



testo 435

# Multi-Function Measuring Instrument for Ventilation and Indoor Air Quality

Versatile instrument for air conditioning engineers

NEW!



m<sup>3</sup>/h

m/s

ΔP

CO<sub>2</sub>

%RH

°C

Lux

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## Measurement of key air quality parameters

The testo 435 is a multi-function instrument designed for the analysis of air quality. The instrument is suitable for ensuring employees' safety and well-being in workplace environments and the maintenance of optimum conditions in storage and production processes.

The testo 435 can be used to measure CO<sub>2</sub>, relative humidity and air temperature to ensure conditions are at the correct level and to indicate whether air conditioning systems are working at optimum levels.

A range of thermal probes, vane probes and Pitot tubes are available for the testo 435 to allow engineers to take measurements of air flow at various points in a building.

Also available are a range of probes to measure absolute pressure, comfort level, lux and surface temperature - making the testo 435 a truly multi-functional instrument.

## Whatever the measuring task, a range of probes are available to take effective measurements:

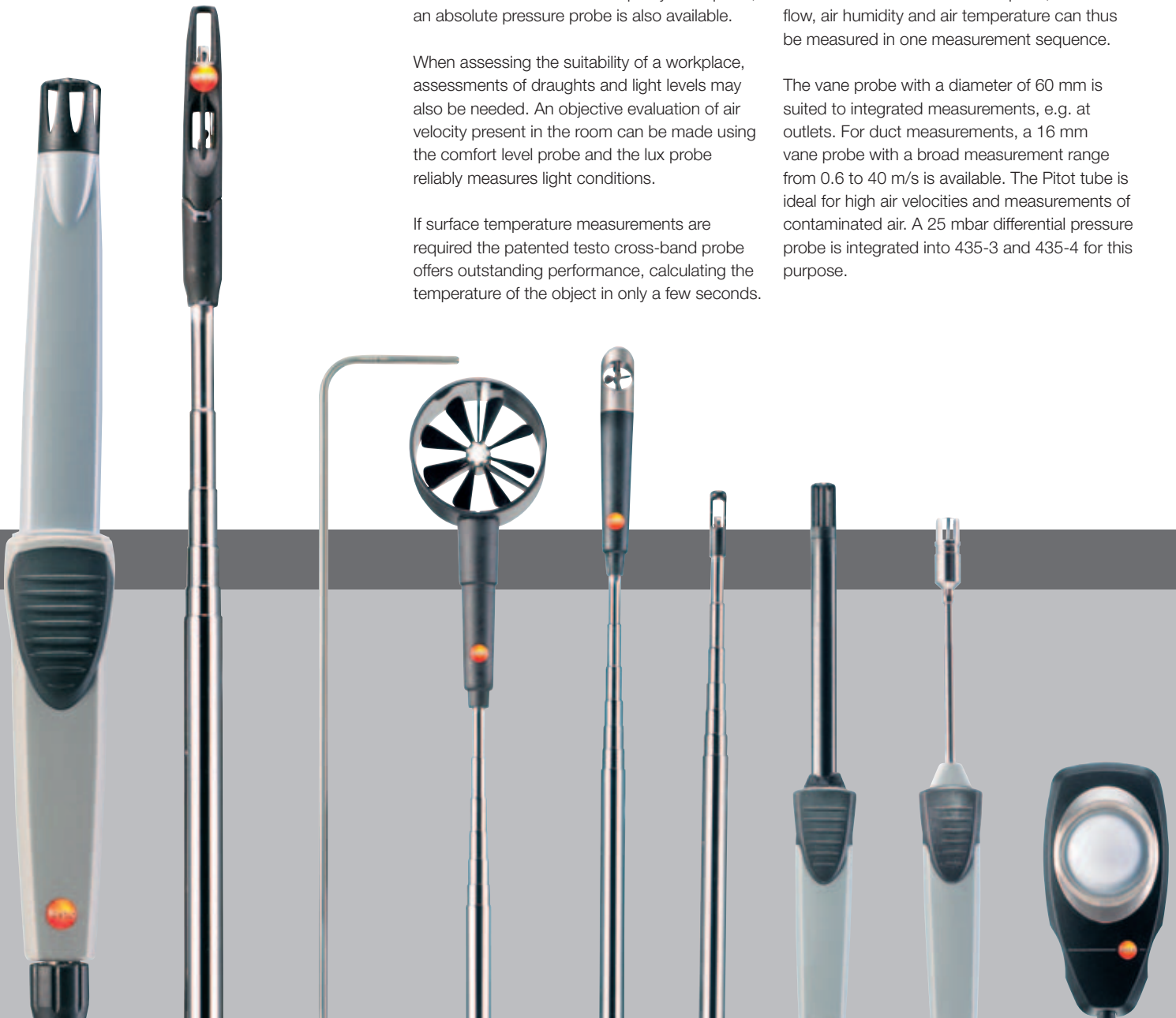
The probe for Indoor Air Quality (IAQ) measures CO<sub>2</sub>, relative humidity and room air temperature in order to evaluate room air quality. If required, an absolute pressure probe is also available.

When assessing the suitability of a workplace, assessments of draughts and light levels may also be needed. An objective evaluation of air velocity present in the room can be made using the comfort level probe and the lux probe reliably measures light conditions.

If surface temperature measurements are required the patented testo cross-band probe offers outstanding performance, calculating the temperature of the object in only a few seconds.

Temperature and humidity measurement have been integrated in a new thermal probe, for measurements in ducts. Flow speed, volume flow, air humidity and air temperature can thus be measured in one measurement sequence.

The vane probe with a diameter of 60 mm is suited to integrated measurements, e.g. at outlets. For duct measurements, a 16 mm vane probe with a broad measurement range from 0.6 to 40 m/s is available. The Pitot tube is ideal for high air velocities and measurements of contaminated air. A 25 mbar differential pressure probe is integrated into 435-3 and 435-4 for this purpose.



## Exceptional practicality with wireless probes

As well as cable connected probes, the testo 435 can also be used with a range of wireless probes. Wireless probes offer users exceptional practicality as hindrance during measurement and potential damage to the probe cable are eliminated.

To convert the instrument for use with the wireless probes an optional wireless module is required. Wireless probes are available for the measurement of temperature and (in some models) humidity.





## Designed for ease of use

The testo 435 is designed for ease of use, with easy to follow menus.

The 2 advanced models, testo 435-2 and testo 435-4, offer users the ability to allocate measured values to measurement locations. These instruments also offer the ability to switch between 2 User Profiles:

User profile for channel measurement:  
The most important functions of a channel measurement such as time/point mean calculation and area input are directly accessed by the function buttons. Any area input, (circle, rectangle, area) is adjustable on location. 5 predefined dimensions are stored directly in the function buttons.

User profile for Indoor Air Quality (IAQ):  
The most important function when monitoring room air quality is long-term measurement. The activation of the measurement programme is directly accessible via the function button.

## Robust design for durability

The testo 435 is a robust and reliable measuring instrument with the protection class IP 54. The testo 435 has been designed to provide an instrument that is both easy to use and of strong construction. For example, the housing material offers built-in protection against knocks and jars and the large illuminated display is set back in the housing to offer protection. To assist everyday use the instrument features a carrying strap and magnets on the back panel for attachment at the measuring location.



## Assurance through reliable documentation

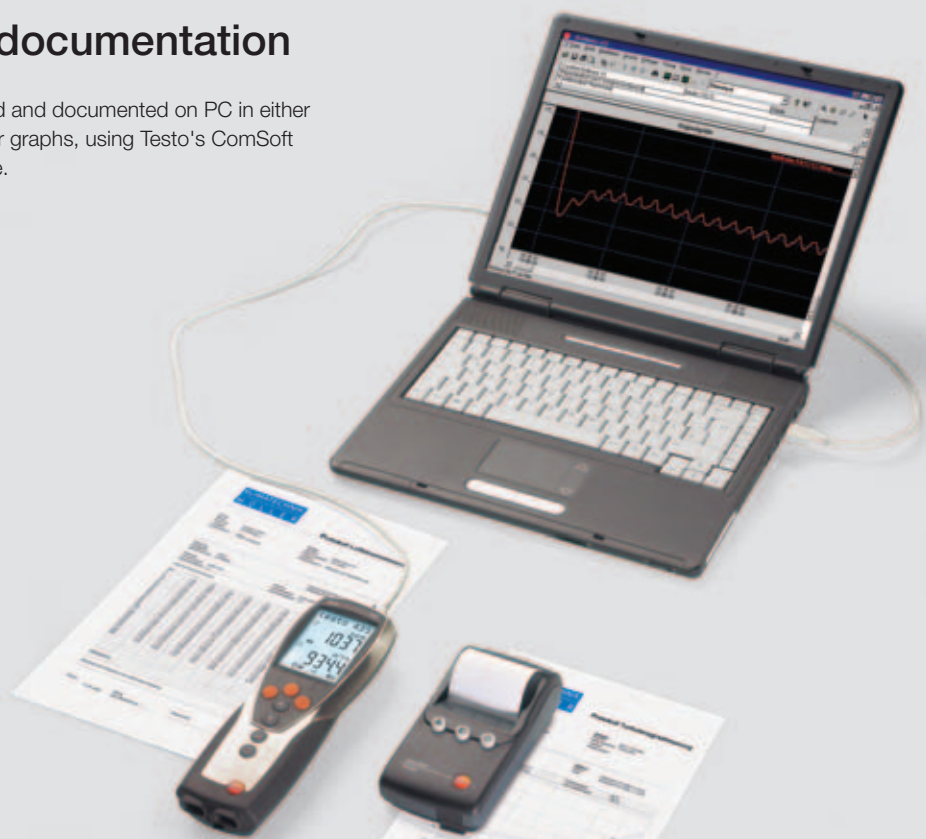
The testo 435 offers users 2 convenient documentation options; print out on-site or analysis and documentation on a PC.

analysed and documented on PC in either tables or graphs, using Testo's ComSoft software.

The testo printer offers a convenient and easy to use option for on-site documentation. The testo 435 transmits the data to the printer wirelessly via an infrared interface. Date, time and measured data are all documented on the print-out.

When using the testo 435-1 and testo 435-3 measured data can be printed to the Testo printer at regular intervals (from 1 minute to 24 hours), using the Cycle Printing function. In this way measurement series can be documented on paper without the need to store the data.

The testo 435-2 and 435-4 models offers users the option to store both single measurements and measurement series (up to 10,000 measurement values). Data can then be



### Common features of testo 435 series

- **WIDE SELECTION OF PROBES:**
  - IAQ probe for evaluating the indoor air quality via CO<sub>2</sub>, air temperature, indoor air humidity and absolute pressure
  - Thermal probe with integrated temperature and air humidity measurement
  - Vane and hot wire probes
  - Radio probes for temperature
- **EASY USE WITH USER PROFILES**
- **PRINTING ON THE TESTO REPORT PRINTER**

### Features of specific models

- **INTEGRATED DIFFERENTIAL PRESSURE MEASUREMENT (435-3/-4, not retrofittable)**
  - for flow measurement
  - for monitoring filters
- **EXTENDED INSTRUMENT FUNCTION (435-2/-4, not retrofittable)**
  - Instrument store for 10,000 readings
  - PC software for analysing, archiving and documenting measurement data
  - Humidity probes with radio or wire
  - Lux probe connection possible
  - Comfort level probe connection possible

#### testo 435-1

testo 435-1 multi-function measuring instrument for A/C, ventilation and Indoor Air Quality, with battery and calibration protocol

#### testo 435-2

##### EXTENDED INSTRUMENT FUNCTION

testo 435-2, multi-function measuring instrument for air conditioning, ventilation and Indoor Air Quality with readings memory, PC software, USB data transmission cable, battery and calibration protocol

#### testo 435-3

##### INTEGRATED DIFFERENTIAL PRESSURE MEASUREMENT

testo 435-3, multi-function measuring instrument with built-in differential pressure measurement for air conditioning, ventilation and Indoor Air Quality, with battery and calibration protocol

#### testo 435-4

##### INTEGRATED DIFFERENTIAL PRESSURE MEASUREMENT

##### EXTENDED INSTRUMENT FUNCTION

testo 435-4, multi-function measuring instrument with built-in differential pressure measurement for A/C, ventilation and Indoor Air Quality with readings memory, PC software, USB data transmission cable, battery and calibration protocol

# Probes

435-1/-2/-3/-4					
Multi-function probes	Illustration	Meas. range	Accuracy	Part no.	
IAQ probe to assess Indoor Air Quality, CO <sub>2</sub> , humidity, temperature and absolute pressure measurement		0 to +50 °C 0 to +100 %RH 0 to +10000 ppm CO <sub>2</sub> +600 to +1150 hPa	±0.3 °C ±2 %RH (+2 to +98 %RH) ±(50 ppm CO <sub>2</sub> ±2% of mv) (0 to +5000 ppm CO <sub>2</sub> ) ±(100 ppm CO <sub>2</sub> ±3% of mv) (+5001 to +10000 ppm CO <sub>2</sub> ) ±5 hPa	0632 1535	
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 probe	Illustration	Meas. range	Accuracy	Part no.	
Vane measurement probe, 16 mm diameter, with telescopic handle max. 890 mm, e.g. for measurements in ducts		+0.6 to +40 m/s	±(0.2 m/s +1.5% of mv)	0635 9535	
Vane measurement probe, 60 mm diameter, with telescopic handle max. 910 mm, e.g. for measurements at duct exit		+0.25 to +20 m/s	±(0.1 m/s +1.5% of mv)	0635 9335	
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	±(0.03 m/s +5% of mv)	0635 1025	
Absolute pressure probes	Illustration	Meas. range	Accuracy	Part no.	
Absolute pressure probe 2000 hPa		0 to +2000 hPa	±5 hPa	0638 1835	
Air probes	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Efficient, robust NTC air probe	 115 mm 50 mm Ø 5 mm Ø 4 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)	60 s	0613 1712
Surface probes	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Fast-action surface probe with sprung thermocouple strip, also for uneven surfaces, measurement range short-term to +500°C, T/C Type K	 115 mm Ø 5 mm Ø 12 mm	-60 to +300 °C	Class 2	3 s	0602 0393
Pipe wrap probe for pipe diameter 5 to 65 mm, with exchangeable measuring head. Measurement range short-term to +280°C, T/C 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		-50 to +100 °C	Class 2	5 s	0602 4692
Immers./penetr. probes	Illustration	Meas. range	Accuracy	t <sub>99</sub>	Part no.
Waterproof immersion/penetration probe, T/C Type K	 114 mm 50 mm Ø 5 mm Ø 3.7 mm	-60 to +400 °C	Class 2	7 s	0602 1293
435-2/-4					
Comfort level probes	Illustration	Meas. range	Accuracy	Part no.	
Comfort level probe for degree of turbulence measurement with telescopic handle (max. 820 mm) and stand, meets DIN 1946 Part 2 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			Accuracy to DIN 5032, Part 6: f1 = 6% = V(Lambda) adjustment f2 = 5% = cos-like weighting	0635 0545	
Humidity probes	Illustration	Meas. range	Accuracy	Part no.	
Humidity/temperature probe	 Ø 12 mm	-20 to +70 °C 0 to +100 %RH	±0.3 °C ±2 %RH (+2 to +98 %RH)	0636 9735	
435-3/-4					
Prandtl's Pitot tubes	Illustration	Oper. temp.	Part no.		
Pitot tube, 350 mm long, stainless steel, measures velocity in connection with pressure probes	 350 mm Ø 7 mm	0 to +600 °C	0635 2145		
Pitot tube, 500 mm long, stainless steel, measures velocity in connection with pressure probes	 500 mm Ø 7 mm	0 to +600 °C	0635 2045		


# Wireless Probes

435-1/-2/-3/-4


## Upgrade module for wireless option

	Radio freq.	Part no.
Wireless module for measuring instrument	869.85 MHz	0554 0188

## Wireless handle with surface temperature probe head

	Meas. range	Accuracy	Resolution	t <sub>99</sub>
<b>Wireless handle for attachable probe heads with T/C probe head for surface temperature measurement</b> 	-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
Wireless handle for plug-in probe heads (including T/C adaptor)				
T/C probe head for surface temperature measurement (attachable to wireless handle), T/C Type K				

435-2/-4

	Meas. range	Accuracy	Resolution
<b>Wireless handle for attachable probe heads with humidity probe head</b> 	0 to +100 %RH -20 to +70 °C	±2 %RH (+2 to +98 %RH) ±0.5 °C	0.1 %RH 0.1 °C
Wireless handle for plug-in probe heads (including T/C adaptor)			
Humidity probe head (attachable to wireless handle)			

## Wireless probes: General technical data

	Wireless immersion/penetration probe, NTC	Wireless handle	Measuring rate	Radio transmission
Battery type	2 x 3V button cell (CR 2032)	2 AAA micro batteries	0.5 s or 10 s, adjustable on handle	Unidirectional
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)		
			Radio coverage	Oper. temp.
			Up to 20 m (without obstruction)	-20 to +50 °C
				Storage temp.
				-40 to +70 °C

# Technical data

435-1/-2/-3/-4								435-3/-4	435-2/-4
Probe type	NTC	Type K (NiCr-Ni)	Testo capacitive humidity sensor	Vane	Hot wire	CO <sub>2</sub> (IAQ probe)	Absolute pressure probe	Differential pressure probe, internal	Lux
Measuring range	-40 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 <sub>2</sub>	0 to +2000 mbar	0 to +25 mbar	0 to +100000 Lux
Accuracy ±1 digit	±0.2 °C (-25 to +74.9 °C) ±0.4 °C (-40 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) ±0.5% of mv (remaining range)						±0.02mbar (0 to +2 mbar) 1% of mv (remaining range)	
Resolution	0.1 °C	0.1 °C	0.1% RH	0.01 (0635 9335) 0.01 (0635 9535)	0.01 m/s	1 ppm	0.1mbar	0.01 mbar	1 Lux
Oper. temp.	-20 to +50 °C			Battery life		200 h (typical vane measurement)			



## Ordering data

Measuring instrument	Part no.	Accessories	Part no.
testo 435-1, multi-function meas. instr., for A/C, ventilation and Indoor Air Quality, with battery and calibration protocol	0560 4351	testovent 410, volume flow funnel, Ø 340mm/330 x 330mm, incl. case	0554 0410
testo 435-2, multi-function measuring instrument for air conditioning, ventilation and Indoor Air Quality with readings memory, PC software and USB data transmission cable, incl. battery and calibration protocol	0563 4352	testovent 415, volume flow funnel, Ø 210mm/190x190mm, incl. case	0554 0415
testo 435-3, multi-function measuring instrument with built-in differential pressure measurement for air conditioning, ventilation and Indoor Air Quality, with battery and calibration protocol	0560 4353	Connection hose, silicone, 5m long, Max. load 700 hPa (mbar)	0554 0440
testo 435-4, multi-function meas. instr. with built-in differential pressure measurement for A/C, ventilation and Indoor Air Quality with readings memory, PC software and USB data transmission cable, with battery and calibration protocol	0563 4354	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
		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
		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
Accessories for measuring instrument	Part no.	Calibration Certificates	Part no.
External recharger incl. 4 Ni-MH rechargeable batteries with built-in, international mains adapter - 100-240 V, 300 mA, 50/60 Hz, 12 VA/instrument	0554 0610	ISO calibration certificate/Temperature. For air/immersion probes, calibration points -18, 0, +60 °C	300520 0042
Plug-in mains adapter for testo 735, testo 635, testo 435, 5 VDC 500 mA with European adapter	0554 0447	UKAS calibration certificate/Temperature. For immersion probes, calibration points 0, 50, 100 °C	300520 0214
System case	Part no.	ISO calibration certificate/Humidity. Calibration points 11.3 / 45.3 / 75.3 %rh at 25 °C	300520 0078
Service case for basic equipment of measuring instrument and probes, dimensions: 400 x 310 x 96 mm	0516 0035	UKAS calibration certificate/Humidity. Calibration points 11.3 / 45.3 / 75.3 %rh at 25 °C	300520 0202
Service case for measuring instrument, probes and accessories, dimensions: 490 x 420 x 110 mm	0516 0135	ISO calibration pressure. 5 points across range	300520 0018
Printer and Accessories	Part no.	ISO calibration certificate/air velocity. 5 points across range	300520 0012
Testo printer with wireless IRDA and infrared interface, 1 roll of thermal paper and 4 round cell batteries, For printout of reading on site	0554 0547	ISO calibration/CO <sub>2</sub> . 0 and 5000 ppm	300520 0070
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		

Other points and probe types available on request.

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