Minebea intec
The true measure

Installation Manual

S-Type Load Cell LC Tigo PR 76

Translation of the Original Installation Manual 9499 053 76000 Edition 1.7.0 12/09/2022

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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

Table of contents

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

NOTICE

Warning of damage to property and/or the environment.

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 load cell PR 76 has been designed especially for weighing small and medium sized process vessels.

The load cell PR 76 may only be used as intended for weighing tasks.

The dimensions of all mounting and structural components must be calculated so that sufficient overload capacity is ensured for all loads which may occur while taking the relevant standards into account. If cracks in the suspension, breakage of the load cell or similar could result in injury or damage to people, animals, or goods, additional safeguards against falling must be installed.

Installation and repair work must only be carried out by expert/qualified personnel.

The load cell 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.

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

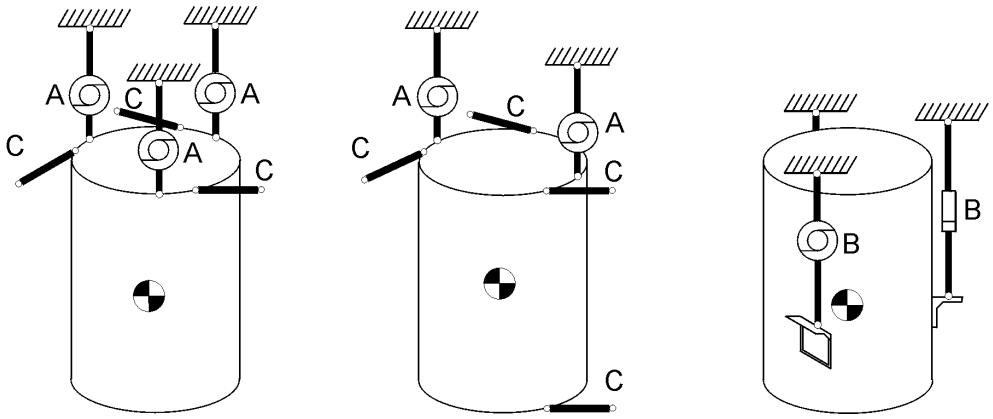
Perform visual inspection.

- Before operational startup as well as after storage or transport, inspect the load cell visually for signs of mechanical damage.
- The load cell should not be commissioned if it displays signs of visible damage and/or is defective.

3 Recommendations for installation

3.1 Load cell and constrainer arrangement

Examples:



Key

A	Load cells with joint head mounting kit
B	Load cells with threaded bar suspension
C	Constrainer PR 6143/8×

- The supporting construction of the scale (and thus the load cells) and the vessel must be stable enough to withstand the specified loads, horizontal (check with spirit level!) and flat.
- Vessels should preferably be suspended by 3 load cells (see figure).

  This minimizes the interference between pendulum movement and rotation and ensures uniform load distribution.
- Transverse and/or horizontal forces and torques exceeding the permissible limits are disturbances which can generate measuring errors and, in the worst case, may damage the load cell.
- If the object to be measured is constrained properly, damage and measuring errors can be prevented without affecting the required space for movement in the direction of the measurement.

  Consideration should be given to the fact that thermal expansion and contractions may constrict the required space for movement of the object to be weighed and could thereby lead to significant falsification of the measuring results.

  Therefore, special attention should be paid to the design, arrangement, and condition of the constrainers.

3.2 Selecting maximum capacity

If there is a risk of the safe load limit E_{lim} being exceeded (even only temporarily, e.g. by falling loads), mechanical limiting in load direction is required.

- Loads exceeding the safe load limit E_{lim} of the load cell may change its characteristics or damage the load cell.
- Loads exceeding the destructive load E_d of the load cell can led to its mechanical destruction.

4 Specifications

4.1 Equipment supplied with the load cell

No.	Description
1	Load cell
2	Quick guide
3	Calibration Certificate

4.2 General information

Material (Sensor)	Load graduations ≤500 kg: Stainless steel 1.4021 acc. to DIN EN 10088-3 (corresponds to AISI 420) Load graduations ≥1 t: Stainless steel 1.4542 acc. to DIN EN 10088-3 (corresponds to AISI 630)
Protection against environmental influences	Hermetically sealed by welding.
Protection classes	in compliance with IEC 529 or DIN EN 60529 **IP 66/IP67:** Dust-proof and leak-tight against strong jet water, with harmful effects when immersed, (1 m water depth, 30 minutes).
Cable diameter	5 mm
Cable length	5 m
Cable gauge	6×0.14 mm^2
Cable bend radius	≥25 mm (fixed installation) ≥75 mm (flexible installation)
Cable sheath material	Thermoplastic elastomer (TPE)
Cable sheath color	Green

4.3 Possible marking of the load cell for the Ex area

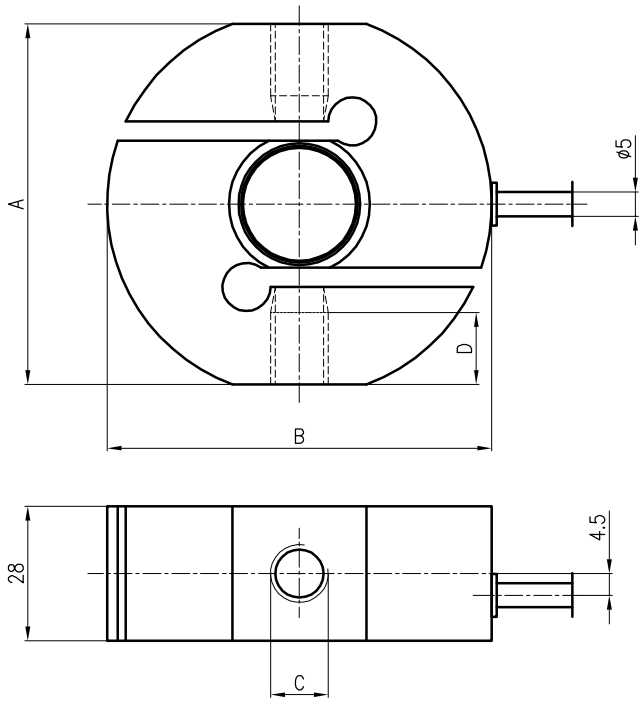
Zone	Marking	Certificate no.	for
2	II 3G Ex nA IIC T6 Gc	MIN21ATEX001X	all PR 76 without /..E
22	II 3D Ex tc IIIC T85 °C Dc	MIN21ATEX001X	all PR 76 without /..E

NOTICE

Installation in the Ex area

- For installations in the Ex area, it is imperative to observe the Ex safety instructions in the installation manuals.

4.4 Dimensions



all dimensions in mm

Model	A [mm]	B [mm]	C [mm]	D [mm]
PR 76/60...500 kg	75	80	M12	15
PR 76/1 t	75	80	M20×1.5	15
PR 76/2 t	90	95	M20×1.5	15
PR 76/3 t, ../5 t	120	125	M20×1.5	20

4.5 Ordering information

Model	Max. capacity E_{max}	Type
PR 76/60 kg	60 kg	..N/C3
PR 76/125 kg	125 kg	..N/C3
PR 76/250 kg	250 kg	..N/C3
PR 76/500 kg	500 kg	..N/C3
PR 76/1 t	1 t	..N/C3
PR 76/2 t	2 t	..N/C3
PR 76/3 t	3 t	..N/C3
PR 76/5 t	5 t	..N/C3

4.6 Technical data

Designation	Description	Abbr.	N	C3	Unit
Accuracy class			0.03	0.020	% E_{max}
Minimum dead load	lowest limit of specified measuring range	E_{min}	0	0	% E_{max}
Maximum capacity	highest limit of specified measuring range	E_{max}	See Chapter 4.5		
Safe load limit	maximum load without irreversible damage	E_{lim}	150		% E_{max}
Destructive load	danger of mechanical destruction	E_d	300		% E_{max}
Minimum LC verification	minimum load cell scale interval, $v_{min} = E_{max}/Y$	Y	...	8333	
Minimum preload signal recurrence	recurrence of the minimum preload signal (DR = ½×E_{max}/Z)	Z	...	3000	
Rated output	relative output at maximum capacity	C_n	2		mV/V
Tolerance on rated output	permissible deviation from rated output C_n	d_c	<0.25		% C_n
Zero output signal	load cell output signal under unloaded condition	S_{min}	0 ±2.0		% C_n
Repeatability	max. change in load cell output for repeated loading	ε_R	<0.012	<0.012	% C_n
Creep	max. change of output signal at E_{max} during 30 minutes	d_{cr}	<0.030	<0.017	% C_n
Non-linearity[1)]	deviation from best straight line through zero	d_{Lin}	<0.030	<0.017	% C_n

Designation	Description	Abbr.	N	C3	Unit
Hysteresis[1)]	max. difference in LC output between loading and unloading	d_{hy}	<0.030	<0.017	% C_n
Temperature effect on S_{min}	max. change of S_{min} in ambient temperature range	TK_{Smin}	<0.028	<0.017	% C_n/10 K
Temperature effect on C[1)]	max. change of C in ambient temperature range	TK_C	<0.025	<0.011	% C_n/10 K
Input impedance	between supply terminals	R_{LC}	400 ±50		Ω
Output impedance	between measuring terminals	R_O	352 ±3		Ω
Insulation impedance	between measuring circuit and housing at U_{DC} = 100 V	R_{IS}	>5000		MΩ
Recommended supply voltage	to hold the specified performance	B_u	10		V
Max. supply voltage	permissible for continuous operation without damage	U_{max}	15		V
Nominal ambient temp. range	to hold the specified performance				
	E_{max} = 60 kg	B_T	0...+40		°C
	E_{max} = 125 kg...5 t	B_T	-10...+40		°C
Usable ambient temp. range	permissible for continuous operation without damage	B_{Tu}	-30...+70		°C
Storage temperature range	without electrical and mechanical stress	B_{Ti}	-30...+70		°C
Barometric pressure influence	influence of barometric pressure on output		0.004		% C_n/kPa
Nominal deflection	elastic deformation under maximum capacity				
	E_{max} = 60...500 kg	S_{nom}	0.2	0.2	mm
	E_{max} = 1...5 t	S_{nom}	0.3	0.3	mm

1) The data for non-linearity (d_{Lin}), hysteresis (d_{hy}) and and temperature effect on C (TK_C) are typical values.
For OIML R60 or NTEP approved load cells the sum of these values is within the permissible cumulative error limits.

Definitions acc. to OIML R60

The technical data given are intended solely as a product description and should not be interpreted as guaranteed properties in the legal sense.

NTEP: min. scale interval of the load cells v_{min} for PR 76/60 kg...PR 76/500 kg

	Type	Divisions n_{max}	60 kg	125 kg	250 kg	500 kg	Unit
OMIL	N	...	...	...	...	...	g
	C3	3000	7.2	15.0	30.0	60.0	g
Class III multiple	N	...	...	...	...	...	g
	C3	5000	7.2	15.0	30.0	60.0	g
Class III L multiple	N	...	...	...	...	...	g
	C3	10000	2.4	5.0	10.0	20.0	g

NTEP: min. scale interval of the load cells v_{min} for PR 76/1 t...PR 76/5 t

	Type	Divisions n_{max}	1 t	2 t	3 t	5 t	Unit
OIML	N	...	...	...	...	...	g
	C3	3000	120.0	240.0	360.0	600.0	g
Class III multiple	N	...	...	...	...	...	g
	C3	5000	120.0	240.0	360.0	600.0	g
Class III L multiple	N	...	...	...	...	...	g
	C3	10000	40.0	80.0	120.0	200.0	g

5 Installation

5.1 Safety instructions

NOTICE

Welding or lightning strike current flowing through the cell can damage it.

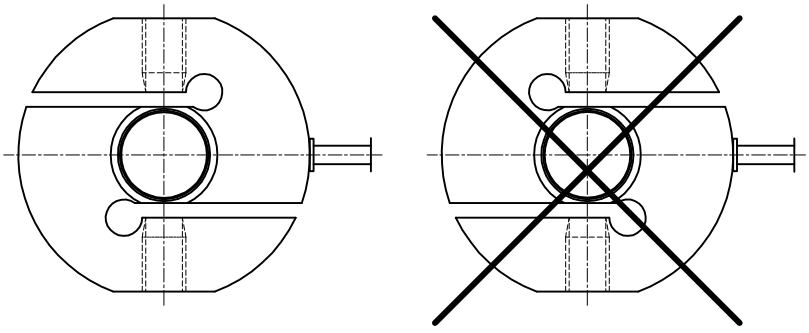
All electrical welding on the weighing system must be finished before mounting the load cells.

During any additional electrical welding work near the load cell:

- Disconnect the load cell cables.
- Bypass the load cell.
- Make sure that the grounding clamp of the welding set is fitted as closely as possible to the welding joint.

The following must be observed during installation:

- Do not lift or transport the load cell by pulling on the cable.
- Avoid shock stress (falling down, hard shocks).
- The load cell must be installed so that its axis is vertical.
- Load forces must act in the measuring direction of the load cell.
- The load cell must be suspended as follows during installation:



NOTICE

Changes of temperature >15 K/h may influence the measuring accuracy.

▶ Make sure to protect the load cells from direct heating or cooling effects (sun, wind, heat radiation, fan heaters), e.g., heat protection screens or heat protection housings are to be installed if necessary.

NOTICE

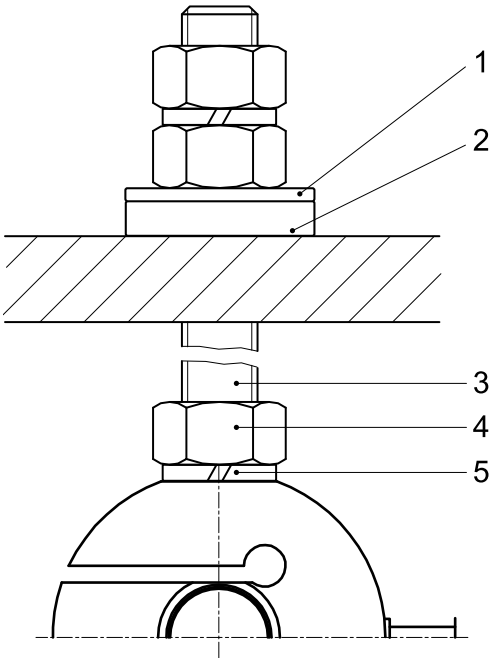
Force shunts may cause measuring errors.

▶ All incoming and outgoing lines (hoses, pipes, cables) must be coupled to the measured object as flexibly as possible.

5.2 Threaded bar suspension

The joint heads are intended for suspending weighing objects on load cells PR 76, see Chapter 11.1.

Another mounting options involves mounting the load cell with standardized commercially available screws or threaded bars of strength class 5.8; their material strength must not be lower than the core diameter of the thread.



For this purpose, the simplest version requires the following components:

- 1× threaded bar (3)
- 3× nut (4)
- 2× Spring (5)

To avoid transversal forces, it is recommended to use rounded washers (1) and conical seats (2).

	E_{max} = 100...500 kg	**E_{max} = 1...5 t**
Rounded washer (1)	DIN 6319-C13	DIN 6319-C21
Conical seat (2)	DIN 6319-G14.2	DIN 6319-G23.2
Threaded bar (3)	M12	M20×1.5

5.3 Mounting hole

5.3.1 Maximum screw installation depth in the threaded hole and tightening torques

Max. capacity	Max. screw installation depth	Tightening torque
60...500 kg	15 mm	60 Nm
1 t	15 mm	320 Nm
2 t	15 mm	320 Nm
3 t, 5 t	20 mm	320 Nm

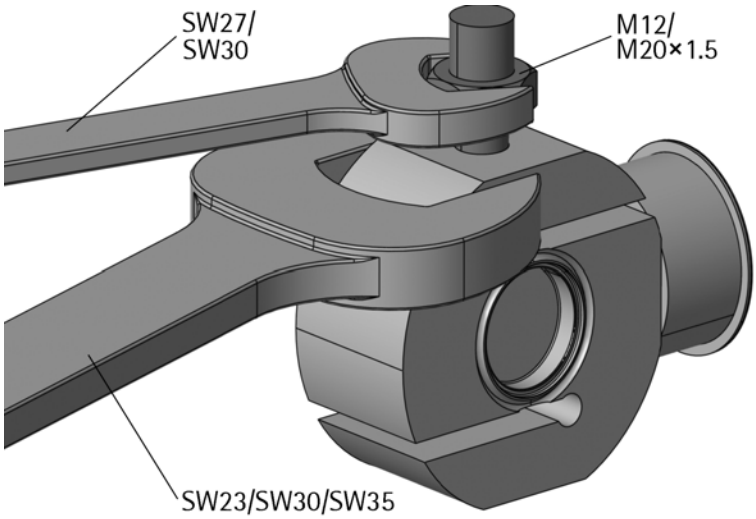
5.3.2 Tightening the lock nuts

NOTICE

Wrong placement of the screw wrench will destroy the weigh cell.

Never put the weigh cell in a vice.

▶ Only place the screw wrench as depicted below.



6 Connection

6.1 General information

- Protect the cable ends against contamination. Moisture must not get into the open end of the cable.
- Keep the load cell cables away from power cables.
- The distance between measurement cables and power cables and/or components under high voltage should be at least 1 m (reference value).
- We recommend laying the load cell cables in separate cable trays or armored steel pipes.
- Power cables should be crossed at right angles while taking into account the minimum distance of 1 m (reference value).

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.

⚠ WARNING

When installing in potentially explosive atmospheres:

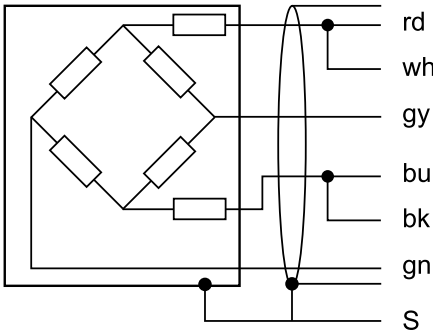
It is imperative that you follow the application-dependent installation instructions!

▶ Always check whether it is permissible to bilaterally connect the screens to the equipotential bonding.

6.2 Load cell

Color code

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



+ supply/LC in	+ supply voltage/+ load cell input
+ sense	+ sense
- meas./LC out	- measuring voltage /- load cell output
- supply/LC in	- supply voltage/- load cell input
- sense	- sense
+ meas./LC out	+ measuring voltage /+ load cell output
screen	screen

6.2.1 Load cell cable

The load cell cables are inseparably connected to the load cells in the factory.

The special sheathing material and the integrated strain relief with Kevlar thread ensure extremely long service life even under difficult operating conditions.

However, despite the robust nature of the materials used, the cable should be protected from excessive chemical and mechanical stresses. Preventing water from penetrating the end of the cable is also important "life insurance" for the system.

6.3 Cable connections

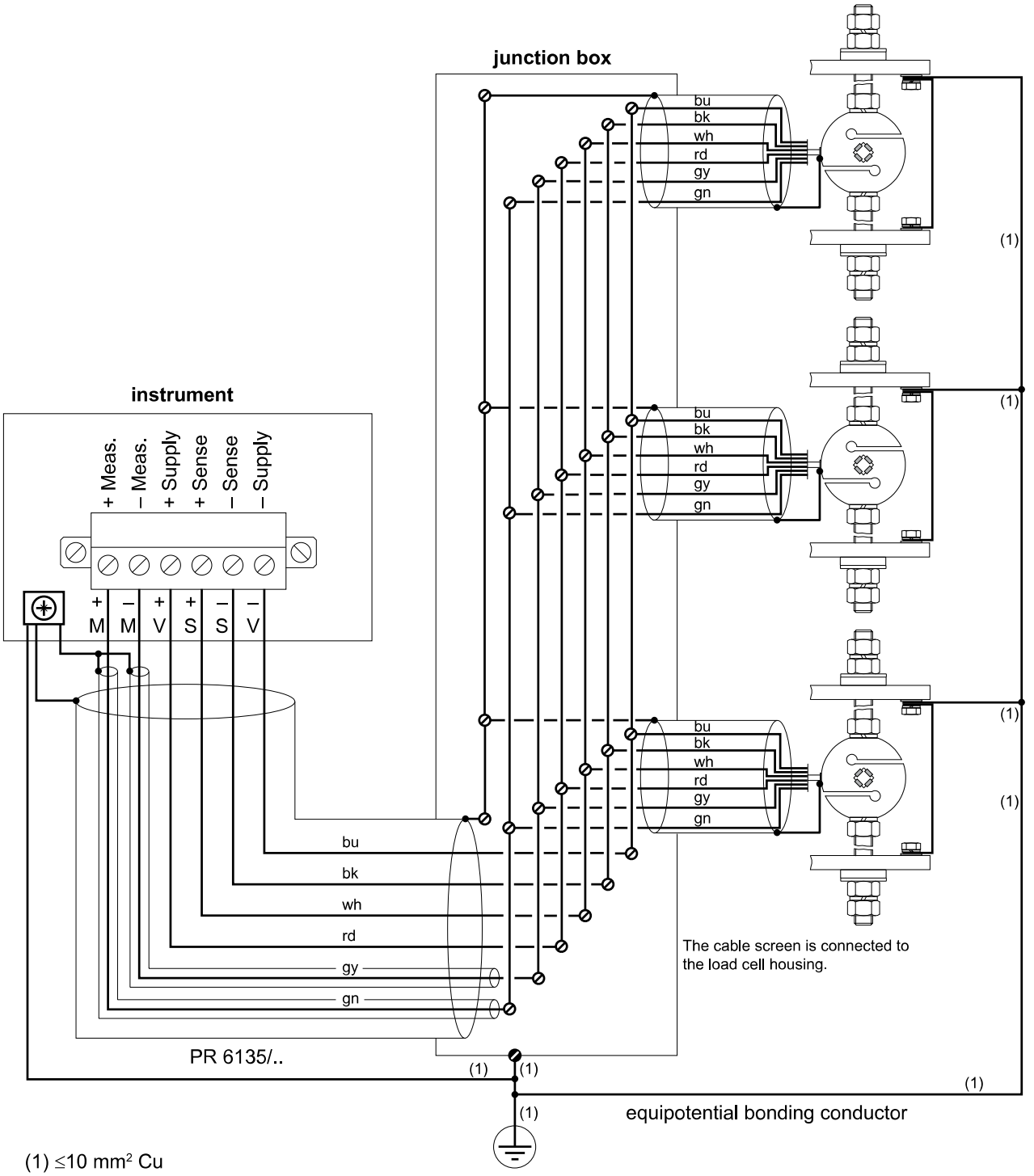
Note:

All components are only shown schematically.

Color code

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

Connection example



7 Preparing for calibration

7.1 General notes

Note:

For calibration of the measuring system, please refer to the manual of the corresponding indicator.

7.2 Mechanical height adaptation

To distribute the load over the load cells as evenly as possible, height adaptation is required in systems with more than 3 load cells prior to calibration.

Procedure:

1. Place the dead load (e.g. empty vessel) onto the load cells of the scale structure.
2. Energize the load cells in parallel with a stabilized voltage (e.g.: U_{DC} = 12 V).
3. Measure the output voltages of each individual load cell by means of a digital voltmeter and compare the individual values.
4. Given deviation between the output voltages of the load cells, the load on the load cell with the lowest output voltage must be increased by slightly shortening the suspension height.
5. Measure the output voltages of the load cells again and adjust the height of this load cell or of another one.

8 Troubleshooting

8.1 General Notes

The following hints will enable a technician to do an initial diagnostic or help in case of incorrect or non-reproducible weighing results after commissioning and calibration.

8.2 Visual inspection

Component	Possible errors
Weighing object	Are all pipes, hoses and cables free from shunt forces? Are the connections pliable and connected horizontally? Are elements with a solid connection to the scale in direct contact with the surroundings? Has friction developed between the weighing object and its surroundings (e.g. dusty openings, ...)?
Cable junction box	Has moisture intruded? Do all soldering and screw connections have secure contact?
Connecting cables	Is the sheath damaged? Has moisture intruded?
Load cell	Is the sheath of the load cell cable damaged? Has moisture penetrated into the load cell cable?

8.3 Metrological controls

8.3.1 Checking the zero output signal of the load cell

- Unload load cell.
- Disconnect the load cell measuring outputs.
- Check whether the output voltage without load is within the limits.

Type	Output voltage
N, C3	0 ±0.04 mV/V

8.3.2 Checking the strain gauge bridge of the load cell

- Do not exceed the test voltage.
- Check whether the values of the resistors are within the permissible limits.

Max. test voltage

Standard version U_{DC} = 15 V

Type	Input impedance (red core, blue core)	Output impedance (green core, gray core)
N	400 Ω ±50 Ω	352 Ω ±3 Ω
C3	400 Ω ±50 Ω	352 Ω ±3 Ω

8.3.3 Checking the insulation impedance of the load cell

NOTICE

Possible destruction of load cell

- ▶ Never apply test voltage between two cores of the load cell cable.
- ▶ Insulate the load cell cores.

Max. test voltage

Standard version U_{DC} = 100 V

Insulation impedance	Core – housing	>2000 MΩ
	Core – screen	>2000 MΩ
	Screen – housing	<0.2 Ω

8.3.4 Checking the insulation impedance of the connecting cable

- Disconnect connecting cable from measuring instrument and load cells.
- Insulate the cores of the connecting cable.

Insulation impedance	Core – core	>120 MΩ × km
	Core – screen	>120 MΩ × km

9 Maintenance/repairs/cleaning

9.1 Maintenance

The load cell PR 76 is maintenance-free.

Load cell grease must be applied to the load cell mounting parts.

The load cell can be extensively sprayed with off-shore all-weather protection spray in aggressive environments.

Load cell grease specification

- good water/media resistance
- good corrosion protection properties
- good oxidization and aging stability
- good temperature resistance
- and, where appropriate, good compatibility with foodstuffs

The requirements referred to apply when taking into account the specific operating/ usage conditions.

The grease also serves as protection against wear (low friction).

9.2 Repairs

The load cell PR 76 is designed to be as robust as possible for the required measuring accuracy and is highly reliable.

Should an electrical or mechanical defect nevertheless occur, the load cell must be replaced.

Load cell repair is not possible.

9.3 Cleaning

Dirt on the load cell and movable parts of the scale must be cleaned as quickly as possible

- if it influences weighing, or
- if it is corrosive to the cell or cable material.

NOTICE

Some cleaning agents may not be compatible with the load cell material.

▶ When using cleaning agents, ensure that their compatibility with the load cell material has been tested and approved (see Chapter 4.2).

10 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).

11 Accessories

11.1 Joint heads

The following joint heads are recommended for installation of the load cell:

No.	Description	Max. capacity	Order no.
1	Joint head PR 96/00N	60...500 kg	9405 300 96001
2	Joint head PR 96/01N	1...5 t	9405 300 96011

N = steel zinc plated, passivated and sealed (RoHS-compliant)

11.2 Constrainers

To constrain the vessel, the following constrainers are recommended:

No.	Description	Max. capacity	Order no.
1	Constrainer PR 6143/80, for transversal force <2 kN		9405 361 43801
2	Constrainer PR 6143/83, for transversal force <20 kN		9405 361 43831

11.3 Connecting cables

To connect the junction box to the weighing electronics, we recommend using the following connecting cables:

No.	Description	Order no.
1	PR 6135/××	9405 361 35××2
2	PR 6135/01A (armored)	9405 361 35019

11.4 Cable junction boxes

We recommend using the following junction boxes:

No.	Description	Order no.
1	PR 6130/04 (aluminum, 1–4 load cells, IP67)	9405 361 30044
2	PR 6130/34Sa (1.4301, 1–4 load cells, IP68, IP69, verifiable)	9405 361 30344
3	PR 6130/35S (1.4301, 1–4 load cells, IP68, IP69, verifiable)	9405 361 30354

12 Certificates

Ser. no.	Description	Document no.	see Chapter
1	Manufacturer's Certificate	MIN21ATEX001X	12.1
2	EU-Declaration of Conformity	MEU19020	12.2
3	Certificate of Conformance (NTEP)	19-088	12.3
4	OIML Certificate of Conformity (NMi)	R60/2017-A-NL1-19.19	12.4
5	Parts Certificate/Test Certificate (NMi)	TC11701	12.5

12.1 MIN21ATEX001X

Herstellerbescheinigung
Manufacturer´s certificate

Minebea intec

Nummer *Number*	MIN21ATEX001X
Hersteller *Manufacturer*	Minebea Intec GmbH Meiendorfer Straße 205A 22145 Hamburg, Germany

erklärt in alleiniger Verantwortung, dass das Produkt
declares under sole responsibility that the product

Geräteart *Device type*	Wägezelle *Load cell*
Baureihe *Type series*	PR 76 | (ohne Typ / without type LA or LT)

auf das sich diese Bescheinigung bezieht, mit der/den folgenden Norm(en) oder normativen Dokument(en) übereinstimmt (siehe Seite 2) gemäß den Bestimmungen der „Richtlinie **2014/34/EU** des Europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen". Das Produkt wird wie folgt gekennzeichnet:
*to which this certification relates is in conformity with the following standard(s) or other normative document(s) (see page 2) pursuant to the provisions of the "Directive **2014/34/EU** of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres ". This product is labelled as follows:*

Kennzeichnung *Marking*	II 3G Ex nA IIC T6 Gc II 3D Ex tc IIIC T85°C Dc MIN21ATEX001X

Minebea Intec GmbH
Hamburg, 23.07.2021

Dr. K. Sommer Managing Director	Dr. A. Böttger CTO	Torben Hiller Ex Approval Manager

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten EU-Richtlinien, ist jedoch keine Zusicherung von Eigenschaften. Bei einer mit uns nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit. Die Sicherheitshinweise der zugehörigen Produktdokumentation sind zu beachten.
This declaration certifies conformity with the above mentioned EC Directives, but does not guarantee product attributes. Unauthorized product modifications make this declaration invalid. The safety information in the associated product documentation must be observed.

1/2
MIN21ATEX001X Rev. 2

Herstellerbescheinigung
Manufacturer's certificate

Minebea intec

Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:
Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

Normen ***Standards***	**EN IEC 60079-0:2018** Explosionsgefährdete Bereiche – Teil 0: Geräte - Allgemeine Anforderungen *Explosive atmospheres – Part 0: Equipment - General requirements* **EN 60079-15:2010** Explosionsfähige Atmosphäre – Teil 15: Geräteschutz durch Zündschutzart „n" *Explosive atmospheres – Part 15: Equipment protection by type of protection „n"* **EN 60079-31:2014** Explosionsfähige Atmosphäre – Teil 31: Geräte-Staubexplosionsschutz durch Gehäuse „t" *Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure „t"*

Diese Bescheinigung wurde auf Basis des folgenden Prüfberichts erstellt:
This certificate was drawn on the basis of the following test report:

Prüfbericht ***Test Report***	**MTR17001 Rev. 2** Minebea Intec GmbH, Hamburg, Germany
Sicherheitshinweise ***Safety instructions***	**949905947901**
Umgebungstemperatur **Ambient temperature**	**-20°C ... +55°C**
IP-Schutz ***IP protection***	**IP6x**

Für diese Produkt gelten folgende besonderen Bedingungen für den sicheren Gebrauch:
For this product the following special conditions for safe use apply:

besondere Bedingungen ***special Conditions***	Für Anwendungen in Umgebungen mit brennbaren Stäuben ist eine elektrostatische Aufladung zu vermeiden. *For application in environments with combustible dust, electrostatic charging shall be avoided.* Bei Verwendung der Zündschutzart "Ex nA" ist eine Transientenschutzeinrichtung vorzusehen welche einen Maximalwert von 140% des Spitzenspannungswertes von 85V sicherstellt. *When applied in type of protection non sparking "Ex nA", a transient protection device shall be set at a level not exceeding 140% of the peak rated voltage value of 85 V.*

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1. Product model / product number / solely valid for project number:
   S-Type Load Cell Tigo / PR 76 / ----

2. Name and address of the manufacturer (2.1) and his authorized representative (2.2):
   2.1 Minebea Intec GmbH, Meiendorfer Straße 205 A, 22145 Hamburg, Germany
   2.2 /

3. This declaration of conformity is issued under the sole responsibility of the manufacturer.

4. Object(s) of the declaration:
   4.1 PR 76
   4.2 PR 76 (A.1)

5. The object(s) of the declaration described above is in conformity with the relevant Union harmonization legislation:

		(4.1)	(4.2)
5.1	2014/30/EU	(6.1)	(6.1)
5.2	2011/65/EU	(6.2)	(6.2)
5.3	2014/34/EU		(6.3)

6. References to the relevant harmonized standards used or references to the other technical specifications in relation to which conformity is declared:

6.1	2014/30/EU	EN 61326-1:2013
6.2	2011/65/EU	EN 50581:2012
6.3	2014/34/EU	EN IEC 60079-0:2018, EN 60079-15:2010, EN 60079-31:2014

7. The notified body w performed x and issued the certificate y relevant for z:

	w	x	y	z
7.1	/	Manufacturer's certificate	MIN21ATEX001X	(4.2)

Minebea Intec GmbH
Hamburg, 26. Jul. 2021

Dr. Karl Sommer
COO

Dr. Axel Böttger
CTO

Oliver Freitag
CE Certification

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A. Additional information on ( ):

A.1	(7.1)	Marking	II 3G Ex nA IIC T6 Gc II 3D Ex tc IIIC T85°C Dc MIN21ATEX001X

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български (bg)

Декларация за съответствие
1. Модел на продукта / Номер на продукта / валидно само за номера на проекта:
2. Наименование и адрес на производителя (2.1) и на неговия упълномощен представител (2.2):
3. Настоящата декларация за съответствие е издадена на отговорността на производителя.
4. Предмет(и) на декларацията:
5. Предметът (ите) на декларацията, описан(и) по-горе отговаря(т) на съответното законодателство на Съюза за хармонизация:
6. Позоваване на използваните хармонизирани стандарти или позоваване на други технически спецификации, по отношение на които се декларира съответствие:
7. Нотифицираният орган w извърши x и издаде сертификата y, отнасящ се за z:
A. Допълнителна информация за ( ):
A.1 Маркировка

čeština (cs)

Prohlášení o shodě
1. Model výrobku / číslo výrobku / platné pouze pro číslo projektu:
2. Jméno a adresa výrobce (2.1) a jeho zplnomocněného zástupce (2.2):
3. Toto prohlášení o shodě se vydává na výhradní odpovědnost výrobce.
4. Předmět(y) prohlášení:
5. Výše popsaný předmět / Výše popsané předměty prohlášení je/jsou ve shodě s příslušnými harmonizačními právními předpisy Unie:
6. Odkazy na příslušné harmonizované normy, které byly použity, nebo na jiné technické specifikace, na jejichž základě se shoda prohlašuje:
7. Oznámený subjekt w provedl x a vydal certifikát y relevantní z hlediska z:
A. Další informace o ( ):
A.1 Označení

dansk (da)

Overensstemmelseserklæring
1. Produktmodel / produktnummer / gælder kun for projektnummer:
2. Fabrikantens (2.1) og dennes bemyndigede representants (2.2) navn og adresse:
3. Denne overensstemmelseserklæring udstedes på fabrikantens ansvar.
4. Genstand(ene) for erklæringen:
5. Genstanden(e) for erklæringen, som beskrevet ovenfor, er i overensstemmelse med den relevante EU-harmoniseringslovgivning:
6. Referencer til de relevante anvendte harmoniserede standarder eller til de andre tekniske specifikationer, som der erklæres overensstemmelse med:
7. Det bemyndigede organ w har foretaget x og udstedt attesten y, der gælder for z:
A. Supplerende oplysninger om ( ):
A.1 Mærkning

Deutsch (de)

Konformitätserklärung
1. Produktmodell / Produktnummer / gilt ausschließlich für Projekt-Nr.:
2. Name und Anschrift des Herstellers (2.1) und seines Bevollmächtigten (2.2):
3. Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
4. Gegenstände der Erklärung:
5. Die oben beschriebenen Gegenstände der Erklärung erfüllen die einschlägigen Harmonisierungsrechtsvorschriften der Union:
6. Angabe der einschlägigen harmonisierten Normen oder der anderen technischen Spezifikationen, die der Konformitätserklärung zugrunde gelegt wurden:
7. Die notifizierte Stelle w hat x mal die für z relevante Bescheinigung y ausgestellt:
A. Zusatzangaben zu ( ):
A.1 Kennzeichnung

Ελληνικά (el)

Δήλωση συμμόρφωσης
1. Μοντέλο προϊόντος / αριθμός προϊόντος / ισχύει μόνο για τον αριθμό του έργου:
2. Όνομα και διεύθυνση του κατασκευαστή (2.1) και του εξουσιοδοτημένου αντιπροσώπου του (2.2):
3. Η παρούσα δήλωση συμμόρφωσης εκδίδεται με αποκλειστική ευθύνη του κατασκευαστή.
4. Στόχος της δήλωσης:
5. Ο στόχος της δήλωσης που περιγράφεται παραπάνω είναι σύμφωνος με τη σχετική ενωσιακή νομοθεσία εναρμόνισης:
6. Παραπομπές στα σχετικά εναρμονισμένα πρότυπα που χρησιμοποιήθηκαν ή παραπομπές στις λοιπές τεχνικές προδιαγραφές σε σχέση με τις οποίες δηλώνεται η συμμόρφωση:
7. Ο κοινοποιημένος οργανισμός w διεξήγε x και εξέδωσε το πιστοποιητικό y όπως απαιτείται για z:
A. Πρόσθετες πληροφορίες σχετικά με ( ):
A.1 Σήμανση

español (es)

Declaración de conformidad
1. Modelo de producto/número de producto / únicamente válido para el número de proyecto:
2. Nombre y dirección del fabricante (2.1) y de su representante autorizado (2.2):
3. La presente declaración de conformidad se expide bajo la exclusiva responsabilidad del fabricante.
4. Objeto(s) de la declaración:
5. El/Los objeto(s) de la declaración descritos anteriormente son conformes con la legislación de armonización pertinente de la Unión Europea:
6. Referencias a las normas armonizadas pertinentes utilizadas o referencias a las otras especificaciones técnicas respecto a las cuales se declara la conformidad:
7. El organismo notificado W ha efectuado X y expedido el certificado Y relevante para Z:
A. Información adicional en ( ):
A.1 Marcado

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eesti keel (et)

Vastavusdeklaratsioon
1. Toote mudel / tootenumber / kehtib vaid järgmise projekti puhul:
2. Tootja nimi ja aadress (2.1) ning tema volitatud esindaja (2.2):
3. Käesolev vastavusdeklaratsioon on välja antud tootja ainuvastutusel.
4. Deklareeritav toode:
5. Ülaltkirjeldatud deklareeritav toode on kooskõlas asjaomaste liidu ühtlustamisaktidega:
6. Viited kasutatud harmoneeritud standarditele või viited muudele tehnilistele spetsifikatsioonidele, millele vastavust deklareeritakse:
7. Teavitatud asutus w teostas x ja andis välja tõendi z, mis on aga kohane y-le:
A. Lisateave järgmise kohta ( ):
A.1 Märgistus

français (fr)

Déclaration de conformité
1. Modèle / numéro de produit / valable uniquement pour le numéro de projet:
2. Nom et adresse du fabricant (2.1) et de son mandataire (2.2):
3. La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.
4. Objet(s) de la déclaration :
5. Le ou les objets de la déclaration décrite ci-dessus est/sont conforme(s) à la législation d'harmonisation de l'Union applicable :
6. Références des normes harmonisées pertinentes appliquées ou des autres spécifications techniques par rapport auxquelles la conformité est déclarée :
7. L'organisme notifié w a effectué x et a établi l'attestation y applicable à z :
A. Informations complémentaires relatives à ( ) :
A.1 Marquage

hrvatski (hr)

Izjava o sukladnosti
1. Model proizvoda / broj proizvoda / vrijedi samo za broj projekta:
2. Naziv i adresa proizvođača (2.1) i njegovog ovlaštenog zastupnika (2.2):
3. Za izdavanje ove izjave o sukladnosti odgovoran je isključivo proizvođač.
4. Predmet(i) izjave:
5. Predmet(i) navedene izjave je/su u skladu s mjerodavnim zakonodavstvom Unije o usklađivanju:
6. Pozivanja na relevantne primijenjene usklađene norme ili pozivanja na ostale tehničke specifikacije u vezi s kojima se izjavljuje sukladnost:
7. Prijavljeno tijelo w provelo je x i izdalo certifikat y koji je relevantan za z:
A. Dodatne informacije o proizvodu ( )
A.1 Označavanje

magyar (hu)

Megfelelőségi nyilatkozat
1. Termékmodell / termékszám / kizárólag az alábbi projektszámhoz érvényes:
2. A gyártó (2.1) vagy adott esetben meghatalmazott képviselőjének (2.2) neve és címe:
3. Ezt a megfelelőségi nyilatkozatot a gyártó kizárólagos felelőssége mellett adják ki.
4. A nyilatkozat tárgya(i):
5. A fent ismertetett nyilatkozat tárgya megfelel a vonatkozó uniós harmonizációs jogszabályoknak:
6. Az alkalmazott harmonizált szabványokra való hivatkozás vagy az azokra az egyéb műszaki leírásokra való hivatkozás, amelyekkel kapcsolatban megfelelőségi nyilatkozatot tettek:
7. A(z) w bejelentett szervezet elvégezte a(z) x eljárást, és kiállította a(z) z kapcsolódó y tanúsítványt:
A. További információk ( ):
A.1 Jelölés

italiano (it)

Dichiarazione di conformità
1. Modello di prodotto / numero di prodotto / valido unicamente per numero di progetto:
2. Nome e indirizzo del fabbricante (2.1) e del relativo rappresentante autorizzato (2.2):
3. La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante.
4. Oggetto/i della dichiarazione:
5. L'oggetto o gli oggetti della dichiarazione di cui sopra sono conformi alla pertinente normativa di armonizzazione dell'Unione:
6. Riferimento alle pertinenti norme armonizzate utilizzate o riferimenti alle altre specifiche tecniche in relazione alle quali è dichiarata la conformità:
7. L'organismo notificato w ha effettuato x e rilasciato il certificato y pertinente a z:
A. Informazioni aggiuntive su ( ):
A.1 Marcatura

Latvių kalba (lt)

Atitikties deklaracija
1. Gaminio modelis / gaminio numeris / galioja tik projekto numeriui:
2. Gamintojo (2.1) ir jo įgaliotojo atstovo (2.2) pavadinimas ir adresas:
3. Ši atitikties deklaracija išduota tik gamintojo atsakomybe.
4. Deklaracijos objektas (objektai):
5. Pirmiau aprašytas deklaracijos objektas (objektai) atitinka susijusius derinamuosius Sąjungos teisės aktus.
6. Susijusių taikytų darnųjų standartų nuorodos arba kitų techninių specifikacijų, pagal kurias buvo deklaruota atitiktis, nuorodos:
7. Notifikuotoji įstaiga w atliko x ir išdavė sertifikatą y dėl z:
A. Papildoma informacija ( ):
A.1 Ženklinimas

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latviešu valoda (lv)

Atbilstības deklarācija
1. Produkta modelis / produkta numurs / derīgs tikai projektam Nr.:
2. Ražotāja (2.1.) un tā pilnvarotā pārstāvja (2.2.) nosaukums un adrese:
3. Šī atbilstības deklarācija ir izdota vienīgi uz ražotāja atbildību.
4. Deklarācijas priekšmets vai priekšmeti:
5. Iepriekš aprakstītais deklarācijas priekšmets vai priekšmeti atbilst attiecīgajam Savienības saskaņošanas tiesību aktam:
6. Atsauces uz attiecīgajiem izmantojamiem saskaņotajiem standartiem vai uz citām tehniskajām specifikācijām, attiecībā uz ko tiek deklarēta atbilstība:
7. Paziņotā struktūra w ir veikusi x un izsniegusi sertifikātu y; kas attiecas uz z:
A. Papildu informācija par ( ):
A.1. Marķējums

malti (mt)

Dikjarazzjoni ta' konformità
1. Mudell tal-prodott / numru tal-prodott / validu biss ghan-numru tal-progett:
2. L-isem u l-indirizz tal-manifattur (2.1) u tar-rappreżentant awtorizzat tiegħu (2.2):
3. Din id-dikjarazzjoni ta' konformità (inkella fatt ir-responsabbiltà unika tal-manifattur.
4. L-ghan(ijiet) tad-dikjarazzjoni:
5. L-ghan(ijiet) tad-dikjarazzjoni deskritt(i) huwa fuq huwa(huma) konformi mal-legislazzjoni ta' armonizzazzjoni rilevanti tal-Unjoni:
6. Ir-referenzi ghall-istandards armonizzati rilevanti li nużaw, jew ir-referenzi ghall-ispecifikazzjonijiet teknici l-oħra li skonthom qed tiġi dikjarata l-konformità:
7. Il-korp notifikat w wettaq x u hareg iċ-certifikat y rilevanti ghal z:
A. Informazzjoni addizzjonali fuq ( ):
A.1 Immarkar

nederlands (nl)

Conformiteitsverklaring
1. Productmodel / productnummer / uitsluitend geldig voor projectnummer:
2. Naam en adres van de fabrikant (2.1) en zijn gemachtigde (2.2):
3. Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant.
4. Voorwerp(en) van de verklaring:
5. Het (de) hierboven beschreven voorwerp(en) is (zijn) in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie:
6. Vermelding van de toegepaste relevante geharmoniseerde normen of van de overige technische specificaties waarop de conformiteitsverklaring betrekking heeft:
7. De aangemelde instantie w heeft een x uitgevoerd en het certificaat y verstrekt dat relevant is voor z:
A. Aanvullende informatie over ( ):
A.1 Markering

polski (pl)

Deklaracja zgodności
1. Model produktu / numer produktu / ważny wyłącznie dla projektu o numerze:
2. Nazwa i adres producenta (2.1) oraz jego upoważnionego przedstawiciela (2.2):
3. Niniejsza deklaracja zgodności wydana zostaje na wyłączną odpowiedzialność producenta.
4. Przedmiot(-y) deklaracji:
5. Wymieniony powyżej przedmiot (lub przedmiot(y) niniejszej deklaracji jest zgodny z odnośnymi wymaganiami unijnego prawodawstwa harmonizacyjnego:
6. Odwołania do odnośnych norm zharmonizowanych, które zastosowano, lub do innych specyfikacji technicznych, w stosunku do których deklarowana jest zgodność:
7. Jednostka notyfikowana w przeprowadziła x i wydała certyfikat y odpowiedni dla z:
A. Informacje dodatkowe o ( ):
A.1 Oznakowanie

português (pt)

Declaração de conformidade
1. Modelo do produto / número do produto / somente válido para o número de projeto:
2. Nome e endereço do fabricante (2.1) e do seu mandatário (2.2):
3. A presente declaração de conformidade é emitida sob a exclusiva responsabilidade do fabricante.
4. Objeto(s) da declaração:
5. O(s) objeto(s) da declaração acima descrito(s) está(ão) em conformidade com a legislação aplicável de harmonização da União:
6. Referências às normas harmonizadas aplicáveis utilizadas ou às outras especificações técnicas em relação às quais é declarada a conformidade:
7. O organismo notificado w realizou x e emitiu o certificado y relevante para z:
A. Informações complementares relativa a ( ):
A.1 Marcação

română (ro)

Declarație de conformitate
1. Modelul de produs / Număr produs / valabil numai pentru numărul proiectului:
2. Denumirea și adresa producătorului (2.1) și a reprezentantului său autorizat (2.2):
3. Prezenta declarație de conformitate este emisă pe răspunderea exclusivă a producătorului.
4. Obiectul (obiectele) declarației:
5. Obiectul (obiectele) declarației descrise mai sus sunt în conformitate cu legislația relevantă de armonizare a Uniunii:
6. Trimiteri la standardele armonizate relevante folosite sau trimiteri la celelalte specificații tehnice în legătură cu care se declară conformitatea:
7. Organismul notificat w a efectuat x și a emis certificatul y corespunzător pentru z:
A. Informații suplimentare despre ( ):
A.1 Marcaj

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The true measure

slovenčina (sk)

Vyhlásenie o zhode
1. Model výrobku / číslo výrobku / platné len pre číslo projektu:
2. Meno/názov a adresa výrobcu (2.1) a jeho splnomocneného zástupcu (2.2):
3. Toto vyhlásenie o zhode sa vydáva na vlastnú zodpovednosť výrobcu:
4. Predmet(-y) vyhlásenia:
5. Uvedený predmet či uvedené predmety vyhlásenia sú v zhode s príslušnými harmonizačnými právnymi predpismi Únie:
6. Odkazy na príslušné použité harmonizované normy alebo odkazy na iné technické špecifikácie, v súvislosti s ktorými sa zhoda vyhlasuje:
7. Notifikovaný orgán w vykonal x a vydal certifikát y relevantný pre z:
A. Doplňujúce informácie o ( ):
A.1 Označenie

slovenščina (sl)

Izjava o skladnosti
1. Model proizvoda / serijska številka proizvoda / veljavno samo za številko projekta:
2. Ime in naslov proizvajalca (2.1) ter njegovega pooblaščenega zastopnika (2.2):
3. Za izdajo te izjave o skladnosti je odgovoren izključno proizvajalec:
4. Predmet(i) izjave:
5. Predmet(i) navedene izjave je (so) v skladu z ustrezno zakonodajo Unije o harmonizaciji:
6. Sklicevanja na uporabljene ustrezne harmonizirane standarde ali sklicevanja na druge tehnične specifikacije v zvezi s skladnostjo, ki je navedena v izjavi:
7. Priglaseni organ w je izvedel x in izdal certifikat y, pomemben za z:
A. Dodatne informacije o ( ):
A.1 Oznaka

suomi (fi)

Vaatimustenmukaisuusvakuutus
1. Tuotemalli / tuotenumero / koskee vain projektinumeroa:
2. Valmistajan (2.1) ja valtuutetun edustajan (2.2) nimi ja osoite:
3. Tämä vaatimustenmukaisuusvakuutus on annettu valmistajan yksinomaisella vastuulla:
4. Vakuutuksen kohde (kohteet):
5. Edellä kuvattu (kuvaatut) vakuutuksen kohde (kohteet) on (ovat) asiaa koskevan unionin yhdenmukaistamislainsäädännön vaatimusten mukainen (mukaisia):
6. Viittaus niihin asiaa koskeviin yhdenmukaistettuihin standardeihin, joita on käytetty, tai viittaus muihin teknisiin eritelmiin, joiden perusteella vaatimustenmukaisuusvakuutus on annettu:
7. Ilmoitettu laitos w suoritti x ja antoi todistuksen y liittyen z:
A. Lisätietoja ( ):
A.1 Merkintä

svenska (sv)

Försäkran om överensstämmelse
1. Produktmodell / produktnummer / gäller endast för projektnummer:
2. Tillverkarens namn och adress (2.1) och dess auktoriserade representant (2.2):
3. Denna försäkran om överensstämmelse utfärdas på tillverkarens eget ansvar:
4. Föremål för försäkran:
5. Föremålet/föremålen för försäkran ovan överensstämmer med den relevanta harmoniserade unionslagstiftningen:
6. Hänvisningar till de relevanta harmoniserade standarder som använts eller hänvisningar till de andra tekniska specifikationer enligt vilka överensstämmelsen försäkras:
7. Det anmälda organet w har utfört x och utfärdat intyget y relevant för z:
A. Ytterligare information om ( ):
A.1 Märkning

6/6

12.3 19-088

Certificate Number: 19-088
Page 1 of 2

NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:
Load Cell
Tension
Model: PR 76 Series
n_{max}: 5000, Class III, Multiple Cell
10 000, Class IIIL, Multiple Cell
Capacity: 60 kg to 5000 kg
Accuracy Class: III/IIIL

Submitted By:
Minebea Intec GmbH
Meiendorfer Strasse 205 A
22145 Hamburg
Germany
Tel: +49.40.67960-238
Fax: +49.40.67960-500
Contact: Juergen Stolte
Email: juergen.stolte@minebea-intec.com
Web site: www.minebea-intec.com

Standard Features and Options

- The specific load cell models, capacities and v_{min} and n_{max} values covered by this Certificate are listed in the table on Page 2.
- Nominal Output: 2.0 mV/V
- Stainless Steel
- 6 Wire Design
- Minimum Dead Load: 0 kg

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Craig VanBuren
Chairman, NCWM, Inc.

Bret Gurney
Chairman, NTEP Committee
Issued: August 19, 2019

1135 M Street, Suite 110 / Lincoln, Nebraska 68508

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Certificate Number: 19-088
Page 2 of 2

Minebea Intec GmbH

Load Cell / PR 76 Series

Application: The load cells may be used in multiple cell applications Class III and IIIL consistent with the model designations, number of scale divisions, and parameters specified in this certificate. Load cells of a given accuracy class may be used in applications with lower accuracy class requirements provided the number of scale divisions, the v_{min} value, and temperature range are suitable for the application. The manufacturer may market the load cell with fewer divisions (n_{max}) and with greater v_{min} values than those listed on the certificate. However, the load cells will come with the appropriate n_{max} and v_{min} for which the load cell may be used.

Specific Capacities, n_{max} and v_{min} Values:

Model	Capacity	Class III Multiple Cell n_{max} = 5000	Class IIIL Multiple Cell n_{max} = 10 000
		v_{min} (g)	v_{min} (g)
PR 76 Series * load cells tested	60 kg *	6	2
	125 kg	12.5	4.2
	250 kg *	25	8.4
	500 kg	50	16.7
	1000 kg	100	33.4
	2000 kg *	200	66.7
	3000 kg	300	100
	5000 kg	500	166.7

Identification: An adhesive identification badge or a lasered identification label located on the cell, states manufacturer name, model, serial number, accuracy class and rated capacity. Other pertinent information will be specified on the Calibration Certificate accompanying the cell.

Test Conditions: A 60 kg, 250 kg and a 2000 kg capacity load cell were tested by the NMi Certin B.V., at the Netherlands facility. Testing was conducted in accordance with the OIML DoMC Mutual Acceptance Arrangement, signed by the NCWM as a utilizing participant for load cell testing. Testing was conducted using deadweights as the reference standard. The load cells were tested over a temperature range of -10 °C to 40 °C with tests run on each cell at each temperature. The temperature effect on zero was measured and a time dependence (creep) test was performed. The barometric pressure test to determine sensitivity of the load cell design to changes in barometric pressure was conducted. The data were analyzed for multiple load cell applications. OIML R60 selection criteria were used to determine cells tested.

Evaluated By: S.J. Koeman, M.M.J. Meijer (NMi)

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2019. NCWM, Publication 14: Weighing Devices, 2019.

Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

Information Reviewed By: D. Flocken (NCWM)

Example of Device:

12.4 R60/2017-A-NL1-19.19

OIML Certificate

OIML Member State
The Netherlands

Number R60/2017-A-NL1-19.19 revision 1
Project number 2393178
Page 1 of 3

Issuing authority	NMi Certin B.V. Person responsible: C. Oosterman
Applicant and Manufacturer	Minebea Intec GmbH Meiendorfer Strasse 205 A D-22145 Hamburg Germany
Identification of the certified type	A **tension load cell**, with strain gauges. Registered trade name : Minebea Intec Type : PR 76
Characteristics	See next page

This OIML Certificate is issued under scheme A.

This Certificate attests the conformity of the above identified Type (represented by the sample(s) identified in the OIML Test Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

OIML R 60 - Edition 2017 (E) for accuracy class C

This Certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML International Recommendation above-identified.
This Certificate does not bestow any form of legal international approval.

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate was issued, partial quotation of the Certificate and of the associated OIML Type Evaluation Reports is not permitted, although either may be reproduced in full.

Issuing Authority **NMi Certin B.V., OIML Issuing Authority NL1**
14 August 2019

C. Oosterman
Head Certification Board

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OIML Certificate

OIML Member State
The Netherlands

Number R60/2017-A-NL1-19.19 revision 1
Project number 2393178
Page 2 of 3

The conformity was established by the results of tests and examinations provided in the associated OIML Type Evaluation Reports:
- No. NMi-2393178-01 revision 1 dated 14 August 2019 that includes 74 pages;
- No. NMi-2393178-02 revision 1 dated 14 August 2019 that includes 68 pages;
- No. NMi-2393178-03 revision 1 dated 14 August 2019 that includes 68 pages.

Characteristics of the load cell:

Characterization of load cell capabilities	Analog-passive load cell
Maximum capacity (E_{max})	60 kg up to and including 5000 kg
Minimum dead load	0 kg
Accuracy Class	C
Rated Output	2 mV/V
Maximum number of load cell intervals (n) (1)	3000
Ratio of minimum LC Verification interval (1) $Y = E_{max} / v_{min}$	10000
Ratio of minimum dead load output return (1) $Z = E_{max} / (2 * DR)$	3000
Input impedance	400 Ω ± 50 Ω
Temperature range	-10 °C / + 40 °C
Fraction p_{LC}	0,7
Humidity Class	CH
Safe overload	150 % of E_{max}
Output impedance	352 Ω ± 2 Ω
Recommended excitation	10 V AC / DC
Excitation maximum	15 V AC / DC
Transducer material	Stainless steel
Atmospheric protection	Hermetically sealed

Remark:
1. The characteristics for n_{max}, Y and Z can be reduced separately.

Each load cell produced is provided with an accompanying document with information about its characteristics.

The above identified Type (represented by the sample(s) identified in the OIML Test Report) have been found to comply with the additional national requirements established by the United States of America (NIST Handbook 44 and NCWM Publication 14), included in the Utilizer Declaration:
- R 60 OIML-CS rev.2 Additional requirements from the United States Accuracy class III L;
- R 60 OIML-CS rev.2 Additional requirements from the United States Marking requirements.

OIML Certificate

OIML Member State
The Netherlands

Number R60/2017-A-NL1-19.19 revision 1
Project number 2393178

Certificate history:
This revision replaces the previous versions.

Revision	Date	Description of the modification
Initial	12 August 2019	-
1	14 August 2019	Minor correction of type evaluation reports.

-

12.5 TC11701

Test Certificate
Parts Certificate

Number **TC11701** revision 1
Project number 2393178
Page 1 of 1

Issued by	NMi Certin B.V.
In accordance with	WELMEC 8.8 2017, WELMEC 2.4 Issue 2, OIML R 60 (2017), EN 45501:2015.
Producer	Minebea Intec GmbH Meiendorfer Strasse 205 A D-22145 Hamburg Germany
Measuring instrument	A **tension load cell**, with strain gauges, tested as a part of a weighing instrument. Registered trade name : Minebea Intec Designation : PR 76 Further properties are described in the annexes: - Description TC11701 revision 1; - Documentation folder TC11701-1. An overview of performed tests is given in the annex: - Description TC11701 revision 1.
Remarks	This revision replaces the earlier version, except for its documentation folder.
Issuing Authority	**NMi Certin B.V.** 14 August 2019 C. Oosterman Head Certification Board

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INSPECTION
RvA I 122

Description

Number **TC11701** revision 1
Project number 2393178

1 General information about the load cell

All properties of the load cell, whether mentioned or not, shall not be in conflict with the standards mentioned in this certificate.

This certificate is the positive result of the applied voluntary, modular approach, for a component of a measuring instrument, as described in WELMEC 8.8. The complete measuring system must be covered by an EC type-approval certificate, an EC-type examination certificate or an EU-type examination certificate.

1.1 Essential parts

Number	Pages	Description	Remark
11701/0-01	1	PR 76 outline drawing	Mechanical and electrical

Cable:
- The load cell is provided with a 6-wire system (="Remote-sensing"):
  - The cable length is not limited.

The cable is shielded; the shield is connected to the load cell.

1.2 Essential characteristics

Characterization of load cell capabilities	Analog-passive load cell
Maximum capacity (E_{max})	60 kg up to and including 5000 kg
Minimum dead load	0 kg
Accuracy Class	C
Rated Output	2 mV/V
Maximum number of load cell intervals (n) (1)	3000
Ratio of minimum LC Verification interval (1) $Y = E_{max} / v_{min}$	10000
Ratio of minimum dead load output return (1) $Z = E_{max} / (2 * DR)$	3000
Input impedance	400 Ω ± 50 Ω
Temperature range	-10 °C / + 40 °C
Fraction p_{LC}	0,7
Humidity Class	CH
Safe overload	150 % of E_{max}
Output impedance	352 Ω ± 2 Ω
Recommended excitation	10 V AC / DC

Description

Number **TC11701** revision 1
Project number 2393178

Excitation maximum	15 V AC / DC
Transducer material	Stainless steel
Atmospheric protection	Hermetically sealed

Remarks:
1. The characteristics for n_{max}, Y and Z can be reduced separately.

1.3 Essential shapes

Number	Pages	Description	Remark
11701/0-01	1	PR 76 outline drawing	Mechanical and electrical

The descriptive markings plate is secured against removal by sealing or will be destroyed when removed and contains at least the information and markings as described in OIML R 60 (2017) and:
- This certificate number TC11701 (in the countries where it is mandatory);
- Producers name or mark.

2 Seals

The connecting cable of the load cell or the junction box is provided with possibility to seal.

3 Conditions for conformity assessment

Each load cell produced is provided with an accompanying document with information about its characteristics.

The compatibility of load cells and indicator is established by the manufacturer by means of the compatibility of modules form, contained in EN45501:2015 clause F.4 at the time of putting into use.

Other parties may use this certificate without the written permission of the producer (WELMEC 8.8).

4 Reports

An overview of performed tests is given in the reports:
- No. NMi-2393178-01 revision 1 dated 14 August 2019 that includes 74 pages;
- No. NMi-2393178-02 revision 1 dated 14 August 2019 that includes 68 pages;
- No. NMi-2393178-03 revision 1 dated 14 August 2019 that includes 68 pages.

A report can be a test report, an evaluation report, a type evaluation report and/or a pattern evaluation report.

Published by
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