## 16.0   WARRANTY

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Electromatic Equipment Co., Inc.
600 Oakland Ave. Cedarhurst, NY 11516 - USA
Tel: 1-800-645-7330  /  Tel: 516-295-4300  /  Fax: 516-295-4399

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## TABLE OF CONTENTS

## 1.0  CALIBRATION CURVES

| Calibration curves | Declaration | Measuring limit range |
|---|---|---|
| Wood chips | Wood chips according P16 | 40% |
| Coarse WC | Coarse wood chips according P45 | 40% |
| Industry WC | Coarse wood chips without any fines | 40% |

- **Wood chips:** Wood chips according to CEN/TS 14961:2005 class P16.

- **Coarse WC:** Coarse wood chips according to CEN/TS 14961 class P45.

- **Industry WC:** Coarse wood chips similar to P45 & P63, but without fines.

## 2.0  DESIGN OF THE DEVICE
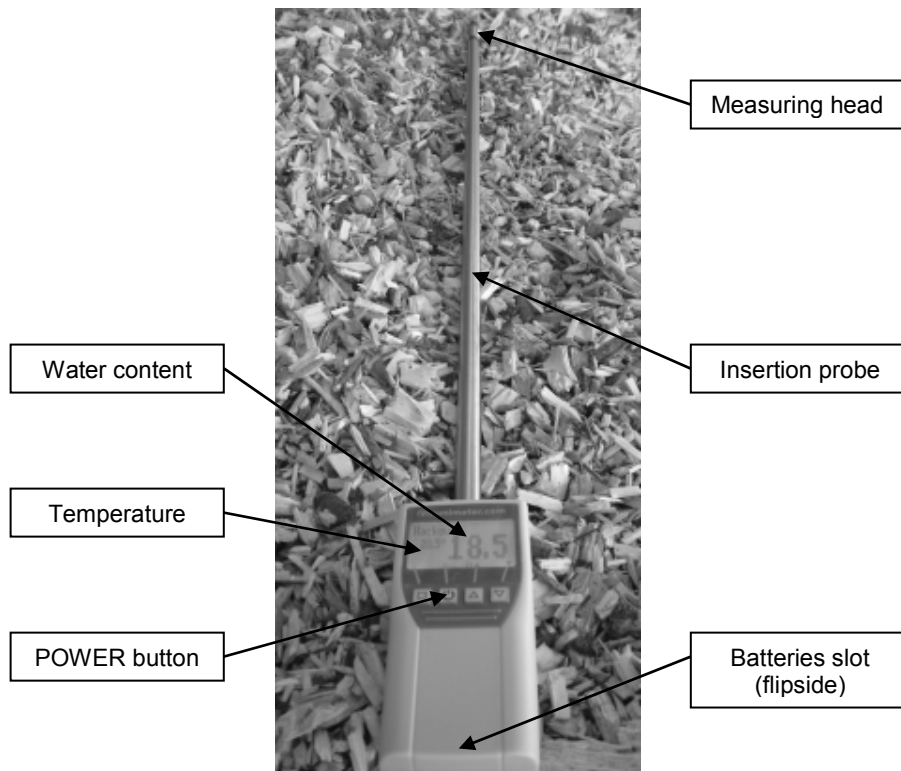
## 15.0  MOST COMMON REASONS FOR MISS READINGS

- **Product temperature out of application range**

  Material **below 0°C** resp. **above +40°C** (32 to 104 °F) may cause faulty measurements. The storage of cold material in a warm storage area usually creates condensed water which may lead to major measuring errors.

- **Not adjusted material under test**

  Please ensure that the device and the material under test are being stored at the same temperature (+/-3°C) before measuring. A high temperature difference has a negative effect on the stability of the measurement results.

- **Wrong calibration curve**

  Before you measure your sample, double check the correct selection of the calibration curve.

- **Wet or mouldy material**

- **Frozen measuring material**

- **Water film at the measuring head**

  After measuring wet material a water film can arise on the sensor head. This could lead to a too high result in the following measurement. After measuring wet material clean both black plastic parts accurately with a dry cloth.

**ATTENTION: Risk of injury by measuring head!**
**Keep away from children under 16 years!**

## 13.0    TECHNICAL DATA

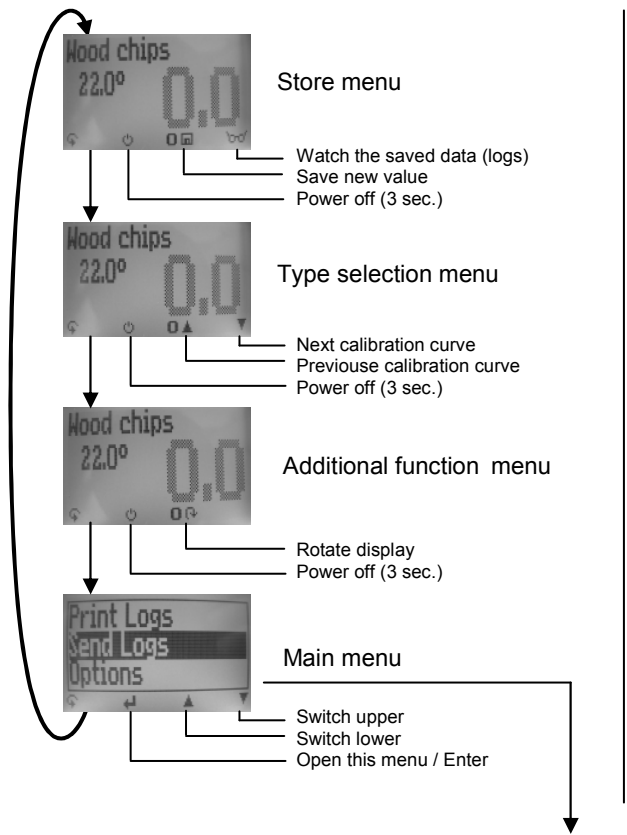| | |
|---|---|
| **Resolution of the display** | 0.5% water content<br>0.5°C temperature |
| **Measuring range** | 10 up to 50% water content |
| **Operation temperature** | 0°C up to +40°C |
| **Storage temperature** | -20°C to +60°C |
| **Temperature compensation** | Automatically |
| **Power supply** | 4 pcs. 1.5 Volt AA Alkaline batteries (900 measurements) |
| **Auto Switch OFF** | After app. 4 minutes |
| **Current consumption** | 60mA (with light) |
| **Display** | 128 x 64 matrix display, lighted |
| **Dimensions** | 1155 x 65 x 45 mm |
| **Weight** | 830 g (including batteries) |
| **Degree of protection** | IP 40 |
| **Scope of supply** | 4 x 1.5Volt AA Alkaline Batteries |
| **Option 1** | Humimeter Serial interface module with measurement datarecording software on CD-Rom including data link cable and USB adapter |
| **Option 2 (only with Opt.1)** | Thermo printer runs by battery |

## 14.0    EXEMPTION FROM LIABILITY

For miss-readings 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 Electromatic (www.checkline.com) or our dealer.

## 3.0    MEASURING PROCEDURE

1. For a correct measurement please ensure that the device has the same temperature than the wood chips (+/-3°C). For that reason, let your humimeter BLL adjust to the surrounding temperature of the material for at least half an hour before measuring.

2. Switch on the device: Press the ⏻ **key for 3 seconds**.

3. Change the calibration curve: Press the ▲ or ▼ key. The name of the calibration curve can be seen at the head of the display.

4. Plug the probe of your humimeter BLL slowly and with caution into the wood chips to ensure reproducible results.

5. **Now the display shows the water content.** Left hand the temperature of the material is displayed.

6. To save the results in the save menu press the ▣ (▲ button). The storage was successful when the number in front of the symbol ▣ increased. To reach the store menu please press ♦ until the ▣ appears.

7. To name the saved results press the ✎ button.

## 4.0    MENU LEVEL OVERVIEW



Store menu

— Watch the saved data (logs)
— Save new value
— Power off (3 sec.)



Type selection menu

— Next calibration curve
— Previouse calibration curve
— Power off (3 sec.)



Additional function menu

— Rotate display
— Power off (3 sec.)



Main menu

— Switch upper
— Switch lower
— Open this menu / Enter

### Keypad symbols

*Measuring window:*

| Symbol | Meaning |
|---|---|
| ↻ | Rolling Menu |
| ⏻ | Power ON / OFF |
| ▲ | Switch upper |
| ▼ | Switch lower |
| ▣ | Save |
| ▢ | Hold |
| ʽʼ | Watch the saved data |
| ✎ | Suppliers data can be added |

*Menu:*

| Symbol | Meaning |
|---|---|
| ↵ | Enter |
| ▲ | Switch upper |
| ▼ | Switch lower |
| ↹ | Exit |
| 0..9 | Enter numbers |
| A..Z | Enter letters |
| > | Next or right |
| < | Left |
| ✓ | Yes |
| ✗ | No |
| ⇧ | Shift |
| OK | OK |

**Overview** main menu

| *Edit Logs* | *Options* |
|---|---|
| Manual Logs | Date / Time |
| Clear Logs | Log Time |
| *Print Logs* | Language |
| Last Log | Unlock |
| All Logs | °C / °F |
| Clear Logs | o Userlevel |
| *Send Logs* | BL On Time |
| Manual Logs | Auto Off Time |
| Clear Logs | Materialcalib. |
| *Options* | Password |
| *Status* | Reset |

## 12.0    PRINT SAVED DATA

(Only possible with BLL-RS232 with serial interface module in combination with thermo printer)

To print your saved logs, connect the printer to the humimeter serial interface using the cable that was delivered with your device.
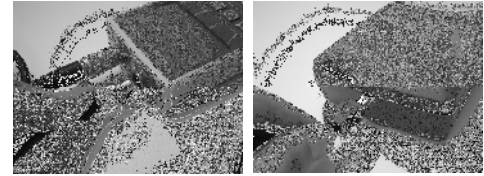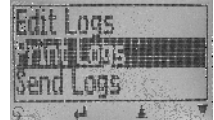


To switch on the printer, press the ON/OFF-button.

If the printer is correctly switched on, the green LED blinks regularly. If it does not, replace the batteries and try again.
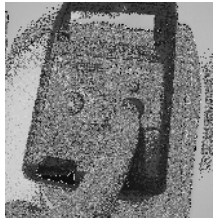


Press the ↻-key until you reach the menu (see image on the right). Then choose „Print Logs" from the menu and confirm with ↵.

Now you can choose if you want to print only the last log or all recorded logs. Confirm with ↵ again.

The selected logs will be printed out.

**11.0 USING A USB-RS232 ADAPTER WITH THE DATA LINK CABLE TO TRANSFER DATA TO A PC**

(Only possible with humimeter serial interface module)

Connect the USB-RS232 adapter to your PC. In Windows XP and Vista the adapter for the operating system is automatically recognized. Follow the instructions of the operating system.

In order to adjust the correct connection of the humimeter LogMemorizer you have to know the port number (COM1-COMx). You can find this setting in the device manager, directory ports (COM & LTP) - see print screen below.
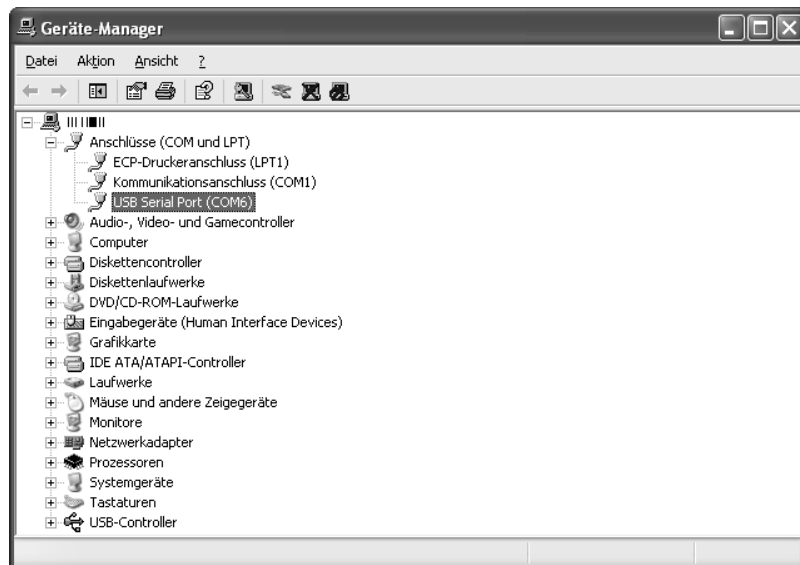


The shown port number in the device manager COMx (in our example COM6) for the USB-RS232-adapter has to be selected in the software humimeter LogMemorizer, directory Extras – Settings – Device. Close the dialog using the button OK.



**5.0 DETERMINATION OF THE MATERIAL REFERENCE MOISTURE**

The principle is a comparison measurement with the dehydration method according to CEN/TS 14961:2005. Take the measured sample and weigh it. Dry it out in an oven and weigh it again.

$$\%F = \frac{Mn - Mt}{Mn} \times 100$$

$M_n$: Mass with average moisture content
$M_t$: Mass of the dried sample
%F: Calculated moisture content

**6.0 CHANGING BATTERIES**

Your new device is provided with batteries.
Change of batteries:

1. Press with your finger onto the arrow of the battery cap and pull it back.

2. Remove the empty batteries.

3. Put four new batteries in the device. Make sure that the positions of the battery poles are correct.

4. Press down the batteries and close the cap.



**7.0 DEVICE MAINTENANCE INSTRUCTIONS**

To provide a long life of your device please does 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 instrument is not rainproof. Keep it in dry areas. When the device is not used for a longer period (6 months) or when the batteries are empty, they should be removed to prevent a leakage of the battery acid.

## 8.0    RUNNING THE INSTRUMENT

Switch on: Press the ⏻ key for 3 seconds

Change kind of wood: Press the ▲ or ▼ key

Set the clock: Press 3 times the ✛ key -> Options -> Date/Time

Save measuring value: Save the measuring value by pressing the button below the ▥ symbol. The storage was successful when the number in front of the symbol ▥ increased. To name the saved results press the ✎ button.

Hold measuring value: At first activate the function in the menu Options -> Datalog time by choosing "Hold". Then press the left key until ⊡ appears. Press the ⊡ key. The measuring value remains on the display until another button is pressed.

Display lighting: Press the ⏻ key; Backlight will turn off automatically after 30 seconds. Backlight will be activated by pressing any key.

Power off: Press the ⏻ key for 5 seconds; the device will be switched off when you leave the key. The device also switches off automatically when no key is pressed for 4 minutes.

Measuring range limit: If the measuring value is blinking, the valid measuring range is exceeded (limits see list on page 2). In this case the accuracy will be decreasing.

Rotate display: This function rotates the complete display. If you press the button ▲ in the additional function menu the display will rotate

## 9.0    LIST OF CALIBRATION CURVES

Pressing the ▲ or ▼ key in the measuring for at least 3 seconds and a list with all available sorts will appear. Select your sort by pressing ▲ or ▼ and confirm it with the ↵ key. The measurement will continue automatically.

## 10.0    TRANSFER SAVED DATA TO THE PC

(Only possible with BLL-RS232 with serial interface module)

To send your saved logs to your PC, connect the humimeter-device to your PC using the cable that was delivered with your device. You can either connect it directly to a serial port on your PC or use the enclosed serial-USB adapter.
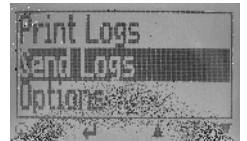
Start the LogMemorizer software on your PC.

For installation and the required settings, please have a look at the separate LogMemorizer manual.
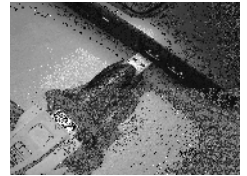
Press the ✛-key until you reach the menu (as in the image on the right). Then choose „Send Logs" from the menu and confirm with ↵.

Now you can choose "Manual Logs" and confirm with ↵ again. The selected Logs will be sent to your PC.

If no transmission is performed, please check your cable connection and the LogMemorizer settings and try again.

# BLL & BLL-RS232

## WOOD CHIP MOISTURE METER

**OPERATING INSTRUCTIONS**