INSTRUCTION MANUAL
TRANSMITTER

ACCESSORIES FOR WEKA
VISUAL LEVEL INDICATOR (VLI)

TRANSMITTER

29710-x
31967-x

32607-NI
32608-ND

DATE: Aug. 19, 23
VERSION: E 3.1

LEVEL
MEASUREMENT

TABLE OF CONTENTS

1. SYMBOLS AND SIGNS USED IN THE INSTRUCTION MANUAL

WARNING

Indicates potential damage to the device and / or an injury of the operator or user in case of failure to observe the instructions.

CAUTION

Indicates potential damage to the device in case of failure to observe the instructions

SAFETY NOTE

For equipment with normal conditions of use in explosion-prone environments according to EU-Directive 2014/34/EU (ATEX) or IECEx scheme.

These notes apply in addition to all other notes.

2. SAFETY NOTES AND WARNINGS

The manufacturer is not liable for damages which are caused as a result of failure to observe safety notes and warnings.

- → Burn hazard! Work on hot magnetic level indicators can lead to bodily injuries and burns. The surfaces of the float chambers and the process connections can become hot. Let the tank cool down to ambient temperature prior to carrying out any work on the magnetic level indicator. Wear appropriate PPE (gloves, face protection, possibly respiratory protection equipment). Keep sufficient distance during operation.
- → The magnetic level indicator and thus also the transmitter can unnoticeably become inoperative by a blocking of the float. Should you be unsure about the liquid level indicated another method should be used to check the magnetic level indicator.
- → Should you suspect a defective function or should you find such defective function, it must be remedied.

- → Only use the magnetic level indicator and the transmitter once you have read and understood the complete instruction manual.
- → The present instruction manual must also be accessible for later users.

→ Keep magnetic and magnetisable parts (magnets, construction steel, steel wire or clamps etc.) away from the magnetic level indicator or accessories such as the transmitter. This also applies to strong electromagnetic fields (transformers, welding equipment etc.), as both can interfere with the magnetic force of the magnets contained in the magnetic level indicator or the transmitter and can lead to malfunctions or failures of the indicator or the accessory parts (switch, transmitter, measuring converter) attached.

→ Replace damaged or faulty components with original spare parts.

→ Solvents can blunt the plastic components used or can cause cracks. Clean the devices with soap and water or a plastic cleaner.

→ Falling parts (bolting, floats etc.) can create impact sparks and cause explosions in an explosion-prone atmosphere. Make sure that an explosion-prone atmosphere does not exist, and no parts fall down when working on the magnetic level indicator.

→ When working on the magnetic level indicator, use only equipment and tools which were approved for the explosion-prone area.

→ Polycarbonate indicator rails can be electrostatically charged, e.g., during cleaning. When discharging, sparks can cause explosions in an explosion-prone atmosphere. Please clean the parts only with anti-static cleaning agents and auxiliary tools.

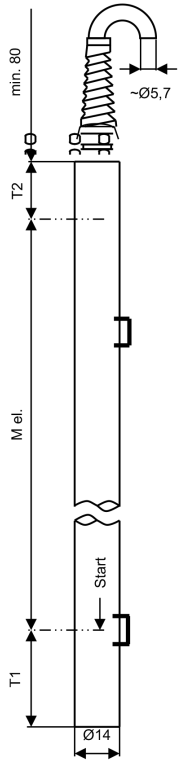
3. INTENDED USE

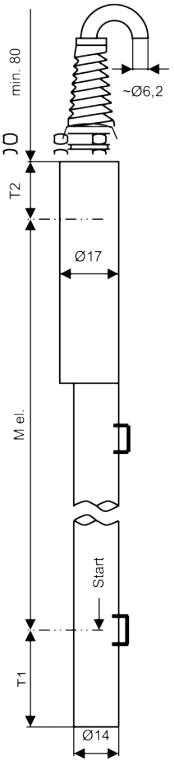
- → The transmitters may only be used in connection with original WEKA magnetic level indicators and their individual parts, e.g., floats.
- → The transmitters may only be used for the intended use indicated on the type plate. The data recorded on the type plate and the data sheet must correspond to the maximum operation parameters occurring within the plant.
- → Intended use, rebuilding measures and alterations of the transmitters not provided by the manufacturer are carried out at one's own risk and are potentially dangerous (exclusion of warranty).
- → The transmitters may only be installed, commissioned and maintained by trained specialist staff.
- → The manufacturer is not liable for damages which are caused by improper use or incorrect operation.
- → The transmitters are classified according EN 61140 to protection level II and will be high voltage tested for 100% each.

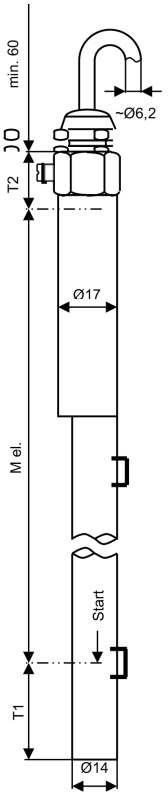
- → The transmitters may only be used for the intended use indicated on the type plate and the labelling according to Directive 2014/34/EU and/or IECEx.
- → The transmitters may only be installed, commissioned and maintained by trained specialist staff with knowledge on EX protection.
- → The transmitters may only be repaired and modified by the manufacturer (where required in consultation with the mentioned body).

4. OVERVIEW OF TRANSMITTERS AND CONVERTERS

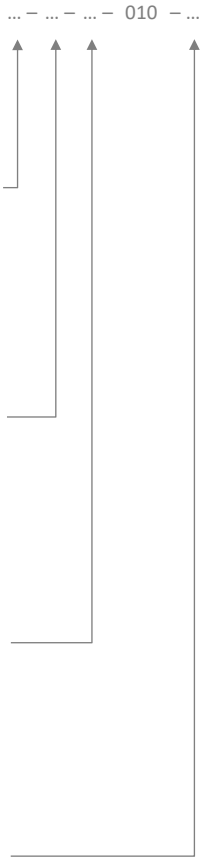
3-WIRE TRANSMITTER 10MM RESOLUTION	2-WIRE TRANSMITTER 10MM RESOLUTION	EX TRANSMITTER 10MM RESOLUTION







5. TYPE CODES

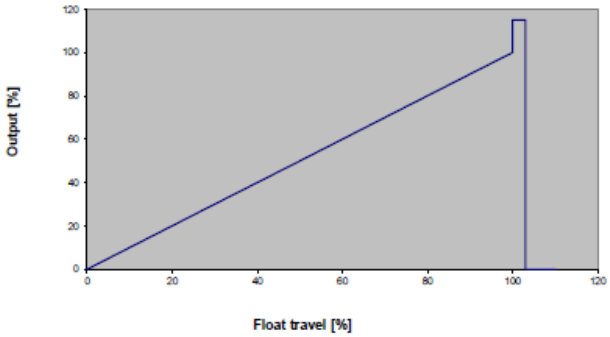


	available for:	index:
TYPE OF TRANSMITTER		
3-wire: resistant output or current supplied voltage output		29710
2-wire: 4…20mA current output, current sink		31967
2-wire: Intrinsically safe Ex ia; 4…20mA current output, current sink		32607
2-wire: Flameproof enclosures Ex d, 4…20mA current output, current sink		32608
SPECIALITIES		
Standard		–
With resistant output for HART®, Profibus PA® and Foundation Fieldbus™	29710	R
Transmitter with bi-stable reed switch at the top end	29710 / 31967	BI
EXECUTION		
Standard		–
for high media temperature	29710 / 31967	W
with terminal box	31967	K
with plug connector	31967	KST
Intrinsically safe Ex ia	29710 / 32607	NI
Flameproof enclosures, Ex id	29710 / 32608	ND
SIZE OF RESISTANCE		
10 Ohm per step (not applicable for NI/ND)	alle	010
RESOLUTION		
5mm	alle	05
10mm	alle	10

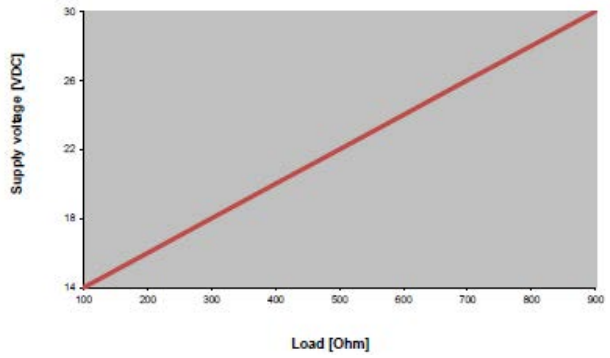
6. FUNCTIONAL DESCRIPTION

The transmitters are fit laterally as an accessory on the WEKA magnetic level indicators. The magnet inside the float activates the reed switches in the transmitter, depending on the level of liquid in the float chamber, thereby changing the effective value of a resistance network.
For the 2-wire transmitters the resulting voltage output is converted by an internal electronic to a 4...20mA signal. If the liquid level rises above the measuring range of the transmitter (30 mm) the output signal jumps to 115% (ca. 22,5mA) and remains on that limit.

i.e.
signal output
of a 2-wire transmitter
4...20mA



i.e.
output load
of a 2-wire transmitter
4...20mA



All transmitters are available in 10mm or 5mm resolution.

The minimum and maximum available electrical measuring length (Mel.) is stated in the technical data or the data sheets.

→ The transmitters of type -NI (Ex i) are to be operated with appropriate intrinsically safe equipment. The inner capacities and the cable have to be considered. Please find detailed information in the EU type-examination certificates.

→ For each type, none of the specified values must be exceeded. The values apply to ohmic loads. If the transmitter is overloaded, this leads to a malfunction of the electronics and thus the device is defective. Protective circuitry can significantly increase the life expectancy of the transmitter.

7. BI-STABILE SWITCH FUNCTION

This option is used if the measuring range of the transmitter is shorter than the indication range of the indicator.
Because the zero point (4mA) is fixed, it is necessary to install the transmitter at the lower start point of measurement. This will cause the possibility that the float will rise higher than the full scale point (20mA) of the transmitter. In this case it is possible to use a bi-stabile reed switch on top of the transmitter to avoid a loss of signal.

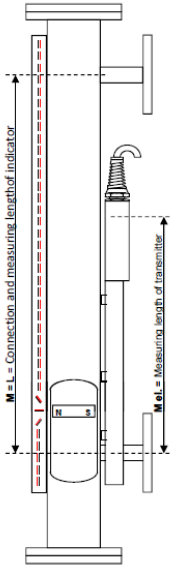


Figure 1

Identification **Type XXXXX-Bi-xx-010-xx**

Example **31967-Bi-W-010-05**

Principles of operation:

The permanent magnet inside the float activates the reed switches of the transmitter depending on the vertical position of the float. This results in an electrical signal output proportional to the level of liquid in the indicator's float chamber.

If the float rises above the transmitter's measuring range (M el.), the value of the electrical signal output will jump to 115% of the total measuring range. This over-limit value of the signal will remain constant for any level above the total measuring range (M el.). See figure 2.

Since the over-limit output signal represents a non-defined level, a second high-limit bi-stable reed switch can be fitted.

This bi-stable reed switch closes when the south pole of the float's magnet reaches the high-limit level and remains closed while the float is at any level above this limit. It opens again when the float drops bellow this limit again. See figure 2.

Possible error condition:

If the bi-stable reed switch is closed due to any other reasons such as during transport, or forced by an external magnetic field, the output signal will be incorrect. See Figure 3.

Corrective actions:

- Install the transmitter module 180° opposite to the indication rail. See Installation Instructions, datasheet 20010501.
- OR fill the vessel on which the level indicator is installed so that the float rises above the bi-stable reed switch. Empty the vessel, so the bi-stable reed switch is operated through one complete close-open cycle.
- OR pass a permanent bar magnet with its south pole pointing towards the transmitter downwards from top to bottom over the bi-stable reed switch and that the switch opens.

As a result the level transmitter will give the correct output signal. See Figure 2.

Signal output
with correctly adjusted transmitter

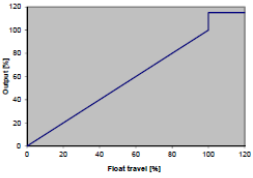


Figure 2

Faultive signal output
with closed bi-stable reed-switch

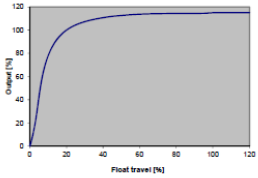


Figure 3

8. SCOPE OF DELIVERY

→ When ordering a level indicator with transmitter, hose clamps are included.
→ When ordering transmitters as spare parts, hose clamps are never included and must be ordered separately. Should you place an order, the hose clamp sizes must be specified:

For pipe diameter	30…40mm	Article number 89249
For pipe diameter	40…57mm and 57…80mm	Article number 89250

→ When ordering a transmitter please mention the electrical measuring length Mel. For spare parts you will find the electrical measuring length etched on the metal housing of the existing transmitter.

9. UNPACKING

1. Open the packaging and remove the transmitter.
2. Make sure that no further parts remain in the packaging.
3. Visually check the transmitter and all parts delivered for potential transport damages. Do not use any damaged or hazardous parts.

10. DISPOSING OF PACKAGING MATERIALS

Preserve the environment and properly dispose of or recycle the packaging material.

11. DISMANTLING / DISPOSAL

→ Dismantling
Prior to dismantling, make sure that the transmitter has been disconnected from the mains and that the missing transmitter function does not have any effect on the subsequent processes.

→ Disposal

Preserve the environment and properly dispose of the transmitter.

12. PHYSICAL / REAL ZERO POINT (LOWER MEASURING START)

The physical measurement begins with the first, lowest opened reed switch of the transmitter. With 5 mm transmitter, the lowest reed switch is closer to the end of the pipe than with transmitter with 10 mm resolution.

The real start of measurement depends on the magnetic field and its strength. A weaker magnetic field (SmartLine, installation deviating from 180 °) opens the bottom reed switch earlier than a strong magnetic field (StandardLine, etc.). The real zero point (0 point) therefore depends on the design of the VLI and the mounting position.

The red 0-point sticker at the lower end of the measuring transmitter marks the expected start of measurement and, if known, is matched by WEKA to the VLI type.

13. ASSEMBLY

Prior to assembly, the preparations for unpacking the transmitter must be completed. Prepare the tools (screwdriver size 4 or nut driver SW 7 – older clamp versions SW 6) and materials (hose clamps) required for the assembly of the transmitter.
The signal output by cable or connecter is foreseen for the upper side. The red sticker at the lower end of the transmitter shows the expected starting point of the measurement (0 point). The transmitter should be mounted in that way that the zero point marking is at the height where the float starts with measurement. See adjacent drawing 20010501.For the most accurate measurement possible, the mounting height may have to be adjusted again.

Position the transmitter on the magnetic level indicator in the subsequent specified assembly position and at the level on which you want starting the measurement. It may be that you have to loosen the closely located hose clamps of the indicator rail in order to introduce the hose clamp of the transmitter. After the assembly, all hose clamps must again be tightened.
Check the position and the seat of the transmitter after you have finished the work.

ASSEMBLY POSITION:

→ The transmitter is to be assembled 180° opposite the indication rail with the cable outlet towards the top, taking into account the tolerances. The tolerances depend on the respective pipe diameter (see subsequent drawing).

OPTIONAL:

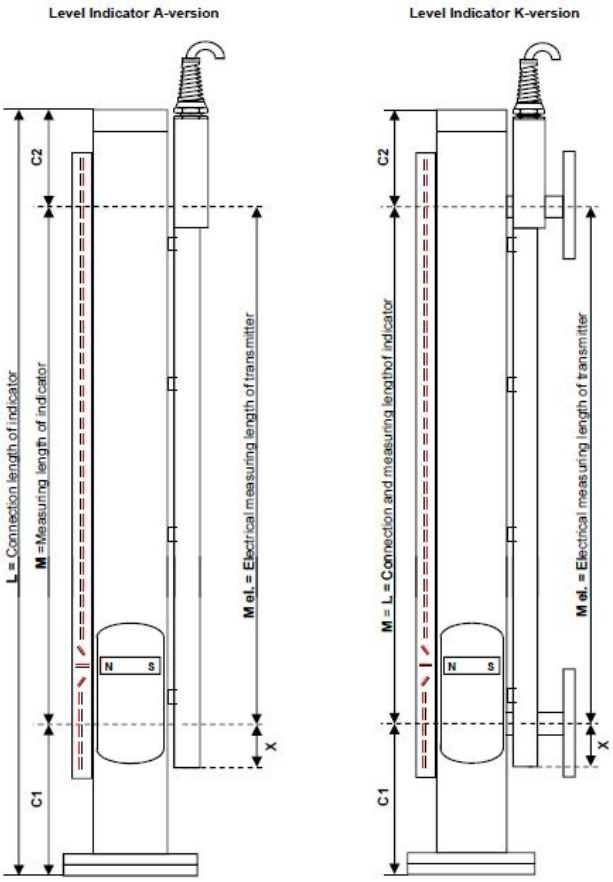
→ With the exception of Smartline, there is an option to assemble the transmitter directly next to the indication rail

→ The cable is to be laid in fixed position.
The hose clamps should be tightened with a torque of 3 … 5 Nm
After the assembly, the transmitter must be fixed tightly and in line with the float chamber.

→ Please consider also the instruction details of the certificates.

→ Potential equilisation is only guaranteed if both hose clamps are assembled on the standing pipe. If there is no continuous connection between the standing pipe and the potential equalisation or if only a hose clamp can be used due to constructive reasons, a connection to the terminal designed for this purposed must be ensured.

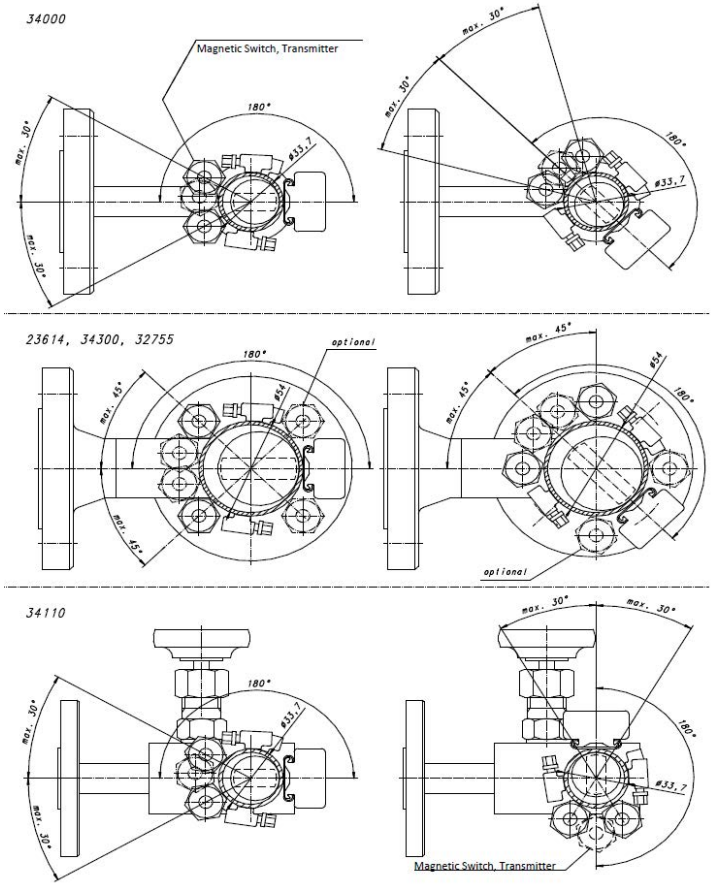
13.1 INSTALLATION OF TRANSMITTER TO VLI



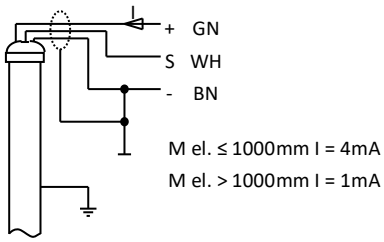
Terminology:

L =	Length between process connections	X =	Zero point of transmitter
M =	Measuring length (indication length) of VLI		
Mel. =	Measuring length of transmitter	10mm resolution	X = 65mm
C1 =	Bottom float extension	5mm resolution	X = 30mm
C2 =	Top float extension	29710-R-xx Version	see data sheet

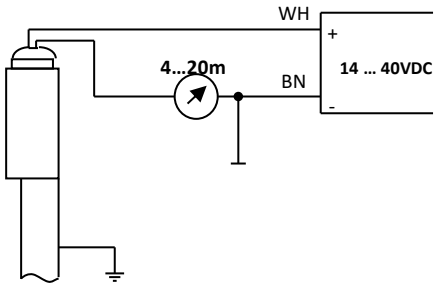
13.2 DRAWING 20010501 – INSTALLATION OF ACCESSORIES



14. ELECTRICAL INSTALLATION



i.e.
3-wire transmitter type 29710-xx



i.e.
2-wire transmitter type 31967-xx

Please consider the connecting diagrams of the datasheets or the type labels of the transmitters.

→ Wrong polarisation or overload will cause the damage of the device

15. COMMISSIONING OF REED TRANSMITTERS

Prior to commissioning, the entire assembly (12) must be completed

→ Should the data recorded on the type label (power supply, maximum operating temperature, maximum load etc.) not match the application, the transmitter can be damaged and represent danger to human life and the environment. Make sure that the data recorded on the type plate is a match with the application.

→ Inappropriate mounting components (magnetic etc.) can cause error functions and damage and can endanger human life and the environment. Only use components suitable for the application.

→ Prior to the first commissioning, the transmitter position is undefined. Observe the following procedure to establish a defined output state.

→ Prior to use, check the transmitter for visible exterior damages.
Do not commission a damaged transmitter.

→ The transmitter may only be used for intended purposes recorded on the type plate and in the certificates according to directive 2014/34/EU and/or IECEx scheme.

The magnetic level indicator is filled with liquid via the tank. As soon as the float floats, it needs some time to adjust itself with regard to the magnetic band of the indication rail. From that point on, the float should indicate the level by turning the indication flaps.
In order to bring the transmitters into a defined state, we recommend once driving off the complete tank volume under supervision and visually checking the level so as to be able to guarantee perfect functioning.
It is also possible to bring the transmitter into the specified position by means of a weak hand magnet (e.g., magnet board). In this way, you can also manually test the mobility of the indication flaps. However, the flaps should always be put back into starting position.

16. MAINTENANCE

In general, the magnetic level indicator and the transmitter are maintenance-free.
You should only check the transmitter in cases of suspected error function.
You find notes on the approach in chapter “Commissioning” (14).

→ Should you suspect or detect an error function, it must be immediately rectified. Damaged or faulty components must be replaced with original spare parts.

→ When checking the output signal, only use hand magnets which are not too strong and which cannot influence the reed switches of the transmitter with regard to its values. Otherwise, this can result in a malfunction of the transmitter.

→ Clean the transmitter only with a damp cloth. Solvents and abrasive cleaners can destroy cables, plastic cable gland and type plate.

→ Transmitters for the Ex area may only be repaired and modified by the manufacturer (where required in consultation with the named authority).

17. TECHNICAL DATA

Dimensions:	see data sheet	
Minimum $M_{el.}$:	all types	200mm
Maximum $M_{el.}$:	all types	4000mm
	Other lengths on request (multiple piece design)	
Minimum medium temperature:	all types	-50°C
Maximum medium temperature:	29710-W	+350°C
	31967-W	+250°C
	all other types	+150°C
Minimum ambient temperature:	all types	-20°C
	Ex types	-50°C
Maximum ambient temperature:	all types	+50°C
Standard cable lengths:	all types	5 m
	not for transmitters with junction boxes or connectors	
Protection class:	all types	IP68-10bar
	for junction boxes and connectors see data sheet	
Housing material:	Stainless steel, 316L	
Cable gland material:	see data sheet	
Cable material:	see data sheet	

18. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTION
1. No visual level display despite liquid being in the tank.	Float is blocked due to dirt in the float chamber.	Clean float chamber and float (see instruction manual of the magnetic level indicator)
	Float is damaged, filled with liquid and has sunk.	Replace the float. Compare test pressure of the system with the type plate information.
	Float is stuck on magnetic or magnetisable components assembled outside the float chamber.	Look for iron parts along the magnetic level indicator by means of magnet (clamps, screws etc.), remove them and respectively replace them with original add-on components.
2. No output signal	The installation does not correspond to the assembly instructions.	Check correctly installation. Consider that accessories have to be moved/turned when “moving/turning” the indication rail.
	The transmitter is not activated by the float.	Without indication rail, the float has no guidance and cannot activate the accessories!
	Open circuit, short circuit or wrong polarity	Check the function of the magnetic level indicator according to point 1.
		Ensure that the right combination of float chamber type and float was selected.
		Check electrical installation and power supply.
3. Wrong output signal	Offset in output signal.	Check the zero point of installation. Maybe shift the height of transmitter installation.
	Output signal is not linear.	The transmitter was probably overloaded or one reed switch is permanently closed. For bi-stabile versions see descriptions above.
4. Interruptions on output signal	Float is stuck on magnetic or magnetisable components assembled outside the float chamber.	Look for iron parts along the magnetic level indicator by means of magnet (clamps, screws etc.), remove them and respectively replace them with original add-on components.

19. TRANSPORT AND STORAGE CONDITIONS

→ Protect transmitters against strong thrusts.
→ Do not place any heavy items on the transmitter and its packaging.
→ Store the transmitter in a dry environment.
→ Avoid contact with water and humidity.
→ Protect transmitter against strong magnetic fields.
→ Temperature: -10°C … +50°C
→ Relative humidity: 10% … 95%

20. LABELLING

→ The transmitter may only be used for the intended use recorded on the type plate.

→ Please observe the information on the type plate.

21. CUSTOMER SERVICE

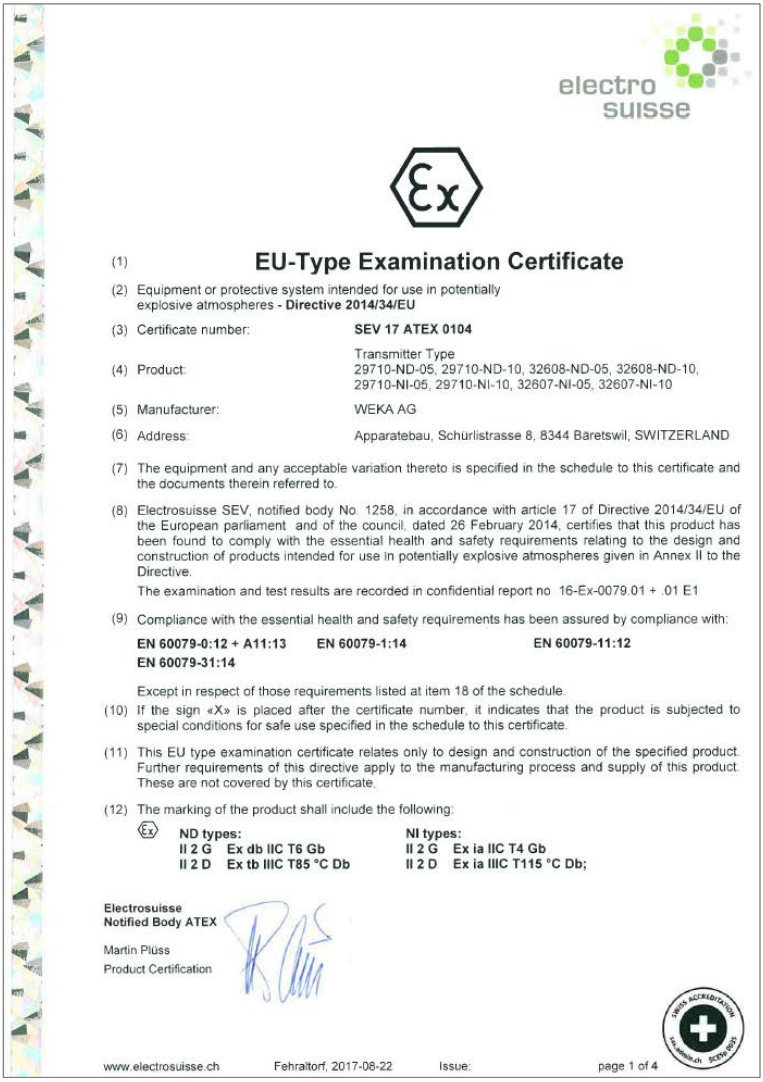
You find a list with all WEKA representatives worldwide under
www.weka-ag.ch → contact → representatives and your choice of country

or contact us directly under

WEKA AG

Schuerlistrasse 8 | CH-8344 Baeretswil | Switzerland
Phone +41 43 833 43 43 | level@weka-ag.ch

22. EU TYPE-EXAMINATION CERTIFICATES



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(1) **EU-Type Examination Certificate**

(2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 2014/34/EU**

(3) Certificate number: **SEV 17 ATEX 0104**

(4) Product: Transmitter Type 29710-ND-05, 29710-ND-10, 32608-ND-05, 32608-ND-10, 29710-NI-05, 29710-NI-10, 32607-NI-05, 32607-NI-10

(5) Manufacturer: WEKA AG

(6) Address: Apparatebau, Schürlistrasse 8, 8344 Bäretswil, SWITZERLAND

(7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) Electrosuisse SEV, notified body No. 1258, in accordance with article 17 of Directive 2014/34/EU of the European parliament and of the council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no. 16-Ex-0079.01 + .01 E1

(9) Compliance with the essential health and safety requirements has been assured by compliance with:
EN 60079-0:12 + A11:13 **EN 60079-1:14** **EN 60079-11:12**
EN 60079-31:14
Except in respect of those requirements listed at item 18 of the schedule.

(10) If the sign «X» is placed after the certificate number, it indicates that the product is subjected to special conditions for safe use specified in the schedule to this certificate.

(11) This EU type examination certificate relates only to design and construction of the specified product. Further requirements of this directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

	ND types:	NI types:
Ex	**II 2 G Ex db IIC T6 Gb**	**II 2 G Ex ia IIC T4 Gb**
	II 2 D Ex tb IIIC T85 °C Db	**II 2 D Ex ia IIIC T115 °C Db;**

Electrosuisse
Notified Body ATEX

Martin Plüss
Product Certification

www.electrosuisse.ch Fehraltorf, 2017-08-22 Issue: page 1 of 4

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(13) **Appendix**

(14) **EU-Type Examination Certificate no. SEV 17 ATEX 0104**

(15) **Description of product**
Type 29710-ND-05, 29710-ND-10, 32608-ND-05, 32608-ND-10, 29710-NI-05, 29710-NI-10, 32607-NI-05, 32607-NI-10

The transmitters are used as part of a measurement line for continuous monitoring of tank levels. They are installed along with visual level indicators (VLI) at liquid-filled tanks and serve as a sensor
Type 29710-NI-xx resp. 29710-ND-xx in 3-wire technology with resistance output or
Type 32607-NI-xx resp. 32608-ND-xx in 2-wire technology with current output.

In the visual level indicator is a float located which contains a permanent magnet. This permanent magnet activates reed switches located inside the transmitter arranged in a 5 mm (xxxxx-xx-05) or 10 mm grid (xxxxx-xx-10), whereby a change in resistance occurs. The function of this device could be seen similar to a potentiometer.

Type 29710-xx-xx:
The output signal can either be directly the resistance value or the transmitter can be powered by an external electronics with a current, so that the resistance change is converted as a voltage at the output. The supply current for sensors shorter than 1 m should be maximum 4 mA and for sensors longer than 1 m should not exceed 1 mA.

Type 32607-NI-xx and type 32608-ND-xx:
The sensors work the same as the type 29710-xx-xx, but the electronics at the top of the transmitter converts the voltage signal into a 4...20 mA current signal (current sink) in 2-wire technology.

The "ND" in the type code describes the versions int type of protection "d" and "t", the "NI" stands for the Intrinsically safe version.

Permissible ambient and medium temperature range:

Type 29710-ND-xx and type 32608-ND-xx

Ex db IIC T6 Gb
Ex tb IIIC T85 °C Db

The temperature class respective the maximum surface temperature of the equipment depends on the medium temperature and the ambient temperature and shall be taken from the following table:

Medium temperature	Ambient temperature	Temperature class of the equipment	Maximum surface temperature
-50 °C…+150 °C	-50 °C…+50 °C	T4	105 °C
-50 °C…+135 °C	-50 °C…+50 °C	T4	100 °C
-50 °C…+100 °C	-50 °C…+50 °C	T5	95 °C
-50 °C…+85 °C	-50 °C…+50 °C	T6	85 °C

Type 29710-NI-xx and type 32607-NI-xx

Ex ia IIC T4 Gb
Ex ia IIIC T115 °C Db

Permissible ambient temperature range: -50 °C…+50 °C
Permissible medium temperature range: -50 °C…+150 °C

Technical Data:

Type 29710-ND-xx
Measurement circuit

Rated values:
U = 15 VDC
I = 4 mA

Type 32608-ND-xx
Measurement circuit

U = 30 VDC
I = 23 mA

Type 29710-NI-xx
Measurement circuit

In type of protection Intrinsic safety Ex ia IIC respective IIIC.
Only for connection to certified intrinsically circuits.

Maximum values:
U_i = 22.6 VDC
I_i = 160 mA
PI = 900 mW

The maximum effective internal capacitance and inductance are negligible small.

Type 32607-NI-xx
Measurement circuit

In type of protection Intrinsic safety Ex ia IIC respective IIIC.
Only for connection to certified intrinsically circuits.

Maximum values:
U_i = 30.8 VDC
I_i = 130 mA
P_i = 790 mW
C_i = 49 nF
L_i ≈ 0 mH

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electro suisse

(16) **Report number** 16-Ex-0079.01 + .01 E1

(17) **Specific conditions of use**
none

(18) **Essential health and safety requirements**
In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause **Subject**
none

(19) **Drawings and Documents**
See test report "Manufacturer's Documents"

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23. DECLARATION OF SAFENESS FOR SHIELDED CABLE (NI VERSION)

EC-type examination certificate ZELM 15 ATEX 0536
Declaration of safeness
ID1251515

We hereby confirm the manufacturer,

WEKA AG
Schürlistraße 8
CH-8344 Bäretswil

that there are no safety-related objections for the electrical equipment
– Transmitter type 29710-NI-05, 29710-NI-10, 32607-NI-05 and 32607-NI-10
according EC-type examination certificate ZELM 15 ATEX 0536 -
for using the connection cable type ÖLFLEX HEAT 180 C MS instead of the current used cable type WEKA 82972 Typ Si-SL-0. The above listed types are the intrinsically safe versions of the equipment. The new alternative cable is shielded in contrary to the current cable. An electrical connection of the shield with the intrinsically safe circuit is not considered. The electrical insulation will be verified during the routine test with 500 Vrms.

This declaration of safeness covers the consideration of the modifications described in the following documents:

Related documents:

Email dated 26.8.2015 Herr Stefan Otto
Data Sheets – Connection Cable Type ÖLFLEX HEAT 180°C MS and Type WEKA 82972

The above described changes have to be considered in a possibly future supplement to the EC-type examination certificate ZELM 15 ATEX 0536.

24. IECEx CERTIFICATE OF CONFORMITY

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx SEV 17.0001 | Issue No: 1 | Certificate history: Issue No. 1 (2017-08-22) Issue No. 0 (2017-03-07)

Status: Current | Page 1 of 4

Date of Issue: 2017-08-22

Applicant: WEKA AG
Schürlistrasse 8
8344 Bäretswil
Switzerland

Equipment: Transmitter 29710-ND-05, 29710-ND-10, 32608-ND-05, 32608-ND-10, 29710-NI-05, 29710-NI-10, 32607-NI-05 and 32607-NI-10

Optional accessory:

Type of Protection: "i", "d", "t"

Marking:

ND types:
Ex db IIC T6 Gb
Ex tb III C T85 °C Db

NI types:
Ex ia IIC T4 Gb
Ex ia III C T115 °C Db

Approved for issue on behalf of the IECEx Certification Body: Martin Plüss

Position: Manager Product Certification

Signature: (for printed version)

Date: 2017-08-22

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:
Eurofins Electrosuisse Product Testing AG
Luppmenstrasse 1
CH-8320 FEHRALTORF
Switzerland

eurofins | Electrosuisse Product Testing

IECEx Certificate of Conformity

Certificate No:	IECEx SEV 17.0001	Issue No: 1
Date of Issue:	2017-08-22	Page 2 of 4
Manufacturer:	WEKA AG Schürlistrasse 8 8344 Bäretswil Switzerland	

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

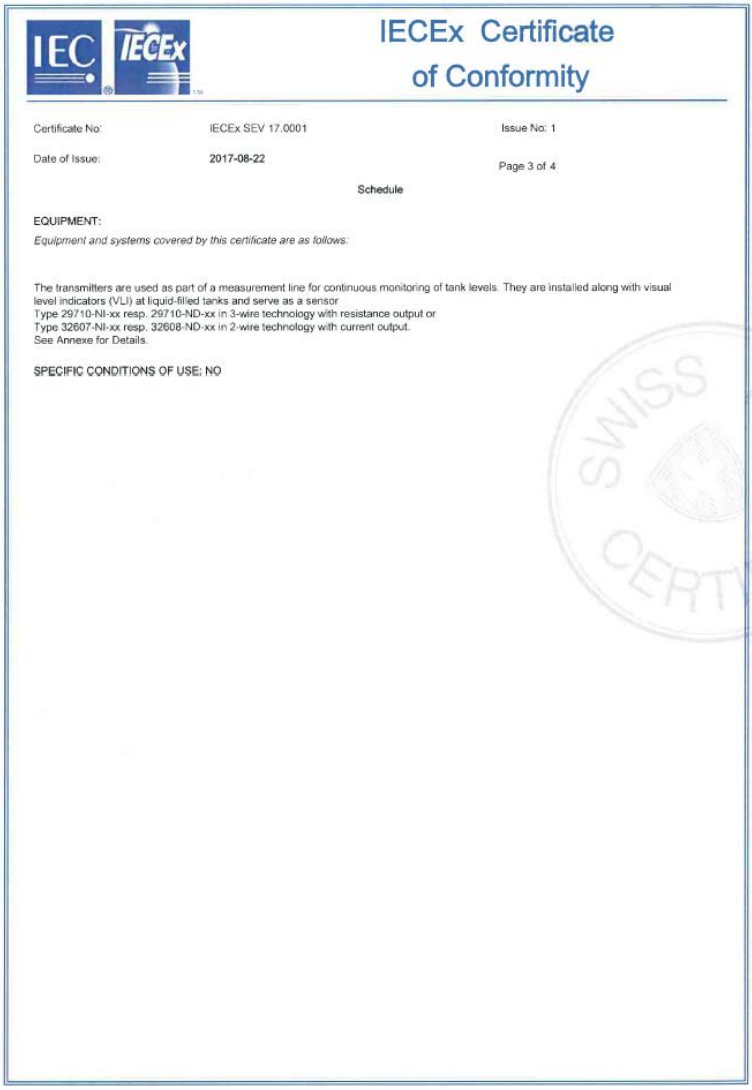
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

CH/SEV/ExTR17.0001/01

Quality Assessment Report:

CH/SEV/QAR16.0005/00



IECEx Certificate of Conformity

Certificate No: IECEx SEV 17.0001 Issue No: 1

Date of Issue: 2017-08-22 Page 3 of 4

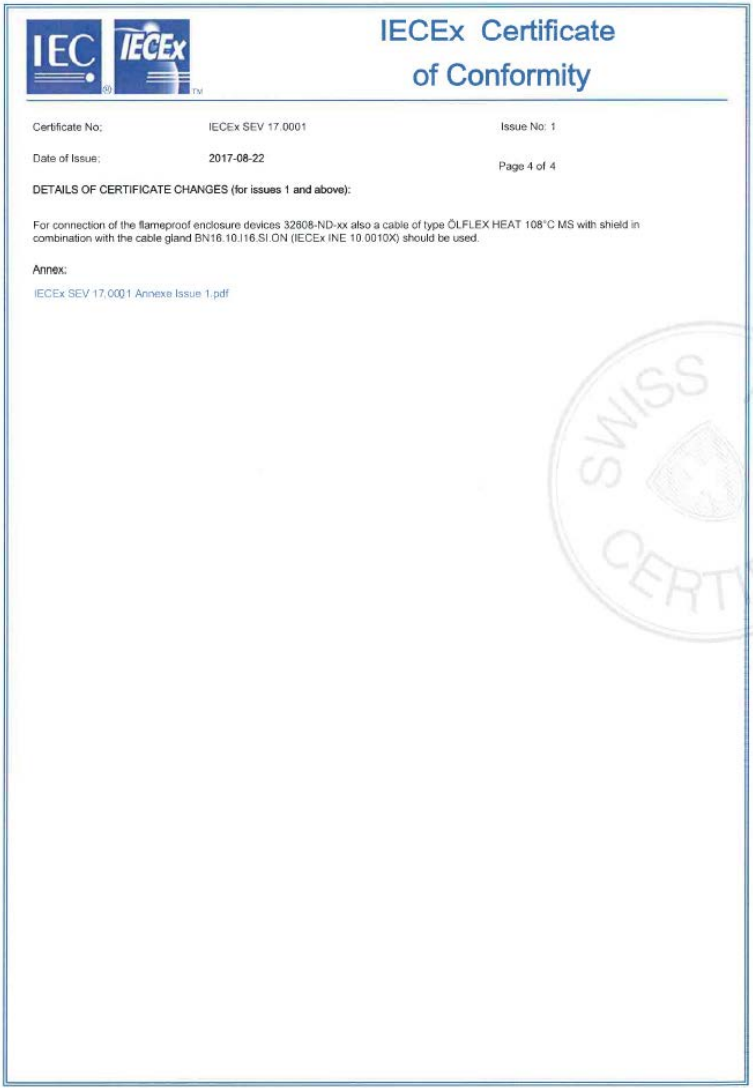
Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The transmitters are used as part of a measurement line for continuous monitoring of tank levels. They are installed along with visual level indicators (VLI) at liquid-filled tanks and serve as a sensor
Type 29710-NI-xx resp. 29710-ND-xx in 3-wire technology with resistance output or
Type 32607-NI-xx resp. 32608-ND-xx in 2-wire technology with current output.
See Annexe for Details.

SPECIFIC CONDITIONS OF USE: NO



IECEx Certificate of Conformity

Certificate No: IECEx SEV 17.0001 Issue No: 1

Date of Issue: 2017-08-22 Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

For connection of the flameproof enclosure devices 32808-ND-xx also a cable of type ÖLFLEX HEAT 108°C MS with shield in combination with the cable gland BN16.10.116.SI.ON (IECEx INE 10.0010X) should be used.

Annex:

IECEx SEV 17.0001 Annexe Issue 1.pdf

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Annexe to: **IECEx SEV 17.0001** **Issue No.: 1**

Applicant Name: **WEKA AG**

Electrical Apparatus: **Transmitter**

Description of product

The transmitters are used as part of a measurement line for continuous monitoring of tank levels. They are installed along with visual level indicators (VLI) at liquid-filled tanks and serve as a sensor
Type 29710-NI-xx resp. 29710-ND-xx in 3-wire technology with resistance output or
Type 32607-NI-xx resp. 32608-ND-xx in 2-wire technology with current output.

In the visual level indicator is a float located which contains a permanent magnet. This permanent magnet activates reed switches located inside the transmitter arranged in a 5 mm (xxxxx-xx-05) or 10 mm grid (xxxxx-xx-10), whereby a change in resistance occurs. The function of this device could be seen similar to a potentiometer.

Type 29710-xx-xx:
The output signal can either be directly the resistance value or the transmitter can be powered by an external electronics with a current, so that the resistance change is converted as a voltage at the output. The supply current for sensors shorter than 1 m should be maximum 4 mA and for sensors longer than 1 m should not exceed 1 mA.

Type 32607-NI-xx and type 32608-ND-xx:
The sensors work the same as the type 29710-xx-xx, but the electronics at the top of the transmitter converts the voltage signal into a 4...20 mA current signal (current sink) in 2-wire technology.

The "ND" in the type code describes the versions int type of protection "d" and "t", the "NI" stands for the intrinsically safe version.

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Annexe to: **IECEx SEV 17.0001** **Issue No.: 1**
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Permissible ambient and medium temperature range:

Type 29710-ND-xx and type 32608-ND-xx

Ex db IIC T6 Gb
Ex tb IIIC T85 °C Db

The temperature class respective the maximum surface temperature of the equipment depends on the medium temperature and the ambient temperature and shall be taken from the following table:

Medium temperature	Ambient temperature	Temperature class of the equipment	Maximum surface temperature
-50 °C…+150 °C	-50 °C…+50 °C	T4	105 °C
-50 °C…+135 °C	-50 °C…+50 °C	T4	100 °C
-50 °C…+100 °C	-50 °C…+50 °C	T5	95 °C
-50 °C…+85 °C	-50 °C…+50 °C	T6	85 °C

Type 29710-NI-xx and type 32607-NI-xx

Ex ia IIC T4 Gb
Ex ia IIIC T115 °C Db

Permissible ambient temperature range: -50 °C…+50 °C
Permissible medium temperature range: -50 °C…+150 °C

Technical Data:

	Rated values:
Type 29710-ND-xx Measurement circuit	U = 15 VDC I = 4 mA
Type 32608-ND-xx Measurement circuit	U = 30 VDC I = 23 mA
Type 29710-NI-xx Measurement circuit	In type of protection Intrinsic safety Ex ia IIC respective IIIC. Only for connection to certified intrinsically circuits. Maximum values: U_i = 22.6 VDC I_i = 160 mA Pi = 900 mW The maximum effective internal capacitance and inductance are negligible small.
Type 32607-NI-xx Measurement circuit	In type of protection Intrinsic safety Ex ia IIC respective IIIC. Only for connection to certified intrinsically circuits. Maximum values: U_i = 30.8 VDC I_i = 130 mA P_i = 790 mW C_i = 49 nF L_i ≈ 0 mH

25. CONFORMITY DECLARATIONS

EU - KONFORMITÄTSERKLÄRUNG
EU - DECLARATION OF CONFORMITY

Wir
We **WEKA AG**

(Name des Herstellers) (Manufacturers name)

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Messwertgeber / Liquid Level Probe

Typen: **29710; 29710-R; 29710-W; 29710-R-W; 31967; 31967-W; 31967-K; 31967-KST; 34067; 34167; 34267; 34307; 29710-BI; 29710-BI-W; 31967-BI; 31967-BI-W; 31967-BI-K; 31967-BI-KST**

(Diese Produkte dürfen NICHT für Ex- Anwendungen eingesetzt werden /
These products should NOT be used for Ex applications)

(Bezeichnung Typ oder Modell, Los-, Chargen- oder Seriennummer, möglichst Herkunft und Stückzahl)
(Name, type or model, lot, batch or serial number, possibly sources and numbers of items)

auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt
to which this declaration relates is in conformity with the following standards or other normative documents

EN 61326-1:2011
EN 61010-1:2011

(Titel und/oder Nummer sowie Ausgabedatum der Normen oder der anderen normativen Dokumente)
(Title and/or number and date of issue of the standards or other normative documents)

Gemäss den Bestimmungen der Richtlinie(n),
Following the provisions of Directive(s),
(falls zutreffend) (if applicable)

2014/30/EU (EMV); 2014/35/EU (LVD)

(Ort und Datum der Ausstellung) **(Place and date of issue)**	**(Name und Unterschrift des Befugten)** **(Name and signature of authorized person)**	
Bäretswil, den 21.09.2017	Marc Hofmann (Quality Manager)	Stefan Otto (Produkt Manager)

EU - KONFORMITÄTSERKLÄRUNG
EU - DECLARATION OF CONFORMITY

Wir
We **WEKA AG**

(Name des Herstellers) (Manufacturers name)

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Messwertgeber / Liquid Level Probe

Typen: **29710-NI-10; 29710-NI-05; 29710-R-NI-10; 29710-R-NI-05; 29710-ND-10; 29710-ND-05; 29710-R-ND-10; 29710-R-ND-05; 32607-NI-10; 32607-NI-05; 32608-ND-10; 32608-ND-05**

(Bezeichnung Typ oder Modell, Los-, Chargen- oder Seriennummer, möglichst Herkunft und Stückzahl)
(Name, type or model, lot, batch or serial number, possibly sources and numbers of items)

auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt
to which this declaration relates is in conformity with the following standards or other normative documents

xxxxx-NI-xx & xxxxx-R-NI-xx	EN 61326-1:2011; EN 60079-0:2012; EN 60079-11:2012
xxxxx-ND-xx & xxxxx-R-ND-xx	EN 61326-1:2011; EN 60079-0:2012; EN 60079-1:2014; EN 60079-31:2014

EG- Baumusterprüfbescheinigung / EC Type Examination Certificate SEV 17 ATEX 0104

(Titel und/oder Nummer sowie Ausgabedatum der Normen oder der anderen normativen Dokumente)
(Title and/or number and date of issue of the standards or other normative documents)

Gemäss den Bestimmungen der Richtlinie(n),
Following the provisions of Directive(s),
(falls zutreffend) (if applicable)

2014/30/EU (EMV); 2014/34/EU (ATEX)

(Ort und Datum der Ausstellung) (Place and date of issue)	(Name und Unterschrift des Befugten) (Name and signature of authorized person)	
Bäretswil, den 21.09.2017	Marc Hofmann (Quality Manager)	Stefan Otto (Produkt Manager)

26. STATEMENT FOR TRANSMITTER WITH HART CONVERTER

Herstellererklärung

zu

WEKA- Messwertgeber in Kombination mit HART®- Konverter

Die Messwertgeber, welche für den Anschluss an HART®- Konverter konzipiert sind, sind baugleich mit den Standardtypen, jedoch kann die elektrische Messlänge im Einzellfall abweichend sein, weshalb diese Messwertgeber an dem ‚-R' in der Typenbezeichnung identifiziert werden können.
Hinsichtlich der Zulassungen und der Zertifizierung soll die folgende Tabelle auf die Grundtypen verweisen, deren Zertifikate benutzt werden können, dies gilt insbesondere für die Ex- Baumusterprüfungen:

29710-R	-	29710
29710-R-NI	-	29710-NI
29710-R-W	-	29710-W
29710-R-ND	-	29710-ND

Die beiden Typen sind jeweils bis auf die Länge absolut identisch in der Bauweise.

Statement from Manufacturer

concerning

WEKA transmitter in combination with HART®- converter

Transmitters for use in combination with HART® converters are same design as the standard transmitters. These transmitters are marked with ‚-R' in the type number because it is possible that the electrical measuring length can differ from standard types.
The following table should refer to the standard types. It is possible to use the certificates and approvals from the standard types, which is especially valid for the Ex type approvals:

29710-R	-	29710
29710-R-NI	-	29710-NI
29710-R-W	-	29710-W
29710-R-ND	-	29710-ND

Each of both types is absolutely identical in construction and manufacturing.

WEKA AG

Stefan Otto
PM Füllstandsmessgeräte / PM Level Instruments

Baeretswil, 26. July 2011

NOTES

TO ORDER:

DATE:

WEKA AG SWITZERLAND
SCHÜRLISTRASSE 8 | 8344 BÄRETSWIL
+41 43 833 43 43 | info@weka-ag.ch

www.weka-ag.ch

LEVEL MEASUREMENT