Schaller

Moisture meter

# Operating Manual

## humimeter BMC

Option rechargeable battery and USB interface-

Moisture meter for measuring the moisture content of wood chips




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

Version 1.4

Always read this operating manual before using the humimeter BMC

# Your humimeter BMC at a glance

## The main unit



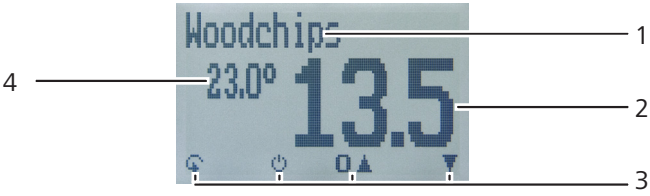

| No | Name |
|---|---|
| 1 | Display |
| 2 | Keypad |
| 3 | USB port (for charging the battery) |
| 4 | LED battery indicator |

## Rear of the main unit




| No | Name |
|---|---|
| 1 | Measuring chamber |

## The display




| No | Name |
|---|---|
| 1 | Calibration curve |
| 2 | Moisture content % ("6.1 How moisture is defined") |
| 3 | Display symbols |
| 4 | Temperature display |

## The display symbols

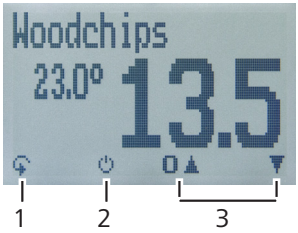
| Symbol | Name |
|---|---|
|  | Enter |
|  | Up |
|  | Down |
|  | Back |
|  | Enter numbers |
|  | Enter letters |
|  | Continue / go right |
|  | Left |
|  | Yes |

| Symbol | Name |
|---|---|
|  | No |
|  | Change input level |
|  | OK |
|  | Change menu |
|  | Enter data |
|  | View measurements |
|  | Delete measurements |
|  | On/off button, display light |
|  | Save measured value |

## The menus

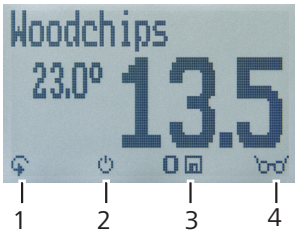
The device has three different menus: product selection, Data Log and main menu:

### Product selection menu




| No | Name |
|---|---|
| 1 | Change menu |
| 2 | Display illumination / device on/off |
| 3 | For changing the calibration curve |

## Data Log menu




| No | Name |
|---|---|
| 1 | Change menu |
| 2 | Display illumination / device on/off |
| 3 | Save measured reading |
| 4 | Show the last recorded values |

## Main menu

The main menu comprises the following menu items:

- **Edit Logs:**
  Manual Logs, Clear Logs
- **Print Logs:**
  Last Log, All Logs, Clear Logs
- **Send Logs:**
  Manual Logs, Clear Logs
- **Options:**
  Bluetooth, Date/Time, Adjust, Language, Unlock, °C/°F, BL On Time, Auto Off Time, Materialcalib., Online Send, Online Print, Password, Reset
- **Status**

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# 1. Introduction

## 1.1 Information about this operating manual

This operating manual is designed to enable you to use the humimeter BMC 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 humimeter BMC. 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 GmbH.

Schaller 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. For this reason, we recommend periodically checking the device's measurements with a standardised oven-drying method.

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.

**CAUTION**

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

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

Telefon: +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

- Easy to use device for quickly measuring the moisture content of wood chips.
- The device must only be used for taking measurements on the products defined in the following sections of this manual (see "6. Calibration curves").

## 2.2 Improper use

- The device must not be used in ATEX.
- The device is not suitable for measuring frozen wood chips or wood chips with a temperature of more than +40 °C.
- The device is not waterproof and must be protected from water and fine dust (IP40).

## 2.3 User qualifications

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

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

## 2.4 General safety information

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

- In case of damages or loose parts on the device contact Schaller GmbH or your dealer.

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

## 2.5 Warranty

The warranty does not apply to:

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

# 3. On receipt of 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:

- humimeter BMC
- Plastic bucket
- Operating manual

Optional accessories:

- humimeter USB data interface module - USB flash drive with software and USB-cable or download using humimeter.com/software
- Battery operated portable thermal printer (described in a separate operating manual)
- Bluetooth module (described in a separate operating manual)

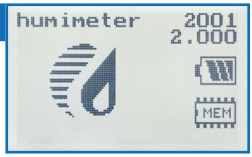
# 4. Using the device - Basics

## 4.1 Switching the device on

- Press the ⏻ button for 3 seconds.

» The display will then show the status indicator (figure 1).

1



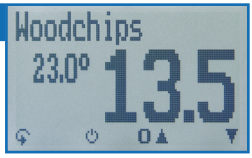

## 4.2 Selecting the calibration curve

To do so: The device has to be in the product selection menu. (figure 2).

For an overview of the different calibration curves and the criteria for selecting them, please refer to "6. Calibration curves".

1. Press the ▽ or △ button to move from one product to the next Or
2. Press the ▽ or △ button for 3 seconds to open the calibration curve overview (figure 3).
3. Use the arrow keys to move from one calibration curve to the next
4. and keep any of them pressed to scroll through the types.
5. Confirm your selection by pressing ↵.

2




3




» The calibration curve you selected will now be shown at the top of the display.

## 4.3 Taking a measurement

- For information on how to take a measurement, see section "5. The measuring process".

## 4.4 Switching the device off

To do so: The device has to be in the product selection or Data Log menu. It is not possible to switch off the device when it is in the main menu.

- Press the button for 3 seconds.

# 5. The measuring process

## 5.1 Switching the device on

- Press the button for 3 seconds.

» The display will then show the status indicator (see "8. Checking the device's status").

» Make sure to store both the device and the wood chips at about the same temperature. A high temperature difference (+/- 3 °C) will negatively affect the measurement accuracy.

## 5.2 Adjustment

» After switching on, the device effects a self-adjustment. The display shows the message **Adjust?** (figure 4).

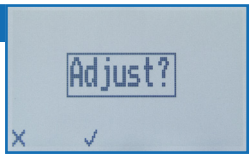
» Make sure that the measuring chamber is empty. During the self-adjustment there must not be any material inside the measuring chamber.

» Confirm by pressing .

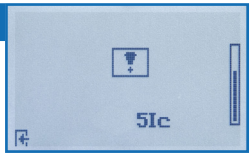
» The self-adjustment is effected. The display will now appear as shown in figure 5.

» When the self-adjustment is completed, the display will appear as shown in figure 6.

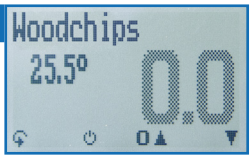
4




5




6




## 5.3 Taking a measurement

1. Select the required calibration curve (see "6. Calibration curves") by pressing the or button Or
2. Press the or button for 3 seconds.

» The display will now show the calibration curve overview (figure 7).

7



3. Select the required calibration curve (**Woodchips, Coarse chips, Softwood chips, Softwood coarse, Fine woodchips, Empty 1 - 3**).

   » To do so, press or and confirm by pressing Or

   » Keep or pressed to scroll through the types and confirm by pressing .

4. Completely fill the measuring chamber with wood ch using the included plastic bucket (13 litres). Fill the measuring chamber as shown in figure 8.

   » Always fill the measuring chamber from the gray backplate.

   » Do not compress the wood chips.

   » Do not shake the device after the filling.

   » Fill the measuring chamber up to the edge with wood chips.

8



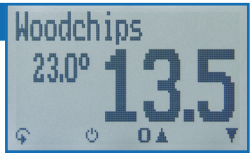
5. Remove protruding wood chips so that the material is even with the top edge of the measuring chamber.

6. The device will now display the moisture content (figure 9).

   » The displayed value flashes when the moisture content exceeds 40% (figure 47). A flashing value signals a decreasing accuracy of the measurement. The measuring range of the device is specified from 5 % to 50 % water content.

   » Once the reading has been taken, it can be saved on the device (see "5.4 Saving individual readings" or "5.5 Saving several readings (a measurement series) at the same time").

9




10




7. Empty the measuring chamber completely.

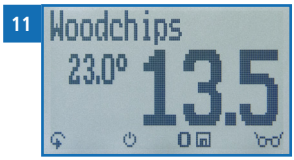
## Information - Measuring accuracy

This rapid and non-destructive measuring procedure allows you to quickly take moisture readings at a number of different points. When saving the individual readings, the device will automatically calculate the readings' average (see "5.5 Saving several readings (a measurement series) at the same time").

> **Information - Incorrect readings**
>
> Always make sure to select the correct calibration curve for the material you are measuring. This prevents taking incorrect readings (see "11. Faults").

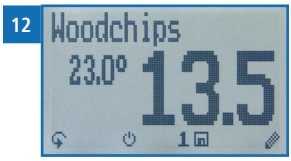
## 5.4 Saving individual readings

To do so: The device has to be switched on and be in the Data Log menu (see "10" page 15).



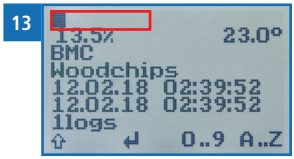

1. Press .

   » The display will now appear as shown in figure 12 and the disc symbol will be preceded by the digit one.



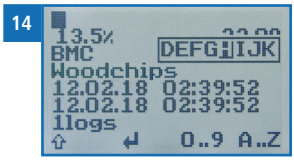

2. Press to enter a name for the saved reading and to finish the measuring process.

   » The display will now appear as shown in figure 13.




3. The data you have inputted can be overwritten at any time (if data has already been entered).

4. Inputting letters:
   Press and hold A..Z to quickly scroll to the required letter and either press it for 3 seconds or press to confirm the selected letter (figure 14).




5. Inputting numbers:
   Press and hold 0..9 to quickly scroll to the required number and either press it for 3 seconds or press to confirm the selected number.

6. Moving forward/back:
   Press to switch to another input level. Press or to move forward or back.

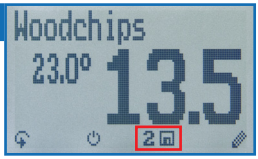
7. Confirm your entry by pressing .

   » The data you entered has been saved.

## 5.5 Saving several readings (a measurement series) at the same time

To do so: The device has to be in the Data Log menu (see "Data Log menu" page 5).

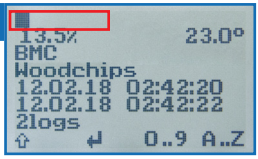
15




1. Take several readings of the same wood chips (see "5. The measuring process").
2. To save a reading, press [M] as soon as the reading has been taken.

» The display will now appear as shown in figure15. This number shows the number of readings that have already been saved.

16

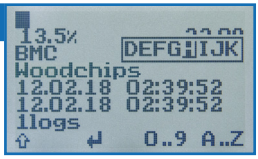



3. Press [✎] to enter a name for the saved series of measurements and to finish the measuring process.

» The display will now appear as shown in figure 16.

4. The data you have inputted can be overwritten at any time (if data has already been entered).

17

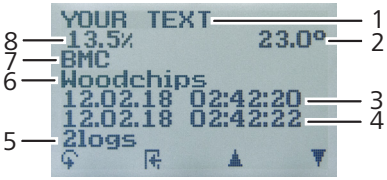



5. Inputting letters:
   Press and hold [A..Z] to quickly scroll to the required letter and either press it for 3 seconds or press [↵] to confirm the selected letter (figure 17).
6. Inputting numbers:
   Press and hold [0..9] to quickly scroll to the required number and either press it for 3 seconds or press [↵] to confirm the selected number.
7. Moving forward/back:
   Press [⇧] to switch to another input level. Press [→] or [←] to move forward or back.
8. Confirm your entry by pressing [↵].

» The data you entered has been saved.

» The device automatically determines the average moisture content of the saved measuring values.

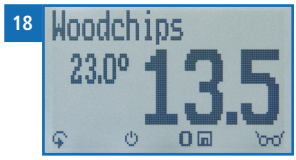
» The display will show the following information:



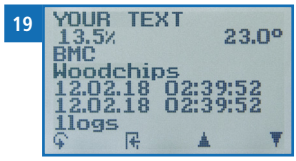

| No | Name |
|---|---|
| 1 | Name of the measurement series (editable) |
| 2 | Temperature (average) |
| 3 | Date & start time of the measurement series |
| 4 | Date & end time of the measurement series |
| 5 | Number of saved readings |
| 6 | Calibration curve |
| 7 | Device name |
| 8 | Moisture content (average) |

## 5.6 Viewing individual readings

To do so: You must have saved a reading (e.g. **1 log**)
The display will now appear as shown in figure 18.

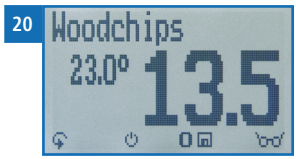



1. Press .
2. Select the required reading. To do so, press or .
   » The display will now appear as shown in figure 19.
   » Press to leave this screen.

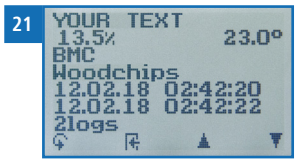


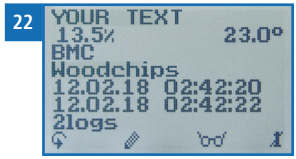

## 5.7 Viewing individual readings from a series of measurements

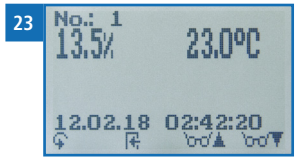
To do so: You must have saved a series of measurements (e.g. **2 logs**).
The display will now appear as shown in figure 20.




1. Press .
2. Navigate to the required measurement series. To do so, press or .
   » The display will now appear as shown in figure 21.
3. Press to switch to another input level.
   » The display will now appear as shown in figure 22.
4. Press again.
   » The display will now appear as shown in figure 23.
5. Navigate to the required reading (**No.: 1, No.: 2, No.: 3**). To do so, press or .
6. Press to leave this screen.



## 5.8 Deleting all measured values (data log)

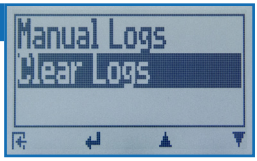
To do so: You must have taken and saved one or several readings.

1. Press twice or hold for 2 seconds.
2. Select **Edit Logs** (figure 24). To do so, press or and confirm by pressing .
3. Select **Clear Logs** (figure 25). To do so, press or and confirm by pressing .
   » The display will show the message **clear?** (figure 26).
4. Confirm by pressing .
   » The data log has been deleted.
5. Press to leave the **Edit Logs** menu.
6. Press to leave the main menu.

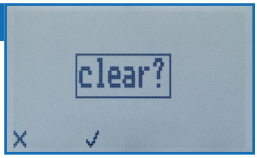
24




25




26

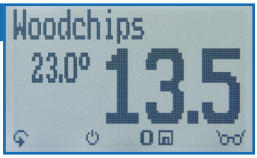



## 5.9 Deleting individual measurement series

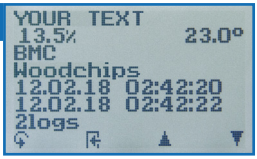
To do so: You must have saved a measured value (e.g. **1 log**) or a series of measurements (e.g. **3 logs**). The display will now appear as shown in figure 27.

1. Press .
   » The display will now appear as shown in figure 28.
2. Select the required reading. To do so, press or .
3. Press to switch to another input level.
   » The display will now appear as shown in figure 29.
4. Press .

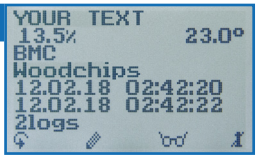
27




28



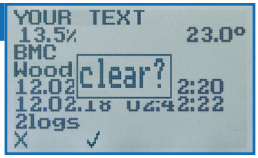

29



» The display will then show the message **clear?** (figure 30).

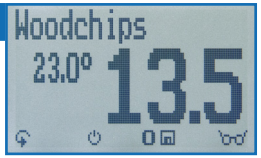
5. Confirm by pressing ✓.

» The value has been deleted.

30


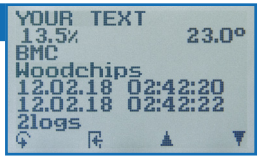

## 5.10 Deleting individual values from a single series of measurements

To do so: You must have saved a series of measurements comprising at least 2 logs. The display will now appear as shown in figure 31.

31



1. Press 👓.

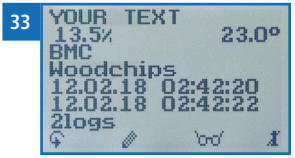
» The display will now appear as shown in figure 32.

32



2. Select the required reading. To do so, press 🌲 or ▲.

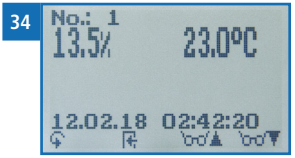
3. Press ↻ to switch to another input level.

» The display will now appear as shown in figure 33.

33



4. Press 👓.

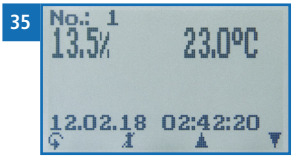
» The display will now appear as shown in figure 34.

34



5. Select the required measured value. To do so, press 👓▲ or 👓▼.

6. Press ↻ to switch to another input level.

» The display will now appear as shown in figure 35.

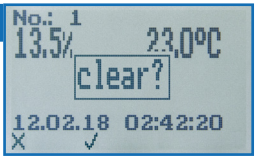
35



7. Press 🗑 to delete the value shown.

» The display will then show the message **clear?** (figure 36).

8. Confirm by pressing ✓.

» The value has been deleted.

36


# 6. Calibration curves

| Calibration curve | Wood chip type | Measuring range |
|---|---|---|
| Softwood shavings | For shavings made of softwood | 5 % - 35 % |
| Hardwood saw-dust | For sawdust made of hardwood | 5 % - 50 % |
| Softwood sawdust | For sawdust made of softwood | 5 % - 50 % |
| Wood chips | See "6.3.1 Wood chips" | 5 % - 50 % |
| Coarse chips | See "6.3.2 Coarse wood chips" | 5 % - 50 % |
| Softwood chips | See "6.3.3 Softwood chips" | 5 % - 50 % |
| Softwood coarse | See "6.3.4 Softwood coarse chips" | 5 % - 50 % |
| Fine woo chips | See "6.3.5 Fine wood chips" | 5 % - 50 % |
| Empty 1 | For special sorts (calibration by Schaller GmbH) | |
| Empty 2 | For special sorts (calibration by Schaller GmbH) | |
| Empty 3 | For special sorts (calibration by Schaller GmbH) | |
| Reference | ! Only for testing the moisture meter ! | |

## 6.1 How moisture 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 18134-2)

## 6.2 Definition of wood chips types

The given numbers, in accordance with EN ISO 17225-1, refer to the particle sizes that fit through the round screen openings.

- P16 at least 75% of the mass between 3.15 and 16mm
- P31 at least 75% of the mass between 8 and 31.5mm
- P45 at least 75% of the mass between 8 and 45mm
- P63 at least 75% of the mass between 8 and 63mm

## 6.3 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.

### 6.3.1 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 37 and 38.

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.

### 6.3.2 Coarse wood chips

For coarse wood chips without fine fraction, consisting of at least one third hardwood. This curve is predominantly suited for measuring wood chips deriving from logs and full trees. For wood chips sizes from P45 to P63. See example pictures 39 and 40.

This calibration curve also has to be taken for wood chips from short rotation forestry (poplar, willow) harvested by a field chopper, for wood chips sizes from P16 to P31.

If your wood chips contain a higher proportion of softwood, use one of the following calibration curves.

### 6.3.3 Softwood chips

For wood chips with fine fraction, mainly (more than two thirds) consisting of softwood (spruce, fir, pine, larch). The fine fraction mainly derives from barks, small branches and bushes. For softwood chips sizes from P16 to P45. See example pictures 41 and 42.

If your wood chips contain few fine fraction or no fine fraction, use one of the following calibration curves.

### 6.3.4 Softwood coarse chips

FFor coarse wood chips without fine fraction, mainly (more than two thirds) consisting of softwood (spruce, fir, pine, larch) of 70% and more. This curve is predominantly suited for measuring wood chips deriving from logs and full trees as well as sawmill residues. For wood chips sizes from P45 to P63.  See example pictures 43 and 44.

### 6.3.5 Fine wood chips

For fine wood chips with a high proportion of fine fraction, consisting of at least one third hardwood. The fine fraction mainly derives from barks, small branches and bushes. For wood chips size P16. See example picture 45.

For wood chips purely from ash trees, wood chips sizes from P31 to P45, also choose this calibration curve.

Example pictures wood chips

37




38



## Example pictures coarse wood chips

39




40



Example pictures softwood chips

41




42



## Example pictures softwood coarse chips

43




44



Example picture fine wood chips




## 6.4 Notes for comparative measurement with oven-drying method

The device uses a much higher sample quantity than the drying oven (12-fold to 20-fold quantity of kiln-drying method). 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. +/- 3%. Therefore, if the measuring values of these two very different methods of determining the water content are compared, differences of +/- 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.

# 7. LogMemorizer

Note: Your device is equipped with the optional USB port or Bluetooth module.

## 7.1 LogMemorizer install/open

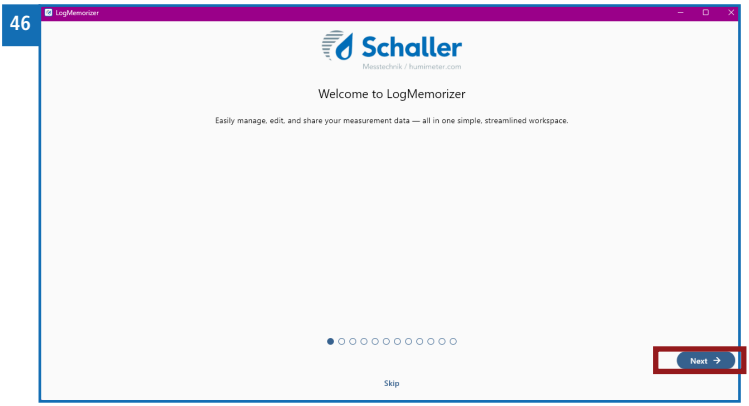
1. Install LogMemorizer on your PC or as an app on your smartphone. Alternatively, use LogMemorizer as a web app in your browser - no installation required.
   Note: The web app is only for viewing measurement data that has already been uploaded to the cloud.

» Download LogMemorizer from humimeter.com/software or scan the following QR codes for your applications.

Desktop version | Android app | iOS app | Web app

2. Open LogMemorizer after installation.

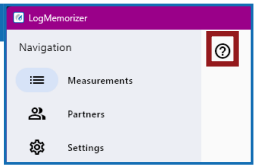
» The interactive introduction will appear.



## 7.2 Introduction

Follow the introduction by clicking “Next.” This will help you learn all the important features. After the introduction, you will be taken to the user interface.

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» You can access the introduction again at any time by clicking the “?” icon.

## 7.3 Establishing the connection

Note: A connection can only be established via LogMemorizer. Before you can transfer measurement data, you must establish a connection between LogMemorizer and your humimeter. Make sure the humimeter is turned on before establishing the connection.

1. Open LogMemorizer on your PC.
2. Go to “Select Source.”
3. Select the interface that your device has here.

### 7.3.1 USB

Note: Install the USB driver before using LogMemorizer with the optional USB interface.

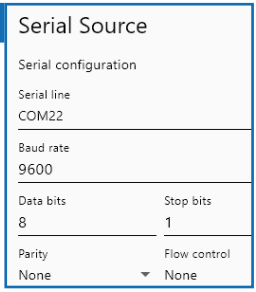
1. Plug the USB Mini-B connector into the humimeter.
2. Select your humimeter under “Connection.” Do not change the baud rate unless instructed to do so by the manufacturer.
3. Click “Apply.”

» The connection has now been established.

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49

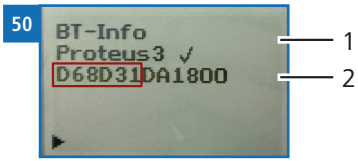


### 7.3.2 Bluetooth

1. LogMemorizer automatically starts searching for Bluetooth devices.
2. The humimeter devices you find will be shown in a list.
   » The first 6 numbers of the Bluetooth MAC address are displayed for easier identification (**see** Check Bluetooth status).
3. Click on your humimeter.
4. Confirm the connection.

### 7.3.3 Check Bluetooth status

1. Press twice or hold for 2 seconds.
2. Go to **Options/Bluetooth/Info**. To do this, press or and confirm by clicking .
   » The status indicator appears on the display **humimeter**.
   » The display shows the following information:

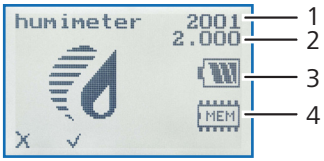



| No. | Description |
|---|---|
| 1 | Name of the Bluetooth module |
| 2 | MAC address of the Bluetooth module |

3. Confirm by clicking .
4. Press , to close the main menu.

# 8. Checking the device's status

1. Press  twice or hold for 2 seconds.
2. Select **Status**. To do so, press  or  and confirm by pressing .
   - » The display will then show the status indicator **humimeter**.
   - » The display will show the following information:




| No | Name |
|---|---|
| 1 | Serial number |
| 2 | Software version |
| 3 | Battery status |
| 4 | Memory status |

3. Confirm by presssing .
4. Press  to leave the main menu.

# 9. Configuring the device

## 9.1 Turning on Bluetooth

The information on Bluetooth is provided in a separate operating manual.

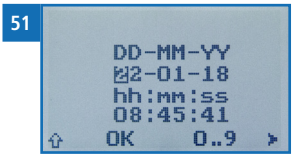
## 9.2 Adjust the date/time

1. Press twice or hold for 2 seconds.
2. Select **Options**. To do so, press or and confirm by pressing .
3. Select **Date/Time**. To do so, press or and confirm by pressing .

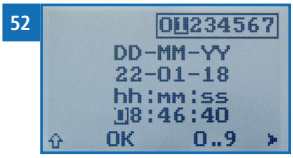
» The display will now appear as shown in figure 54.

» The format for the date is **DD-MM-YY** (Day-Month-Year).

» The format for the time is **hh:mm:ss** (Hour:Minutes:Seconds).




4. Inputting numbers:
   Press and hold 0..9 to quickly scroll to the required number and either press it for 3 seconds or press to confirm the selected number (figure 55).




5. Moving forward:
   To move forward between **DD-MM-YY** and **hh:mm:ss**, press .
6. Moving back:
   Press to switch to another input level. To move backward between **DD-MM-YY** and **hh:mm:ss**, press .
7. Confirm the date/time by pressing OK.

» The settings have been saved.

8. Press to leave the **Options** menu.
9. Press to leave the main menu.

## 9.3 Selecting a language

1. Press twice or hold for 2 seconds.
2. Select **Options**. To do so, press or and confirm by pressing .
3. Select **Language**. To do so, press or and confirm by pressing .
4. Navigate to the required language. To do so, press or and confirm by pressing .

» The settings have been saved.

5. Press to leave the **Options** menu.
6. Press to leave the main menu.

## 9.4 Activating options

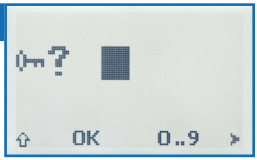
To do so: Some of the options must be deactivated.

1. Press twice or hold for 2 seconds.
2. Select **Options**. To do so, press or and confirm by pressing .
3. Select **Unlock**. To do so, press or and confirm by pressing .

» The display will now appear as shown in figure 56.

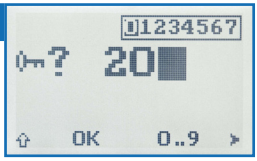
» On delivery, the four-digit password is the device's serial number.

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4. Inputting numbers:
   Press and hold 0..9 to quickly scroll to the required number and either press it for 3 seconds or press to confirm the selected number (figure 57).

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5. Moving back:
   Press to switch to another input level.
   To move back, press .
6. Confirm the four-digit password by pressing OK.

» The settings have been saved.

» The **°C/°F**, **BL On Time**, **Auto Off Time**, **Materialcalib.**, **Password**, **Reset** options are now activated.

7. Press  to leave the **Options** menu.
8. Press  to leave the main menu.

## 9.5 Deactivating options

Once the device has been switched restarted, the **°C/°F**, **BL On Time**, **Auto Off Time**, **Materialcalib.**, **Password**, **Reset** options will be deactivated again.

## 9.6 Selecting °C/°F

To do so: All of the options must be activated (see "9.4 Activating options").

1. Press  twice or hold for 2 seconds.
2. Select **Options**. To do so, press  or  and confirm by pressing .
3. Select **°C/°F**. To do so, press  or  and confirm by pressing .
4. Navigate to the required temperature scale, i.e. Celsius (**°C**) or Fahrenheit (**°F**). To do so, press  or  and cofirm by pressing .

» The settings have been saved.

5. Press  to leave the **Options** menu.
6. Press  to leave the main menu.

## 9.7 Reducing the device's power consumption

### 9.7.1 Configuring the display illumination time

To do so: All of the options must be activated (see "9.4 Activating options").

1. Press  twice or hold for 2 seconds.
2. Select **Options**. To do so, press  or  and confirm by pressing .
3. Select **BL On Time**. To do so, press  or  and confirm by pressing .

4. Select the required display illumination period (30 seconds/2 minutes/5 minutes/10 minutes). To do so, press  or  and cofirm by pressing .

   » The settings have been saved.

5. Press  to leave the **Options** menu.

6. Press  to leave the main menu.

### 9.7.2 Configuring automatic switch-off

To do so: All of the options must be activated (see "9.4 Activating options").

1. Press  twice or hold for 2 seconds.

2. Select **Options**. To do so, press  or  and confirm by pressing .

3. Select **Auto Off Time**. To do so, press  or  and confirm by pressing .

4. Select the period of time you want the device to stay switched on (3 minutes/5 minutes/10 minutes). To do so, press  or  and confirm by pressing .

   » The settings have been saved.

5. Press  to leave the **Options** menu.

6. Press  to leave the main menu.

## 9.8 Configuring the material calibration function

The type calibration function is described in a separate operating manual.

## 9.9 Changing the password

To do so: All of the options must be activated (see "9.4 Activating options").

1. Press  twice or hold for 2 seconds.
2. Select **Options**. To do so, press  or  and confirm by pressing .
3. Select **Password**. To do so, press  or  and confirm by pressing .

» The display will show the current password.

4. Overwrite the current password. To do so, press and hold  to quickly scroll to the required number and either press it for 3 seconds or press  to confirm the selected number.

   Moving back:
   Press  to switch to another input level.
   To move back, press .

5. Confirm the new four-digit password by pressing .

» The settings have been saved.

6. Press  to leave the **Options** menu.
7. Press  to leave the main menu.

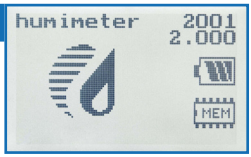
## 9.10 Resetting the device to its factory settings

To do so: All of the options must be activated (see "9.4 Activating options").

1. Press twice or hold for 2 seconds.
2. Select **Options**. To do so, press or and confirm by pressing .
3. Select **Reset**. To do so, press or and confirm by pressing .
   - » The display will then show the message **Reset?** (figure 58).
4. Confirm by pressing .
   - » The device will now be reset to its factory settings. All of your personal settings will be lost.
   - » The display will show the status indicator **humimeter** (figure 59).
   - » Resetting the device will not affect the saved measuring values.

55



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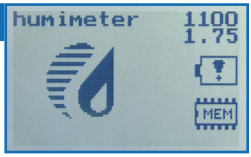

# 10. Cleaning and maintenance

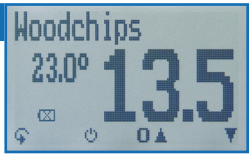
Regularly cleaning and maintaining the device will ensure that it will have a long service life and stay in good condition.

## 10.1 Charging the integrated battery

The device constantly monitors the charge level of the integrated battery. The current battery status is shown on the status screen. If the battery's charge is very low, the battery symbol will be shown with an exclamation mark. In that case, the battery must be charged immediately (figure 60).

This warning symbol will also be shown on the measuring screen (figure 61).

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1. To charge the battery, insert the supplied USB cable into the USB Mini B port on the humimeter BMC (figure 62).



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2. Next, connect the cable to a computer or USB adaptor/charging cable connected to the mains (e.g. from a mobile phone).

» The battery will now start charging.
» The LED will be blue while the battery is charging.
» The LED will switch off as soon as the battery is fully charged.
» Charging the battery can take up to 6 hours.

**CAUTION**

**Fire hazard**

► The battery must only be charged using original accessories and in accordance with the specifications detailed in this operating manual. The environmental temperature has to be between 0 °C and +45 °C.

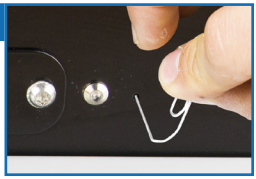
The use of damaged cables or chargers or charging the battery in damp environments can result in electric shock, fire and injury. Make sure the temperature is between 0 °C and +45 °C when charging the battery as other temperatures can destroy the battery. Make sure the mains and USB cable are properly connected.

As the device's user, you are responsible by law for properly disposing of all used batteries, which must not be disposed of as domestic waste (Battery Directive).

## 10.2 Resetting the hardware/device

The device will go into battery protection mode if the battery's charge is very low to prevent it from being completely drained. Once that happens, the device can only be restarted once the battery has been recharged and the hardware has been reset.

The hardware/device can also be reset if the device has stopped operating for some reason. To do so:


60

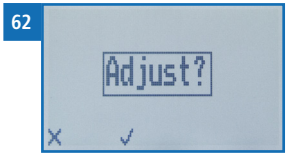
- Fully charge the battery (until the LED goes out).
- Press the reset button on the device with a toothpick or straightened paper clip (figure 63).
- Do not use excessive force to press the reset button, which is very easy to operate.
- The device will restart as soon as the reset button has been pressed.

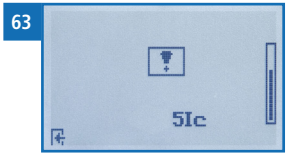
## 10.3 Adjust the moisture meter

### 10.3.1 Starting the adjustment manually

To do so: The measuring chamber has to be empty.




1. Press twice or hold for 2 seconds.
2. Select **Options**. To do so, press or and confirm by pressing .
3. Select **Adjust** (figure 64). To do so, press or and confirm by pressing .
4. The display will then show the message **Adjust?** (figure 65).
5. Confirm by pressing .
   - » The display will now appear as shown in figure 66.
   - » The bar will run upwards,
   - » which only takes a couple of seconds to complete. When completed, the display will look as shown in figure 64.
6. Press and then to return to the product selection level.

## 10.4 Care instructions

- 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.

## 10.5 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.

Sensor surface

- Clean the sensor surface with a dry cloth.

# 11. 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 | The temperature of the material being measured is too low or high. I.e. the material's temperature is lower than 0 °C or higher than +40 °C. | The temperature of the material being measured has to be between 0 °C and +40 °C. |
| | Temperature discrepancy between device and material being measured | Let the temperature adjust to the material being measured (permitted difference of max. 3 °C). |
| | Wrong calibration curve | Check whether you have selected the right calibration curve (product) before taking a reading (see "6.3 Selection of calibration curve for wood chips"). |
| | Insuffient material in the measuring chamber | Ensure that the measuring chamber is full; there must not be less nor more material in it. |
| | Too high measuring value due to compression of wood chips | Do not compress the material and do not shake the device after the filling. |
| | Wrong filling direction | Always fill the measuring chamber from the gray backplate. Use the delivered bucket of 13 litres. |
| | Metal or similar conductive materials in the wood chips | Remove all metal or other conductive materials from the wood chips. |
| | Mouldy or rain wet wood chips Accuracy decreases significantly | Only measure dry, not mouldy wood chips |

| Fault | Cause | Remedy |
|---|---|---|
| | Frozen wood chips or wood chips mixed with snow Accuracy decreases significantly | The wood chips most not be frozen or mixed with snow. |
| Incorrect adjustment (the exclamation mark on the display does not go away) | Material in the measuring chamber (during adjustment) | Empty the measuring chamber completely. |
| The device doesn't switch on | Battery empty | Charge the battery. (See "10.1 Charging the integrated battery"). |
| | Battery deeply discharged | Charge the battery and then reset the device (perform a hardware reset) (see "10.2 Resetting the hardware/ device"). |
| The device doesn't respond to any operating commands | Software has crashed | Reset the device (perform a hardware reset) (see "10.2 Resetting the hardware/ device"). |

## 12. 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.

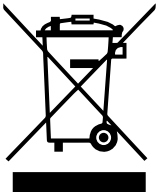
# 13. Storage and disposal

## 13.1 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.
- Storage temperature: -20 °C o +60 °C

## 13.2 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.

# 14. Device information

## 14.1 CE declaration of conformity

**KONFORMITÄTSERKLÄRUNG**
***DECLARATION OF CONFORMITY***

| | |
|---|---|
| Name/ Adresse des Herstellers:<br>*Name/ address of manufacturer:* | **Schaller Messtechnik GmbH**<br>**Max-Schaller-Straße 99**<br>**A – 8181 St. Ruprecht** |
| Produktbezeichnung:<br>*Product designation:* | **humimeter** |
| Typenbezeichnung:<br>*Type designation:* | **BMC** |
| Produktbeschreibung:<br>*Product description* | **Messgerät zur Bestimmung des Wassergehalts in Biomasse**<br>***Measuring device for determining the water content in biomass*** |

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<br>*Electrical equipment for measurement, control, and laboratory use – EMC requirements* |
| **EN IEC 63000:2019-05**<br>*ersetzt / replaced*<br>**EN 50581:2012** | Technische Dokumentation zur Beurteilung von Elektro- und Elektronikgeräten hinsichtlich der Beschränkung gefährliche Stoffe.<br>*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

Schaller
Messtechnik / humimeter.com
Schaller Messtechnik GmbH
Max - Schaller - Straße 99
AT - 8181 St. Ruprecht a. d. Raab
www.humimeter.com | info@humimeter.com

Bernhard Maunz
Rechtsverbindliche Unterschrift des Ausstellers
*Legal binding signature of the issuer*

UK CA

# *DECLARATION OF CONFORMITY*

| | |
|---|---|
| *Name/ address of manufacturer:* | **Schaller Messtechnik GmbH**<br>**Max-Schaller-Straße 99**<br>**A – 8181 St. Ruprecht** |
| Product designation: | **humimeter** |
| Type designation: | **BMC** |
| Product description: | **Measuring device for determining the water content in biomass** |

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**<br>replaced<br>**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, 31.07.2022

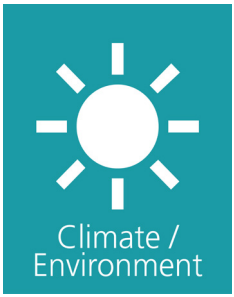



Bernhard Maunz
Legal binding signature of the issuer

## 14.2 Technical data

| | |
|---|---|
| Display resolution | 0.5 % moisture content,<br>0.5 °C/°F temperature |
| Measuring range | 5 % to 50 % moisture content (calibration curve dependent) |
| Operating temperature | 0 °C to +40 °C |
| Storage temperature | -20 °C to +60 °C |
| Temperature compensation | Automatic |
| Data memory | Up to 10,000 measuring values |
| Power supply | LI-Ion 1800 mAh battery<br>(60 to 100 operating hours) |
| Current consumption | 60 mA (incl. display illumination) |
| Menu languages | German, English, French, Italian, Spanish, Portuguese, Czech, Polish, Russian, International |
| Display | 128 x 64 illuminated matrix display |
| Device dimensions | 296 x 278 x 508 mm |
| Device weight | 7.9 kg |
| Device IP rating | IP 40 |

# 15. Notes



















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
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info@humimeter.com, www.humimeter.com