

Artikelnummer Betriebsanleitung: 1170 0071  
Item no. operating instructions:

**PFEUFFER**

# Operating instructions

for the grain moisture meter

## HE lite



**Pfeuffer GmbH**  
Flugplatzstraße 70  
97318 Kitzingen  
GERMANY

Phone: + 49 9321 9369-0

info@pfeuffer.com  
www.pfeuffer.com

Revision 10/03.03.2023

Translation of the original operating instructions



---

These operating instructions form part of the moisture meter HE *lite* and must be available to the operating personnel at any time. They are intended for the owner of the system, the operating personnel and the specialists who are responsible for transport, setup, installation, commissioning, operation, maintenance, cleaning, disassembly and disposal.

The Pfeuffer GmbH has prepared and reviewed these Operating Instructions with the greatest care. However, no guarantee is made for its completeness or accuracy.

Subject to technical modifications.

---

## **Translation**

On delivery or subsequent sale to countries of the European Economic Area (EEA), the operating instructions must be translated into the corresponding language of the country of use. In the event of discrepancies in the translated text, the original operating instructions (German) must be referred to for clarification, or else contact the manufacturer.

## **Operating instructions in electronic format**

The original operating instructions (German) and translations of the original operating instructions can be requested in PDF file format via e-mail. Specifying the correct type designation and serial number is important for further processing!

## **Copyright**

This document is not allowed to be communicated or duplicated, utilized without express permission, which also applies to communicating its content. Offenders are liable to the payment of damages. All rights reserved with regard to patent claims or submission of design or utility patent. (DIN ISO 16016)

<b>1</b>	<b>Introduction</b> .....	<b>4</b>
1.1	Designated use .....	4
1.2	EU Declaration of Conformity.....	5
1.3	Structural features of the danger notes .....	6
1.4	Pictograms in the operating instructions.....	6
1.5	Identification .....	6
<b>2</b>	<b>Safety</b> .....	<b>7</b>
<b>3</b>	<b>Technical data</b> .....	<b>7</b>
3.1	Dimensions.....	7
3.2	Weight.....	7
3.3	Power supply.....	8
3.4	General data.....	8
<b>4</b>	<b>Delivery, transport and storage</b> .....	<b>8</b>
4.1	Scope of delivery .....	8
4.2	Transport and packaging .....	9
4.3	Intermediate storage.....	9
4.4	Return transport.....	9
<b>5</b>	<b>Operation</b> .....	<b>10</b>
5.1	Operation elements .....	10
5.2	Preparation of a sample .....	10
5.3	Filling the measuring cell and grinding .....	11
5.4	Measuring procedure.....	12
5.5	Automatic temperature correction .....	14
5.6	Maize, especially humid maize, e. g. freshly harvested maize .....	14
5.7	Sunflower seeds .....	14
<b>6</b>	<b>Settings – Instrument options</b> .....	<b>15</b>
6.1	Battery and Version .....	15
6.2	Offset.....	16
6.3	Code-Eingabe .....	16
6.4	Setting of the products.....	17
6.5	Reset .....	19
6.6	Average .....	19
6.7	Illumination .....	21
6.8	Contrast.....	22
6.9	Reset brightness and contrast.....	23
<b>7</b>	<b>Cleaning and maintenance</b> .....	<b>24</b>
7.1	Cleaning.....	24
7.1.1	Measurement cell.....	24
7.1.2	Threads and contact surfaces of the measurement cell.....	25
7.2	Maintenance .....	26
7.3	Power supply and battery change .....	26
<b>8</b>	<b>Malfunctions – causes and rectification</b> .....	<b>27</b>
<b>9</b>	<b>Supplements and accessories</b> .....	<b>27</b>
<b>10</b>	<b>Disposal</b> .....	<b>28</b>

## 1 Introduction

### 1.1 Designated use

The HE *lite* continues the thousandfold approved technique of its predecessor model HE 50, which has worked satisfactorily as versatile and precise device for agriculture.

The HE *lite* can be used for the determination of the moisture content of cereals, oilseeds and maize. While closing the measuring cell the sample to be measured is ground, homogeneously mixed and pressed together inside the measuring cell. Compared with his predecessor it convinces owing to the smaller design and improved ergonomics. The HE *lite* is thus an important companion on the field, during drying and when storing.

The HE *lite* is designed as a portable device to be operated by batteries.

The HE *lite* is not intended for private use.

#### **NOTICE**

The HE *lite* is exclusively intended for the aforementioned purpose.

Any other use beyond this definition or conversion of the HE *lite* without written consultation with Pfeuffer GmbH is regarded as contrary to the intended use.

Pfeuffer GmbH will not be liable for any damage resulting from this! The risk is the responsibility of the owner alone.

**It is not allowed to measure respectively grind solid and substantial matters made of metal, stone, concrete, liquids or other foreign components.**

The samples to be used for intended operation of the HE *lite* are obtained by the owner.

Correct treatment of these materials and the associated risks are exclusively the responsibility of the owner.

The owner must also provide notes on danger and notes on disposal.

The designated use also includes complying with the operating instructions as well as the maintenance and servicing conditions as defined in these operating instructions.

## 1.2 EU Declaration of Conformity



In accordance with the EU Directives:

- Electromagnetic Compatibility (EMC) 2014/30/EU
- Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) 2011/65/EU

Manufacturer: **PFEUFFER**

**Pfeuffer GmbH**  
Flugplatzstraße 70  
97318 Kitzingen  
GERMANY

Phone: +49 9321 9369-0  
info@pfeuffer.com  
www.pfeuffer.com

The manufacturer bears sole responsibility for issuing this Declaration of Conformity.

Person authorized to compile the technical documents:

Lothar Pfeuffer,  
General Manager

Product: Moisture meter HOH-EXPRESS **HE lite**

Serial no. \_\_\_\_\_

The aforementioned product complies with the requirements of the following harmonized standards:

DIN EN 61326-1:2013

DIN EN IEC 63000:2019

Any modification to the HE *lite* not agreed with us shall result in this declaration losing its validity.

Kitzingen, \_\_\_\_\_

\_\_\_\_\_  
Lothar Pfeuffer, General Manager

**1.3 Structural features of the danger notes**

The operating instructions from Pfeuffer GmbH contain instructions that you must comply with for your personal safety as well as to avoid damage to property. Information intended for your personal safety is highlighted by a warning triangle.








Comply with the following categories of danger notes and explanations of symbols:

 **CAUTION**

This is a warning of a possibly dangerous situation that will lead to slight or moderate injuries.

**NOTICE** This is a warning about harmful situations for the product and/or environment.

**1.4 Pictograms in the operating instructions**

	Information of particular importance and/or additional information		Warning of corrosive substances
	Comply with the operating instructions		Disposal via normal household waste prohibited!
	Warning		Recycling marking – Supply refuse for recycling
	Warning of electrical voltage		

**1.5 Identification**

The information in these operating instructions only applies to the device with the type designation indicated on the title page.

The type plate with type designation is located on the back of the measuring device. It is important to state the type designation and serial number with all queries. Only in this way will rapid processing be possible.

## 2 Safety

**NOTICE** Opening the housing and inappropriate operation will invalidate the warranty.

### General safety notes



The safety devices and safety information given in these operating instructions must be complied with.

- ⇒ Do not allow the HE *lite* to become damp during transport, storage, cleaning and operation.
- ⇒ Only use the HE *lite* when it is in correct condition.
- ⇒ Never touch the battery or the rechargeable battery with moist hands.
- ⇒ Only use genuine spare parts and accessories (see **chapter 9**).

## 3 Technical data

<b>HE <i>lite</i></b>	Electronic grain moisture meter
Products	Grains, maize, oilseeds
Parameter	Moisture

### 3.1 Dimensions

Measurement device:

Height	50 mm
Height with measurement cell in place	85 mm
Width	82 mm
Length	200 mm

Case:

Height	83 mm
Width	230 mm
Length	275 mm

### 3.2 Weight

Measuring device	approx. 0.9 kg
Measuring device and case	approx. 1.4 kg

**3.3 Power supply**

Battery or rechargeable battery	3 pcs. battery 1.5 V mignon cells size AA
---------------------------------	---

**3.4 General data**

Ambient temperature for storage and transport	-10 °C to +60 °C
Ambient temperature for measurement	+10 °C to +30 °C
Atmospheric humidity	20 % to 80 % non-condensing

**4 Delivery, transport and storage**

**4.1 Scope of delivery**



*Scope of delivery HE lite*

The standard scope of delivery to the owner comprises:

Item	Designation
1	Plastic housing with integrated electronic measurement device and bottom unit of the measuring cell
2	Top unit of the measuring cell with 11 ml filling measure
3	Brush for cleaning
4	Cleaning paintbrush
5	3 pieces batteries 1.5 V (round cell, size AA)
6	Carrying case with foam insert
not illustr.	Operating instructions

For the particular article numbers, refer to **chapter 9**.



## 4.2 Transport and packaging

Systems, machines and instruments from Pfeuffer GmbH are carefully checked and packaged before shipping; nevertheless it is impossible to rule out the possibility of transport damage entirely.

### Incoming check

⇒ Check for completeness with reference to the delivery note.

### In case of damage

⇒ Check the delivery for damage (visual inspection).

### In case of complaints

If the delivery suffered damage in transit:

- ⇒ Keep the packaging (to allow it to be checked subsequently by the forwarding company, or for sending back).
- ⇒ Immediately inform the supplier or Pfeuffer GmbH.

## 4.3 Intermediate storage

The shipping packaging of the HE *lite* and its accessories and replacement parts is designed for a storage period of six months from delivery.

⇒ Do not place any heavy objects on the packaging.

### Storage conditions

Enclosed, dry room with a room temperature between min. -10 °C and max. +60 °C

⇒ Keep the original packaging in case you need to send the equipment back.

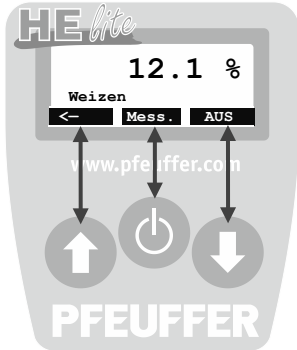
## 4.4 Return transport

⇒ If possible, use the original packaging and the original packaging material. If neither is available any longer, request new packaging from Pfeuffer GmbH.

**5 Operation**

**NOTICE** Protect the HE *lite* against direct sunlight and extreme temperatures in excess of +50 °C!

**5.1 Operation elements**



The HE *lite* switches off automatically after 30 seconds, if no button was pressed in the meantime. The display has four lines. In the last line the current function of the buttons is indicated in white letters on black background. In the picture on the right, arrow to the left, measure and off.

The instrument is equipped with three operational buttons. The arrow buttons and the On/Off-button have additionally the function indicated on the display. The appropriate function is indicated above each button.

**5.2 Preparation of a sample**

**NOTICE** Optimum measurement results can be achieved with **cleaned samples**.

Extraneous constituents (e.g. stones, straw, husks, weed seeds, green grains or pieces of stalk from maize) must be removed prior to the measurement!

The temperature correction is performed automatically.

Ambient temperature for measurement	Moisture
+10 °C to +30 °C	20 % to 80 %, non-condensing

Measurements below or above the specified temperature are possible, but do represent a risk of yielding inaccurate measurement values!

Allow the product samples to adjust to the ambient temperature! This applies in particular to:

- Frozen samples, because the condition of aggregation of water is significant for the measurement.
- Hot samples, e.g. taken during the drying process.

**NOTICE** Products with extreme **surface moisture** must be dried before homogenization.

Measurement results from samples that already give off a fermentation smell may be subject to greater errors than freshly harvested samples.

To achieve an exact measurement result, it is necessary to have a **sample quantity** of approx. **11 ml** (corresponds to the filling level in the upper part of the measuring cell).

### 5.3 Filling the measuring cell and grinding

The measuring cell is equipped with special ribbing allowing the crushing of grain and oil seeds.

**Open** the top unit of the measuring cell anticlockwise.

**Fill** the filling level (11 ml) inside the upper part of the measuring cell **to the brim** with the cleaned sample:



**Empty** the contents of the filling measure **evenly** into the bottom unit of the measuring cell:



Place the top unit of the measuring cell and screw it down clockwise up to the limit stop:



This position guarantees that the measuring cell is always closed tightly exactly in the same way.

---

**NOTICE** Close the measuring cell at one go. Repeated back-and-forth movement is not necessary and can worsen the measuring result.

---


#### 5.4 Measuring procedure

---

**NOTICE** Remove moist milled material from the measurement cell immediately after performing the measurement!  
Clean the measurement cell and the spindle after each measurement, see **chapter 7.1**.  
The measurement cell is equipped with special fluting to allow all grain-type products to be crushed.  
To avoid damage, the measurement cell is not allowed to be screwed together bringing the milling disks into contact without any material fill.


---




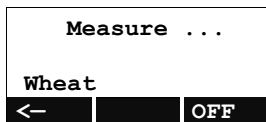
Switch on HE *lite*: Press the central button .



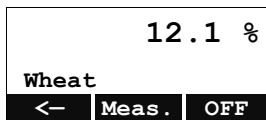
The display indicates the product list (see picture below) and the function of the three buttons. The product measured last is marked by an arrow on the display.

Choose the product by means of the arrow buttons:  





If the arrow button is next to the product to be measured, press the central button marked by **Meas.** in order to start the measurement: .



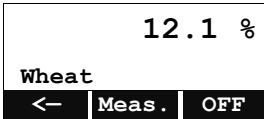
**Measure...** indicates on the display.




Then the display indicates the measured moisture reading and the previously selected product. The temperature of the sample is corrected automatically.

To measure a different product press the button  ( $\leftarrow$ ) select it by means of the arrow buttons  and press the central button for measure = **Meas.** .

**NOTICE** Repeated pressing of the measure button can lead to slightly different measuring results, since the calibration is optimized for a single measurement.



To switch off the device press the button  **OFF** or wait for 30 seconds.

If the measuring cell is empty or if the sample is too dry, the reading which was too low or too high, e.g. < 9 % depending on the selected calibration, indicates on the display.

Product and measuring ranges:

- Wheat..... 9 to 35 %
- Rye..... 9 to 35 %
- Barley ..... 7 to 38 %
- Oats ..... 8 to 35 %
- Rapeseeds ..... 4 to 30 %
- Maize ..... 8 to 45 %
- Sunflower ..... 5 to 25 %
- Triticale..... 9 to 35 %

### 5.5 Automatic temperature correction

The temperature correction is executed automatically. Reliable results are obtained at ambient temperatures between +10 °C to +30 °C. For optimal results the device and the sample to be tested should have nearly the same temperature. Warm grains just taken from the drier should be measured after cooling down. Cold grain should be allowed to warm up to ambient temperature, e.g. by spreading it out on a sheet metal.

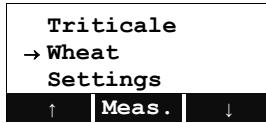
### 5.6 Maize, especially humid maize, e. g. freshly harvested maize

For maize, use well-filled measuring cup (slightly heaped). When changing from moist to very dry samples, e.g. during drying we recommend to carry out a "blank test". The measurement takes place as with the normal measurement, but the result is not taken into consideration. For this purpose, fill the measuring cell, close it, open it and refill the measuring cell again with the filling measure slightly heaped with maize, close it and only then carry out the measurement.

### 5.7 Sunflower seeds

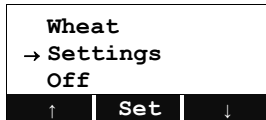
For sunflower seeds, measure with a lightly heaped measuring cup.

## 6 Settings – Instrument options

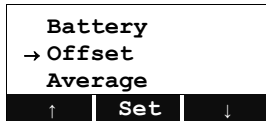


The submenu **Settings** allows the inquiry and modification of different parameters. To select the menu, proceed as follows:

Switch on the device. The display indicates the product list and the function **Meas.**



Select **Settings** by means of the arrow buttons  $\uparrow$   $\downarrow$  and press the central button  $\odot$ .



Now the display indicates the menu items: Battery, Offset and Average.

Change to the appropriate menu items by pressing  $\uparrow$   $\downarrow$ :

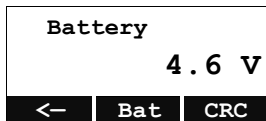
Menu:	Function:
Battery	Measurement of battery voltage
Offset	Calibration function, modification of the reading
Average	Setting of average calculation during the measurement
Lighting	Setting the backlight in the display
Contrast	Setting the display contrast
<----	Return to the initial menu

The selected menu item is called by pressing the central button  $\odot$ .

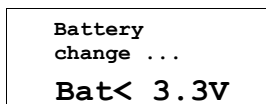
### 6.1 Battery and Version



To measure the battery voltage select **Battery** and press the central button  $\odot$ .

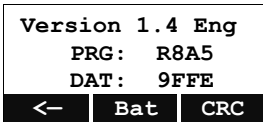


Normal voltage is 4.7-4.5 V, new batteries have been inserted.



If the voltage is  $< 3.3$  V no more measurements can be carried out, the HE *lite* switches off automatically. The batteries must be replaced.

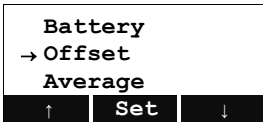
Example:



The right button **CRC** allows the user to inquire the software and calibration version. To return to the function battery voltage measurement, press the button **Bat**.

By pressing  $\uparrow$  ( $\leftarrow$ ) you return to the submenu **Settings**.

### 6.2 Offset



Each single product can be calibrated by means of an additive constant factor (Offset) within a possible range of -2 % to +2 % (in steps of 0.1 %). In addition to this the device offers the possibility to enter a factor, allowing linearly ascending corrections.

Select the function **Offset** and then press the central button **Set**  $\odot$ .

### 6.3 Code-Eingabe



A code inquiry prevents unintentional adjustments of the device. **CODE 001** is indicated on the display.

Enter the figure **2** by means of the left arrow button  $\uparrow$ .



and move to the next figure by pressing the central button  $\odot$ .

Set figure **4** by means of the left arrow button  $\uparrow$



and move to the next figure by pressing the central button  $\odot$ .

Enter the figure **3** by means of the left arrow button  $\uparrow$ .


Now the correct code **342** indicates on the display and must be confirmed by pressing  $\odot$ .



## 6.4 Setting of the products

→ Barley
Oats
↑ Set ↓

After entering the code (see **chapter 6.3**) the product list is indicated on the display in the same way as for the product selection during the measurement.



Select the product to be adjusted by means of the arrow buttons and confirm it by pressing the central button .

Barley
→ Offset: 0.0
Gain : 1.000
- Set +

On the display the calibration factors **Offset** (constant factor, factory setting **0.00**) and **Gain** (proportional factor, factory setting **1.000**) are indicated.

Example:

Barley
→ Offset: -0.5
Gain : 1.000
- Set +

The reading can be increased or decreased by means of the arrow buttons  .

### NOTICE

The calibration of the device must be prepared carefully. Pay attention to a homogeneous sample material without dirt and green grain portions. Do not change the calibration after one measurement only. Carry out at least three measurements with the HE *lite* and calculate the average. Calculate the average deviation to the comparative device.

Example:


You obtained the values 15.7 %, 16.0 % and 15.9 % with the same sample. The average reading is 15.9 %.

The grain dealer measures 15.4 % with his device, which is 0.5 % less.

The HE *lite* would therefore display 0.5 % too much.

In this case the parameter offset must be set to **-0.5** so that also the HE *lite* indicates an average reading of 15.4 %.

Control the modification by means of your initial sample.


Change to the next factor **Gain** by pressing the central button .

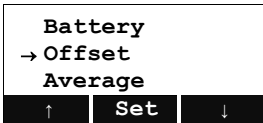
Barley
Offset: -0.5
→ Gain : 1.000
- Set +

The effects of increasing differences with increasing moisture contents can be corrected by means of the multiplicative factor gain.

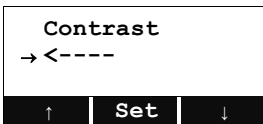
For this purpose at least two samples, if possible, of different moisture contents are required, since otherwise the effects cannot be determined exactly.

Since the procedure is complicated (determination of the gain of a straight line) we recommend to consult the manufacturer before changing the gain!

Change the factor by means of the arrow buttons and terminate the input by pressing the central button .




Select again **Offset** and the next product to be changed, etc.




Select <---- with the arrow buttons



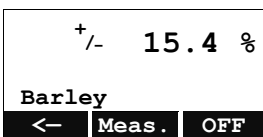
and press the central button  in order to return to the main menu.



Now select the menu item **Off** and switch off by pressing the central button .

Refill the measuring cell, switch on the device and carry out a test measurement with the initial sample.

Example:



The change of the calibration is marked on the display by a  $\pm$  sign.

Thus you can see immediately during the measurement, whether the test is carried out with the original calibration.

We recommend to document the changes of the calibrations, so that you can always retrace, whether the measurement was carried out before or after a modification (see example).


Date	Product	Result HE lite before	Result grain dealer	Factor Offset (factory=0)	Factor Gain (factory=1)	Result HE lite afterwards
01.03.2023	Wheat	15.9	15.4	-0.5	1.0	15.4

## 6.5 Reset

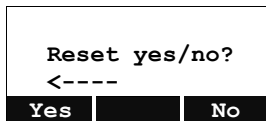


In order to reset all Offset settings to **0** and all Gain settings to **1** (factory setting), select the item **Reset** at the end of the product list of the selection menu.




Press the central button .

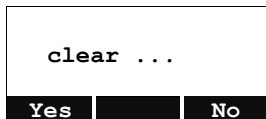
Display:



Are you sure that you want to clear all calibration settings changed by you?

Press **Yes**  in order to clear all offset values.

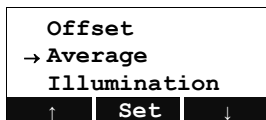
Display:




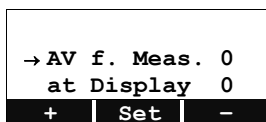
The factors of all products are reset to the original setting. Check the reset by carrying out a measurement. Now no more  $\pm$  signs may indicate before the result!

## 6.6 Average

The HE *lite* is equipped with an average function, allowing you to calculate automatically the average of up to six measurements. This function is particularly useful, in case of very different conditions (close to the forest, bottom of valleys, etc.) in order determine the average of the moisture reading to be expected. For the setting of the average function please proceed as follows:



Select the function **Average** and confirm by pressing the central button .

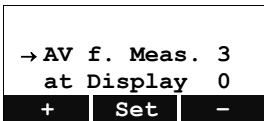


Two parameters are indicated on the display.

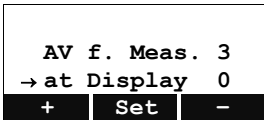
**AV f. Meas.** means the number of measurements included in the calculation. Adjustable from **1** to **6**; factory setting **0**, i. e. the average calculation is switched off.

**at Display** means the number of measurements of one product which are indicated simultaneously (adjustable as a function of **AV f. Meas.**). Figure 1 means just the same indication as it is during the standard measurement, only the last reading and the number of values included in the average calculation are indicated. Figure 2 to 6 means that all single readings included in the average reading are indicated during the measurement. In both cases the average reading is indicated in the line before last next to the selected product.

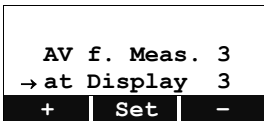
The following paragraph describes the procedure of the average function and the simultaneous presentation of 3 measurements:



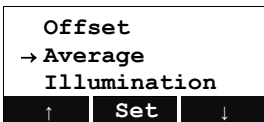
Change the **AV f. Meas.** to **3** by means of the left button  $\uparrow$ . Confirm it by pressing the central button  $\odot$ .



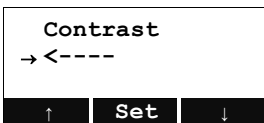
The arrow moves to the line below to **at Display**.



Change **at Display** to 3 by means of the left button  $\uparrow$ . Then confirm by pressing the central button  $\odot$ .



The device returns to the menu **Settings**.



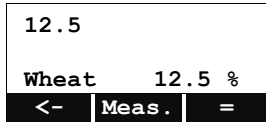
To move to the main menu, select <---- with the arrow buttons  $\uparrow$   $\downarrow$ .



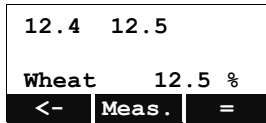
and confirm by pressing the central button  $\odot$ . On the display indicates:



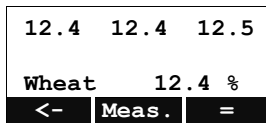
Select the lowest menu item **Off** and switch off by pressing the central button  $\odot$ .



Refill the measuring cell, switch on the device and carry out a test measurement with the new setting. Now the first measurement is indicated on the upper left and the calculated average down on the right.

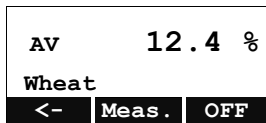



Refill the measuring cell and repeat the measurement. The current second measurement is indicated on the upper left. The first measurement appears at the second position.



Refill the measuring cell and repeat the measurement.

You can repeat the measurement arbitrarily. The HE *lite* stores the last three measurements according to the previously selected settings, i. e. after the fourth measurement only the average reading of measurement 2, 3 and 4 is calculated. The first measurement is cleared.

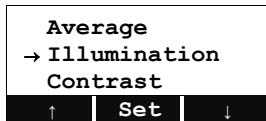


For a better representation the figures can be displayed in the usual font size by pressing the button  at the end of your series of measurements.

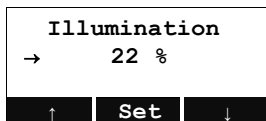
Thus the single readings are cleared and you can start a new series of measurements. If you want to terminate the average calculation of a series of measurements after two measurements only, this can be done by pressing the button =. A change of the product also leads to the deletion of the stored measurements.




## 6.7 Illumination

From serial number 1170 3000 the display illumination can be adjusted by means of the software. To set this function please proceed as follows:

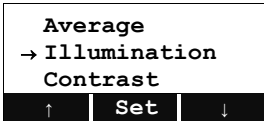


Select the function **Illumination** and confirm by pressing the central button .

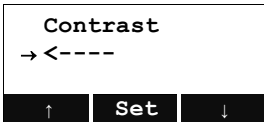


Choose the requested brightness with the buttons   and then confirm by pressing the central button .

**NOTICE** We recommend to switch off the display brightness during the outdoor use to guarantee a longer lifetime of the batteries. The higher the brightness, the lower the lifetime of the batteries.



The device returns to the menu **Settings**.



To move to the main menu, press <---- ↑↓.



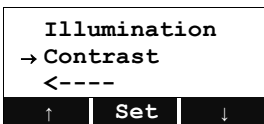
and confirm by pressing the central button . The display indicates:



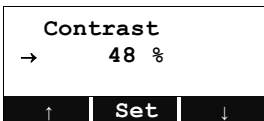
Select the lowest menu item **Off** and switch off by pressing the central button .

### 6.8 Contrast

From serial number 1170 3000 the display contrast can be adjusted by means of the software. To set this function please proceed as follows:



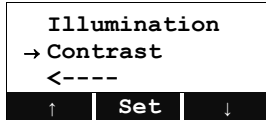
Select the function **Contrast** and confirm by pressing the central button .



Choose the requested contrast by means of the arrow buttons ↑↓ and then confirm by pressing the central button **Set** .


**NOTICE**

We recommend to leave the display contrast in the average range. An all-too high contrast can lead to visible spots on the display. If the contrast is too low, the display reading is hardly legible.




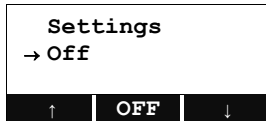
The device returns to the menu **Settings**.




To move to the main menu, press <---- .



and confirm by pressing the central button . The display indicates:





Select the lowest menu item **Off** and switch off by pressing the central button .

## 6.9 Reset brightness and contrast

From serial number 1170 3000 the contrast and the brightness of the display can be adjusted by means of the software. Thus it might happen that the display will not be legible anymore. However, there is a possibility to reset the factory settings.



For this purpose, keep both arrow buttons pressed simultaneously  and then briefly press the central button .

**7 Cleaning and maintenance**

**NOTICE** Opening the housing and inappropriate operation will invalidate the warranty.  
To ensure trouble-free operation, it is essential for the HE *lite* to be cleaned and maintained at regular intervals.

**7.1 Cleaning**

**NOTICE** Do not use any sharp objects or tools for cleaning. Only use objects that are expressly intended for this purpose.  
During cleaning, make sure that no water, steam or dust can penetrate the electronics area.



Cleaning and maintenance intervals:

**AEM** = After each measurement

**AR** = As required

**7.1.1 Measurement cell**

**NOTICE** Do not empty the measurement cell top part or bottom part by knocking it out!  
This can lead to damage to the measurement cell.



To open the measuring cell **unscrew the top unit anticlockwise.**





Use the small hand brush to clean the top unit of the measuring cell. Make sure that the grinding disc shows downwards when brushing off, so that no coarse meal falls into the thread and leads to dirt accumulations.

Interval: **AEM**



Empty the bottom unit by turning it and clean it by means of the paintbrushes with hard or soft bristles depending on the moisture content or the glueing of the sample.

Interval: **AEM**



With very moist, oily and sticky products, it is recommended that you mill a dry sample of cereal (approx. 14 % moisture content) in the measurement cell as a cleaning measure.

Residues will be bound up with the meal and can be removed easily.

### 7.1.2 Threads and contact surfaces of the measurement cell

The threads and contact surfaces of the measurement cell can become blocked with oily products after frequent measurements. This means the measurement cell can only be screwed closed by exerting increased force.

Measure	Interval
Clean the threads of the spindle on the measurement cell bottom part using the hand brush or hard brush.	<b>AR</b>
Clean the top contact surface on the spindle of the measurement cell bottom part using a clean, lint-free cloth.	<b>AR</b>

### 7.2 Maintenance

Maintenance is a part of servicing and refers to the scheduled cleaning, checking and replacement of wearing parts. The aim of maintenance is to maintain the full functionality of the device over its lifetime.

The HE *lite* should therefore be checked for wear and tear at regular intervals. The inspection intervals depend on the significance of the measured value, the frequency of use and the ambient conditions to which the HE *lite* is exposed. Only through regular checks (visual inspection) can damage to the device caused during use be detected early and reliably.

If you are unsure whether your device is still completely ready for use, Pfeuffer GmbH's professional service team will be pleased to assist you.

Wear parts and possible wear:
Milling discs: flaking of the chrome plating, abrasion of the fluting
Spindle on the measurement cell bottom part: dirt in the threads
Contact spring inside the measurement cell top part: dirt in the top part

### 7.3 Power supply and battery change

**Battery  
change ...  
Bat < 3.3V**

The power is supplied by three 1.5 V batteries (mignon cells size AA) commercially available. The battery voltage must be > 3.3 V.

Otherwise the HE *lite* switches off automatically! A faulty measuring due to low battery is not possible. By means of the option **Battery** (refer to **chapter 6.1**) the supply voltage can be checked. The device warns before a measurement with **Bat < 3.3 V**.

The old battery then has to be replaced by a new one. For this purpose, the battery box must be opened at the bottom surface.



Pay attention to the **+** and **-** marking when replacing the batteries.

Bend the nozzle of the cover forwards after closing the battery box, until it locks into place.

### **CAUTION**



#### **A non-rechargeable battery cannot be recharged!**

This can lead to dangerous acid leakage.

Acid contact can cause skin irritation, burns and corrosion.



Return used batteries/rechargeable batteries to a municipal collecting facility or retail outlet.

Disposal as normal domestic waste is prohibited, and represents a violation of battery legislation.

## 8 Malfunctions – causes and rectification

### **Display indication: < 9 % or similar reading (depending on the product)**

The sample is too dry or too moist. An electrical defect might also be possible. Repeat the measurement by means of a sample of higher / lower moisture content. If the display constantly indicates the message e.g. "< 9 %" please get in contact with the service department.

### **Display indication: Bat < 3.3 V**

The battery voltage is too low. Please insert new batteries.

## 9 Supplements and accessories

### **NOTICE**

It is expressly pointed out that spare and accessory parts not supplied by us will not have been tested and approved by us either. Installing and/or using such products can thus lead to negative changes to the design properties of the HE *lite* under certain circumstances.

Pfeuffer GmbH cannot be held liable for damage attributable to the use of non-genuine parts and non-genuine accessories.

Standard parts can be obtained from the dealer.

Product	Item number
Cleaning hand brush	3190 0050 )*
Cleaning paintbrush (soft bristles)	3190 0027 )*
Cleaning paintbrush (hard bristles)	3190 0017 )*
Battery 1.5 V mignon cells size AA (LR6 AM3)	3254 0070 )*
Carrying case for HE <i>lite</i>	3111 0270

)\* minimum quantity delivered 3 units per article!

**10 Disposal**



Disposal with the household garbage is forbidden! The HE *lite* must be disposed of in accordance with the applicable local environmental regulations (directive for electrical and electronic equipment waste WEEE 2012/19/EU).



Return used batteries/rechargeable batteries to a municipal collecting facility or retail outlet. Disposal as normal domestic waste is prohibited, and represents a violation of battery legislation.



**Special waste**

Oil, cleaning agents, contaminated cleaning tools (brush, rags, etc.) must be disposed of according to the local regulations and in accordance with the notes in the manufacturers' safety data sheets.