

WEKA Tank Level Instruments TLI

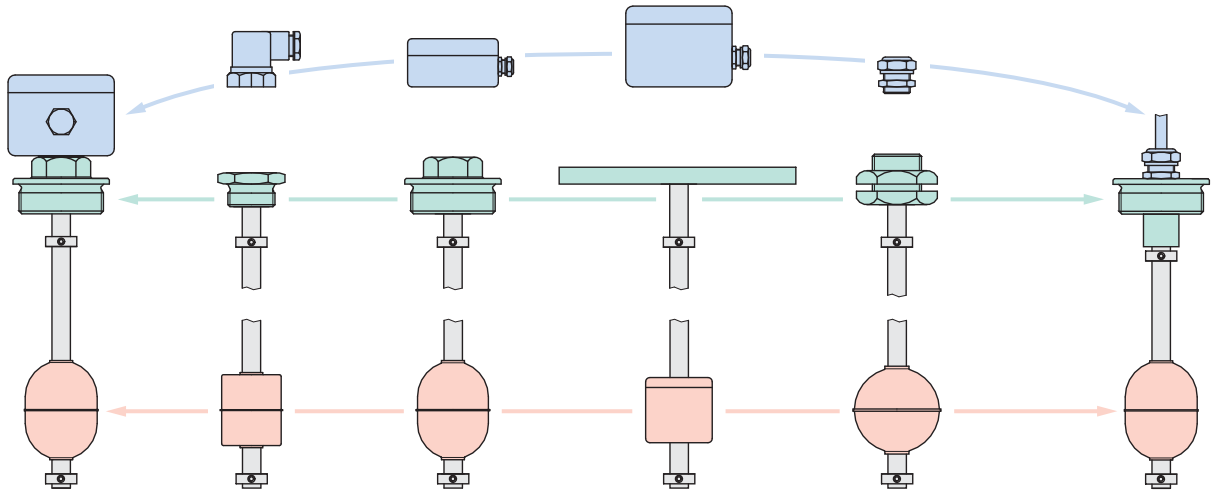
Certified according ISO 9001:2008

Certified according PED 97/23/EC

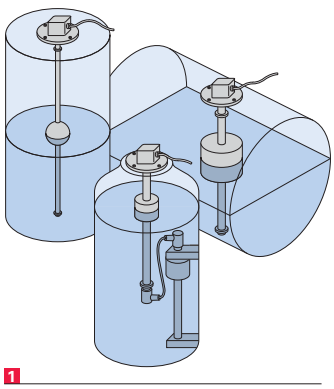
Certified according ATEX 94/9/EC

Member of the ARCA FLOW Group

Modular Design



Technical Data	Type XM-/XT-800E	Type XM-/XT-825E	Type XT-800R
Resolution	5 mm	2.5 mm	5 mm
Tube size	OD 13 mm	OD 13 mm	OD 13 mm
Max. length	3 m	1.5 m	3 m
Material	brass, 316/316L	brass, 316/316L	316/316L
Special features	Ex-version		Ex-version and Lloyd's approval



1
WEKA TLIs can be mounted in various ways

WEKA TLI: Tank Level Instruments

WEKA TLIs optimally complement the range of WEKA VLIs (Visual Level Indicators). Wherever physical conditions prevent a bypass type level measuring installation, a WEKA TLI product would be the preferred alternative. The TLI sensor is installed directly on the tank, and provides a reliable level measurement signal output that can be fed to a remote indicator or control system. A wide choice of standard accessories and fittings allow TLI sensors to be configured to meet virtually any tank level measurement requirement. 1 These sensors can even be installed at the bottom of tanks, oriented vertically upwards.

Float technology

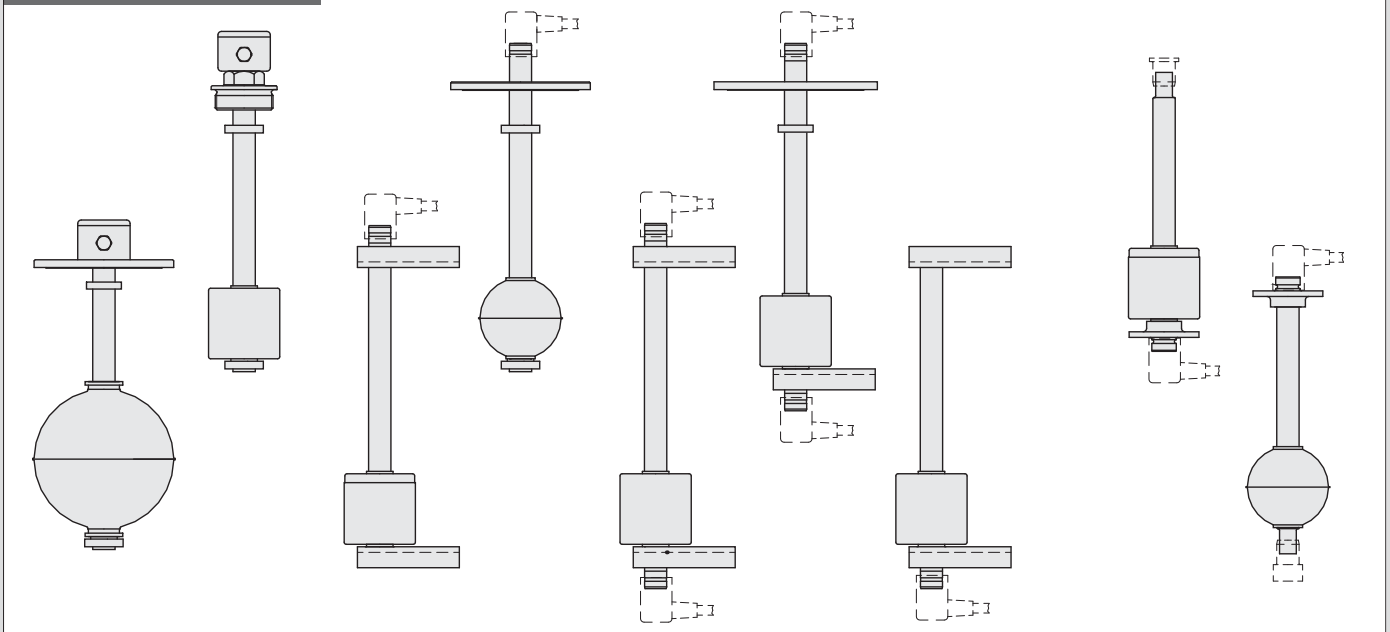
TLIs take advantage of the proven highly reliable float technology providing extremely accurate liquid level sensing under almost all operating conditions.

Advantage 1: Floats follow the true liquid surface, rather than extrapolate results from indirect indications such as pressure sensing or echo location. They operate flawlessly in tanks with curved walls 2 or other shapes without clear vertical access, where other liquid level technologies may be unable to function properly.

Advantage 2: Floats feature the unique capability to monitor liquid interface levels in virtually any tank size or shape 3. Any two liquids with differing densities (> 0.1 g/m^3) contained together (oil and water etc.), WEKA float type sensors keep operators aware of the interface level position. The principle of measurement with WEKA TLI sensors effectively eliminate the problems that foam and waves cause with other types of level sensors.

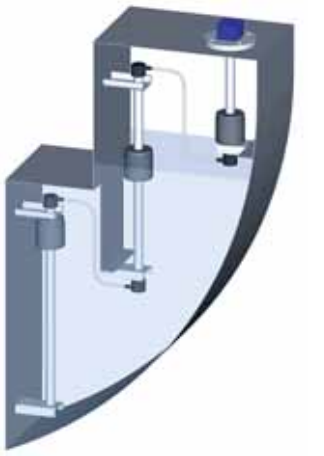
Advantage 3: Floats and the magnetically actuated reed switch counterparts are accurate and repeatable. Measurement accuracy of other technologies can be influenced by changes in pressure or temperature and often require complex expensive electronics and continual adjustment on recalibration.

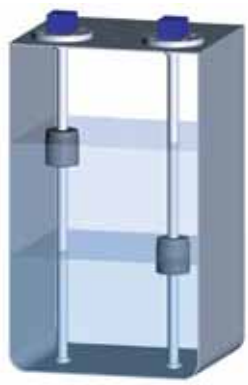
Versions



Technical Data	Type XM-/XT-36000E	Type XM-/XT-140000E	Type XM-/XT-140000EN
Resolution	12.7 mm	5 mm	5 mm
Tube size	OD 32 mm	OD 32 mm	OD 32 mm
Max. length	5 m per sensor	5 m per sensor	5 m per sensor
Material	stainless steel	stainless steel	stainless steel
Special features		low stray field, shock-resistant up to 400 g	deadline minimised, low stray field, shock-resistant up to 400 g

2
Combination of several TLIs





3
Liquid level measurement in tanks with interface levels

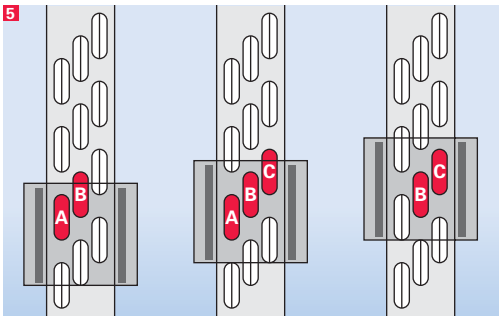
Operating Principle 4

The level sensors are vertically mounted in the tank and cable connected to a remote receiver. A voltage divider extends over the full distance within the sealed transmitter stem, with magnetic reed switches tapped in at regular intervals. As the float moves with liquid level changes, it magnetically closes a series of reed switches in sequence, thus varying the tapped-off portion of the voltage divider. WEKA TLI sensors are completely electronic; the float is the only moving part. The float is designed in a way so that its movement results in a self cleaning action. Therefore these sensors require very little maintenance.

Voltage Divider Ensures Consistent Accuracy 5

The WEKA voltage divider uses a cascade series of reed switches and resistors tapped in a 2-3-2 sequence producing a voltage signal which is directly proportional to the liquid level and assures high repeatability.

5



For each float travel the distance between the reeds will be shown as voltage difference by the output device. Inaccuracies are limited to this distance plus the tolerance of the output device and circuit. This, in combination with the rugged design of the sensors, makes the measuring principle the first choice for the toughest Navy applications for surface or submarine vessels.

Voltage (XM) or current (XT) output what's the difference?

All XM sensors work on the voltage divider principle 4. Voltage output between 0 V and the supply voltage is proportional to the liquid level. The XT versions operate the same as the XM but have an integrated 4…20 mA signal converter.



XM-55000E (ROLI)

Flexible, coiled sensor with 12.7 mm resolution, to be inserted on site in a pre-fabricated, non-magnetic pipe (∅ 32 mm or ∅ 42 mm). Ideal for liquid level (interface) measurement in deep tanks, up to 25 m. Choice of materials for «engineered» corrosion resistance.



Signal Conditioners

MU-10, MU-80, MU-80-Ex, … These signal conditioners convert the passive voltage signal (XM sensors) into a standardized, impressed 4…20 mA signal in 2-wire technology (XT sensors). The selection of conditioner depends on the planned service, i.e. shock-tested (proven) or intrinsically safe areas.



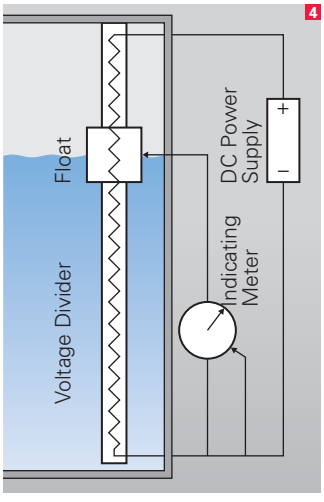
Individual Solutions

For special applications we offer individual solutions in the area of mounting and electrical output, i.e. for railways (picture) with extended internal resistance values, plug connectors with higher enclosure and mounting elements according to customer requirements.



LS-240E

Compactly sized, slosh shielded level switch with one or two switch points for bilge alarm applications or other harsh environments. Bracket or flange mounting, with fixed or plugged cable connection. Also low-stray-field versions are available.



4

The voltage divider principle allows a simple adaptation to the input voltage

● Conformance

To European Directives

WEKA level sensors are precision-fabricated by qualified and highly experienced welders using carefully supervised methods. This guarantees that the TLI sensor stem tube and its process connection segment form a truly integral sealed assembly that meets Directive 97/23/EC (PED). Therefore it can be treated as a flanged component without the need for further certification. WEKA TLI level sensors are also conform to Directive 94/9/EC (ATEX) relating to explosion protection, and therefore provide the additional advantage of zone separation in hazardous areas. Machine Directive 98/37/EC by definition does not apply to devices of this type. Since conformity assessments for individual products are frequently modified and extended, please verify the current status of these from the latest edition of the relevant WEKA product data sheet.

● Applications

WEKA doesn't limit you with the standard designs cataloged here. Our experienced engineering staff will customize Tank Level Instruments to meet your specific requirements. If you do not find an answer for your application like e.g. integrated temperature sensors, explosion protection, slosh tubes, special connections, mounting elements or special materials, please contact your local representative or visit our website under www.weka-ag.ch. WEKA has accumulated considerable application know-how that is available to our customers for special applications and tailor made solutions. We have many years of experience with standards and specifications in most application areas such as chemical process industries, railways, and automotive vehicles and others.

Germanischer Lloyd

SVTI ASIT

TÜV

DNV

AMERICAN BUREAU OF SHIPPING EQUIPMENT TYPE APPROVAL PROGRAM

Ex

CE

Lloyd's Register

BUREAU VERITAS 1828

RINA 1861

Know-How
Quality
Flexibility





WEKA®

1940 Arthur **We**lter and August **Ka**rrer found **WEKA** GmbH
1949 Reorganisation as WEKA AG
1950 First WEKA Stainless Steel Valve
1962 First patent for the WEKA Visual Level Indicator
1978 First WEKA Cryogenic Valve and Coupling
1981 WEKA becomes part of IMO/GEMS Group, USA
1982 Approval according to the German (AD-HP 0) and Swiss (SVDB501) pressure vessel rules. Audit of first WEKA Quality Control System
1991 New facilities in Bäretswil, approx. 25 km South-east of Zurich
1995 Integration of the European production of GEMS Tank Level Instruments
2001 WEKA joins as member of ARCA group, Germany
2002 Audit of TQM System (German Lloyd acc. to ISO 9001:2000 and CE directive 7/23/EC Module H/H1)
2003 Approval by Zelm Ex acc. to CE directive 94/9/CE (ATEX 95)
2007 WEKA introduces SAP All-in-One for all business processes successfully within short time

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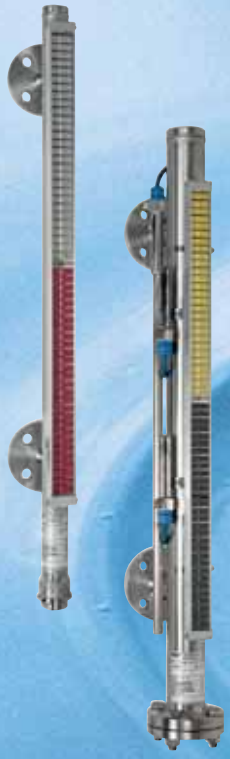
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Tankinhalts-Messsysteme



Kryo-Komponenten



Inox-Ventile



MicroFlow-Ventile



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