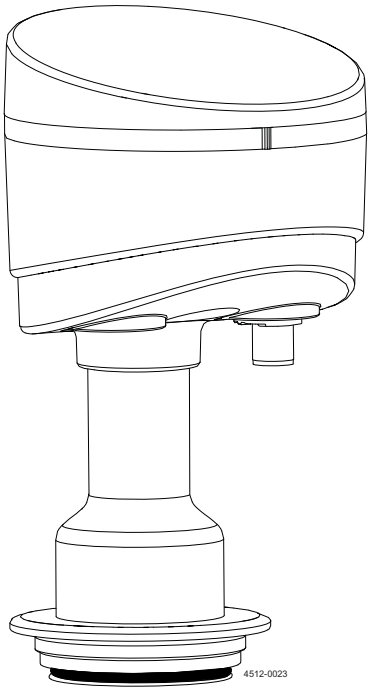
# Instruction manual

## Alfa Laval Rotacheck+ & Rotacheck Basic

Covering
- Standard Machines
- Machines delivered with ATEX Certification in accordance with Directive 94/9/EC




**ESE02219EN**
**IM-TE91A664-EN3**
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# 1 EC Declaration of Conformity

The designated company

Alfa Laval Tank Equipment A/S
Company name

Baldershoej 19, DK-2635 Ishoej, Denmark
Address

+45 43 55 86 00
Phone no.

hereby declare that

| Rotacheck+ & Rotacheck Basic | Unit for rotation validation of tank cleaning machines |
|---|---|
| Denomination | Type |

is in conformity with the following directives:

- Low Voltage Directive (LVD) 2006/96/EF Directive 2006/95/EC on low voltage
- EMC Directive 2004/108/EF
- ROHS Directive 2002/95/EEC
- Machinery Directive 2006/42/EC
- ATEX directive 94/9/EC Annex III
  EN 60079-0:2009, EN 60079-11:2007, EN 60079-15:2010, EN 60079-26:2007 & EN 60079-31:2009

ATEX Certification:

EC Type Examination Certificate no. Baseefa11ATEX0231X

Marking: Ⓔx II 1/3G Ex ia/nA IIB T4/T3 Ga/Gc
Ⓔx II 1/3D Ex ia/tc IIIB T140 °C Da/Dc

IBExU Institut für Sicherheitstechnik GmbH, Certification Body number 0637. Fuchsmühlenweg 7, 09599 Freiberg, Germany

| R&D Manager | Henrik Falster Hansen | |
|---|---|---|
| Title | Name | Signature |
| ATEX Responsible Engineer | Denniz Høxbroe | |
| Title | Name | Signature |
| November 21, 2012 | Alfa Laval Tank Equipment A/S | |
| Date | Company | |

Designation

CE

# 2 Safety

*Unsafe practices and other important information are emphasized in this manual. Warnings are emphasized by means of special signs. All warnings in the manual are summarized on this page. Pay special attention to the instructions below in order to avoid serious personal injury or damage to the top unit.*

## 2.1 Important information

Always read the manual before using the Rotacheck+ or the Rotacheck Basic.

**WARNING**
Indicates that special procedures must be followed to avoid serious personal injury.

**CAUTION**
Indicates that special procedures must be followed to avoid damage to the Rotacheck+ or the Rotacheck Basic.

**NOTE**
Indicates important information to simplify or clarify procedures.

## 2.2 Warning signs

General warning 

Danger of electrical voltage 

Caustic agents 

## 2.3 Safety precautions

**Installation**
**Always** read the technical data thoroughly (See chapter 7 Technical data page 21). 
**Always** use a power supply that complies with IEC/EN60950-1 or IEC/EN61010-1 standard and limited-energy circuit requirements.

**Operation**
**Always** read the technical data thoroughly (See chapter 7 Technical data page 21). 
**Never** touch the Rotacheck or the connected equipment when processing hot liquids or when sterilizing.
**Always** handle lye and acid with great care.

**Transportation**
**Always** remove the protective cap directly before starting assembly to avoid damaging the Rotacheck. The delivered protective cap has to be stored.
**Always** place the protective cap on the Rotacheck again immediately after disassembly.
**Always** make sure that all connections are disconnected before attempting to remove the Rotacheck from the installation.
**Always** ensure adequate fixing of the Rotacheck during transportation – if specially designed packaging material is available it must be used.

## 2.4 Special Conditions for Safe Use in accordance with the ATEX Certification, Directive 94/9/EC

| | |
|---|---|
| **ATEX Warning:**  | The surface temperature must not exceed 140 °C. |

| | |
|---|---|
| **ATEX Warning:**  | The device may be used in an explosive atmosphere, the apparatus of category 1 requires only operate if there are atmospheric conditions (temperature of -20° C to +60° C, pressure of 0.8 bar to 1.1 bar). |

# 3 Patents and trademarks

This Instruction Manual is published by Alfa Laval Tank Equipment A/S without any warranty. Improvements and changes to this Instruction Manual may at any time be made by Alfa Laval Tank Equipment A/S without prior notice. Such changes will, however, be incorporated in new editions of this Instruction Manual.

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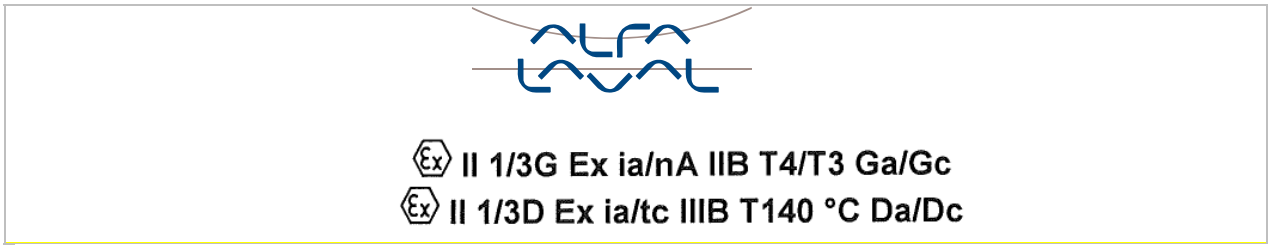
The Rotacheck product has patents in the EPO member states and in other countries. The Alfa Laval logotype is a trademark or a registered trademark of Alfa Laval Corporate AB. Other products or company names mentioned herein may be the trademarks of their respective owners. Any rights not expressly granted herein are reserved.

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## If ordered with ATEX certificate:

# 4 ATEX Marking

The Alfa Laval Rotacheck+ and Rotacheck Basic is certified as category I components. The certification is carried out by the notified body IBExU Institut für Sicherheitstechnik GmbH, who has issued the certificate no. IBExU12ATEX1125 X. The marking on the ATEX certified Alfa Laval Rotacheck+ and Rotacheck Basic is as follows:




Changes to the machine are not allowed without approval by the person responsible for the ATEX certification at Alfa Laval Tank Equipment A/S. If changes are made – or spare parts other than Alfa Laval original spare parts are used - the EC Type Examination certification (the ATEX Directive) is no longer valid.

See page 4 regarding special conditions for safe use in accordance with the ATEX Certification, Directive 94/9/EC.

# 5 General Description

### Concept

Rotacheck is a control and validation unit for tank cleaning machines, in particular Rotary Jet Heads. Communication is digital PNP to and from a PLC.

Rotacheck consists of a sensor unit with its sensing device located on the inside of a processing tank. The sensor is connected to a sensor board where the signal is processed and communicated to the PLC.

The Alfa Laval Rotacheck is ideal for validation of the cleaning process inside any hygienic tank cleaned with a rotary Jet head. It is available in two versions: Rotacheck+ with a built-in validation function and Rotacheck Basic with standard functionality.

The hygienic installation is guaranteed by using the new Alfa Laval full flushable connection, certified by 3A and EHEDG.

Rotacheck is designed for use in Ex areas.

### Working principle

Rotacheck+

The Alfa Laval Rotacheck+ is based on an Alfa Laval invention which features unique teach-in and monitoring functions. The teach-in function is used during a reference CIP run. During this first CIP run the Rotacheck+ stores time and pressure data from the cleaning process.

In terms of cleaning jet intensity on the tank wall (hits) and the time between the hits from the water jet the reference data represents a unique pattern for the specific process. Status is shown by digital PLC output as well as a visual light indication.

Afterwards, during production, the feedback from the integrated pressure transducer is continuously compared to the stored acceptance window, and the Rotacheck+ digitally outputs a validated feedback. This digital feedback clearly indicates the state that the cleaning proces is in.

The system feedback has 3 different outputs.

| | |
|---|---|
| Rotation OK output: | on when rotation is within acceptance window |
| Alarm output: | on when cleaning is out of teach-in acceptance window |
| IDLE output: | on when cleaning is not performed |

Rotacheck Basic

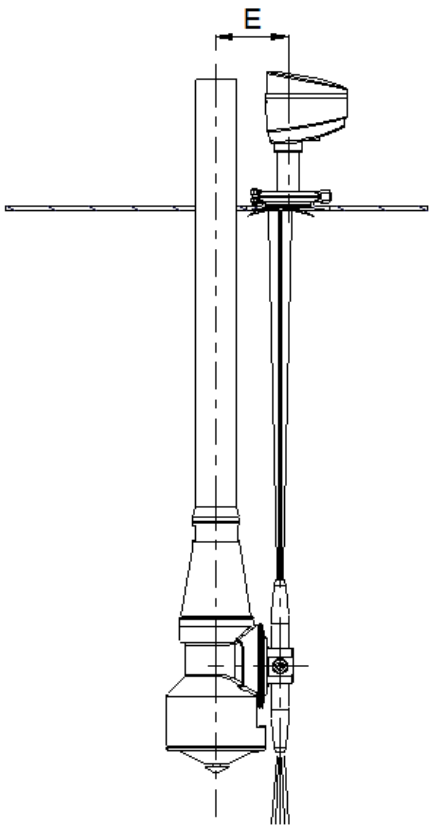
The Rotacheck Basic registers when the sensor head is hit by the cleaning jet. Status is shown by digital PLC output as well as a visual light indication.

| | |
|---|---|
| Hit output: | on when sensor head is hit by cleaning jet |
| Alarm output: | on in case of unit failure or constant hit (cleaning device error) |
| IDLE output: | on when cleaning is not performed |

# 6 Installation

## 6.1 Mounting position of Hygienic Tank Connection

In order to ensure optimum signal quality, the Rotacheck should be placed with an offset to the downpipe as close as possible to the offset of the jets nozzles of the tank cleaning machine in use.




Examples of different offset:

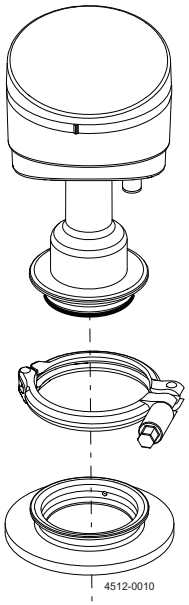
| Tank cleaning machine type | Offset (E) | |
|---|---|---|
| Toftejorg TJ20G | 75 mm | |
| Toftejorg TZ-74 | 78 mm | |
| Toftejorg TZ-79 | 98 mm | |
| Toftejorg MultiJet 65 with 4 nozzles | 98 mm | |
| Toftejorg TZ-89 | 50-90 mm | *(depending on size of mounting connection)* |
| Toftejorg TZ-750 | 115 mm | |
| Toftejorg MultiJet 65 with 2 nozzles | 115 mm | |

Deviations from the above given positions may work, but will influence the signal quality.

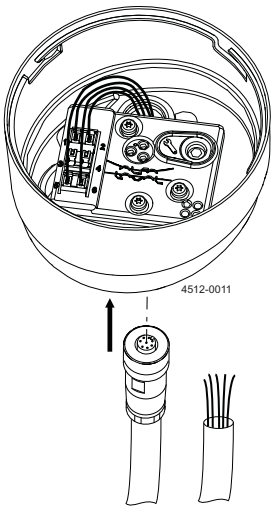
It is not recommended to go closer to the centerline, as there is a risk of having no signal. If the Rotacheck Sensor is placed further away from the centerline, the number of times it is directly hit by a jet is reduced.

## 6.2 Overview of installation instructions

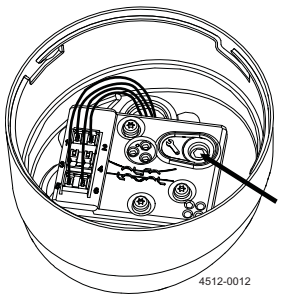
**Step 1**
Mount Rotacheck on tank.



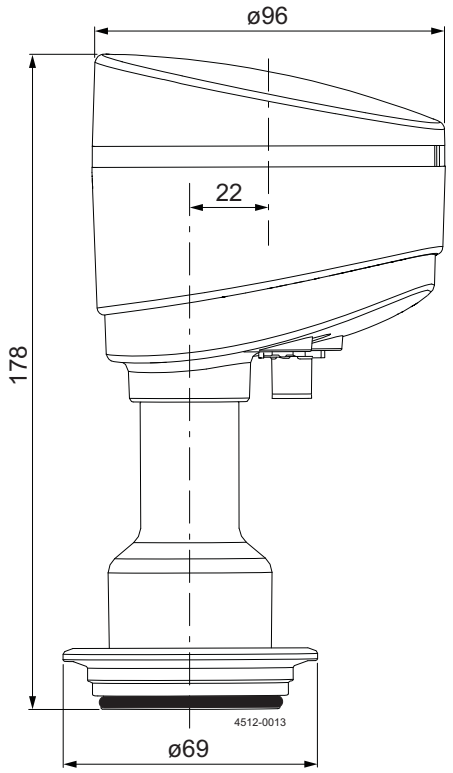

**Step 2**
Connect electrical cable.




**Step 3**
Calibrate.



## 6.3 Product dimensions



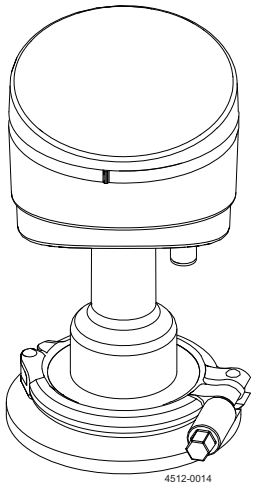

Weight: 0.6 kg

## 6.4 Mounting Rotacheck on tank – step 1

**Step 1**
Remove protective cap from sensor.
Check that o-ring on sensor head is in place.

**Step 2**
Mount Rotacheck on flange.

**Step 3**
Tighten clamp ring.



## 6.5 Connect electrical cable – step 2

WARNING!

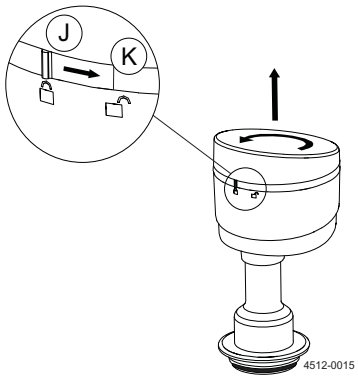
Special considerations for use in hazardous areas

For the installation, maintenance and cleaning of the device, you must absolutely observe the relevant regulations and stipulations on explosion protection (EN 60079-14 and EN60079-17) as well as the occupational safety provisions.

The device is designed acc. to standards:

EN60079-0:2009, EN60079-11:2007, EN60079-15:2010, EN60079-26:2007 and EN60079-31:2009.

Cable gland version




**Step 1**

Remove the prism/top cover by turning the prism/top cover counter-clockwise. Counterhold on the base part.

When the mark on the prism (J) is aligned with the open padlock symbol (K), the prism/top cover can be lifted off.

**Step 2**

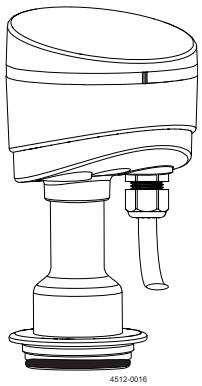
Install the cable in the cable gland (M) and tighten nut.

NOTE!

Cable connection:

Cable gland: M16 (ø5-ø8 mm)

Max. wire diameter: 1.0 $mm^2$ (AWG 18)

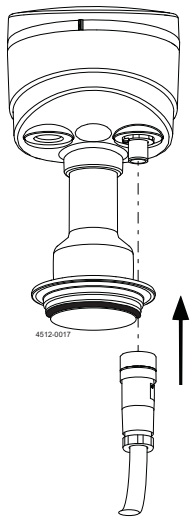



If the cable gland comes loose from the control head during installation, it must be secured with a tightening torque of 4 Nm.

**Step 3**

Connect wires to board according to illustration number 4512-0018 on page 14.

## M12 plug version

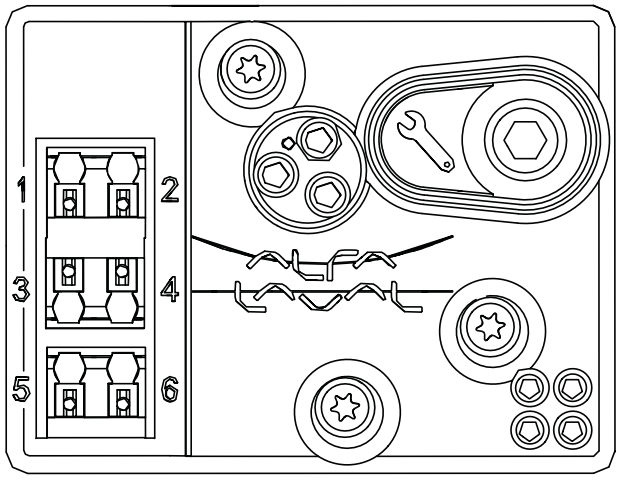



**Step 1**
Connect the electrical M12 plug to the connector on Rotacheck.
Tighten the knurled nut.
See wiring diagram on page 14.

**Digital version – PNP**

| | |
|---|---|
| **Supply voltage** | |
| Supply voltage | 24 Vdc +÷ 10% |
| **Max. power consumption of the sensor unit** | |
| Power consumption max | 70 mA |
| **Output signals from the sensor unit to the connected digital interface (PLC)** | |
| Outputs (Hit/Rotation OK, Alarm, Idle)<br>Max. current per output | Logic PNP<br>50 mA |

Electrical connection on PCB

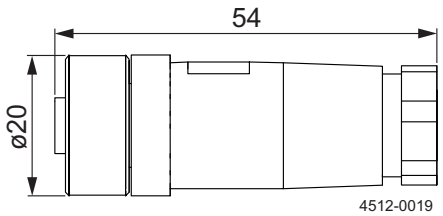


4512-0018

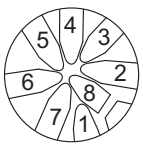
**Sensor board**

| **Designation** | **No.** |
|---|---|
| Supply 24 VDC | 1 |
| Supply 0 VDC | 2 |
| Feedback Idle | 3 |
| Feedback Hit/Rotation OK | 4 |
| Alarm | 5 |
| Activate teach (Rotacheck+ only) | 6 |

Electrical connection for M12 plug version



4512-0019



View from mounting side

**M12 connector**

| **Designation** | **No.** |
|---|---|
| Supply 24 VDC | 1 |
| Supply 0 VDC | 3 |
| Feedback Idle | 5 |
| Feedback Hit/Rotation OK | 2 |
| Alarm | 6 |
| Activate teach (Rotacheck+ only) | 4 |

Alfa Laval part number 9611995257 (not part of delivery)

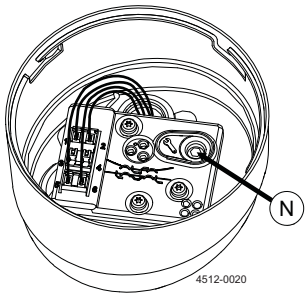
## 6.6 Calibrate - step 3 - Rotacheck Basic

**Step 1**
The Rotacheck Basic must be fully installed:
- Mechanically
- Electrically

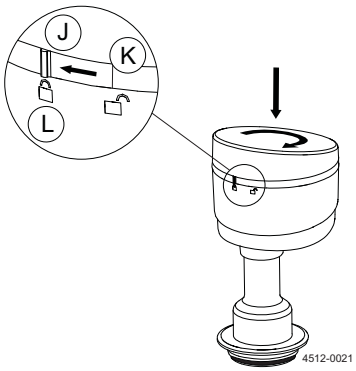
The unit will flash green on power up and perform an internal calibration after 5 sec.

The unit is ready to use when the green LED lights steadily.

Optional re-calibration:
Push the blue button (N) on the sensor unit until you see a yellow flash.
The Rotacheck Basic will automatically re-calibrate.




**Step 2** (if unit has been opened)
Put the prism/top cover back on the base part by pushing it down when the mark on the prism (J) and the open padlock (K) are aligned. Then turn it clockwise towards the closed padlock (L) to secure. Counterhold on the base part.




**Operating LED and PLC feedbacks**

| Rotacheck Basic status | LED feedback | PLC feedback |
|---|---|---|
| Calibration | Green, flashing | No feedback |
| Idle | Green, steady | On |
| Hit | Yellow, 1 sec | On, 1 sec |
| Alarm* | Red, steady | On |

* Unit failure or constant hit (cleaning device error)

## 6.7 Calibrate - step 3 – Rotacheck+ (with TEACH)

**Step 1**
The Rotacheck+ must be fully installed:
- Mechanically
- Electrically

Usage before TEACH has been performed:
Rotacheck+ where TEACH has not yet been performed,
will show similar functionality as Rotacheck Basic, except
that Idle mode is indicated by a flashing (mostly on) green LED.

**Step 2**
Calibration - TEACH
Method 1: Auto-TEACH

- Ensure that cleaning machine is commissioned, and its performance is approved by end-user
- Install Rotacheck+, ensure “green LED is flashing (mostly on)”
- Open top cap of Rotacheck+
- Start cleaning machine

Enable TEACH by pressing the blue button on sensor board for 1 sec and release after 1 yellow LED flash is seen.

Duration of TEACH is preset to 16 minutes.

- A red LED is flashing to indicate TEACH ongoing.
- Let the cleaning process run for at least 16 minutes (the Rotacheck+ will teach-in cleaning pattern during this time)
- Every sensor hit during TEACH is indicated by a yellow LED flash
- Rotacheck+ will light up green when teach-in is finished

The TEACH sequence is terminated if no sensor hits are registered within a 4 min. interval.

NOTE: Longer TEACH intervals may be necessary in some cases, to secure proper calibration data. For example in case of unfavourable placement of Rotacheck, see guidelines for installation, page 8. In these cases manual calibration according to method 2 is recommended.

Method 2: Manual TEACH

- Ensure that cleaning machine is commissioned, and its performance is approved by end-user
- Install Rotacheck+, ensure “green LED is flashing (mostly on)”
- Start cleaning machine

Enable TEACH by activating input on sensor board, connector number 6, see table page 14.
TEACH will be performed as long as the input is activated, up to maximum 60 minutes.

For proper calibration TEACH must run for sufficiently long time. This is application dependant and must be determined on-site.

- A red LED is flashing to indicate TEACH ongoing.
- Let the cleaning process run for at least 16 minutes (the Rotacheck+ will teach-in cleaning pattern during this time)
- Every sensor hit during TEACH is indicated by a yellow LED flash
- Let the cleaning process run for sufficient time (the Rotacheck+ will teach-in cleaning pattern during this time)
- De-activate TEACH input on sensor board, terminal 6 after the desired time is elapsed.
- Rotacheck+ will light up green when teach-in is finished

**Step 3**

Operation after TEACH

If TEACH is completed, Rotacheck+ will enter Idle mode.

- When cleaning is ongoing, Rotacheck+ compares cleaning parameters to the reference cycle.
- If parameters are within the calibrated values, a “Rotation OK” feedback is initiated
- If parameters are outside the calibrated values, the alarm function is entered.

Note: If it – due to special circumstances - proves too difficult to make a proper calibration, Rotacheck+ can be reset to “1st power up mode”.
This is done by pressing the Push Button for 10 seconds, and release when 3 yellow LED flashes are seen.
After Rotacheck+ is reset it will function similar to a Rotacheck Basic, but with a flashing green LED (mostly on), when idle.

**Operating LED and PLC feedbacks**

| Unit status | LED feedback | PLC feedback |
|---|---|---|
| **OPERATION** | | |
| Self calibration on 1st power up (0-5 sec.) | Green flashing(50/50 on /off) | No feedback |
| Idle (before TEACH) | Green flashing (mostly on) | Idle |
| Idle (after TEACH) | Green | |
| Sensor hit (before TEACH) | Yellow - 1 sec. | Hit/Rotation OK - 1 sec |
| Alarm* | Red | Alarm |
| Alarm, sensor malfunction/sensor not connected | Red/Yellow flashing | Alarm |
| Rotation OK (after TEACH) | Yellow flashing (slowly) | Hit/Rotation OK |
| Sensor hit (after TEACH) | Yellow – 3 flashes | Hit/Rotation OK |
| End of cleaning sequence** | Red - 3 sec. | Alarm - 1 sec. |
| | | |
| **TEACH** | | |
| TEACH ongoing | Red flashing | No feedback |
| Sensor hit during TEACH | Yellow - 1 sec. | No feedback |
| Termination of TEACH*** | Yellow - 1 flash | No feedback |

*Constant sensor hit or other failure mode
**If no sensor hits are recorded during the maximum interval set by TEACH function
***Finalization of TEACH after preset time or if TEACH input is de-activated. Max. duration of TEACH is 20 min. where after Rotacheck+ automatically sets up reference data.

**Back to 1st power up mode (factory settings).**

Rotacheck can be brought back to 1st power up mode by pressing the blue pushbutton for 10 seconds and release when 3 yellow LED flashes are seen.

**Feedback test mode – Rotacheck+ (with TEACH) only**

Feedback test mode is a function that can be enabled after installation to validate proper function of the external wiring. When the mode is entered, Rotacheck+ automatically switches PLC and LED outputs in 5 seconds intervals.

Enter Feedback test mode:
Press the blue button on the sensor board and release after 5 seconds when 2 Yellow LED flashes are seen.
This mode can only be entered from 1st power-up or Idle modes.

Exit Feedback test mode:
Feedback test mode automatically terminates after 3 minutes.
The function can also be terminated by shortly pressing the blue button on the sensor board.
Exit is indicated by 2 yellow flashes.
Unit status is returned to previous state before feedback test mode was enabled.

**Feedback test mode LED and PLC feedbacks**

| Unit status | LED feedback | PLC feedback |
|---|---|---|
| **FEEDBACK TEST MODE** | | |
| Step 1 (0-5 sec.) | Red | Alarm |
| Step 2 (5-10 sec) | Yellow | Hit/Rotation OK |
| Step 3 (10-15 sec.) | Green | Idle |
| Loop until aborted or timeout after 3 mins. | Yellow – 2 flashes on termination | |

## 6.8 Recycling information

• **Unpacking**

- Packing material consists of plastics and cardboard boxes.
- Cardboard boxes can be re-used, recycled or used for energy recovery
- Plastics should be recycled or burnt at a licensed waste incineration plant

• **Maintenance**

In principle, this device is maintenance-free. If desired, the housing of the device can be cleaned using a damp cloth and non-aggressive cleaning solutions, in switched-off state.

Depending on the measuring medium, however, the diaphragm may be polluted or coated with deposit. Is there a pollution tendency of the medium, the user has to determine the appropriate cleaning interval. After placing the device out of service correctly, the diaphragm can usually be cleaned carefully with a non-aggressive cleaning solution and a soft brush or sponge. If the diaphragm is calcified, it is recommended to send the device to Alfa Laval Tank Equipment for decalcification. Please note the chapter “Service/Repair” below.

! A false cleaning of the device can cause an irreparable damage on the diaphragm. Therefore never use pointed objects or pressured air for cleaning the diaphragm.

• **Scrapping**

- At end of life, the equipment must be recycled according to the relevant, local regulations. Besides the equipment itself, any hazardous residues from the process liquid must be taken into consideration and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company

• **Disposal**

- The device has to be disposed of according to the European Directives 2002/96/EG and 2003/108/EG (on waste electrical and electronic equipment). It is prohibited to place electrical and electronic equipment in domestic refuse!



WARNING! Depending on the used medium, deposit on the device may cause danger for the user and the environment. Comply with adequate precautions for purification and dispose of it properly.



# 7 Troubleshooting

## 7.1 No light

Check that the unit is connected to electrical power.
Press the blue button on the sensor board shortly to restart unit
Power down the unit and reconnect power again after 5 seconds.
If problem persists, please contact Alfa Laval

## 7.2 Red light

Constant red LED light is an indication of an alarm condition.
Such condition can be “Rotation *not* OK” (Rotacheck+), or if there is a constant jet impact on the sensor (Rotacheck Basic, Rotacheck+).
Check if there is a problem with the cleaning process.
Alternatively restart unit by shortly pressing the blue button on the sensor board.
Recalibrate TEACH (Rotacheck+) if necessary by following the instructions.
If problem persists, please contact Alfa Laval

## 7.3 Red/Yellow flashing light

Red/Yellow flashing light indicates sensor malfunction or lost internal connection between sensor board and sensor.
Press the blue button on the sensor board shortly to restart unit, or power down the unit and reconnect power again after 5 seconds.
If problem persists, please contact Alfa Laval

## 7.4 Other failure modes

Check the unit for visible damage
Press the blue button on the sensor board shortly to restart unit
Power down the unit and reconnect power again after 5 seconds.
Recalibrate TEACH (Rotacheck+) if necessary by following the instructions.
If problem persists, please contact Alfa Laval

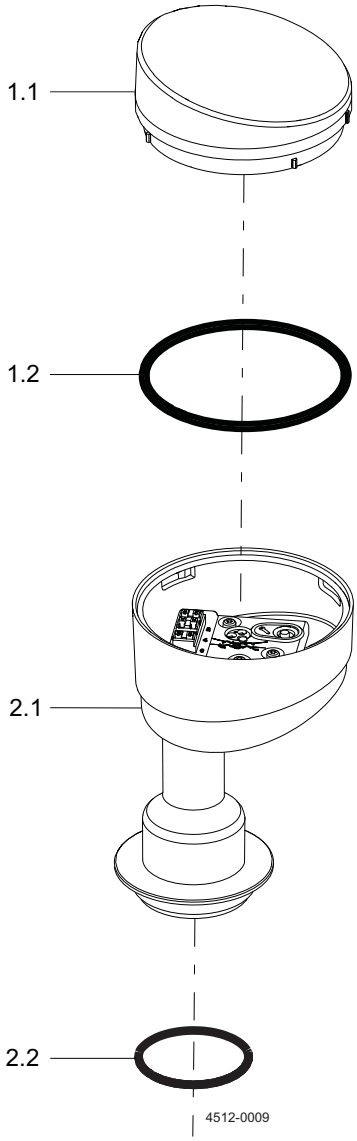
# 8 Technical data

## 8.1 Technical data

| | |
|---|---|
| **Electrical data** | |
| Power supply | 24 Vdc +/÷ 10% |
| Power consumption max. | 70 mA |
| Outputs (OK/hit, Alarm, Idle) | Logic PNP |
| Electrical connection | Cable gland or M12 connector, |
| Cable-ø and wire-ø | |
| - for Cable gland (M16) | ø5-ø8mm, max. 1,0mm$^2$ (AWG 18) |
| - for M12 connector | ø6-ø8mm, max. 0,5mm$^2$ (AWG 20) |
| Short circuit and brownout protection | EN 61131-2 |
| Surges immunity | EN 61000-4-5 |
| **Special conditions for use in hazardous areas** | |
| Rotacheck is approved in accordance with ATEX directive 94/9/EC, for use in Zone 0/20 in the product wetted area and Zone 2/22 in the non-product wetted area.<br>**Ex identification:**<br>II 1/3G Ex ia/nA IIB T4/T3 Ga/Gc<br>II 1/3D Ex ia/tc IIIB T130 °C Da/Dc<br>**Special conditions for safe use:**<br>T4 for media temperatures <85°C<br>T3 for media temperatures <140°C<br>Fall height 40 cm is utilized in impact test of Rotacheck with M12 cable connector plug.<br>Permissible temperatures for environment for use in Zone 0 ($p_{atm}$ 0,8 to 1,1 bar): -10°C to 60°C<br>WARNING!: Rotacheck must not be separated when energized | |
| **Physical data** | |
| Protection class | IP66 and IP67 |
| Pressure rating of sensor | |
| Pressure overload on diaphragm | 15 bar |
| Max. working pressure in tank while performing monitoring | 0.3 bar |
| Materials | |
| Product wetted steel parts | AISI 316L |
| Field house | Polymer PA12, reinforced |
| Product wetted seals | EPDM |
| Other seals | NBR |
| Surface roughness, product wetted parts | Ra 0,5µm |
| Operating temperature | |
| Wetted parts | -40°C to 125°C (140°C < 1 hour) |
| Field house | -10°C to 60°C |
| Weight | |
| Weight | Approx. 600 gr. |
| **Process connection** | |
| Alfa Laval Hygienic Tank Connection (HTC) | |

# 9 Parts

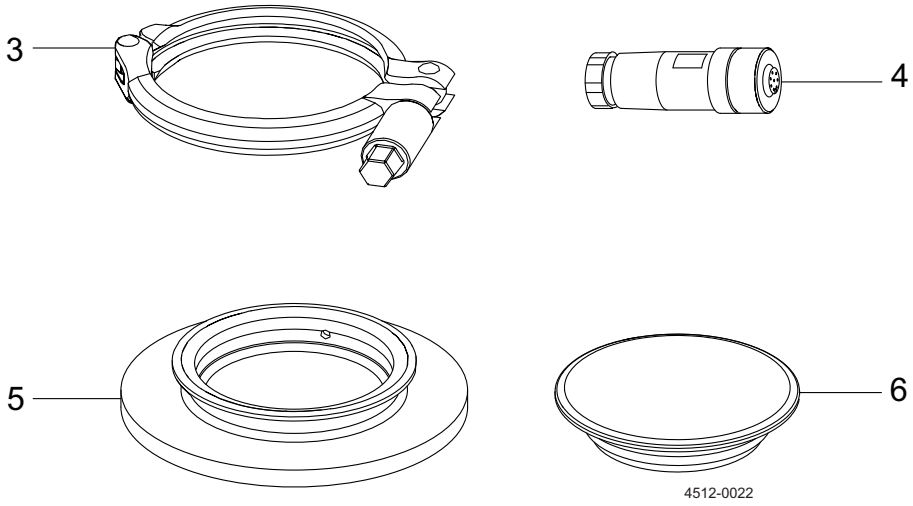
## 9.1 Parts Drawing




## 9.2 Parts List

| Pos. | Qty | Part number | Denomination |
|---|---|---|---|
| 1 | 1 | 9614091103 | Top cover/prism and o-ring assembly |
| 1.1 | | | Top cover/prism assembly |
| 1.2 | | 9611995306 | O-ring for top cover |
| 2 | 1 | | Sensor unit with o-ring |
| 2.1 | | | Sensor unit |
| 2.2 | | 9611994285 | O-ring |
| | | 9611995402 | O-ring (Q-doc version) |

## 9.3 Optional Parts




| Pos. | Part number | Denomination |
|---|---|---|
| 3 | 9612939303 | Clamp ring |
| 4 | 9611995257 | M12 connector |
| 5 | 9614070801 | Tank flange, Hygienic tank connection HTC |
| | 9614070890 | Tank flange, Hygienic tank connection HTC (Q-doc version) |
| 6 | 9614071001 | Blind cap with o-ring |
| | 9614071090 | Blind cap with o-ring (Q-doc version) |

# 10 Short, functional guide

(See chapter 5 for thorough explanation)

## 10.1 LED signals

| Colour | Signal | Explanation |
|---|---|---|
| Green | Flashing (50/50%) | Initial calibration |
| Green | On | Idle |
| Green | On/off (95/5%) | First power-up (Rotacheck+ before Teach) |
| Yellow | Yellow LED flash (1s) | Sensor hit (Rotacheck basic or Rotacheck+ before Teach) |
| Yellow | On/off (50/50%) | Operation In window (Rotacheck+) |
| Yellow | 3 short flashes | Sensor hit during operation In window (Rotacheck+) |
| Yellow | 1 short flash | Termination of Teach (Rotacheck+) |
| Red | Steady on | Alarm |
| Red/Yellow | Flashing | Sensor alarm |
| Red/Yellow/Green | Switching every 5 seconds | Feedback Test mode (Rotacheck+) |

### 10.2 Pushbutton (PB) operation

| PB Operation | Signal | Explanation |
|---|---|---|
| Press shortly | Flashing green LED (5s) | System restart |
| Press 1 second | 1 Yellow LED flash | Enable Teach (Rotacheck+) |
| Press 5 seconds | 2 Yellow LED flashes | Enable feedback test mode (Rotacheck+) |
| Press 10 seconds | 3 Yellow flashes | Back to first power up mode (Rotacheck+) |

# 11 General Information

## 11.1 Service / Repair

Product repair requires return to the factory at the following address: Alfa Laval Tank Equipment, Baldershoej 19, DK2635 Ishoej, Denmark.

Upon every return of the device, no matter if for modifications or repair, it is necessary to contact your local Alfa Laval office to guarantee a quick execution of your request. Please inform us by sending an email to: Alteq.PartsandService@ alfalaval.com. All frames and lids are marked with traceability numbers which identify the production series. It's important we receive these numbers before opening any "Claim or Return Request.

Include the number of devices sent and request a Return Number. Afterwards clean the device, pack it shatterproof and send it to Alfa Laval Tank Equipment A/S indicating the Return Number.

## 11.2 Warranty

The warranty conditions are subject to the legal warranty period of 12 months from the date of delivery. In case of improper use, modifications of or damages to the device, we do not accept warranty claims. Damaged devices will also not be accepted. Furthermore, defects due to normal wear are not subject to warranty services.

## 11.3 How to contact Alfa Laval Tank Equipment A/S

For further information please feel free to contact:

Alfa Laval Tank Equipment A/S
Baldershoej 19
P.O. Box 1149
2635 Ishoej
Denmark

Phone no.: +45 43 55 86 00
Fax no.: +45 43 55 86 01
www.alfalaval.com
Contact details for all countries are continually updated on our websites.

**How to contact Alfa Laval**
Contact details for all countries are
continually updated on our website.
Please visit www.alfalaval.com to access the information directly.

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