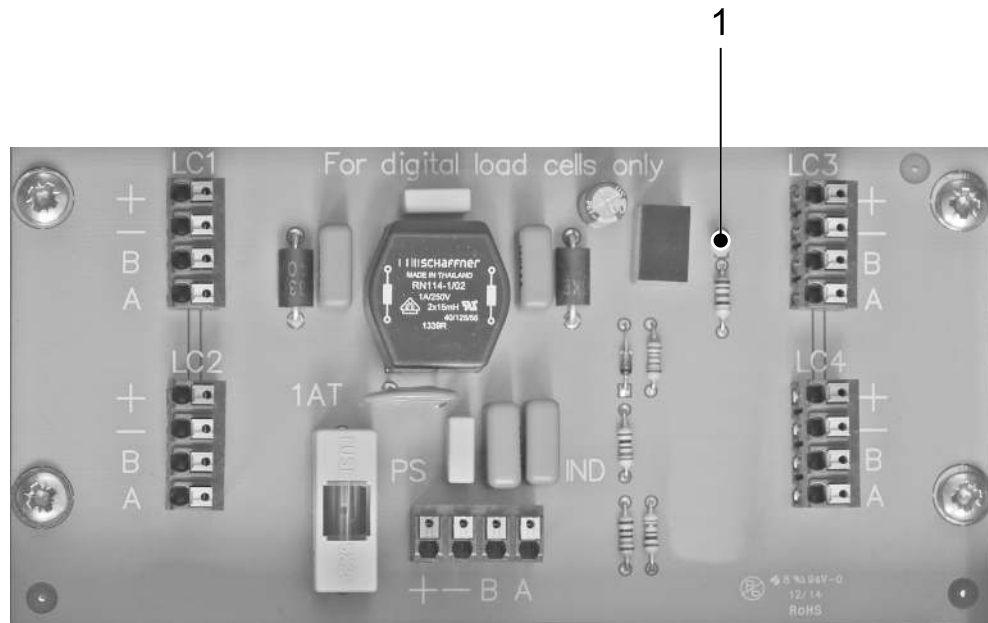
At ambient temperatures >45°C, cables that are suitable for at least 85°C must be used.

4.2 Terminals and jumpers



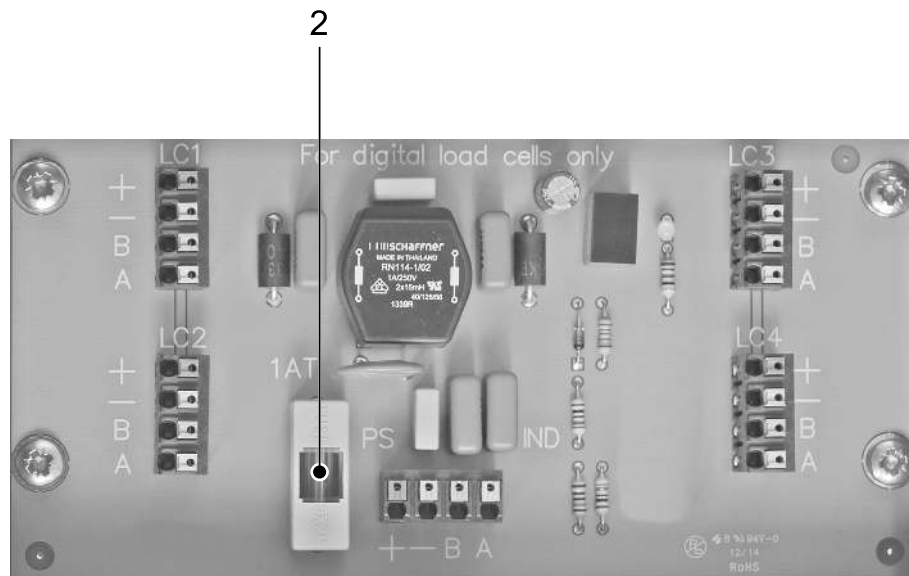
+	Red	Terminal contacts LC1-4	+ supply voltage (load cells)
		Terminal contact PS	+ supply voltage (supply cable PR 6124/xxP for the PR 6024/62S power supply)
-	Blue	Terminal contacts LC1-4	- supply voltage (load cells)
		Terminal contact PS	- supply voltage (supply cable PR 6124/xxP for the PR 6024/62S power supply)
B	green	Terminal contacts LC1-4	RS-485 TxB (data transmission)
		Terminal contact IND	RS-485 TxB (data cable PR 6124/xxD for the device)
A	gray	Terminal contacts LC1-4	RS-485 TxA (data transmission)
		Terminal contact IND	RS-485 TxA (data cable PR 6124/xxD for the device)

4.3 LED



The green LED (1) lights up when the supply voltage is 24 V DC.

4.4 Fuses



The power supply is protected by a time-delayed 1.0 A fuse (2) in a fuse holder with protection against contact.

When a fuse has tripped:

- Disconnect the junction box from all power sources.
- Determine and eliminate the cause of the error.
- Replace the fuse.

Make sure that fuses are replaced only using fuses of the same type, see Chapter [3.2](#).

- Reconnect the junction box to all power sources.

4.5 Cable gland

The cables have to be fed into the device via glands to ensure leak-tightness. Cable diameters of 5...9 mm are suitable for gland M16.

The cable wires are connected to the terminals inside the device.

NOTICE

For protection against dust and moisture during transport and installation, the cable glands are fitted with a polyethylene cover.

For full IP protection, operation with the dust protection cover fitted is not permitted.

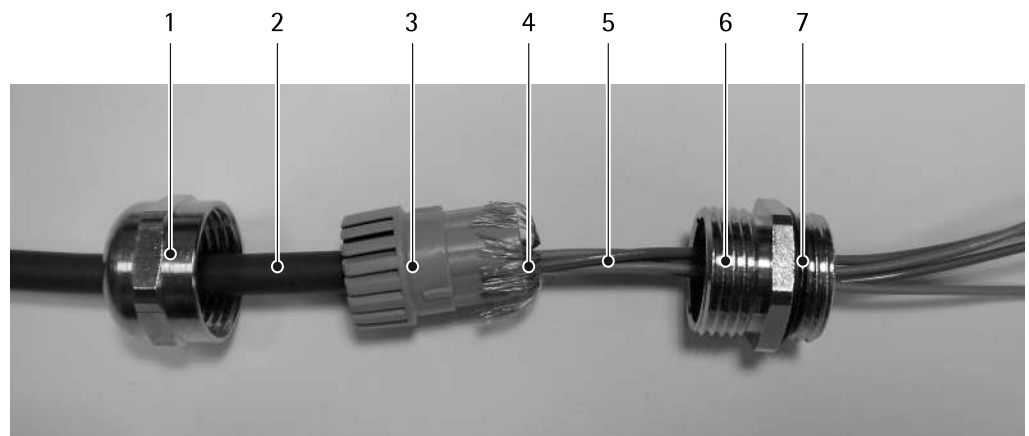
- ▶ Remove the dust protection cover.
- ▶ If a cable gland is not used, it must be sealed with a supplied locking pin.

NOTICE

Property damage is possible.

- ▶ Regularly check the fitted cable gland for tightness and re-tighten it, if necessary.

4.6 Installation of a cable



NOTICE

Material damage is possible.

Do not guide the screen (4) into the device!

- ▶ The cable shield (4) must be connected in the metal sleeve (6) of the cable gland.
- ▶ Before, during and after installation, make sure that the sealing ring is seated correctly.

1. Unscrew the sleeve screw cap (1).
2. Slide the cap (1) and plastic cone (3) onto the cable (2).
3. Guide the cable (5) through the gland (6).
4. Fold the cable shield (4) over the lower part of the terminal insert (3) (approx. 10 mm).
5. Connect the cable conductors.
6. Tighten the sleeve screw cap (1).
7. Secure the gland (6) including the o-ring (7) using the counter nut (in the housing).

NOTICE**Material damage is possible.**

- ▶ Regularly check the cable gland for tightness and re-tighten it, if necessary.
-

5 Cable connections

5.1 General information

Cable entry must be from below.

Connect the wires to the terminals according to the color coding .

Connect all cable shields in the metal sleeve of the junction box cable glands, see Chapter [4.6](#).

Establish potential equalization, see Chapter [5.4](#).

Note:

Chapter [5.3](#) shows an example of the cabling of 4 load cells via the PR 5510/04 interface and the PR 6024/64S junction box.

5.2 Data and supply cables

The PR 6124/xxD data cable must be used to connect the PR 6024/64S or PR 6024/68S cable junction box to the device, max. length: 300 m.

The PR 6124/xxP power cable must be used to connect the PR 6024/62S power supply to the PR 6024/64S or PR 6024/68S cable junction box, max. length: 200 m

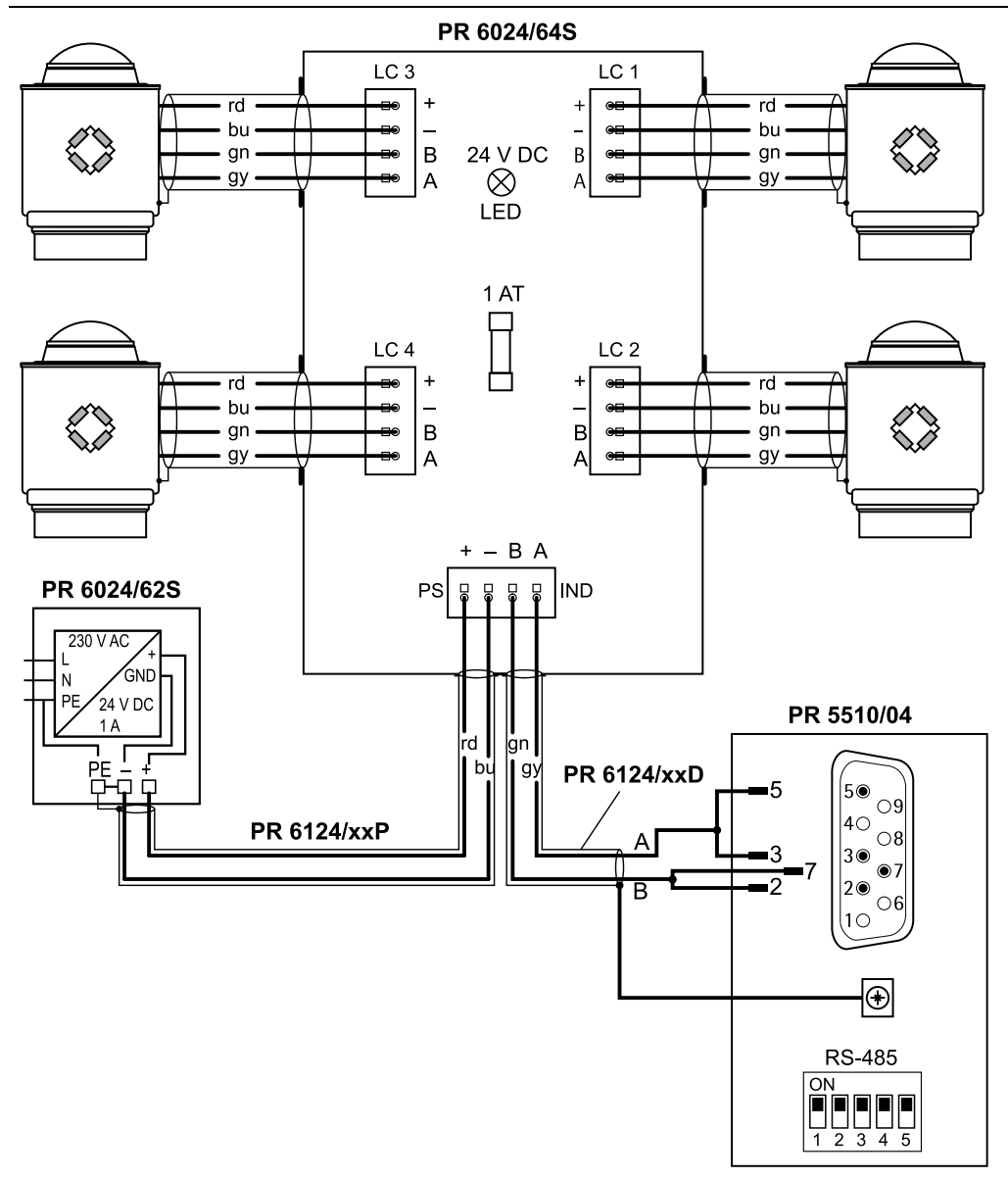
5.3 Cable connections

Note:

All components are only shown schematically.

Color Code

rd	=	red
gn	=	green
bu	=	blue
gy	=	gray



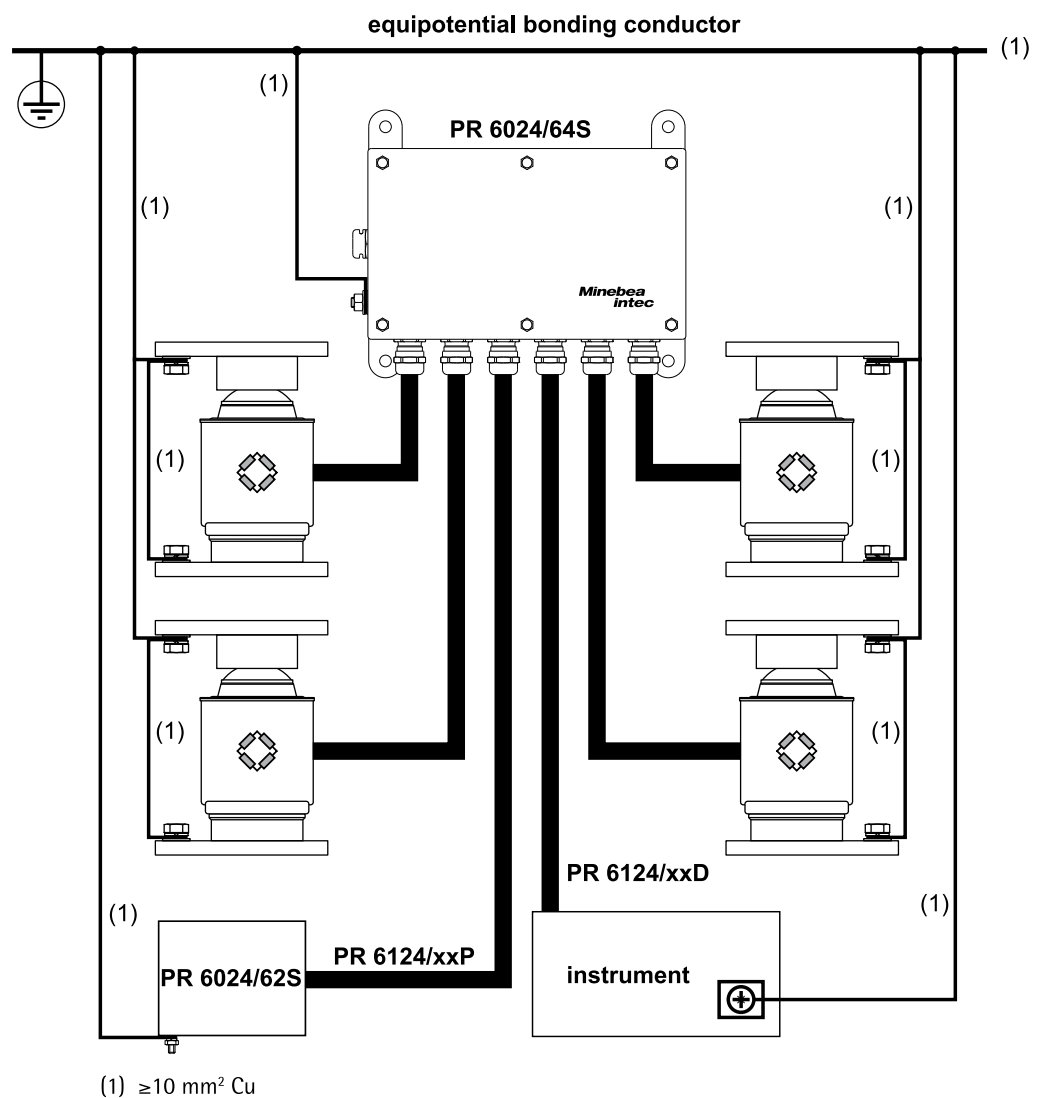
5.4 Equipotential bonding conductor

NOTICE

It is especially important that the ground is connected correctly to the components and the cable junction box.

You must also ground the device separately and ensure the power supply is properly shielded against the effects of lightning. Simply connecting the protective grounding conductor is not enough!

- ▶ If the installation is not carried out according to our instructions, this voids the warranty. In particular, the entire installation, including the power supply, must be sufficiently protected against lightning.
- ▶ In Ex areas, equipotential bonding must be established to avoid any compensatory currents between the individual conducting system components.



6 Maintenance/repairs/soldering work/cleaning

6.1 Maintenance

Maintenance work may only be carried out by a trained technician with expert knowledge of the hazards involved and the required precautions.

6.2 Repairs

Repairs are subject to inspection and must be carried out at Minebea Intec.

In case of defect or malfunction, please contact your local Minebea Intec dealer or service center for repair.

When returning the device for repair, please include a precise and complete description of the problem.

6.3 Soldering work

Soldering work on the device is neither required nor permitted.

6.4 Cleaning

NOTICE

Property damage caused by unsuitable cleaning utensils/agents.

Damage to the device.

- ▶ Prevent moisture from penetrating the interior.
- ▶ Do not use aggressive cleaning agents (solvents or similar agents).
- ▶ For use in the food industry, use a cleaning agent suitable for that particular working environment.
- ▶ Use soft sponges, brushes and cloths.

1. Unplug device from mains supply, disconnect any data cables.
2. Clean the device with a cloth lightly moistened with a soap solution.
3. Wipe down the device with a soft, dry cloth after cleaning.

7 Disposal

If the packaging is no longer required, please take it to your local waste disposal facility and/or a reputable disposal company or collection point. The packaging largely consists of environmentally friendly materials which can be used as secondary raw materials.

It is not permitted—even for small businesses—to dispose of this product with the regular household waste or at collection points run by local public waste disposal companies.

EU legislation requires its Member States to collect electrical and electronic equipment and dispose of it separately from other unsorted municipal waste so that it can then be recycled.

Before disposing of or scrapping the product, any batteries should be removed and taken to a suitable collection point.

Please see our T&Cs for further information.

Service addresses for repairs are listed in the product information supplied with the product and on our website (www.minebea-intec.com).

We reserve the right not to accept products that are contaminated with hazardous substances (ABC contamination) for repair.

Should you have any further questions, please contact your local service representative or our service center.

Minebea Intec GmbH

Repair center

Meiendorfer Strasse 205 A

22145 Hamburg, Germany

Phone: +49.40.67960.666

service.HH@minebea-intec.com

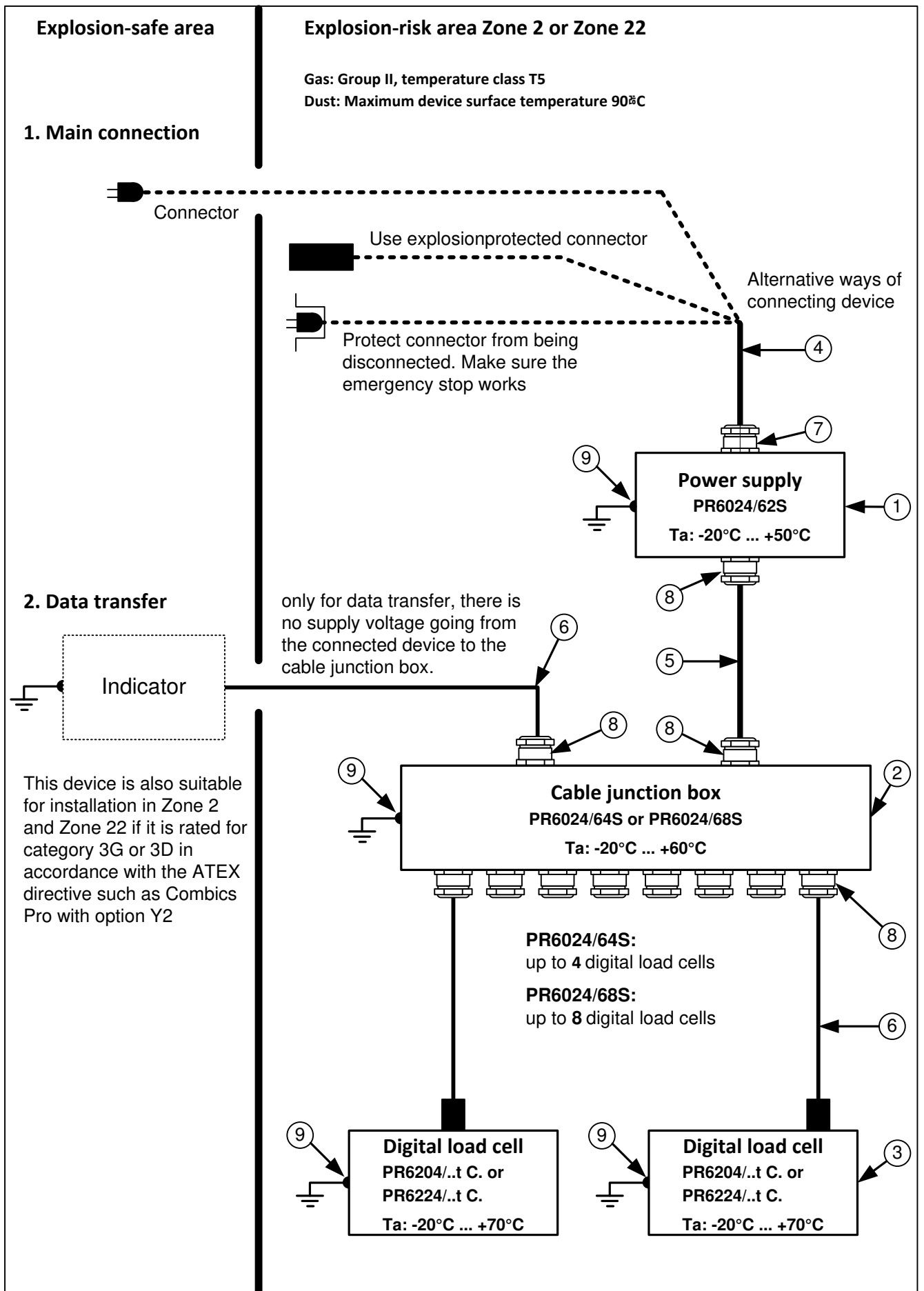
8 Appendix

8.1 Certificates/safety instructions

Ser. no.	Description	Document no.
1	EU-Declaration of Conformity	MEU17054
2	Declaration of Conformity	MDC17005
3	Manufacturer's Certificate	SWT 12 ATEX004 X
4	Safety instructions	65835-790-16

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	Datum Date	Name	Material	Benennung / Title		Maßstab / Scale	
Erstellt Written by	29.11.18	Schallhorn		Safety Precautions		1:1	
Geprüft Reviewed by	03.12.18	Hiller				Blatt Sheet	1
Freigabe Released by	03.12.18	Schallhorn	Ausgabe / Revision 02	Änderung / Alteration PA50181110	Zeichnungs-Nr. / Drawing number 65835-790-16	Teil Dok Nr./ Part Doc No. ---	
						von of	2

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These safety instructions apply to the installation, use, maintenance and repair of the appliance.

The numbers shown in brackets refer to the numbered positions on page 1.

1. The power supply unit (1), cable junction box (2) and the digital load cell (3) may only be used in this constellation in Zone 2 and Zone 22 and not as portable devices.
2. Installation should be performed by an authorized specialist, in accordance with applicable laws, rules and regulations, ordinances and standards. Particular attention should be paid to the European Standards EN 60079-14
3. It is essential that the recommendations on the installation, use, maintenance and repair contained in the manuals supplied are complied with for all equipment.
4. Only use equipment in the temperature ranges indicated. Avoid exposure to inadmissible sources of heat or cold, solar radiation or vibrations. Install the devices in such a way that heat can be sufficiently dissipated on all sides and that external heat sources are located far enough away from the power supply.
5. Protect the mains connecting cable (4) from damage and connect it correctly to the mains power supply (100 – 240 VAC). The power supply is approved for circuits up to 1,500 A. Only use the mains connecting cable in the hazardous area with a suitable and approved explosion-protected plug. Alternatively: Protect connector from being pulled out or directly wire in the cable; if directly wired-in, provide adequate emergency stop option.
6. If not supplied, the mains connection cable (4), supply cable (5) and data cable (6) used must be suitable with respect to the relevant zones they are used in, the manner in which they are laid and their relevant mechanical loads. Cables sourced from other manufacturers are the operator's responsibility.
7. The ATEX-certified cable glands (7) and (8) are only suitable for fixed installation when used in potentially explosive atmospheres, meaning that the equipment installer has to fit the cable behind the cable gland (e.g. using a cable clip). These cable glands can be replaced by those which are ATEX-certified and are suitable for flexibly installed cable.
8. Any connections that are not being used must be sealed in such a way as to assure ingress protection (IP) (e.g. using ATEX-certified locking screws).
9. Any metal parts (casing) must be DC coupled to the potential equalization. To do so, the operator of the system must connect a conductor with a cross-section of at least 4 mm² in a suitable place using adequate mounting material (screws). During on-site installation, check if this connection to the equipotential bonding conductor is of low resistance. The equipment operator shall be responsible for preventing any risks caused by static electricity.
10. Before opening the instruments, switch off the supply voltage, or make sure that the area is not potentially explosive. Do not connect or disconnect any live cables inside an explosion-risk area.
11. If the installation does not operate properly, disconnect it from the supply voltage immediately.
12. During installation, take suitable measures to prevent stray electrical interference (e.g. due to magnetic fields).
13. Chemicals that can attack housing gaskets and cable sheathings must be kept away from the instrument. These include oil, vegetable and animal fats, petrol, chlorinated and aromatic solvents, lye and acids, acetone and ozone. If you are uncertain, contact the manufacturer.
14. The installation must be checked for correct function and safety by a trained and qualified person at appropriate intervals.
15. In the event of repair, use only original spare parts supplied by the manufacturer.
16. Any modifications to the instrument (except by persons authorized by Minebea Intec) cause loss of conformity for use in Zone 2 and Zone 22 explosion-risk areas and invalidate all guarantee claims. Similarly, the instrument may only be opened by qualified and authorized persons.
17. Modifications (including by Minebea Intec personnel) are subject to written approval.
18. Any devices used in Zone 22 must be regularly cleared of dust. Dust layers of more than 5 mm are not permitted.
19. These instructions are given in addition to those in the instruction manuals and do not release the operator from his responsibilities for the installation, operation and inspection of the equipment assembly in compliance with the valid standards, directives, ordinances and laws.

	Datum Date	Name	Material				Maßstab / Scale	
Erstellt Written by	29.11.18	Schallhorn			Benennung / Title Safety Precautions		1:1	
Geprüft Reviewed by	03.12.18	Hiller					Blatt Sheet	2
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