Schaller
Messtechnik / humimeter.com

Moisture meter

User manual

humimeter air humidity

Calibration and adjustment instructions

Version 1.3

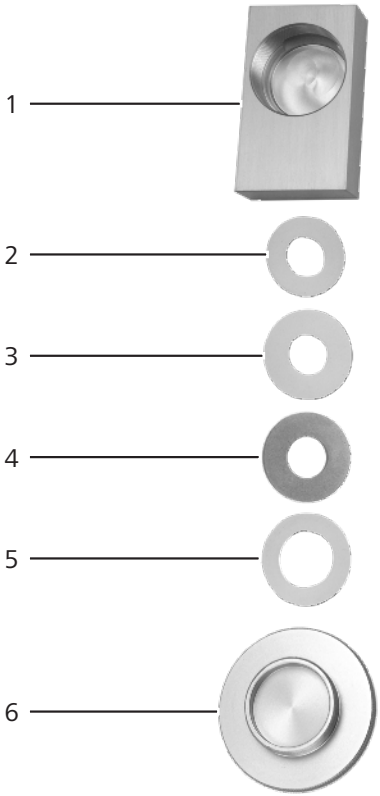
Before starting any work, read the user manual!

Overview of your calibration device

Overview of your calibration device for tube sensors

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

Overview of your calibration device for sword sensors



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

Table of contets

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.

All users are required to carefully read and make sure that they have understood this user manual. All of the safety and operating instructions detailed in this manual have to be observed to ensure the safety of the device.

1.2 Limitation of liability

All of the information and instructions provided in this user 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 Schaller Messtechnik GmbH.

Schaller Messtechnik GmbH does not accept any liability for damage associated with the following, which also voids the warranty:

- Non-observance of this user manual
- Improper use
- Inadequately qualified users
- Unauthorised 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 Symbols used in this manual

All the safety information provided in this manual is shown with a corresponding symbol.

ATTENTION

It is essential to observe this warning. Non-compliance can lead to damage to property or equipment.

Information

This symbol indicates important information that enables users to use the device more efficiently and cost-effectively.

1.4 Customer service

For technical advice, please contact our customer service department at

Schaller Messtechnik GmbH
Max-Schaller-Straße 99
A - 8181 St.Ruprecht an der Raab

Telephone: +43 (0)3178 28899
Fax: +43 (0)3178 28899 - 901

E-Mail: info@humimeter.com
Internet: www.humimeter.com

2. For your safety

In order to prevent hazards, you must follow the safety instructions.

2.1 Proper use

- Equipment for testing the calibration of air humidity measuring devices made by Schaller Messtechnik GmbH.

2.2 Improper use

- The device should not be used in ATEX areas.

2.3 User qualifications

Only those people who can be expected to perform the work reliably are permitted to operate the instrument. People who are affected by drugs, alcohol or medication are not permitted to use the instrument.

All users are required to carefully read and make sure that they have understood this user manual. All of the safety and operating instructions detailed in this manual have to be observed to ensure the safety of the device.

3. Calibration ampoules

Only calibration ampoules (calibration solutions) distributed by Schaller Messtechnik GmbH 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.

Product name : Feuchtenormal 11,3 %rh
Product number : EA10-SCS
Brand : ROTRONIC
CAS-Nr. : 7550-35-8

Product name : Feuchtenormal 35 %rh
Product number : EA35-SCS
Brand : ROTRONIC
CAS-Nr. : 7447-41-8

Product name : Feuchtenormal 50 %rh
Product number: EA50-SCS
Brand : ROTRONIC
CAS-Nr. : 7447-41-8

Product name : Feuchtenormal 80 %rh
Product number : EA80-SCS
Brand : ROTRONIC
CAS-Nr. : 7447-41-8

Regulation identification (EG) No. 1272/2008

Pictogram

SIGNAL WORD: ATTENTION

Danger indications:
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 Can cause allergic skin reactions
H319 Causes severe eye irritation

Precautions:
P280 Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 In case of contact with eyes:

Carefully rinse with water for several minutes.

Remove existing contact lenses if possible.

Continue rinsing

Read and review the safety instructions before using the calibration ampoules.

The safety datasheet can be requested from Schaller Messtechnik GmbH by e-mail:

office@schaller-gmbh.at or by telephone: +43 (0) 3178 28899.

Furthermore, the safety data sheet can be viewed directly from the manufacturer of the calibration ampoules, and it is also referenced on the enclosed calibration certificates.

4. Calibration

Requirement: Calibration equipment (Art.No.10006) and moisture standards (Art. No.10005). 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 the calibration equipment and calibration solutions for 24 hours in a room with low temperature differences before calibration.

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.

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.

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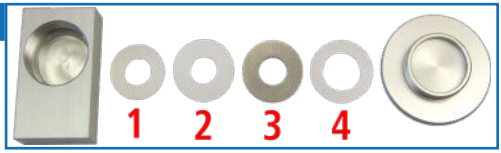

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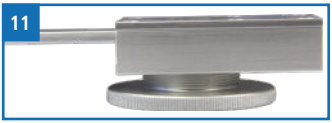

» Make sure to lift the device with the calibration equipment only straight up and do not tip or turn it over. Otherwise you could damage the sensor.

» 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.

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.


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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.

ATTENTION

Sensor damage or destruction

By tipping or turning the aw-value measuring chamber with the inserted textile pad the sensor can be damaged.

► Make sure to lift the aw-value measuring chamber only straight up.

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 %	79.9 %
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.

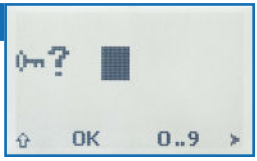
4.5 Adjustment

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.



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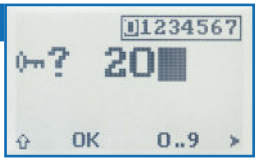
   - » Add numbers:
     Press and hold 0..9 to quickly scroll to the selected number and stay on the selected number 3 seconds or press to accept the number (figure 14).



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4. Navigate backward:
   Press to switch to another entry level.
   Navigate back with .
5. Confirm the four-digit password with OK.
   - » 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.

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!

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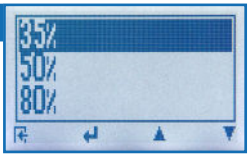

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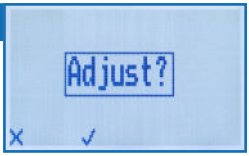

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7. If necessary, repeat the steps from point"4.1 Installation of the calibration equipment for tube sensors" or "4.2 Installation of the calibration equipment for sword sensors" or "4.3 Installation / Preparation for the aw-value chamber", with the 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.

6. Faults

If the measures listed below fail to remedy any failures or if the device has failures not listed here, please contact Schaller Messtechnik GmbH.

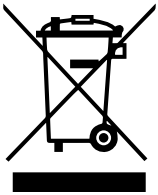
Faults	Cause	Remedy
Measuring error	Temperature beyond the application range: below +20 °C or above +26 °C	Store the measuring device, calibration equipment and ampoules at approx. 23°C
	Measurement error due to insufficient temperature adjustment time	Leave the device to adapt to the environment for 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 your distributor
	Contamination of the sensors	If this happens, please contact your distributor
	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 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. Notes

Climate
Environment

Materials

Food

Buildings

Bioenergy

Paper / Board

Schaller Messtechnik develops, produces and sells professional
moisture meters and turnkey solutions..

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