

# Operating Manual

## Test equipment

for the device types BMA-2, BMC, FSG,  
FS2, FS3, FS4, BP1, FSA, SG1



78,0 °F | 6,16% | 456kg/m<sup>3</sup> | -27,3td | 0,64aw | 51,9%r.H. | 14,8%abs | 100,4g/m<sup>2</sup> | 09m/s | 4,90Ug/l | 1

## Introduction

### 1.1 Information about this operating manual

The operator must carefully read and understand this operating manual before starting any work. The basic prerequisite for safe working is compliance with all the safety notes and instructions for action given in this operating manual.

### 1.2 Limitation of liability

All information and notes in this operating manual have been compiled taking into account the applicable standards and regulations, the state of the art and the many years of knowledge and experience of Schaller Messtechnik GmbH.

In the following cases, Schaller Messtechnik GmbH does not assume any liability for damages and the warranty claims expire:

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

This rapid measurement procedure can be influenced by various boundary conditions. We therefore recommend checking the measurement results at periodic intervals by means of a standard kiln drying test.

### 1.3 Symbols used in this manual

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



#### **ATTENTION**

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

### 1.4 Customer service

For technical advice, please contact our customer service department at:

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

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

E-Mail: [info@humimeter.com](mailto:info@humimeter.com)  
Internet: [www.humimeter.com](http://www.humimeter.com)



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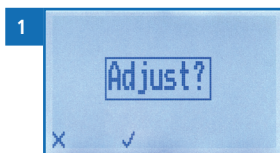
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## 1. Test equipment for the humimeter BMC

### 1.1 Verification process

**To do so:** The device and the test equipment must have a temperature between 20.0 °C and 26.0 °C.

1. Check whether the measuring chamber of the device is empty.
  - » When switching on, there must be no measuring material or contamination in it.
2. Switch on the measuring device and press the key  for 3 seconds.
3. Now the query for self-calibration (adjustment) of the device appears. Confirm this with the key  (Figure 1).
  - » This process is completed in a few seconds.
4. The measuring chamber must now be filled completely with the test medium (white plastic granules) slowly and evenly (Figure 2).
  - » Fill the measuring chamber from the gray rear side.
  - » Do not use a funnel or similar for filling the measuring device!
5. Spread the granules evenly on the top edge (Figure 3).
  - » No material may be compressed in the process!
6. Now the characteristic curve "Reference" must be selected with the arrow keys.
7. Readings between **11.0** and **13.0** indicate that the meter is correctly adjusted.
  - » If the measured values are below 11.0 or above 13.0, then contact Schaller Messtechnik GmbH or your dealer!
8. Pour the test medium back into the bucket.
  - » Make sure that no residues collect in the measuring chamber.







## **ATTENTION**

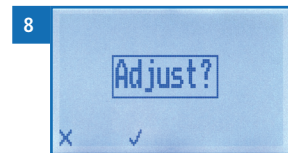
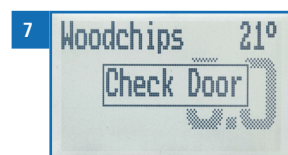
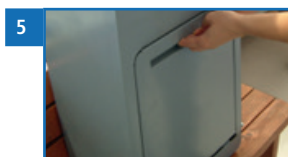
The test equipment must always be stored in a closed bucket to prevent moisture absorption.

## 2. Test equipment for the humimeter BMA-2

### 2.1 Verification process

**To do so:** The device and the test equipment must have a temperature between 20.0 °C and 26.0 °C.

1. Check whether the measuring chamber of the device is empty.
2. Place the empty measuring chamber correctly in the BMA-2 (Figure 4).
  - » The aluminum part must be centered in the plastic jaws of the drawer.
3. Now close the drawer and push it downwards (Figure 5).
  - » Usually happens automatically!
4. The round plug of the supplied power supply unit on the BMA must be connected (Figure 6).
5. Now connect the power supply unit to an earthed socket.
6. Now the humimeter BMA-2 switches on automatically.
  - » If this is not the case, press the  key for 3 seconds.
7. After switching on, the device performs a charging test. The display shows **Check Door** (Figure 7).
8. Now comes the query for self-calibration (Adjust) of the humimeter BMA. (Adjust?). Confirm this with the key  (Figure 8).
9. After successful self-calibration, the measurement window is visible on the display (Figure 9).





10. Now open the drawer of the humimeter BMA and remove the measuring chamber.

» This must first be raised, then it can be opened.

11. The measuring chamber must now be filled completely with the test medium (white plastic granules) slowly and evenly (Figure 10).

10



» Fill the measuring chamber from the side with the aluminum sheet.

12. Spread the granules evenly on the top edge.

13. Hang the filled measuring chamber correctly back into the drawer and close it.

14. Now the characteristic curve "Reference" must be selected with the two arrow keys.

15. After pressing the Start button, the measurement starts automatically.

» The LED now flashes blue and three symbols for the active measurement appear on the display.

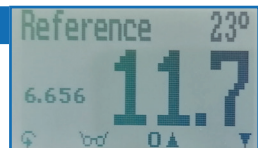
16. After the measurement is completed, the LED lights up blue again and the measured values are shown on the display.

17. Readings between **10.5** and **12.5** indicate that the meter is correctly adjusted (Figure 11).

» If the measured values are below 10.5 or above 12.5, then contact Schaller Messtechnik GmbH or your dealer!

18. Open the drawer and carefully remove the measuring chamber.

11



19. Pour the test medium back into the bucket.

» Make sure that no residues collect in the measuring chamber.



## ATTENTION

The test equipment must always be stored in a closed bucket to prevent moisture absorption.

### 3. Checking the calibration of the humimeter FSG

The calibration of the device should be checked every four weeks. Use the optionally available test equipment (Art.No. 11758) for checking.


#### 3.1 Checking the scale

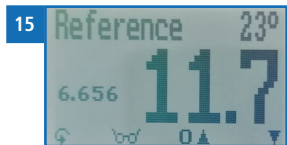
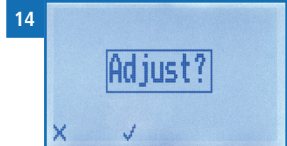
1. Switch on the scale.
2. Place the test weight on the scale (Figure 12).
3. The scale should now display a reading of 500 g (Figure 13).
  - » If the balance indicates a measured value with a deviation of more than 0.5 g, the balance can be readjusted (see the balance operating manual).



#### 3.2 Checking the device

**To do so:** The device and the test equipment must have a temperature between 17.0 °C and 23.0 °C.

1. Check whether the measuring chamber of the device is empty.
  - » Empty the device and clean the measuring chamber if necessary.
2. Switch on the device.
3. Now the query for self-calibration (adjustment) of the device appears. Confirm this with the key  (Figure 14).
4. Select the "Reference" characteristic curve using the arrow keys (Figure 15).
5. Place the empty clean measuring cup (0.5 liter) on the switched off balance and switch it on.
  - » The balance must indicate 0.0 g with an empty measuring cup, the measuring cup must not be weighed as well.
6. Fill the measuring cup with 900 g of the granules (Figure 16).



7. Now fill the measuring chamber of the instrument slowly and evenly with the 900g granules (Figure 17).

- » Do not use a funnel or similar for filling the meter.
- » Readings between **18.0** and **20.0** indicate that the meter is correctly adjusted.
- » If the measured values are below 18.0 or above 20.0, then contact Schaller Messtechnik GmbH or your dealer!



8. Instead of the 900g of test agent granules, fill 600g of granules into the measuring cup in order to carry out another additional test.

- » Readings between **13.0** and **15.0** indicate that the meter is correctly adjusted.
- » If the measured values are below 13.0 or above 15.0, then contact Schaller Messtechnik GmbH or your dealer!



## HINWEIS

The test equipment must always be stored in a closed bucket to prevent moisture absorption.

## 4. Checking the calibration of the humimeter FS2

The device's calibration should be checked every four weeks. For the check, the optionally available test equipment (article no. 11758) is required.

### 4.1 Checking the scale

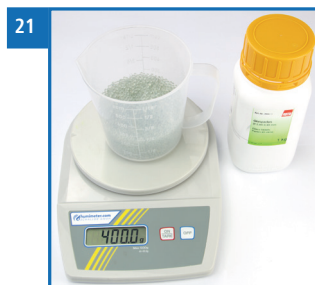
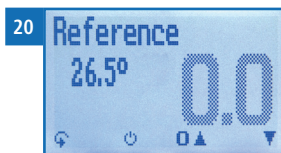
1. Switch on the scale.
2. Place the test weight on the scale (Figure 18).
3. The scale should show a value of 500.0 g now (Figure 19).
  - » If the balance displays a value with a deviation of more than 0.5 g, the balance can be readjusted (see manual of the scale).



### 4.2 Checking the device

**To do so:** The device as well as the test equipment must have a temperature between 17.0 °C and 23.0 °C.

1. Make sure that the measuring chamber of the device is empty.
  - » Empty the instrument and clean the measuring chamber if necessary.
2. Switch on the device .
3. Perform the automatic calibration
4. Select the product type „Reference“ by pressing the arrow keys (Figure 20).
5. Place the empty and clean measuring cup (0.5 liter) on the switched-off scale. Then switch on the scale.
  - » The balance must display 0.0 g with the empty measuring cup on it. The measuring cup must not be weighed.
6. Fill the measuring cup with 400 gram glass beads (Figure 21).



7. Now slowly and evenly fill the measuring chamber of the device with the 400 gram glass beads (Figure 22).
- » For the filling, no funnel or similar device may be used.
  - » Readings between **11.5** and **12.5** indicate that the meter is correctly adjusted. (Figure 23).



- » If the measured values are below 11.5 or above 12.5, then contact Schaller Messtechnik GmbH or your dealer!
8. Fill another 400 gram of glass beads into the measuring cup.



- » The glass beads filled into the device in point 7 must remain in the device.
- » It is not possible to weigh 800 grams of glass beads at once, as the scale has a maximum weighing range of 500 gram and will be damaged if overloaded.



9. Now slowly and evenly fill the measuring chamber of the device with the another 400 gram of glass beads.
- » For the filling, no funnel or similar device may be used.
  - » Readings between **21.0** and **22.0** indicate correct adjustment of the measuring instrument for 800 g glass beads (Figure 24).
  - » If the measured values are below 21.0 or above 22.0, then contact Schaller Messtechnik GmbH or your dealer!

## 5. Checking the calibration for the humimeter FS3

The device's calibration should be checked every four weeks. For the check, the optionally available test equipment (article no. 11758) is required.

### 5.1 Checking the scale

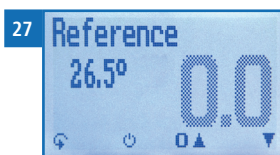
1. Switch on the scale.
2. Place the test weight on the scale (Figure 25).
3. The scale should show a value of 500.0 g now (Figure 26).
  - » If the balance displays a value with a deviation of more than 0.5 g, the balance can be readjusted (see manual of the scale).



### 5.2 Checking the device

**To do so:** The device as well as the test equipment must have a temperature between 17.0 °C and 23.0 °C.

1. Make sure that the measuring chamber of the device is empty.
  - » Empty the instrument and clean the measuring chamber if necessary.
2. Switch on the device.
3. Effect the automatic calibration.
4. Select the product type „Reference“ by pressing the arrow keys (Figure 27).
5. Place the empty, clean measuring cup (0.5 liter) on the switched-off scale. Then switch on the scale.
  - » The balance must display 0.0 g with the empty measuring cup on it. The measuring cup must not be weighed.
6. Fill the measuring cup with 400 gram glass beads (Figure 28).



7. Now slowly and evenly fill the measuring chamber of the device with the 400 gram glass beads (Figure 29).
- » For the filling, no funnel or similar device may be used.
  - » Readings between **11.5** and **12.5** indicate that the meter is correctly adjusted. (Figure 30).



- » If the measured values are below 11.5 or above 12.5, then contact Schaller Messtechnik GmbH or your dealer!
8. Fill another 400 gram of glass beads into the measuring cup.



- » The glass beads filled into the device in point 7 must remain in the device.
- » It is not possible to weigh 800 grams of glass beads at once, as the scale has a maximum weighing range of 500 gram and will be damaged if overloaded.



9. Now slowly and evenly fill the measuring chamber of the device with the another 400 gram of glass beads.
- » For the filling, no funnel or similar device may be used.
  - » Readings between **21.0** and **22.0** indicate correct adjustment of the measuring instrument for 800 g glass beads (Figure 31).
  - » If the measured values are below 21.0 or above 22.0, then contact Schaller Messtechnik GmbH or your dealer!

## 6. Checking the calibration for the humimeter FS4

The device's calibration should be checked every four weeks. For the check, the optionally available test equipment (article no. 11758) is required.

### 6.1 Checking the scale

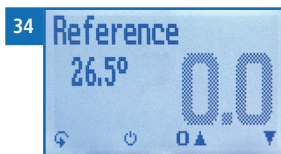
1. Switch on the scale.
2. Place the test weight on the scale (Figure 32).
3. The scale should show a value of 500.0 g now (Figure 33).
  - » If the balance displays a value with a deviation of more than 0.5 g, the balance can be readjusted (see manual of the scale).



### 6.2 Checking the device

**To do so:** The device as well as the test equipment must have a temperature between 17.0 °C and 23.0 °C.

1. Make sure that the measuring chamber of the device is empty.
  - » Empty the instrument and clean the measuring chamber if necessary.
2. Switch on the device.
3. Effect the automatic calibration.
4. Select the product type „Reference“ by pressing the arrow keys (Figure 34).
5. Place the empty, clean measuring cup (0.5 liter) on the switched-off scale. Then switch on the scale.
  - » The balance must display 0.0 g with the empty measuring cup on it. The measuring cup must not be weighed.
6. Fill the measuring cup with 400 gram glass beads (Figure 35).





7. Now slowly and evenly fill the measuring chamber of the device with the 400 gram glass beads (Figure 36).
- » For the filling, no funnel or similar device may be used.
  - » Readings between **11.5** and **12.5** indicate that the meter is correctly adjusted. (Figure 37).



- » If the measured values are below 11.5 or above 12.5, then contact Schaller Messtechnik GmbH or your dealer!
8. Fill another 400 gram of glass beads into the measuring cup.



- » The glass beads filled into the device in point 7 must remain in the device.
- » It is not possible to weigh 800 grams of glass beads at once, as the scale has a maximum weighing range of 500 gram and will be damaged if overloaded.



9. Now slowly and evenly fill the measuring chamber of the device with the another 400 gram of glass beads.
- » For the filling, no funnel or similar device may be used.
  - » Readings between **21.0** and **22.0** indicate correct adjustment of the measuring instrument for 800 g glass beads (Figure 38).
  - » If the measured values are below 21.0 or above 22.0, then contact Schaller Messtechnik GmbH or your dealer!

## 7. Checking the calibration for the humimeter BP1

The device's calibration should be checked every four weeks. For the check, the optionally available test equipment (article no. 11758) is required.

### 7.1 Checking the scale

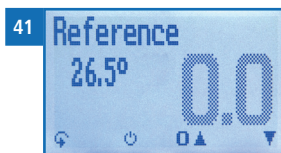
1. Switch on the scale.
2. Place the test weight on the scale (Figure 39).
3. The scale should show a value of 500.0 g now (Figure 40).
  - » If the balance displays a value with a deviation of more than 0.5 g, the balance can be readjusted (see manual of the scale).



### 7.2 Checking the device

**To do so:** The device as well as the test equipment must have a temperature between 17.0 °C and 23.0 °C.

1. Make sure that the measuring chamber of the device is empty.
  - » Empty the instrument and clean the measuring chamber if necessary.
2. Switch on the device.
3. Effect the automatic calibration.
4. Select the product type „Reference“ by pressing the arrow keys (Figure 41).
5. Place the empty, clean measuring cup (0.5 liter) on the switched-off scale. Then switch on the scale.
  - » The balance must display 0.0 g with the empty measuring cup on it. The measuring cup must not be weighed.
6. Fill the measuring cup with 400 gram glass beads (Figure 42).



7. Now slowly and evenly fill the measuring chamber of the device with the 400 gram glass beads (Figure 43).
  - » For the filling, no funnel or similar device may be used.
  - » Readings between **11.3** and **12.3** indicate that the meter is correctly adjusted. (Figure 44).



- » If the measured values are below 11.3 or above 12.3, then contact Schaller Messtechnik GmbH or your dealer!

8. Fill another 400 gram of glass beads into the measuring cup.



- » The glass beads filled into the device in point 7 must remain in the device.
- » It is not possible to weigh 800 grams of glass beads at once, as the scale has a maximum weighing range of 500 gram and will be damaged if overloaded.






9. Now slowly and evenly fill the measuring chamber of the device with the another 400 gram of glass beads.

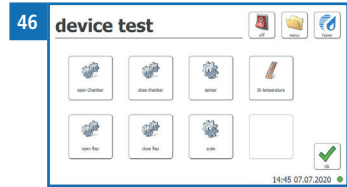
- » For the filling, no funnel or similar device may be used.
- » Readings between **20.3** and **21.3** indicate correct adjustment of the measuring instrument for 800 g glass beads (Figure 45).
- » If the measured values are below 20.3 or above 21.3, then contact Schaller Messtechnik GmbH or your dealer!

## 8. Checking the calibration of the FSA




The device's calibration should be checked regularly.

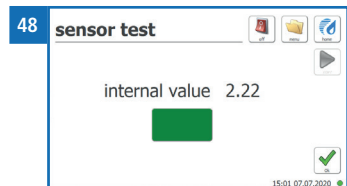
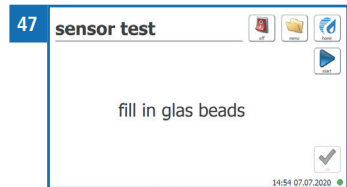
**To do so:** Optionally available test medium required


- Press the button **Menu** .
  - » The display will now show the main menu.
- Press the button **Settings** .
  - » The display will now show the settings.
- Press the button **Device test** .
  - » The display will now show the options for checking the measuring accuracy (Figure 46).



### 8.1 Sensor test


1. Press the button **Open Chamber** 
  - » By opening the measuring flaps completely, the flap opening adjusts itself correctly for the sensor test.
2. Check that the measuring chamber is free of impurities and other materials.
3. Press the button **Sensor** .
4. Fill the material funnel with the optionally available glass beads.
  - » Make sure that no other material is in the material funnel.
5. Press the button **Start**  for starting the measurement (Figure 47).
  - » Make sure that the measuring chamber is full with glass beads.
6. The display will show the current measuring value and the result of the test (Figure 48).
  - » The result of the test is a green bar (if the test is ok) or a red bar (if the test is not ok).



7. Confirm the test by pressing **Ok** .

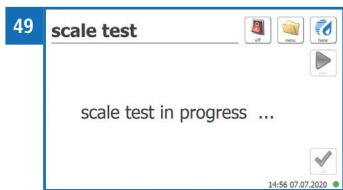
» Now you are back in the device test menu.

### 8.1.1 Scale test

1. Press the button **Scale** .

» The device now automatically determines the value without test weight (tare value) (Figure 49).

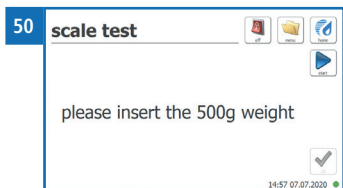
» For the scale test two points are determined: the value without test weight and the value with the optionally available test weight of 500g.




2. After determining the tare value, you will be asked to place the 500g test weight on the measuring cell (Figure 50).

» Position the test weight in the centre of the measuring cell. The dimensions of the test weight correspond to the width of the measuring cell (Figure 51).

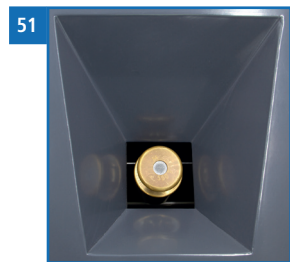
» The test weight must not have any contact with the material filling funnel!



3. Press the button **Start** .

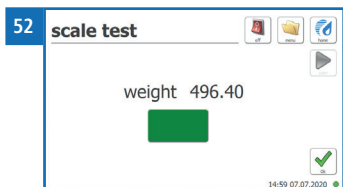
» The device now determines the value with test weight.


4. The display will show the current measuring value in grams and the result of the test (Figure 52).



» The result of the test is a green bar (if the test is ok) or a red bar (if the test is not ok).



» Remove the test weight.

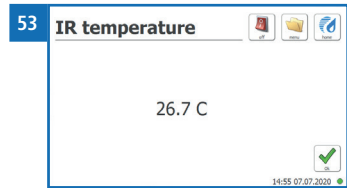


5. After removing the test weight, confirm by pressing **Ok** .

» Now you are back in the device test menu.

### 8.1.2 Infrared temperature

- Press the button **IR Temperature** 
- The display will show the currently measured infrared temperature in the measuring chamber of the device (Figure 53).
- Confirm the test by pressing **Ok** 
- » Now you are back in the device test menu.


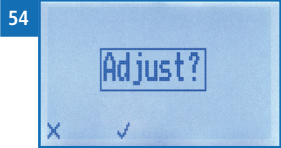




## 9. Checking the calibration for the humimeter SG1

The calibration of the device should be checked every four weeks. Use the optionally available test equipment for checking.

### 9.1 Verification process

**To do so:** The device as well as the test equipment must have a temperature between 17.0 °C and 23.0 °C.

1. Switch on the humimeter SG1.
2. Now the query for self-calibration (adjust) of the device appears. Confirm this with the key  (Figure 54).
- » Make sure that the sensor is free in the air and that the metallic plates do not touch any objects (table tops, etc.).
3. Select the "Reference" characteristic curve using the arrow keys.
4. Now check whether the bucket is completely filled with granules.
5. Insert the sensor of the humimeter SG1 completely into the bucket filled with granulate.
  - » The humimeter SG1 measuring device must be inserted into the granulate up to the black handle. (Figure 55)!
  - » Readings between **11.0** and **13.0** indicate that the meter is correctly adjusted (Figure 56).
  - » If the measured values are below 11.0 or above 13.0, then contact Schaller Messtechnik GmbH or your dealer!



### HINWEIS

The test equipment must always be stored in a closed bucket to prevent moisture absorption.



Climate  
Environment



Material



Food



Buildings



Bioenergy



Paper / Board

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

**Schaller Messtechnik GmbH**

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

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

info@humimeter.com, www.humimeter.com