

Installation Manual

Cable Junction Box PR 6130/04N



Translation of the Original Installation Manual

9499 053 00400

Edition 3.7.0

01/24/2024

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 only be operated/installed 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

This document is partially protected by copyright. It may not be changed or copied, and it may not be used without purchasing or written permission from the copyright owner (Minebea Intec). The use of this product constitutes acceptance by you of the abovementioned provisions.

Table of contents

1	Introduction	3
1.1	Read the manual	3
1.2	2 This is what operating instructions look like	3
1.3	3 This is what lists look like	3
1.4	1 This is what menu items and softkeys look like	3
1.5	5 This is what the safety instructions look like	3
1.6	5 Hotline	4
2	Safety instructions	5
2.1	1 General notes	5
2.2	2 Intended use	5
2.3	3 Initial inspection	6
2.4	4 Before operational startup	6
2.5	5 Repairs and maintenance	6
	2.5.1 General information	6
3	Specifications	7
3.1	1 Equipment supplied	7
3.2	2 Technical Data	8
3.3	3 Electromagnetic Compatibility (EMC)	8
3.4	4 Dimensions	9
4	Installation and connection information	10
4 4.1		
-	1 General information	10
4.1	 General information Terminals and jumpers 	10 10
4.1 4.2	 General information Terminals and jumpers Connecting load cells with a 4-wire cable 	
4.1 4.2 4.3	 General information Terminals and jumpers Connecting load cells with a 4-wire cable Connecting load cells with a 6-wire cable 	
4.1 4.2 4.3 4.4	 General information Terminals and jumpers Connecting load cells with a 4-wire cable Connecting load cells with a 6-wire cable Cable gland 	
4.1 4.2 4.3 4.4 4.5	 General information Terminals and jumpers Connecting load cells with a 4-wire cable Connecting load cells with a 6-wire cable Cable gland 	
4.1 4.2 4.3 4.4 4.5 4.6	 General information Terminals and jumpers Connecting load cells with a 4-wire cable Connecting load cells with a 6-wire cable Connecting load cells with a 6-wire cable Fable gland Fitting the reduction sealing ring 	
4.1 4.2 4.3 4.4 4.5 4.6 5	 General information Terminals and jumpers Connecting load cells with a 4-wire cable Connecting load cells with a 6-wire cable Cable gland Fitting the reduction sealing ring Cable connections General information 	
4.1 4.2 4.3 4.4 4.5 4.6 5 5.1	 General information	
4.1 4.2 4.3 4.4 4.5 4.6 5 5.1 5.2	 General information	
4.1 4.2 4.3 4.4 4.5 4.6 5 5.1 5.2 5.3	 General information Terminals and jumpers Connecting load cells with a 4-wire cable Connecting load cells with a 6-wire cable Cable gland Fitting the reduction sealing ring Cable connections General information Connecting cables Cable connections Equipotential bonding conductor 	
4.1 4.2 4.3 4.4 4.5 4.6 5 5.1 5.2 5.3 5.4	 General information Terminals and jumpers Connecting load cells with a 4-wire cable Connecting load cells with a 6-wire cable Cable gland Fitting the reduction sealing ring Cable connections General information Connecting cables Cable connections Equipotential bonding conductor 	
4.1 4.2 4.3 4.4 4.5 4.6 5 5.1 5.2 5.3 5.4 5.5	1 General information 2 Terminals and jumpers 3 Connecting load cells with a 4-wire cable 4 Connecting load cells with a 6-wire cable 5 Cable gland 6 Fitting the reduction sealing ring 7 Cable connections 1 General information 2 Connecting cables 3 Cable connections 4 Equipotential bonding conductor 5 Electronic corner correction	
4.1 4.2 4.3 4.4 4.5 4.6 5 5.1 5.2 5.3 5.4 5.5	1 General information 2 Terminals and jumpers 3 Connecting load cells with a 4-wire cable 4 Connecting load cells with a 6-wire cable 5 Cable gland 6 Fitting the reduction sealing ring. 7 Cable connections 1 General information 2 Connecting cables 3 Cable connections 4 Equipotential bonding conductor 5 Electronic corner correction 5.5.1 General information	
4.1 4.2 4.3 4.4 4.5 4.6 5 5.1 5.2 5.3 5.4 5.5	1 General information 2 Terminals and jumpers 3 Connecting load cells with a 4-wire cable 4 Connecting load cells with a 6-wire cable 5 Cable gland 6 Fitting the reduction sealing ring 7 Cable connections 1 General information 2 Connecting cables 3 Cable connections 1 General information 2 Connecting cables 3 Cable connections 4 Equipotential bonding conductor 5 Electronic corner correction 5 Electronic corner correction 5 5.5.2 Procedure Maintenance/repairs/soldering work/cleaning	

6.3	Soldering work	18
6.4	Cleaning	18
7	Disposal	19
8	Certificates	20
8.1	MEU17042	21

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 cable junction box is designed for tank and hopper weighing applications.

It cannot be operated in potentially explosive atmospheres.

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/L, /N, /D1, /C3, /C4, /C5, /C6	PR 6201/LE, /LA, /NE, /D1E, /C3E, /C4E, /C5E, /C6E	
PR 6201/NDB, /LDB	PR 6201/NDBE, /LDBE	
PR 6202/C1, /C3, /C4	PR 6202/C1E, /C3E, /C4E	
Inteco®/D1, /C3, /C6	Inteco®/D1E, /C3E, /C6E	
	PR 6204 Pendeo® Process	
PR 6207/D1, /C3		
	PR 6211/D1	
PR 6212/C1, /LT	PR 6212/C1E	
	PR 6221/, all types	
	PR 6224 Pendeo® Truck	
PR 6241/D1, /C3, /C6	PR 6241/D1E, /C3E, /C6E	
	Contego®/D1, /D1Ex, /C3, /C3Ex	
PR 6246/D1, /C3, /C6	PR 6246/D1E, /C3E, /C6E	
PR 6251/L	PR 6251/LE, /LA	
	Novego®/C3, /C3E	

Load cells to be used	Load cells not to be used
	MP load cells, all types
PR 40/C3MR, /C6	PR 40/C3MRE, /C6E
PR 43/C3MR, /C6	PR 43/C3MRE, /C6E
PR 47/C3MR, /C6	PR 47/C3MRE, /C6E
PR 53/C3MR	PR 53/C3MRE
PR 54/C3MR	PR 54/C3MRE
PR 55/C3MR	PR 55/C3MRE
PR 57/C3MR	PR 57/C3MRE
PR 58/C3MR	PR 58/C3MRE
PR 76/N, /C3	
PR 77/C3MR, /C6	PR 77/C3MRE, /C6E
PR 79(T)/C3MR	PR 79(T)/C3MRE

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.

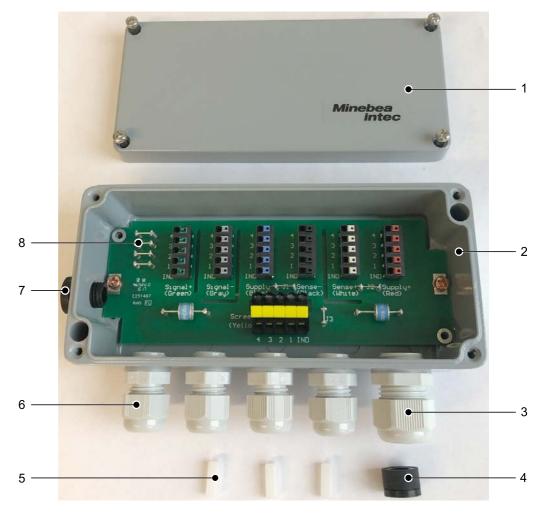
In case of defect or malfunction, please contact your local Minebea Intec dealer or service center for repair.

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.

3 Specifications

3.1 Equipment supplied



No.	Description
1	Cover
2	Box incl. electronics
3	Cable gland M20
4	Reduction sealing ring M20 (for ≤8 mm)
5	Locking pin 6 mm (3×)
6	Cable gland M16 (4×)
7	Pressure compensation element
8	Jumpers for corner correction resistors
The foll	owing items are not shown:
9	Drilling template
10	Quick guide

3.2 Technical Data

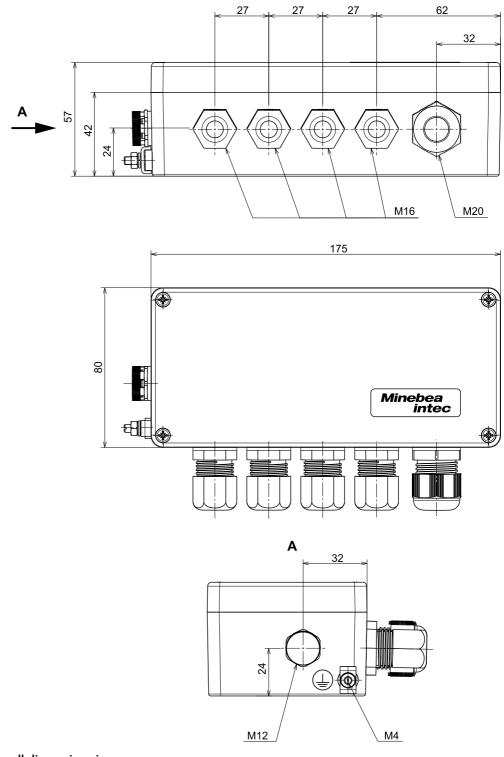
Protection classes	in compliance with IEC 529 or DIN EN 60529 IP66/IP67: Dust-proof and leak-proof against water, with harmful effects when immersed, (1 m water depth, 30 minutes).
Installation position	Cable entry from below
Quantity of load cells	14
Overvoltage protection	2× Surge arrestor Type A81C90X
Pressure equalization	Plastic pressure equalization element
Material of the junction box	Aluminum
Color of the junction box	Gray RAL 7001, painted
Net weight	0.66 kg
Shipping weight	0.80 kg
Service temperature area	-30°C+70°C
Storage temperature range	-30°C+80°C
Cable screw connections	Plastic cable screw connections Polyamide PA6 V-2
Insulation impedance (in service temperature range at 95% air humidity and U _{DC} = 500 V)	>1000 MΩ
Vibration resistance	IEC 60068-2-6-Fc Test, 10-150 Hz, 5 g, 30 minutes in all 3 axes

3.3 Electromagnetic Compatibility (EMC)

All data in compliance EN 61326 industrial section

Housing	High frequency electromagnetic fields (803000 MHz)	EN 61000-4-3	10 V/m
	Electrostatic discharge (ESD)	EN 61000-4-2	6/8 kV
Signal and control	Fast transients (burst)	EN 61000-4-4	1 kV
lines	Peak voltages (surge) 1.2/50 μs	EN 61000-4-5	1 kV
	Conducted disturbances by high frequency coupling (0.1580 MHz)	EN 61000-4-6	10 V

3.4 Dimensions



all dimensions in mm

4 Installation and connection information

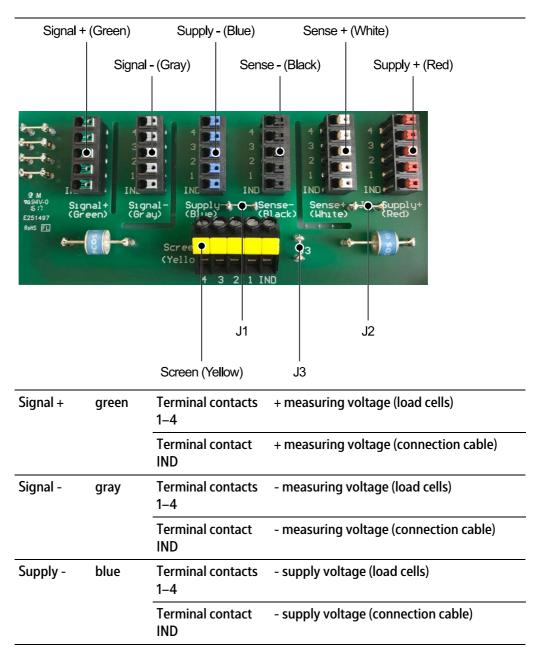
4.1 General information

- Only use the 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



Sense -	black	Terminal contacts 1–4	- sense (load cells)
		Terminal contact IND	- sense (connection cable)
Sense +	white	Terminal contacts 1–4	+ sense (load cells)
		Terminal contact IND	+ sense (connection cable)
Supply +	red	Terminal contacts 1–4	+ supply voltage (load cells)
		Terminal contact IND	+ supply voltage (connection cable)
Screen	yellow	Terminal contacts 1–4	Screen (load cells)
		Terminal contact IND	Screen (connection cable)
J1		Jumper	Connects the load cell supply line to the
J2		Jumper	sense line. Both jumpers must be opened when 6-wire load cell cables are used.
J3		Jumper	Connects the load cell cable screen to the connection cable screen.

4.3 Connecting load cells with a 4-wire cable

Upon delivery, jumpers J1 and J2 are closed between terminals "Sense -/Supply -" and "Sense +/Supply +"; this means that the junction box is prepared for load cells with 4-wire cables; see Chapter 4.2.

4.4 Connecting load cells with a 6-wire cable

If the junction box will be used for load cells with 6-wire cables, jumpers J1 and J2 must be open between terminals "Sense -/Supply -" and "Sense +/Supply +."

4.5 Cable gland

The cable glands each have one sealing ring.

The M20 cable gland can be fitted with a reduction sealing ring if cables ≤ 8 mm are used (see Chapter 4.6).

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

NOTICE

Property damage is possible.

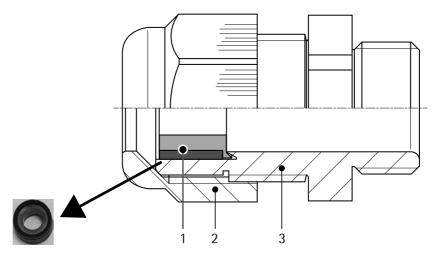
• If a seal insert is not used, it must be sealed with a supplied locking pin.

NOTICE

Property damage is possible.

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

4.6 Fitting the reduction sealing ring



- 1. Unscrew the cap nuts (2).
- 2. Remove the existing sealing ring from the metal sleeve (3).
- 3. Insert the reduction sealing ring (1) in the M20 cable gland (for cables ≤ 8 mm).

Note:

It is essential to first insert the side with the sealing lip in the metal sleeve!

4. Tighten the cap nuts (2) again.

5 Cable connections

5.1 General information

In order to use the junction boxes for load cells with 6-wire cables, jumpers J1 and J2 must be opened; see Chapter 4.2.

Cable entry must be from below.

Fit the wires and screen of the connection cable with wire end ferrules as per DIN 46228-1:

- 4× 0.75 mm² (red, blue, white, black)
- 2× 0.56 mm² (green, gray)

This is not necessary for the load cell cables.

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

Connect the screens on the other side of the connection cable with the equipotential bonding terminal of the downstream device (see instrument manual) as described in Chapters 5.3 and 5.4.

Note:

If hum interference occurs, the cable screens should only be connected on one side.

Depending on the design of the cable junction box used, either the jumper J3 must be removed or the cable screens must be disconnected from the terminal contacts highlighted in yellow.

5.2 Connecting cables

To connect the junction box to the device, connection cable PR 6135/.. must be used; max. length: 300 m.

5.3 Cable connections

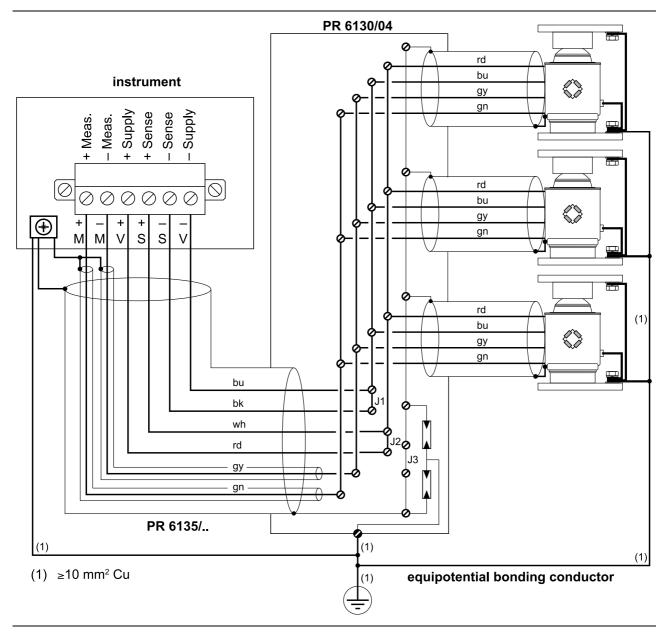
Note:

All components are only shown schematically.

Color code

bk	=	black
bu	=	blue
gn	=	green
gy	=	gray
rd	=	red
wh	=	white

Connection example



5.4 Equipotential bonding conductor

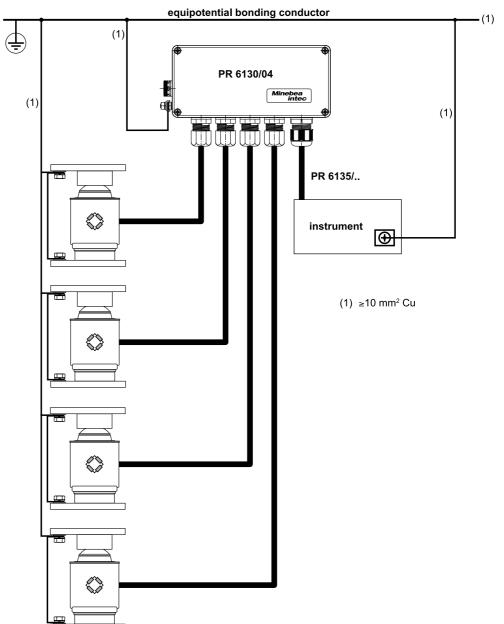
NOTICE

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.

Connection example



5.5 Electronic corner correction

5.5.1 General information

Minebea Intec load cells are produced according to high quality standards and have precisely adjusted output values.

Nonetheless, mechanical imbalances can cause impermissible corner load errors to arise, which will need to be offset by soldering in resistors.

The correct installation and accurate alignment of load cells are imperative for good measurement results and significantly affect the behavior with corner loads. Therefore, the installation and alignment of the load cell should always be checked first if a corner error is identified.

If necessary, carry out mechanical height adjustment (see Installation manual of the load cell).

NOTICE

Loss of calibration accuracy

An unstable signal can arise due to contact problems. This results in fluctuating zero points, which lead to the loss of calibration accuracy.

- Do not use a potentiometer.
- Only use resistors of 0–5.62 Ω (1%, P70 = 0.6 W) of size MBB0207 (approx. 2.5 × 6.5 mm) or CECC B.

5.5.2 Procedure

Electronic corner correction allows the sensitivity of each individual load cell to be reduced separately.

The resistor required here can be calculated using the following formula:

$$R = \left(\frac{\text{Weight}_{act}}{\text{Weight}_{set point}} - 1\right) \bullet R_0$$

R	Resistor integrated in the output circuit of the load cell (the resistance value is normally <7 Ω).
Weight actual	Weight value on the display
Weight set point	Weight of the placed load
Ro	Output resistance of the load cell
Example:	
placed load	12,000 kg
Display	12,052 kg
Ro	1010 Ω (see Installation manual of the load cell)
Calculated resistance	4.38 Ω

The following steps are necessary to minimize corner load errors:

- 1. Select the load cell with the lowest displayed load as the reference cell.
- 2. In the junction box, remove the jumper from the relevant measurement cable (Signal +) and solder in a resistor according to the abovementioned formula (in the example 4.38 Ω).

This aligns the load cells with the displayed value of the reference cell.

Note:

The soldering studs are factory short-circuited for the resistances.

3. After that, recalibrate the scale.

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 is permitted on the device for corner correction.

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

Our products and their packaging should not be disposed of in municipal waste (e.g. garbage can for recyclable packaging, garbage can for paper packaging, etc.). They can either be recycled by the customer themselves, providing this complies with requirements set out by electrical or electronic waste or packaging waste laws, or sent back to Minebea Intec at a charge.

This option of returning the product is intended to provide proper recycling or reuse in a manner that is collected separately from municipal waste.

Before disposing of or scrapping the old products, any single-use or rechargeable batteries should be removed and taken to a suitable collection point. The type of battery used is specified in the technical data.

Please see our General Terms and Conditions for further information.

Service addresses for repair acceptance and collection points can be found on the product information enclosed with the product as well as on our website (www.minebea-intec.com).

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: +49.40.67960.333

service.HH@minebea-intec.com

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

8 Certificates

Ser. no.	Description	Document no.	see Chapter
1	EU-Declaration of Conformity	MEU17042	8.1

8.1 MEU17042

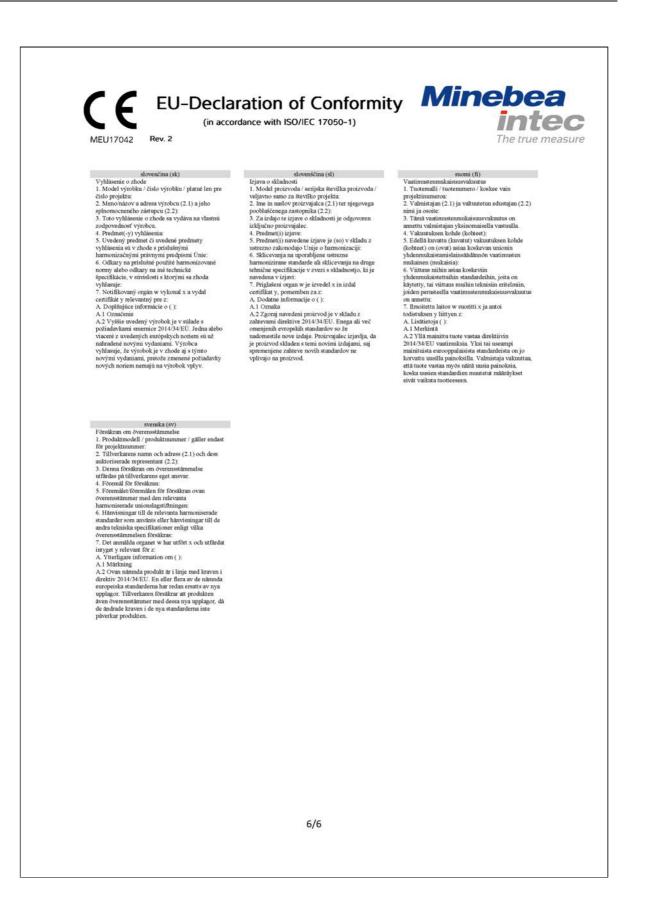
		EU	-Declaratio	on of Confo	ormity Mil	iche
			(in accordance w	vith ISO/IEC 17050-1)		int
1	MEU1704	2 Rev. 2				The true r
1.	Product	model / prod	luct number / solely vali	d for project number:		
			tion Box / PR 6130 / -			
2.	Name a	nd address of	the manufacturer (2.1)	and his authorized repr	esentative (2.2):	
	2.1		tec GmbH, Meiendorfe	er Straße 205 A, 2214	5 Hamburg, Germany	
	2.2	/				
3.	This dea	claration of co	nformity is issued under	the sole responsibility	of the manufacturer.	
4.	Object(s) of the decla	aration:			
	4.1		, PR 6130/3			
	4.2	PR 6130/6				
5.	The obj	ect(s) of the r	leclaration described ab	ove is in conformity with	h the relevant Union harmonia	ration legislation
4.	.ne obj	est(o) or the t	(4.1)	(4.2)		and a spontantin.
	5.1	2014/30/		(6.1)		
	5.2	2011/65/	EU (6.2)	(6.2)		
	5.3	2014/34/	EU	(6.3)		
6.	Referen	res to the rel	evant harmonized stan	lards used or reference	s to the other technical speci	ications in relation to
		nity is declared		and alea of reference	s to the other teenned speen	
	6.1	2014/30/E		13		
	6.2	2011/65/E	U EN IEC 63000:2	018		
7.	The not	ward for the second second	performed x and issued x	the certificate y relevan	t for z: y	z
	7.1	A PARTY OF	EC-Type Examination (DEKRA 13ATEX0133 X	(4.2)
	7.2	0102 F	Production Quality Ass	essment Notification	PTB 02 ATEX Q010	(4.2)
	<i>U</i> -	. Mar. 2022	<u>р.р.</u>	927 SI 84757	iA.	Oliver Ereiter
	mburg, 11			a. Add. Dr. Axel Böttger CTO	<u>iA</u>	Oliver Freitag CE Certification

	42 Rev.				The true i
	onal informa				
A.1	(4.2)	Marking	Æx>	II 1G Ex ia IIC T6/T4 Ga II 1D Ex ia IIIC T90°C Da II 2D Ex tb IIIC T50°C/T70 II 3G Ex nA IIC T6 Gc	0°C Db
A.2	(6.3)	of the European S	tandards men so complies w	tioned are already replace	ents of the directive 2014/34/EU. One d by new editions. The manufacturer ne changed requirements of the new St









Published by Minebea Intec GmbH | Meiendorfer Strasse 205 A | 22145 Hamburg, Germany Phone: +49.40.67960.303 | Email: info@minebea-intec.com www.minebea-intec.com

