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Messtechnik / humimeter.com

Moisture meter

Operating Manual

huminode LW & huminode RH

IoT Moisture Monitoring System





Version 1.0 - Always read the operating manual before use.

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Your huminode LW at a glance

Overview of the huminode LW main unit



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

Rear view of the huminode LW



No.	Description
1	Temperature sensor
2	Conductivity electrodes

External sensor overview

Art. no. 15185: huminode screw-on dual electrode



- Measuring range: 10-50% water content (depending on material type).
- Calibration accuracy: +/- 2.5%.
- Material calibration curve: all common wood species with an oven-dry density of 300-1,050 kg/m³.

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Your huminode RH at a glance

Overview of the huminode RH main unit



No.	Description
1	Status LED
2	Multifunction button / User button
3	Sensor connection
4	Mounting hole

Overview of external RH sensors

Art. no. 12032: Humidity-temperature probe



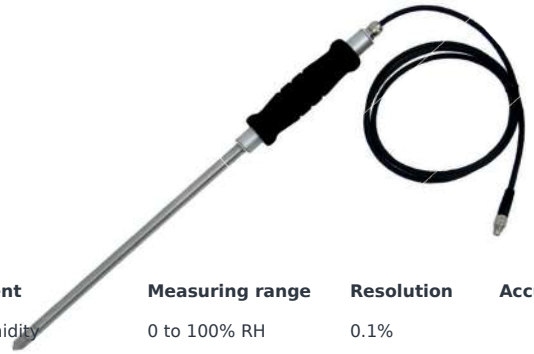
Measurement	Measuring range	Resolution	Accuracy
Relative humidity	0 to 100% RH	0.1%	
Calibration	10 to 90% RH		+/- 2.0% RH (at 25°C)
Temperature °C	-20°C to +85°C	0.1°C	+/- 0.3°C (at 25°C)
Temperature °F	-4°F to 185°F	0.2°F	+/- 0.5°F (at 77°F)

Art. no. 12514: Humidity and temperature sensor



Measurement	Measuring 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/temperature insertion probe



Measurement	Measuring 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)

Art. no. 12032: Humidity-temperature probe

Measurement	Measuring 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)

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1. Introduction

1.1 Information about this operating manual

This operating manual explains how to use huminode RH / LW safely and effectively. It forms part of the device and must be kept near the device, readily accessible to operators at all times.

Before beginning any work, operators must read and understand this manual carefully. Safe operation requires full compliance with the safety information and operating instructions given in this manual.

1.2 Limitation of liability

All information and instructions in this operating manual have been compiled taking into account applicable standards and regulations, state-of-the-art technology, and the extensive expertise and experience of Schaller Messtechnik GmbH.

Schaller Messtechnik GmbH accepts no liability for damage, and all warranty claims become void, in the following cases:

- Failure to follow the manual
- Improper use
- Insufficiently qualified operators
- Unauthorised modifications
- Technical changes
- Use of unapproved spare parts

This rapid measuring method may be influenced by various external conditions.

As the manufacturer, we accept no liability for incorrect measurements or any consequential damage.

1.3 Symbols used in this manual

Safety information in this manual is identified by the following symbols:



CAUTION

Failure to comply can result in minor or moderate injuries.



NOTICE

Failure to comply may result in damage to property.

Information

Important information that helps you use the equipment more efficiently and economically.

1.4 Customer service

Our customer service team is available for technical enquiries:

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Information

The measuring device you have purchased can be calibrated and its adjustment checked using suitable test ampoules / calibration ampoules. Use only calibration solutions supplied by Schaller Messtechnik GmbH. A calibration certificate for your test/calibration ampoule can be downloaded using the batch number printed on it at https://www.humimeter.com/certificates/.

2. For your safety

The device complies with the following European directives:

- Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS Directive)
- Electromagnetic Compatibility (EMC Directive)

The device has been designed to the latest state of the art. Residual risks nevertheless remain. Always follow the safety instructions to avoid hazards.

2.1 Intended use

- Rapid measuring device for determining ambient humidity
- Rapid measuring device for determining material moisture
- Rapid measuring 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 against water and fine dust.

2.3 Operator qualifications

Only persons who can be expected to carry out the work reliably may operate the device. It must not be used by anyone whose reactions are impaired, for example by drugs, alcohol or medication.

Everyone using the device must have read and understood the operating manual and must follow its instructions.

2.4 General safety instructions

Observe the following instructions to prevent personal injury and damage to property:

- If the device will not be used for a long period, put it into sleep mode by holding the multifunction button for five seconds.
- If parts are loose or the device is damaged, contact your dealer.
- The device contains a 3.6 V / 9000 mAh or 3.6 V / 19000 mAh lithium-thionyl chloride battery.

All technical characteristics are checked, and every device undergoes strict quality control before delivery. Each device bears a serial number. Do not remove the serial-number label.

2.5 Warranty

The warranty does not cover:

- Damage caused by failure to observe the operating manual
- Damage caused by third-party intervention
- Products used improperly or modified without authorisation
- Products with a missing or damaged warranty seal
- Damage caused by force majeure, natural disasters, etc.
- Damage caused by improper cleaning
- Damage caused by leaking batteries

3. Getting started

3.1 Unpacking the device

- Remove the device from its packaging.
- Immediately check that the device is undamaged and that nothing is missing.

3.2 Checking the scope of delivery

Check the delivery for completeness against the following lists.

3.2.1 huminode RH delivery contents

- huminode RH
- Operating manual

Required accessories:

- External sensors (see “Your huminode RH at a glance”, page 5).

Optional accessories:

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

3.2.2 huminode LW delivery contents

- huminode LW
- Operating manual

Required accessories:

- External sensors (see “Your huminode LW at a glance”, page 2).

Optional accessories:

- huminode IoT Gateway Browan MiniHub Pro V2
- WisGate Edge Pro (RAK7289)

- WisGate Edge Lite 2 (RAK7268)
- huminode LW contact screws, pack of 20
- Replacement 3.6 V / 9000 mAh lithium-thionyl chloride battery

4. Basic application of huminode RH / LW

huminode RH and huminode LW enable continuous monitoring and recording of humidity and temperature over long periods with little maintenance.

The sensors are suitable for applications including:

- Production and storage halls
- Timber buildings
- Building and construction components
- Listed / historic buildings



Measured parameters:

» huminode RH measures relative humidity and ambient temperature (Fig. 1).

» huminode LW measures wood moisture and the water content of bulk materials, including temperature (Fig. 2).

The main functions are controlled via the dashboard, where measured values can be viewed, documented and analysed.

Dashboard: huminode.humimeter.com

5. Basic operation of huminode RH

huminode is already in operation when delivered.

Mount the huminode RH at the chosen location using the mounting tabs (Fig. 3). With a LoRa connection, all further steps can be carried out through the dashboard.



5.1 Replacing the huminode RH sensor



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

- If a sensor is already fitted, unscrew it counterclockwise (Fig. 4).

5



- Plug the desired sensor into the device until the two threads meet (Fig. 5).
- Make sure that the raised guide on the plug is correctly positioned.
- The probe should plug in without force. Screw the connection tight.

The RH sensor can be replaced while huminode is measuring. Measurements need not be interrupted, so accredited maintenance and calibration can be performed without downtime.

5.2 Button functions - huminode RH

huminode has a multifunction button. Different functions are triggered depending on how long it is pressed. The green status LED stays on while the button is held; it flashes briefly every second as a timing guide.

6



Functions at a glance:

Press for less than 1 second

» Starts a measurement and sends the data via LoRaWAN.

» If not connected to a network server, up to three join attempts are made.

» After three unsuccessful attempts, the device switches to power-saving mode (approximately 2 µA).

Press for 2 seconds

» Outputs the unique device identifier (EUID) via the serial interface.

Press for 3 seconds

» Restarts the sensor (reset).

Press for 5 seconds

» Stops measurements and data transfer and enters sleep mode. Press again to reactivate.

Press for 7 seconds

» Starts the bootloader for firmware updates. Warning: the device draws around 7 mA until reset or switched off.

Press for 8 seconds

» Clears network settings; the device loses its existing network-server connection.

5.3 Taking a measurement with huminode RH

• The procedure is described in section 6, “Measuring process with huminode RH”.

6. Measuring process with huminode RH

6.1 Preparing for measurement

The device should be at approximately the same temperature as the material to be measured. Allow it to acclimatise near the material for at least 30 minutes before measurement.

6.2 Taking a measurement

6.2.1 Insertion probe measurement


7

• Insert the probe tip into the material (Fig. 7).

• Do not bend or drop the sensing head.

• Allow sufficient time for the probe to adapt to the material (see section 6.3).

• Measured values are now displayed on the dashboard.


8

6.2.2 Humidity probe measurement

• Place the huminode RH where it represents the room climate (Fig. 8).

• Avoid draughts, unnatural temperature fluctuations and direct sunlight.

• Measured values are now displayed on the dashboard.

7. Calibration curves for huminode RH

The following calibration curves are available:

Calibration curve	Meaning	Unit	Measuring range	Sensor
Relative humidity	Relative humidity	% RH	0 to 100%	12004 / 12032 / 12514 / 13700
Infrared temperature	Infrared sensor temperature	°C / °F	-25°C to +125°C -13°F to 257°F	12513
On request:				
Absolute humidity	Absolute humidity	g/m³	0 to 130 g/m³	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 relevant calibration curves. Special parameters or calculations can be performed via the dashboard on request.

7.1 Definition of calibration curves

Absolute humidity

Absolute humidity is the mass of water vapour in grams per cubic metre of air. It is a direct measure of how much water vapour is present in a specific volume of air. It indicates the maximum amount of condensate that could form or how much water needs to evaporate to reach the desired humidity.

Dew-point temperature

The dew point is the temperature to which air that is not yet fully saturated with water vapour must be cooled to reach saturation. When a room cools to the dew-point temperature at its current relative humidity, water vapour begins to condense.

Relative humidity

Relative humidity expresses the ratio between the current water vapour pressure and the maximum possible pressure, known as the saturation vapour pressure. It indicates the extent to which the air is saturated with water vapour.

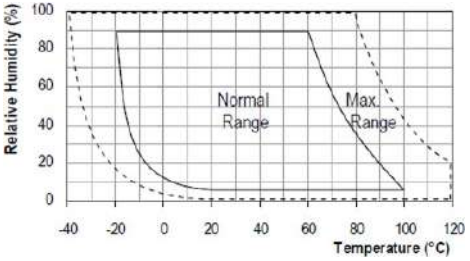
Example: At 50% relative humidity, the air at the current temperature and pressure is half saturated with water vapour. At 100% it would be fully saturated. Excess vapour would condense or form mist.

aw value

Water activity (activity of water) is also called free or non-cellular-bound water in products such as food. It is defined as the ratio of the water vapour pressure above a material to the water vapour pressure above pure water at a specified temperature.

7.2 Operating range

Within its normal operating range, the device meets the specified accuracy. Prolonged use outside the normal range (maximum range), particularly above 80% relative humidity, may lead to greater deviations in measurement (+3% after 60 hours). When the sensor returns to the normal operating range, it automatically returns to the specified accuracy.



8. Basic operation of huminode LW

huminode is already in operation when delivered.

8.1 Button functions - huminode LW

huminode has a multifunction button. Different functions are triggered depending on how long it is pressed. The green status LED remains continuously lit while the button is held; it flashes briefly every second as a timing guide.

Functions at a glance:

Press for less than 1 second

» Starts a measurement and sends the data via LoRaWAN.

» If the device is not connected to a network server, it makes up to three join attempts.

» After three unsuccessful attempts, it switches to power-saving mode (about 2 µA).

Press for 2 seconds

» Outputs the unique device identifier (EUID) via the serial interface.

Press for 3 seconds

» Restarts the sensor (reset).

Press for 5 seconds

» Stops measurements and data transmission and remains in sleep mode. Press again to reactivate.

Press for 7 seconds

» Starts the bootloader for firmware updates. Warning: the device draws approximately 7 mA until it is reset or switched off.

Press for 8 seconds

» Clears the network context; the device loses its existing connection to the network server.

8.2 Taking a measurement

- The procedure is described in section 9, “Measuring process”.

9. Measuring process with huminode LW

9.1 Taking a measurement

1. Screw the huminode LW directly into the material using its electrode mounting (Fig. 9).

9



2. After installation, press the button once to activate the sensor.

10



» Once activated, huminode LW automatically begins measuring and transmitting data (Fig. 10).

10

» Once a LoRaWAN connection has been established, all other settings, evaluations and monitoring functions can be managed through the central dashboard.

WARNING

Risk of injury
Injury from the measurement tips.
► Keep the measurement tips away from your body at all times.
► Keep the measurement tips away from other people.

CAUTION

Risk of injury
Fingers may be crushed by the metal handle when striking with a hammer.
► Hold the metal handle in the middle and watch the position of your fingers.

Information - Incorrect readings

Choose the correct calibration curve for the material being measured. This helps prevent incorrect readings (see section 11, Troubleshooting).

10. Wood species for huminode LW

The following wood species are available for selection:

Wood species	Subgroups	Range limit
Beech	Gum, 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 fir, hemlock, poplar, elm	30%
Fir	Ceiba, lime tree	30%
Willow	Pearwood, hickory, olive, ramin, teak	30%
Digital		0 to 100
Reference	For checking the measuring device only!	

Explanation of wood species and subgroups

The wood species shown in the “Wood species” column are displayed in the dashboard. If the species you want to measure is not listed directly, locate it among the subgroups and select the corresponding main wood species on the device.

Example: To measure poplar, select “Larch” as the wood species.

11. Calibration curves for huminode LW

The following product calibration curves are available:

Product name	Material	Measuring range
Wood chips	Wood chips as defined in section 11.3.1	10%-50%
Coarse wood chips	Wood chips as defined in section 11.3.2	10%-50%
Industrial wood chips	Wood chips as defined in section 11.3.3	10%-50%
Test block	For checking the measuring device only!	

11.1 Definition of water content

The device displays water content. This means that moisture is calculated relative to the total mass:

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

Mn: Mass of sample with average water content

Mt: Mass of oven-dried sample

%WG: Water content (in accordance with EN ISO 18134-2)

11.2 Wood chip classes (EN ISO 17225-1)

The figures indicate particle sizes passing through round sieve openings. Names from the former Austrian standard ÖNORM M 7133 are shown in parentheses.

- P16 (G30): At least 75% by mass between 3.15 and 16 mm
- P31 (G30): At least 75% by mass between 8 and 31.5 mm
- P45 (G50): At least 75% by mass between 8 and 45 mm
- P63 (G100): At least 75% by mass between 8 and 63 mm

11.3 Selecting calibration curves for wood chips

When selecting the calibration curve for wood chips, the wood type (hardwood or softwood), chip size (classes according to EN ISO 17225-1) and fine-particle content all play a role.

If you are unsure which calibration curve best suits your material, we recommend an additional comparative measurement using the oven-drying method (EN ISO 18134-2).

Schaller Messtechnik GmbH will be pleased to advise you individually. Photograph your chips beside a measuring tape and send the photo to support@schaller-gmbh.at. You will receive a recommendation promptly.

11.3.1 Wood chips

For wood chips containing fine particles and consisting of at least one-third hardwood. Fine particles are mainly bark, small branches and shrubs. Suitable for size classes P16 to P45 (see example photographs 11 and 12).

If your material has few or no fine particles, or predominantly consists of softwood, refer to the calibration curves below.

11.3.2 Coarse wood chips

For coarse wood chips without fines and consisting of at least one-third hardwood. This curve is primarily suitable for hardwood chips from logs and whole trees. It is also suitable for softwood chips with fine particles where over two-thirds consists of softwood (spruce, fir, pine, larch, etc.). Fines are mainly bark, small branches and shrubs. Suitable for size classes P31 to P45 (photos 13 and 14).

If your softwood chips contain few or no fine particles, use the next calibration curve.

11.3.3 Industrial wood chips

For coarse softwood chips without fine particles, consisting mainly (more than two-thirds) of softwood (spruce, fir, pine, larch, etc.). This curve is primarily suitable for softwood chips from logs, whole trees and sawmill residues, in size classes P45 to P63 (photos 15 and 16).

Example photographs: wood chips

11



12



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Example photographs: coarse wood chips

13



14



Example photographs: industrial wood chips

15



16



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11.4 Comparison with the oven-drying method

This device measures a considerably larger sample quantity (12 to 20 times the amount used with the oven-drying method). Rapid repeated measurements of inhomogeneous material can also be taken to obtain a more accurate average.

When the sample-taking error due to the substantially smaller oven-drying sample and the proportion of volatile substances (resins, etc., which are not water) are taken into account, the practical accuracy obtained with a drying oven is approximately +/- 3%. Differences of +/- 3% between these fundamentally different methods are therefore normal.

EN ISO 18134-2 also states that the oven-drying method does not yield absolute values, but rather comparable values.

11.5 Compression of wood chips

The huminode LW is calibrated for normally compressed wood chips. If the chips are much less or much more compressed during measurement, inaccuracies may occur. Normal chip compression is defined in EN 15103 (bulk density determination).

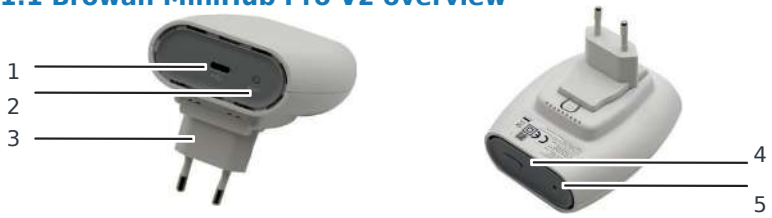
12. Data gateways

A gateway collects and processes the measured data recorded by your huminode and forwards it to the dashboard. It connects the fixed huminode devices to the analysis software, enabling continuous wireless or wired data transfer.

12.1 Browan MiniHub Pro V2

The Browan MiniHub Pro V2 transmits measurements recorded by huminode devices to the central dashboard. Install it at a suitable location with a power supply. It connects to the network automatically to ensure data transmission.

12.1.1 Browan MiniHub Pro V2 overview



No.	Description
1	USB-C port
2	Reset button
3	Power adapter socket
4	Setup button
5	LED indicator

12.1.2 Scope of delivery

- MiniHub Pro V2 gateway
- Three interchangeable power adapters (US, EU, UK)
- Adapter connection cover
- Manufacturer quick-start guide
- Power supply

12.1.3 Status LED

The MiniHub Pro V2 has an LED indicator on its front.

LED indicator	Meaning
Green (steady)	Connected to the LNS (LoRa Network Server)
Green (flashing)	Connecting to the LNS
Orange (flashing)	Waiting for configuration (first start)
Orange (fast flashing)	Attempting to connect to Wi-Fi

12.1.4 Buttons and connections

- Setup button: Hold for 10 seconds to erase Wi-Fi settings and switch to AP (access point) mode.
- Reset button: Hold for 10 seconds to restore factory settings (deletes all saved Wi-Fi networks and credentials).
- USB-C port: Currently inactive (reserved for future developments).

12.1.5 Restoring factory settings

- Hold the reset button on the underside for 10 seconds.
- The device restarts and resets all settings.
- You can then configure it again.

12.2 WisGate Edge Pro RAK7289

The WisGate Edge Pro (RAK7289) is a professional outdoor gateway for huminode sensors. It links the wireless LoRaWAN sensors to the central dashboard, transferring data by Ethernet, LTE or Wi-Fi. Its robust IP67 housing protects against dust and water and allows outdoor installation.

NOTICE: Mount the gateway within wireless range of the huminode devices to ensure stable data transmission.

12.2.1 WisGate Edge Pro RAK7289 overview



No.	Description
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 Scope of delivery

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

12.2.3 Status LEDs

The MiniHub Pro V2 has an LED indicator on its front.

LED	Meaning
Power	Device switched on
ETH	Ethernet data transfer active
LoRa	LoRaWAN communication active
WLAN	Wireless connection active
LTE	Mobile connection active (LTE version only)

12.2.4 Buttons and connections

Button / connection	Function
Reset button	Press briefly: restart. Hold for 10 seconds: restore factory settings.
Nano-SIM slot	Mobile network (LTE models only)
TF-card slot	Save system logs
Console port	Advanced configuration
Ethernet port	Network connection, PoE power supply
12V DC-IN	Alternative power supply (12-24 V)
Ground pad	Grounding
Antenna ports	LoRa1, LoRa2, LTE, Wi-Fi, GPS

12.2.5 Restoring factory settings

- Hold the reset button for at least 10 seconds.
- The device restarts and resets all configurations.
- It can then be configured again.

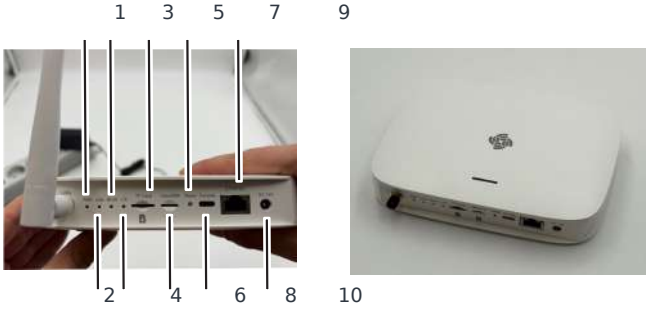
12.2.6 Technical data

LoRaWAN	Full-stack support, integrated network server
Wi-Fi	2.4 GHz (802.11 b/g/n), also AP for configuration
Ethernet	100M Base-T, PoE (IEEE 802.3af, 37-57 VDC)
Power supply	12V / 1A or PoE, RAK Battery Plus support
Protection rating	IP67
Housing material	Aluminium and plastic
Operating temperature	-30°C to +55°C
Mounting	Pole or wall mounting
Backhaul	Ethernet, Wi-Fi, optional LTE
Mobile network	LTE Cat 4 (optional, C versions)
BLE connectivity	Optional (H versions)
Storage	TF card for system logging
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 for huminode sensors. It supports LoRaWAN and transmits measurement data reliably to the central dashboard. The device is ideal for small and medium-sized indoor installations.

12.3.1 WisGate Edge Lite 2 (RAK7268) overview



No.	Description
1	PWR
2	LoRa
3	WLAN
4	LTE
5	TF Card
6	NanoSIM
7	Reset
8	Console
9	ETH (PoE)
10	DC12V

12.3.2 Scope of delivery

- WisGate Edge Lite 2 gateway
- Power supply or PoE injector (model-dependent)
- LoRa antenna (LTE / Wi-Fi / Bluetooth antennas, depending on model)
- Wall or ceiling mounting kit
- Manufacturer quick-start guide

12.3.3 Status LEDs

Status LEDs on the upper surface indicate the current operating status.

LED indicator	Meaning
Green (steady)	Connected to network server
Green (flashing)	Network connection being established
Orange (flashing)	Waiting for configuration (first start)
Orange (fast flashing)	Connecting via Wi-Fi

12.3.4 Buttons and connections

Button / connection	Function
Ethernet port (PoE)	Data transfer and power supply via PoE
DC power connection	Alternative power supply
Reset button	Press briefly to restart; hold for more than 5 seconds to restore factory settings
LoRa antenna connection	For advanced configuration
Console / USB-C	Network connection, PoE power (for servicing)
MicroSD slot	For configuration files / logs, depending on model
SIM-card slot	LTE models only

12.3.5 Restoring factory settings

- Hold the reset button for at least 10 seconds.
- The device restarts and resets all configurations.
- A new setup can then be carried out.

12.3.6 Technical data

Power supply	12 V DC or PoE (802.3af)
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	Wall mounting

13. Dashboard

13.1 Signing in to the dashboard



• Open the link provided to you.

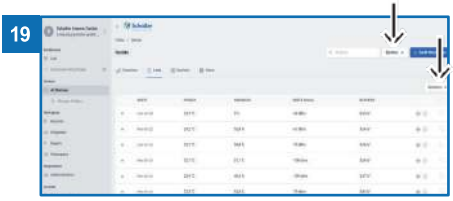
• Sign in using the login details you have received (Fig. 17).

13.2 Organising devices and tags

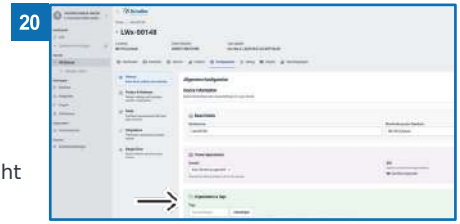


Schaller Messtechnik has already added the devices. Create tags to allow automatic assignment.

» See the various device views (Fig. 18).



• Switch to “List” view to create tags. Under “Columns” you can select which device information is shown.



Adding tags - option A:

• Select the desired device(s) on the right (Fig. 19).

• Add the desired tag.

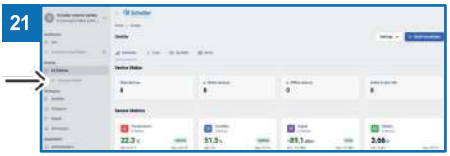
Adding tags - option B:

• Click the device, open “Configuration”, then “Organization and Tags” (Fig. 20). Enter a tag under “Add tags”, click “Add”, then save at the bottom of the page. You can create as many tags as needed.

13.3 Creating folders

Folders can be used to organise devices (Fig. 21).

1. Click “Manage Folders”.



2. Under “All Devices”, a “+” appears on the right.

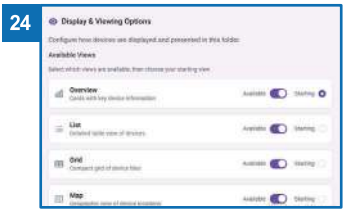
3. Click “+” to create a new folder.



4. Name the folder; optionally add an icon or a description (Fig. 22).



Under “Automatic Device Filtering”, you can use existing tags (Fig. 23):



- Match any tag: the device is assigned if one listed tag is present.
- Match all tags: the device is assigned only if every tag is present.

“Search tags” lists existing tags. “Display & Viewing Options” sets the fields and default view (Fig. 24). Click “Save Changes”.



13.4 Deleting folders

1. Click “Manage Folders”.
2. Select the folder; a bin icon appears.
3. Click the bin to delete it.



13.5 Display overview

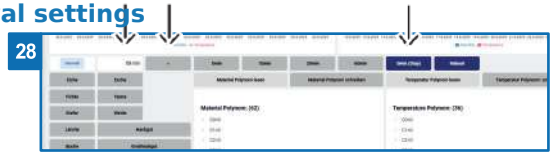


No.	Name	Description
1	Status	Shows online/offline mode, battery, RSSI, SNR, etc.
2	Current temperature	Temperature from four minutes earlier.
3	Max / avg / min temperature	Maximum, average and minimum temperature (four minutes earlier).
4	Current humidity	Humidity from four minutes earlier.
5	Max / avg / min humidity	Maximum, average and minimum humidity (four minutes earlier).
6	14-day average overview	Hourly, daily, weekly, monthly or custom view.
7	Temperature polynomial	
8	Material polynomial	
9	Calibration curves	Select the calibration curve.
10	Interval	Set the measurement interval.

11	Daily average overview	Can be set to hourly, daily, weekly, monthly or custom intervals.

13.5.1 Measuring interval settings

The interval controls how often readings are transmitted and updated.



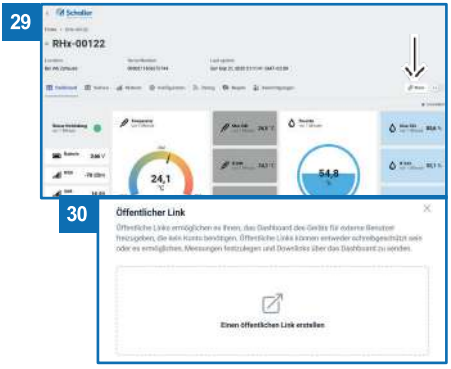
- Choose one of the predefined settings under “Interval”.
- Alternatively, enter a custom measuring interval.
- Enter the desired number of minutes in the left field.
- Confirm using the arrows in the adjacent field.
- Selecting “0 min (Stop)” pauses measurements temporarily.

13.6 Sharing device status

The status of individual devices can be shared.

Prerequisite: You are in the dashboard of the desired device (Fig. 27).

- Click “Share” (Fig. 29).
- Click “Create a public link” (Fig. 30).



» You can set an optional password (Fig. 31).

- Select view-only or editing access (Fig. 31).

» Read only: view status.

» Read & Write: view and edit status.

- Click “Create public link”.



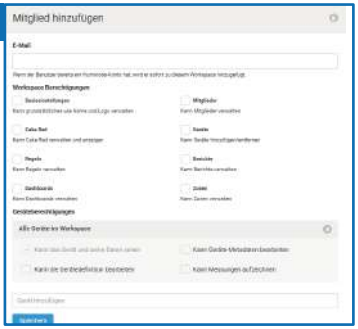
- Save, download or share the link / QR code (Fig. 32).



13.7 Adding members

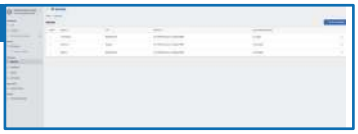
- In the workspace, click “Members”.
- Select “Add member”.
- Enter the new member’s email address.
- Set the desired permissions.
- Under “Add devices”, select the devices the member may access.
- Click “Save” to finish.

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13.8 Sending reports

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13.8.1 Creating a report

- In the workspace, click “Reports”.
- Select “Add report” (Fig. 34).
- Enter a report name.
- Select a report type:

» Simple CSV: export data from multiple devices in CSV format.

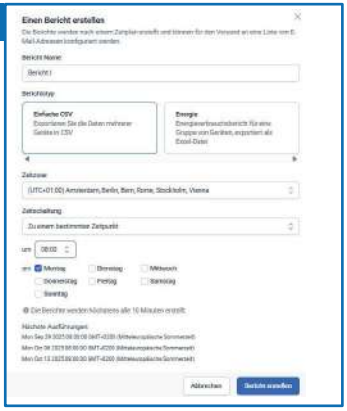
» Energy: energy consumption report for a group of devices, exported as an Excel file.

- Select the appropriate time zone.
- Set the required schedule (time and days of the week).

» Reports are generated at intervals of no less than 10 minutes.

- Click “Create report”.
- Enter the report recipient (Fig. 36).
- Click “Save”.

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13.8.2 Selecting the “Simple CSV” report

• Select devices by device name or tags.



» Under “Device must match”, choose whether all selected tags or any single tag must be present.

• Use “Include fields in report” to choose the information to include. Multiple selections are possible.

• If required, set the number of decimal places. This option is active only when the left switch is moved to the right and turns blue.

• Select the time window, time zone and resolution.

• Choose an output file type:

» Individual files: one report for every selected device.

» Combined: one report covering all selected devices.

• To include the device name or serial number, move the switch right until it turns blue.

• Enter the desired file name and click “Save” to finish.

13.8.3 Selecting the “Energy” report

- Enter the heading and subheading.
- Choose which devices to include.
- Select “Explicit” to add or remove individual devices.

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- Select “Product” to include devices for a given product. You can filter them by tags.
- Select the desired measurement field.
- Optionally show “Location” by moving the switch right until it turns blue.
- Specify the time period. “Bucket width” sets the time resolution of the report.
- Click “Save” to finish.

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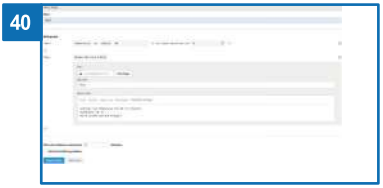


13.8.4 Downloading a report

- Click “Run now”, then “Reload”. The new report appears. Click “Download” to save it. An Excel file opens.

13.9 Creating rules

- In the workspace, click “Rules”.
- Select “Add rule”.
- Enter the name of the rule.
- Enter the desired condition.
- Enter the email address, subject and notification text.
- Specify the interval in seconds between checks / actions.
- If multiple executions are permitted, the action runs whenever a measurement value used in the rule updates and its condition is met.
- Click “Create rule” to finish.



13.10 Selecting a huminode RH calibration curve

Prerequisite: You are in the dashboard.

For an overview of the available calibration curves and selection criteria, see “7. Calibration curves for huminode RH”.



1. Press Up or Down to move between calibration curves, OR

2. Hold Up or Down for two seconds to open the calibration curve overview.

3. Use the arrow buttons to advance to another calibration curve.

4. Hold an arrow button to scroll through the calibration curves.

5. Confirm your selection.

» The selected calibration curve is displayed at the top of the screen.

14. Care and maintenance

Regular cleaning and maintenance help ensure that the device stays in good condition for as long as possible.

14.1 Care instructions

- Do not leave the device out in the rain. It is not waterproof.
- Do not immerse the sensor in water.
- Do not expose the device to extreme temperatures.
- Avoid strong mechanical shocks or loads.

14.2 Cleaning the device

NOTICE

Risk of damage from wet cleaning
Water or cleaning agents entering the device may destroy it.
► Use dry cleaning methods only.

Plastic housing

Clean the plastic housing with a dry cloth.

Humidity-temperature probe, art. no. 12032, and humidity / temperature sensor, art. no. 12514

Clean the plastic tube with a dry cloth.

If the humidity and temperature sensor becomes contaminated, contact your dealer. The sensor itself cannot be cleaned.

Precision humidity-temperature insertion probe, art. no. 12004

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

Infrared temperature probe, art. no. 12964

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

If the sensor becomes contaminated, contact your dealer. The sensor itself cannot be cleaned.

15. Troubleshooting

If the remedies below do not resolve the problem, or faults occur that are not listed, please contact Schaller Messtechnik GmbH.

Fault	Cause	Remedy
Incorrect readings	Temperature below -10°C or above +60°C	Only use the device between -10°C and +60°C.
	Too little time for temperature to stabilise	Allow sufficient time to acclimatise (see section 6.3).
	Nearby heat or cold sources that do not reflect ambient temperature	Move the device to a representative location.
	Wrong calibration curve selected	Before measuring, check that the correct curve is selected (see section 8).
	Dripping or sprayed water	Direct contact with dripping or sprayed water destroys the sensor.
	Sensor irreversibly affected by aggressive gases	Contact your dealer.
	Risk of condensation during temperature changes	Condensation affects calibration. Allow the device to reach ambient temperature.
	Contaminated humidity sensor	Contact your dealer.

Fault	Cause	Remedy
	Foreign objects on the sensor	Contact your dealer.

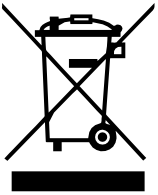
16. Storage and disposal

16.1 Storing the device

Store the device under the following conditions:

- Do not store outdoors.
- Store in a dry, dust-free location.
- Protect it from sunlight.
- Avoid mechanical shocks and loads.
- Remove the batteries if the device is not used for more than four weeks.
- Storage temperature: -20°C to +40°C.

16.2 Disposing of the device



Equipment bearing this symbol is 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 used outside the European Union, observe the applicable national disposal regulations.

Electronic devices must not be disposed of with household waste.

Dispose of the device responsibly using suitable collection systems.

17. Device information

17.1 CE declaration of conformity

DECLARATION OF CONFORMITY

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

Product designation: huminode

Type designation: RH; LW

Product description: IoT moisture monitoring system

The product named above complies with the following European directives:

EMC Directive 2014/30/EU
RoHS Directive 2011/65/EU

Conformity with the provisions of these directives is demonstrated by full compliance with the following standards:

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

EN IEC 63000:2019-05 (replaces EN 50581:2012): Technical documentation for the assessment of electrical and electronic products concerning the restriction of hazardous substances.

Complete documentation, including an original operating manual, is available for the product listed.

This declaration of conformity becomes invalid if modifications are made that have not been specified or agreed to by the manufacturer.

St. Ruprecht an der Raab, 31 July 2022



Bernhard Maunz
Legally binding signature of the issuer

17.2 Technical data - huminode LW

Calibration accuracy	According to the sensor / reference material
Measuring range	According to sensor; 0.1% RH resolution
Temperature compensation	Automatic
Measurement interval	Individually adjustable from 15 minutes to several hours
Communication	LoRaWAN
Device dimensions	150 × 65 × 45 mm
Weight	260 g
Power supply	Integrated lithium-thionyl chloride battery

17.3 Technical data - huminode RH

Relative humidity	Range according to sensor; 0.1% RH resolution
Temperature	Range according to sensor; 0.1°C resolution
Absolute humidity	0 to 130 g/m³; 0.1 g/m³ resolution
Communication	LoRaWAN
Device dimensions	150 × 65 × 45 mm
Weight	260 g
Power supply	Integrated lithium-thionyl chloride battery

18. Notes

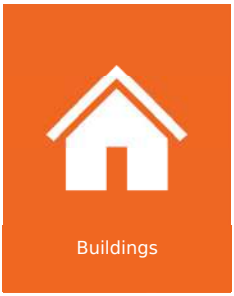
19. Notes

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