12.0 WARRANTY

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Some State jurisdictions or States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. The duration of any implied warranty, including, without limitation, fitness for any particular purpose and merchantability with respect to this product, is limited to the duration of the foregoing warranty. Some states do not allow limitations on how long an implied warranty lasts but, not withstanding, this warranty, in the absence of such limitations, shall extend for one year from the date of invoice.

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1.0 USER MANUAL SHORT FORM

The AP 500 is a portable moisture meter developed for detecting moisture in paper bales. Especially recycling paper bales can show extremely high moisture differences. Reasons for that can be for example the pressing of different paper types and an outdoor storage. When it´s raining the material becomes wet through and through, however in the sun it dries only on the surface. That means that the moisture inside remains constant. The AP 500 recycling paper moisture meter enables to determine the absolute water content of paper within seconds.

Please note the following:

- **Selector switch** for paper types resp. for compacted density
- A **wet surface** can lead to a moisture value differing from the average
- The **distance to metals** and other different materials beneath the measuring point has to be **at least 0,5 m**. A metal strapping must not be beneath the measuring plate.
- At **paper bales** the measuring instrument always has to be pressed on **along the roll-axis.**
- **The temperature of the measuring instrument** has to be similar to the temperature of the material that should be measured (+/-5°C). The best way to ensure that is to store the measuring instrument at the same place as the material under test. If this isn´t possible let the measuring instrument **adjust** to the surrounding temperature of the material for **at least 1 hour.**
- Don´t expose the moisture meter to direct sunlight.

10.0 TECHNICAL DATA

Type	AP 500
Measuring principle	dielectric
Measuring range	4 - 50 % paper moisture at switch position 1 Exceeding is shown by a blinking display.
Automatic temperature compensation	0,05%/°C
Measuring depth	max. 500 mm
Operating temperature range	5°C to +35°C
Power supply	9V Alkaline or NiCd-rechargeable battery – not included in delivery
Current consumption	approx. 5 mA
Automatic switchoff	after approx. 90 seconds, resp. with high exceedance of measuring range
Charge of battery	Display „BAT“ if nearly empty
Display	LC display 3-digit
Resolution	1% paper moisture
Dimensions	110 x 630 x 150 mm
Weight	840 gramme
Article No.	10339
Scope of delivery	excl. wooden case, excl. test plate

11.0 TECHNICAL SUPPORT – USER SUPPORT

You will find technical support and comprehensive application support at http://www.checkline.eu

On our website you will also find detailed instructions for all functions. Use the support forum to ask questions. Our support staff will reply as soon as possible. Maybe you can already find the answer in the forum, when another user has asked the same question before and has received a reply yet.

8.0 REFERENCE VALUES AT 20°C

Switch position	Reference value **AP 500**	factory adjustment tolerance	readjust tolerance
S1	20	±1	±2
S2	19	±1	±2
S3	17	±1	±2
S4	16	±1	±2
S5	14	±1	±2
S6	13	±1	±2

Value of the air at switch position 1: 5%

If the shown values on the display differ more than the readjust tolerance, a factory-provided adjustment is necessary. For this purpose please send the device adequately packed to Checkline Europe.

9.0 OFFSET ADJUSTMENT

If the difference of the measured values lies between the factory adjustment tolerance and the readjust tolerance, the user can readjust the zero-point. This can be done as follows:

- Turn the selector switch on position S1
- Pull back the battery cap, remove the battery, but keep it connected
- Hold the AP500 with one hand up in the air. Put a small slotted screwdriver to the INNER potentiometer and screw it as long as the display value shows 5% (at 20°C)

IMPORTANT: The exterior potentiometer must not be screwed in no case. Otherwise a factory-provided adjustment is compulsory!!!

2.0 MEASURING PROCEDURE

Let the moisture meter adjust to the surrounding temperature of the material under test. Choose the right position of the selector switch. Switch on the instrument by pressing the ON button. Press on the instrument solidly to the recycling paper bale. The display shows the determined water content promptly. The instrument has to seat solidly and holohedrally on the paper bale. After 90 seconds the device switches off automatically. Please execute more measurements at the same bale and generate the average, as the moisture can vary strongly within the bale.

A **blinking display** means that the measuring range has been exceeded. That causes a decrease of the measuring accuracy. If the instrument switches off during the measuring procedure, the measuring range was overstepped completely. In this case please control if there is any metal within the measuring field.

Depending on the battery used up to 4000 measurements are possible. When the battery´s capacity is decreasing, „**BAT**“ appears on the display. When „BAT“ appears, capacity for approx. 200 measurements is left. When the device switches off immediately after pressing the ON button, the battery has to be replaced immediately, because a reliable measurement isn´t possible any more.

The time period for an inspection of the adjustment varies due to the field of application and the intensity of use.

3.0 SELECTION OF PAPER TYPES

Due to diverse chemical addings in the paper production and different compacted paper densities, first of starting the measurement the right position of the selector switch has to be determined. This has to be effected by the calibratable method by norm EN20287 (drying chamber resp. kilndrying). The sample dried in the drying chamber has to be at least as big as the sensor plate profile. As the AP 500 measures up to a depth of 50 cm, this size is also adviced for the sample dried out in the drying chamber.

4.0 DETERMINING THE COMPRESSED DENSITY

Calculate the volume in m³

*V= length(m) * breadth(m) * depth(m) (+/- 3%)*

and weigh the material (+/- 3%)

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

and finally calculate the compressed density:

Compressed density (kg/m³) = specific wet weight / (1 + paper moisture/100)

Switch position 1 has the lowest, switch position 6 the highest compressed density.

In this chart you can fill in your determined paper types. (The already registered paper types are guidelines and don´t spare the determination of the switch position for your specific material!)

Switch	Compressed density	Please fill in the paper types
S 1		
S 1		
S 2	*	flimsy newspaper
S 2		
S 3	*	normally compressed newspaper
S 3		
S 4	*	Offset paper, compact cardboard
S 4		
S 5	*	coated paper
S 5		
S 6		
S 6		

5.0 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 return your device WITHOUT case in a protected package to Checkline Europe.

6.0 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 exposure to excessive temperatures.

Clean your device using a dry cloth. Water and cleanings can ingress and would damage the device.

To prevent damages please store the instrument in the included wooden case.

We recommend an interval ISO-conforming device check by the drying method or the check plate PP2 in the wooden box. Checkline Europe can also provide a test with a calibration certificate against a fee.

7.0 ISO-CONFORMING INSPECTION

The surface of the PP2 test plate may not be distorted or scratched. It must be free from dust, grease and moisture.

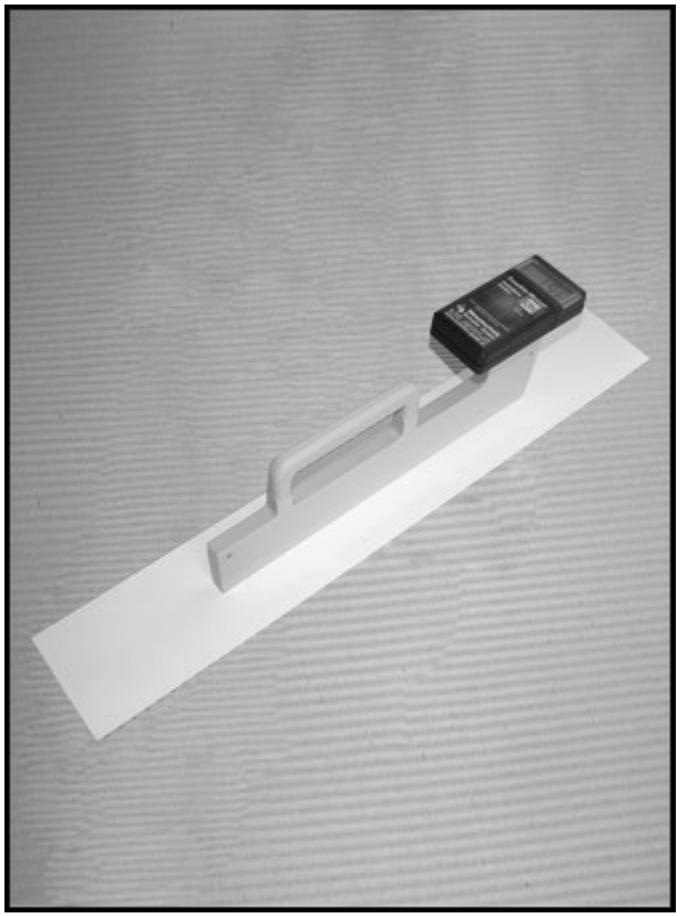
Temperature range for application: 15°C to 25°C, ambient operation humidity 30-80%

Inspection procedure:
Switch on the device, put it centrally on the test plate and press it on solidly. Compare the values on the display with the reference values of the chart below. The ideal temperature for the inspection is at 20°C, anyway, it suffices a temperature range between 15°C and 25°C.

CHECK·LINE®
BY ELECTROMATIC

AP

RECYCLING PAPER MOISTURE METER



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OPERATING INSTRUCTIONS