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testo 645

## Accurate humidity measurement with probes for industrial applications

Measures, Saves, Prints, PC analysis



%RH

°C

td

tpd

$g/m^3$

g/kg

J/g



# Accurate humidity measurement with probes for every application



**±1%**

Long-term stable, highly accurate humidity sensor



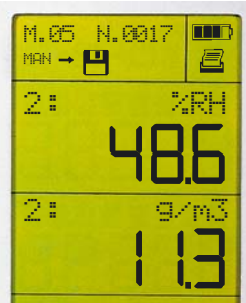
Measuring humidity at up to +180°C in drying systems



Checking dew point in compressed air systems



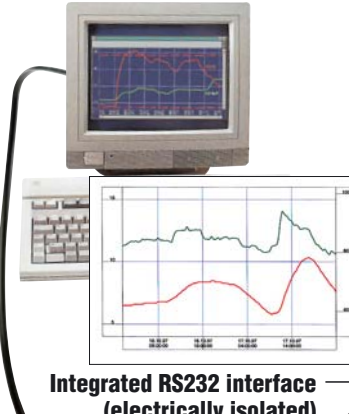
Measuring equilibrium moisture in bulk material



Automatic calculation of different humidity parameters in the instrument

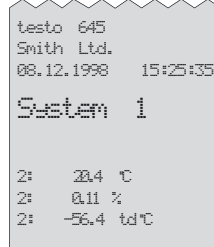
- Dew point
- Absolute humidity
- Degree of humidity
- Enthalpy

## Convenient data analysis using Testo's ComSoft 3



Integrated RS232 interface (electrically isolated)

## Quick printout of data on location



```

testo 645
Smith Ltd.
08.12.1998 15:25:35
System 1

2: 20.4 °C
2: 0.11 %
2: -56.4 td°C
  
```



## Temperature measurement specific to application

- Quick-action temperature measurement using NiCr-Ni probes
- Highly accurate temperature measurement using 1/10 DIN Pt100 probes
- "Zero error adjustment" offset is saved in probe



## Protection for your instrument

The **TopSafe** case protects your measuring instrument from impact, dust and water. Ideal for tough industrial applications.



Non-contact transmission of measurement logs via infrared

Channel 1: Type K/J/S, NTC temperature probes

Channel 2: Combined humidity/temperature probe or Pt100 temperature probe

Mains connection and battery recharging in instrument

Displays 2 parameters

Prints at the touch of a button

Saves up to 3000 readings

Selects up to 99 locations

Easy operation with cursor

HOLD/MAX values/ MIN values/ Mean calculation

Standard pressure dew point probe (See Set 4)

4 line display



# Accurate humidity measurement with probes for every application

See our special probe brochure for more probes. Please order overleaf!

## Standard set for humidity and temperature measurement

**SET 1**



Set 1 includes:	Measuring range	Part no.
<b>testo 645 with TopSafe</b> , battery and Instruction manual		<b>0563.6451</b>
<b>Standard ambient conditions probe</b> up to +70 °C (∅ 12 mm)	0 to 100 %RH (probe tip) -20 to +70 °C	0636.9740
Quick-action <b>surface probe</b> with sprung thermocouple strip (type K thermocouple) Response time <3 s (t <sub>90</sub> )	-200 to +300 °C short-term to +500 °C Class 2	0604.0194
2 x <b>connection cables</b> , to connect probe ↔ instrument		0430.0143
<b>Transport case</b> for measuring instrument, TopSafe, probes and Testo log printer		0516.0445

## The set for industrial humidity measurement up to +120 °C

**SET 2**



Set 2 includes:	Measuring range	Part no.
<b>testo 645 with TopSafe</b> , battery and Instruction manual		<b>0563.6452</b>
<b>Robust humidity probe</b> , e.g. for measuring equilibrium moisture in substances or for measurements in outgoing air ducts at up to +120 °C (∅ 12 mm)	0 to 100 %RH -20 to +120 °C	0636.2140
Quick-action <b>surface probe</b> with sprung thermocouple strip (type K thermocouple) Response time <3 s (t <sub>90</sub> )	-200 to +300 °C short-term to +500 °C Class 2	0604.0194
2 x <b>connection cables</b> , connects probe ↔ instrument		0430.0143
<b>Transport case</b> for measuring instrument, TopSafe, probes and Testo log printer		0516.0445

## Precision set (±1 %RH/up to ±0.23 °C)

**SET 3**



Set 3 includes:	Measuring range	Part no.
<b>testo 645 with TopSafe</b> , battery and Instruction manual		<b>0563.6453</b>
Highly accurate <b>reference humidity/temperature probe</b> incl. calibration certificate (∅ 21 mm)	0 to 100 %RH (probe tip) -20 to +70 °C	0636.9741
<b>Pt100 precision air probe</b> (with EEPROM for "zero error adjustment")	-100 to +400 °C 1/10 Class B*	0628.0017
2 x <b>connection cables</b> , connects probe ↔ instrument		0430.0143
<b>Transport case</b> for measuring instrument, TopSafe, probes and Testo log printer		0516.0445

\* 1/10 Class B (0 to +100 °C), 1/5 Class B (remaining range) to EN 60751

## Set for monitoring humidity in compressed air systems

**SET 4**



Set 4 includes:	Measuring range	Part no.
<b>testo 645 with TopSafe</b> , battery and Instruction manual		<b>0563.6454</b>
<b>Standard pressure dew point probe</b> for measurements in compressed air systems	0 to 100 %RH -30 to +50 °C t <sub>bd</sub>	0636.9840
Quick-action <b>surface probe</b> with sprung thermocouple strip (type K thermocouple) Response time <3 s (t <sub>90</sub> )	-200 to +300 °C short-term to +500 °C Class 2	0604.0194
2 x <b>connection cables</b> , connects probe ↔ instrument		0430.0143
<b>Transport case</b> for measuring instrument, TopSafe, probes and Testo log printer		0516.0445

## Professional set for industrial temperature measurement up to +1100 °C

**SET 5**



**Set 5 includes:**

	Measuring range	Part no.
<b>testo 645 with TopSafe</b> , battery and Instruction manual		<b>0563.6455</b>
Quick-action <b>immersion/penetration probe</b> for high temperatures, type K thermocouple (with EEPROM for "zero error adjustment")	-200 to +1100 °C Class 1	0614.0593
Highly accurate <b>Pt100 immersion/penetration probe</b> (with EEPROM for "zero error adjustment")	-100 to +400 °C 1/10 Class B	0628.0015
2 x <b>connection cables</b> , connects probe ↔ instrument		0430.0143
<b>Transport case</b> for measuring instrument, TopSafe, probes and Testo log printer		0516.0445

## You can order by fax, mail or telephone

Simply copy this page, fill out quantities required and return by fax or post. Don't forget your name and address.

Qty.	Recommended sets	Part no.
	<b>Standard set for measuring humidity and temperature</b> (Set 1)	0563.6451
	<b>Set for industrial humidity measurement up to +120 °C</b> (Set 2)	0563.6452
	<b>Precision set (±1 %RH / up to ±0.23 °C)</b> (Set 3)	0563.6453
	<b>Set for monitoring humidity in compressed air systems</b> (Set 4)	0563.6454
	<b>Professional set for industrial temperature measurement up to +1100 °C</b> (Set 5)	0563.6455

Qty.	Ordering data for measuring instrument	Part no.
	<b>testo 645 measuring instrument with TopSafe</b> , battery, Instruction manual and calibration protocol	0563.6450

### Technical data

#### Probe connection

**Channel 1:** – Type K/J/S thermocouple-temperature probes, NTC probes

**Channel 2:** – Combined humidity/temp. probe – Pt100 temperature probe

#### Temperature measurement

##### Type K (NiCr-Ni)

Measuring range: -200 to +1370 °C  
Resolution: 0.1 °C  
Accuracy of instrument\*: ±0.3 °C or ±0.5 % of measured value (the larger value applies)

##### Pt100

Measuring range: -200 to +800 °C  
Resolution: 0.1 °C  
Accuracy\*: ±0.2 °C or ±0.1 % of measured value (the larger value applies)

System accuracy\*\*: Up to ±0.23 °C

#### Humidity measurement

##### Capacitive sensor

Measuring range: 0 to 100 %RH  
Resolution: 0.1 %RH  
System accuracy\*\*: Up to ±1 % (see Probes)

##### NTC sensor/Ni-10000 sensor

Measuring range: -50 to +150 °C / to +180 °C  
Resolution: 0.1 °C  
System accuracy\*\*: Up to ±0.4 °C

Calculated humidity parameters: td, g/m<sup>3</sup>, g/kg, J/g (pressure-compensated)

#### Typical battery lifetimes:

9 V block (Al-Mn): 20 – 45 h  
The hour times are reduced by a factor of 5 if a 9V rechargeable battery is used.

#### Warranty: Meas. instr. 2 yrs

\*Accuracy: ±1 digit, at +22 °C  
\*\*System accuracy: total accuracy of probe and measuring instrument.  
Order our probe brochure for more information.

Qty.	Accessories for data documentation, processing and power supply	Part no.
	<b>Testo log printer</b> , prints data, location, product names with date and time	0554.0545
	<b>Battery recharger</b> with 4 NC rechargeable batteries for Testo log printer, batteries are recharged externally	0554.0110
	<b>ComSoft 3</b> for data management, incl. data base, analysis and graphics function, data analysis, trend curve	0554.0830
	<b>RS232 cable</b> , connects measuring instrument ↔ PC for data transmission	0409.0178
	<b>Plug-in mains unit</b> for mains operation and to recharge battery in instrument	0554.0088
	<b>9V rechargeable battery</b> , instead of battery	0515.0025
	<b>Humidity adjustment set 11.3 % / 75.3 %RH</b> , incl. Instruction manual and adapter for various probes	0554.0660

Qty.	Caps for all humidity probes with Ø 12 and 21 mm	Part no.
	<b>Teflon sintered filter</b> , material: PTFE. Not affected by condensation, water-repellent, resistant to corrosive substances. Applications: compressed air measurements, <b>high humidity range</b> (long-term measurement), high velocities.	Ø 21 mm 0554.0666 Ø 12 mm 0554.0756
	<b>Stainless steel sintered cap</b> , material: V2A stainless steel. Highly robust, suitable for plunging, should be cleaned with compressed air, mechanical protection of sensor. Applications: high mechanical loads, high velocities.	Ø 21 mm 0554.0640 Ø 12 mm 0554.0647
	<b>Surface adapter</b> for humidity probe with Ø 12 mm, to localize damp spots, e.g. on walls	0628.0012

Subject to change without notice.

### Please send me the following:

- Special probe brochure with detailed technical data on testo 645**
- Detailed information on Testo Calibration Services**

Name \_\_\_\_\_ Address \_\_\_\_\_

Company \_\_\_\_\_

Department \_\_\_\_\_ Date, Signature \_\_\_\_\_