Committing to the future

testo 6682

# Humidity Transmitter for Explosive Areas

NEW!


**Efficient humidity measurement specially for Ex applications in accordance with ATEX II 2 (1) G Ex ia [ia] IIC T4 as well ATEX II 1/2 G Ex ia IIC T4/T3**

# Your benefits with the testo 6682 humidity transmitter

**The new testo 6682 humidity transmitter for Ex applications meets the most stringent requirements for process monitoring in explosive applications for pharmaceutical, chemical and process engineering.**

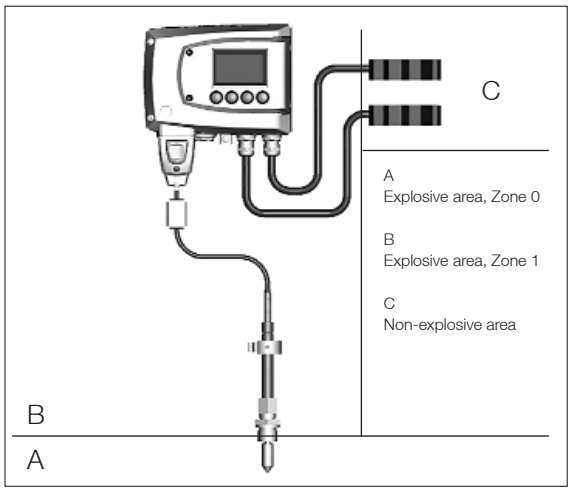
Process safety and system availability are supported by the excellent features of teso 6682 which enthuse those working in the field:

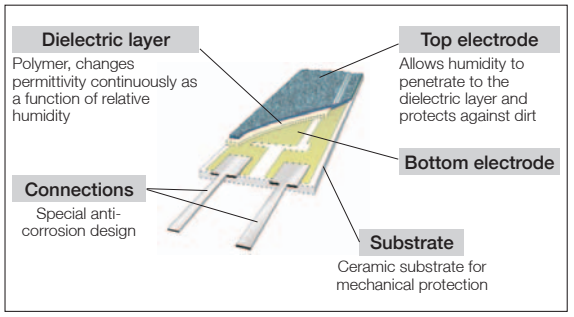
- Highest accuracy and long-term stability of ±1% RH
- Preventive maintenance through self-monitoring and early warning
- Historical traceability thanks to internal log
- Flexible calibration concept
- Replaceable digital testo 6616 probe
- Display and operating menu for easy operation with parameterization, adjustment and analysis

Ex protection classes

The testo 6682 humidity transmitter is intended for protection class ATEX II 2 (1) G Ex ia [ia] IIC T4, the digital testo 6616 humidity probe for protection class ATEX II 1/2 G Ex ia IIC T4/T3.
The sensor tip can be used in a Zone 0 explosive area, the transmitter in Zone 1.
Basic safety and health requirements are fulfilled by compliance with EN 60079-0:2006, EN 60079-11:2007 as well as EN606079-26:2007 for testo 6616.

| | |
|---|---|
| II | Instrument group: Use in non-firedamp endangered areas |
| 1/2 | Instrument category: Application range Electronics Category 2, Application range Probe shaft Category 1 |
| 2 (1) | Instrument category: Instrument can be used in Category 2 and facilitates the connection of instruments which can be used in Category 1 |
| G | Media: For explosive mixtures of air and combustible gases, vapours or mist |
| Ex | Explosion-proof electrical equipment in accordance with European standards |
| ia | Ignition protection type: Intrinsic safety |
| [ia] | [ia] The instrument provides an intrinsic electric circuit for an additional instrument |
| IIC | The instrument can be used for gases in the IIC gas group |
| T4/T3 | Temperature class T4 or T3 |




**Testo's humidity sensor: The core piece of high quality humidity transmitters now also for Ex areas**

Testo is the first choice when it comes to superior humidity transmitters for a critical climate and drying processes. Using our many years of experience, the sensor concept and signal processing have now been completely overhauled.

Accuracy and long-term stability were tested as part of 5 years of interlaboratory tests by different national calibration laboratories (PTB, CETIAT, NIST etc.). Even without a new adjustment, the ± 1% RH limit was not exceeded.

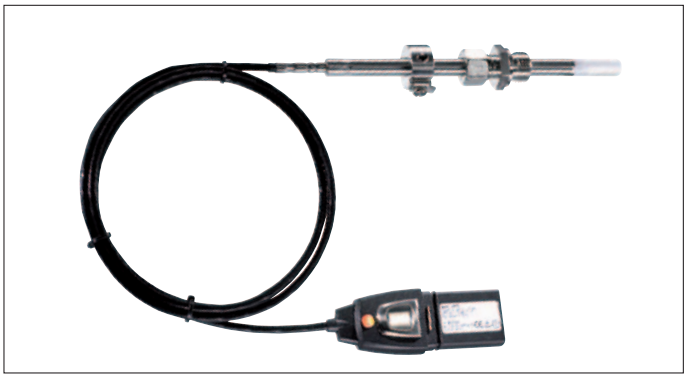
You are on the safe side thanks to the accuracy, stability and efficiency of the Testo humidity transmitter.

# testo 6682's versatile calibration concept


### Highest process stability through early warnings and self-monitoring

The testo 6682 humidity transmitter has numerous self-analyses available such as a warning if drift is suspected on the basis of 2 point adjustments or incongruous operational voltage. These messages are sent by signal to the display of the person responsible.

Thanks to this early warning system, the person responsible can reactly promptly and take the necessary measures before the process is interrupted. The keyword is: "System availability".



### Time-optimised handing and traceability thanks to the exchangeable, digital testo 6616 probe

The testo 6616 humidity probe can be easily replaced by hand. Adjustment and calibration data remain saved in the probe.

In order to be able to trace the probe's duration of use and the adjustments carried out, testo 6616 has its own serial number, an operational hours counter as well as an internal log which makes visible, on the transmitter's operating menu, how long the probe has already been in use and which configurations have been made.

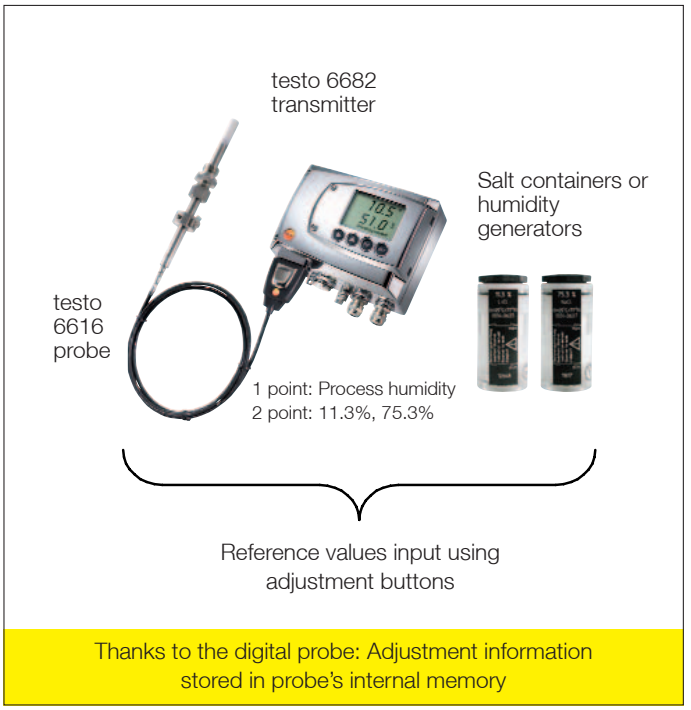



Fig.: 1 and 2 point adjustment

### Time saving and highest precision thanks to a practicable calibration concept

Testo's adjustment concept makes it possible to adjust the complete signal chain from sensor signal (probe) using digital signal (inside transmitter) to analog signal (isolating amplifier output signal)

The operating menu gives you the option of carrying out

- 1 point adjustments
- 2 point adjustments (can be carried out in seconds using adjustment buttons)
- Analog adjustments

Adjustment information is stored digitally in the probe's internal memory. That's how 1 point adjustments as well as 2 point adjustments are made directly on-site or on a different testo 6682 humidity transmitter (e.g. in a calibration laboratory).

**World innovation:**

Thanks to analog output adjustments, it is possible to eliminate measurement errors occurring in the transmitter on account of digital analog conversion.



**More information at www.testo-international.com/transmitter**

# Technical data / Order codes

## Technical data

| | | testo 6682 humidity transmitter | testo 6616 humidity probe |
|---|---|---|---|
| Parameters | Humidity | %RH / °Ctd / °Ftd, as well as all the parameters shown in the order code | |
| | Temperature | °C / °F | |
| Meas. range | Humidity | 0 to 100 %RH | |
| | Temperature | -30 to +150 °C / -22 to +302 °F<br>Ex Depending on application location and type, for safety reasons there may be a limited measurement range in the explosive area. Please observe separate safety information and the explosion temperature class. | |
| Accuracy | Humidity | ±(1 RH% + 0.007 x reading) für 0 to 90 %RH /<br>±(1.4 RH% + 0.007 x reading) für 9 0to 100 %RH /<br>+0.02 %RH per Kelvin depending on the process and electronics temperature (if deviated from 25 °C / 77 °F) | |
| | Temperature | ±0.15 °C / 0.27 °F (PT1000 1/3 Class B) | |
| Resolution | | 0.1% RH or 0.01 °C / 0.01 °F | – |
| Measuring rate | | 1/s | – |
| Power supply | | 2 wire: 4 to 20 mA, current loop from certified intrinsically safe power units<br>U0 = 28V; I0 = 93 mA; P0 = 650 mW | – |
| Analog output | | 4 to 20 mA ± 0.03 mA (2 wire) | – |
| Analog output Resolution | | 12 bit | – |
| Display | | 2 line LCD with plain text line | – |
| Application temperature Housing | | With display =-20 to +70 °C / +32 to +122 °F | – |
| Storage temperature | | -40 to +80 °C / -40 to +176 °F | – |
| Housing/Weight | | Metal, 2.01 kg / 4.33 lb | 0.45kg |
| Protection class | | IP 65, if the transmitter is connected or sealing plugs are inserted in the cable entry point | – |
| Guidelines, standards, tests | | 94/9/EG (ATEX), EN 60079-0:2006, EN 60079-11:2007, EU Guideline: 2004/108/EU | EN 60079-0:2006, EN 60079-11:2007, EN 606079-26:2007, 94/9/EG (ATEX), EU Guideline: 2004/108/EU |
| Warranty | | 2 years, See www.testo.com/warranty for warranty conditions | |
| Material | | Common EU Guideline 89/336/EEC | |

## Order codes for testo 6682 transmitter

0555 6682 Bxx Cxx Dxx Fxx Gxx Kxx

B01 4 to 20 mA (2 wire, 24 VDC)

C02 With display / English
C03 With display / German
C04 With display/ French
C05 With display/ Spanish
C06 With display / Italian
C07 With display / Japanese

D01 Cable entry point M16
D02 Cable entry point NPT ½"

Channel 1*

F01 %RH / min / max
F02 °C / min / max
F03 °F / min / max
F04 $°C_{td}$ / min / max
F05 $°F_{td}$ / min / max
F06 g/kg / min / max
F07 gr/lb / min / max
F08 g/m³ / min / max
F09 gr/ft³ / min / max
F10 ppmV / min / max
F11 °Cwb / min / max (wet bulb)
F12 °Fwb / min / max (wet bulb)
F13 kJ/kg / min / max (enthalpy)
F14 mbar/ min / max (water vapour partial pressure)
F15 inch $H_2O$ / min / max (water vapour partial pressure)
F18 %Vol.

Channel 2*

G01 %RH / min / max
G02 °C / min / max
G03 °F / min / max
G04 $°C_{td}$ / min / max
G05 $°F_{td}$ / min / max
G06 g/kg / min / max
G07 gr/lb / min / max
G08 g/m³ / min / max
G09 gr/ft³ / min / max
G10 ppmV / min / max
G11 °Cwb / min / max
G12 °Fwb / min / max
G13 kJ/kg / min / max (enthalpy)
G14 mbar / min / max (water vapour partial pressure)
G15 inch $H_2O$ / min / max (water vapour partial pressure)
G18 %Vol.

K01 German-English Instruction Manual
K02 French-English Instruction Manual
K03 Spanish-English Instruction Manual
K04 Italian-English Instruction Manual
K05 Dutch-English Instruction Manual
K06 Japanese-English Instruction Manual
K07 Chinese-English Instruction Manual

*Standard scale will be delivered, if "min" and "max" are not specified.

## Order codes for testo 6616 probes

0555 6616 Mxx Nxx Pxx

M03 Teflon sintered filter

N01 Cable length, 1 metre
N02 Cable length, 2 metres
N05 Cable length, 5 metres
N10 Cable length, 10 metres

P20 Probe length: 200 mm
P50 Probe length: 500 mm

Subject to change without notice.

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