

# Operating Instructions

Valid as of: 01.12.2016 • Please keep the manual for future reference!



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## **1 Warranty and Liability**

In principle, the supply of the device is subject to our "General Conditions of Sale and Delivery." These have been provided to the operating company on conclusion of the contract, at the latest.

Warranty:

- SCHMIDT moisture meters are warranted for 12 months.

Parts subject to wear, electronic components and measuring springs are not covered by the warranty. No warranty or liability will be accepted for bodily injury or property damage resulting from one or several of the following causes:

- Misuse or abuse of the device.
- Improper mounting, commissioning, operation and maintenance of the device (e.g. verification interval).
- Operation of the device if any safeguards are defective or if any safety and protection precautions are not properly installed or not operative.
- Failure to comply with the notices in the Operating Instructions regarding transport, storage, mounting, commissioning, operation, maintenance and setup of the device.
- Any unauthorized structural alteration of the device.
- Insufficient inspection of device components that are subject to wear.
- Opening the device or improper repair work.
- Disasters caused by the effects of foreign objects or by force majeure.

### **1.1 Notices within the Operating Instructions**

The fundamental prerequisite for the safe handling of this device and its troublefree operation is the knowledge of the basic safety notices and safety instructions.

These Operating Instructions provide essential information to ensure the safe operation of the device.

These Operating Instructions, in particular the safety notices, must be observed by any person who works with the device. In addition, the local applicable rules and regulations for the prevention of accidents must be complied with.

The representations within the Operating Instructions are not true to scale.

The dimensions given are not binding.

General indications of direction, such as FRONT, REAR, RIGHT, LEFT apply when viewing the front of the device.

### **1.2 Responsibilities of the Operating Company**

In compliance with the EC Directive 89/655/EEC, the operating company agrees to only permit persons to work with the device who:

- are familiar with the basic regulations on industrial safety and accident prevention and who have been trained in handling the device.
- have read and understood the chapter on safety and the warning notices in these Operating Instructions and have confirmed this with their signatures.
- are examined regularly on their safe and conscientious working method.

### **1.3 Responsibilities of the Personnel**

All persons who work with the device agree to perform the following duties before starting work:

- to observe the basic regulations on industrial safety and accident prevention.
- to read the chapter on safety and the warning notices in these Operating Instructions and to confirm with their signatures that they have understood them.

## 1.4 Informal Safety Measures

The Operating Instructions must always be kept on hand where the device is operated. Apart from the Operating Instructions, the generally and locally valid regulations on accident prevention and environmental protection must be provided and complied with.

## 1.5 Training of the Personnel

Only trained and instructed personnel is permitted to work with the device. The responsibilities of the personnel must be clearly defined for mounting, commissioning, operation, setup, maintenance, and repair. Trainees may only work with the device under the supervision of experienced personnel.

## 1.6 Intended Use

The device is intended exclusively to be used as a moisture meter. Any other use or any use exceeding this intention will be regarded as misuse. Under no circumstances shall HANS SCHMIDT & Co GmbH be held liable for damage resulting from misuse.

The intended use also includes:

- Complying with all notices included in the Operating Instructions and observing all inspection and maintenance works.

## 1.7 Dangers in Handling the Device

The device was designed according to the state of the art and the approved safety standards. Nevertheless, its use may cause serious or fatal injury to the user or third persons, and/or an impairment of the device or of other material assets.

The device may only be applied:

- For its intended use in a faultless condition with regard to the safety requirements.
- Malfunctions that could impair safety must be remedied immediately.
- Personal protective equipment must be used according to the EC Directive 89/686/EEC.



**The device must not be operated in potential explosive areas and must not come into contact with aggressive substances.**

## 1.8 Copyright

The copyright on these Operating Instructions remains with the company HANS SCHMIDT & Co GmbH.

These Operating Instructions are intended for the operating company and its personnel only. They contain instructions and notices that may only be reproduced on the prior written permission of

HANS SCHMIDT & Co GmbH

and under indication of the complete reference data.

Violations will be prosecuted.

## 1.9 EU Declaration of Conformity and WEEE Registration

In compliance with the EU Directive 2004/108/EG



**HANS SCHMIDT & CO GmbH is registered in compliance with the German Electrical and Electronic Equipment Act (ElektroG).**

## 2 Available Models

DHT-2

### 2.1 Specifications

<b>Application Area:</b> (Relative Moisture Content)	Direct readings for: Wool, cotton, rayon, hemp, jute, paper, linen, nylon, polyacrylic, polyester, 10 fabric blends Comparison measurement for other materials: 1 - 100 scale for comparison with 20 conversion charts
(Room Temperature)	-30° to 70° Celsius (optional)
(Air Humidity)	5% to 95% RH (optional)
<b>Display:</b>	LCD, 0.1 resolution
<b>Accuracy:</b>	1% (of full scale)
<b>Repeatability:</b>	0.3%
<b>Power Supply:</b>	9V E block battery, low-battery indicator
<b>Auto Power Off:</b>	After approx. 2 min.
<b>Weight:</b>	1650 g (complete set incl. carrying case)
<b>Dimensions:</b>	200 mm x 95 mm x 40 mm (LxWxH)

### 2.2 Delivery Includes

Textile moisture meter with carrying case		
1 Connecting cable	1m length	ID no.: 50400M
1 Probe holder	For inserting the different electrodes	ID no.: 50404M
1 Needle electrode	For measuring spools, bobbins and hanks of yarn 2-pin probe, 100mm long	ID no.: 50414M
1 Needle electrode	For measuring spools, bobbins and hanks of yarn 8-pin probe, 80mm long	ID no.: 50418M
1 Operating Instructions		

### 2.3 Optional Accessories

1 Needle electrode	For measuring bales or rolls of fabric, yarn, etc. 300mm long	ID no.: 50412M
1 Roller electrode	For measuring moving webs of material 27mm roller diameter.	ID no.: 50416M
1 surface electrode	For measuring fabrics, surface Ø 30 mm	ID no.: 50426M
1 Set of calibration electrodes comprising 2 calibration electrodes of different calibration values for verification and calibration of the moisture meter.	Calibration Certificate optionally available for the calibration electrodes.	ID no.: 50422M
1 Temperature and air humidity probe for determining the absolute room temperature in °C and the room air humidity in % RH 170 mm length		ID no.: 50428M
2 Different calibration reports are available for the moisture meter:		
a) Manufacturer's standard calibration report in English		
b) Calibration report in English using SIT certified electrodes (SIT: Italian Calibration Institute, similar to DKD in Germany).		

## 2.4 Unpacking

Unpack the moisture meter and inspect it for any shipping damage.

Notices of defect must be filed immediately, in writing, at the latest within 10 days on receipt of the goods.

## 3 Operation

### 3.1 Notes Before Starting Measurement



**Have you read and understood the Operating Instructions, in particular Chapter 1 “Basic Safety Notices”? You are not permitted to operate the moisture meter before doing so.**

**Before working with the instrument you must put on your personal protective clothing, if necessary. For example, eye protectors, gloves, etc.**

### 3.2 Operating Elements

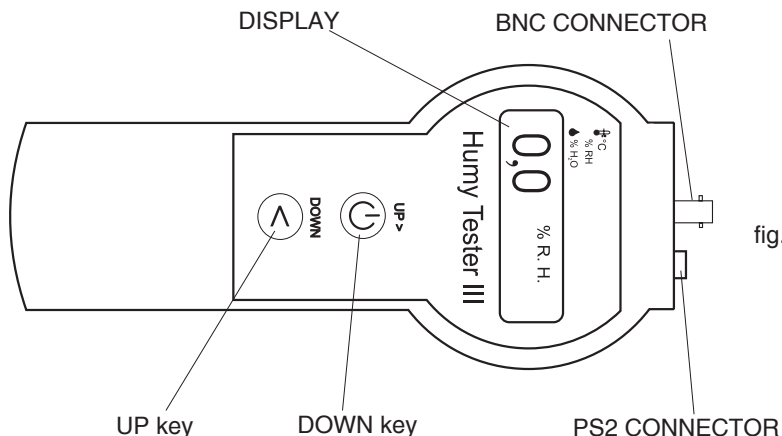


fig. 3.2

### 3.3 Battery Insertion and Replacement

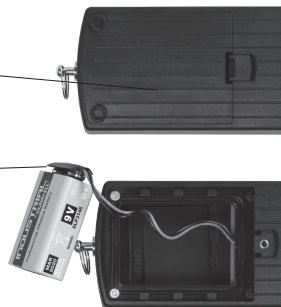
The moisture meter is delivered with a 9V E block battery inserted.

If “Low Battery” is indicated on the DISPLAY, the battery must be replaced immediately.

Operating the instrument with a low battery may cause measurement errors.

#### To insert the new battery:

- Open the BATTERY COMPARTMENT on the rear side of the instrument.
- Insert a 9V battery (E block) into the BATTERY COMPARTMENT.  
Please ensure proper polarity.
- Close the BATTERY COMPARTMENT.



- **Used batteries must be disposed of in compliance with local regulations. If the instrument will not be used for a longer period of time, the battery should be removed.**

### 3.3.1 Switch-On

- UP >
- Press the  key until the DISPLAY  shows the measuring range that was last selected.

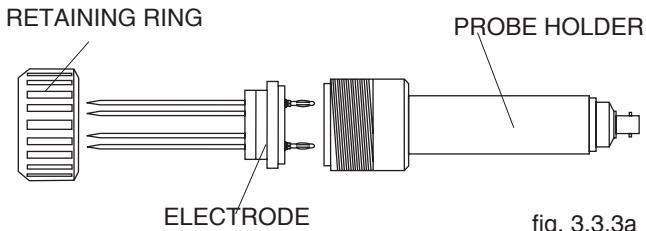
### 3.3.2 Switch-Off

#### Auto Power Off:

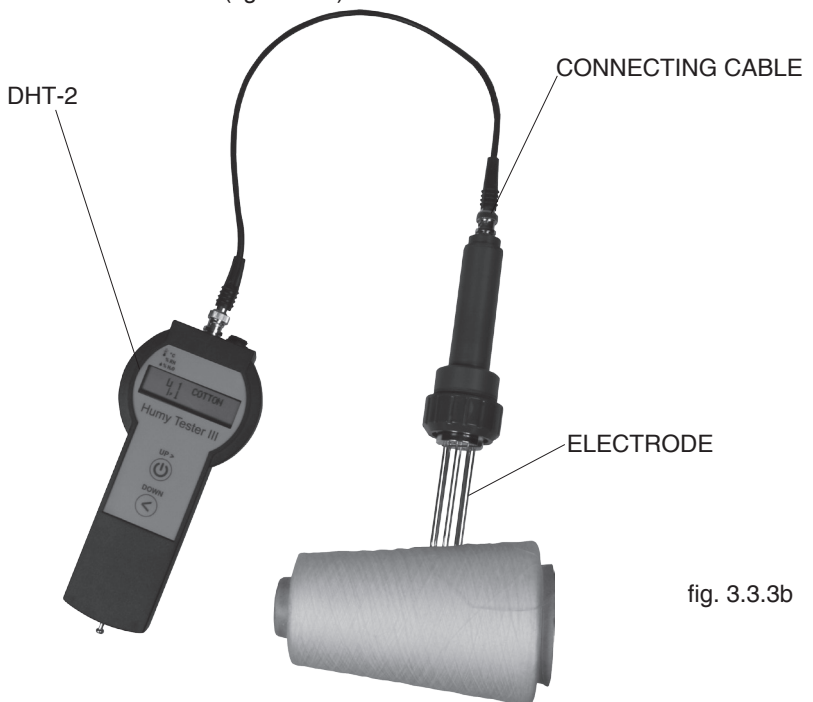
- The moisture meter switches off automatically after about 2 minutes of non-use.

### 3.3.3 Inserting the Measuring Electrode

- Select the proper ELECTRODE for your application.
- Insert the ELECTRODE into the receptacles on the top of the PROBE HOLDER (fig. 3.3.3) and screw on the RETAINING RING.



- Plug in the CONNECTING CABLE at the BNC connectors of the ELECTRODE and the DHT-2 moisture meter (fig. 3.3.3b).



### 3.4 Measuring Procedure

#### General information:

The measuring principle of the DHT-2 moisture meter is based on the electrical conductivity of the material which always bears a fixed relation to the moisture.

The moisture meter displays direct readings for the materials listed in the table below. For other materials, note the reading on the upper 0 - 100 scale and then refer to the conversion charts in Chapter 3.4.1 to convert the absolute reading into an accurate measurement of percent moisture.

Display	Measuring Range
<b>CENT. DEG.</b>	Room temperature Requires use of electrode no. 428 (optionally available)
<b>% R.H.</b>	Room air humidity Requires use of electrode no. 428 (optionally available)
<b>0 - 100</b>	1 - 100 scale
<b>WOOL</b>	Wool (Wo)
<b>RAYON</b>	Rayon (Zw)
<b>COTTON</b>	Cotton (Bw)
<b>HEMP</b>	Hemp (HA)
<b>JUTE</b>	Jute (JU)
<b>PAPER</b>	Paper
<b>FLAX YARN</b>	Flax Yarn (FL (Li))
<b>NYLON</b>	Nylon
<b>ACRYL</b>	Polyacrylic (PA)
<b>POLYESTER</b>	Polyester (PES)
<b>50WO - 50ZW</b>	50% Wool (Wo) - 50% Rayon (Zw)
<b>60BW - 40PES</b>	60% Cotton (Bw) - 40% Polyester (PES)
<b>70PAC - 30WO</b>	70% Polyacrylic (PAC) - 30% Wool (Wo)
<b>67PAC - 33BW</b>	67% Polyacrylic (PAC) - 33% Cotton (Bw)
<b>70PES - 30WO</b>	70% Polyester (PES) - 30% Wool (Wo)
<b>70PES - 30ZW</b>	70% Polyester (PES) - 30% Rayon (Zw)
<b>67PES - 33BW</b>	67% Polyester (PES) - 33% Cotton (Bw)
<b>50PES - 50BW</b>	50% Polyester (PES) - 50% Cotton (Bw)
<b>50PES - 50ZW</b>	50% Polyester (PES) - 50% Rayon (Zw)
<b>50PES - 50PAC</b>	50% Polyester (PES) - 50% Polyacrylic (PAC)

#### Requirements:

- Proper electrode inserted and connected to DHT-2 as described in Chapter 3.3.3.

#### To take measurements:

UP >





- Press the  key to switch on the DHT-2 moisture meter.

The DISPLAY shows the measuring range that was active the last time the instrument switched off.

UP >

DOWN

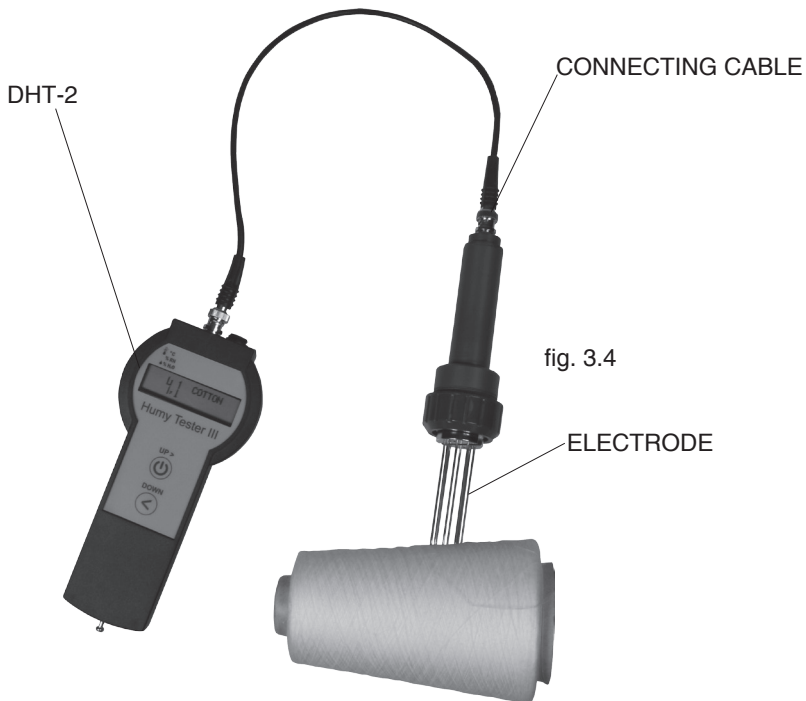


- Press the  or  key for about 2 sec. to select the next or previous measuring range (as listed in the table above).

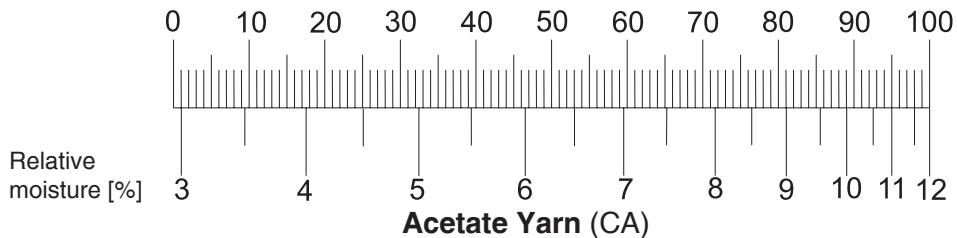


### 3.4 Measuring Procedure (Cont.)

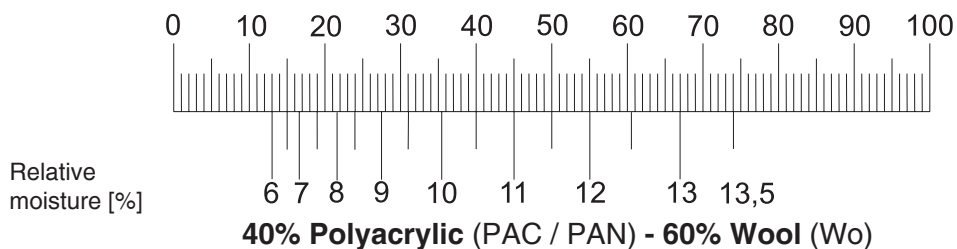
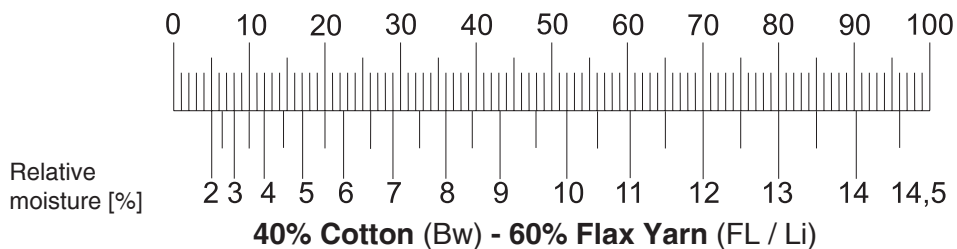
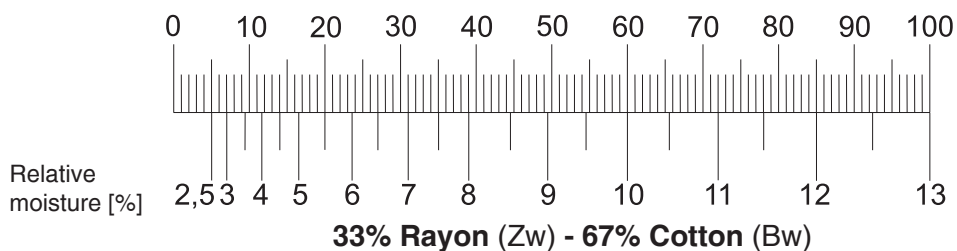
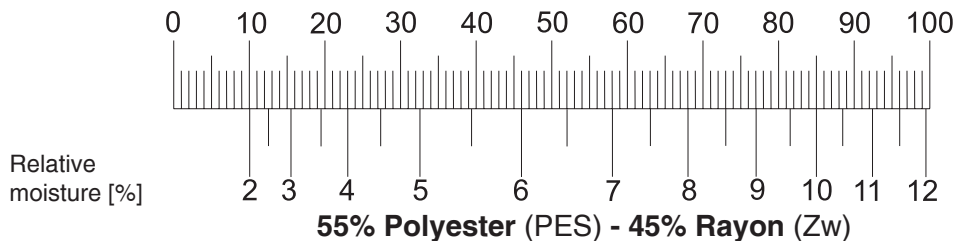
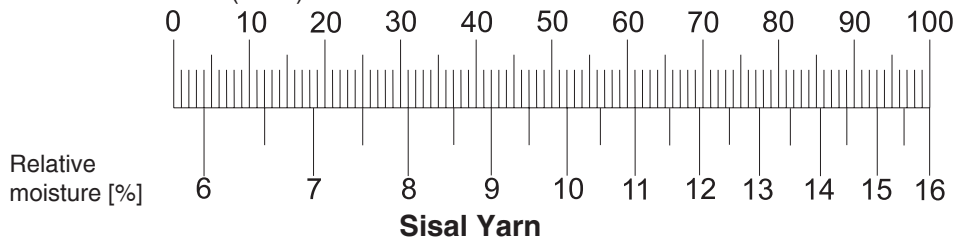
- Insert the ends of the selected ELECTRODE into the TEST MATERIAL (fig. 3.4).  
The DISPLAY shows the measured moisture content of the TEST MATERIAL.



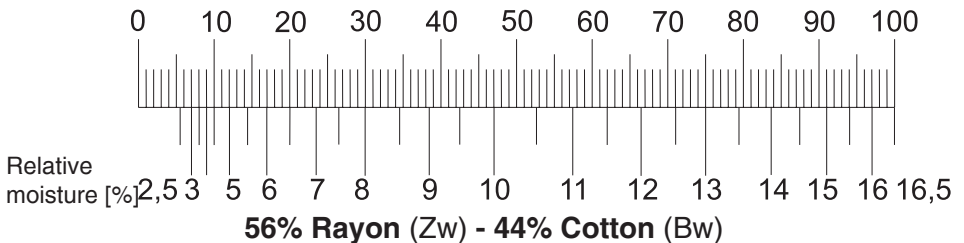
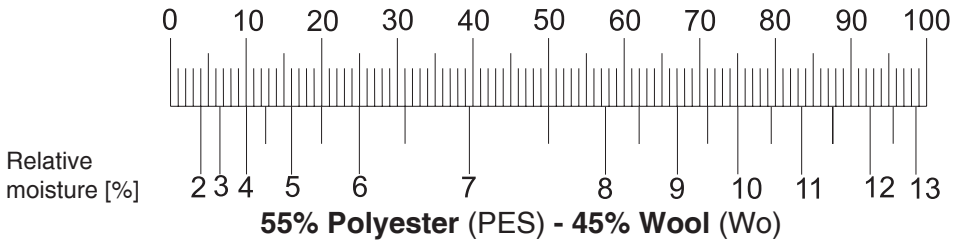
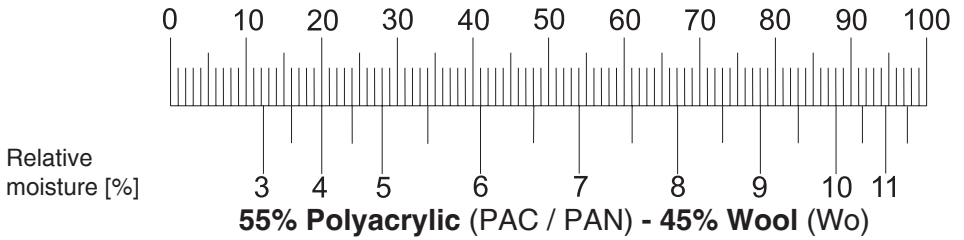
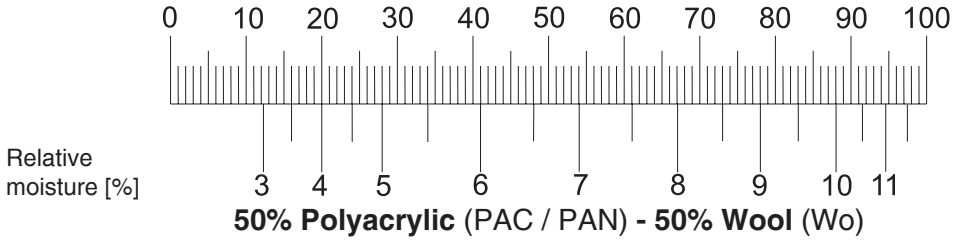
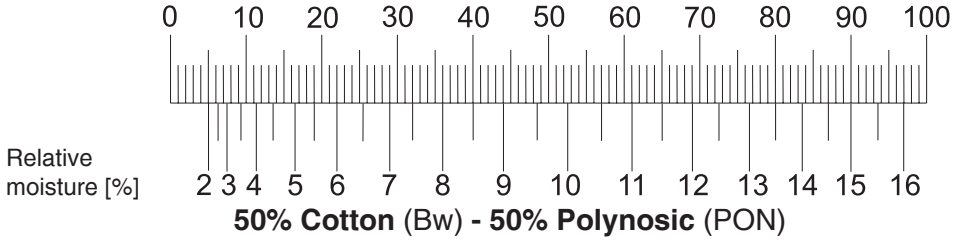
#### 3.4.1 Conversion Charts



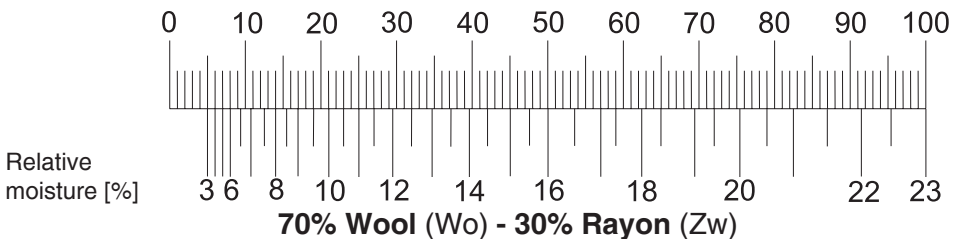
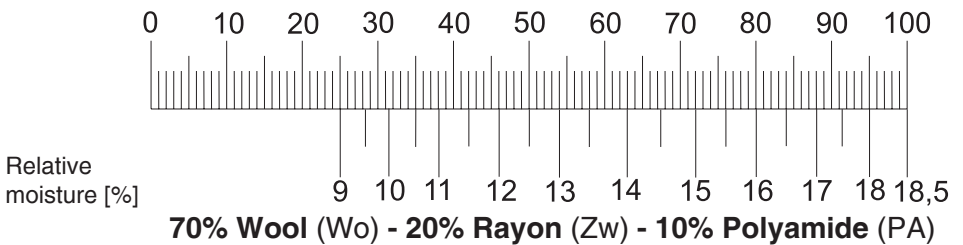
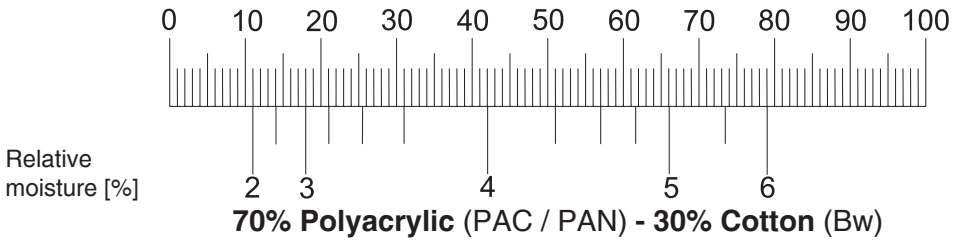
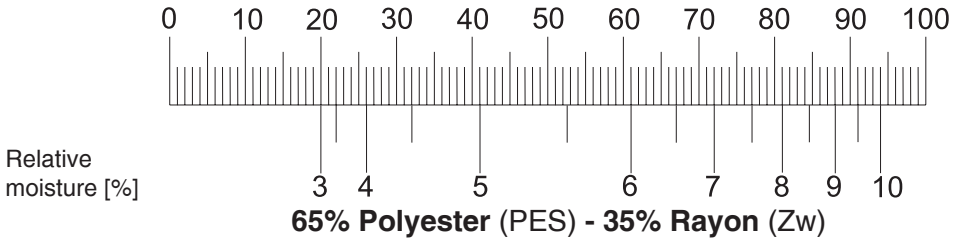
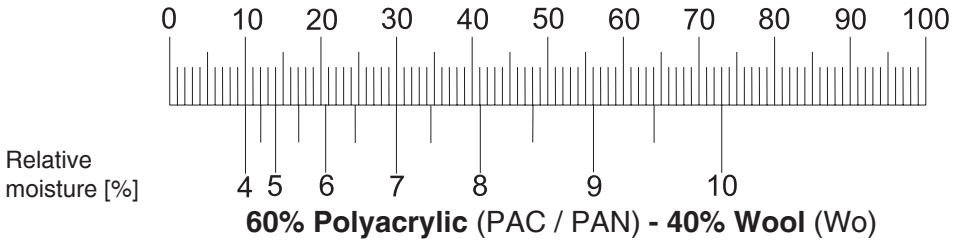
### 3.4.1 Conversion Charts (Cont.)



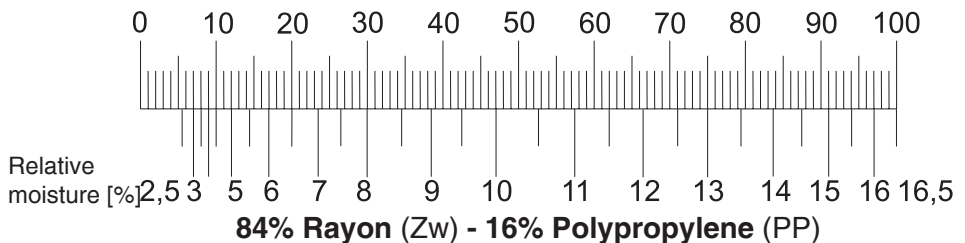
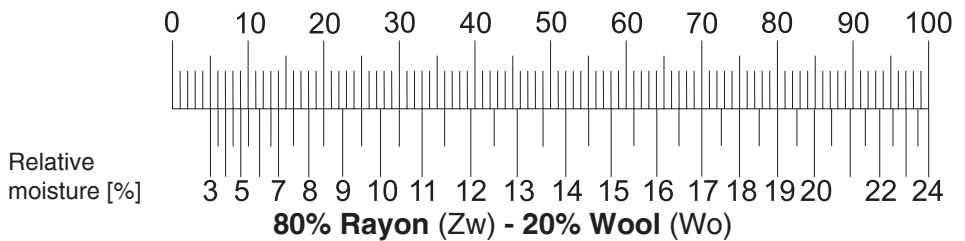
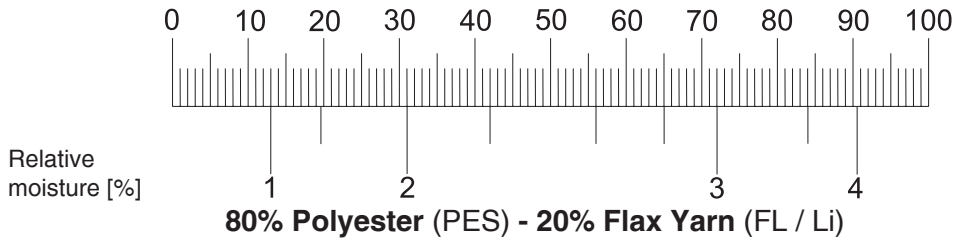
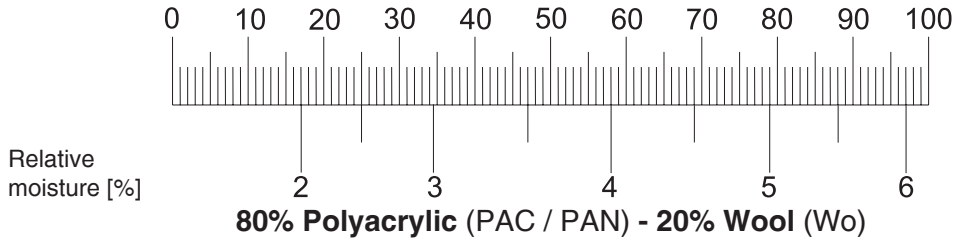
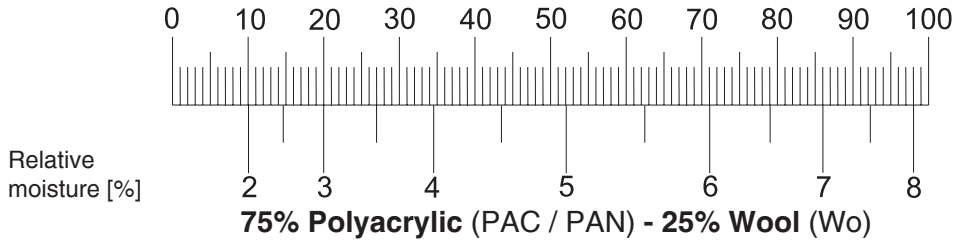
### 3.4.1 Conversion Charts (Cont.)



### 3.4.1 Conversion Charts (Cont.)



### 3.4.1 Conversion Charts (Cont.)



### 3.5 Verification of Calibration

A set of calibration electrodes with different calibration values is optionally available to allow verifying the calibration of the DHT-2.

Connect the electrodes to the moisture meter. The instrument should then display the calibration value specified by the manufacturer. To adjust the calibration of the DHT-2, please request our special calibration instructions.

## 4 Service and Maintenance

The moisture meter is easy to maintain. Depending on operating time and load, the instrument should be checked according to the locally applicable regulations and conditions (as described in Chapter 3.7). The use of other test methods than the procedure described in Chapter 3.5 may cause deviating measuring results.

## 5 Cleaning

For cleaning the unit, do not use any



### AGGRESSIVE SOLVENTS

such as trichloroethylene or similar chemicals.



### NO WARRANTY OR LIABILITY

shall be accepted for damage resulting from improper cleaning.

## 6 Verification Interval

The question of finding the right frequency of calibration accuracy verification depends on several different factors:

- ➔ Operating time and load of the SCHMIDT moisture meter
- ➔ Tolerance band defined by the customer
- ➔ Changes to the tolerance band compared to previous calibrations

Therefore, the interval between verifications of calibration must be determined by the user's Quality Assurance Department, based on the user's experience.

Assuming normal operating time and load as well as careful handling of the moisture meter, we recommend a verification interval of one year.

## 7 Correspondence

Should you have any questions regarding the instrument or Operating Instructions, or their use, please indicate above all the following details which are given on the ID plate:

- 1) Model
- 2) Serial number

## 8 Repairs

### Shipping instructions:

We kindly ask for return free of charge for us, if possible by airmail parcel. All occurring charges, if any (such as freight, customs clearance, duty etc.), will be billed to customer. For return from foreign countries, we ask you to include a proforma invoice with a low value for customs clearance only, e.g. 50 Euro, each and to advise the shipment in advance by fax or eMail.

- 1** To avoid unnecessary follow-up questions, and the resulting loss of time or possible misunderstandings, please return the instrument with a detailed fault description to our service department.

**Service address: HANS SCHMIDT & Co GmbH  
Schichtstr. 16  
84478 Waldkraiburg  
Germany**

Notes:

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control instruments

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quality control and automation*  
**We solve your measuring problems:**



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*Force Gauge*



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*Speed- and Lengthmeter*



*Electronic Lengthmeter*



*Stroboscope*



*Screen Printing Tension Meter*



*Thickness Gauge*



*Yarn Package Durometer and Shore-A Durometer*



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