

Online Monitoring

Operating manual

huminode LW & huminode RH IoT Moisture Monitoring System



78,0 °F | 6,16% | 456 kg/m³ | -27,3 td | 0,64 aw | 51,9% r.H. | 14,8% abs | 100,4 g/m² | 09 m/s | 4,90 Ug/l | 1

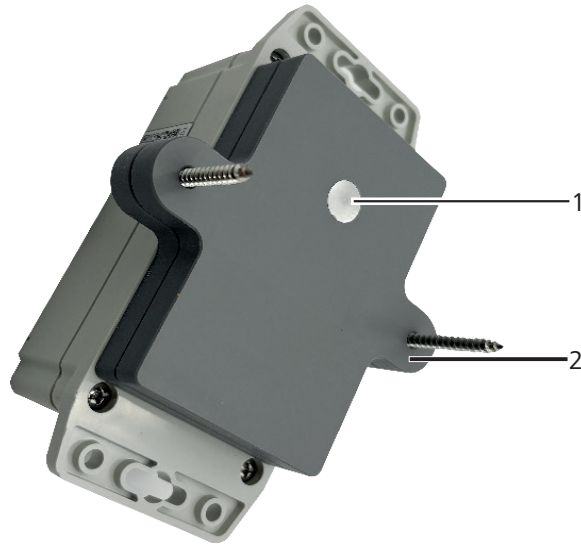
Your huminode LW at a glance

The main unit



No.	Name
1	Status LED
2	Multifunction button / User button
3	Security hole
4	Electrode connection point

Overview back huminode LW



No.	Name
1	Temperature sensor
2	Conductive electrodes

Overview of External LW Sensors

Art.Nr. 15185 huminode screw-on double electrode



- Measurement range: 10–50% moisture content (depending on species)
- Calibration accuracy: +/- 2.5%
- Material characteristics: all common types of wood within a dry density range of 300 to 1050 kg/m³

Your huminode RH at a glance

The main unit



Nr	Bezeichnung
1	Status LED
2	Multifunction button / User button
3	Electrode connection point
4	Security hole

Overview of External RH Sensors

Art.No. 12032 Humidity and temperature sensor



Measurement	Measurement Range	Resolution	Accuracy
Relative Humidity:	0 to 100 % RH	0,1 %	
Calibration:	10 to 90 % RH		+/- 2,0 % RH (at 25 °C)
Temperature °C:	-20 °C to +85 °C	0,1 °C	+/- 0,3 °C (at 25 °C)
Temperature °F:	-4 °F to 185 °F	0,2 °F	+/- 0,5 °F (at 77 °F)

Art.No. 12514 Humidity and temperature sensor



Measurement	Measurement Range	Resolution	Accuracy
Relative Humidity:	0 to 100 % RH	0,1 %	
Calibration:	10 to 90 % RH		+/- 2,0 % RH (at 25 °C)
Temperature °C:	-20 °C to +85 °C	0,1 °C	+/- 0,3 °C (at 25 °C)
Temperature °F:	-4 °F to 185 °F	0,2 °F	+/- 0,5 °F (at 77 °F)

Art.No. 12004 LF_TB 120 Precision humidity and temperature probe



Measurement	Measurement Range	Resolution	Accuracy
Relative Humidity:	0 to 100 % RH	0,1 %	
Calibration:	10 to 90 % RH		+/- 1,5 % RH (at 23°C)
Temperature °C:	-20 °C to +120 °C	0,1 °C	+/- 0,3 °C (at 23 °C)
Temperature °F:	-4 °F to 248 °F	0,2 °F	+/- 0,5 °F (at 77 °F)

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1. Introduction

1.1 Information about this operating manual

This operating manual is designed to enable you to use the huminode safely and effectively. It is part of the device, has to be stored nearby and must be easily accessible to users at all times.

All users are required to carefully read and make sure that they have understood this operating manual before using the huminode. 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 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 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 operating 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 of 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.



CAUTION

It is essential to observe this warning. Non-compliance can lead to injury.

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



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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

- Rapid-measurement device for determining air humidity
- Rapid-measurement device for determining material moisture content
- Rapid-measurement device for automatic climate monitoring

2.2 Improper use

- The device must not be used in ATEX areas.
- The device is not waterproof; protect it from water and fine dust.

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:

- Put the device into sleep mode by pressing the multifunction button for 5 seconds if it will not be used for an extended period of time.
- If you notice any loose parts or damage to the device, contact your dealer.
- The device contains a 3.6V / 9000mAh lithium thionyl chloride battery or a 3.6V / 19000mAh lithium thionyl chloride battery.

Before your device was shipped, all technical specifications were checked and carefully quality-controlled. Each device has a serial number. Do not remove this sticker.

2.5 Warranty

The warranty does not apply to:

- Damage resulting from failure to follow the user manual
- Damage caused by unauthorized tampering
- Products that have been used improperly or modified without authorization
- Products with a missing or damaged warranty seal
- Damage due to force majeure, natural disasters, etc.
- Damage due to improper cleaning
- Damage due to leaking batteries

3. After receiving your device

3.1 Taking the device out of its packaging

- Take the device out of its packaging.
- Next, make sure that it is not damaged and that no parts are missing.

3.2 Making sure that all of the components have been included

Make sure that all of the components have been included by checking the package contents against the following list:

3.2.1 Scope of supply huminode RH

- huminode RH
- Operating manual

Required accessories:

- External sensors (see [Overview of external RH Sensors](#) on page 6)

Optional accessories:

- huminode IoT Gateway Browan MiniHub Pro V2
- WisGate Edge Pro (RAK7289)
- WisGate Edge Lite 2 (RAK7268)
- huminode Dashboard annual license for one sensor
- Replacement lithium-thionyl chloride battery, 3.6 V / 9000 mAh

3.2.2 Scope of supply huminode LW

- huminode LW
- Operating manual

Required accessories:

- External sensors (see [Overview of external LW Sensors](#) on page 4)

Optional accessories:

- huminode IoT Gateway Browan MiniHub Pro V2
- WisGate Edge Pro (RAK7289)
- WisGate Edge Lite 2 (RAK7268)
- huminode LW Screw Terminals, 20-pack
- Replacement Lithium-Thionyl Chloride Battery, 3.6 V / 9000 mAh

4. Using the device huminode RH / LW

The huminode RH and huminode LW enable continuous measurement and documentation of humidity and temperature in low-maintenance, long-term operation.

The sensors are suitable for various applications, including:

- Production and Warehouse Facilities
- Wooden Structures
- Building and Structural Components
- Historically Protected Buildings

Measurement Parameters:

- » huminode RH measures relative humidity and ambient temperature (figure 1).
- » huminode LW measures wood moisture content and the water content of bulk materials, including temperature (figure 2).

Main operation is managed centrally via the dashboard, which allows measurement values to be visualized, documented, and analyzed.

Access the dashboard at:
huminode.humimeter.com



5. How to use huminode RH

The huminode is operational upon delivery.

Install the huminode RH at the desired location using the integrated mounting tabs (figure 3).

If a LoRa connection is already established, all remaining configuration steps can be completed via the dashboard.



5.1 Replacing the huminode RH Sensors

The huminode RH can be operated with a humidity sensor or a probe.

- If a sensor is already screwed on, unscrew it counterclockwise (figure 4).
- Attach the desired probe to the device until both threads are in contact (figure 5).
 - » Pay attention to the raised part on the plug and make sure it is positioned correctly.
 - » The sensor should be easy to attach without using force.
- Now tighten the screw.
- » The RH sensor on the huminode can be replaced without shutting down the device.



As the measurement process remains uninterrupted, maintenance and accredited calibration procedures can be carried out without any system downtime.

5.2 Button Press Description huminode RH

The huminode has a multifunction button. Different functions are triggered depending on how long the button is pressed. While the button is held down, the green status LED stays on. Every second, the LED flashes briefly to provide a visual cue.

Features at a glance:

Press for less than 1 second

- » Starts a measurement and sends the data message via LoRaWAN.
- » If the device is not yet connected to a network server, it will attempt to join the network up to three times.
- » If three connection attempts fail, the device switches to power-saving mode (current consumption approx. 2 μ A).

6



Press and hold for 2 seconds

- » Output of the unique device identifier (EUID) via the serial interface.

Press and hold for 3 seconds

- » Restart the sensor (Reset).

Press and hold for 5 seconds

- » The device stops taking measurements and transmitting data and remains in sleep mode.
- » Reactivate by pressing the button again.

Press and hold for 7 seconds

- » Start the bootloader for firmware updates.
- » Note: In this state, the device draws approximately 7 mA and remains in this state until it is reset or turned off.

Press and hold for 8 seconds

- » Deleting the network context.
- » Note: The device will lose its existing network server connection during this process.

6. Measurement Process huminode RH

6.1 Prepare for the measurement

Note: The measuring device must be at exactly the same temperature as the product being measured. It is recommended that you allow the measuring device to acclimate to the product's temperature by placing it near the product for at least 30 minutes before taking a measurement.

6.2 Taking measurements

6.2.1 Measurement with a probe

- Insert the probe into the material to be measured, with the measuring tip leading the way (figure 7).
- » The measuring head must not be bent or dropped.
- » Allow the device sufficient time to adjust to the material.
- The measured values are displayed on the dashboard.
- » The displayed measurement value can be saved on the device.



6.2.2 Measurement with a humidity sensor

- Place the huminode RH in a location that is representative of the indoor climate (figure 8).
- » When positioning the device, avoid drafts and unnatural temperature fluctuations.
- » Also, make sure that the device is not exposed to direct sunlight.
- The measured values are now displayed on the dashboard.



7. Calibration curves huminode RH

The following calibration curves are available:

Calibration curves	Definition	Unit	Measuring range	Sensor
Relative Humidity	Relative Humidity	% RH	0 to 100 %	12004/12032/ 12514/13700
Infrared Temperature	Infrared Temperature Sensor	°C °F	-25 °C to +125 °C -13 °F to 257 °F	12513

On request:

Absolute Humidity g/m ³	Absolute Humidity	g/m ³	0 to 130 g/m ³	12004/12032/ 12514/13700
Dew point	Dew point	°C °F	-55 °C to +60 °C -67 °F to +140 °F	12004/12032/ 12514/13700
aw value	Water Activity	aw	0 to 1	12004/12032/ 12514/13700

The device detects which sensor is connected and automatically enables the corresponding calibration curves. Special parameters or calculations can be performed via the dashboard upon request.

7.1 Definition calibration curves

Relative humidity

Relative humidity indicates the ratio between the current water vapor pressure and the maximum possible pressure, known as the saturation vapor pressure.

Relative humidity shows the degree to which the air is saturated with water vapor.

Examples:

50% relative humidity: At the current temperature and pressure, the air is half saturated with water vapor. At 100% humidity, it would be completely saturated. If the air has more than 100% humidity, the excess moisture would condense or fall as fog.

Absolute humidity

Absolute humidity indicates the amount of water contained in the air, measured in grams per cubic meter. Absolute humidity is a direct measure of the amount of water contained in a volume of air. It immediately shows the maximum amount of condensate that can form or the amount of water that must evaporate to maintain a desired humidity level.

Dew point temperature

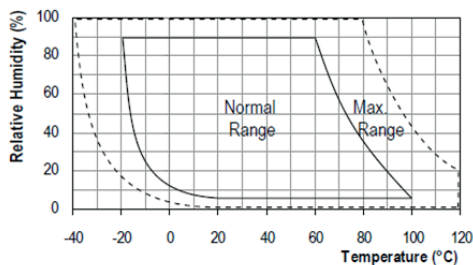
The dew point is the temperature to which air that is not fully saturated with water vapor must be cooled in order for it to become fully saturated. When a room with the current relative humidity cools to the dew point temperature, the water vapor begins to condense.

aw value

Water activity is also referred to as free or non-cellularly bound water in products such as food. It is defined as the ratio of the vapor pressure of water over a material to the vapor pressure of water over pure water at a given temperature.

7.2 Scope of Application

The device operates within the specified accuracy range when used within the normal operating range. Long-term use outside the normal operating range (maximum range), particularly at humidity levels above 80%, can result in greater measurement deviations (+3% after 60 hours). When returned to the normal operating range, the sensor automatically reverts to the specified accuracy.



8. How to use huminode LW

Huminode is operational upon delivery.

8.1 Button Press Description huminode LW

huminode has a multifunction button. Different functions are triggered depending on how long the button is pressed. While the button is held down, the green status LED stays on. Every second, the LED flashes briefly to provide a visual cue.

Features at a glance:

Press for less than 1 second

- » Starts a measurement and sends the data message via LoRaWAN.
- » If the device is not yet connected to a network server, it will attempt to join the network up to three times.
- » If three connection attempts fail, the device switches to power-saving mode (current consumption approx. 2 μ A).

Press and hold for 2 seconds

- » Output of the unique device identifier (EUID) via the serial interface.

Press and hold for 3 seconds

- » Restart the sensor (Reset).

Press and hold for 5 seconds

- » The device stops taking measurements and transmitting data and remains in sleep mode.
- » Reactivate by pressing the button again.

Press and hold for 7 seconds

- » Start the bootloader for firmware updates.
- » Note: In this state, the device draws approximately 7 mA and remains in this state until it is reset or turned off.

Press and hold for 8 seconds

- » Deleting the network context.
- » Note: The device will lose its existing network server connection during this process.

9. Measurement Process

9.1 Taking measurements with huminode LW

1. Mount the device by screwing the supplied electrode screws into the material to be measured (figure 9).
2. After installation, the sensor is activated by pressing the button once.
 - » Once activated, the huminode LW automatically begins measuring and transmitting data (figure 10).
 - » Once a LoRaWAN connection is established, all other settings, analyses, and monitoring functions can be managed via the central dashboard.



IMPORTANT NOTE

Schaller Messtechnik GmbH assumes no liability for sensors once they have been permanently installed or are no longer freely accessible. Furthermore, any liability or warranty claims are void in the event of mechanical damage (e.g., caused by drilling) or improper handling.

- The sensors must be tested before final installation.



Information - Measurement Errors

Use the correct calibration curve for the substance you are measuring. This will help you avoid measurement errors. (see [15. Faults](#)).

10. Types of Wood huminode LW

Characteristic curves are available for the following products:

Type of wood	Subgroups	Measurement range limit
Beech	Rubber, Eucalyptus	30 %
Oak	Mahogany, Wenge	30 %
Alder	Acacia, Alstonia, birch, sweet chestnut, horse chestnut, cherry, walnut, okan	30 %
Ash	Keruing	30 %
Spruce		30 %
Pine	Balsa, Yew, Swiss stone pine	30 %
Larch	Maple, Douglas, Hemlock, Poplar, Elm	30 %
Fir	Ceiba, Linden	30 %
Pasture	Pear Tree, Hickory, Olive wood, Ramin, Teak	30 %
Digit		0 bis 100
Referenz	! Only for testing the moisture meter !	

Explanation of Wood Types and Subgroups

The wood types listed in the “Wood Type” column are displayed on the dashboard. If you want to measure a wood type that is not directly displayed on the measuring device, search for it in the subcategories and select the corresponding wood type on the measuring device.

Example: If you want to measure poplar, select “Larch” as the wood type on the measuring device.

11. Calibration curves huminode LW

Calibration curves are available for the following products:

Product Name	Measured substance	Measurement Range
Wood chips	Wood chips as defined in point 11.3.1	10 % - 50 %
Coarse wood chips	Wood chips as defined in point 11.3.2	10 % - 50 %
Industrial wood chips	Wood chips as defined in point 11.3.3	10 % - 50 %
Test block	! Only for testing the moisture meter !	

11.1 How moisture content is defined

The device measures and shows a material's moisture content. The moisture content readings it displays are calculated in relation to the material's overall mass:

$$\%WG = \frac{M_n - M_t}{M_n} \times 100$$

M_n : Mass of the sample with average moisture content

M_t : Mass of the sample with zero moisture content

%WG: Moisture content (in accordance with EN ISO 4684)

11.2 Definition wood chip classes (according to EN ISO 17225-1)

The figures given refer to the particle sizes that pass through the round sieve openings. The designations from the old ÖNORM M 7133 are listed in parentheses.

- P16 (G30) at least 75% of the mass between 3,15 and 16 mm
- P31 (G30) at least 75% of the mass between 8 and 31,5 mm
- P45 (G50) at least 75% of the mass between 8 and 45 mm
- P63 (G100) at least 75% of the mass between 8 and 63 mm

11.3 Selection of calibration curve for wood chips

The calibration curves for wood chips depend on the wood type (hardwood, softwood), the size of the chips (size classes according to norm EN ISO 17225-1) as well as on the content of fine fraction.

If you are not sure which calibration curve is the best suited for your material, it is recommended to carry out a reference measurement by kiln-drying (according to EN ISO 18134-2).

Schaller GmbH will be happy to advise you on the selection of the right calibration-curve. Please send a picture of your wood chips, placing a measuring tape to the material, to support@schaller-gmbh.at. You will receive a recommendation from us immediately.

11.3.1 Wood chips

For wood chips with fine fraction, consisting of at least one third hardwood. The fine fraction mainly derives from barks, small branches and bushes. For wood chips sizes from P31 to P45. See example pictures [11](#) and [12](#).

If your wood chips contain few fine fraction or no fine fraction or if the wood chips contain a higher proportion of softwood, use one of the following calibration curves.

11.3.2 Coarse wood chips

For coarse wood chips without fine particles, consisting of at least 1/3 "one-third" hardwood species. This calibration curve is primarily suitable for measuring hardwood wood chips from logs and whole trees. This characteristic curve is also suitable for softwood wood chips containing fine particles, consisting predominantly (more than 2/3 "two-thirds") of softwood species (spruce, fir, pine, larch, etc.). The fine particles consist mainly of bark, small branches, and shrubs. For wood chips within size classes P31 through P45. See sample images figure [13](#) and figure [14](#).

If your softwood wood chips contain little to no fine particles, please refer to the following calibration curve.

11.3.3 Industrial wood chips

For coarse softwood wood chips without fine particles, consisting predominantly (more than 2/3 "two-thirds") of softwood species (spruce, fir, pine, larch, ...). This calibration curve is primarily suitable for measuring softwood wood chips from logs, whole trees, and sawmill residues. For softwood wood chips within the size classes P45 through P63. See sample images figure [15](#) and figure [16](#).

Sample images Wood chips



Sample images Coarse wood chips



Sample images Industrial wood chips



11.4 Notes for comparative measurement with oven-drying method

The device uses a much higher sample quantity than the drying oven. Furthermore, to determine a more accurate average moisture value in case of inhomogeneous material, there can be effected several measurements within a short time.

Considering a sampling error due to the considerably smaller sample quantity as well as the content of volatile matters, resin etc. (that are not water), the kiln-drying method will practically reach an accuracy of approx. $\pm 3\%$. Therefore, if the measuring values of these two very different methods of determining the water content are compared, differences of $\pm 3\%$ can be considered to be normal

In the standard EN ISO 18134-2 is declared that the drying oven method provides no absolute values, but only comparable values.

11.5 Compression of Wood chips

The huminode LW has been calibrated for normally compressed wood chips. If the wood chips are much less or much more compressed during measurement, this will result in measurement inaccuracies. Normally compressed wood chips are defined in the EN 15103 standard (Determination of Bulk Density).

12. Data Gateways

The gateway is a communication module that collects, processes, and forwards the measurement data collected by your Huminode to the dashboard. It acts as an interface between the stationary huminode devices and the analysis software, thereby enabling continuous wireless or wired data transmission.

12.1 Browan MiniHub Pro V2

The Browan MiniHub Pro V2 serves as a gateway for transmitting the measurement data collected by the huminode devices to the central dashboard. It is installed in a suitable location with a power source and automatically connects to the network to ensure data transmission.

12.1.1 Overview Browan MiniHub Pro V2



No	Name
1	USB-C Port
2	Reset Button
3	Power Adapter connector
4	Setup Button
5	LED display

12.1.2 What's Included

- MiniHub Pro V2 Gateway
- Three replaceable power adapters (US, EU, UK)
- Cover cap for the adapter connector
- Quick start guide from the manufacturer
- Power Supply

12.1.3 Status LED

The MiniHub Pro V2 has an LED display on the front.

LED display	Meaning
Green (permanent)	Connection to the LNS (LoRa Network Server) established
Green (flashing)	Connecting to the LNS
Orange (flashing)	Waiting for configuration (first startup)
Orange (flashing quickly)	Attempting to connect to Wi-Fi

12.1.4 Buttons and Connectors

- **Setup Button:** Press and hold for 10 seconds to clear the Wi-Fi configuration and switch to AP (Access Point) mode.
- **Reset Button:** Press and hold for 10 seconds to reset the device to factory settings (deletes all known Wi-Fi networks and login information).
- **USB-C-Port:** Currently inactive (reserved for future developments)

12.1.5 Reset to Factory Settings

- Press and hold the reset button on the bottom for 10 seconds.
- The device will restart and reset all settings.
- After that, a new setup can be started.

12.2 WisGate Edge Pro RAK7289

The WisGate Edge Pro (RAK7289) is a professional outdoor gateway for huminode sensors. It serves as an interface between the wireless LoRaWAN sensors and the central dashboard. Data is transmitted via Ethernet, LTE, or Wi-Fi. The rugged IP67-rated housing protects the device from dust and water and allows for outdoor installation.

NOTE: The gateway must be installed within range of the huminode devices to ensure stable data transmission.

12.2.1 Overview WisGate Edge Pro RAK7289



No	Meaning
1	12V DC IN/Battery Plus
2	Reserved
3	Ethernet
4	Console Nano Sim Reset TF Card
5	Ground Pad
6	Antenna Port (LoRa1)
7	Antenna Port (LoRa2)
8	Power, ETH, WLAN, LTE

12.2.2 What's included

- WisGate Edge Pro RAK7289 Gateway
- Power supply or PoE injector
- Antennas (LoRa, LTE, Wi-Fi, GPS)
- Mounting kit (U-brackets, screws, mounts)
- PVC waterproof tape

12.2.3 Status LED

The MiniHub Pro V2 has an LED display on the front.

LED display	Meaning
Power	The device is turned on
ETH	Ethernet data transmission is active
LoRa	LoRaWAN communication is active
WLAN	Wireless connection is active
LTE	Mobile data connection is active (LTE version only)

12.2.4 Buttons and Connectors

Buttons / Ports	Buttons / Function
Reset Button	Press briefly: Restart the device Hold down for 10 seconds: Reset to factory settings
Nano-SIM Slot	for cellular service (LTE version only)
TF-Card Slot	For backing up system logs
Console Port	For advanced configuration
Ethernet Port	Network connection, PoE power supply
12V DC-IN	Alternative power supply (12–24 V)
Ground Pad	For grounding
Antenna Connectors	LoRa1, LoRa2, LTE, Wi-Fi, GPS

12.2.5 Reset to Factory Settings

- Press and hold the reset button for at least 10 seconds.
- The device will restart and reset all settings.
- You can then set it up again.

12.2.6 Technical Specifications

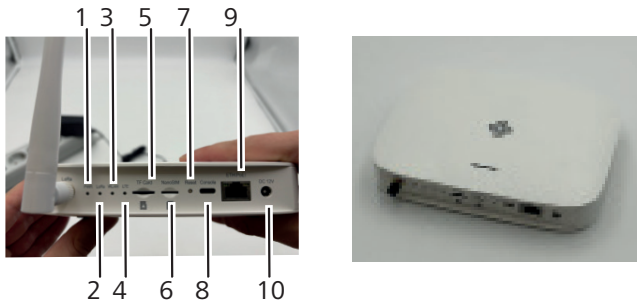
LoRaWAN	Full Stack Support, integrated Network Server
WLAN	2,4 GHz (802.11 b/g/n), also as an AP for configuration
Ethernet	100M Base-T, PoE (IEEE 802.3af, 37–57 VDC)
Power Supply	12V / 1A oder PoE, support for RAK Battery Plus
Protection Class	IP67
Housing Material	Aluminium and plastic
Operating temperature	-30 °C bis +55 °C
Montage	Installation on a pole or wall
Backhaul	Ethernet, WLAN, optional LTE
Mobile network	LTE Cat 4 (optional, C versions)
BLE connectivity	optional (H versions)
Storage	TF card for log backup
Network Integration	Compatible with private (e.g., ChirpStack) and public (e.g., TTN) LoRaWAN servers

12.3 WisGate Edge Lite 2 (RAK7268)

The WisGate Edge Lite 2 (RAK7268) is a compact indoor gateway designed for use with huminode sensors. It supports the LoRaWAN standard and enables reliable transmission of measurement data to the central dashboard.

The device is particularly well-suited for small to medium-sized indoor installations.

12.3.1 Overview WisGate Edge Lite 2 (RAK7268)



No	Meaning
1	PWR
2	LoRa
2	WLAN
4	LTE
5	TF Card
6	NanoSIM
7	Reset
8	Console
9	ETH (OiE)
10	DC12V

12.3.2 What's included

- WisGate Edge Lite 2 Gateway
- Power supply or PoE injector (depending on model)
- LoRa antenna (depending on model, additional LTE/Wi-Fi/Bluetooth)
- Mounting kit for wall or ceiling mounting
- Quick start guide from the manufacturer

12.3.3 Status LED

The status LEDs on the top of the device indicate the current operating status.

LED display	Meaning
Green (permanent)	Connection to the network server established
Green (flashing)	Establishing the network connection
Orange (flashing)	Waiting for configuration (first startup)
Orange (flashing quickly)	Establishing a connection via Wi-Fi

12.3.4 Buttons and Connectors

Buttons / Connectors	Function
Ethernet-Port (PoE-capable)	Data transmission and power supply via PoE
DC power connector	Alternative power supply
Reset button	Press briefly: Restart the device Press and hold for more than 5 seconds: Reset to factory settings
LoRa antenna connector	For advanced configuration
Console port / USB-C (for service purposes)	Network connection, PoE power supply
MicroSD card slot	For configuration files / log data, depending on the model
SIM card slot	LTE models only

12.3.5 Reset to Factory Settings

- Press and hold the reset button for at least 10 seconds.
- The device will restart and reset all settings.
- You can then set it up again.

12.3.6 Technical Specifications

Power Supply	12 V DC or PoE (802.3 af)
Power consumption	approx. 12 W
Dimensions	186 × 126 × 36 mm
Weight	approx. 350 g
Operating temperature	−10 °C to +45 °C
Housing material	Plastic
Installation method	Wall mounting

13. Dashboard

13.1 Log in to the Dashboard

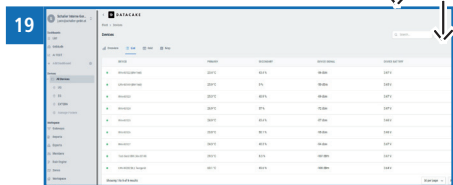
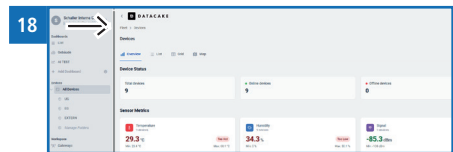
- Open the provided link.
- Log in using the provided login data (figure 17).



13.2 Organize Devices / Create Tags

Schaller Messtechnik has already added the devices. To enable automatic assignment, create tags.

- » Various views of the devices (figure 18).
- Go to the "List" view to create tags.
- » Under "columns" you can configure the desired device information.

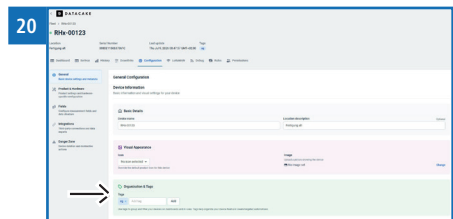


Creating Tags: Option A:

- Select the device you want on the right (either one or several at a time) (figure 19).
- Add the desired tag.

Creating Tags: Option B:

- Click on the device you want.
- Go to Configuration - Organization and Tags (figure 20).
- Select "Add Tags" and enter the desired name.
- Confirm by clicking "Add".
- » You can create as many tags as you like.
- Then save the process at the very bottom.



13.3 Create a folder

To organize devices, you can create folders (figure 21).

1. Click "Manage Folders".
2. Go to "All Devices". On the right, there appears „+“.
3. Click "+" to create a new folder.
4. Enter the name of the folder. You can optionally add an icon or a description. (figure 22).

Under "Automatic Device Filtering", you can use the tags you created earlier (figure 23):

- **At least one matching tag:** The device is mapped as soon as one of the tags is detected.
- **Match all tags:** Only devices with exactly these tag combinations will be mapped.

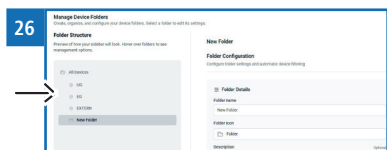
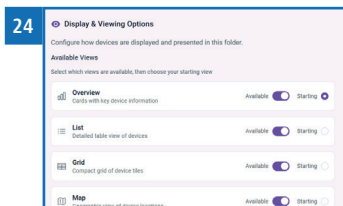
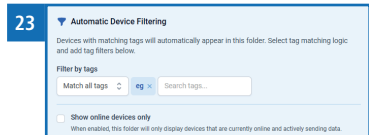
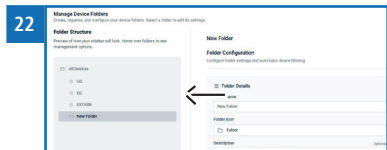
The "Search Tags" feature displays all tags that have already been created, and you can select them.

Under "Display & Viewing Options," you can specify which information you want to display and which view opens by default (figure 24).

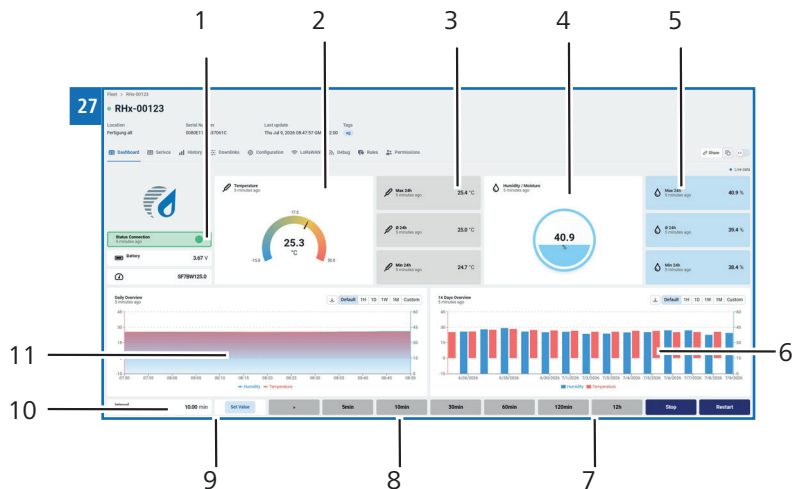
- Save your changes by clicking "Save Changes" at the bottom of the page.

13.4 Delete Folder

1. Click "Manage Folders".
2. Go to the desired folder. A trash icon appears on the right.
3. Click the trash icon to delete the folder.



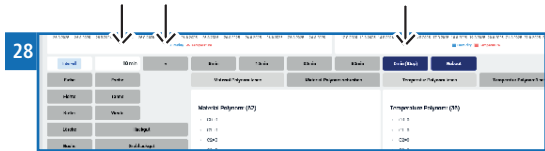
13.5 Display Overview



No.	Meaning	Function
1	Status	Displays online/offline mode, battery level, RSSI, and SNR
2	Current Temperature	Displays the temperature 4 minutes ago.
3	Maximum, Average, and Minimum Temperatures	Displays the maximum, average, and minimum temperatures from 4 minutes ago
4	Current Humidity	Displays humidity from 4 minutes ago.
5	Maximum, Average, and Minimum Humidity	Displays the maximum, average, and minimum humidity levels from 4 minutes ago.
6	Overview of average values for 14 days	Can be set to hourly, daily, weekly, monthly, or custom.
7	Temperature Polynomial	
8	Material Polynomial	
9	Calibration curve	Select the calibration curve you want
10	Interval	Set the measurement interval
11	Daily Overview of Average Values	Can be set to hourly, daily, weekly, monthly, or custom.

13.5.1 Set the measurement interval

The measurement interval defines the time interval at which values are transmitted and displayed as updated.



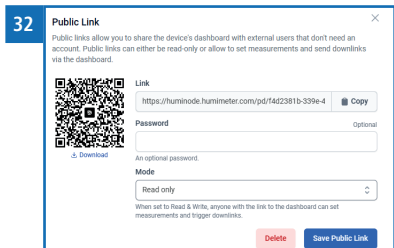
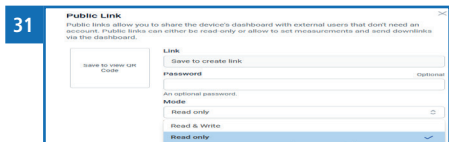
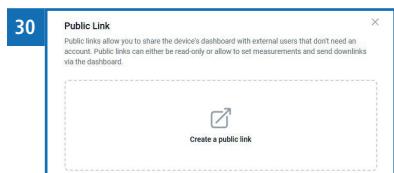
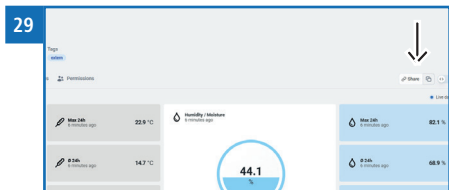
- Select one of the defined intervals under "Interval".
- Or, you can enter a custom interval:
 - » Enter the desired time in minutes in the left field.
 - » Confirm your entry using the field with the arrows next to it.
- "0 min (Stop)" setting: The measurement is temporarily paused.

13.6 Share Device Status

Device status can only be shared by individual devices.

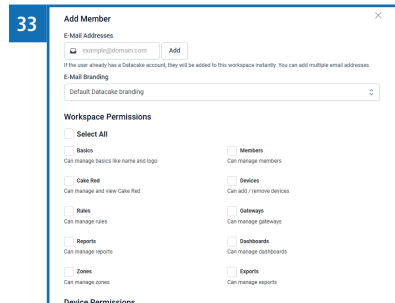
Note: To do this, you need to be on the dashboard for the desired device (figure 27).

- Click "Share" (figure 29).
- Now click "Create a public link" (figure 30).
- » You have the option to set a password (figure 31).
- Now choose whether the device can only be viewed or whether it can also be edited (figure 31).
- » **Read only** - View device status only
- » **Read & Write** - You can view and edit the device status
- Click "Create Public Link".
- Now you can save, download, and share the link or QR code (figure 32).



13.7 Add Members

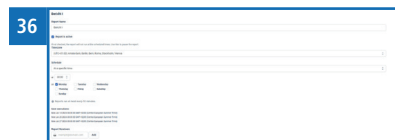
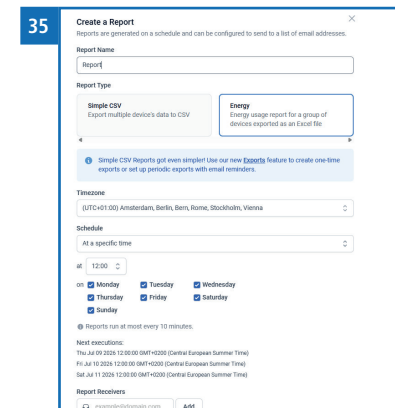
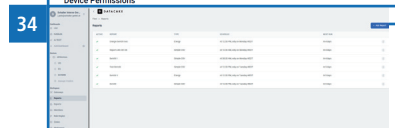
- Click “Members” in the workspace.
- Select “Add Member”.
- Enter the new member’s email address.
- Set the desired permissions for the member.
- In “Add Devices,” select the devices to which the member should have access.
- Complete the process by clicking “Save”



13.8 Send reports

13.8.1 Create a report

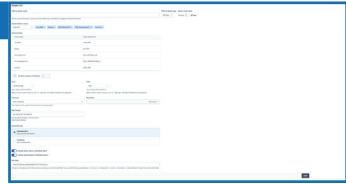
- Click "Reports" in the workspace.
- Select "Add Report" (figure 34).
- Enter the name of the report.
- Select the report type.
- » Simple CSV: Export data from several devices to CSV
- » Energy: Energy usage report for a group of devices, exported as an Excel file
- Now select the appropriate time zone.
- Set the desired schedule.
- » Select the time and the days of the week.
- » Reports are generated at most every 10 minutes.
- Finally, click "Create Report".
- Now enter the report recipient (figure 36).
- Now click "Save".



13.8.2 Selecting the “Simple CSV” Report:

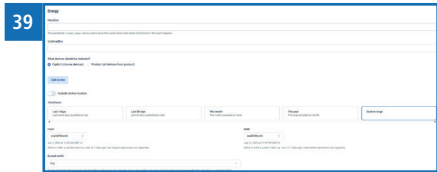
- Select the desired devices by device name or by tags
- » Under “Device must match,” you can choose whether all the tags you specify must be present on the devices or only one of them is required.
- Under “Include fields in the report,” use the dropdown menu to select the information you want.
- » Multiple selections are allowed.
- If necessary, specify the number of decimal places.
- » The function is active only when the left button lights up blue. To do this, slide it to the right.
- Next, select the desired time range, time zone, and resolution.
- Select the type of output file.
- » Individual files: Send a separate report for each selected device.
- » Combined: A report is generated for all selected devices.
- If you want to display the device name or serial number, slide the button to the right so that it lights up blue.
- Finally, enter the desired file name.
- Now click “Save” to complete the process.

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13.8.3 Selecting the “Energy” Report:

- Enter the desired heading and subheading.
- Now select the devices you want to include.
- Select “Explicit” to add individual devices.
 - » This allows you to remove or add the devices you want.
- Select “Product” to add devices for the desired product.
 - » The devices from the selected product can be filtered by tags.
 - » Enter the measurement field you want.
 - If needed, the “Location” can be displayed.
 - » To do this, slide the button to the right so that it lights up blue.
 - Specify the preferred time frame.
 - Under “Bucket width”, you can specify the time intervals for the report.
- Now click the ‘Save’ button to complete the process.



13.8.4 Download Report

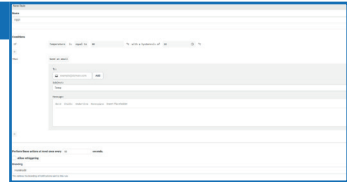
- To download the report, click "Run Now" and then "Reload".
- The report you created appears.
- Click "Download".
- The Excel file opens.



13.9 Create Rules

- In the workspace, click "Rules".
- Select "Add Rule"
- Enter the name or description of the rule in the "Name" field.
- Now enter the condition you want.
- You can now enter the email address, the subject line, and the text you want to send.
- Specify the interval, in seconds, at which the action should be performed.
- In cases where multiple executions are allowed, the rule's actions are executed each time a measurement value used in the rule is updated and the rule applies.
- Finally, click "Create Rule" to complete the process

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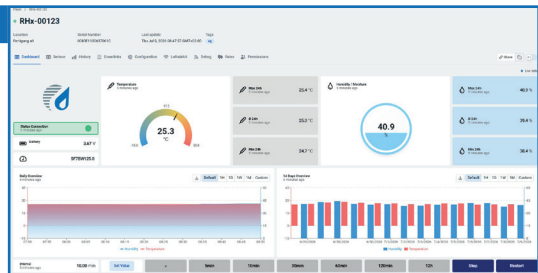


13.10 Select Calibration curves huminode RH

Note: To do this, you need to be on the dashboard.

For an overview of calibration curves and the selection criteria for choosing the appropriate calibration curve, see "[7. Calibration curves huminode RH](#)".

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14. Care instructions

Regular cleaning and maintenance will ensure that your device remains in good condition for as long as possible.

- Do not leave the device out in the rain. The device is not waterproof.
- Do not expose the device to extreme temperatures.
- Protect the device from strong mechanical shocks and loads.
- Do not put the sensor in water.

14.1 Cleaning the device



ATTENTION

Do not clean with fluids

Water or cleaning fluid getting inside the device can destroy the device.

- Only clean with dry materials.

[Plastic housing](#)

Clean the sensor surface with a dry cloth.

[Humidity and temperature sensor Art.No. 12032 &](#)

[Air humidity and temperature sensor Art.Nr. 12514](#)

Clean the sensor surface with a dry cloth.

If the humidity and temperature sensor becomes dirty, please contact your retailer. It is not possible to clean the sensor.

[Precision humidity and temperature probe sensor Art.Nr. 12004](#)

If the probe becomes dirty, it can be cleaned with alcohol.

[IR Temperature Sensor Art.Nr. 12964](#)

Clean the plastic housing of the IR temperature sensor with a dry cloth.

If the sensor becomes dirty, contact your retailer. It is not possible to clean the sensor.

15. Faults

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

Fault	Cause	Remedy
Measuring error	Temperature outside the operating range: below -10 °C or above +60 °C	Use the measuring device only for temperatures above -10 °C or below +60 °C.
	Measurement errors caused by an insufficient temperature equilibration time	Allow the device sufficient time to acclimate to the environment.
	Heat or cooling sources that do not correspond to the ambient temperature.	Place your device in a new location that is representative of the room's climate.
	Wrong calibration curve	Check whether you have selected the right calibration curve (see " 8. Calibration curve ").
	Dripping water or sprayed water	Direct contact between the sensor and dripping or sprayed water will damage the sensor.
	Irreversible damage to the sensor element caused by corrosive gases.	In that case, please contact your retailer.
	Risk of condensation during temperature changes	Condensation on the sensor affects calibration. Allow the device to reach ambient temperature.
	Dirty Humidity Sensor	In that case, please contact your retailer.
	Foreign objects on the sensors	In that case, please contact your retailer.

16. Repair

If your humimeter needs repair, please pack it securely for transport and send it to:
Schaller Messtechnik GmbH
Max-Schaller-Straße 99
A - 8181 St.Ruprecht an der Raab

Download the repair form at humimeter.com/reparatur. Please fill out the form completely and enclose it with your package. This will allow us to clearly identify your repair request and process it quickly.



WARNING

For safety reasons, deeply discharged, damaged, or swollen rechargeable or non-rechargeable batteries are not allowed to be sent. Rechargeable and non-rechargeable batteries must be removed from the device before sending.

17. Storage and disposal

17.1 Storing the device

The device must be stored as follows:

- Do not store outdoors.
- Store in a dry and dust-free place.
- Protect the device from sunlight.
- Avoid mechanical shocks/loads.
- Remove the batteries if the device won't be used for over 4 weeks.
- Storage temperature: -20 °C to +40 °C

17.2 Disposing of the device



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.

18. EC declaration of conformity

18.1 EC declaration of conformity

KONFORMITÄTSERKLÄRUNG DECLARATION OF CONFORMITY

Name/ Adresse des Herstellers: **Schaller Messtechnik GmbH**

Name/ address of manufacturer: **Max-Schaller-Straße 99
A – 8181 St. Ruprecht**

Produktbezeichnung: **huminode**

Product designation:

Typenbezeichnung: **RH ; LW**

Type designation:

Produktbeschreibung: **IoT-Feuchtigkeitsüberwachungssystem**

Product description **IoT moisture monitoring system**

Das bezeichnete Produkt erfüllt die Bestimmungen der Richtlinien:

The designated product is in conformity with the European directives:

EMV - Richtlinie 2014/30/EC

EMC Directive 2014/30/EU

RoHS - Richtlinie 2011/65/EG

RoHS-Directive 2011/65/EU

Die Übereinstimmung des bezeichneten Produktes mit den Bestimmungen der Richtlinien wird durch die vollständige Einhaltung folgender Normen nachgewiesen:

Full compliance with the standards listed below proves the conformity of the designated product with the provisions of the above-mentioned EC Directives:

EN 61326-1:2013

Elektrische Mess-, Steuer-, Regel- und Laborgeräte - EMV-Anforderungen
Electrical equipment for measurement, control, and laboratory use – EMC requirements

EN IEC 63000:2019-05
ersetzt / replaced
EN 50581:2012

Technische Dokumentation zur Beurteilung von Elektro- und Elektronikgeräten hinsichtlich der Beschränkung gefährlicher Stoffe.
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Für das angeführte Produkt ist eine vollständige Dokumentation mit Betriebsanleitung in Originalfassung vorhanden.

For the mentioned product a complete documentation with manual of instruction in original version is available.

Bei Änderungen, die nicht vom Hersteller spezifiziert sind, verliert diese Konformitätserklärung die Gültigkeit.

In case of any changes not agreed upon with the manufacturer, this declaration of conformity loses its validity.

St. Ruprecht a.d. Raab, 31.07.2022


Mess-technik / humimeter.com
Schaller Messtechnik GmbH
Fak. - Schaller Str. 20, 99
AT-8187 St. Ruprecht a.d. Raab
www.humimeter.com | info@humimeter.com
.....
Bernhard Maunz
Rechtsverbindliche Unterschrift des Ausstellers
Legal binding signature of the issuer



DECLARATION OF CONFORMITY

Name/ address of manufacturer: **Schaller Messtechnik GmbH
Max-Schaller-Straße 99
A – 8181 St. Ruprecht**

Product designation: **huminode**

Type designation: **RH ; LW**

Product description **IoT moisture monitoring system**

The designated product is in conformity with the following directives:

- **Electromagnetic Compatibility Regulations 2016 Great Britain**
- **RoHS-Directive 2011/65/EU Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment**

Full compliance with the standards listed below proves the conformity of the designated product with the provisions of the above-mentioned Directives:

EN 61326–1:2013 Electrical equipment for measurement, control, and laboratory use – EMC requirements

EN IEC 63000:2019-05 replaced
EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

For the mentioned product, a complete documentation with manual of instruction in original version is available.

In case of any changes not agreed upon with the manufacturer, this declaration of conformity loses its validity.

St. Ruprecht a.d. Raab, 31.07.2025

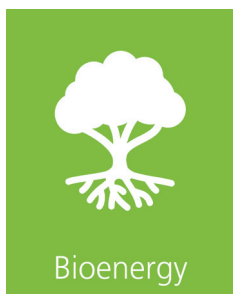
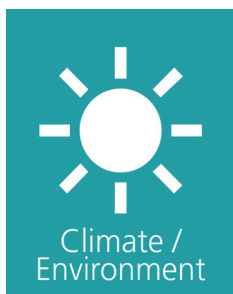
 **Schaller**
Messtechnik / hmi-meter.com
Schaller Messtechnik GmbH
Maunz - Schaller - StraÙe 99
AT - 8180 St. Ruprecht a.d. Raab
www.hmi-meter.com | info@hmi-meter.com
.....
Bernhard Maunz
Legal binding signature of the issuer

18.2 Technical Data huminode LW

Calibration accuracy relative to the reference material	according to the sensor
Measurement range	according to the sensor, resolution 0.1% rh
Temperature Compensation	automatically
Measurement result	The measurement interval can be individually set from 15 minutes to several hours
Communication	LoRaWAN
Device dimensions	150 x 65 x 45 mm
Weight	260 g
Power Supply	Integrated lithium-thionyl chloride battery

18.3 Technical Data huminode RH

Relative Humidity	according to the sensor, resolution 0.1% rh
Measurement range	according to the sensor, resolution 0,1 °C
Absolute humidity	0 to 130 g/m ³ , resolution 0,1 g/m ³
Communication	LoRaWAN
Device dimensions	150 x 65 x 45 mm
Weight	260 g
Power Supply	Integrated lithium-thionyl chloride battery



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

Schaller Messtechnik GmbH

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

Tel +43 (0)3178 - 28899 , Fax +43 (0)3178 - 28899 - 901

info@humimeter.com, www.humimeter.com