

# CAL-UNIT Calibration Adapter

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# CAL-UNIT Calibration Adapter

132003 - **CAL-UNIT-TUBE**

- Calibration adapter for tube sensor

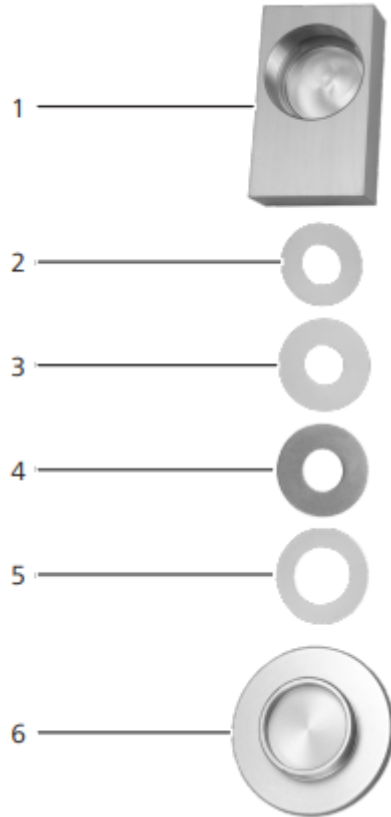


No	Name
1	Lower part
2	Seal
3	Fixing nut
4	Upper part

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132021- **CAL-UNIT-SWORD**

- Calibration adapter for sword sensor



No	Name
1	Housing
2	Seal (30mm)
3	Seal wide (34mm)
4	Flat washer
5	Seal slim (34mm)
6	Lower part

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## 1. Introduction

### 1.1 Information about this operating manual

These user manuals ensure a safe and efficient use of the calibration equipment for tube sensors, aw-value measuring chambers and sword sensors. The user manual is part of the calibration equipment and must be kept in its direct environment and accessible to the user at all time

### 1.2 Limitation of liability

All of the information and instructions provided in this operating manual have been compiled on the basis of the current standards and regulations, the state of the art, and the extensive expertise and experience of Checkline Europe BV. Checkline Europe BV does not accept any liability for damage associated with the following, which also voids the warranty:

- Non-observance of this operating manual
- Improper use
- Inadequately qualified users
- Unauthorized modifications
- Technical changes
- Use of unapproved spare parts

This fast measuring procedure can be affected by a range of different factors. We, as the manufacturer, do not accept any liability for any incorrect measurements and associated consequential damage.

### 1.3 Customer service

For technical advice, please contact our customer service. Your purchased measuring instrument can be calibrated, and the adjustment checked by using suitable test ampoules / calibration ampoules. For this purpose, use only the calibration solutions distributed by Checkline Europe.



## 2. For your safety

The device complies with the following European directives:

- Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS) •
- Electromagnetic compatibility (EMC) The device corresponds to state-of-the-art technology. However, it is still associated with a number of residual hazards. These hazards can be avoided through strict observance of our safety information.

### 2.1 Proper use

- Transducer for measuring and transmitting relative humidity and temperature in fixed installation • The sensor technology used makes it possible to detect even small fluctuations in humidity and their tendencies quickly and reliably so that preventive actions can be taken.

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- For some applications (e.g. installation in sewage pipes) it is necessary to use a remote measuring probe for the reason of temperature adjustment.

## 2.2 Improper use

- The device must not be used in ATEX.

## 2.3 User qualifications

The device must only be operated by people who can be expected to reliably take the measurements. The device must not be operated by people whose reaction times may be slowed due to, e.g. the use of drugs, alcohol or medication.

All persons using this device must have read, understood and follow the instructions provided in the operating manual.

## 2.4 General safety information

The following safety information has to be observed at all times to avoid damage to objects and injury to people:

- In case of damages or loose parts on the device, contact Checkline Europe.

All of the device's technical features have been inspected and tested before delivery. Every device has a serial number. Do not remove the tag with the serial number.

## 2.5 Warranty

The warranty does not apply to:

- Damage resulting from non-observance of the operating manual
- Damage resulting from third-party interventions
- Products that have been used improperly or modified without authorisation
- Products with missing or damaged warranty seals
- Damage resulting from force majeure, natural disasters, etc.
- Damage from improper cleaning

## 3. Calibration ampoules

Only calibration ampoules (calibration solutions) distributed by Checkline Europe BV should be used to check the calibration. Relevant identified applications of the substance or mixture and applications not recommended:

Suitable for testing or calibrating moisture analysers only.

User manual and calibration instructions for air humidity moisture meters.

## 4. Calibration Requirement:

Calibration equipment (Art.No.132003 or 132021) and moisture standards (Art. No.138112). The device as well as the calibration equipment and calibration solutions must have a temperature between 20,0 °C and 26,0 °C. It is recommended to store the device as well as

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the calibration equipment and calibration solutions for 24 hours in a room with low temperature differences before calibration. User manual and calibration instructions for air humidity moisture meters.

## 4.1 Installation of the calibration equipment for tube sensors

1. Place the sealing ring over the thread of the bottom part as shown in figure 1.

2. Place the textile pad into the bottom part (figure 2).

3. While holding the ampoule by the neck, tap it lightly to bring all the liquid into the bottom part of the ampoule.

4. Now carefully break the head of the ampoule at the marked point.

5. Pour the solution completely onto the textile pad.

6. Place the top part carefully on the bottom part (figure 3) and screw the top part clockwise.  
» Recommendation: While screwing the upper part tight, leave the lower part on the table.  
» If necessary, lift the calibration equipment only straight up, do not tip or turn it over.

7. Loosen the fixing nut counterclockwise until the sensor tube of the measuring device can be inserted without excessive pressure.

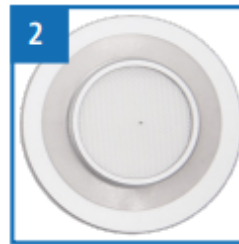
8. Now carefully push the sensor tube of the measuring device into the upper part until it stops (figure 4).

9. Secure the calibration equipment on the sensor tube by tightening the previously loosened fixing nut.

» Make sure to lift the device with the calibration equipment only straight up and do not tip or turn it over Otherwise you could damage the sensor.

» Do not remove the calibration equipment from the sensor tube until specifically indicated otherwise.

» Place a distance holder under the device so that the device and the calibration equipment lay horizontally on the table.

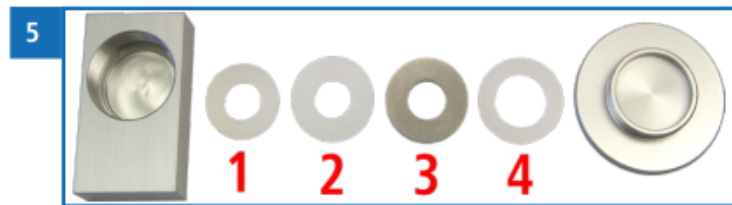


**ATTENTION** Sensor damage or destruction By tipping or turning the measuring device with attached calibration equipment the sensor can be damaged. ► Make sure to lift the device only straight up.

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## 4.2 Installation of the calibration equipment for sword sensors

1. Insert the sealing ring (30mm) (1) (figure 5) into the housing (figure 6).

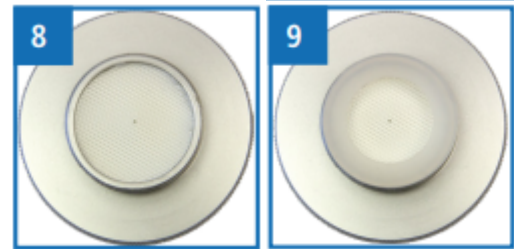


2. Slide the sword sensor into the upper part (figure 7).

» The blue area of the sword sensor must be visible (figure 7).



3. Place the textile pad into the bottom part (figure 8).

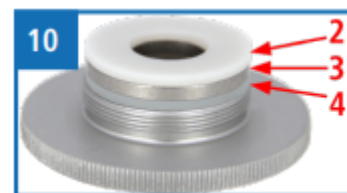


4. While holding the ampoule by the neck, tap it lightly to bring all the liquid into the bottom part of the ampoule.

5. Now carefully break the head of the ampoule at the marked point.

6. Pour the solution completely onto the textile pad.

7. Place the sealing ring slim (34mm) (4) (figure 5) on to the lower part (figure 9), followed by the flat washer (3) (figure 5) and on top the sealing ring wide (34mm) (2) (figure 5) (figure 10).



8. Carefully place the housing together with the sword sensor on the lower part (figure 11).



9. Recommendation: While screwing the housing tight, leave the lower part on the table.

» Make sure to lift the device with the calibration equipment only straight up and do not tip or turn it over. Otherwise you could damage the sensor.

» Do not remove the calibration equipment from the sensor tube until specifically indicated otherwise.

» Place a distance holder under the device so that the device and the calibration equipment lay horizontally on the table.

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**ATTENTION** Sensor damage or destruction By tipping or turning the measuring device with attached calibration equipment the sensor can be damaged. ► Make sure to lift the device only straight up.

## 4.3 Installation / Preparation for the aw-value chamber

1. Clean the screw glass properly.
2. Place the textile pad into the screw glass (figure 12).
3. While holding the ampoule by the neck, tap it lightly to bring all the liquid into the bottom part of the ampoule.
4. Now carefully break the head of the ampoule at the marked point.



5. Pour the solution completely onto the pad, starting with the humidity level of 35% relative humidity.
6. Tighten the aw-value measuring chamber well.
  - » Recommendation: While tightening the screw glass, please keep it on the table.
  - » If necessary, lift the aw-value measuring chamber only straight up, do not tip or turn it over.
7. If lifted, place the aw-value measuring chamber carefully on a table.
  - » Make sure to lift the aw-value measuring chamber only straight up and do not tip or turn it over. Otherwise the liquid could damage the sensor.
  - » Leave the textile pad with the solution in the closed screwing glass until explicitly indicated otherwise.



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## 4.4 Determination of deviation

1. Leave the sensor to adjust to the humidity level for at least 2 hours.
2. Read the displayed humidity value and note it down together with the displayed temperature.
3. Under ideal temperature conditions (device, calibration equipment and calibration solution have 23 °C), the value printed on the humidity standard can be used as a reference value.
4. In case of a deviation from the factory temperature (23.0 °C), first determine the real humidity value according to the table below.

Temperature	Calibration solutions		
	35 %	50 %	80 %
20 °C	34.6 %	49.8 %	80.0 %
21 °C	34.8 %	49.8 %	80.0 %
22 °C	34.9 %	49.9 %	80.0 %
23 °C	35.0 %	50.0 %	80.0 %
24 °C	35.1 %	50.1 %	80.0 %
25 °C	35.2 %	50.2 %	80.0 %
26 °C	35.4 %	50.2 %	80.1 %

Calibration solution	Measurement inaccuracy
35 %	+/- 0.4 % r.h
50 %	+/- 0.6 % r.h
80 %	+/- 0.7 % r.h

5. Note the real humidity value.
6. Compare the noted value with the real humidity value.
  - » Should the displayed value show a deviation of less than 1.5 % relative humidity, adjustment is not recommended. In this case, remove the calibration equipment from the sensor tube.
  - » If the displayed value shows a deviation greater than 1.5 % relative humidity, adjustment is recommended.








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## 4.5 Adjustment

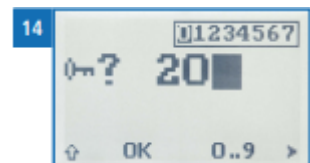
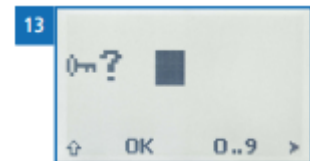
**Requirement:** deviation greater than 1.5 % relative humidity (see "4.4 Determination of deviation"). All options are activated (see 4.5.1 *Unlock options*).

### 4.5.1 Unlock options



Requirement: Some options are deactivated.


1. Press  twice or hold for 2 seconds.
  2. Navigate to Options. To do so, press  or  and confirm by pressing .
  3. Navigate to Unlock. To do so, press  or  and confirm by pressing .
- » Figure 13 appears on the display.  
» The four-digit password is the serial number of the device at delivery.  
» Add numbers:


Press and hold  to quickly scroll to the selected number and stay on the selected number 3 seconds or press  to accept the number (figure 14).



4. Navigate backward:

Press  to switch to another entry level. Navigate back with .

5. Confirm the four-digit password with .
- » The setting has been saved.  
» The options **°C/°F**, **BL On Time**, **Auto Off Time**, **Calibration**, **Materialcalibration**, **Online send**, **Password** and **Reset** are now activated.

6. Press  to exit Options.















7. Press  to exit the main menu.

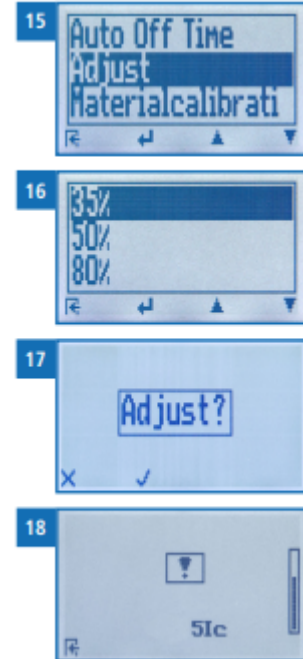
### 4.5.2 Perform adjustment

Requirement: All options are activated (see 4.5.1 *Unlock options*).

**The measuring device and calibration solution have been adjusted to one another for at least two hours. The sensor is inserted inside the calibration equipment and/or the calibration solution is inside the aw-value measuring chamber.**

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1. Press  twice or hold for 2 seconds.
2. Navigate to Options. To do so, press  or  and confirm by pressing .
3. Navigate to Adjust (figure 15). To do so, press  or  and confirm by pressing .
  - » The device has three adjustment positions (figure 16).
4. Navigate to the proper item for the selected moisture standard.  
To do so, press  or  and confirm by pressing .
  - » Only the selected humidity point is adjusted!
  - » The display will then show the message Adjust? (figure 17).
5. Confirm by pressing .
  - » The display will now appear as shown in (figure 18).
  - » The bar will run upwards.
  - » After a few seconds, the calibration is complete and the display will now appear as shown in (figure 16).
6. Now remove the calibration equipment from the sensor tube.
  - » Not all three calibration solutions have to be adjusted!
  - » During the calibration process, only the selected humidity point is calibrated and never the humidity value of the entire measuring range!
7. If necessary, repeat the steps from point "4.1 Installation of the calibration equipment for tube sensors" or "4.2 Installation of the calibration equipment for sword sensors" or "4.3 Installation / Preparation for the aw-value chamber", with the required moisture standards.
8. Press  to exit **Adjust**.
9. Press  to exit **Options**.
10. Press  to exit the main menu.



11. If an error has occurred during adjusting, it is possible to return to the factory settings (see in the user manual: "Resetting the device to its factory settings").
  - » **Returning to the factory calibration deletes successfully performed adjustments.**

## 5. Cleaning

Clean all components of the calibration equipment (aluminium housing, seals, washer) thoroughly under running water immediately after use.

Dry all components carefully. Ensure that the device is absolutely dry before using it again.

The humidity sensors shall not be cleaned.

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## 6. Faults

Faults	Cause	Remedy
<i>Measuring error</i>	Temperature beyond the application range: below +20 °C or above +26 °C	Store the measuring device, calibration equipment and ampoules at approx. 23°C
	Measurement error due to insufficient temperature adjustment time	Leave the device to adapt to the environment for adequate time
	Heat or cold sources that do not correspond to the room temperature	Place your device in a place without temperature disturbances
	False characteristic curve set	Before starting a measurement, make sure that the right "relative humidity" curve is set
	Moisture calibration equipment from cleaning	Before use, carefully dry the calibration equipment
	Dirty humidity sensor	If this happens, please contact Checkline Europe BV
	Contamination of the sensors	If this happens, please contact Checkline Europe BV
	Calibration equipment leaking	Control the assembly of the equipment

## 7. Storage and disposal

### 7.1 Store ampoules

Keep the ampoules closed and unopened in a cool, dry and well-ventilated place. Breakable glass ampoules should be stored shockproof in the original closed box.

### 7.2 Disposal



All national and local laws must be observed. Residual quantities and non-recyclable solutions must be disposed by an authorised waste disposal company. This material may only be disposed by an approved waste disposal company.

Devices marked with this symbol are subject to Directive 2012/19/ EU of the European Parliament and of the Council of 4 July 2012 on waste electrical

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and electronic equipment (WEEE). If the device is being operated outside the European Union, the national regulations on the disposal of such devices that apply in the country of use must be observed. Electronic devices must not be disposed of as domestic waste. The device must be disposed of appropriately using appropriate collection systems.

## 8. Warranty

Checkline Europe (Checkline) warrants to the original purchaser that this product is of merchantable quality and confirms in kind and quality with the descriptions and specifications thereof. Product failure or malfunction arising out of any defect in workmanship or material in the product existing at the time of delivery thereof which manifests itself within one year from the sale of such product, shall be remedied by repair or replacement of such product, at Checkline's option, except where unauthorized repair, disassembly, tampering, abuse or misapplication has taken place, as determined by Checkline. All returns for warranty or non-warranty repairs and/or replacement must be authorized by Checkline, in advance, with all repacking and shipping expenses to the address below to be borne by the purchaser.

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Some State jurisdictions or States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. The duration of any implied warranty, including, without limitation, fitness for any particular purpose and merchantability with respect to this product, is limited to the duration of the foregoing warranty. Some states do not allow limitations on how long an implied warranty lasts but, notwithstanding, this warranty, in the absence of such limitations, shall extend for one year from the date of invoice.

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