Multi-purpose measuring instruments for analysing refrigeration systems

testo 435

The testo 435 provides the possibility of analysing indoor air. This serves on the one hand as an indicator of the well-being of people at their workplace, and on the other hand as an important deciding factor in storage and production processes. Indoor air quality furthermore signalizes whether the indoor air system (VAC) is being used with optimum energy economy, or whether it needs to be adjusted with the help of testo 435. In addition to classical probes with a wire, wireless measurement up to a distance of 20 m (without obstruction) is possible. Damage to the wire or hindrances in usage are thus eliminated. A maximum of three radio probes can be recorded and displayed by testo 435. The radio probes are available for the measurement parameters temperature and, depending on the instrument type, humidity. The optional, easily attachable radio module can be retrofitted at any time.

More user comfort

The testo 435 excels through its logical use and easy-to-follow menu. For measurements at different locations, testo 435-2 has the advantage that the readings are allocated to the respective measurement location. For duct and IAQ measurement applications, the instruments can be switched over between user profiles.

Absolutely robust instrument concept

The reliability of measuring instruments is a deciding factor. The testo 435 is a robust and reliable measuring instrument with protection class IP 54. The material used works as a built-in protection against knocks and dirt. The large backlit display is positioned slightly set back in the housing and is thus better protected. The carrying strap on the instrument enables safe transport. Magnets on the back of the instrument ensure secure attachment at the measurement location.

Fast documentation through measurement data printout on location

Monitoring air turnover in a refrigeration chest

Common advantages

- Wide range of probes:
  - Thermal probes with integrated temperature and air humidity measurement
  - Vane and hot wire probes
  - Radio probes for temperature
- Easy use with user profiles
- Printout on Testo printer

Further advantages testo 435-2

- Instrument store for 10,000 readings
- PC software for analysing, archiving and documenting measurement data
- Moisture probes with radio or wire
- Possibility of connecting Lux probe
- Possibility of connecting comfort level probe

testo 435-1

testo 435-1, multi-functional meas. instr., for A/C, ventilation and Indoor Air Quality, with battery and calibration protocol

Part no. 0560 4351

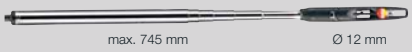
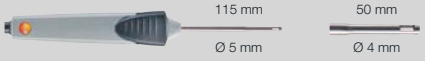
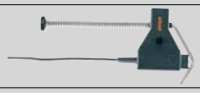
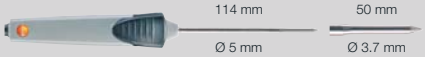
testo 435-2

testo 435-2, multi-functional measuring instrument for A/C, ventilation and Indoor Air Quality with readings memory, PC software and USB data transmission cable, incl. battery and calibration protocol

Part no. 0563 4352

Printer and Accessories	Part no.
Testo fast printer with wireless infrared interface, 1 roll thermal paper and 4 AA batteries	0554 0549
Spare thermal paper for printer (6 rolls), measurement data documentation legible for up to 10 years	0554 0568
Spare thermal paper for printer (6 rolls)	0554 0569
External fast charger for 1-4 AA rech. batteries, incl. 4 Ni-MH rech. batteries with individual cell charging and charge control display, incl. impulse trickle charging, integrated discharge function, with built-in international mains plug, 100-240 V, 300 mA, 50/60 Hz	0554 0610
Further accessories measuring instrument/probes	**Part no.**
Plug-in mains adapter, 5 VDC 500 mA with European adapter, 100-250 VAC, 50-60 Hz	0554 0447
testovent 410, volume flow funnel, Ø 340 mm/330x330 mm, incl. case	0554 0410
testovent 415, volume flow funnel, Ø 210 mm/210x210 mm, incl. case	0554 0415
Funnel set consisting of funnel for disc outlets (Ø 200) and funnel for ventilator (330 x 330 mm) for in- and outgoing air	0563 4170
Transport and Protection	**Part no.**
Service case for basic equipment of measuring instrument and probes, dimensions: 400 x 310 x 96 mm	0516 0035
Service case for measuring instrument, probe and accessories, dimensions 520 x 380 x 120 mm	0516 0435
Accessories for testo 435-2 only	**Part no.**
Handle for plug-in humidity probe head for connection to testo 635 and testo 435, probe cable included, measures/calibrates humidity probe head	0430 9735
testo saline pots for control and humidity adjustment of humidity probes, 11.3 %RH and 75.3 %RH with adapter for humidity probe	0554 0660
Sintered PTFE filter, Ø 12 mm, for corrosive media	0554 0756
Stainless steel sintered cap, Ø 12 mm, is screwed onto humidity probe	0554 0647
Calibration Certificates	**Part no.**
ISO calibration certificate/temperature, meas. instr. with surface probe; calibration points +60°C; +120°C; +180°C	0520 0071
ISO calibration certificate humidity, Calibration points 11.3 %RH and 75.3 %RH at +25°C	0520 0006
ISO calibration certificate/Velocity, hot wire, vane anemometer, Pitot tube; calibration points 5; 10; 15; 20 m/s	0520 0034

Suitable probes at a glance

Multi-function probes	Illustration	Meas. range	Accuracy	Part no.
Thermal velocity probe with built-in temperature and humidity measurement, Ø 12 mm, with telescopic handle (max. 745 mm)		-20 to +70 °C 0 to +100 %RH 0 to +20 m/s	±0.3 °C ±2 %RH (+2 to +98 %RH) ±(0.03 m/s +4% of mv)	0635 1535
Flow probes	**Illustration**	**Meas. range**	**Accuracy**	**Part no.**
Vane meas. probe, 16 mm diameter, with telescopic handle max. 890 mm, e.g. for meas. in ducts		+0.6 to +40 m/s	±(0.2 m/s +1.5% of mv)	0635 9535
Vane meas. probe, 60 mm diameter, with telescopic handle max. 910 mm, e.g. for meas. at duct exit		+0.25 to +20 m/s	±(0.1 m/s +1.5% of mv)	0635 9335
Vane meas. probe, 100 mm diameter, for measurements with funnel set 0563 4170		+0.3 to +20 m/s 0 to +50 °C	±(0.1 m/s +1.5% of mv) ±0.5 °C	0635 9435
Hot wire probe for m/s and °C, Ø probe head 7.5 mm, with telescopic handle (max. 820 mm)		0 to +20 m/s -20 to +70 °C	±(0.03 m/s +5% of mv) ±0.3 °C (-20 to +70 °C)	0635 1025
Air probes	**Illustration**	**Meas. range**	**Accuracy**	**t99** **Part no.**
Efficient, robust NTC air probe		-50 to +125 °C	±0.2 °C (-25 to +80 °C) ±0.4 °C (remaining range)	60 s 0613 1712
Surface probes	**Illustration**	**Meas. range**	**Accuracy**	**t99** **Part no.**
Fast-action surface probe with sprung thermocouple strip, also for uneven surfaces, measurement range short-term to +500°C, TC Type K		-60 to +300 °C	Class 2	3 s 0602 0393
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Meas. range short-term to +280°C, TC Type K		-60 to +130 °C	Class 2	5 s 0602 4592
Clamp probe for measurements on pipes, pipe diameter 15 to 25 mm (max. 1"), meas. range short-term up to +130°C, TC Type K		-50 to +100 °C	Class 2	5 s 0602 4692
Immers./penetr. probes	**Illustration**	**Meas. range**	**Accuracy**	**t99** **Part no.**
Waterproof immersion/penetration probe, TC Type K		-60 to +400 °C	Class 2	7 s 0602 1293

testo 435-2

IAQ probes	Illustration	Meas. range	Accuracy	Part no.
Comfort level probe for degree of turbulence measurement with telescopic handle (max. 820 mm) and stand, meets EN 13779 requirements		0 to +50 °C 0 to +5 m/s	±0.3 °C ±(0.03 m/s +4% of mv)	0628 0109
Lux probe, for measuring light intensity		0 to 100.000 Lux 0 to 300 Hz	Accuracy to DIN 5032, Part 6: f1 = 6% = V(Lambda) adjustment f2 = 5% = cos-like weighting, Class C ±0,1% of mv	0635 0545
Humidity probes	**Illustration**	**Meas. range**	**Accuracy**	**Part no.**
Humidity/temperature probe		-20 to +70 °C 0 to +100 %RH	±0.3 °C ±2 %RH (+2 to +98 %RH)	0636 9735

Technical data / Option: Radio

Radio module for upgrading measuring instrument with radio option

Country versions	Radio freq.	Part no.
Radio module for measuring instrument, 869.85 MHz, approval for the countries: DE, FR, UK, BE, NL, ES, IT, SE, AT, DK, FI, HU, CZ, PL, GR, CH, PT, SI, MT, CY, SK, LU, EE, LT, IE, LV, NO	869.85 MHz FSK	0554 0188
Radio module for measuring instrument, 915.00 MHz FSK, approval for USA, CA, CL	915.00 MHz FSK	0554 0190

Assembled for you: Radio handles with probe head

Radio handles with probe head for surface measurement		Meas. range	Accuracy	Resolution	t_{99}
Radio handle for attachable probe heads with T/C probe head for surface measurement		-50 to +350 °C Short-term to +500 °C	Radio handle: ±(0.5 °C +0.3% of mv) (-40 to +500 °C) ±(0.7 °C +0.5% of mv) (remaining range) T/C probe head: Class 2	0.1 °C (-50 to +199.9 °C) 1.0 °C (remaining range)	5 s

Country versions	Radio freq.	Part no.
Radio handle for plug-in probe heads, incl. T/C adapter, approval for the countries: DE, FR, UK, BE, NL, ES, IT, SE, AT, DK, FI, HU, CZ, PL, GR, CH, PT, SI, MT, CY, SK, LU, EE, LT, IE, LV, NO	869.85 MHz FSK	0554 0189
T/C probe head for surface measurement, attachable to radio handle, T/C Type K		0602 0394
Radio handle for plug-in probe heads, incl. T/C adapter, approval for USA, CA, CL	915.00 MHz FSK	0554 0191
T/C probe head for surface measurement, attachable to radio handle, T/C Type K		0602 0394

Radio probes incl. humidity probe head		Meas. range	Accuracy	Resolution
Radio handle for attachable probe heads with humidity probe head		0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH) ±0.3 °C	0.1 %RH 0.1 °C

Country versions	Radio freq.	Part no.
Radio handle for plug-in probe heads, incl. T/C adapter, approval for the countries: DE, FR, UK, BE, NL, ES, IT, SE, AT, DK, FI, HU, CZ, PL, GR, CH, PT, SI, MT, CY, SK, LU, EE, LT, IE, LV, NO	869.85 MHz FSK	0554 0189
Humidity probe head, attachable to radio handle		0636 9736
Radio handle for plug-in probe heads, incl. T/C adapter, approval for USA, CA, CL	915.00 MHz FSK	0554 0191
Humidity probe head, attachable to radio handle		0636 9736

Radio probes: General technical data

	Radio immersion/penetration probe, NTC	Radio handle
Battery type	2 x 3V button cell (CR 2032)	2 AAA micro batteries
Battery life	150 h (meas. rate 0.5 s) 2 months (meas. rate 10 s)	215 h (meas. rate 0.5 s) 6 months (meas. rate 10 s)

Measuring rate	0.5 s or 10 s, adjustable on handle
Radio coverage	Up to 20 m (without obstructions)

Radio transmission	Unidirectional
Oper. temp.	-20 to +50 °C
Storage temp.	-40 to +70 °C
Protection class	IP54

Technical data — testo 435-2

Probe type	NTC	Type K (NiCr-Ni)	Testo humid. sensor, cap.	Vane	Hot wire	CO_2 (IAQ probe)	Absolute pressure probe	Lux
Meas. range	-50 to +150 °C	-200 to +1370 °C	0 to +100 %RH	0 to +60 m/s	0 to+20 m/s	0 to +10000 ppm CO_2	0 to +2000 hPa	0 to +100000 Lux
Accuracy ±1 digit	±0.2 °C (-25 to +74.9 °C) ±0.4 °C (-50 to -25.1 °C) ±0.4 °C (+75 to +99.9 °C) ±0.5% of mv (remaining range)	±0.3 °C (-60 to +60 °C) ±(0.2 °C +0.3% of mv) (remaining range)	See probe data	See probe data	See probe data	See probe data		See probe data
Resolution	0.1 °C	0.1 °C	0.1 %RH	0.01 m/s (60 vane) 0.1 m/s (16 vane)	0.01 m/s	1 ppm CO_2	0.1 hPa	1 Lux / 0.1 Hz

Oper. temp.	-20 to +50 °C
Storage temp.	-30 to +70 °C
Battery type	Alkali manganese, mignon, Type AA

Battery life	200 h (typical vane measurement)
Dimensions	220 x 74 x 46 mm
Weight	450 g

Measures air velocity with telescopic vane

testo 416

The compact testo 416 anemometer with permanently attached vane probe with telescopic handle (max. 890mm).

Volume flow is shown directly in the display. Accurate volume flow calculation due to easy input of duct area.

Timed and multi-point mean calculation provide information on mean volume flow.

Min/max values can also be shown in the display. The Hold function enables you to freeze the current reading in the display.

- Direct display of volume flow
- Multi-point or timed mean calculation
- Display light
- TopSafe, the indestructible protective case (optional)

Telescopic vane (length max. 890 mm, Ø 16 mm)

Monitoring air velocity in air conditioning ducts

testo 416

testo 416, vane anemometer with permanently attached 16 mm telescopic vane (max. 890 mm), with battery and calibration protocol

Part no. 0560 4160

Technical data			
Meas. range	+0.6 to +40 m/s (Application range 0 to +60 °C)		
Accuracy ±1 digit	±(0.2 m/s +1.5% of mv)		
Resolution	0.1 m/s		
Oper. temp.	-20 to +50 °C	Storage temp.	-40 to +85 °C
Battery type	9V block battery, 6F22	Battery life	80 h
Weight	325 g	Dimensions	182 x 64 x 40 mm

Accessories Ordering data	Part no.
Case for measuring instrument and probes	0516 0210
TopSafe, protects from impact and dirt	0516 0221
Recharger for 9V rechargeable battery, for external recharging of 0515 0025 battery	0554 0025
9V rech. battery for instrument, instead of battery	0515 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

Measures volume flow and temperature with 100 mm vane

testo 417

The compact anemometer testo 417 with built-in 100 mm Ø flow / temperature vane for measuring flow velocity, volume flow and temperature. The direction of flow, i.e. blowing or sucking flow, is visible in the display. The optional funnel set enables measurements at ventilation grilles and disc outlets.

- Multi-point and timed mean calculation
- Max/min values

Optional funnel set

Measuring exhaust air with testo 417 and built-in 100 mm Ø vane

testo 417

testo 417, vane anemometer with built-in 100 mm vane, incl. temperature measurement, battery and calibration protocol

Part no. 0560 4170

Technical data			
Probe type	Vane	NTC	Volume flow
Meas. range	+0.3 to +20 m/s	0 to +50 °C	0 to +99999 m³/h
Accuracy ±1 digit	±(0.1 m/s +1.5% of mv)	±0.5 °C	
Resolution	0.01 m/s	0.1 °C	0.1 m³/h (0 to +99.9 m³/h) 1 m³/h (+100 to +99999 m³/h)
Oper. temp.	0 to +50 °C	Storage temp.	-40 to +85 °C
Battery type	9V block battery, 6F22	Battery life	50 h
Weight	230 g	Dimensions	277 x 105 x 45 mm

Accessories Ordering data	Part no.
Case for measuring instrument and probes	0516 0210
Funnel set consisting of funnel for disc outlets (Ø 200) and funnel for ventilator (330 x 330 mm) for in- and outgoing air	0563 4170
Recharger for 9V rechargeable battery, for external recharging of 0515 0025 battery	0554 0025
9V rech. battery for instrument, instead of battery	0515 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

Measuring air velocity with thermal flow probe

testo 425

The compact anemometer with permanently attached thermal flow probe inc. telescope (max. 820 mm). The volume flow is shown directly in the display. Exact calculation of volume flow due to input of duct area. Additionally, the instrument can be switched over to the current temperature reading.

- Temperature, flow and volume flow measurement
- Multi-point and timed mean calculation
- Max/min values
- Hold button to freeze readings
- Display light
- Auto Off function
- TopSafe, the indestructible protective case (optional)

Telescopic flow probe (max. 820 mm)

Monitoring air velocity in air conditioning ducts

testo 425

testo 425, thermal anemometer with permanently attached flow probe (Ø probe head 7.5 mm), incl. temperature measurement and telescopic handle (max. 820 mm), battery and calibration protocol

Part no. 0560 4251

Accessories Ordering data	Part no.
Case for measuring instrument and probes	0516 0210
TopSafe, protects from impact and dirt	0516 0221
Recharger for 9V rechargeable battery, for external recharging of 0515 0025 battery	0554 0025
9V rech. battery for instrument, instead of battery	0515 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, Pitot tube; calibration points 5; 10; 15; 20 m/s	0520 0034

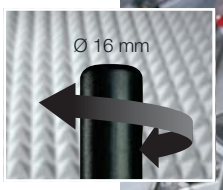
Technical data			
Probe type	Thermal		NTC
Meas. range	0 to +20 m/s		-20 to +70 °C
Accuracy ±1 digit	±(0.03 m/s +5% of mv)		±0.5 °C (0 to +60 °C) ±0.7 °C (remaining range)
Resolution	0.01 m/s		0.1 °C
Oper. temp.	-20 to +50 °C	Storage temp.	-40 to +85 °C
Battery type	9V block battery, 6F22	Battery life	20 h
Weight	285 g	Dimensions	182 x 64 x 40 mm

Measure air flow, volume flow and temperature, with a thermal anemometer

testo 405

testo 405 is a thermal anemometer. It allows the measurement of air flow velocity, volume flow and temperature. testo 405 is ideal for measuring the flow in ducts or at duct openings or draughty windows.

- m/s and m³/h (volume flow calculation 0 to 99,990 m³/h)
- Measures in ducts and at duct openings
- Duct holder and holding clip for fast positioning



Sensor protected by rotatable protection cap, 300 mm long telescopic handle

Easy-to-read readings thanks to swivel display

Ideal for measurements in ducts

testo 405

testo 405; thermal anemometer with duct holder, holding clip, battery included

Part no. 0560 4053

Accessories Ordering data	Part no.
testovent 410, volume flow funnel, Ø 340 mm/330x330 mm, incl. case	0554 0410
testovent 415, volume flow funnel, Ø 210 mm/210x210 mm, 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 5 m/s (-20 to 0 °C) 0 to 10 m/s (0 to +50 °C)		0 to +99990 m³/h
Accuracy ±1 digit	±(0.1 m/s + 5% of mv) (0 to +2 m/s) ±(0.3 m/s + 5% of mv) (remaining range) ±0.5 °C		
Resolution	0.01 m/s / 0.1 °C	Battery life	Approx. 20 h
Oper. temp.	0 to +50 °C	Battery type	3 batteries Type AAA