

INTRA-AUTOMATION



MESS- UND REGELINSTRUMENTE / MEASUREMENT AND CONTROL

Certified according to ISO 9001; PED 97/23/EC; ATEX 2014/34/EU

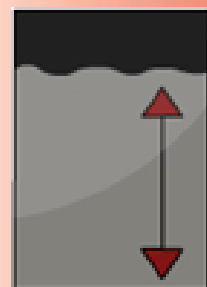
REFLEX LEVEL GAUGE

Series ITA-*-RG



Installation and Operation Manual

10/2019



Level

THE EXPERT FOR LEVEL AND FLOW

Thanks for choosing an Instrument from Intra-Automation.

Intra-Automation
Installation- and Operation Manual
03/2011

Technical details subject to be changed without notice.

For comments regarding this brochure, please contact
info@intra-automation.de

REFLEX LEVEL GAUGE

Series ITA-*-RG

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1. Safety Instructions

In this manual you will find information for your own safety and to prevent any type of damage. The hints are marked with a danger sign described as follows:



DANGER

means, that death, personal injury or high damage to property **will** occur, if there should be taken no precaution.



WARNING

means, that death, personal injury or high damage to property **can** occur, if there should be taken no precaution.



CAUTION

with danger sign means, that only small personal injuries can occur, if there should be taken no precaution.

CAUTION

without danger sign means, that damage to property can occur, if there should be taken no precaution.

ATTENTION

highlights actions or procedures which, if not performed correctly, may indirectly affect operation or may lead to an instrument response which is not planned.



NOTE

Is important information about the product itself, the handling of the product or that part of the manual to which special attention is to be drawn to.

Limited liability

We checked the content of the manual in accordance to the hardware. But we can not guaranty that there will be differences between the manual and the hardware. The manual will be checked regularly to correct the manual in the following versions.

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2. General Instructions



NOTE

For reasons of clarity the manual does not contain detailed information about all types of products and cannot take into account every conceivable case of installation, operation or maintenance.

If you require further information or should any problems occur which are not sufficiently explained in the manual, you can consult your local Intra-Automation branch to obtain the necessary information.

May we also draw your attention to the fact that the contents of the manual are not part of a previous or existing agreement, approval or legal relationship or an amendment thereof. All obligations of the Intra-Automation GmbH result from the contract of purchase which also contains the full and solely valid warranty agreement. These contractual warranty conditions are neither extended nor restricted by the contents of the manual.

The contents reflect the technical state at the time of going to print. They are subject to technical modifications in the course of further development.

Exclusion of liability

All modifications to the device require the expressed approval of the manufacturer.

Qualified Personnel

Qualified personnel is persons familiar with installation, commissioning and operation of the product and who have the appropriate qualifications for their activities, such as:

- training or instruction or authorization to operate and maintain devices/ systems according to the standard of safety technology for high pressures and corrosive media.
- training or instruction according to the standards of safety engineering in the care and use of suitable safety equipment.
- training in first aid.

Trade mark

ITA is a trade mark of Intra-Automation GmbH.

3. Functional Principle of Reflex Level Gauges

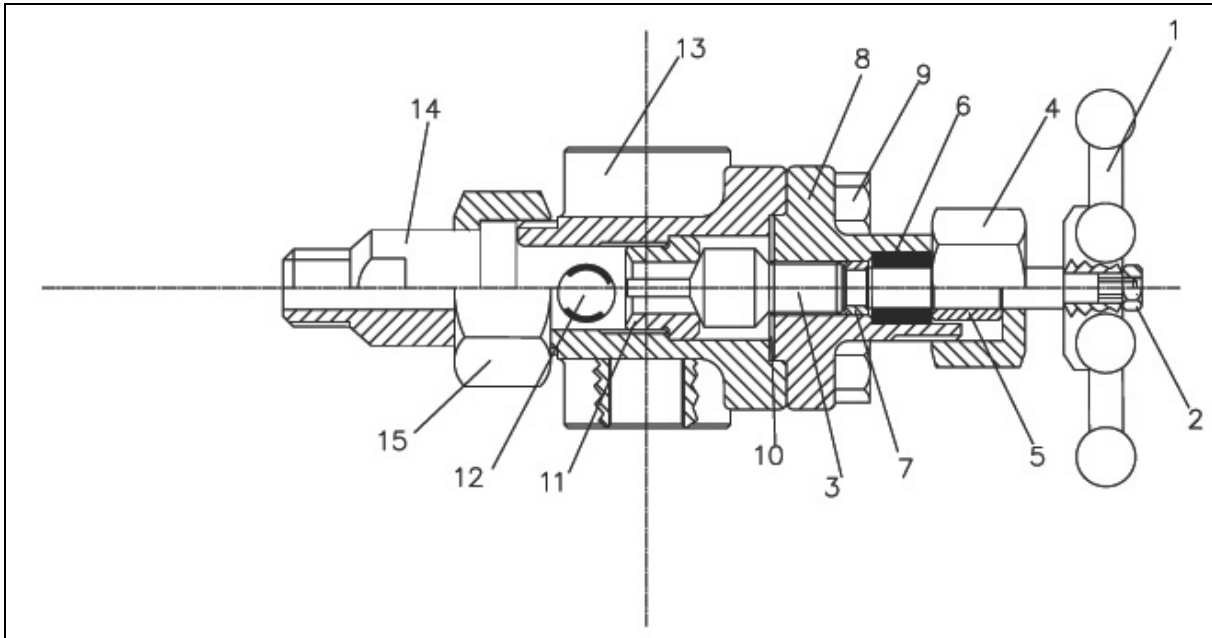
The Glass of a Reflex Level Gauge is grinded in a way to enable it to refract light like a prism. At the zone of liquid to measure, the light gets almost absorbed. That makes this zone very much darker than the zone of gas. By this contrast the liquid level can be observed clearly.

The Reflex Level Gauge is connected to the tank by two process connections, one at the upper end of the gauge and one at the lower end. So the tank and the gauge act as “communicating” tubes. So the liquid level in the gauge always corresponds exactly to the liquid level in the tank.

4. Product Description


Reflex Level Gauges are designed to be connected sideways to the tank as a bypass tube. They are customized to the client’s requirements. They fit exactly to the application, provided the client’s information is exact. The tank connections are equipped with safety valves to avoid to let flow out the liquid in case of a glass break. For a safe shut-off, the needed pressure is 2 bar (min.). The gauge body itself consists of a stand pipe, which contains the fluid to be measured, of Reflex-glass segments (DIN glasses) and of a cover, which fixes the Reflex glass at the cut-out of the stand pipe.

Intra-Reflex Level Gauges are made from stainless steel 316L (1.4404) or from carbon steel (other materials on request). The glass is borosilicate. For higher temperatures the gauges are equipped with a heat protection.



5. Operating Conditions

Intra-Reflex Level Gauges can be applied under the following conditions:

Operating conditions without glass corrosion	Standard glass DIN 7081 30x17 mm 400bar @ 120°C or 150bar @ 400°C
Fluids with significant glass corrosion: saturated steam, hot water, bases	Standard glass 30x17 mm 35bar @ 240°C
	NOTE For steam pressures > 35bar the application of TRANSPARENT GLASSES with heat protection (MICA) is recommended.
c to c distance	A max. c to c distance of approx. 3000 mm is recommended. Longer gauges need additional support construction which have to be realized by the end user.

6. Receipt, Transport and Storage

On receipt of the equipment, the outside packing has to be checked for any damage incurred while shipment. If the packing case is damaged, the local carrier should be notified immediately regarding the liability. Remove the envelope containing the packing list. Carefully remove the equipment from the transport box and inspect for damaged or missing parts. Please check the case to be sure that all parts (e.g. accessories) have been unpacked. For transport or storing please only use the original packing case. Conditions for storing:

- ◆ Do not pile up the cases at any time!
- ◆ For storage, protect the units against heat frost, humidity, dust of chemical vapour/media.
- ◆ Storage temperature: 10°C [50 °F] up to 40 °C [104 °F]

The time of storage is unlimited, but pay attention to the agreed guarantee period.



WARNING

For transport of units with weights higher than 25 kg [55 lbs], only use lifting tools. Please take care of the centre of gravity signed on the packing (without sign if the centre is in the middle of the case). During transport do not enter the area of danger. Wear safety clothes (e.g. shoes) only.

Caution: Reflex Level Gauges are very heavy due to design reasons. Therefore, **always** suitable lifting tools are to be used!



NOTE

Always check, if the c to c length and the visible (measuring) length complies with our purchase order!

7. Pre-Installation Checks



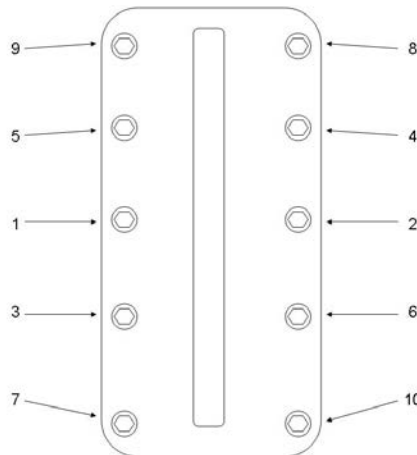
WARNING

Absolutely check that all bolts and nuts of the level gauge have been tightened firmly. Lose bolts/nuts have to be tightened with a torque wrench with:
For ITA-3/6: first pass with 25Nm; second pass with 50Nm.
For ITA-7/10/11/12/13: first pass with 25Nm; second pass with 100Nm.



NOTE

If several bolts/nuts have not been tightened sufficiently the following sequence for tightening has to be observed:



Additionally check the TAG plate of the device. The engraved data has to comply with the data of the place of installation.

8. Installation



WARNING

Take care to wear appropriate safety clothes during installation!



WARNING

Absolutely use suitable lifting tools for installation!

Mounting steps:

1. Perform a sight check. Especially take care of glass injuries.
2. Ensure the instrument valves to be closed.
3. Ensure the tank valves (at the connection flanges) to be closed.
4. Adjust the flanges of the Reflex gauge to the flanges of the tank connection.
5. Put the gaskets onto the flange face and insert the bolts/screws.
6. Tighten the screws/nuts firmly.

9. Start up of the measurement

1. Open the lower tank valve carefully.
2. Open the lower instrument valve.
3. Open the upper tank valve carefully.
4. Open the upper instrument valve and let flow in the fluid carefully.



NOTE

On higher temperature applications it is absolutely necessary to re-tighten the screws after the first warm-up.

10. Maintenance

On a regular base, the glasses have to be checked for breaks or chemical corrosion (sight check). If the glasses show scratches, breakage or chemical contamination, they have to be replaced immediately.

To perform a glass replacement, as a first set the tank valves and, as well the instrument valves have to be closed. After that, the gauge body has to be drained by the drain plug (resp. drain valve). Possible remainders are to be removed by purging.

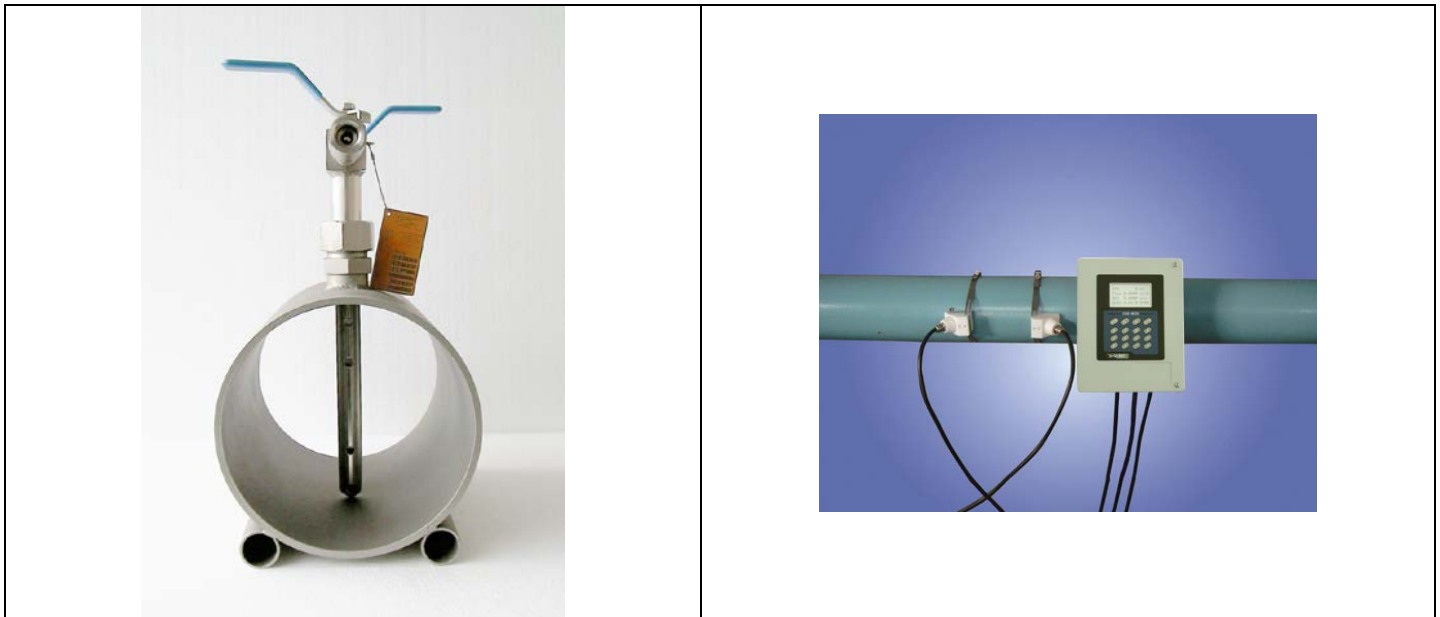
Open the damaged section and replace the glass and the gasket. At the same time, the sealing faces have to be checked and cleaned.

Used gaskets cannot be re-installed in any case!

Glass and Cover are to be remounted again. Take care that the glass does not touch any metal parts. After the insertion of the glass the screws/nuts are to be tightened hand-tight. Once the glass is placed correctly in it's seat, the screws/nuts are to be tightened by means of a torque wrench (recommended torque: 20 to 30 Nm). Follow the screwing sequence as per the sketch on page 6. Depending on pressure and temperature, the screws have to be tightened several times.

Besides the products covered by this brochure, Intra-Automation GmbH also manufactures other high-quality and high precision instruments for industrial measurement tasks. For more information, please contact us (contact details on the backside of this brochure).

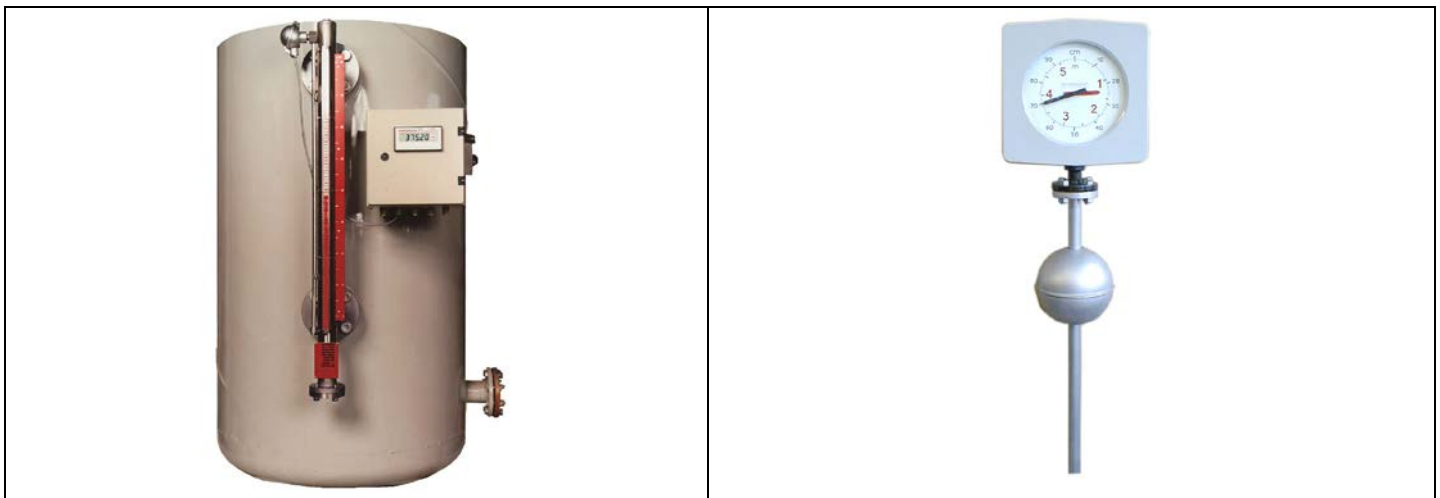
Flow measurement



Itabar®-Flow Sensor

IntraSonic IS210 Ultrasonic Flow Meter

Level measurement



ITA-mag. Level Gauge

MAGLINK Level Indicator

Other Measurement Tasks:



DigiFlow Flow and Level Computers

IntraCon Digital Controllers

IntraDigit Digital Indicators / Meters



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