BENEFITS IN PRACTICE:

- Designed and produced according to the highest quality standards in Germany
- A great variety of connectable sensors and electrodes for measuring temperature, air humidity, material moisture, air flow and trace gas
- Integrated graphic grid measurement function
- Robust 2K housing with touchscreen made of highly scratch-resistant "Blanview" special glass for a high contrast colour display even in sunlight
- Integrated logger function for 5, 10, 30 or 60 minute non-stop measuring
- Dual key touchscreen control
- Intuitive menu navigation with many special functions
- Storage for up to 2,160,000 measured values
- MultiMeasure Studio measured data management software (standard version) included
- Downward compatible – all existing T2000-SDI sensors and electrodes can be used with the T3000

T3000 multifunction measuring meter

Trotec exclusive!

The new T3000 combines trendsetting measuring technology with advanced functions and user comfort of still unknown dimensions.

MultiMeasure PROFESSIONAL

Whether you need to conduct analyses of supply and exhaust air flows, condensation, poor machine cooling, porous seals, climate fluctuations, heat build-up, excessively dry or damp materials or carry out leak detection on pressure tanks or line systems – both for preventive maintenance and building diagnostics and damage analysis – you can handle the most diverse tasks with a single measuring device!

T3000 – one device for (almost) all measuring tasks:

- Humidity
- Wood moisture
- Building moisture
- Material moisture
- Surface temperature
- Wood temperature
- Material temperature
- Air temperature
- Dew point
- Absolute humidity
- Mixing ratio
- Gas temperature
- Air flow rate
- Trace gas leak detection

TRT-KAT-T3000-WM-01-EN

The new T3000 features an incomparable variety of functions and equipment

The T3000 is equipped with a dual key touchscreen control with innovative user guidance, a feature so far unique to modern smartphones.

Time-saving integrated graphic grid measurement function …

The integrated graphic grid measurement function of the T3000 allows incredibly easy detection, visualisation and assessment of moisture distribution:

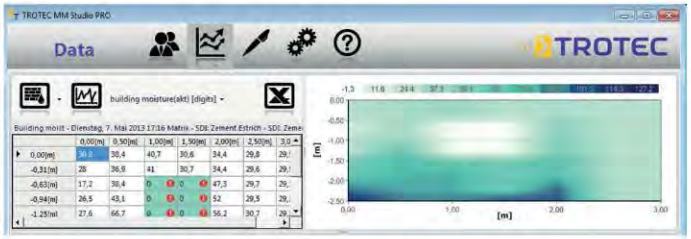
Simply define the matrix to be evaluated directly at the measuring device and the configured grid will be shown on the display.

Now you just have to "work through" the grid by initiating measurement (supported by the T3000) at the desired measuring points.

All measured data is automatically saved in the T3000 in the correct sequence.

A single grid matrix allows saving, preparing and graphically representing up to 2000 measured values. In the MultiMeasure Studio software, the grid can later be automatically implemented true to scale by simply entering the edge lengths of the entire grid.

The entire data record can be exported from the T3000 to a PC so that the time-consuming manual transfer measuring point by measuring point into a spreadsheet program or another analysis program is no longer necessary.



Screen compact view of the determined measured data after import into the MultiMeasure Studio software.

Multifunctionality at its best

The comprehensive range of sensors, electrodes and accessories makes the T3000 an ideal tool for conventional applications in industry and building diagnostics as well as for many areas of the building trade such as composition floor layers, tilers, painters or carpenters who need to check the moisture content of floors, walls or wood.

Due to the innovative concept of a universal basic device which works in combination with flexibly exchangeable sensors, users no longer need to have a complete collection of measuring devices with them.

Simply change the sensor and your T3000 becomes exactly the special measuring device you currently need. No further settings are required on the device. The intelligent technology of the T3000 automatically recognises the connected sensor.

More than twenty different measured value sensors are available for the T3000 to measure the most different parameters – apart from the innovative SDI sensors there are also many round, flat and layer depth electrodes to measure material, wood and building moisture.

You find all information about SDI sensors, electrodes and the range of T3000 accessories on the following pages …

MultiMeasure Studio software included – professional version also available as an option

The standard version of the MultiMeasure Studio software included in the scope of delivery allows straightforward data read-out as well as automatic software and firmware updates.

The optional professional version also has a complex database structure for professional administration and archiving of all required customer and measured data with backup function and can save an unlimited number of measurements. Furthermore, it boasts a unique automated report generating function including many completely predefined and at the same time completely editable boilerplate texts (German version only) for building diagnostics, moisture

measurement, leak detection and thermography.

Further information regarding the professional version can be found on pages 50 and following …

T3000 SDI sensors – easy to use, intelligent technology …

The T3000 has a 5-pin plug connector to connect most diverse SDI sensors with integrated measuring electronics. Measured values are automatically calculated and transmitted to the T3000 – with digital precision and no drifting such as it sometimes occurs with analogue measuring devices. All calibration settings are saved directly in the SDI sensor. A factory test certificate enclosed with every multifunction measuring meter documents the tested quality.

If other measured values need to be determined on site to identify correlations or because new aspects have arisen during measurements which need to be checked, for example, simply change the sensor: a thermohygrometer quickly becomes a microwave moisture sensor, while a dielectric moisture sensor becomes an anemometer or a temperature sensor becomes a hydrogen leak detection system.

Thanks to its intelligent technology, the T3000 automatically detects which sensor is attached when SDI sensors are changed.

Ideal possibilities of use also for carpenter's workshops, forest enterprises and wood processing and trade …

The T3000 features a special menu option for moisture measurement in wood materials with a selection of hundreds of different types of wood. Their validated material characteristics are directly stored in the T3000 and can be selected from there.

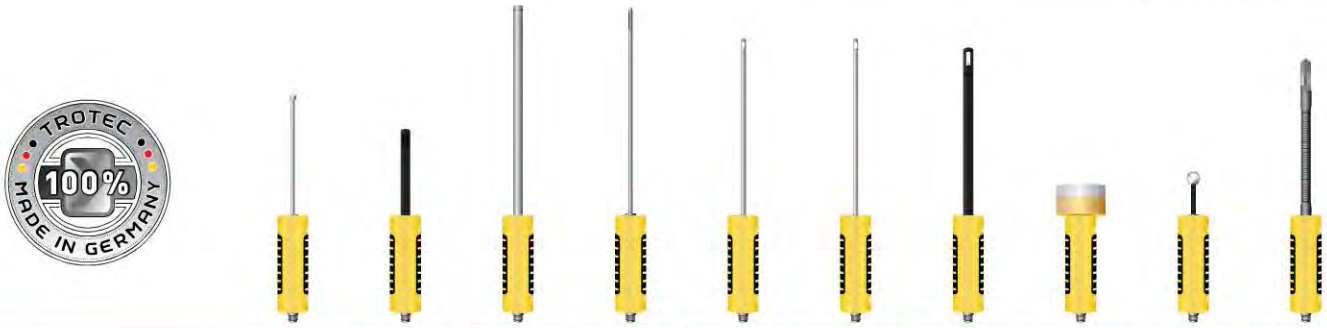
For temperature compensation – e.g. cold wood or measurements during wood drying processes – you can either enter a previously determined value as fixed value in the

T3000 or use the internal temperature sensor of the measuring device.

The influence of the determined temperature on the wood moisture is automatically taken into account for moisture calculation.

Technical data		T3000 multifunction measuring meter
Article number		3.510.207.010
Functions and equipment	Operation	via touchscreen or keys
	Display	2.7 inch colour TFT, 240 x 320 pixels
	Display and front glass	highly scratch-resistant "Blanview" special glass for high-contrast colour display even in sunlight; chemically hardened, degree of hardness 7
	Interfaces	5-pin plug connector for SDI sensors, BNC connector for electrodes, USB port
	Menu languages	German, English, French, Turkish, Italian, Spanish, Polish, Dutch, Danish, Swedish, Finnish, Norwegian
	Functions	different measuring modes for wood moisture, building moisture, air flow, air humidity, temperature and hydrogen (trace gas leak detection), grid measurement, data logger function, alarm function, material selection for anhydrite and cementitious screed, integrated material characteristics for hundreds of types of wood for wood moisture measurement, data archiving and archive display, language and unit system selection, real-time clock with calendar programmed until 2099, backlit display with brightness control
	Grid measurement	50 x 40 grids max. can be configured in a measurement
Data storage	Measurement data	2,160,000 measured values; for approximately 200 measuring projects consisting of 3 x 3,600 (= 10,800) measured values maximum
Power supply	Battery	4 x Alkaline LR6 AA batteries, 1.5 V or NiMH 1.2 V to 1.5 V (rechargeable batteries)
	Optional power supply	5 V USB
	Power input, active	approx. 400 mW
	Battery lifespan, passive	approx. 1 year
	Battery lifespan, active	24 h minimum
	Sensor supply	5.5 V ±10 % DC, 200 mA max.
Physical characteristics	Dimensions approx.	L 34 x W 62 x H 170 mm
	Weight	approx. 300 g
Scope of delivery	Standard	Measuring device, USB connection cable, batteries, screen protective film, Getting started guide, factory test certificate, MultiMeasure Studio Standard PC software (download)
	optional	MultiMeasure Studio Standard PC software (detailed description on pages 50 and following), SDI sensors, electrodes and further accessories (see the following pages)

T3000 – further information …



SDI sensor		TS 131 SDI	TS 210 SDI	TS 230 SDI	TS 250 SDI	TS 410 SDI	TS 430 SDI	TS 470 SDI	TS 610 SDI	TS 660 SDI	TS 800 SDI
Article number		3.510.225.110	3.510.220.210	3.510.220.220	3.510.220.235	3.510.220.250	3.510.220.260	3.510.220.265	3.510.220.270	3.510.220.275	3.510.220.211
Sensor type		**Temperature**	**Climate**			**Anemometer**			**Material moisture**		**Trace gas**
Determinable measured values [measuring unit]		Surface temperature [°C, °F]	Air temperature [°C, °F], relative humidity [% r.H.], absolute humidity [g/m³], dew point [dp °C, dp °F], mixing ratio [g/kg dry air]			Air temperature [°C, °F], air flow rate [m/s]			Subsurface moisture [digit]	Near-surface moisture [digit]	Hydrogen concentration [digit]
Surface temperature	Measuring principle	NTC									
	Measuring range	-50.0 °C to +150.0 °C									
	Resolution	0.1 °C									
	Accuracy	±0.1 °C (at 0 °C to +70 °C)									
Air temperature	Measuring range		-20.0 °C to +50.0 °C	-40.0 °C to +140.0 °C / temporarily up to +180 °C	-40.0 °C to +100.0 °C	0.0 °C to +50.0 °C					
	Resolution		0.1 °C			0.1 °C					
	Accuracy		±0.4 °C (at -10 °C to +50 °C), otherwise ±0.5 °C	±0.2 °C (at 20 °C), ±0.7 °C (at -40 to +140 °C)	±0.2 °C (at 20 °C), ±0.7 °C (at -40 °C to +100 °C)	+0.7 °C (at v > 0.5 m/s)		+1.0 °C (at v > 0.5 m/s)			
Air humidity	Measuring range		0.0 to 95.0 % r.H.	0.0 to 100.0 % r.H.	0.0 to 95.0 % r.H.						
	Resolution		0.1 % r.H.								
	Accuracy		±2 % r.H.	±2 % *	±2 % r.H.						
Material moisture	Measuring principle								Microwave	dielectric	
	Measuring range								0.0 to 200.0 digits		
	Resolution								0.1 digit		
	Accuracy								0.1 digit		
	Penetration depth								up to 300 mm	up to 40 mm	
Air current	Measuring range					0.00 to 20.00 m/s	0.00 to 2.00 m/s	0.00 to 20.00 m/s			
	Resolution						0.01 m/s				
	Accuracy					± (0.2 m/s + 2 % of the measured value)	± (0.04 m/s + 1 % of the measured value)	± (0.2 m/s + 3 % of the measured value)			
Hydrogen concentration	Measuring range										0 to 1,000 ppm H_2
	Response sensitivity										1 ppm H_2
Sensor element	Material	Stainless steel	Poly-carbonate	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Poly-carbonate	Composite	Aluminium	*detailed description in the "Leak detection" chapter on pages 82 and following.*
	Length / ø	150 mm / 3.5 mm	108 mm / 12 mm	250 mm / 12 mm	250 mm / 5 mm	210 mm / 6 mm	210 mm / 6 mm	200 mm / 12 mm	45 mm / 32 mm	55 mm	
Sensor handle		Ambient conditions 0 °C to +50 °C (measuring electronics in the handle)									

** at 0 to 90 % r.H., ±3 % at 90 to 100 % r.H.*

T3000 SDI sensors …

… for climate measurement

All SDI climate sensors allow to accurately measure air temperature, dew point temperature, mixing ratio as well as relative and absolute humidity.

During measurement, air temperature, humidity and dew point temperature values can be simultaneously shown in real time on the T3000 display.

Minimum, maximum, average and "hold" values can be displayed optionally in addition to these three measured values at the bottom of the display.

Thanks to the integrated logger function of the T3000 you can also conduct 5-, 10-, 30- or 60-minute non-stop measurements while recording all climate values.

TS 210 SDI climate sensor

Universal sensor for almost all measuring requirements in the climate field.

Everyday working conditions often include dust and dirt which may falsify the measuring results and shorten the sensor life. Therefore, the TS 210 SDI ❶ is equipped with a metal grid filter (gauze filter) as a standard.

A stainless steel sintered filter is optionally available for this sensor for environments with heavy soiling (see accessories, page 49).

TS 230 SDI high-temperature climate sensor

The 250 mm long stainless steel sensor fitted with a teflon sintered filter ❷ allows high-temperature measurements, e.g. of drying processes, up to 140 °C, and up to 180 °C for short measurements.

TS 250 SDI climate sensor

At 250 mm long and a diameter of just 5 mm this sophisticated climate sensor ❸ is ideal for temperature and moisture measurements at locations which are difficult to access as well as for hygrometric equilibrium moisture content measurement in drill holes with a diameter from 5 mm.

… for air flow measurement

These SDI anemometer sensors can simultaneously measure air flow rate and temperature and show them on the display of the T3000.

Minimum, maximum, average and "hold" values can be displayed optionally in addition to both measured values at the bottom of the display of the T3000.

The logger function of the T3000 also allows time-defined non-stop measuring and records all measured values for the selected time interval.

TS 410 SDI anemometer sensor

This sensor ❹ is not only suitable for checking the distribution of flow and temperature in ventilation and air conditioning systems but also for finding weak points when certifying the air tightness of buildings (blower door).

Reconstruction companies also use it to check the capacity of their drying installations in insulation layer drying after water damage as the TS 410 SDI allows them to quickly and precisely determine whether there is sufficient flow of air at the relief openings to dry out the insulation layer.

TS 430 SDI anemometer sensor

The TS 430 SDI ❺ anemometer sensor is ideal for measurements requiring highly accurate results, particularly with low flow values up to 2 m/s with an accuracy of 0.04 m/s.

TS 470 SDI anemometer sensor

Another option is the cost-effective TS 470 SDI ❻ standard anemometer sensor fitted with a plastic tip.

To obtain optimal volumetric flow measurement results, the menu of the T3000 also allows selecting a type of channel area (square or round) for all anemometer sensors if required.

… for non-destructive material moisture measurement

Apart from measurements without a specific material pre-selection where dimensionless digit values are displayed to indicate moisture, these sensors additionally offer the possibility to select anhydrite or cementitious screed.

When pre-selecting screed, the indicative measuring results are directly shown in mass and CM % on the display of the T3000. The integrated conversion of measured values is a practical tool, in particular for floor layers to quickly check the readiness for covering.

With the graphic grid measurement function integrated in the T3000, near-surface or subsurface moisture distribution can be detected, visualised and assessed as easily as never before!

TS 610 SDI microwave humidity sensor

Thanks to microwave technology the TS 610 SDI ❼ is ideal for non-destructive subsurface moisture measurement for material depths up to 30 cm.

Another advantage of this method is the independence of the salinity degree of the material. For the microwave method it is irrelevant whether an older or a new building (hygroscopic humidity occurrences) is measured.

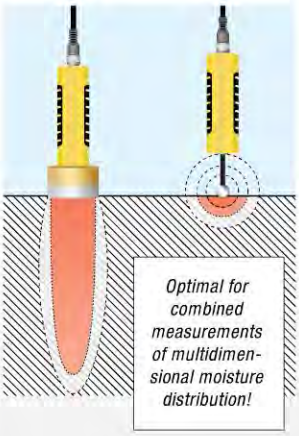
TS 660 SDI material moisture sensor

The field of application of this dielectric humidity sensor ❽ is non-destructive detection of moisture distribution in near-surface areas up to 4 cm.

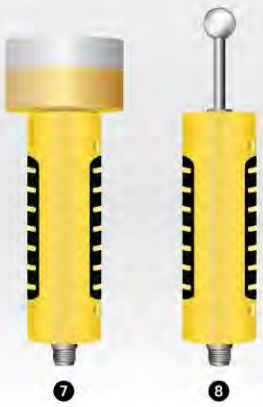
Alarm function

For all material moisture sensors an individual alarm limit value can be set.

Thanks to this function large areas can be measured fast and effectively without continuously watching the display: Once the selected limit value is exceeded, the SDI sensor alerts the user emitting an acoustic signal!



Optimal for combined measurements of multidimensional moisture distribution!



… for surface temperature measurement

TS 131 SDI surface temperature sensor

A silver contact piece (ø 6 mm) located at the head of the 150 mm long measuring tip (ø 3.5 mm) measures the surface temperature.

This accuracy class 2 sensor is particularly suited for temperature compensation in determining moisture content of wood or for dew point temperature control. The design allows very accurate surface temperature measurements.

Minimum, maximum, average and "hold" values can be displayed in addition to the measured temperature values.

… for trace gas concentration measurement

TS 800 SDI trace gas sensor

This sensor detects even the lowest hydrogen concentration starting from 1 ppm H_2 and allows accurate non-destructive location, e.g. of cracks and leaks in pressure tanks, pipes, tanks etc.

During measurement, rising and falling hydrogen concentrations are indicated acoustically at the handle of the sensor as well as by the numeric display of an indicative measured value on the display of the T3000.

Detailed information about the possibilities of use of this trace gas sensor system can be found in the "Leak detection" chapter on pages 82 and following …

Electrodes for wood and building moisture measurement

Different types of passive electrodes are used for determining material and wood moisture as well as the humidity of mineral or porous building materials such as plaster and screed material according to the resistance measuring method.

When measuring with the T3000, in addition to real time values, minimum, maximum, average and "hold" values can be displayed using these electrodes.

❶ TS 4/200 and
❷ TS 4/300 round electrodes

Very thin insertion electrodes (uninsulated, ø 2 mm) for moisture measurement in building and insulating materials through joints or cross joints.

TS 4/200 (length 200 mm),
Article number: 3.510.226.110

TS 4/300 (length 300 mm),
Article number: 3.510.226.115

❸ TS 8/200 and
❹ TS 8/300 round electrodes

Uninsulated insertion electrodes (ø 4 mm) for moisture measurement on loose mounds such as wood wool or shavings.

TS 8/200 (length 200 mm),
Article number: 3.510.226.120

TS 8/300 (length 300 mm),
Article number: 3.510.226.125

❺ TS 12/200 and
❻ TS 12/300 round electrodes

Insulated electrodes (ø 4 mm) for targeted moisture measurement in concealed component layers where the electrode shaft needs to be insulated. An absence of insulation would falsify the measuring result.

The most frequent use is the determination of moisture distribution of multilayered wall or ceiling structures such as floating screeds, multilayered walls, wooden beam ceilings, warm roofs etc.

TS 12/200 (length 200 mm),
Article number: 3.510.226.130

TS 12/300 (length 300 mm),
Article number: 3.510.226.135

❼ TS 16/200 and
❽ TS 16/300 flat electrodes

The area of application corresponds to the area of use of the insulated round electrodes TS 12/200 and TS 12/300.

The advantage of flat electrodes (1 mm flat) is that there are no holes in the surface and the electrodes can be inserted through the edging strip after removing the base.

TS 16/200 (length 200 mm),
Article number: 3.510.226.140

TS 16/300 (length 300 mm),
Article number: 3.510.226.145

❾ TS 24/250 layer depth electrodes

These electrodes are used for targeted layer humidity measurement in homogeneous building materials using the contact mass.

Material moisture can be assessed lengthwise, up to a maximum depth of approx. 250 mm.

The electrode comprises an electrode tube and electrode stand. The electrode tubes (ø 8 mm) are insulated and equipped with a depth scale, so that the measured value can be targeted at the desired measurement depth.

Article number: 3.510.226.155

❿ TS 20/110 brush electrodes

With 110 mm long brush head (ø 7 mm) and insulated shaft.

These electrodes are used for targeted moisture measurement in homogeneous building materials without using a contact mass. The brush head establishes the connection to the goods to measure.

Article number: 3.510.226.150

⓫ TS 60 hand electrode

Unbreakable plastic handle with two hexagon union nuts in which electrode tips of the following lengths can be inserted:

- *20 mm (max. penetration depth 14 mm)*
- *30 mm (max. penetration depth 24 mm)*
- *40 mm (max. penetration depth 34 mm)*
- *60 mm (max. penetration depth 54 mm)*

Article number: 3.510.226.101

Fields of application are the measurement of moisture in cut timber or wooden board materials (e.g. chipboard or fibre boards) and the measurement of moisture in soft building materials such as roughcast or plaster mortar.

⓬ TS 70 ram electrode

With moving hammer handle for precision zone and depth measurement especially in wood with different moisture distribution, e.g. liquid nests using Teflon-insulated electrode tips. These are available in lengths of 45 and 60 mm.

Article number: 3.510.226.105

MultiMeasure accessories

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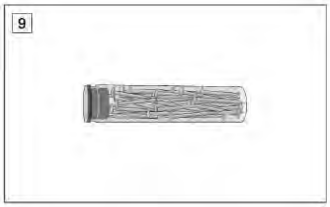
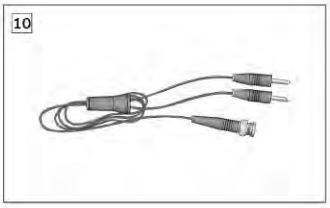
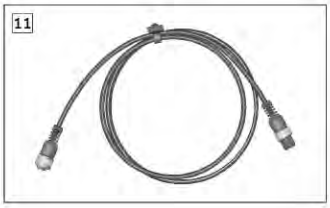
9 

10 

11 

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1 MultiMeasure transport case 2
Standard case for T3000 and accessories.
Article number: 3.510.200.920

2 Holster 3 MM series
Bag with belt loop for T3000 and T200, T250, T500, T650 compact hand-held measuring devices.
Article number: 3.510.200.228

3 Holster 5 MM series
Bag for trace gas measurement. With shoulder strap and belt loop, clip for sensor and additional compartment for battery pack.
Article number: 3.510.200.219
(Sample image. Measuring device and battery pack not included in the scope of delivery.)

4 Battery pack for TS 800 SDI
Article number: 3.510.200.209

Charger for battery pack
Article number: 3.510.200.208

5 Telescopic rod
To connect SDI sensors. Rod length and sensor lock adjustable. Convenient measurement at deep or high, hard-to-reach locations.
Article number: 3.510.200.221

6 Screen protective film for T3000
Precisely tailored for the T3000 display, optimal adhesive properties, easy and fast installation, full display presentation.
Article number: 3.510.200.220

7 Stainless steel sintered filter for T200, T250, TS 210 SDI
Replaceable protective cap for areas of application with heavy soiling.
Article number: 3.510.200.211

8 Teflon-coated electrode tips
Available in lengths of 45 and 60 mm, ø 1.5–2 mm approx.
Length 45 mm,
Article number: 3.510.200.212
Length 60 mm,
Article number: 3.510.200.213

9 Spare electrode tips
Uninsulated.
Article number: 3.510.200.214

10 TC 20 connection cable
To connect MultiMeasure electrodes for building and wood moisture measurement as well as sensors from other manufacturers to the BNC connector of the T3000.
Article number: 3.510.200.024

11 TC 30 SDI connection cable
To connect SDI sensors to the T3000.
Article number: 3.510.200.027

12 Calibration block
For single-point calibration (r. h.) of the T200, T250, TS 210 SDI and TS 230 SDI using appropriate calibration ampoules (delivered without sensor or ampoules).
Article number: 3.510.200.216

13 Calibration ampoules for T200, T250, TS 210 SDI and TS 230 SDI
Available for 35, 50 and 80 % humidity.
Article number: 3.510.200.215

14 Test block V1
For checking measurement deviations and accuracy when using resistance electrodes for measuring wood or building moisture with the T500 or T3000 MultiMeasure measuring devices.
Article number: 3.510.200.226

15 Contact mass
Article number: 3.510.200.217

16 Measuring point stickers
Comparative measurements to the point.

Stickers for temporary attachment to the measuring point – residue-free removal after use – with two note fields for the measured value and date.

Precise comparison of previous and current measured values allows fast and easy analysis of drying processes or the examination of thermal bridges.

Roll with 100 stickers,
Article number: 9.110.000.100