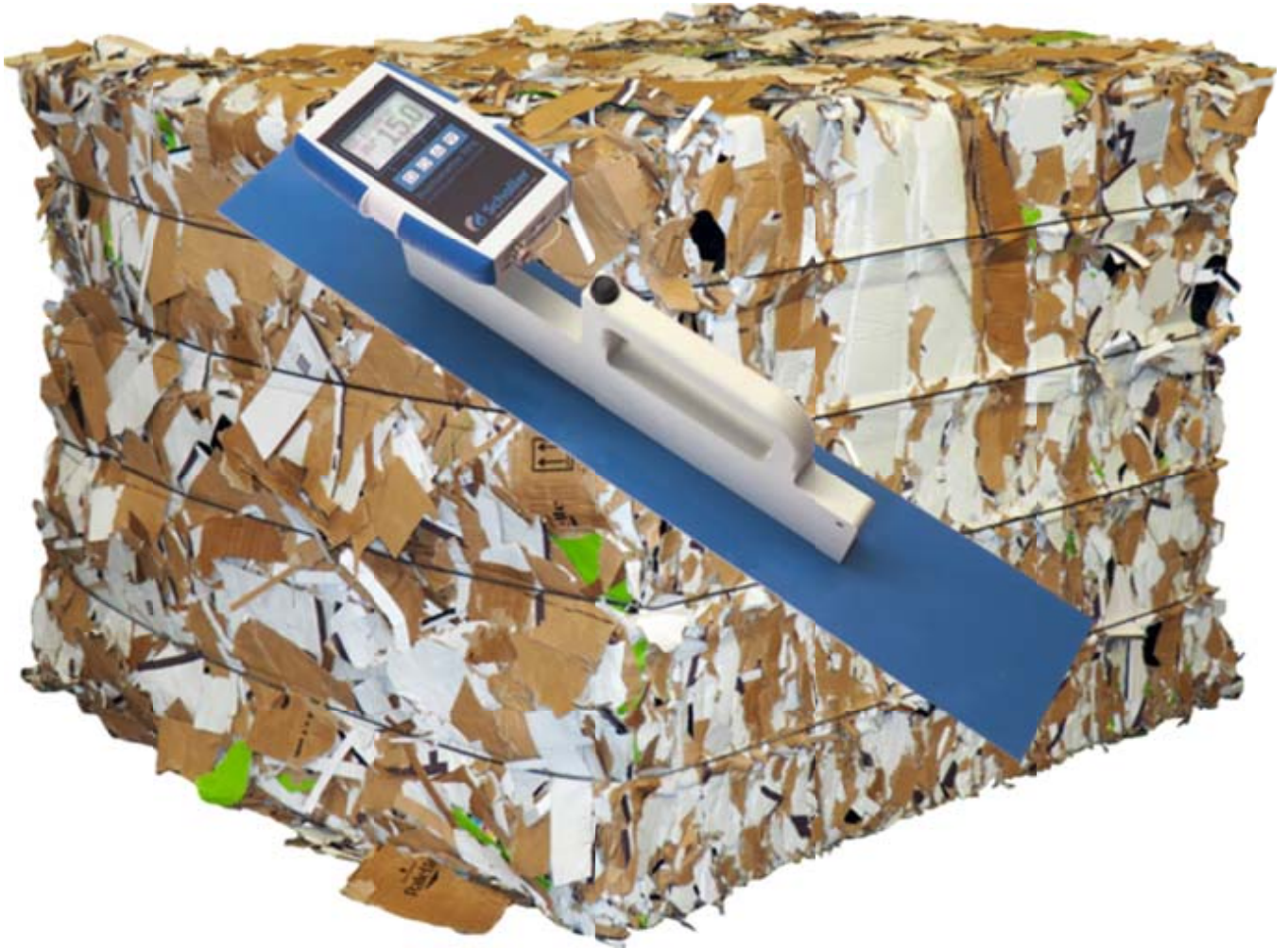# User manual

recycling paper moisture meter

humimeter RP6

Measuring procedure

1.) For a correct measurement please ensure that the device has the same temperature (+/-3°) than the material under test. For that reason, let your humimeter adjust to the surrounding temperature of the material for at least half an hour before measuring (protect from direct sunlight!).

2.) Switch on the device: Press the ⏻ **key or the button on the handle bar for 3 seconds**.

3) Please note that the accuracy of the measurement depends on the size of the contact area of the sensor. Hold the device with adequate pressure to the paper bale in one hand and ensure that the whole sensor area rests on the paper bale. **There must not be any wire below the sensor**. The display instantly shows the water content.

4.) In the same way, take further measurements at different positions of the paper bale and save the measuring values. The saving is done in the store menu by pressing the button on the handle bar shortly. The storage was successful when the number in front of the symbol 🔲 increased.

The humimeter RP6 automatically calculates the average moisture content of the saved values. Please avoid measurements at apparently wet areas of the bale, as they do not represent the average moisture content of the bale.
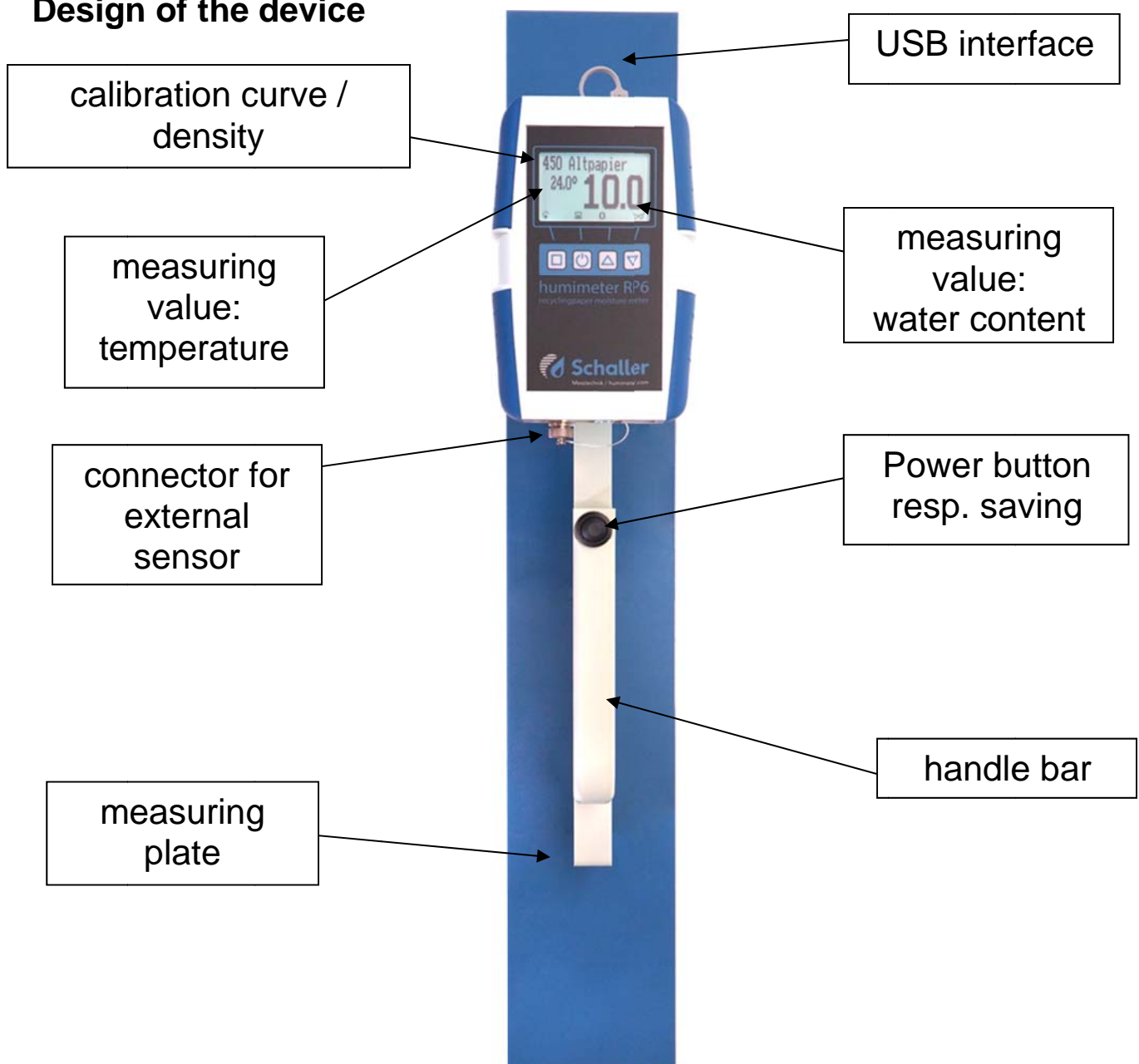
To name the saved results press the 🖉 button.

5.) In the type selection menu (press 🔦 once) you can change the calibration curve resp. the switch setting using the arrow keys.

Start-up

Your humimeter RP6 moisture meter for determination of water content of recycling paper bales is delivered with loaded accumulator and can be used immediately. Switch on the device by pressing the power button (⏻) for 3 sec. Now the display starts glowing. During the startup for a short time the serial number, the software version, the battery state and the free memory space are displayed. After that the humimeter RP6 is ready to use. For switching off the device, press the power button (⏻) for 5 seconds. If you do not push any button for 4 minutes, the device switches off automatically.

Design of the device

calibration curve / density	USB interface
measuring value: temperature	measuring value: water content
connector for external sensor	Power button resp. saving
measuring plate	handle bar

List of calibration curves

Pressing the ▲ or ▼ key in the measuring window for at least 3 seconds, a list of all available calibration curves will appear. Select your desired calibration curve by pressing ▲ or ▼ and confirm by pressing the ⏎ key. Calibration curves displayed in grey are not available for the actual sensor and cannot be chosen.
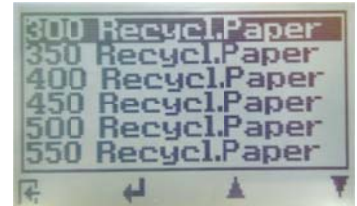
Determination of the paper type

Due to the addition of diverse substrates during paper manufacturing and diverse paper densities resp. compressed densities, the adequate calibration curve has to be determined once before measuring. This is effected by a comparison measurement by calibrateable methods corresponding to norm E20287 (drying chamber resp. kiln drying). For that, take samples from different places all over the measuring field, at least the size of the sensor plate and up to a depth of 50 cm.

The compressed density is determined as follows:

Calculate the volume:

*Volume (m³) = length(m) * breadth(m) * height(m)*

and weigh the material.

Specific wet weight (kg/m³) = weight (kg) / volume (m³)

calibration curve	paper type	switch setting
300 Recycl.Paper	Corrugated paper, white multi-layer cardboard	S1
350 Recycl.Paper	Chipboard, mixed cardboard without corrugated paper	S2
400 Recycl.Paper	Light newsprint	S3
450 Recycl.Paper	Newsprint, paper and cardboard packaging	S4
500 Recycl.Paper	Mixed wastepaper, assorted coloured documents, offset paper	S5

550 Recycl.Paper	Coated paper	S6
600 Recycl.Paper	Multiprint, white documents wood-free	S7
650 Recycl.Paper		S8

Menu level overview

Store menu

Watch or edit saved logs
Number of logs
Enter new log

Type selection menu

Next calibration curve
Previous calibration curve
Switch off

Main menu

Switch upper
Switch lower
Open this menu/enter
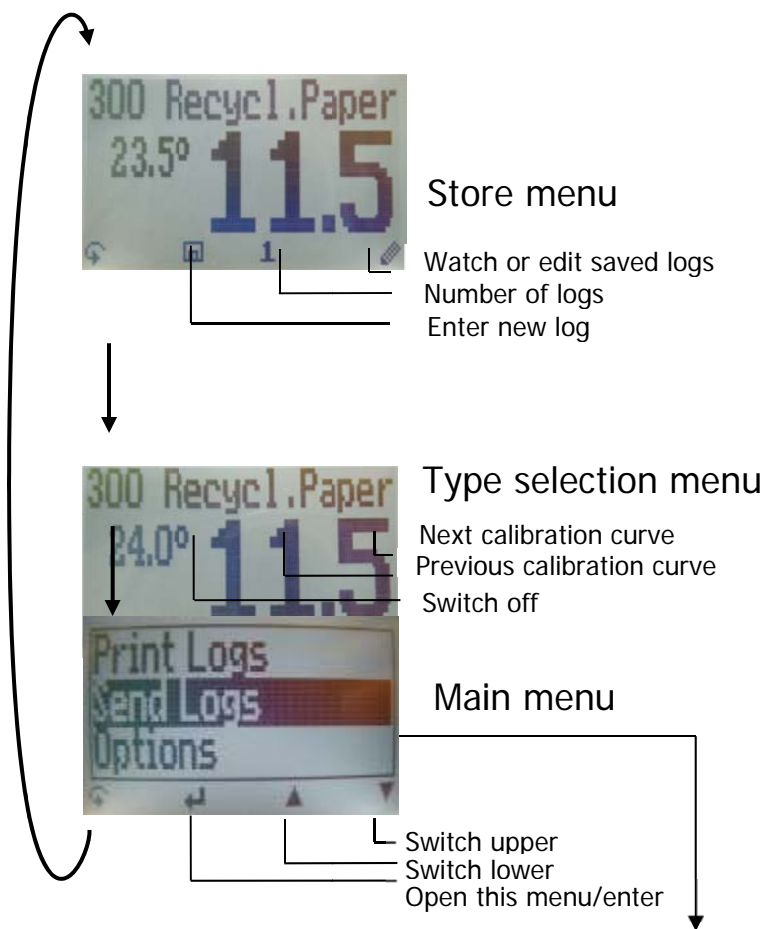
Keypad symbols

Measuring window:

↻	rolling menu
⏻	power ON / OFF
▲	switch upper
▼	switch lower
⊟	save
⊞	hold
ʻᴏᴏʼ	watch saved data
✎	enter supplier´s data

Menu:

↵	enter
▲	switch upper
▼	switch lower
⬅	exit
0..9	enter numbers
A..Z	enter letters
▸	next or right
◂	left
✓	yes
✗	no
⇧	Shift
OK	OK

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┌─────────────────────────────────────────────┐
│              Overview main menu              │
│                                              │
│   Edit logs              Options             │
│       Manual logs            Date/time       │
│       Clear logs             Datalog time    │
│                              Language        │
│   Print logs                 Unlock          │
│       Last log               °C / °F         │
│       All logs               Lighting time   │
│       Clear logs             Auto off time   │
│                              Setting         │
│   Send logs                  Materialcalib.  │
│       Manual logs            Password        │
│       Clear logs             Reset           │
│                          Status              │
│                                              │
└─────────────────────────────────────────────┘
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Operating the instrument

Switching on:	Press ⏻ for three seconds.
Setting date and time:	two times ↻ -> Options -> date/time
Saving:	Press the ▣ button to save the shown measuring value. To name the saved results press the ✎button.
Hold:	Select the menu item „Options", then select „datalog time". Activate the Hold function there and change to the measuring window again. When the ▣ symbol is pressed, the shown measuring value is frozen on the display until another button is pressed.
Display lighting:	Press the ⏻ key briefly; the display lighting switches off automatically after approx. 30 seconds. The lighting is activated automatically when pressing any button.
Switching off:	Press the ⏻ key in the measuring window for 5 seconds. The instrument switches off after releasing the key. The instrument switches off automatically after approx. four minutes.

Measuring range:	If the measuring value is blinking in grey, the measuring range has been exceeded. In this case the measuring accuracy is decreasing.	

Activation of the "superuser" function

2 times ⊕ - *Options* – Unlock

Enter the 4-digit password by using the ▲ button (standard is the 4-digit serial number) and confirm by pressing the ↵ button.

Measurement with plug-in sensor
(Available optionally)

To ensure accurate measuring values let the plug-in sensor adjust to the surrounding temperature of the material for at least half an hour before starting your measurement. Then plug the sensor into the connector. Your humimeter automatically recognizes the sensor and activates the corresponding air humidity calibration curves. The following calibration curves are available:

Calibration curves
Relative air humidity
Absolute moisture wastepaper
Absolute moisture Kraftliner
Absolute moisture Testliner
Absolute air humidity

Plug the sensor into the material to measure and let it adjust for approx. 15 minutes. Switch on the humimeter RP6 and select the desired calibration curve. The display immediately shows the measuring result.

The calibration curve "Absolute moisture wastepaper" has been developed from a mixture of different paper types and is determined for a quick orientation. The fine adjustment to special applications or particular paper types has to be effected by the customer resp. can be effected by Schaller GmbH for a fee.

Adjustment (device calibration)

Switch on the instrument and select the calibration curve „test characteristic" using the arrow keys. Hold the humimeter RP6 up in the air with one hand. There must not be any wall or other objects within a distance of 1 meter from the device.

The measuring value shown on the display should range between **+1.5** and **-0.5**. If the measuring value is out of this range, we recommend an adjustment by zero-point calibration. This can be effected as follows:

Press the left key twice to reach the menu level. Navigate to the menu item „Options" using the arrow keys. Confirm by pressing the ↵ button.
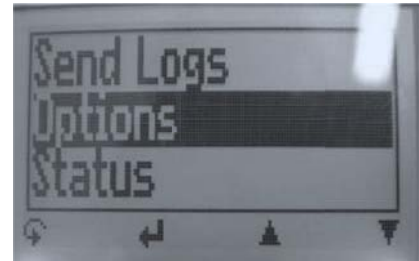
Select the menu item „Calibrate" using the arrow keys and confirm by pressing ↵.

This menu item has to be unlocked. For that enter the 4-digit serial number of your humimeter RP6. You can find it on the top right edge of the display a short time after switching on the instrument.

Press the third button as often as the black bar shows the first digit of your serial number. After a waiting time of a few seconds the device accepts the entered digit. Now the other 3 digits have to be entered in the same way. When the 4-digit number has been entered correctly (see picture), press the ↵ button to confirm.

Now the display will show the query „Calibrate?". Hold the humimeter RP6 in one hand up in the air and make sure that nothing stands behind the sensor plate. Then confirm the query by pressing ↵. The device will effect a zero point adjustment. As soon as the measuring window appears, the instrument is ready for use again.
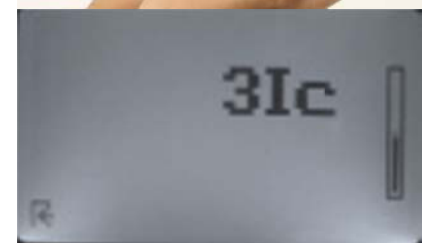
If an exclamation mark (!) appears on the

display, the zero point adjustment is not possible, as the calibration is out of the adjustable range. In this case please contact your dealer.

Battery charge

If the battery symbol appears in the measuring window resp. if a critical charge of battery is shown in the status (!), the batteries have to be charged IMMEDIATELY.

Charging the batteries

Connect the provided USB cable to the device and the other end of the cable to a PC or another USB charging adapter. It takes about 6 hours to charge the completely discharged batteries. Please make sure that the **temperature during the charging process is between 0°C and 45°C**, as otherwise the batteries may be destroyed.

Device maintenance instructions

To provide a long life of your device please do not expose it to strong mechanical loads or heat e.g. dropping it or direct sunlight exposure. Clean your device using a dry cloth.

Any kind of wet cleaning damages the device. **The device is splash-proof (IP64)**, but not rainproof. Do not expose your device to the rain.

Exemption from liability

For misreadings and wrong measurements and of this resulting damage we refuse any liability. This is a device for quick determination of moisture. The moisture depends on multiple conditions and multiple materials. Therefore we recommend a plausibility check of the measuring results. Each device includes a serial number and the guarantee stamp. If those are broken, no claims for guarantee can be made. In case of a faulty device, please contact Schaller GmbH (www.humimeter.com) or your dealer.

Transfer saved data to the PC

To send your saved logs to the PC, connect the humimeter device to your PC using the USB cable that was delivered with yourdevice. Carefully loose the protection cap on your humimeter and plug in the USB mini B connector. The bigger connector has

to be connected to a USB slot on your PC.

Start the LogMemorizer software on your PC and switch on your humimeter RP6.

The data transfer can be started on your humimeter or on the software:

Starting the data transfer on the humimeter:

Press the ⟳ key until you reach the menu (see image on the right). Then select „Send Logs" and confirm by pressing the ↵ key. Now select „Manual Logs" and confirm by pressing ↵ again. All saved logs will be sent to your PC.

Starting the data transfer on your PC:

Press the button „remote control" in the LogMemorizer software. A drop-down menu with several options opens (see image below).

For transferring the data you can select „Import last manual log" (the last saved measuring series is transferred) or „Import all manual logs" (all saved logs are transferred).

If you click on one of these menu items, the transfer starts immediately.

For the basic adjustments of the software please look through the instructions on the LogMemorizer USB flash drive.
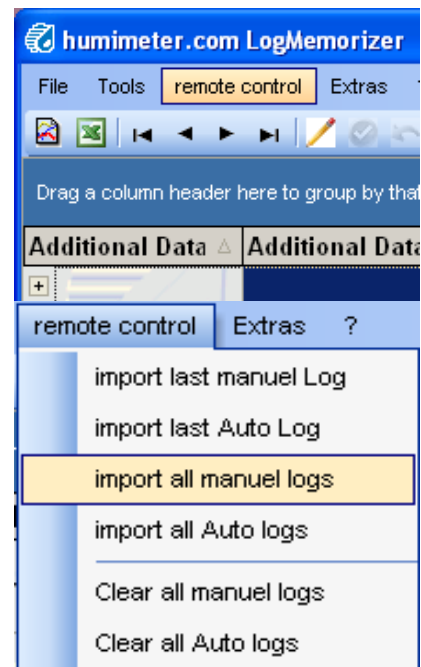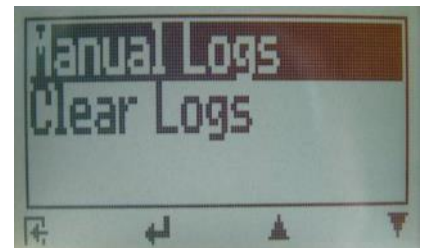
Print saved data (logs)
(only with optionally available printer)

To print your saved data, connect the device to the printer using the printer cable that was delivered with your device. Carefully loose the protection cap on the humimeter RP6. At first plug in the side of the connector with the close plastic casing at the humimeter RP6. Then switch on the device.

Not till then the other side of the cable has to be plugged in at the printer. Switch on the printer by pressing ⏻. Now the green LED is blinking. If it does not blink, please change the batteries and try again.

Press the ⬆ button at your humimeter until you reach the menu (see image on the right). Select „Print Logs" and confirm by pressing ↵.

Now you can select if you want to print the last saved measuring series or all saved measuring series (logs).Confirm by pressing ↵ again. The selected logs are printed out now.

To save paper, please think of clearing the data storage regularly.

Hardware Reset

In case that your humimeter device does not respond to any key press or cannot be switched on any more, you can carry out a hardware reset. Please make sure that the accumulator has been charged before starting the following procedure:

Remove the blue plastic handle by sliding it off. Open the moisture meter by pulling the two half sides apart. Then push the small push button on the right upper edge of the moisture meter. Now the humimeter will restart. Put the two sides together again. (Do not use any force, if it is not possible to put the sides together easily, flush them again and try again.)

If the humimeter is not restarting, please contact your technical support.

Technical data

Measuring depth	max. 500mm
Calibration curves	23
Resolution	0.5 % water content; 0.5 °C/°F
Measuring range	0.0 – 50.0% water content
Temperature range	-10 °C to +50 °C (0.5 °C), 14 to 122 °F (0.5 °F)
Operating temperature	0 °C to 50 °C, 32 to 122 °F
Storage temperature	-20 °C to +60 °C, -4 to 140 °F
Memory	approx. 10,000 measuring values
Temperature compensation	automatic

Menu languages	English, German, French, Italian, Spanish, Russian
Power supply	LI-Ion accumulator 1950mAh (for 60 to 100 operating hours)
Current consumption	40mA (with light)
Display	128 x 64 matrix display, lighted
Dimensions	620 mm x 100 mm x 147 mm
Weight	1 kg (incl. accumulator)
Degree of protection	IP 64
Scope of supply	RP6 with integrated accumulator, user manual, plastic case, USB interface incl. cable and PC software, calibration certificate
Optional	Bluetooth module, portable printer, proof plate in wooden case, external plug-in sensor

!IMPORTANT! please read

Most common reasons for misreadings

- ***Product temperature out of application range***
  The temperature of the measuring device and the material under test should be approximately the same. Put the humimeter device to the material half an hour before starting the measurement in order to ensure a temperature adjustment.
- ***Wrong calibration curve resp. switch setting***
  Double-check the selection of the correct calibration curve before measuring.
- ***Unbalanced pressing***
- ***Uneven contact surface***
  Choose a relatively flat surface for measuring. If the measuring plate doesn´t rest on the material evenly, the device will show too low measuring values.

- ***Inadequate thickness of material or bale***
  There has to be at least 50 cm of material below the sensor plate.

- ***Electrically conductive material/wire in the measuring field***
  Any kind of metal as well as electrically conductive packaging film e.g. paper polluted by soot or wire has a negative influence on the measuring result. Please make sure that there is no metal or electrically conductive material in an area of 50 cm below the sensor plate.

- ***Connected USB cable during measuring***
  During the measurement, the USB cable must not be connected to the device, as the measuring value may be falsified by more than 10 %.