




## Measurement Solutions for Refrigeration Engineering





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### **More service on account of**

- First calibrations
- Recalibrations
- Advice, seminars, training
- Custom-designed solutions
- 10 year service guarantee
- Highly specialised service experts worldwide

### **More assurance on account of**

- Highly qualified, individually trained staff
- 40 years' experience, more than one million measuring instruments in use
- DIN EN ISO 9001 certification
- Worldwide presence and accessibility

### **More user-friendliness on account of**

- Uncomplicated and fast exchange of wear parts such as batteries, rechargeable batteries



# The benefits of electronic manifolds

## A quantum leap in measurement engineering

With the introduction of new electronic manifolds for measuring, recording and regulating refrigeration units, Testo is setting a new standard.

What began with efficient and practical pressure and flow meters for contractors finds its logical continuation, in terms of engineering, in electronic manifolds.

The high-standard instruments form a unit composed of sensitive sensors for measuring pressure, vacuum and temperature with a built-in three-way valve block to temporarily modify flow paths in the units. Pressure and evaporation or condensation temperature are shown on the digital display. 35 refrigerants are stored by the software in the instrument. Additional refrigerants can be downloaded from [www.testo.com](http://www.testo.com). The product line is therefore suitable for nearly all refrigeration units and replaces impractical mechanical manifolds.

Recording and documentation of the readings taken on site are among their most important features. The readings can be stored directly in the instrument and sent to your PC at a later stage.

## Learning changes

Testo's product lines provide flexibility during applications in the pressure and refrigeration engineering sector, helping you to optimise your daily work. Do not hesitate to contact us with your queries. Communication between qualified experts and practitioners is invaluable for the advancement of measurement engineering in this area.

### Calibration laboratory puts pressure on pressure

Testo's calibration laboratory for the parameter, pressure, has grown over the last few years. Highly accurate pressure scales and electronic pressure calibrators are available for calibration. Today the laboratory is accredited for relative pressure and absolute pressure from 0 to 70 bar. Calibration over an extremely wide range can be carried out at highest accuracy levels. The best possible measuring uncertainty in the range from 0.2 to 160 mbar is, for example, only 0.001 mbar.



## Linde Kältetechnik GmbH & Co. KG trusts Testo



Mr. Waldvogel,  
Customer Service  
Technician, Linde  
Kältetechnik GmbH &  
Co. KG

Linde is one of the leading manufacturers of refrigerated and non-refrigerated units for the food sector. Their specialists use modern testo 560 electronic manifolds to record, regulate and measure.

*What are the arguments in favour of using Testo's electronic manifolds?*

As a manufacturer of top quality measuring instruments for this sector, I am sure you are not hearing for the first time that there were major problems in the past. The number of refrigerants required several mechanical measuring instruments with all kinds of gadgets in order to be able to take any kind of usable reading. Our technicians are now delighted with Testo's manifolds. More than 35 refrigerants available and complex conversions have been dispensed with or in other words: This is exactly how we imagined innovations which can be put to practical use – Testo is certainly living up to its reputation as an innovative manufacturer.

*What exactly fascinates your specialists?*

It's simple really; accurate values and convenient handling such as we have never seen before. Electronic manifolds with high and low pressure, vacuum and temperature socket are tool and measuring instrument in one. Highest efficiency is thus ensured resulting in a significant increase in cost effectiveness during maintenance work.

*Once Testo, always Testo?*

OK, so we don't want to exaggerate; there are other manufacturers out there who introduce excellent products to the market but there is one thing we have certainly established: What Testo has developed with the electronic manifold for refrigeration and pressure technicians is not only unique but has also certainly drawn our attention to the company. We are looking forward to the next ideas from Testo's innovation factory.

The right instrument for every



All about refrigeration engineering

MANIFOLD GAUGE  
Model: 3000  
Pressure Range: 0-100 psig  
Temperature Range: -100 to 100 °F  
Accuracy: ±1%  
CE

# application

Robust measuring instruments for initial operation and maintenance (Page 6 – 11)

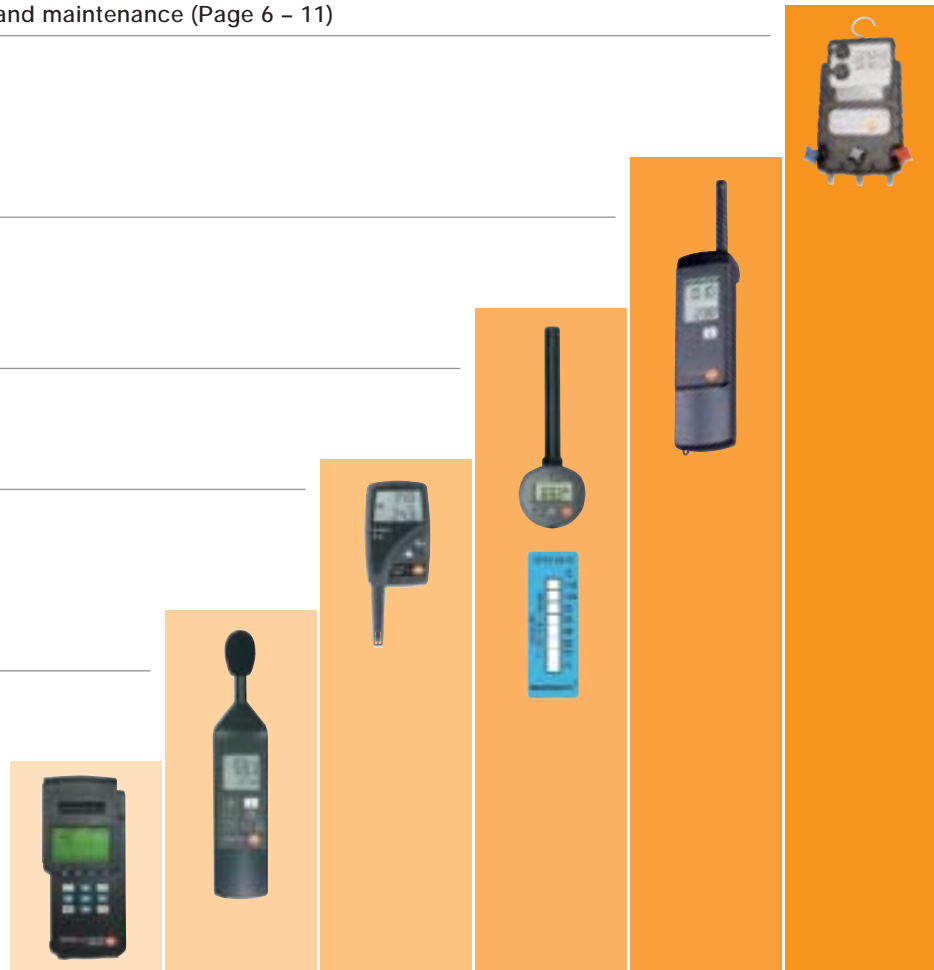
Compact measuring instruments (Page 12 – 18)  
Infrared measuring instruments (Page 21)

Mini measuring instruments (Page 13, 15, 19)  
Measurement foils (Page 20)

Dataloggers (Page 24 – 31)

Fiberscopes / rpm meters / Sound level meters  
(Page 22 – 23)

Reference measuring instruments (Page 32 – 37)  
Testo stationary probes (Page 38 – 39)



## Overview

Calculation of superheating, subcooling						X
Customer/System allocation						X
Up to 38 refrigerant curves in instrument						X
Vacuum measurement						X
Air temperature	X	X	X	X	X	X
Surface temperature	X		X	X	X	X
Differential temperature	X				X	
Non-contact temperature measurement					X	
Air humidity	X		X	X	X	
Air velocity	X			X	X	
Low pressure / High pressure probe	X					X
Long-term monitoring	X		X			X
rpm	X	X				
Sound level		X				
Readings printout	X		X		X	
Data processing on PC	X		X			X
Data memory	X		X			X

## Robust measuring instruments for the initial operation and maintenance of refrigeration and heat pumps

### Do you manage to get home by 5pm every day?



Axel Rieple,  
Head of Sales  
Germany

Probably not, because your job expects above-average dedication. You also need partners who won't let you down. We are leading the way with our quality

service. Check it out for yourself.

Do you need an accessory, do you have a question about measuring or do you need a replacement instrument? – Testo Service employees are at your service when you need them. Good to know when the situation requires.



Shown in display: relative or absolute pressure, back pressure, high pressure, selected refrigerants, condensation and evaporating temperature



Probe socket °C (testo 556/560), data communication with PC (testo 560), connection of external memory chip (testo 556)



Positive pressure valve for vacuum sensor (testo 560)



Valve bank, back pressure, high pressure, filling, disposing



# Initial operation and maintenance: Measuring, logging and tuning

## testo 560

The electronic manifold for all applications on refrigeration systems and heat pumps. The instrument with high-quality sensors to measure pressure, vacuum and temperature. Incl. valve bank to temporarily change the flow paths in the unit.

Convenient PC software is used for data management: data overviews of all measurements, displays in table and graphic form, automatic acceptance of company, fitter, customer and system data.

- Vacuum measurement with accurate vacuum sensor
- Internal temperature sensor and external temperature probe socket
- Superheating, subcooling, temperature difference calculation
- Convenient data analysis on your notebook/PC
- Valve bank for evacuating, filling and changing the flow paths in a unit



Robust design, instrument protection due to SoftCase rubber sleeve



Service and maintenance incl. initial operation of a refrigeration unit

Refer to the testo 556 table for refrigerants stored in instrument

### testo 560-1

Electronic manifold with SoftCase, brass valve bank, with battery

Part no. 0560 5601

### testo 560-2

Electronic manifold with SoftCase, stainless steel valve bank (also for ammonia), with battery

Part no. 0560 5602

### Recommended Set: For the refrigeration technician

Electronic manifold with SoftCase, brass valve bank, with battery	0560 5601
PC software for data analysis and documentation	0554 5600
Mains unit for external power supply	0628 1084
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter from 6 mm to max. 75 mm, Tmax +120°C	0609 5600
RS232 cable	0628 0178
System case for measuring instrument and accessories	0516 5601
	<b>Brass version</b>
<b>As above set, but with the following instead of testo 560-1:</b>	<b>Stainless steel version</b>
testo 560-2, Electronic manifold, stainless steel valve bank (also for ammonia (NH <sub>3</sub> ) refrigerant)	

Temperature probes	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Robust, waterproof immersion/penetration probe	110 mm Ø 4 mm      30 mm Ø 3.2 mm	-50 to +400 °C	Class A	12 s	0628 1272 Conn.: Fixed cable
Robust, waterproof surface probe with widened measuring tip, for smooth surfaces	110 mm Ø 4 mm      Ø 9 mm	-50 to +400 °C	Class B	40 s	0628 1972 Conn.: Fixed cable
Robust, affordable air probe	110 mm Ø 4 mm	-50 to +400 °C	Class A	70 s	0628 1772 Conn.: Fixed cable
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter from 6 mm to max. 75 mm, Tmax +120°C	280 mm 20 mm	-50 to +120 °C	Class B	90 s	0609 5600 Conn.: Fixed cable
Adapter to probe/RS 232 connection for acdoor instruments PCD 312					0554 5603

Accessories Ordering data	Part no.
Mains unit for external power supply, Mains unit is recommended for long-term measurements	0628 1084
Transport case (plastic), Basic case without pockets, space for instrument and accessories	0516 0008
System case for measuring instrument and accessories, Simply click on to tools system case 0516 0329	0516 5601
PC software for data analysis and documentation, With data management incl. diagram and table displays	0554 5600
RS232 cable, Cable to connect instrument to PC (1.8m) for data transfer	0628 0178
ISO calibration certificate/Pressure, Absolute pressure; 5 pt. distributed over the whole measurement range	0520 0115
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -18°C; 0°C; +60°C	0520 0001
ISO calibration certificate/Temperature, Meas. instruments with surface probe; calibration points selectable from -15 to +480°C	0520 0121
DKD calibration certificate/Pressure, Absolute pressure; 11 measuring points distributed over meas. range	0520 0212

Technical data	
Measurement range Pressure (abs)	0 to +50 bar (Pressure) 0 to +200 hPa (Vacuum)
Overload	±75 bar
Accuracy	±0.5% of fsv ±1 digit
Resolution	0.1 bar (Pressure) 0.1 hPa (Vacuum)
Meas. range Temperature	-50 to +400 °C
Oper. temp.	-20 to +60 °C
Battery life	40 h
Protection class	IP65
Pressure substances	CFC, fluorinated hydrocarbon, nitrogen, (ammonia, testo 560-2 only)
Compensation	-10 to +50 °C
Memory	Approx. 100,000 readings
Conn.	3 x 7/16" - UNF



## Maintenance and Service with System Management: Measurement and Regulation

### testo 556

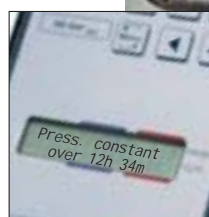
testo 556, the electronic manifold with 3-way valve bank and 2 pressure sensors, calculates superheating or subcooling in a refrigeration unit or heat pump via externally connected probes. The flow paths of a system can be temporarily changed with the 3-way valve battery.

All of the current data in the unit can be documented thanks to the external memory chip (optional)

- Direct conversion of pressure values to temperature values (condensation, vaporisation temperature)
- 2 externally connectable temperature probes
- 36 stored refrigerants
- 3 way valve bank
- Internal memory



Memory chip incl. rating plate for storing system data and history



Leak check with recording and display of data



Measuring subcooling using an attached pipe wrap probe

#### testo 556-1

Electronic manifold with 2 temperature probe sockets, brass valve bank, with battery

Part no. 0560 5561

#### testo 556-2

Electronic manifold with 2 temperature probe sockets, stainless steel valve block (also for ammonia, NH3 refrigerants), with battery

Part no. 0560 5562

Accessories Ordering data	Part no.
Memory chip incl. machine rating plate (also order 0628 5600 interface cable)	0554 5507
Interface cable from measuring instrument to memory chip, Attachable to memory chip, transfers system data and reads out via instrument display	0628 5600
Serial interface cable from memory chip to PC, Attachable to memory chip, writes and reads out measurement data	0409 5600
Software for memory chip (please also order 0409 5600 interface cable), Enters and reads out data in a system	0554 5601
Transport and Protection	Part no.
Transport case (plastic), Basic case without pockets, space for instrument and accessories	0516 0008
System case for measuring instrument and accessories, Simply click on to tools system case 0516 0329	0516 5601
Tools system case with tools section 0516 0329, without contents, attachable to system case 0516 5601	0516 0329
Calibration Certificates	Part no.
ISO calibration certificate/Pressure, Absolute pressure; 5 pt. distributed over the whole measurement range *	0520 0115
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -18°C; 0°C; +60°C	0520 0001
ISO calibration certificate/Temperature, Meas. instruments with surface probe; calibration points selectable from -15 to +480°C	0520 0121
DKD calibration certificate/Pressure, Absolute pressure; 11 measuring points distributed over meas. range *	0520 0212
DKD calibration certificate/Temperature, Meas. instr. with air/immersion probe; calibration points -20°C; 0°C; +60°C	0520 0211

\* Please remember to order two calibration certificates (high/low pressure) when calibrating a manifold.

#### Recommended Set: Set for maintenance and service on refrig. systems and heat pumps

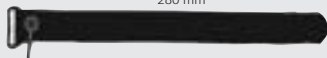

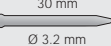



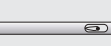
Electronic manifold with 2 temperature probe sockets, brass valve bank, with battery	0560 5561
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter from 6 mm to max. 75 mm, Tmax +120°C	0609 5600
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter from 6 mm to max. 75 mm, Tmax +120°C	0609 5600
Memory module with machine rating plate	0554 5507
Software for memory chip	0554 5601
Interface cable from measuring instrument to memory chip	0628 5600
Serial interface cable from memory chip to PC	0409 5600
System case for measuring instrument and accessories	0516 5601

Brass version

As above set but with the following instead of 556-1:

testo 556-2, Electronic manifold, stainless steel valve bank (also for ammonia (NH3) refrigerant)

Stainless steel version

Description	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter from 6 mm to max. 75 mm, T <sub>max</sub> +120°C	 280 mm 20 mm	-50 to +120 °C	Class B		0609 5600 Conn.: Fixed cable
Robust, waterproof immersion/penetration probe	 110 mm Ø 4 mm  30 mm Ø 3.2 mm	-50 to +400 °C	Class A	12 s	0628 1272 Conn.: Fixed cable
Robust, waterproof surface probe with widened measuring tip, for smooth surfaces	 110 mm Ø 4 mm  Ø 9 mm	-50 to +400 °C	Class B	40 s	0628 1972 Conn.: Fixed cable
Robust, affordable air probe	 110 mm Ø 4 mm 	-50 to +400 °C	Class A	70 s	0628 1772 Conn.: Fixed cable

Refrigerants stored in instrument:			
R 12	R 236F	R 407A	R 502
R 1270	R 290	R 407B	R 507
R 123	R 401A	R 407C	R 508
R 124	R 401B	R 408A	R 600
R 125	R 401C	R 409A	R 600A
R 134A	R 402A	R 410A	RDI 24
R 22	R 402B	R 413A	RDI 36
R 227	R 403B	R 417A	RDI 44
R 23	R 404A	R 500	R 717 *

\* testo 556-2 only

Technical data	Pressure	Temperature
Meas. range	0 to +50 bar	-100 to +400 °C
Overload	75 bar	
Accuracy ±1 digit	±0.5% of fsv	
Resolution	0.1 bar	0.1 °C
Oper. temp.	-20 to +60 °C	
Storage temp.	-20 to +60 °C	
Battery life	40 h	
Dimensions	175 x 108.6 x 34.3 mm	
Protection class	IP65	
Pressure media: CFC, fluorinated hydrocarbon, nitrogen, (ammonia, testo 556-2 only)		
Compensation: -10 to +50°C		
Internal memory: Wrap-around memory (3610 values)		
Memory chip: 8 KB		
Connection: 3 x 7/16" - UNF		

## Accessories

### Memory module with machine rating plate

Rating plate with memory chip for filing system data and system history



Memory chip incl. machine rating plate (also order 0628 5600 interface cable)

Part no. 0554 5507

### Interface cable

Interface cable from measuring instrument to memory chip



Attachable to memory chip, transfers system data and reads out via instrument display

Part no. 0628 5600

### Software for memory chip

The software manages all customer addresses, systems and individual customer and system information. The recorded data of repairs, leak tests or evacuations on refrigeration systems can be easily assigned to the respective customer. Data analysis is not possible in table or graphics form.



Software for memory chip (please also order 0409 5600 interface cable)

Part no. 0554 5601

### System case

The click-on case system specially for tradespeople enables easy transport of all your tools.



System case for measuring instrument and accessories, Simply click on to tools system case 0516 0329

Part no. 0516 5601

## Maintenance and Service: Measurement and Regulation

### testo 555

testo 555, the electronic manifold with 3-way valve bank and 2 pressure sensors for service and maintenance work on refrigeration systems and heat pumps.

The pressures measured are converted immediately, depending on the selected refrigerant, to temperature values and all the values are shown on the display.

- Data recording and display in instrument
- Pressure probes temperature-compensated
- 2 pressure sockets
- 36 refrigerants
- 3 way valve bank
- Internal memory



Display of calculated Carnot and Lorenz cooling/heating output figures



Connection: 3 x 7/16"-UNF



Determining vaporisation and condensation temperatures

#### testo 555-1

Electronic manifold, brass valve bank, with battery

Part no. 0560 5551

#### testo 555-2

Electronic manifold, stainless steel valve bank (also for ammonia, NH<sub>3</sub> refrigerants), with battery

Part no. 0560 5552

#### Refrigerants stored in instrument:

R 12	R 236F	R 407A	R 502
R 1270	R 290	R 407B	R 507
R 123	R 401A	R 407C	R 508
R 124	R 401B	R 408A	R 600
R 125	R 401C	R 409A	R 600A
R 134A	R 402A	R 410A	RDI 24
R 22	R 402B	R 413A	RDI 36
R 227	R 403B	R 417A	RDI 44
R 23	R 404A	R 500	R 717 *

\* testo 555-2 only

#### Accessories Ordering data

#### Part no.

Transport case (plastic), Basic case without pockets, space for instrument and accessories 0516 0008

System case for measuring instrument and accessories, Simply click on to tools system case 0516 0329 0516 5601

Tools system case with tools section 0516 0329, without contents, attachable to system case 0516 5601 0516 0329

#### Calibration Certificates

#### Part no.

ISO calibration certificate/Pressure, Absolute pressure; 5 points distributed over the measurement range 0520 0125

DKD calibration certificate/Pressure, Absolute pressure; 11 measuring points distributed over meas. range 0520 0212

#### Technical data

Meas. range 0 to +50 bar

Overload 75 bar

Accuracy ±1 digit ±0.5% of fsv

Resolution 0.1 bar

Oper. temp. -20 to +60 °C

Storage temp. -20 to +60 °C

Battery life 40 h

Dimensions 175 x 108.6 x 34.3 mm

Protection class IP65

Pressure media: CFC, fluorinated hydrocarbon, nitrogen, (ammonia, testo 555-2 only)

Compensation: -10...+50°C

Internal memory: Wrap-around 3610 values

Connection: 3 x 7/16" - UNF

# Absolute pressure meter

## testo 551

testo 551, the highly accurate absolute pressure meter, is ideal for measuring vacuum in refrigeration systems and heat pumps.

testo 551 shows the respective sublimation or evaporation temperature of water. The 0 to 200 mbar (abs) vacuum cell is separated from the media. Positive pressure protection up to 6 bar is available.

- 6 bar (abs) positive pressure protection
- Recording and display of measurement data in instrument
- Stainless steel pressure sensor for media compatibility
- Resolution of 0.0001 bar
- Temperature compensation
- 7 units: bar, mbar, psi, Pa, micron, mWS, ftWC



Storage and display of the performance data of 9 vacuum pumps on the unit display

Connection: 1 x 7/16" UNF

Evacuating a refrigeration system

### testo 551

**0 to 200 hPa/mbar abs**  
Absolute pressure meter for vacuum measurement with stainless steel pressure sensor, with battery

Part no. 0560 5510

Accessories Ordering data	Part no.
Transport case (plastic), Basic case without pockets, space for instrument and accessories	0516 0008
System case for measuring instrument and accessories, Simply click on to tools system case 0516 0329	0516 5601
Tools system case with tools section 0516 0329, without contents, attachable to system case 0516 5601	0516 0329
Calibration Certificates	Part no.
ISO calibration certificate/Pressure, Absolute pressure; 5 points distributed over the measurement range	0520 0125
DKD calibration certificate/Pressure, Absolute pressure; 11 measuring points distributed over meas. range	0520 0212

Technical data	
Meas. range	0 to +200 hPa
Accuracy	±0.5% of fsv ±1 digit
Resolution	0.0001 bar
Oper. temp.	-20 to +60 °C
Storage temp.	-20 to +60 °C
Battery life	40 h
Dimensions	175 x 108.6 x 34.3 mm
Protection class	IP65
Pressure media:	CFC, fluorinated hydrocarbon, nitrogen, ammonia
Compensation:	-10 to +50 °C
Internal memory:	Wrap-around memory 3610 values
Connection:	1 x 7/16" - UNF

## Measure flow and temperature professionally and efficiently

### testo 435

testo 435, with volume flow calculation ( $\text{m}^3/\text{h}$ ,  $\text{m}^3/\text{min}$ , ...), has all the advantages of thermal and vane anemometers.

The following can be connected to testo 435:

- Vane probes
- Thermal probes
- Temperature probes

- $\text{m/s}$  and  $\text{m}^3/\text{h}$  (Volume flow calculation 0 to  $999.999 \text{ m}^3/\text{h}$ )
- Fast documentation on measurement printed on site

#### testo 435

Anemometer, incl battery and calibration protocol

Part no. 0560 4350

Printer and Accessories	Part no.
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries	0554 0547
Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally	0554 0110
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls), Measurement data documentation legible for up to 10 years	0554 0568
Accessories	Part no.
9V rech. battery for instrument, instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
testovent 410, volume flow funnel, $\varnothing$ 340mm/330 x 330mm, incl. case	0554 0410
testovent 415, volume flow funnel, $\varnothing$ 210mm/190x190mm, incl. case	0554 0415
Transport and Protection	Part no.
TopSafe (protection case) with bench stand, Protects instrument from impact and dirt	0516 0183
Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder	0554 0550
Accessories set (for instrument with TopSafe) includes multi-function clip and probe holder	0554 0552
Case for instrument and probes, For safe and orderly storage	0516 0182
Transport case (plastic) for instrument and accessories, For safe and orderly storage	0516 0184
Calibration Certificates	Part no.
ISO calibration certificate/Velocity, Hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s	0520 0004
ISO calibration certificate/Velocity, Hot wire, vane anemometer, Pitot tube; calibration points 5; 10; 15; 20 m/s	0520 0034
DKD calibration certificate/Velocity, Hot wire, vane anemometer; calibration points 0.5; 1; 2; 5; 10 m/s	0520 0244
DKD calibration certificate/Velocity, Hot wire, vane anemometer, Pitot tube; calibration points 2; 5; 10; 15; 20 m/s	0520 0204



Timed and multi-point mean calculation



Monitors air circulation in a refrigeration cabinet

#### Recommended Set: The Starter Set for measuring velocity in ducts

Anemometer, incl battery and calibration protocol	0560 4350
Affordable hot wire probe for $\text{m/s}$ and $^{\circ}\text{C}$ , $\varnothing$ 12mm, with telescopic handle max. 675 mm	0635 1044
Transport case (plastic) for instrument and accessories, For safe and orderly storage	0516 0184

#### Technical data

Probe type	Hot wire	Vane	NTC	Calc. parameter
Meas. range	0 to +20 $\text{m/s}$	+0.2 to +40 $\text{m/s}$	-50 to +150 $^{\circ}\text{C}$	0 to +999999 $\text{m}^3/\text{h}$
Accuracy $\pm 1$ digit	See probe data	See probe data	$\pm 1\%$ of mv (+100 to +150 $^{\circ}\text{C}$ ) $\pm 0.5^{\circ}\text{C}$ (-25 to +74.9 $^{\circ}\text{C}$ ) $\pm 0.8^{\circ}\text{C}$ (remaining range)	
Resolution	0.01 $\text{m/s}$ (0 to +10 $\text{m/s}$ ) 0.1 $\text{m/s}$ (+10.1 to +20 $\text{m/s}$ )	0.01 $\text{m/s}$ (0 to +10 $\text{m/s}$ ) 0.1 $\text{m/s}$ (+10.1 to +40 $\text{m/s}$ )	0.1 $^{\circ}\text{C}$	
Display	LCD, 2 lines	Auto Off	10 min	
Oper. temp.	0 to +50 $^{\circ}\text{C}$	Weight	300 g	
Storage temp.	-20 to +70 $^{\circ}\text{C}$			
Battery life	>20 h (thermal probe)		>100 h (vane)	

Velocity Probes	Illustration	Meas. range	Accuracy	Part no.	
Affordable vane probe, $\varnothing$ 60 mm, e.g. for measurements at duct outlets		+0.25 to +20 $\text{m/s}$ Oper. temp. 0 to +60 $^{\circ}\text{C}$	$\pm(0.1 \text{ m/s} \pm 1.5\% \text{ of mv})$ (+0.25 to +20 $\text{m/s}$ )	0635 9244	
Vane probe, $\varnothing$ 60mm, with telescopic handle max. 754mm, e.g. for measurements at duct outlets		+0.25 to +20 $\text{m/s}$ Oper. temp. 0 to +60 $^{\circ}\text{C}$	$\pm(0.1 \text{ m/s} \pm 1.5\% \text{ of mv})$ (+0.25 to +20 $\text{m/s}$ )	0635 9344	
Vane probe, $\varnothing$ 16 mm, with telescopic handle max. 720mm, e.g. for measurements in ducts		+0.6 to +40 $\text{m/s}$ Oper. temp. 0 to +60 $^{\circ}\text{C}$	$\pm(0.2 \text{ m/s} \pm 1.5\% \text{ of mv})$ (+0.6 to +40 $\text{m/s}$ )	0635 9544	
Affordable hot wire probe for $\text{m/s}$ and $^{\circ}\text{C}$ , $\varnothing$ 12mm, with telescopic handle max. 675 mm		0 to +20 $\text{m/s}$ -20 to +70 $^{\circ}\text{C}$	$\pm(0.05 \text{ m/s} \pm 5\% \text{ of mv})$ (+0 to +20 $\text{m/s}$ )	0635 1044	
Quick action hot wire probe for $\text{m/s}$ and $^{\circ}\text{C}$ , $\varnothing$ 10 mm, with telescopic handle max. 835 mm, for measurements in the lower velocity range		0 to +20 $\text{m/s}$ -20 to +70 $^{\circ}\text{C}$	$\pm(0.03 \text{ m/s} \pm 4\% \text{ of mv})$ (+0 to +20 $\text{m/s}$ )	0635 1043	
Temperature probes	Illustration	Meas. range	Accuracy	$t_{99}$	Part no.
Waterproof immersion/penetration probe		-50 to +150 $^{\circ}\text{C}$ Long-term meas. range +125 $^{\circ}\text{C}$ , short-term +150 $^{\circ}\text{C}$ (2 min)	$\pm 0.5\%$ of mv (+100 to +150 $^{\circ}\text{C}$ ) $\pm 0.2^{\circ}\text{C}$ (-25 to +74.9 $^{\circ}\text{C}$ ) $\pm 0.4^{\circ}\text{C}$ (remaining range)	10 s	0613 1211 Conn.: Fixed cable
Robust, affordable air probe to check storage temperatures		-50 to +150 $^{\circ}\text{C}$ Long-term meas. range +125 $^{\circ}\text{C}$ , short-term +150 $^{\circ}\text{C}$ (2 min)	$\pm 0.5\%$ of mv (+100 to +150 $^{\circ}\text{C}$ ) $\pm 0.2^{\circ}\text{C}$ (-25 to +74.9 $^{\circ}\text{C}$ ) $\pm 0.4^{\circ}\text{C}$ (remaining range)	60 s	0613 1711 Conn.: Fixed cable

## Measure air flow and air temperature

### testo 425

The anemometer with separate, securely attached telescopic probe.

The telescopic probe facilitates measurements at difficult-to-access points e.g. in ceiling and wall outlets or in air conditioning ducts.

- Timed or multi-point mean calculation

- Parallel measurement of velocity and temperature
- Switches between: Hold/Max/Min; °C/°F; m/s/fpm

#### testo 425

Thermal anemometer with separate velocity/temperature probe incl. telescopic handle, battery and calibration protocol

Part no. 0560 4250



Telescopic probe (max. 675 mm long; Ø 20 mm), securely attached



Checking air flow in air conditioning ducts

Accessories Ordering data	Part no.
TopSafe (protection case) with bench stand, Protects instrument from impact and dirt	0516 0183
Case for instrument and probes, For safe and orderly storage	0516 0182
Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder	0554 0550
Accessories set (for instrument with TopSafe) includes multi-function clip and probe holder	0554 0552
9V rech. battery for instrument, Instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
ISO calibration certificate/Velocity, Hot wire, vane anemometer, Pitot tube: calibration points 1: 2: 5: 10 m/s	0520 0004
ISO calibration certificate/Velocity, Hot wire, vane anemometer; calibration points 0.5: 0.8: 1: 1.5 m/s	0520 0024
ISO calibration certificate/Velocity, Hot wire, vane anemometer, Pitot tube: calibration points 5: 10: 15: 20 m/s	0520 0034
DKD calibration certificate/Velocity, Hot wire, vane anemometer, Pitot tube: calibration points 2: 5: 10: 15: 20 m/s	0520 0204

Technical data		
Meas. range	0 to +20 m/s	-20 to +70 °C
Accuracy ±1 digit	±(0.05 m/s ±5% of mv) (0 to 20 m/s)	±0.7 °C (remaining range)
	±0.5 °C (0 to +50 °C)	
Resolution	0.01 m/s (0 to +10 m/s)	0.1 °C (-20 to +70 °C)
	0.1 m/s (+10.1 to +20 m/s)	
Oper. temp.	0 to +50 °C	
Storage temp.	-20 to +70 °C	
Battery life	20 h	
Dimensions	190 x 57 x 42 mm	

## Measure air flow and temperature, flexibly and easily

### testo 405-V1

testo 405-V1 is the first thermal anemometer in this price range which can measure air velocity, volume flow and temperature.

- m/s and m<sup>3</sup>/h (volume flow calculation 0 to 99.990 m<sup>3</sup>/h)
- Measurement in duct and at the duct outlet
- Duct holder and fixing clip for fast positioning

#### testo 405-V1

Velocity measurement stick, with channel holder, incl. fixing clip, battery

Part no. 0560 4051



Sensor protection thanks to pivotable protection cap, measurement stick 300 mm long



Measurement in VAC duct with duct holder

Checking air quantities (m<sup>3</sup>/h), e.g. at a duct outlet

Accessories Ordering data	Part no.
testovent 410, volume flow funnel, Ø 340mm/330 x 330mm, incl. case	0554 0410
testovent 415, volume flow funnel, Ø 210mm/190x190mm, incl. case	0554 0415
ISO calibration certificate/Velocity, Two point calibration; calibration points 5m/s and 10m/s	0520 0094
ISO calibration certificate/Velocity, Hot wire, vane anemometer, Pitot tube; calibration points 1; 2; 5; 10 m/s	0520 0004

Technical data			
Meas. range	0 to +10 m/s	-20 to +50 °C	0 to +99990 m <sup>3</sup> /h
Accuracy ±1 digit	±(0.1 m/s ±5% of mv) (0 to +2 m/s)	±(0.3 m/s ±5% of mv) (+2.1 to +10 m/s)	±0.5 °C (-20 to +50 °C)
Resolution	0.01 m/s / 0.1 °C	Battery life	20 h
Oper. temp.	0 to +50 °C	Storage temp.	-20 to +70 °C

## Thermohygrometer with probes

### testo 635

The testo 635 measuring instrument has two probe sockets: one multi-function probe socket for %RH/°C and a temperature probe socket.

Relative humidity and temperature are shown simultaneously in the display. Dewpoint is quickly calculated.

- Humidity sensor not affected by condensation
- Easy and fast accuracy check on site
- Testo printer to print data on site



Printed data documentation on site (optional)



Measures the ambient moisture at the outlet of an air conditioning unit

Printer and Accessories	Part no.
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries. For printout of reading on site	0554 0547
Recharger for printer (with 4 standard rech. batteries). Rechargeable batteries are recharged externally	0554 0110
Spare thermal paper for printer (6 rolls). Measurement data documentation legible for up to 10 years	0554 0568
Accessories Ordering data	Part no.
Adapter for surface humidity measuring, for humidity probes Ø 12mm. Locates damp spots on walls, for example	0628 0012
Cap for bore holes, for humidity probe Ø 12 mm. Measures equilibrium moisture in bore holes	0554 2140
Control and humidity adjustment set 11.3%RH/75.3%RH incl. adapter for humidity probes	0554 0660
Transport and Protection	Part no.
TopSafe (protection case) with bench stand. Protects instrument from impact and dirt	0516 0183
Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder	0554 0550
Teflon sintered filter, Ø 12 mm, for corrosive substances, High humidity range (long-term measurements), high velocities	0554 0756
Case for instrument and probes	0516 0182
Transport case (plastic) for instrument and accessories	0516 0184
Transport case (plastic) for measuring instrument, probes and accessories. Larger version, suitable for robust humidity probe 0636 2161	0516 0445
Calibration Certificates	Part no.
ISO calibration certificate/Humidity, Electronic hygrometers; calibration points 11.3%RH and 75.3%RH at +25°C	0520 0006
DKD calibration certificate/Humidity, Electronic hygrometers; calibration points 11.3%RH and 75.3%RH at +25°C	0520 0206

### testo 635

Humidity/temperature measuring instrument, incl. battery and calibration protocol

Part no. 0560 6350

#### Technical data

Probe type	Testo humid. sensor, cap.	Type K (NiCr-Ni)	Calc. parameter
Meas. range	0 to +100 %RH	-50 to +1000 °C	-20 to +70 °C td
Resolution	0.1 %RH (0 to +100 %RH)	0.1 °C (-50 to +200 °C) 1 °C (+200.1 to +1000 °C)	
Accuracy ±1 digit	See probe data	±(1 °C ±0.5% of mv) (-40 to +900 °C) ±(2 °C ±1% of mv) (remaining range)	
Oper. temp.	0 to +50 °C	Storage temp.	-20 to +70 °C
Dimensions	190 x 57 x 42 mm	Weight	300 g
Battery life	100 h		

Humidity probes	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Standard ambient air probe up to +70°C	144 mm Ø 12 mm	0 to +100 %RH -20 to +70 °C	±2 %RH (0 to +100 %RH) ±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	15 s	0636 9769
Robust humidity probe for measurements up to +140°C in e.g. exhaust ducts and for measuring equilibrium moisture in e.g. bulk material	300 mm Ø 12 mm	0 to +100 %RH -20 to +125 °C	±2 %RH (0 to +100 %RH) ±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	30 s	0636 2161
Temperature probes	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Measuring range short-term to +280°C		-60 to +130 °C	Class 2	5 s	0602 4592 Conn.: Fixed cable
Spare meas. head for pipe wrap probe					0602 0092
Clamp probe for measurements on pipes, pipe diameter 15 to 25 mm (max. 1"), meas. range short-term up to +130°C		-50 to +100 °C	Class 2	5 s	0602 4692 Conn.: Fixed cable
Quick-action surface probe with spring-loaded thermocouple, also for rough surfaces, measuring range short-term up to 500°C	150 mm Ø 4 mm Ø 10 mm	-60 to +300 °C	Class 2	3 s	0602 0392 Conn.: Fixed cable
Robust, affordable air probe	110 mm Ø 4 mm	-60 to +400 °C	Class 2	25 s	0602 1792 Conn.: Fixed cable

## Monitor Indoor Air Quality, flexible and robust

### testo 615 / 625

The compact thermohygrometer testo 615 with built-in probe measures ambient conditions e.g. in buildings, offices, warehouses etc. The testo 625 with a securely attached flexible humidity probe is ideal for measurements at difficult to access points and in air conditioning ducts.

- Dewpoint calculation (td)
- Humidity sensor unaffected by water
- Accuracy adjustment can be carried out by the user



testo 615 with probe integrated in housing



Use testo 625 to monitor Indoor Air Quality when storing food, for example

#### testo 615

Humidity meter, with built-in humidity/temperature probe, battery and calibration protocol

Part no. 0560 6150

#### testo 625

Humidity meter, with securely attached humidity/temperature probe incl. 1 m probe cable, battery and calibration protocol

Part no. 0560 6250

Accessories Ordering data	Part no.
TopSafe (protection case) with bench stand, Protects instrument from impact and dirt	0516 0183
Case for instrument and probes, For safe and orderly storage	0516 0182
Control/adjustment containers (75.3%RH), for 1 point control and adjustment of instrument	0554 0638
ISO calibration certificate/Humidity, Electronic hygrometers; calibration points 11.3%RH and 75.3%RH at +25°C	0520 0006

Technical data	testo 625	testo 615
Meas. range	+5 to +95 %RH -10 to +60 °C -20 to +50 °C td	+5 to +95 %RH 0 to +50 °C -20 to +50 °C td
Accuracy ±1 digit	±3 %RH (+5 to +95 %RH) ±0.5 °C (-10 to +60 °C)	
Resolution	0.1 %RH (+5 to +95 %RH) 0.1 °C (-10 to +60 °C)	
Oper. temp.	0 to +50 °C	
Storage temp.	-20 to +70 °C	
Battery life	100 h	

## Measure ambient production conditions, flexibly and easily

### testo 605-H1

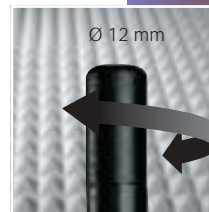
The humidity measurement stick you can bend; small, compact and accurate. The long-term stable sensor guarantees correct results even after years of use.

- With dewpoint calculation °C td
- Humidity sensor unaffected by condensation
- Use clip for attachment to breast pocket

#### testo 605-H1

%RH, °C, °C td  
Humidity measurement stick, with duct holder, incl. fixing clip and battery

Part no. 0560 6051



Sensor protected by pivotable protection cap, long measurement stick 125 mm



With flexible joint

Measures the air humidity at the outlet of an air conditioning unit

Accessories Ordering data	Part no.
ISO calibration certificate/Humidity, Electronic hygrometers; calibration point 75.3%RH at +25°C	0520 0096
ISO calibration certificate/Humidity, Electronic hygrometers; calibration points 11.3%RH and 75.3%RH at +25°C	0520 0006

Technical data		
Meas. range	+5 to +95 %RH 0 to +50 °C -20 to +50 °C td	
Accuracy ±1 digit	±3 %RH (+5 to +95 %RH) / ±0.5 °C (0 to +50 °C)	
Resolution	0.1 %RH / 0.1 °C	Battery life 200 h
Oper. temp.	0 to +50 °C	Storage temp. -20 to +70 °C



## Robust thermometers with a wide range of probes

The versatile testo 925/922/935 thermometers with a wide range of probes. The tough TopSafe case protects the instrument from dirt, water and impact.

- Large display

- Hold button to freeze readings
- Large range of probes for every application
- TopSafe case

### testo 935 – Measures and documents differential temperature

- 2 probes connectable, Type K/J/T
- 2 line display
- Printout of readings on Testo printer

#### testo 935

Thermometer, incl. battery and calibration protocol

Part no. 0560 9350

### testo 922 – Measures differential temperature

- 2 probes connectable, Type K
- T1, T2 display and differential temperature
- HOLD button to freeze readings

#### testo 922

Thermometer, incl. battery and calibration protocol

Part no. 0560 9224

### testo 925 – Robust and versatile

- 1 probe connectable, Type K
- Affordable and robust
- For daily temperature measurements

#### testo 925

Thermometer incl. battery and calibration protocol

Part no. 0560 9255

#### Technical data testo 935

Probe type	Type K (NiCr-Ni)	Type J (Fe-CuNi)	Type T (Cu-CuNi)
Meas. range	-50 to +1000 °C	-50 to +750 °C	-50 to +350 °C
Accuracy ±1 digit	±(0.7 °C ±0.5% of mv) (-40 to +900 °C) ±(1 °C ±1% of mv) (remaining range)	±(0.7 °C ± 0.5% of mv)	±0.6 °C (-20 to +70 °C) ±(1 °C ±0.5% of mv) (remaining range)
Display	LCD, 2 lines		
Auto Off	10 min		

#### Technical data testo 922 and testo 925

Probe type	Type K (NiCr-Ni)
Meas. range	-50 to +1000 °C
Accuracy ±1 digit	±(0.7 °C ±0.5% of mv) (-40 to +900 °C) ±(1 °C ±1% of mv) (remaining range)
Display	LCD, 1 line

#### Common Technical Data

Resolution	0.1 °C (-50 to +199.9 °C) 1 °C (remaining range)
Oper. temp.	0 to +50 °C
Storage temp.	-20 to +70 °C
Battery life	150 h
Dimensions	190 x 57 x 42 mm
Weight	300 g



testo 922 / 935: 2 probes can be connected, display of differential temperature



testo 935: Documentation of data on printer (optional)

Measuring overheating or subcooling in refrigeration units using testo 935

Printer and Accessories	Part no.
9V rech. battery for instrument, Instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
Transport and Protection	Part no.
TopSafe (protection case) with bench stand, Protects measuring instrument from water, dust, impact..., IP68 with waterproof probes (drop symbol) (For testo 925)	0516 0186
TopSafe (protection case) with bench stand, Protects instrument from impact and dirt (For testo 922/935)	0516 0183
Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder	0554 0550
Accessories set (for instrument with TopSafe) includes multi-function clip and probe holder	0554 0552
Case for instrument and probes, For safe and orderly storage	0516 0182
Transport case (plastic) for instrument and accessories, For safe and orderly storage	0516 0184
Calibration Certificates	Part no.
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -18°C; 0°C; +60°C	0520 0001
ISO calibration certificate/Temperature, Thermometers with surface probe; calibration points +60°C; +120°C; +180°C	0520 0071
ISO calibration certificate/Temperature, Measuring instruments with air/immersion probe; calibration points 0°C; +300°C; +600°C	0520 0031
DKD calibration certificate/Temperature, Meas. instr. with air/immersion probe; calibration points -20°C; 0°C; +60°C	0520 0211
Additional accessories for testo 935	Part no.
TopSafe (protection case) with bench stand, Protects instrument from impact and dirt	0516 0183
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries, For printout of reading on site	0554 0547
Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally	0554 0110
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls), Measurement data documentation legible for up to 10 years	0554 0568

## Suitable Probes

Description	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Pipe wrap probe with Velcro strip, for temperature measurement on pipes with diameter up to max. 120 mm, Tmax +120°C	395 mm 20 mm	-50 to +120 °C	Class 1	90 s	0628 0020 Conn.: Fixed cable
Clamp probe for measurements on pipes, pipe diameter 15 to 25 mm (max. 1"), meas. range short-term up to +130°C		-50 to +100 °C	Class 2	5 s	0602 4692 Conn.: Fixed cable
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Measuring range short-term to +280°C		-60 to +130 °C	Class 2	5 s	0602 4592 Conn.: Fixed cable
Spare meas. head for pipe wrap probe	35 mm 15 mm	-60 to +130 °C	Class 2	5 s	0602 0092
Quick-action surface probe with spring-loaded thermocouple, also for rough surfaces, measuring range short-term up to 500°C	150 mm Ø 4 mm	-60 to +300 °C	Class 2	3 s	0602 0392 Conn.: Fixed cable
Quick-action surface probe, bent, with sprung thermocouple strip, also for rough surfaces, measuring range short-term up to +500°C	80 mm Ø 4 mm 70 mm	-60 to +300 °C	Class 2	3 s	0602 0992 Conn.: Fixed cable
Waterproof surface probe with widened measuring tip for flat surfaces	110 mm Ø 4 mm	-60 to +400 °C	Class 2	30 s	0602 1992 Conn.: Fixed cable
Waterproof immersion/penetration probe	110 mm Ø 4 mm	-60 to +400 °C	Class 2	7 s	0602 1292 Conn.: Fixed cable
Waterproof super-quick needle probe, highly accurate measurements without visible penetration hole. Specially for food, ideal for hamburgers, steaks, pizza, eggs etc.	150 mm Ø 1.4 mm	-60 to +250 °C	Class 1	1 s	0628 0026 Conn.: Fixed cable
Quick-action, waterproof immersion/penetration probe for measurements in viscoplastic material, ideal for plastic, food etc.	60 mm Ø 3 mm	-60 to +800 °C	Class 1	3 s	0602 2692 Conn.: Fixed cable
Accurate and quick-action immersion probe, waterproof	300 mm Ø 1.5 mm	-60 to +1000 °C	Class 1	2 s	0602 0592 Conn.: Fixed cable
Immersion tip, flexible	500 mm Ø 1.5 mm	-200 to +1000 °C	Class 1	5 s	0602 5792
Magnetic probe, adhesive force approx. 20 N, with magnets, for measurements on metal surfaces	35 mm Ø 20 mm	-50 to +170 °C	Class 2		0602 4792 Conn.: Fixed cable
Magnetic probe, adhesive force approx. 10 N, with magnets, for higher temp., for measurements on metal surfaces	75 mm Ø 21 mm	-50 to +400 °C	Class 2		0602 4892 Conn.: Fixed cable
Accurate, waterproof surface probe with a small measuring head for smooth surfaces	150 mm Ø 2.5 mm	-60 to +1000 °C	Class 1	20 s	0602 0692 Conn.: Fixed cable
Accurate, waterproof surface probe, bent, with small measuring head for smooth surfaces	130 mm Ø 2.5 mm	-60 to +1000 °C	Class 1	20 s	0602 0792 Conn.: Fixed cable
Robust, affordable air probe	110 mm Ø 4 mm	-60 to +400 °C	Class 2	25 s	0602 1792 Conn.: Fixed cable
Thermocouple, flexible, 800mm long, fibre glass	800 mm Ø 1.5 mm	-50 to +400 °C	Class 2	5 s	0602 0644
Thermocouple, flexible, 1500mm long, fibre glass	1500 mm Ø 1.5 mm	-50 to +400 °C	Class 2	5 s	0602 0645
Thermocouple, flexible, 1500mm long, Teflon	1500 mm Ø 1.5 mm	-50 to +250 °C	Class 2	5 s	0602 0646
<b>Accessories for temperature probes</b>					<b>Part no.</b>
Handle for attachable measurement tips: For measurement tip 0602 5792, thermocouples 0602 0644, 0602 0645, 0602 0646					0409 1092
Extension cable, 5m, for Type K thermocouple probe					0554 0592
Silicone heat paste (14g), Tmax = +260°C, Improves heat transfer in surface probes					0554 0004

☑ The measuring instrument inside TopSafe is waterproof with this probe.

## Temperature measurement, high accuracy

### testo 110

The testo 110 is a highly efficient temperature measuring instrument. The engineering used has been designed specially for applications in refrigerated store rooms, cabinets and for canteens.

- High accuracy level

#### testo 110

Temperature measuring instrument with battery and calibration protocol

Part no. 0560 1106



The TopSafe case protects from dirt, water and impact (optional)



Temperature measurement in refrigerated store rooms or cabinets.

Accessories	Part no.
9V rech. battery for instrument, instead of battery	0515 0025
Recharger for 9V rechargeable battery, For external recharging of 0515 0025 battery	0554 0025
Transport and Protection	Part no.
TopSafe (indestructible protection case) with bench stand, Protects thermometer from corrosive substances, water, impact...Instrument has IP68 with all probes	0516 0187
Accessories set (for instrument without TopSafe) includes multi-function clip, carrier loop, probe holder	0554 0550
Accessories set (for instrument with TopSafe) includes multi-function clip and probe holder	0554 0552
Case for instrument and probes, For safe and orderly storage	0516 0182
Transport case (plastic) for instrument and accessories, For safe and orderly storage	0516 0184
Calibration Certificates	Part no.
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -18°C; 0°C; +60°C	0520 0001
ISO calibration certificate/Temperature, Thermometers with surface probe: calibration points +60°C; +120°C; +180°C	0520 0071
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -8°C; 0°C; +40°C	0520 0181
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -18°C; 0°C	0520 0041

Technical data	
Probe type	NTC
Meas. range	-50 to +275 °C
Accuracy ±1 digit	±0.5% of mv (+100 to +275 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)
Resolution	0.1 °C (-50 to +199.9 °C) 1 °C (+200 to +275 °C)
Oper. temp.	0 to +40 °C
Storage temp.	-20 to +70 °C
Battery life	100 h
Dimensions	190 x 57 x 42 mm
Weight	300 g

Description	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Waterproof immersion/penetration probe	110 mm Ø 4 mm 30 mm Ø 3.2 mm	-50 to +150 °C <sup>1)</sup>	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	10 s	0613 1211 Conn.: Fixed cable
Pipe probe with Velcro, for pipe diameter of max. 80 mm	300 mm 30 mm	-50 to +70 °C	±0.2 °C (-25 to +70 °C) ±0.4 °C (-50 to -25.1 °C)		0613 4611 Conn.: Fixed cable
Waterproof surface probe with widened measuring tip, for flat surfaces	110 mm Ø 4 mm Ø 6 mm	-50 to +150 °C <sup>1)</sup>	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	35 s	0613 1911 Conn.: Fixed cable
Robust, affordable air probe to check storage temperatures	110 mm Ø 4 mm	-50 to +150 °C <sup>1)</sup>	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	60 s	0613 1711 Conn.: Fixed cable

❗ The measuring instrument inside TopSafe is waterproof with this probe.

1) Long-term measurement range +125 °C, short-term +150 °C (2 minutes)

## Temperature measurement, accurate and super fast

### testo 905-T2

The surface thermometer in professional quality with sprung thermocouple measuring head, very fast response time and high accuracy level.

#### testo 905-T2

Surface thermometer with spring loaded probe, 150 mm long, incl. fixing clip, battery

Part no. 0560 9052



testo 905-T2: Spring-loaded thermocouple Ø 12 mm adapts to every surface



Temperature monitoring in a refrigeration system

#### Technical data

Meas. range	-50 to +350 °C Short-term to +500 °C		
Accuracy ±1 digit	±(1 °C ±1% of mv) (-50 to +500 °C)		
Resolution	0.1 °C	Battery life	150 h
Oper. temp.	0 to +40 °C	Storage temp.	-20 to +70 °C

#### Accessories

Accessories	Part no.
ISO calibration certificate/Temperature, Thermometers with surface probe; calibration points +60°C; +120°C; +180°C	0520 0071

## Temperature measurement, fast and easy

### Mini thermometer

The fast immersion/penetration thermometer for measuring temperature in the air, in soft or powdery substances and liquids.

The measurement tip is widened in the surface thermometer.

- Easy to read thanks to the large display
- Battery can be changed quickly and easily

#### Mini thermometer 1

Up to +150 °C, 120 mm long

Part no. 0900 0525

#### Mini thermometer 2

Up to +250 °C, 200 mm long

Part no. 0900 0526

#### Water-proof mini thermometer 3

Up to +230 °C, 120 mm long

Part no. 0900 0528

#### Mini surface thermometer 4

Up to +250 °C, 120 mm long

Part no. 0900 0519

1 + 2 + 3

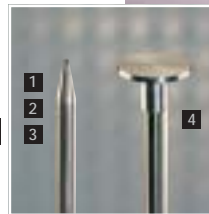
Immersion/penetration probe Ø 4 mm

4

Surface probe, measuring tip Ø 14 mm

3

Water-proof IP67



Measurements on air conditioning units

Technical data	1	2	3	4
Meas. range	-50 to +150 °C	-50 to +250 °C	-40 to +230 °C	-50 to +250 °C
Accuracy ±1 digit	±1 °C (-10 to +99.9 °C) ±2 °C (-50 to -10.1 °C) ±2% of mv (+100 to +150 °C)	±1 °C (-10 to +99.9 °C) ±2% of mv (+100 to +199.9 °C) ±3% of mv (+200 to +250 °C)	±0.3 °C (+54 to +90 °C) ±1 °C (-20 to +53.9 °C / 90.1 to +180 °C) ±1.5% of mv (remaining range)	±2% of mv (+100 to +199.9 °C) ±3% of mv (+200 to +250 °C) ±1 °C (-10 to +99.9 °C) ±2 °C (-50 to -10.1 °C)
Resolution	0.1 °C (-19.9 to +150 °C) 1 °C (remaining range)	0.1 °C (-19.9 to +150 °C) 1 °C (remaining range)	0.1 °C	0.1 °C (-19.9 to +150 °C) 1 °C (remaining range)
Battery life	150 h			
Oper. temp.		0 to +40 °C		
Storage temp.			-20 to +70 °C	

Accessories	Part no.
Button cell batteries, Type LR 44, 1.5 Volt (4 off)	0515 0032

## Thermometer strips, easy and efficient

### testoterm strips

testoterm thermometer strips are self-adhesive foils with temperature sensitive elements for temperature control and monitoring, for example, compressors.

- +37 to +280 °C
- Temperature strips in quantities of more than 1000 are available on rolls

#### testoterm strips

+37 to +65 °C

Part no. 0646 0108

+71 to +110 °C

Part no. 0646 0916

+116 to +154 °C

Part no. 0646 1724

+161 to +204 °C

Part no. 0646 2532

+204 to +260 °C

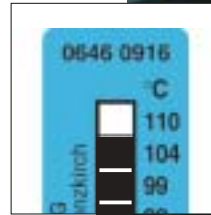
Part no. 0646 3341

+249 to +280 °C

Part no. 0646 0005

#### Ordering data/Quantity discount

- 1 to 4 booklets (with 10 each)
- 5 to 9 booklets (with 10 each)
- 10 to 19 booklets (with 10 each)
- 20 to 49 booklets (with 10 each)
- 50 to 99 booklets (with 10 each)
- 1000 on a roll



Irreversible change in colour within 2 seconds



Practical measurement strips booklet with ten strips

Temperature monitoring on compressors

#### Technical data

Same as temperature single indicators, see below

Dimensions l x w: 50 x 18 mm or 39 x 18 mm

## Temperature single indicators, easy and efficient

### Single indicators

testoterm single indicators are self-adhesive temperature sensitive foils with elements to check a given maximum temperature.

- +43 to +260 °C
- Practical single indicator booklet
- Single indicators on sheet of 50

#### Ordering data/Quantity discount

- 1 to 4 booklets (with 50 each)
- 5 to 9 booklets (with 50 each)
- 10 to 19 booklets (with 50 each)
- 20 to 49 booklets (with 50 each)
- 50 to 99 booklets (with 50 each)
- 5000 on sheets of 50

In stock:

71 °C, 77 °C, 82 °C, 110 °C, 143 °C

Delivery time of minimum 4 weeks for orders for more than 10 booklets of other single indicators.

#### Single indicators

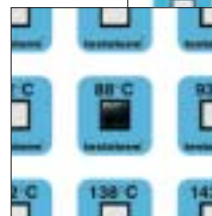
Measuring range: +43°C to +260°C

Part no. 0646 1... (...=reading)

Ordering examples:

Single indicator: +43°C: 0646 1043

Single indicator: +204°C: 0646 1204



Irreversible change in colour within 1 second



Temperature control, for example, during storage, transport, when analysing damage etc.

#### Technical data

Accuracy: From +43 °C to +154 °C:  $\pm 1.5$  °C; from +160 °C:  $\pm 1\% \pm 1$  °C of respective reading

Max. operating temperature corresponds to the respective measuring ranges

Dimensions l x w: 15 x 14 mm

Storage of single indicators: Up to +65 °C: max. 9 months;

other measuring ranges up to 2 years; max. storage temperature +25 °C. Storage in a refrigerator is recommended.

# Non-contact temperature measurement with laser sighting

## testo 830-T1

The fast and versatile infrared thermometer with 1 point laser sighting

- 10:1 optics
- Backlit display
- Adjustable emissivity 0.2 to 1.0
- Audible and visual alarm if limit is exceeded
- Good handling thanks to "Pistol design"

## testo 830-T2

The testo 830-T2 additionally has a 2 point laser sighting and connection option for an external probe for contact measurement.

- 12:1 optics enables exact measurements over far distances
- Emissivity with external T/C probe



830-T2, 2 point laser sighting (real measurement point)



830-T2, connection option for an external probe



Checks compressor temperature in refrigeration systems

### testo 830-T1

Infrared thermometer with 1 point laser sighting, adjustable limit values and alarm function

Part no. 0560 8301

### testo 830-T2

Infrared thermometer with 2 point laser sighting, adjustable limit values, alarm function and connection of external probes

Part no. 0560 8302

### Ordering data

#### Accessories for testo 830-T1 and -T2

Accessories for testo 830-T1 and -T2	Part no.
Adhesive tape e.g. for polished surfaces (roll, 10 m long, 25 mm wide)	0554 0051
Leather case to protect measuring instrument, including belt holder	0516 8302
ISO calibration certificate/Temperature; Infrared thermometer; calibration points +60°C; +120°C; +180°C	0520 0002

#### Accessories only for testo 830-T2

Waterproof immersion/penetration probe	0602 1292
Quick-action surface probe with spring-loaded thermocouple, also for rough surfaces, measuring range short-term up to 500°C	0602 0392
Robust, affordable air probe	0602 1792
ISO calibration certificate/Temperature, For air/immersion probes, calibration point +60°C	0520 0063
ISO calibration certificate/Temperature, For air/immersion probes, calibration points -18°C; 0°C; +60°C	0520 0001
ISO calibration certificate/Temperature, Thermometers with surface probe; calibration points +60°C; +120°C; +180°C	0520 0071

### testo 830-T2 Set

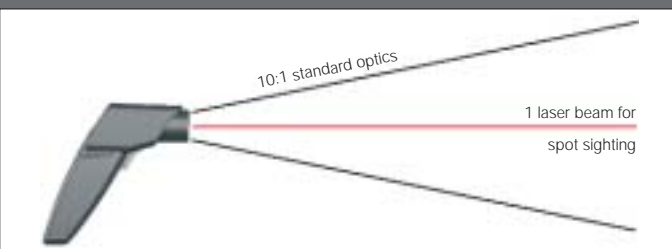
Measuring instrument, fast-action surface probe for contact meas. and leather protection case

Low price as part of set

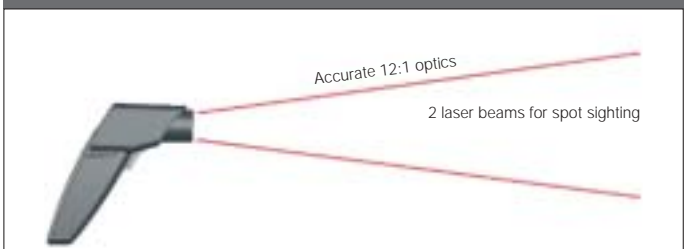
Part no. 0563 8302

Technical data	Infrared thermometer	Contact meas. (Type K)
Meas. range	-30 to +400 °C	-50 to +500 °C
Accuracy ±1 digit	±1.5 °C or 1.5 % of mv (+0.1 to +400 °C) ±2 °C or 2 % of mv (-30 to 0 °C)	±(0.5 °C ±0.5% of mv)
Resolution	0.5 °C	0.1 °C
Oper. temp.	-20 to +50 °C	Battery type 9V block battery
Storage temp.	-40 to +70 °C	Battery life 15 h
Dimensions	190 x 75 x 38 mm	Weight 200 g

### testo 830-T1



### testo 830-T2



## Fiberscopes, the versatile tools for fast diagnoses

### testo 318

The fiber-optic inspection tools from the testo 318 Series provide you with a clear picture at difficult-to-access points. The lens can focus on objects as close as 19 mm (3/4"). The sealed lens and shaft may be

immersed in liquids without worry.

- Thin flexible probe shaft
- Easy one-hand operation



Optimum halogen illumination



Easy detection of blocked air conditioning ducts

#### testo 318-1 S

914 mm long, Ø 6 mm  
Fiberscope, probe 914 mm long/Ø 6 mm, halogen lamp and batteries

Part no. 0632 3181

#### testo 318-2 S

457 mm long, Ø 6 mm  
Fiberscope, probe 457 mm long/Ø 6 mm, halogen lamp and batteries

Part no. 0632 3182

#### testo 318-1

914 mm long, Ø 10 mm  
Fiberscope, probe 914 mm long/Ø 10 mm, halogen lamp, batteries

Part no. 0632 0318

#### testo 318-2

457 mm long, Ø 10 mm  
Fiberscope, probe 457 mm long/Ø 10 mm, halogen lamp, batteries

Part no. 0632 0319

Accessories Ordering data	Part no.
Spare halogen lamp	0213 0017
Clip on 45° mirror, Ø 6 mm	0554 1325
Clip on 45° mirror, Ø 10 mm	0554 1320
Attachable clip incl. magnet, Ø 6 mm	0554 1324
Attachable clip incl. magnet, Ø 10 mm	0554 1321

#### testo 318-6

1830 mm long, Ø 10 mm

Complete 318-6 Kit consisting of fiberscope, probe 1830 mm long/Ø 10 mm, halogen lamp, clip-on 45° mirror, clip with magnet, spare lamp, batteries and hard shell case

Part no. 0563 3186

#### Technical data

Number of pixels	6,000
Field of view	40°
Min. focus distance	19 mm
Max. bending radius	203 mm
Light source	Halogen lamp (3220 K)

## Sound level measurement – To DIN/IEC 60651, Class 2

### testo 815

The ideal instrument for daily use. Whether it is for air conditioning or heating, disco noise, machine noise or noise in combustion systems, testo 815 is the ideal partner.

#### Common features:

- Frequency weighting according to characteristic A and C
- Maximum and minimum value memory
- Built-in tripod knuckle screw (1/4 inch)
- Switchable time weighting Fast / Slow

#### testo 815

Sound level meter, accuracy class 2, incl. microphone, wind protection cap and battery

Part no. 0563 8155

### testo 816

When compared to testo 815, the larger model has additional features which make it ideal for assessors, workplace measurements and for measuring industry and environmental noise.

#### Additional benefits of testo 816:

- Automatic range switchover
- Backlit display
- BarGraph display
- AC/DC output for connection to amplifiers, recorders or dataloggers

#### testo 816

Sound level meter, accuracy class 2, incl. microphone, wind protection cap, battery, stereo jack 3.5 mm, in a practical measurement case

Part no. 0563 8165



Frequency weighting of the current reading  
Time weighting  
Section measurement range



testo 815, Monitoring measurements on ventilation



testo 816, Checking noise control

Accessories Ordering data	Part no.	
Calibrator, for regular calibration of testo 815, testo 816	0554 0452	
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug). For mains operation and battery recharging	0554 1084	
ISO calibration cert./Sound pressure, Calibration points 94 dB(A); 104 dB(A); 114 dB(A) at different frequencies	0520 0111	
Technical data	testo 815	testo 816
Meas. range	+32 to +130 dB	+30 to +130 dB
Accuracy ±1 digit	Class 2, ±1.0 dB	Class 2, ±1.0 dB
Resolution	0.1 dB	0.1 dB
Battery life	70 h	50 h
Weight	195 g	315 g
Dimensions	255 x 55 x 43 mm	309 x 68 x 50 mm
Battery type	9V block battery	
Oper. temp.	0 to +40 °C	Storage temp. -10 to +60 °C
Other features	Section meas. ranges: 30 to 80 dB; 50 to 100 dB; 80 to 130 dB Time weighting: FAST 125 ms setting / SLOW 1 s setting Pressure dependency: -0.0016 dB/hPa	

## Hand-held stroboscope, light-intensive

### testo 476

The Pocket Strobe™ hand-held stroboscope measures and inspects rotations and vibrations. It is possible to measure during operation. The stationary image enables inspection and a qualitative assessment of high-frequency moving parts.

- High setting accuracy and stability thanks to dynamic setting dial
- Powerful rechargeable battery pack for min. 1 hour operation time over the frequency range
- Automatic trigger to synchronise flash sequence



Light-intensive xenon flashlamp, light intensity approx. 800 lux



rpm measurement on a turbo ventilator

#### testo 476

Hand-held stroboscope Pocket Strobe™, incl. transport case, recharger with 4 country adaptors and trigger signal plug

Part no. 0563 4760

Accessories Ordering data	Part no.
Belt bag with clip for hand-held stroboscope	0516 4760
Spare xenon flashlamps (2 off) for hand-held stroboscope	0554 4760
ISO calibration certificate/rpm, Optical and mechanical rpm measuring instruments; cal. points 500; 1000; 3000 rpm	0520 0012

Technical data	
Meas. range	+30 to +12500 rpm
Accuracy ±1 digit	±0.01% of mv
Resolution	1 rpm
Dimensions	240 x 65 x 50 mm
Oper. temp.	0 to +40 °C
Weight	465 g
Illumination: 800 Lux at distance of approx. 20 cm	
Flash energy: max. 150 mJ	
Operating time: 1h at 30 to 12,500 rpm and 23°C (typically)	

## Rpm measurement

### testo 465

Non-contact

Using testo 465, rpm can be easily measured without contact. Simply attach a reflector to the object to be measured and then point the visible, red light beam at the reflector and measure.

- Stores mean/min/max value, last reading
- Robust design on account of SoftCase (protection sleeve)

#### testo 465

Rpm measuring instrument set: Meas. instr. incl. SoftCase (protection sleeve) in transport case (plastic), reflectors, batteries and calibration protocol

Part no. 0563 0465

Accessories Ordering data	Part no.
Reflectors, self-adhesive (1 pack = 5 off, each 150 mm long)	0554 0493
ISO calibration certificate/rpm, Optical and mechanical rpm measuring instruments; cal. points 500; 1000; 3000 rpm	0520 0012
ISO calibration certificate/rpm, Optical rpm measuring instruments; calibration points 10; 100; 1000; 10000; 99500 rpm	0520 0022

### testo 470

Non-contact and mechanical

The ideal combination of optical and mechanical rpm measurement. An optical measurement becomes a mechanical measurement by simply attaching an adapter for a probe tip or surface speed disc.

- Measures rpm, velocities and lengths
- Battery display "Low Batt"
- Robust design on account of SoftCase (protection sleeve)

#### testo 470

Rpm meas. instr. set: Meas. instr. incl. SoftCase (protection sleeve) in transport case, adapter, probe tip, surface speed disc, reflectors, batts and cal. protocol

Part no. 0563 0470



testo 470, mechanical rpm measurement



testo 465 and testo 470, non-contact (optical) rpm measurement on rotating parts

Technical data			
Probe type	Optically with mod. light beam	Mechanical (testo 470)	
Meas. range	+1 to +99999 rpm	+1 to +19.999 rpm	
Accuracy ±1 digit	±0.02% of mv		
Resolution	0.01 rpm (+1 to +99.99 rpm) 0.1 rpm (+100 to +999.9 rpm) 1 rpm (+1000 to +99999 rpm)		
Oper. temp.	0 to +50 °C	Dimensions	175 x 60 x 28 mm
Storage temp.	-20 to +70 °C	Weight	190 g

#### testo 470

Speed: 0.10 to 33.3 m/s; 0.1 to 109 ft/s; 0.10 to 1.999 m/min; 0.40 to 6550 ft/min; 4.00 to 78,700 in/min

Lengths: 0 to 99.999 m; 0 to 99.999 ft; 0 to 99.999 in

Accuracy: (±1 digit/0.02 m/1.00 inch depending on resolution)

## Dataloggers — For monitoring purposes

### How many degrees are there really?



Wolfgang Schwörer, Head of Competence Center VAC

How can you be sure that your analyser measures exactly what it should be measuring? Our certified DKD laboratories are unbeatable in their accuracy and give the values for all Testo measuring instruments - That's what true measurement efficiency is all about.

The competence of our engineers is held in high esteem by expert groups and committees in Berlin and Brussels where they are involved in the developments of future guidelines in their capacity as representatives of industry.

A comprehensive exchange of knowledge and experience with official measurement institutes around the world (e.g. DKD) ensures that your Testo measuring instrument can hold up to any comparison. Indeed, these efforts do have an objective: whoever uses Testo measurement engineering, can be assured that he is using the industrial standard.

Of further benefit to you: We know today about the guidelines and test specifications we will be faced with in the future.



On site: Fast printout on the testo 575 printer



testo 580 data collector collects and transmits data on site to PC



testo 581 alarm signal output for reliable warning of limits exceeded



Ethernet facilitates data communication in the network



## Pro Data Loggers for Long-term Monitoring

### testo 177-T1

The professional testo 177-T1 datalogger (without display) monitors specified storage and transport conditions in the refrigeration and deep-freeze sector efficiently and accurately over a period of months and years.

Temperature fluctuations, which cause damage, are documented on the testo 575 fast printer or analysed on your PC via interface.

### testo 177-T2

testo 177-T2, the professional datalogger with display. It provides you with a quick overview of the current reading, the last value saved, max and min values and the number of times the limits were exceeded.

All of the values collected by the testo 580 data collector during long-term monitoring over months/years can be sent to your notebook/PC. Convenient analysis possible using software based on Windows®.

- Logs temperatures with up to 48,000 readings
- Specially for use in low temperatures (up to -40 °C)
- On-site: Fast documentation on the infrared printer, 6 lines/s
- Collect data on-site with testo 580 and download to your PC for analysis



testo 177-T1 without display, data is printed on site on the fast testo 575 printer



Collects data on site which is uploaded to PC for analysis



Long-term temperature logging with immediate display when limits are exceeded e.g. during transport, in refrigerated rooms, warehouses etc.

#### testo 177-T1 without display

Temperature datalogger, 1 channel, with internal sensor, wall holder and calibration protocol

Part no. 0563 1771

#### testo 177-T2 with display

Temperature datalogger, 1 channel, with internal sensor, wall holder and calibration protocol

Part no. 0563 1772

#### Recommended Set: testo 177-T1, Starter Set

Temperature datalogger, 1 channel, with internal sensor, wall holder and calibration protocol	0563 1771
Lock for wall holder for testo 175/177 dataloggers	0554 1755
ComSoft 3 Set - Basic with RS 232 interface	0554 1774

#### Technical data

Chann. intern	1	Probe type	NTC
Meas. range	-40 to +70 °C	Resolution	0.1 °C
Accuracy ±1 digit	±0.4 °C (-25 to +70 °C)	±0.8 °C (-40 to -25.1 °C)	
Measuring rate	2 s to 24 h	Memory	48000
Oper. temp.	-40 to +70 °C	Storage temp.	-40 to +85 °C
Dimensions	103 x 64 x 33 mm		
Weight	111 g (testo 177-T1)	122 g (testo 177-T2)	
Battery life	5 years at meas. cycle of 15 min (-10 to +50 °C)		
Analysis software	MS Windows 95b / 98 / ME / NT4-Sp4 / 2000 / XP		

#### Recommended Set: testo 177-T2, Starter Set

Temperature datalogger, 1 channel, with internal sensor, wall holder and calibration protocol	0563 1772
Lock for wall holder for testo 175/177 dataloggers	0554 1755
ComSoft 3 Set - Basic with RS 232 interface	0554 1774

## The data logger with 2 probe sockets and event logging

### testo 177-T3

testo 177-T3 documents 3 temperatures and an event simultaneously providing proof of an uninterrupted cooling chain during transport.

For example, complete monitoring of ambient air, intake and outgoing temperature with simultaneous monitoring of the door is possible when monitoring refrigerated store rooms. The measuring rate of the event can be set completely independently of the measuring rate of the temperature channels.

- Temperature logging of up to 48000 readings
- Data is read out without interrupting the measurement series
- Data analysis as table or graph, with Email function

#### testo 177-T3

**Internal °C + 2 x external °C + event contact**

Temperature datalogger, 3 channels, with internal sensor, 2 probe sockets, door contact connection cable, wall holder and calibration protocol

Part no. 0563 1773



Collect data on site, read out on your PC and analyse



Temperature monitoring at different sites e.g. during transport, in warehouses, in containers etc.

#### Technical data

Chann. intern	1	Chann. external (var.)	2
Meas. range	-40 to +70 °C	Meas. range	-40 to +120 °C
Accuracy	±0.4 °C (-25 to +70 °C) ±1 digit	Accuracy	±0.2 °C (-25 to +70 °C) ±1 digit ±0.4 °C (remaining range)
Resolution	0.1 °C	Resolution	0.1 °C
Memory	48000	Battery type	Lithium battery
Oper. temp.	-40 to +70 °C	Weight	127 g
Storage temp.	-40 to +85 °C	Dimensions	103 x 64 x 33 mm

External: Event logging e.g. door contact  
 Battery life: 5 years with meas. rate of 15 min (-10 to +50°C)  
 Measuring rate: 2 s to 24 h  
 Software: Microsoft Windows 95b / 98 / ME / NT4-Sp4 / 2000 / XP

#### Recommended Set: Temperature monitoring with printout on-site

Temperature datalogger, 3 channels, with internal sensor, 2 probe sockets, door contact connection cable, wall holder and calibration protocol	0563 1773
Lock for wall holder for testo 175/177 dataloggers	0554 1755
Mounting probe with aluminium sleeve, IP 65	0628 7503
Mounting probe with aluminium sleeve, IP 65	0628 7503
Fast testo 575 printer, incl. 1 roll of thermal paper and batteries	0554 1775
ComSoft 3 Set - Basic with RS 232 interface, Basic software with diagram and table function, incl. desk-top holder, PC connection cable	0554 1774

See page 30 for Accessories Ordering Data

Description	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Stub probe, IP 54	35 mm Ø 3 mm	-20 to +70 °C	±0.2 °C (-20 to +40 °C) ±0.4 °C (+40.1 to +70 °C)	15 s	0628 7510
Mounting probe with aluminium sleeve, IP 65	40 mm Ø 6 mm	-30 to +90 °C	±0.2 °C (0 to +70 °C) ±0.5 °C (remaining range)	190 s	0628 7503* Conn.: Fixed cable
Refrigeration storeroom probe with aluminium sleeve, IP 54, with silicone insulated ribbon cable	40 mm Ø 3 mm	-40 to +90 °C (Short-term to +105 °C)	±0.2 °C (0 to +70 °C) ±0.4 °C (-35 to 0 °C) ±0.5 °C (remaining range)	190 s	0628 0042
Accurate imm./pen. probe, 6m cable, IP 67	40 mm Ø 3 mm	-35 to +80 °C	±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	5 s	0610 1725* Conn.: Fixed cable
Accurate immersion/penetration probe, cable: 1.5 m long, IP 67	40 mm Ø 3 mm				0628 0006*
Probe for surface measurement	40 mm 8 x 8 mm	-50 to +80 °C	±0.2 °C (0 to +70 °C)	150 s	0628 7516* Conn.: Fixed cable
Food probe (IP65) stainless steel, PUR cable can be used at up to +80°C, IP54 plug-in connection	125 mm Ø 4 mm 15 mm Ø 3 mm	-50 to +150 °C	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	8 s	0613 2211* Conn.: Fixed cable
Robust food penetration probe with special handle, IP 65, reinforced cable (PUR) and reinforced protection against buckling	115 mm Ø 5 mm 30 mm Ø 3.5 mm	-50 to +150 °C	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	7 s	0613 2411* Conn.: Fixed cable
Frozen food probe, corkscrew design	110 mm Ø 8 mm 30 mm Ø 4 mm	-50 to +140 °C	±0.5% of mv (+100 to +140 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	20 s	0613 3211* Conn.: Plug-in cable
Robust, affordable air probe to check storage temperatures	110 mm Ø 4 mm	-50 to +150 °C Long-term meas. range +125°C, short-term +150°C (2 min)	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	60 s	0613 1711* Conn.: Fixed cable

❗ The measuring instrument inside TopSafe is waterproof with this probe.

\* Probe tested to EN 12830 for suitability in the transport and storage sectors

# Professional long-term monitoring, datalogger with 4 probe sockets

## testo 177-T4

The testo 177-T4 professional datalogger with up to 4 external temperature probe connections for simultaneous temperature measurement at different locations.

Using testo 177-T4, refrigeration/freezer storage rooms can be monitored non-stop and the data saved on PC.

- Specially for use in high and low temperatures
- Read out data without interrupting the measurement series
- Data analysis in table or graphics form, with email function
- Memory for up to 48,000 readings



Collect data on site, upload to PC and analyse



Alarm message, efficient indication of limits exceeded



Simultaneous temperature measurement at up to 4 different locations

### testo 177-T4

#### 4 x external °C

Temperature datalogger, 4 channel, with 4 probe sockets, wall holder and calibration protocol

Part no. 0563 1774

#### Technical data

Chann. external (var.)	4		
Probe type	Type T (Cu-CuNi)	Type K (NiCr-Ni)	Type J (Fe-CuNi)
Meas. range	-200 to +400 °C	-195 to +1000 °C	-100 to +750 °C
Accuracy ±1 digit	±0.5% of mv (+70.1 to +1000 °C) ±1% of mv (-200 to -100.1 °C) ±0.3 °C (-100 to +70 °C)		
Resolution	0.1 °C		
Memory	48000	Measuring rate	2 s to 24 h
Oper. temp.	0 to +70 °C	Protection class	IP43
Storage temp.	-40 to +85 °C	Weight	129 g
Battery type	Lithium battery	Dimensions	103 x 64 x 33 mm
Battery life	5 years at meas. cycle 15 min (-10 to +50 °C)		
Analysis software	MS Windows 95b / 98 / ME / NT4-Sp4 / 2000 / XP		

See page 30 for Accessories Ordering Data

### Recommended Set: Set for monitoring technical systems

Temperature datalogger, 4 channel, with 4 probe sockets, wall holder and calibration protocol	0563 1774
Lock for wall holder for testo 175/177 dataloggers	0554 1755
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Measuring range short-term to +280°C	0602 4592
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Measuring range short-term to +280°C	0602 4592
testo 580 data collector including readout holders, For testo 175/177 dataloggers	0554 1778
ComSoft 3 Set - Basic with RS 232 interface	0554 1774

Description	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Industrial probe with stainless steel sleeve	40 mm Ø 6 mm	-50 to +205 °C	Class 2	20 s	0628 7533 Conn.: Fixed cable
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Measuring range short-term to +280°C		-60 to +130 °C	Class 2	5 s	0602 4592 Conn.: Fixed cable
Surface temperature probe fitting with M 14 x 1.5 outer thread and 2 nuts, fast action surface probe with crossed strip		-50 to +180 °C	Class 2	3 s	0628 7521 Conn.: Fixed cable
Thermocouple, flexible, 800mm long, fibre glass	800 mm Ø 1.5 mm	-50 to +400 °C	Class 2	5 s	0602 0644
Thermocouple, flexible, 1500mm long, fibre glass	1500 mm Ø 1.5 mm	-50 to +400 °C	Class 2	5 s	0602 0645
Thermocouple, flexible, 1500mm long, Teflon	1500 mm Ø 1.5 mm	-50 to +250 °C	Class 2	5 s	0602 0646
Accurate and quick-action immersion probe, waterproof	300 mm Ø 1.5 mm	-60 to +1000 °C	Class 1	2 s	0602 0592 Conn.: Fixed cable

⚠ The specified seal class of the dataloggers is achieved with these probes.



## Monitor refrigerated rooms, efficiently and reliably

### testo 175-H1

The affordable humidity/temperature logger testo 175-H1, without display, monitors fluctuations in storage humidity and temperature efficiently and unobtrusively.

Limit values can be entered, an alarm display is activated if the limits are exceeded. testo 575, the fast printer, supplies proof of fluctuations in ambient conditions.

### testo 175-H2

The compact humidity/temperature logger with display. It provides you with a fast on-site overview of current readings, the last values saved, max and min values and the number of times limits were exceeded.

The testo 575 fast printer provides proof that the specified ambient storage conditions or production conditions have been adhered to. All of the values logged by the testo 580 data collector can then be uploaded to your PC for analysis.

- Humidity sensor guaranteed long-term stable
- Memory for up to 3700 readings (testo 175-H1)
- Memory for up to 16000 readings (testo 175-H2)
- Data safe even when battery is spent
- Fast documentation on infrared printer, 6 lines/s
- Data transfer to PC or Notebook via interface or testo 580 data collector
- Large display (testo 175-H2)

#### testo 175-H1 w/o display

##### Internal %RH, °C

Humidity/temperature logger, 2 channels, with internal sensors, wall holder and calibration protocol

Part no. 0563 1757

#### testo 175-H2 with display

##### Internal %RH, °C

Humidity/Temperature logger, 2 channels, with built-in sensors, wall holder and calibration protocol

Part no. 0563 1758

Technical data	testo 175-H1 w/o display	testo 175-H2 with display
Channels	2	2
Probe type	Testo humid. sensor, cap. NTC	Testo humid. sensor, cap. NTC
Meas. range	0 to +100 %RH* -10 to +50 °C	0 to +100 %RH* -20 to +70 °C
Accuracy ±1 digit	±3 %RH ±0.5 °C	±3 %RH ±0.5 °C
Resolution	0.1 %RH 0.1 °C	0.1 %RH 0.1 °C
Memory	3700	16000
Oper. temp.	-10 to +50 °C	-20 to +70 °C
Storage temp.	-40 to +70 °C	-40 to +85 °C
Weight	80 g	85 g
Dimensions	82 x 52 x 30 mm	82 x 52 x 30 mm
Battery life	2.5 years at a meas. rate of 15 min (-10 to +50 °C)	
Measuring rate	10 s to 24 h	10 s to 24 h
Software	MS Windows 95b / 98 / ME / NT4-Sp4 / 2000 / XP	

\* not affected by condensation



testo 175-H1 without display. Data is printed on the fast printer.



Data analysis with easy-to-use Windows® software



testo 175-H2, refrigerated room ambient conditions logging with immediate display of limits exceeded

#### Recommended Set: testo 175-H1, Starter Set

Humidity/temperature logger, 2 channels, with internal sensors, wall holder and calibration protocol	0563 1757
Lock for wall holder for testo 175/177 dataloggers	0554 1755
ComSoft 3 Set - Basic with RS 232 interface, Basic software with diagram and table function, incl. desk-top holder, PC connection cable	0554 1759

#### Recommended Set: testo 175-H2, Starter Set

Humidity/Temperature logger, 2 channels, with built-in sensors, wall holder and calibration protocol	0563 1758
Lock for wall holder for testo 175/177 dataloggers	0554 1755
ComSoft 3 Set - Basic with RS 232 interface, Basic software with diagram and table function, incl. desk-top holder, PC connection cable	0554 1759

See Page 30 for Accessories Ordering Data

# Long-term refrigeration storage monitoring, professional and non-stop

## testo 177-H1

Sensitive products require the right ambient conditions in refrigerated rooms. Efficient measurement and documentation of the readings over months/years is possible with the testo 177-H1 professional datalogger.

Additional surface, immersion and air probes can be attached to the datalogger.

- Long-term stable humidity sensor with fast response time
- Memory for up to 48,000 readings

- Control and adjustment option with adjustment set
- Protective caps for dirt-ingressed air or corrosive gases

### testo 177-H1

**Intern. %RH, °C, °C td + extern. °C**  
Humidity/temperature logger, 4 channel, with internal sensors and an external temperature probe socket, wall holder and calibration protocol

Part no. 0563 1775

#### Technical data

<b>Chann. intern</b>	3		
Meas. range	0 to +100 %RH	-20 to +70 °C	-40 to +70 °C td
Accuracy ±1 digit	±2 %RH	±0.5 °C	
Resolution	0.1 %RH	0.1 °C	0.1% of mv
<b>Chann. external (var.)</b>	1		
Meas. range	-40 to +120 °C		
Accuracy ±1 digit	±0.2 °C (-25 to +70 °C)	±0.4 °C (remaining range)	
Resolution	0.1 °C		
Memory	48000		
Measuring rate	2 s to 24 h	Protection class	IP54
Battery life	5 years at a meas. cycle of 15 min (-10 to +50 °C)		
Analysis software	MS Windows 95b / 98 / ME / NT4-Sp4 / 2000 / XP		
Oper. temp.	-20 to +70 °C	Storage temp.	-40 to +85 °C
Dimensions	103 x 64 x 33 mm	Weight	130 g



Collect data on site, upload to PC and analyse

Alarm message, reliable notification when limits are exceeded

Efficient measurement of storage conditions

See Page 30 for Accessories Ordering Data

Description	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Stub probe, IP 54		-20 to +70 °C	±0.2 °C (-20 to +40 °C) ±0.4 °C (+40.1 to +70 °C)	15 s	0628 7510
Mounting probe with aluminium sleeve, IP 65		-30 to +90 °C	±0.2 °C (0 to +70 °C) ±0.5 °C (remaining range)	190 s	0628 7503* Conn.: Fixed cable
Refrigeration storeroom probe with aluminium sleeve, IP 54, with silicone insulated ribbon cable		-40 to +90 °C (Short-term to +105 °C)	±0.2 °C (0 to +70 °C) ±0.4 °C (-35 to 0 °C) ±0.5 °C (remaining range)	190 s	0628 0042
Probe for surface measurement		-50 to +80 °C	±0.2 °C (0 to +70 °C)	150 s	0628 7516* Conn.: Fixed cable
Food probe (IP65) stainless steel, PUR cable can be used at up to +80°C, IP54 plug-in connection		-50 to +150 °C Long-term meas. range +125°C, short-term +150°C (2 minutes)	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	8 s	0613 2211* Conn.: Fixed cable
Robust food penetration probe with special handle, IP 65, reinforced cable (PUR) and reinforced protection against buckling		-50 to +150 °C Long-term meas. range +125°C, short-term +150°C (2 minutes)	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	7 s	0613 2411* Conn.: Fixed cable
Wall surface temperature probe, e.g. to prove damage in building material		-50 to +80 °C	±0.2 °C (0 to +70 °C)	20 s	0628 7507 Conn.: Fixed cable
Pipe probe with Velcro, for pipe diameter of max. 80 mm		-50 to +70 °C	±0.2 °C (-25 to +70 °C) ±0.4 °C (-50 to -25.1 °C)		0613 4611 Conn.: Fixed cable
Robust, affordable air probe to check storage temperatures		-50 to +150 °C Long-term meas. range +125°C, short-term +150°C (2 min)	±0.5% of mv (+100 to +150 °C) ±0.2 °C (-25 to +74.9 °C) ±0.4 °C (remaining range)	60 s	0613 1711* Conn.: Fixed cable

⚠ The specified seal class of the dataloggers is achieved with these probes.

\* Probe tested to EN 12830 for suitability in the transport and storage sectors

## Accessories for testo 175 and 177

### testo 575 fast printer

- Fast-action print mechanism, 6 lines/s
- Prints tables/graphics
- Brief info. or full memory can be printed as required
- Determine section to be printed
- Your language can be set
- Self-adhesive Testo paper can also be used



Fast printout and logger rebooting with testo 575

Part no. 0554 1775

### testo 580 data collector

- Can read out up to 25 full testo 175 loggers or 10 full testo 177 loggers
- Displays all status information
- Download collected data to PC using Testo ComSoft 3



The testo 580 data collects data on site for upload to PC and analysis

Part no. 0554 1778

### testo 581 alarm signal output

- Transmission of alarm messages – e.g. when programmed limit values in the datalogger are exceeded – to external components such as horns, lamps, PLC etc.
- Signal transfer via floating signal output



Alarm signal output for reliable notification of limits exceeded

Part no. 0554 1769

### Ethernet adapter

- Fast transfer of readings
- Use of an existing network without additional cabling
- Long transmission paths
- Identification of measuring instruments in system network
- In connection with ComSoft 3



Read out the data stored in the logger via the PC network using the Ethernet adapter

Part no. 0554 1711

Printer and Accessories	Part no.
Fast testo 575 printer, incl. 1 roll of thermal paper and batteries, Infrared thermal line printer with graphics function	0554 1775
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls), Measurement data documentation legible for up to 10 years	0554 0568
Label thermal paper (Testo patent) for testo 575 printer (6 rolls), can be applied directly	0554 0561
Additional Accessories	Part no.
testo 580 data collector including readout holders, For testo 175/177 dataloggers	0554 1778
testo 581 alarm signal output, floating, for testo 175/177, Forwards information efficiently when limits are exceeded to e.g. horns, lamps, PLC etc.	0554 1769
Battery, 3.6 V/0.8 Ah 1/2 AA, for testo 175-T3/175-H1/175-H2/175-S1	0515 0175
Battery, 3.6 V/1.9 Ah 1AA, for testo 175-T1/175-T2 and all testo 177 loggers	0515 0177
Transport and Protection	Part no.
Lock for wall holder for testo 175/177 dataloggers	0554 1755
Transport case for up to 5 testo 175 dataloggers, testo 575 printer, testo 580 data collector and accessories	0516 1750
Transport case for up to 5 testo 177 dataloggers, testo 575 printer, testo 580 data collector and accessories	0516 1770
Accessories for humidity probes	Part no.
Control and humidity adjustment set 11.3%RH/75.3%RH incl. adapter for humidity probes, Quick checks or calibration of humidity probe	0554 0660
Metal protection cage, Ø 12 mm for humidity probes, For velocities of less than 10 m/s	0554 0755
Cap with wire mesh filter, Ø 12 mm	0554 0757
Teflon sintered filter, Ø 12 mm, for corrosive substances, High humidity range (long-term measurements), high velocities	0554 0756
Stainless steel sintered cap, Ø 12 mm, is screwed onto humidity probe, For measurements at high velocity speeds or in dirt ingressed air	0554 0647

Software and Accessories	Part no.
<b>For testo 175:</b> ComSoft 3 Set - Basic with RS 232 interface, Basic software with diagram and table function, incl. desk-top holder, PC connection cable	0554 1759
<b>For testo 176:</b> ComSoft 3 Set - Basic with USB interface, Basic software with diagram and table function, incl. desk-top holders, PC connection cable	0554 1766
<b>For testo 177:</b> ComSoft 3 Set - Basic with RS 232 interface, Basic software with diagram and table function, incl. desk-top holder, PC connection cable	0554 1774
<b>For testo 177:</b> ComSoft 3 Set - Basic with USB interface, Basic software with diagram and table function, incl. desk-top holders, PC connection cable	0554 1767
ComSoft 3 - Professional with data management, Incl. database, analysis and graphics function, data analysis, trend curve (without interface)	0554 0830
ComSoft 3 - For requirements to CFR 21 Part 11, Incl. database, analysis and graphics function, data analysis, trend curve	0554 0821
RS 232 interface for testo 175/177 incl. desk-top holders, PC connection cable, (please also order for ComSoft 3 - Professional)	0554 1757
USB interface, for testo 175/177 incl. desk-top holders, PC conn. cable, (Please order with ComSoft 3 - Professional)	0554 1768
Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit, Facilitates data communication in network	0554 1711
Calibration Certificates	Part no.
ISO calibration certificate/Temperature, Temp. datalogger; calibration points -18°C; 0°C; +60°C per channel/instrument	0520 0151
ISO cal. cert./Humidity, Humidity datalogger; calibration points 11.3%RH and 75.3%RH at +25°C; per channel/instrument	0520 0076
DKD calibration certificate/Temperature, Temp. datalogger; cal. points -20°C; 0°C; +60°C; per channel/instrument	0520 0261
DKD calibration cert./Humidity, Humidity datalogger; cal. points 11.3%RH and 75.3%RH at +25°C; per channel/instrument	0520 0246

## The long termers with external probes

### testostor 171-1

You can place the testostor 171-1 datalogger beside the goods, for example, and attach the external probe to doors or refrigeration appliances located up to 12m away. Air moisture can also be monitored, if required.

- Logs up to 55000 readings
- Probe can be positioned quickly and easily
- Tamperproof measurement results
- Clear printout on location on the Testo printer
- On site application: Testo Software for Palm OS® replaces laptop/PC

### testostor 171-4

testostor 171-4 with up to 4 external temperature probe sockets is used for simultaneous temperature measurement at different locations.



testostor 171-1, external probe socket can be positioned at up to 12m away



Data analysis on your PC/Notebook with easy-to-use Windows® Software



Monitor several refrigerated storerooms using testostor 171-4

#### testostor 171-1

Int.: °C + Ext.: °C or %RH/°C

Temperature datalogger with °C/%RH probe socket, incl. magnetic start function, battery, calibration protocol

Part no. 0577 1715

#### testostor 171-4

4 x external °C

Temperature datalogger, 4 channels, with magnetic start function, battery and calibration protocol

Part no. 0577 1714

Description	Illustration	Meas. range	Accuracy	Reaction time	Part no.
Robust immersion/air probe, quick-action, 6m cable, IP68 probe tip	40 mm Ø 3 mm	-50 to +80 °C	±0.2 °C (-25 to +80 °C) ±0.4 °C (-50 to -25.1 °C)	5 s t <sub>99</sub> (in water)	0610 1720 Conn.: Fixed cable
Air probe, highly accurate, can be attached directly	30 mm Ø 3 mm	-35 to +70 °C	±0.2 °C (-35 to +70 °C)	180 s t <sub>90</sub>	0610 1722
Robust, accurate, waterproof food probe (IP65), made of stainless steel	125 mm Ø 4 mm	-50 to +120 °C	±0.2 °C (-25 to +80 °C) ±0.4 °C (-50 to -25.1 °C) ±0.5 °C (+80.1 to +120 °C)	10 s t <sub>99</sub> (in water)	0610 2217 Conn.: Fixed cable
Frozen food probe, corkscrew design	110 mm Ø 8 mm	-50 to +120 °C	±0.2 °C (-25 to +80 °C) ±0.4 °C (-50 to -25.1 °C) ±0.5 °C (+80.1 to +120 °C)	8 s t <sub>99</sub> (in water)	0610 3217 Conn.: Plug-in cable
Humidity/temperature probe with standard plastic protection cap	180 mm Ø 12 mm	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH) ±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	12 s t <sub>90</sub>	0636 9717*

\*Humidity/Temperature probes only for testostor 171-1

testostor 171-1	Chann. intern, NTC	Chann. external (var.), NTC
Meas. range	-35 to +70 °C	0 to +100 %RH
Accuracy	±0.2 °C (-35 to +39.9 °C) ±1 digit ±0.4 °C (+40 to +70 °C)	±2 %RH (+2 to +98 %RH)
Resolution	0.1 °C	0.1 %RH (0 to +100 %RH)
Common Technical Data		
Chann. external (var.), NTC		
Meas. range	-50 to +120 °C	
Accuracy	±0.2 °C (-34.9 to +39.9 °C) ±1 digit ±0.4 °C (+40 to +120 °C)	
Resolution	0.1 °C	
Oper. temp.	-35 to +70 °C	Memory 55000
Storage temp.	-40 to +85 °C	Dimensions 131 x 68 x 26 mm
Battery type	Lithium battery	Weight 305 g
Meas. rate: 2 s to 24 h, selectable		
Battery life: up to 5 years with lithium battery		
Software: menu-driven from Microsoft Windows 95 / NT 4 Service pack 4		

Accessories Ordering data	Part no.
Display can be attached to datalogger	0554 0176
Display with print option, can be attached to datalogger	0554 0175
Testo printer with 1 roll of thermal paper and 4 AA size batteries	0554 0545
Optical alarm display for datalogger, battery-operated, Warns if limits have been exceeded	0628 0025
testostor 171 data logger, connection for Palm OS® (from version 3.5), In connection with ComSoft 3, Part no.: 0554 0830	0554 0805
ComSoft 3 - Professional with data management, incl. database, analysis and graphics function, data analysis, trend curve	0554 0830
ComSoft 3 - For requirements to CFR 21 Part 11, incl. database, analysis and graphics function, data analysis, trend curve	0554 0821
Interface, attachable to datalogger	0554 1781
Transport case (plastic) for dataloggers (max. 5 off) and accessories	0516 0117
ISO calibration certificate/Temperature, Temp. datalogger: calibration points -18°C; 0°C; +60°C per channel/instrument	0520 0151

## Professional analysis of refrigeration systems

### Experts are our favourite customers



Detlef Higgelke,  
Head of Testo  
Academy

... because they know what they are doing. We offer you our support with our field-oriented trainings on measurement procedures, and on physical

cohesions.

Even more important is the exchange with other specialists from your branch. After all, we are dealing with your competence and your professional routine when using our instrument.

By the way: 98% of our training participants fully recommend our seminars and training.



Connection option for up to 4 ambient air probes per logger



Comprehensive range of probes for temperature, humidity, pressure, velocity, CO<sub>2</sub>, rpm, current and voltage



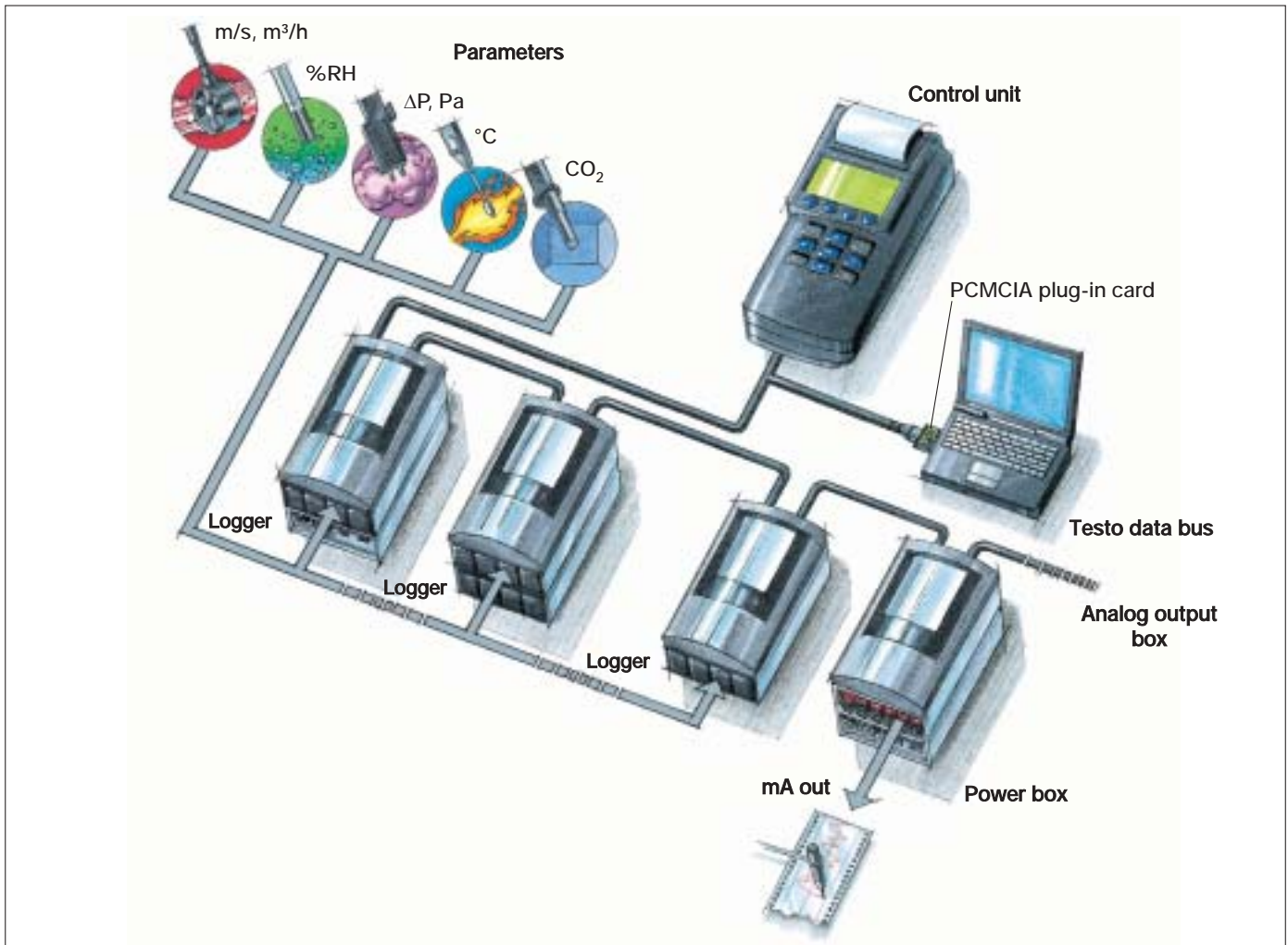
Analysis, documentation and filing of measurement data on PC



Large system case (aluminium) for control unit, up to 6 loggers, probes and accessories



## Simultaneous measurement at different locations



### Parameters

A wide range of probes are available for accurate measurement in the respective applications:

- Temperature with surface, immersion, penetration, air or precision probes
- Humidity with room air conditions, duct and precision probes, material moisture probes and pressure dewpoint probes
- Velocity and volume flow with vanes, hot wire, hot bulb probes and Pitot tubes
- Indoor Air Quality using CO<sub>2</sub> probe or comfort level probe
- Pressure with differential/absolute/low pressure or high pressure probes
- rpm
- Velocity, voltage

### Loggers

The datalogger measures and saves readings without any

connection to the control unit. Up to 4 more of any of the ambient air probes can be connected to this logger. Additional probe connection options are made possible by connecting more loggers. The following features give you flexibility when measuring data:

- Variable program start
  - Adjustable measuring cycle
  - Number of readings
  - Program cancel can be defined
- The measurement program can be started as follows:
- At a certain time or date
  - Manually using function buttons
  - If certain values are exceeded
  - Via an event trigger socket signal

The exceeded alarm values can be evaluated for display or control via a relay.

### PC plug-in card

The 'slave' loggers can be read

out and controlled, without a control unit, via a PC plug-in card (PCMCIA) for laptop/PC. It is possible to display the readings from several loggers clearly and conveniently in one view during online measurement. The data and readings relevant to the system are saved in the laptop/PC and loggers.

### Testo data bus

Communication between control unit/logger, PC plug-in card/logger and other boxes takes place via the Testo data bus. Using the Testo data bus, you have the option of operating loggers at different locations. Distances of up to several hundred metres pose no problem for the Testo data bus.

### Analog output box

The logger readings are output as a current signal (4-20 mA signal)

for display units or output on an analog recorder.

### Power box

The power box is used to supply power to the loggers, control unit, analog output box and the Testo data bus thus increasing the operating life in the field.

## Professional analysis of refrigeration systems

### testo 454

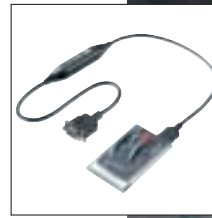
The testo 454 multi-function measuring instrument is ideal for use on large refrigeration systems. By combining several dataloggers, many parameters in a refrigeration system can be measured simultaneously (e.g. in a cold water substitute: superheating/subcooling + water's input and output temperature + high pressure + low pressure).

#### Concept

testo 454 is the system for flexible measurement of different measurement data.

#### Main features:

- Simultaneous measurement at several measurement points
- User defined probe sockets
- 1 to more than 200 measurement channels
- Data transmission with the Testo data bus
- Modular layout of system components



PCMCIA plug-in card to read and control loggers via laptop/PC



Measure superheating/subcooling and the oil pressure in an industrial refrigeration system

#### Recommended Set: Professional Set for large-scale refrigeration systems

Testo PCMCIA plug-in card incl. Comsoft 3 software, cable for Testo data bus, adapter and terminal plug	0554 0590
"Refrigeration technology" update with saved curves of all usual refrigerants	0554 4035
Logger, measures and saves (max. 250,000 readings), incl. 4 user defined probe sockets, alarm output/event trigger socket, stand/wall holder	0577 4540
High pressure probe, refrigerant-proof stainless steel, up to 30 bar, without cable, Screw-in thread 7/16" UNF	0638 1840
Low pressure probe made of refrigerant-proof stainless steel, up to 10 bar, without cable, Screw-in thread 7/16" UNF	0638 1740
Connection cable, 2.5 m long, for pressure probes	0409 0202
Connection cable, 2.5 m long, for pressure probes	0409 0202
Velcro probe for pipes with diameter of max. 75 mm	0628 0019
Velcro probe for pipes with diameter of max. 75 mm	0628 0019
Power box, connected to control unit to increase field operating life and supply power to Testo data bus	0554 1045
Mains unit for power box (110/230 V, 50/60 Hz, 12 V, 3 A)	0554 1143
Connection cable, 5 m, for Testo data bus	0449 0043

Low/High pressure probes	Illustration	Overload	Meas. range	Accuracy	Conn.	Part no.
Low pressure probe made of refrigerant-proof stainless steel, up to 10 bar, without cable, Screw-in thread 7/16" UNF		±32 bar	-1 to +10 bar	±1% of fsv	Plug-in head, connection cable 0409 1745 required	0638 1740
High pressure probe, refrigerant-proof stainless steel, up to 30 bar, without cable, Screw-in thread 7/16" UNF		±70 bar	-1 to +30 bar	±1% of fsv	Plug-in head, connection cable 0409 1745 required	0638 1840
Temperature probes	Illustration		Meas. range	Accuracy		Part no.
Velcro probe for pipes with diameter of max. 75 mm, Probe type Pt100			-50 to +150 °C	Class B		0628 0019 Conn.: Fixed cable

More probes available. Send for the brochure: "Reference Measure Instrument in Ambient Air Engineering and Industry"

# THE reference for refrigeration and air conditioning systems

## testo 400

The precision measuring instrument from the reference class offers the professional user everything he needs to fulfill complicated measurement tasks.

- Thermal, vane and Pitot tube measurement
- Velocity, volume flow
- Humidity, pressure
- rpm, current, velocity
- Temperature

### Complex but not complicated

The instrument recognises the respective probe connected and shows the next possible steps in the display.

### Measurement data processing with "Retrieval guarantee"

Filing is in a clear tree structure with "Retrieval guarantee" – in a large display and, of course, on your PC.

### Data memory for monitoring processes

A data memory with up to 48,000 readings is available for long-term measurement. All relevant parameters such as start and finish of measurement, measurement intervals, limits exceeded and date/time can be programmed as required.



Prints readings on site in seconds



Special software to show the different temperature curves of all current refrigerants



Measurement on a refrigeration machine, low/high pressure

### testo 400

Multi-function measuring instrument, incl. battery and calibration protocol

Can be used for:

- Velocity, volume flow
- Humidity, pressure
- Temperature
- CO<sub>2</sub>, rpm and current/voltage

Part no. 0563 4001

Velocity probes	Illustration		Meas. range	Accuracy	Part no.	
Bendable vane probe (can be bent by 90°), Ø 100 mm, attachable to handle or telescopic handle, for measurements on ventilation outlets		Ø 100 mm	+0.1 to +15 m/s Oper. temp. 0 to +60 °C	±(0.1 m/s ± 1.5% of mv) (+0.1 to +15 m/s)	0635 9340	
Vane/temperature probe, Ø 16 mm, attachable to handle or telescopic handle		180 mm Ø 16 mm	+0.4 to +60 m/s -30 to +140 °C	±(0.2 m/s ± 1% of mv) (+0.4 to +60 m/s)	0635 9540	
Professional telescopic handle for plug-in vane probes, max. 1 m long, extension on request					0430 0941	
Quick-action hot wire probe, Ø 10 mm, with telescopic handle, for measurements in the lower velocity range with direction recognition		760 mm Ø 10 mm	0 to +20 m/s -20 to +70 °C	±(0.03 m/s ± 4% of mv) (0 to +20 m/s)	0635 1041	
Low/High pressure probes	Illustration	Overload	Meas. range	Accuracy	Conn.	Part no.
Low pressure probe, refrigerant-proof stainless steel, up to 10 bar, Screw-in thread 7/16" UNF		25 bar	-1 to +10 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 1741
High press. probe, refrigerant-proof st. steel, up to 40 bar, Screw-in thread 7/16" UNF		120 bar	-1 to +40 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 1941
Humidity probes	Illustration		Meas. range	Accuracy	Part no.	
Standard ambient air probe up to +70 °C		Ø 12 mm	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH) ±0.4 °C (-10 to +50 °C) ±0.5 °C (remaining range)	0636 9740 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	
Temperature probes	Illustration		Meas. range	Accuracy	Part no.	
Velcro probe for pipes with diameter of max. 75 mm		280 mm	-50 to +150 °C Probe type Pt100	Class B	0628 0019 Conn.: Fixed cable	
Quick-action surface probe with sprung thermocouple strip, measuring range short-term to +500 °C		150 mm Ø 10 mm	-200 to +300 °C	Class 2	t <sub>99</sub> 3 s 0604 0194 Conn.: Plug-in head, connection cable 0430 0143 or 0430 0145 required	

More probes available. Send for the brochure: "Portable Reference Measurement Engineering".



## Accessories testo 400

### Measurement on a refrigeration machine, low/high pressure.

testo 400 and its pressure probes enable the measurement of suction pressure and high pressure on a refrigeration unit. Using the Velcro probe, the current temperature of the refrigerant on the shaft surface can be measured. The built-in data memory stores all the measurement data over a long period of time without the need for supervision.

Advantage: The different temperature curves of all current refrigerants are shown using the special software.

### Recommended Set: The reference set for refrigeration measurement engineering

Multi-function measuring instrument, incl. battery and calibration protocol	0563 4001
Low pressure probe, refrigerant-proof stainless steel, up to 10 bar, Screw-in thread 7/16" UNF	0638 1741
High press. probe, refrigerant-proof st. steel, up to 40 bar, Screw-in thread 7/16" UNF	0638 1941
Connection cable, 2.5 m long, for pressure probes 0638 1741/1841/1941	0409 0202
Connection cable, 2.5 m long, for pressure probes 0638 1741/1841/1941	0409 0202
Velcro probe for pipes with diameter of max. 75 mm	0628 0019
Attachable printer (securely attached) including 1 roll of thermal paper and batteries	0554 0570
SoftCase (protects instrument from impact) with carrier strap, magnetic holder and probe holder	0516 0401
SoftCase for attachable printer (protects printer from dirt/impact), Protects from impact and falls	0516 0411
System case (plastic) for measuring instrument, probes and accessories, Probes in lid make it easy to find parts in case	0516 0400
ComSoft 3 - Professional with data management, Incl. database, analysis and graphics function, data analysis, trend curve	0554 0830
"Refrigeration technology" update with saved curves of all usual refrigerants	0554 4035

Accessories for measuring instrument	Part no.
Memory upgrade to 500,000 readings, Upgrades memory capacity (by Service)	0554 9481
Rechargeable battery set for instrument (4 rechargeables 2.4V/700mAh), Selected for quick recharging in instrument	0554 0196
Power unit 230 V/ 8 V/ 1 A, for instrument (European plug), For mains operation and battery recharging	0554 1084
Car charging adapter, ready to measure following recharging in car, Battery is recharged while travelling in car	0554 0424
Spare Li cell to save RAM data, When changing battery or rechargeable battery	0515 0028
Printer and Accessories	Part no.
Attachable printer (securely attached) including 1 roll of thermal paper and batteries	0554 0570
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries	0554 0547
Fast testo 575 printer, incl. 1 roll of thermal paper and batteries, Infrared thermal line printer with graphics function	0554 1775
Recharger for printer (with 4 standard rech. batteries), Rechargeable batteries are recharged externally	0554 0110
Spare thermal paper for printer (6 rolls)	0554 0569
Spare thermal paper for printer (6 rolls), Measurement data documentation legible for up to 10 years	0554 0568
Label thermal paper (Testo patent) for testo 575 printer (6 rolls), can be applied directly	0554 0561
Softcase for instrument and printer	Part no.
SoftCase (protects instrument from impact) with carrier strap, magnetic holder and probe holder	0516 0401
SoftCase for attachable printer (protects printer from dirt/impact), Protects from impact and falls	0516 0411

Barcode and accessories	Part no.
Barcode reader to read in measurement locations, Quick and accurate allocation of reading to site	0554 0460
Barcode labels, self-adhesive (1200 off), for labelling site with barcode, printing via software	0554 0411
Adhesive pockets (50 off) for printout, paper barcode labels...	0554 0116
Software and Accessories	Part no.
ComSoft 3 - Professional with data management, Incl. database, analysis and graphics function, data analysis, trend curve	0554 0830
RS232 cable, Connects instrument to PC (1.8 m) for data transfer	0409 0178
Ethernet adapter, RS 232 - Ethernet incl. software driver, mains unit, Facilitates data communication in network	0554 1711
Electrical isolation for RS232 (connects measuring instrument to PC)	0554 0006
VAC module	Part no.
Memory upgrade to 500,000 readings, Upgrades memory capacity (by Service)	0554 9481
VAC module upgrade, Volume flow calculation in ducts with error calculation function in instrument	0450 4010
VAC module upgrade, PC software, (for ComSoft 3 software), Printout of standard measurement protocols	0554 4030
Refrigeration module	Part no.
"Refrigeration technology" update with saved curves of all usual refrigerants	0554 4035
System case	Part no.
Transport case (plastic) for measuring instrument, probes, For secure and orderly storage	0516 0300
System case (plastic) for measuring instrument, probes and accessories, Probes in lid make it easy to find parts in case	0516 0400
System case (aluminium) for measuring instrument, probes and accessories, Probes in lid make it easy to find parts in case	0516 0410

# Pressure meters for all measurement ranges

## testo 521

Highly accurate with internal differential pressure sensor, ideal for inspecting extraction units and ventilators and for monitoring pressure drops in filters.

The instrument also has two probe sockets to connect external temperature probes or pressure probes, for example, for simultaneous monitoring of condensation and evaporation pressure.

- Temp. compensated differential pressure sensor 0 to 100 hPa integrated in instrument
- 2 probe sockets for pressure and temperature
- Long-term analysis with internal data memory
- Printout on-site

Save data according to site and analyse on PC/notebook



Monitors filters using the external 100 Pa probe

### testo 521-1

**Accuracy 0.2% of fsv**

Differential pressure meter 0 to 100 hPa incl. battery and calibration protocol

Part no. 0560 5210

### testo 521-2

**Accuracy 0.1% of fsv**

Differential pressure meter 0 to 100 hPa incl. battery and calibration protocol

Part no. 0560 5211

Accessories Ordering data	Part no.
Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)	0554 0440
Connection hose set, 2 x 1 m, coiled, incl. 1/8" screw connection, pressure-tight up to 20 bar, for probe 0638 1647	0554 0441
Cable, 1.5 m long, connects probe with plug-in head to meas. instrument, PUR coating material	0430 0143
Connection cable, 2.5 m long, for pressure probes 0638 1741/1841/1941	0409 0202
TopSafe (protection case), incl. carrier strap, bench stand and magnet. Protects instrument from dust, impact, scratches	0516 0446
Testo printer with cordless IRDA and infrared interface, 1 roll of thermal paper and 4 round batteries	0554 0547
ComSoft 3 - Professional with data management, incl. database, analysis and graphics function, data analysis, trend curve	0554 0830
RS232 cable, Connects instrument to PC (1.8 m) for data transfer	0409 0178
Transport case, For measuring instrument, probes, Prandtl Pitot tube, accessories	0516 0527

Technical data		
Probe type	Piezoresistive pressure sensor (internal)	Pressure sensor for external pressure probes
Meas. range	0 to 100 hPa	0 to 2000 hPa (piezoresistive) 0 to 40 bar (ceramic)
Accuracy ±1 digit	±0.2 % of fsv(testo 521-1) ±0.1 % of fsv(testo 521-2)	±0.1 % of mv (piezoresistive) ±0.2 % of fsv (ceramic)
Resolution	0.01 hPa	0.1 Pa (0638 1347) 0.001 hPa (0638 1447) 0.1 hPa (0638 1647) 0.01 bar (ceramic)
Overload	300 hPa	
Static pressure	2000 hPa	
Oper. temp. (compensated)	0 to +50 °C	Dimensions 219 x 68 x 50 mm
Storage temp.	-20 to +70 °C	Weight 300 g
Memory	25,000	Display LCD, 2 lines
PC	RS232 interface	Battery type 9 V (6LR61)

Differential pressure probes	Illustration	Meas. range	Accuracy	Conn.	Part no.
Precision pressure probe, 100 Pa, in robust metal housing with impact protection, incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube)		0 to +100 Pa	±(0.3 Pa ±0.5% of mv)	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0638 1347
Pressure probe, 10 hPa, in robust metal housing with impact protection incl. magnet for fast attachment, to measure differential pressure and velocity speeds (in connection with Pitot tube)		0 to +10 hPa	±0.03 hPa	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0638 1447
Pressure probe, 1000 Pa, measures differential pressure, in robust metal housing with impact protection, incl. quick-closing coupling (M8 x 0.5), magnet for fast attachment		0 to +1000 hPa	±1 hPa (0 to 200 hPa) ±0.5% of mv (200 to 1000 hPa)	Plug-in head, connection cable 0430 0143 or 0430 0145 required	0638 1647

Temperature probes	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Pipe wrap probe for pipes with diameter of up to 2", for flow/return temp. meas. in hydronic systems		-60 to +130 °C	Class 2	5 s	0600 4593
Highly accurate air probe for air and gas temperature measurements with bare, mechanically protected sensor	 150 mm Ø 9 mm	-40 to +130 °C	To UNI curve	60 s	0610 9714

Relative pressure probes	Illustration	Overload	Meas. range	Accuracy	Conn.	Part no.
Low pressure probe, refrigerant-proof stainless steel, up to 10 bar, Screw-in thread 7/16" UNF		25 bar	-1 to +10 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 1741
High pressure probe, refrigerant-proof stainless steel, up to 30 bar, Screw-in thread 7/16" UNF		120 bar	-1 to +30 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 1841
High press. probe, refrigerant-proof st. steel, up to 40 bar, Screw-in thread 7/16" UNF		120 bar	-1 to +40 bar	±1% of fsv	Plug-in head, connection cable 0409 0202 required	0638 1941

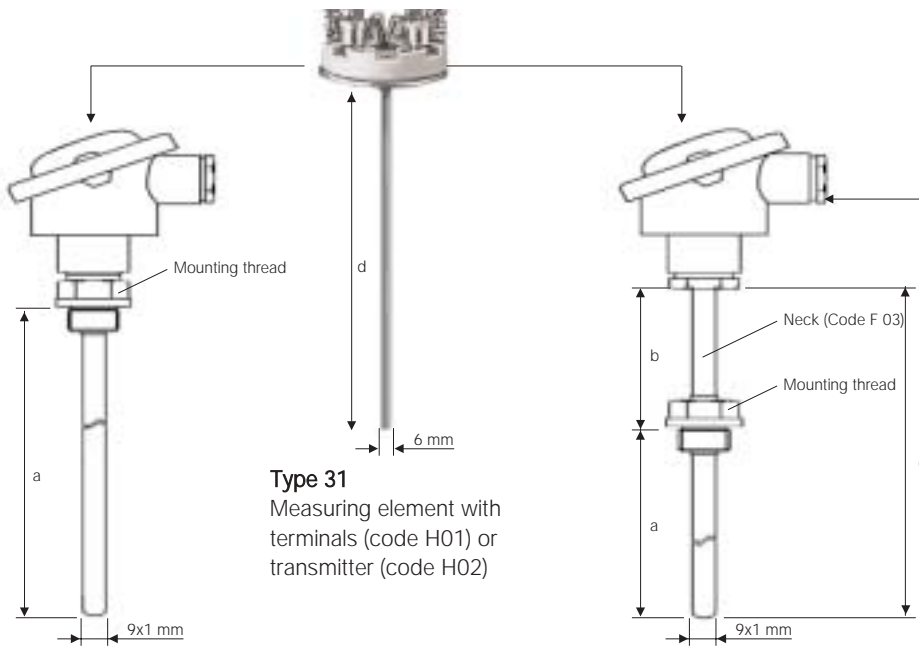
## Overview of probe types 30 / 31: Stationary probes and measuring elements

The many different advantages that stationary probes offer have made them an "industrial standard". They are particularly used for monitoring purposes in vessels and pipelines.

### Advantages

- Measuring element (type 31) can be exchanged without interrupting the process
- Transmitters (optional component of measuring element type 31) are accommodated directly in the connecting head
- Used without compensating or thermocouple lines

### Design



### Selection of connecting heads



Standard head B  
Order code K01, material aluminium, Tmax 80 °C



Order code K02, material polyamide



Order code K03, material stainless steel



Order code K04, material aluminium

Order code	Neck code	Dimensions Type 30 (mm)			Type 31 (mm)
		a	b	c	d
C07	-	160	0	160	205
C08	-	250	0	250	295
C09	-	400	0	400	445
C07	F03	160	120	280	315
C08	F03	250	120	370	405
C09	F03	400	120	520	555

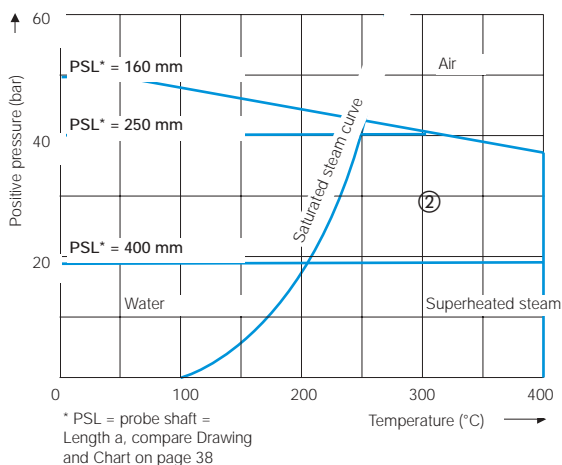
## Ordering information for stationary probes and measuring elements

	Stationary probe Type 30	Measuring element Type 31	
<b>Measuring sensors:</b>			
Pt100 Class B		A 01	
Pt100 Class A		<b>A 02</b>	
Type K (Class 1)		A 05	
Type K (Class 2)		A 06	
Type J (Class 1)		A 07	
Type J (Fe-CuNi) Class 2		A 08	
Measuring element with two sensors on request			
<b>Probe shaft Ø:</b>			
Ø 6.0 mm (= Standard for Type 31)		<b>B 09</b>	Standard diameter
Ø 9.0 mm (= Standard for Type 30)	<b>B 12</b>		
<b>Probe shaft length (SRL)*</b>			Please order Type 30 and 31, accordingly, e.g.. C 08 - C 08 and F 03 - F 03
Type 30: Length a=160 mm; Type 31: Length d=205 mm	C 07	C 07	
Type 30: Length a=250 mm; Type 31: Length d=295 mm	<b>C 08</b>	<b>C 08</b>	
Type 30: Length a=400 mm; Type 31: Length d=445 mm	C 09	C 09	
Other (please state)	C 99	C 99	
<b>Miscellaneous (without neck: omit code *F*)</b>			
with neck optional (Type 30: Length c = a + 120 mm additional; Type 31: Length d = 110 mm additional)	<b>F 03</b>	<b>F 03</b>	
<b>Signal processed in connecting head</b>			
Connection base with terminals		H 01	
Transmitter 4...20 mA (2-wire system)		<b>H 02 *</b>	
<b>Connecting heads (cf. photos p. 38)</b>			* Please always indicate the exact temperature range (°C) in clear text (see example).
Standard head B version (light metal)	<b>K 01</b>		
Form B-KU (plastic)	K 02		
Form B-VA (stainless steel)	K 03		
Form BA-KLH (light metal)	K 04		

**Sample order: Order code 6030.9999 / B 12 / C 08 / F 03 / K 01**  
 Stationary fitting type 30, installation length 250 mm, with neck, standard head B

**Sample order: Order code 6031.9999 / A 02 / B 09 / C 08 / F 03 / H 02 / 50 / 150**  
 Measuring element type 31, Pt100 Class A, fits into stationary fitting l=250 mm with neck, with transmitter 4 to 20 mA, temp. range +50 to +150 °C (here: Length c = a + b = (250 + 120) mm = 370 mm • Length d = (295 + 110) mm = 405 mm; cf. also Table on page 38)

Stress resistance of protection sheath (st. steel 1.4571)



The permitted stress of the protection sheaths is a function of the temperature, the installation length and the flow velocity of the medium (see diagram taken from DIN 43763)

Permitted flow velocity	
Air	25 m/s
Superheated steam	25 m/s
Water	3 m/s

Example: At 300 °C/30 bar (point 2) installation lengths of 160 mm or 250 mm are permitted, but not 400 mm.



# Testo: At Your Service

Additional documentation:

