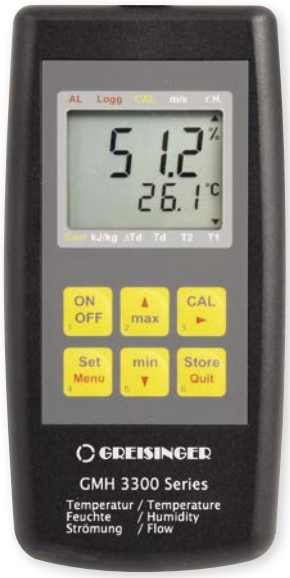
HUMIDITY / FLOW RATE

APPLICATION:	GMH 3330 + TFS 0100 E	GMH 3350 + TFS 0100 E	GFTH 95	GFTH 200	GFTB 200
Air conditioning / Ambient air monitoring	•	•	•	•	•
Meteorology					•
Room climate	•	•			•
Flow measurement	•	•			
Air pressure measuring					•
Calculation of:					
Dew point Td	•	•		•	•
Wet bulb temperatur Twb				•	•
Moisture content x / Absolute humidity d					•
Dew point distance / Enthalpy	•	•			
EQUIPMENT:					
Plug-in probe	•	•		• (Temperature)	
Min/Max, Hold, Auto-Off	•	•		•	•
Serial interface	•	•			•
Alarm		•			•
Data logger		•			
DEVICE INFORMATION:					
Catalogue page	Page 39	Page 39	Page 42	Page 42	Page 41

HUMIDITY, TEMPERATURE AND FLOW RATE MEASURING DEVICE

ISO
AUTOOFF
HOLD
MIN MAX



HIGHLIGHTS:

- Calculation of dew point temperature, dew point distance and enthalpy
- Additional temperature input (type K)

ADDITIONAL FUNCTIONS GMH 3350:

ALARM LOGG

GMH 3330

Art. no. 600343

Humidity, temperature and flow rate measuring device, probe not included

GMH 3350

Art. no. 600345

Humidity, temperature and flow rate measuring device, probe not included, with data logger

General:

The GMH 33xx devices are universal precision hygrometer / Thermometer and flow meter with additional Thermocouple input in one. The plug-in probes are interchangeable without recalibration, because your calibration data are on an integrated memory stick (TFS ....) or they are interchangeable by the high mechanical precision (STS ...). The thermocouple input T2 is optimized to to be able to quickly absorb surface temperatures to e.g. to display the dew point directly.

Application:

- Heating / Ventilation Air Conditioning (HVAC)
- Indoor air, meteorology, laboratory, research and teaching
- Energy assessment / optimization of buildings
- Identify research in structural damage

Specifications:

Measuring range:	
Relative humidity:	0.0 ... 100.0 % RH
Ambient temperature:	-40.0 ... +120.0 °C (depending on TFS-probe)
Surface temperature:	-80.0 ... +250.0 °C
Flow rate:	depending on STS probe (next page)
Resolution:	0.1 % RH, 0.1 °C / 0.1 °F, 0.01 m/s
Accuracy (device) (±1 digit) (at nominal temperature = 25 °C)	
Relative humidity:	±0,1 %
Ambient temperature (Pt1000):	±0.2 %
Surface temperature (NiCr-Ni):	0.5 % of m.v. ±0.5 °C
Flow rate:	±0.1 %
Probes: (p.r.t. next page)	No calibration required for exchange of humidity/temperature or flow rate probe.
Probe connection:	6-pin screened Mini-DIN-socket
NiCr-Ni connection:	for miniature flat-pin plug
Display:	two 4½ digit LCDs (12.4 mm or 7 mm high), as well as additional functional arrows.
Working temperature:	-25 ... +50 °C
Relative humidity:	0 ... 95 % RH (non-condensing)
Storage temperature:	-25 ... +70 °C
Pushbuttons:	6 membrane keys
Interface:	serial interface, direct connection to RS232 or USB interface of a PC via electrically isolated interface adapter GRS 3100 or GRS 3105 resp. USB 3100 N (p.r.t. accessories).
Power supply:	9 V battery as well as additional d.c. connector for external 10.5 ... 12 V direct voltage supply. (suitable power supply: GNG10/3000)
Battery life:	approx. 120 h (incl. TFS0100)
Calculation of dew point:	based upon humidity and temperature
Calculation of dew point distance:	by means of a surface measurement
Calculation of enthalpy:	thermal content h of the air
Adjustment-function for atmospheric humidity measurements	
NiCr-Ni-temperature measuring:	any standard NiCr-Ni-probe (type K) can be plugged in. Recommendation: GOF 400 VE (p.r.t. p. 31). A compensation value can be set for surface measurement if necessary.
Flow measurements:	Two different systems for averaging are integrated: **continuous averaging:** the average value displayed is calculated using the last measurements during the averaging time set. **averaging upon request:** by starting the current measuring value will be displayed for the averaging time. As soon as the time has expired the average value will be displayed, the device is in HOLD mode. **selectable averaging time:** 1 ... 30 s
Logger function (GMH 3350):	**manual:** 99 data sets (fetch data via buttons or interface) **cyclic:** 5.400 data sets (fetch data via interface) adjustable cycle time: 1 s ... 1 h The logger is started or stopped by keypad or interface. The software GSOFT3050 (see accessories) is available for comfortable read-out of logger data.
Housing:	Impact-resistant ABS plastic housing, membrane keyboard, transparent panel, integrated pop-up clip
Dimensions:	142 x 71 x 26 mm (H x W x D)
Weight:	approx. 160 g (incl. battery)
Scope of supply:	Device, battery, manual

Accessories and spare parts:

GNG 10/3000
Art. no. 600273
Plug in power supply for devices of the series GMH 3XXX

USB 3100 N
Art. no. 601092
Interface Converter GMH3xxx <=>PC, USB

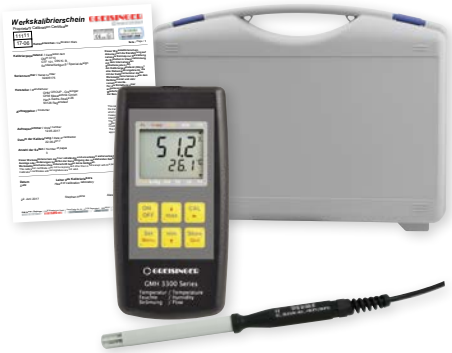
GSOFT 3050
Art. no. 601336
Windows software for GMH 3000 and GMH 5000 with logger for the setting, data read-out and printing of all logger data stored

ST-RN
Art. no. 601074
Device protection bag with cut out for sensor connection

GKK 3500
Art. no. 601052
Device case soft lining e.g. for 2x GMH 3000 or 5000

GKK 3600
Art. no. 601062
Case with punched lining for universal application

COMPLETE SOLUTION



GMH 3330-TFS 0100E-WPF4

Art. no. 602682

Complete Solution with humidity-/temperature probe TFS 0100 E and incl. certificate of calibration WPF4 (~20 % / ~40 % / ~60 % / ~80 % RH ascending / descending) and case GKK 3500.

MEASURING PROBES HUMIDITY / TEMPERATURE

TFS 0100 E

Art. no. 601488
(0.0 ... 100.0 % RH)
Humidity / Temperature probe für GMH 3330 & 3350, exchangeable without any loss in accuracy

General:

Hand sensor for universal application;
cap with integral stainless steel gauze filter for good mechanical protection and despite optimum airflow also for fast measurements in ambient air

Specifications:

Measuring ranges	
Humidity:	0.0 ... 100.0 % RH (rec. range of application: 11 ... 90 % RH)
Temperature:	-40.0 ... +120.0 °C (attention: working temperature of electronics!)
Accuracy (at nominal temperature = 25 °C)	
Humidity:	±2.5 % RH (in the range of 10 ... 90 % RH)
Temperature:	±0.5 °C
Sensors	
Humidity:	capacitive polymer humidity sensor
Temperature:	Pt1000, DIN cl. AA
Electronics:	PC board with amplifier and data memory for sensor data (calibration, etc.) integrated in probe handle.
Working temperature:	handle and electronics: -25 ... +60 °C sensor head and tube: -40 ... +100 °C (for short time up to +120 °C)
Relative humidity:	0 ... +100 % RH
Dimensions:	Probe tube: Ø 14 x 119 mm, plastic handle: Ø 19 x 135 mm, approx. 1.2 m PVC connection cable with 6-pin Mini-DIN-plug
Weight:	approx. 90 g
Scope of supply:	Sensor, manual

Variant:

TFS 0100 E-POR
Art. no. 603438
Humidity / Temperature probe für GMH 3330 & 3350 with plastic paper filter for use in dusty environments and also in powder colors and granulates

MEASURING PROBES SURFACE TEMPERATURE

GOF 400VE

Art. no. 600496
(p.r.t. page 31)
Surface probe with tc spring, fast,, quick-response surface probes for walls, floors etc.

GTF 300

Art. no. 600039
(p.r.t. page 33)
Quick-response basic thermocouple probe for universal applications (surface measurement)

MEASURING PROBES FLOW SPEED / WATER

STS 005

Art. no. 602396
(0.05 ... 5.00 m / s)
Flow speed meas. probe for GMH3330 & GMH3350, exchangeable without any loss in accuracy

Specifications:

Sensor type:	windmill-type anemometer
Measuring range:	0.05 ... 5.00 m / s (water)
Accuracy:	±1 % of range ±3 % of meas. value (at nominal temperature = 25 °C)
Permiss. angle flow:	±20°, without additional measuring faults
Working temperature:	0 ... +70 °C
Relative humidity:	0 ... +100 % RH (non-condensing)
Dimensions:	Probe head: Ø 11 x 15 mm, tube: Ø 15 mm, overall length 165 mm, required insertion opening: Ø 16 mm, approx. 5 m PVC connection cable with 6-pin Mini-DIN-plug
Weight:	approx. 75 g
Scope of supply:	Sensor, manual

Accessories and spare parts:

STE 005
Art. no. 602406
Spare snap-on head for STS 005

MEASURING PROBES FLOW / AIR

STS 020

Art. no. 602397
(0.55 ... 20.00 m / s)
Flow measuring probe with snap-on head, calibrated and exchangeable.

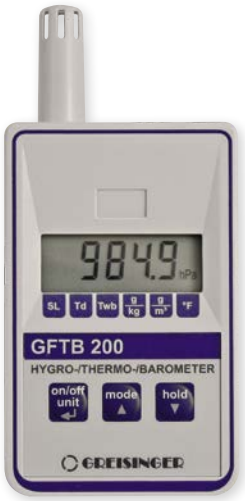
Specifications:

Sensor type:	windmill-type anemometer
Measuring range:	0.55 ... 20.00 m / s (air)
Accuracy:	±1 % of range ±3 % of meas. value (at nominal temperature = 25 °C)
Permiss. angle flow:	±20°, without additional measuring faults
Working temperature:	-10 ... +80 °C
Relative humidity:	0 ... +100 % RH (non-condensing)
Dimensions:	Probe head: Ø 11 x 15 mm, tube: Ø 15 mm, overall length 165 mm, required insertion opening: Ø 16 mm, approx. 5 m PVC connection cable with 6-pin Mini-DIN-plug
Weight:	approx. 75 g
Scope of supply:	Sensor, manual

Accessories and spare parts:

STE 020
Art. no. 602519
Spare snap-on head for STS 020

CLIMATE MEASURING DEVICE – PRECISION HYGRO- / THERMO- / BAROMETER



HIGHLIGHTS:

- alarm function with integrated buzzer
- PC interface
- additional display for further parameters, e.g. dew point temperature and absolute humidity
- precisely detects all environmental conditions in laboratories

GFTB 200

Art. no. 600161

Hygro-/Thermo-/Barometer

General:

The GFTB 200 is designed for measuring air pressure, air humidity and temperature within seconds. It reaches remarkable accuracy because of its high precision sensors.
The dew point temperature monitoring with GFTB 200 provides efficient protection from moisture damage potentially caused by condensation water and therefore helps preventing mold infestation. The integrated alarm function can be used to acoustically remind the user to ventilate in order to optimally and efficiently use heating energy. The integrated interface together with the software EBS 20M (optional) allow the use as mobile weather station with additional long-term recording. The GFTB 200 can precisely and clearly display the air condition with parameters like wet bulb temperature, absolute humidity and moisture content of the air.

Application:

mobile weather station, housing space, indoor swimming pools, offices and production rooms, laboratories, storage rooms, museums, gallery, churches, cooling and climate technology, construction, building physics, loss assessment

Specifications:

Measuring ranges	
Temperature:	-25.0 °C ... +70.0 °C
Air humidity:	0.0 ... 100.0 % RH (recommended range: 11 ... 90 % RH)
Air pressure:	10.0 ... 1100.0 mbar
Calculated parameters	
Dew point temperature Td:	-40.0 ... +70.0 °C
Wet bulb temperature Twb:	-27.0 ... +70.0 °C
Mixing ratio x:	0.0 ... 280.0 g/kg
Absolute humidity d:	0.0 ... 200.0 g/m³
Resolution:	0.1 % RH; 0.1 °C or 0.1 °F, 0.1 mbar
Accuracy: (±1 digit) (at nominal temperature = 25 °C)	
Temperature:	±0.5 % of m.v ±0.1°C (Pt1000 DIN cl. AA)
Air humidity:	±2.5 % RH (at range 11 ... 90 %)
Air pressure:	±1.5 mbar (750 ... 1100 mbar)
Messfühler	
Temperature:	Pt1000
Air humidity:	capacitive polymer humidity sensor
Air pressure:	piezo-resistive sensor hybrid
Response time:	T_{90} = 10 s
Display:	4½ -digit, approx. 11 mm high LCD-display with additional displays
Pushbuttons:	3 keys for ON/OFF, min/max value display, hold
Nominal temperature:	25 °C
Working conditions	
Electronics:	-25 ... +70 °C; 0 ... 80 % RH (non-condensing)
Sensors:	-25 ... +70 °C; 0 ... 100 % RH
Power supply:	9 V battery
Battery life:	approx. 400 d at 1 measuring / 60 s (mode SLOW) approx. 180 d at 1 measuring / s (mode FAST)
Interface:	Serial interface, via electrical isolated interface converter USB 3100 N (accessories) directly connectable to PC.
Configurable display:	choice between automatically displaying all values rotationally (cycle of 2 or 4 s) or manual selection, units not needed can be excluded
Offset and Scale:	digital offset- and scale adjustment of measurements
Tendency indicator:	Air pressure rising/falling (for barometer)
Sea level correction:	Barometric values can be converted to sea level (therefore the input of the current altitude is needed).
Housing:	made of impact-resistant ABS
Dimensions:	approx. 106 x 67 x 30 mm (H x W x D), additionally the sensor head at the front side, 35 mm long, Ø 14 mm; resulting total length 141 mm
Weight:	approx. 130 g incl. battery
Scope of supply:	Device, battery, calibration protocol, manual

Variant:

GFTB 200-KIT
Art. no.600890
Hygro-/Thermo-/Barometer with USB-interface kit
• USB interface converter USB 3100 N
• multi channel software EBS20M to record all device units

Accessories and spare parts:

GKK 252
Art. no. 601056
Case (235 x 185 x 48 mm) with foam lining

ISO-WPF4
Art. no. 602543
ISO certificates humidity, for ISO9000ff (p.r.t. page 15)

ISO-WPD5
Art. no. 602514
ISO certificates pressure, for ISO9000ff (p.r.t. page 15)

HIGHLIGHTS:

- easy and fast search for thermal bridges
- targeting laser for precise location even of inaccessible areas
- audible alarm below dewpoint

GFTB 200 SET

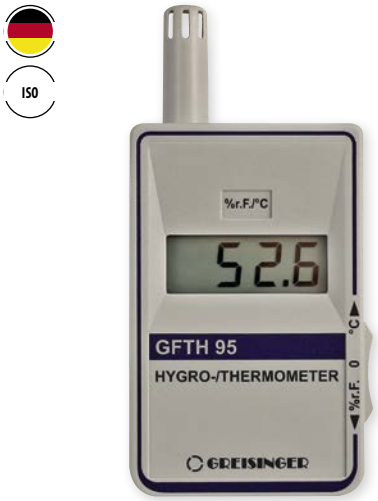
Art. no. 600163

Measurement set GFTB200 incl. infrared thermometer GIM 530 MS and case GKK 3600

General:

The additional infrared thermometer contained in the GFTB 200 SET makes it easy to check mould-problem areas on walls etc. The wall can easily be scanned by means of the laser beam within very short time. When wall temperature falls below the critical dewpoint (this is, when the wall gets wet), the device alerts with an audible signal.
Note: for technical data for the infrared thermometer GIM530MS please refer to catalog page 36.

HUMIDITY/TEMPERATURE MEASURING DEVICE



GFTH 95

Art. no. 600245
Hygro-/Thermometer

Application:

Quick-response humidity and temperature measurements in EDP rooms, museums, galleries, churches, office complexes, workshops, storage rooms, swimming-baths, private buildings, greenhouses, for refrigeration engineering, air conditioning, for building sites / technology, for inspectors or rendering of expert opinions etc.

Specifications:

Measuring range	
°C:	-20.0 ... +70.0 °C
% RH:	10 ... 95 % RH (recommanded range: 30 ... 80 %)
Resolution:	0.1 °C or 0.1 % RH
Accuracy: (±1 digit) (at nominal temperature = 25 °C)	
Temperature:	±0.5 % of m.v. ±0.1 °C
Humidity:	±3 % RH (for range 30 ... 80 %)
Measuring probe	
Temperature:	Pt 1000
Humidity:	capacitive polymer humidity sensor
Response time:	T_{90} = 15 s
Display:	3½-digit, 13 mm high LCD-display
Pushbuttons:	slide switch for selection of measuring range
Nominal temperature:	25 °C
Operating conditions	
Electronic:	-20 ... +70 °C; 0 ... 80 % RH (non-condensing)
Sensors:	-20 ... +70 °C; 0 ... 100 % RH
Power supply:	9 V battery
Battery life:	approx. 3000 h
Housing:	impact resistant ABS-housing
Dimensions:	approx. 106 x 67 x 30 mm (H x W x D), plus sensor head protruding at the longer side 35 mm long and 14 mm Ø, overall length 141 mm.
Weight:	approx. 135 g incl. battery
Scope of supply:	Device, battery, manual

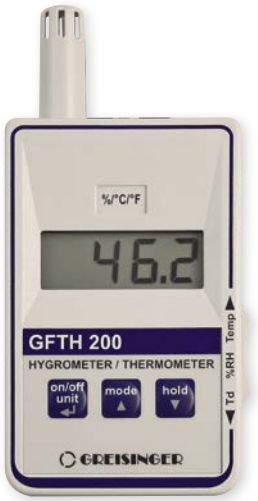
Accessories and spare parts:

GB 9 V
Art. no. 601115
Spare battery 9V, type IEC 6F22

GKK 252
Art. no. 601056
case (235 x 185 x 48 mm) with foam lining

ISO-WPF4
Art. no. 602543
ISO certificates for ISO9000ff (p.r.t. page 15)

HUMIDITY / TEMPERATURE / DEW POINT MEASURING DEVICE



HIGHLIGHTS:

- External Pt1000 temperature probe connectable
- Relative humidity, temperature and dew point in just one instrument

GFTH 200

Art. no. 600249
Hygro-/Thermometer

General:

Because of the low power consumption and the integrated min-/max-value memory the GFTH 200 is perfectly suitable for long term climate surveillances.

Specifications:

Measuring range	
Temperature:	-25.0 ... +70.0 °C; -13.0 ... +158.0 °F
% RH:	0.0 ... 100.0 % RH (recommended range: 11 ... 90 % RH)
Td: (Dewpoint)	-40.0 ... +70.0 °C or -40.0 ... +158.0 °F
Resolution:	0.1 % RH, 0.1 °C or 0.1 °F
Accuracy (±1 digit) (at nominal temperature = 25 °C)	
Temperature (internal):	±0.5 % of m.v. ±0.1 °C
Temperature (external):	0.1 °C (device) + probe accuracy
Humidity:	±2.5 % RH (for range 11 ... 90 %)
Measuring probe	
Temperature:	Pt 1000
Humidity:	capacitive polymer humidity sensor
Response time:	T_{90} = 10 s
Terminal for external probe:	for connection of any Pt1000-probes with 3.5 mm mono plug (for suitable probes p.r.t. page 21-23)
Display:	3½-digit, 13 mm high LCD-display
Pushbuttons:	3 keys for On/Off, min-/max-value display and hold. Slide switch for selection of measuring range.
Nominal temperature:	25 °C
Operating conditions	
Electronic:	-25 ... +70 °C; 0 ... 80 % RH (non-condensing)
Sensors:	-25 ... +70 °C; 0 ... 100 % RH
Power supply:	9 V battery
Battery life:	>2 years at 1 measuring / 60 s approx. 120 days at 1 measuring / s (mode FAST)
Housing:	impact resistant ABS-housing
Dimensions:	approx. 106 x 67 x 30 mm (H x W x D), plus sensor head protruding at the longer side 35 mm long and 14 mm Ø, overall length 141 mm.
Weight:	approx. 135 g incl. battery
Scope of supply:	Device, battery, manual

Accessories and spare parts:

GOF 175 Mini
Art. no. 600436
Surface probe for solid surface

further temperature probe **refer to page 21**

GKK 252
Art. no. 601056
Case (235 x 185 x 48 mm) with foam lining

ISO-WPF4
Art. no. 602543
ISO certificates for ISO9000ff (p.r.t. page 15)

COMPLETE SOLUTION

GFTH 200-WPF4

Art. no. 602678
Complete solution incl. ISO-WPF4 (~20 % / ~40 % / ~60 % / ~80 % RH increasing and decreasing) and case GKK 252.

EASY SEARCH FOR THERMAL BRIDGES

GFTH 200 SET

Art. no. 600285
Measuring set incl. infrared thermometer GIM 530 MS and case GKK 3600

General:

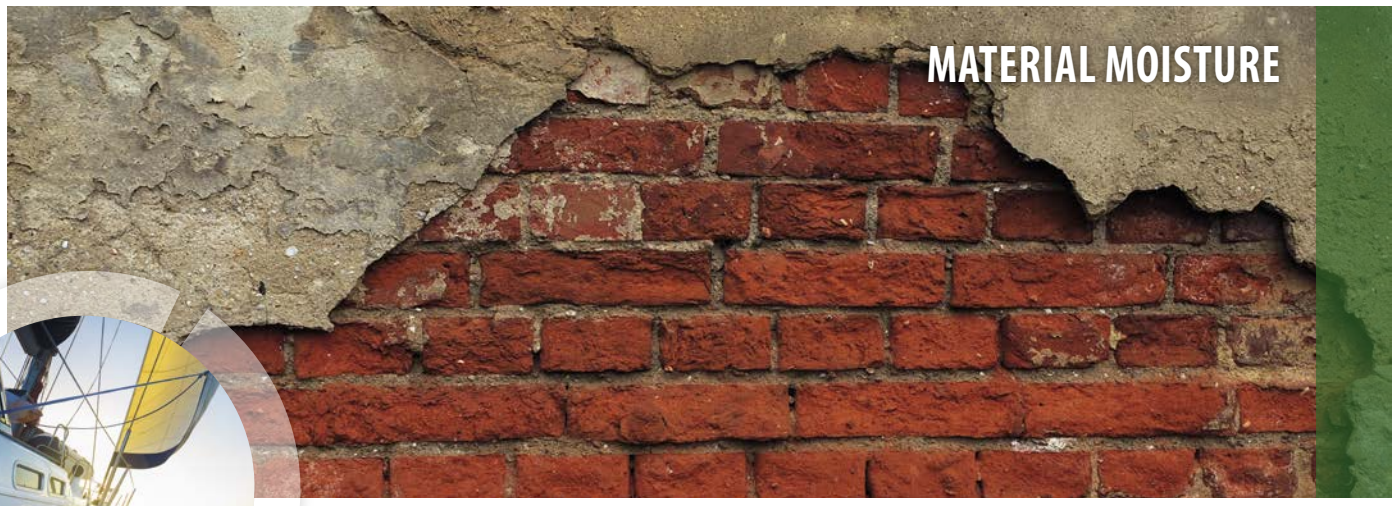
The additional infrared thermometer contained in the **GFTH 200 SET** makes it easy to check mould-problem areas on walls etc. The wall can easily scanned by means of the laser beam within very short time. When wall temperature falls below the critical dewpoint (this is, when the wall gets wet), the device alerts with an audible signal.

Advantages GFTH 200 SET:

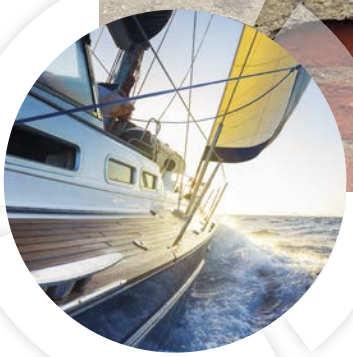
- targeting laser for precise location even of inaccessible areas
- audible alarm below dewpoint
- fast evaluation of mould-problem areas

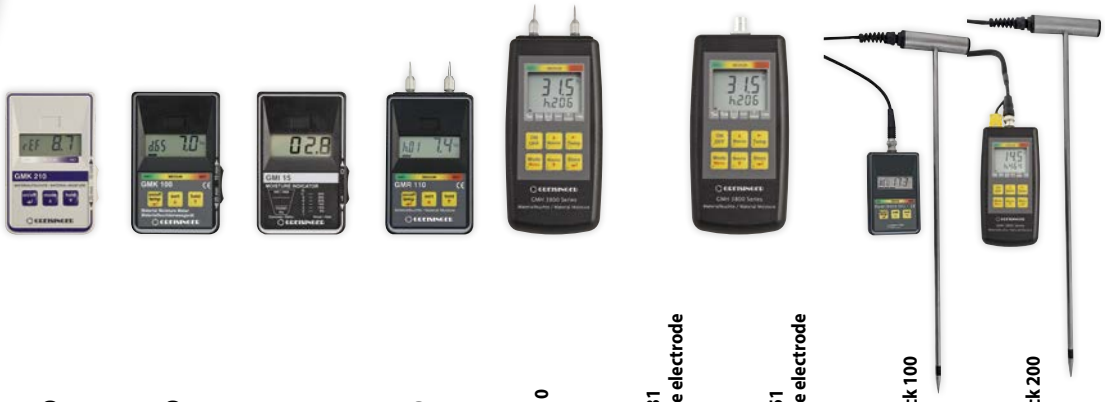
Scope of supply: GFTH 200, GIM 530 MS, battery, GKK 3600, manual

GIM 530 MS:
for technical data for this instrument please refer to page 36.



MATERIAL MOISTURE





APPLICATION:	GMK 210	GMK 100	GMI 15	GMR 110	GMH 3810	GMH 3831 + suitable electrode	GMH 3851 + suitable electrode	BaleCheck 100	BaleCheck 200
Carpenter, joiners, DIY		•	•	•	•	•			
Boat & Caravan (wood & GFK)	•								
Certified glue lam						•	•		
Foelwood, wooden log				•	•	•	•		
Wood chips						•	•		
Plaster, screed, concrete, bricks, lime mortars		•	•	•	•	•	•		
Construction-damage assessment / Water damage restoration		•	•	•	•	•	•		
Hay bale / bale of straw/ Corn (barley, wheat)						•	•	•	•
EQUIPMENT:									
Method	capacitive (non-destructive)					resistive (resistance)			
Sensor / Probe	integrated			integrated		external		external GSF 40	external GSF 40TF
Characteristics	14	18		4		494		4	494
User curves							4		
General functions	Hold, Auto-Off	Hold, Auto-Off		Hold, Auto-Off	Hold, Auto-Off, Sort	Hold, Auto-Off, Sort	Hold, Auto-Off, Sort	Hold, Auto-Off	Hold, Auto-Off, Sort
Serial interface / analog output						• / 0 ... 1 V	• / 0 ... 1 V		• / 0 ... 1 V
Data logger							•		
DEVICE INFORMATION:									
Catalogue page	**Page 45**	**Page 45**	**Page 44**	**Page 50**	**Page 49**	**Page 46**	**Page 46**	**Page 51**	**Page 51**

INFORMATION

Material Moisture Measurement with GREISINGER-handheld instruments

METHODS

○ **Resistive measuring method**

(GMR 110, GMH 3810, GMH 3831, GMH 3851)
The electrical resistance often depends on the material moisture. Therefore the devices measure the (possibly extremely high) values of resistance and convert them to the displayed value by means of integrated characteristic curves. The temperature has to be compensated especially at the measurement of wood – all GREISINGER- instruments have an integrated temperature compensation. In most cases the contact is realised by nails that are driven into the material are used to contact.

○ **Capacitive measuring method**

(GMK 210, GMK 100, GMI 15)
The dielectric properties of an object are often a good indicator for its material moisture. The dielectric coefficient of water is considerably higher than that of dry lumbers or building materials. Therefore the total dielectric coefficient of the measuring object can be easily used to get its material moisture. For the measurement the device has to be applied on the material. Precondition therefore: planar surfaces, no metallic elements.

○ **Relative humidity**

(i.e. GMH 3330 + TFS 0100 E)
Another method is to measure the material moisture indirectly by means of the relative humidity: The humidity in a sealed hole within a material depends on the material moisture. By means of a so-called sorption isotherm or a corresponding table the material moisture can be calculated from the humidity.

○ **Dry method**

The oven dry method can be used for reference point measurement with highest accuracy. The moist material is weighed and afterwards dried at increased temperature until no weight loss is detectable anymore. The material moisture can be calculated from the moist and arid weight.

UNITS

○ **Material moisture u (also „atro"):**

relating to dry mass
material moisture u [%] =
(mass wet - mass dry) / mass dry * 100
Particularly important for carpenters, joiners, etc.

○ **Moisture content w:**

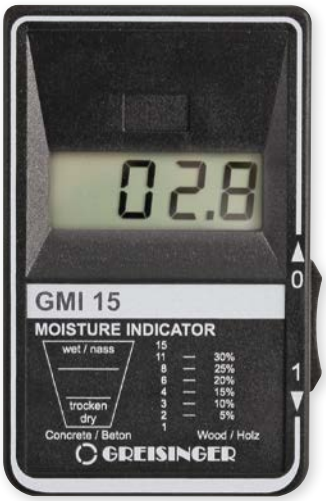
material moisture related to wet total mass
moisture content w [%] =
(mass wet - mass dry) / mass wet * 100
Particularly important for the evaluation of combustibles.

○ **„Digit" (GMI 15)**

The displayed value is relative, that means without a physical unit. This can be used to get comparative moisture information of the same materials. Lower values indicate less moisture, higher values indicate therefore more moisture.

For further information on this topic please see the devices' manuals and our homepage www.greisinger.de

INDICATOR FOR MOISTURE IN WOOD AND BUILDINGS



HIGHLIGHTS:
- nondestructive measurement
- easy and fast moisture rating

GMI 15

Art. no. 600059
Indicator for moisture in wood and buildings

General:

Device for high-speed determination of moisture in buildings, contracting work etc. The GMI 15 allows detection of moisture in wood down to a depth of approx. 3 cm and in concrete or wash floor down to a depth of approx. 4 cm. Detection of moisture behind ceramic tiles and/or various wall or floor coverings. To check moisture simply place device on the surface to be measured - no injection into the measuring object required. The displayed values by „digit" are relative, that means the values can be well compared.

Application:

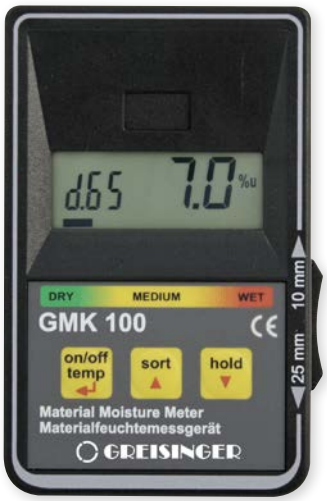
Humidity indication for i.e. estate agents (for fast control state of buildings), property management, house owners, architects, building experts, building contractors, etc.
Note:
The GMI 15 is an indicator for the fast estimation - it does not replace precision instruments like the GMH 3810, GMH 3831, GMH 3851 or GMK 100

Specifications:

Display:	3½-digits, 13 mm high LCD
Display range	
Concrete / floor	0 ... 5 = dry 6 ... 9 = humid, normal humidity level 10 ... = wet
Wood / fibre glass reinforced polyester:	0 ... 3 ~ 0 ... 12 % : dry 3 ... 6 ~ 12 ... 20 % : air-dry 6 ... 11 ~ 20 ... 30 % : wind-dry 11 ... ~ 30 % ... : wet
Power supply:	9 V battery
Battery life:	approx. 60 h
Working temperature:	0 ... 50 °C (material not frozen)
Storage temperature:	-20 ... +70 °C
Relative humidity:	0 ... 80 % RH (non-condensing)
Housing:	Impact resistant ABS plastic housing
Dimensions:	approx. 106 x 67 x 30 mm (H x W x D)
Weight:	approx. 150 g (ready for use)
Scope of supply:	Device, battery, manual

MEASURING DEVICE MOISTURE

AUTOOFF
HOLD



NONDESTRUCTIVE MEASUREMENT

Rear side of device

HIGHLIGHTS:

- Moisture display in percent
- Acoustical and visual moisture rating
- 18 material characteristics for wood and building materials
- 2 different measurement depth
- For wood and building moisture

GMK 100

Art. no. 600105

Measuring device moisture in wood and buildings

General:

The GMK 100 is a capacitive material moisture measuring device with direct moisture display in percent. It is optimally suited for home and handcraft. Depending on the application, it is possible to display the material moisture "u" or the water content "w".
The humidity is measured by a measuring plate on the back of the device. With a side-mounted switch the measuring depths can be changed. With the help of measurements in different depth a statement could be made if for example the material dries already or if the moisture is just on the surface of the material.

Application:

Humidity measurement and indication of wood, concrete, screed, plaster, etc.

Specifications:

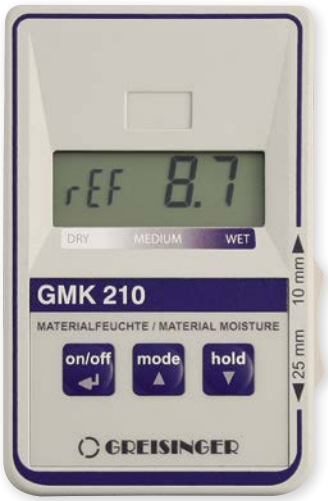
Display:	2 displays for material and measured value, in % material moisture or in % moisture content, backlight
Moisture rating	
Visual:	Rating of the moisture in 6 levels from WET to DRY
Acoustic:	Signal tone
Measurement depths:	10 mm and 25 mm
Curves:	18 characteristic curves for wood (with assignment tabel for wood species) and popular materials, additionally reference curve (rEF) for high-resolution relative measurements
Working temperature:	-5 ... +50 °C (not frozen)
Storage temperature:	-25 ... +70 °C
Power supply:	9 V battery
Battery life:	max. 2000 h without backlight
Power backlight:	approx. 2.5 mA (Auto-Off)
Housing:	impact-resistant ABS plastic housing, plastic foil keyboard, clear screen
Dimensions:	approx. 106 x 67 x 30 mm (H x W x D)
Weight:	approx. 145 g (ready for use)
Scope of supply:	Device, battery, calibration protocol, manual

Accessories and spare parts:

PW 25
Art. no. 601368
Testing probe to control the deivce

MEASURING DEVICE MOISTURE

AUTOOFF
HOLD



NONDESTRUCTIVE MEASUREMENT

Rear side of device

HIGHLIGHTS:

- Moisture display in percent
- Acoustical and visual moisture rating
- 14 material characteristics for wood and GFK
- 2 different measurement depth for Caravan & Boat
- Search mode for quickly locating humidity and the like

GMK 210

Art. no. 600107

Moisture measuring device for caravan and boat

General:

The GMK 210 is a capacitive material moisture measuring device with direct moisture display in percent. It is optimally suited for home and handicraft. Depending on the application, it is possible to display the material moisture "u" or the water content "w".
The humidity is measured by a measuring plate on the back of the device. With a side-mounted switch the measuring depth can be changed. With the help of measurements in different depth a statement could be made if for example the material dries already or if the moisture is just on the surface of the material.

Application:

Humidity measurement and indication of wood and GFK (glass fiber reinforced plastic)

Specifications:

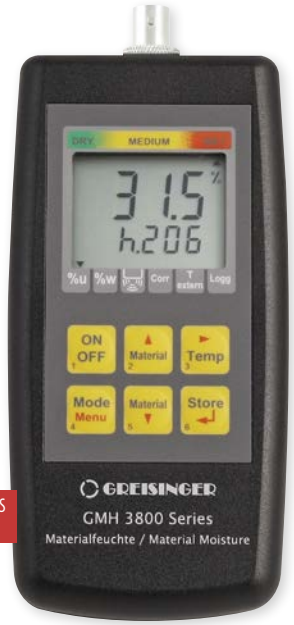
Display:	2 displays for material and measured value, in % material moisture or in % moisture content, backlight
Moisture rating	
Visual:	Rating of the moisture in 6 levels from WET to DRY
Acoustic:	Signal tone
Measurement depths:	10 mm and 25 mm
Curves:	14 characteristic curves for wood (with assignment tabel for wood species) and GFK, insulating materials i.e. Styropor; additionally reference curve for high-resolution relative measurements
Working temperature:	-5 ... +50 °C (not frozen)
Storage temperature:	-25 ... +70 °C
Power supply:	9 V battery
Battery life:	max. 2000 h without backlight
Power backlight:	approx. 2.5 mA (Auto-Off)
Housing:	impact-resistant ABS plastic housing, plastic foil keyboard, clear screen
Dimensions:	approx. 106 x 67 x 30 mm (H x W x D)
Weight:	approx. 145 g (ready for use)
Scope of supply:	Device, battery, calibration protocol, manual

Accessories and spare parts:

PW 25
Art. no. 601368
Testing probe to control the deivce

PRECISION MATERIAL MOISTURE MEASURING DEVICE FOR WOOD, BUILDING MATERIALS, STRAW, HAY, PAPER, TEXTILES, ETC.

AUTOOFF
AUTOHOLD



466 WOOD TYPE CHARACTERISTICS
28 CONSTRUCTION MATERIALS

HIGHLIGHTS:

- serial interface or analog output 0 ... 1 V, freely scalable
- 4 programmable characteristics (GMH 3851)
- incl. calibration protocol

ADDITIONAL FUNCTIONS GMH 3851:

LOGG

CONFORM TOEN 14080 : 2013 EN 16351 : 2015
SUITABLE E.G. FOR GLUED TIMBER CONSTRUCTION AND LAMINATED TIMBER (MPA CERTIFIED AND LISTED)

GMH 3831

Art. no. 609289

Resistive material-moisture and temperature measuring device, w/o accessories

GMH 3851

Art. no. 602009

Resistive material-moisture and temperature measuring device, w/o accessories, with data logger and programmable characteristic curves memory

General:

The GMH 3831 and GMH 3851 offer decisive advantages in handling, user-friendliness, functional range and accuracy. The absolute moisture of 494 material types is displayed directly and can be automatically converted to water content. The cumbersome usage of calculation tables becomes a thing of the past. Additionally you get a moisture rating (wet ... dry) of the measured material.

Application:

Precision measurements in cut-wood, chip board, veneer, sawdust, wood chips, wood wool, flax, straw, hay, concrete, bricks, wash floor, plaster, limestone mortar, cement mortar, paper, carton, textiles, wood chips, professional firewood humidity measurement, etc.

User:

architect, expert, inspector, building contractor, painter, carpenter, parquet joiner, floor tiler, wood works, timber desiccation plant, building repair company, textile industry etc.

Specifications:

Measuring principle	
Moisture:	Resistive material moisture measurement acc. to DIN EN 13183-2:2002
Temperature:	**extern:** thermocouple, type K (NiCr-Ni) **intern:** NTC
Characteristic curves:	494 material characteristics
Measuring range	
Moisture:	0.0 ... 100.0 % u (material moisture) 0.0 ... 50.0 % w (water content, wet basis) (depends on selected characteristic)
Temperature:	-40.0 ... +200.0 °C (-40.0 ... +392.0 °F)
Moisture rating:	9 steps (dry ... wet)
Resolution:	0.1 % or 0.1 °C (0.1 °F)
Device accuracy: (at nominal temperature)	
Wood:	±0.2 % material moisture (deviation from corresponding characteristic curve in range 6 ... 30 %)
Building material:	±0.2 % material moisture (deviation from corresponding characteristic curve)
Temperature:	(external) ± 0.5 % of m.v. ± 0.3 °C
Temperature compensation:	automatic or manual
Sensor connection	
Moisture:	BNC
Temperature:	thermovoltage-free type K (NiCr-Ni) socket
Permitted working temperature:	-5 ... +50 °C (not frozen)
Display:	two 4-digit LCD displays (12.4 mm and 7 mm high), additional indicator arrows
Output:	3-pole jack connector Ø 3.5 mm, either with serial interface or analog output
Serial interface:	connectable to RS232 or USB interface of PCs via electrically isolated interface converter GRS 3100, GRS 3105 or USB 3100 N (accessories).
Analog output:	0 ... 1 V, freely scalable
Average value:	of 3 measurements, e.g. for professional firewood moisture measurements
Power supply:	9 V battery, additional socket for external 10.5 ... 12 V direct current power supply (adequate PSU: GNG10/3000).
Battery life:	approx. 120 h
Housing:	Impact-resistant ABS plastic housing, membrane keyboard, transparent panel, integrated pop-up clip
Dimensions:	142 x 71 x 26 mm (H x W x D)
Weight:	155 g
Scope of supply:	Device, battery, calibration protocol, manual

additional functions GMH 3851:

User specific characteristics: 4, freely programmable
Interpolation points per curve: 20
By means of the gratis software GMHKonfig the interpolation points can be comfortably edited and stored to the instrument (Required accessories: interface converter)
Sort limitaion of different materials (up to 8)
Data logger:
This instrument is essential for the documentation of material state by quality assurance systems, etc. By means of the integrated data logger there can be up to 10.000 measuring values recorded and processed on demand. Additionally it is possible to individually program 4 material curves (e.g. with dry oven or CM-method). This instruments finally makes paper correction tables unnecessary.
Logger function
- manual:
  99 data sets (fetch data via buttons or interface)
- cyclic:
  10.000 data sets (fetch data via interface)
  adjustable cycle time: 30 s ... 1 h

The logger is started or stopped by keypad or interface. The software GSOFT3050 (see accessories) is available for comfortable read-out of logger data.

Accessories and spare parts:

GSOFT 3050
Art. no. 601336
Windows software for GMH 3000 and GMH 5000 with logger

GRS 3100
Art. no. 601097
Interface Converter GMH3xxx <=>PC, RS232

USB 3100 N
Art. no. 601092
Interface Converter GMH3xxx <=>PC, USB

additional accessories: see next page

OPTIONAL ACCESSORIES

1

GMK 38
Art. no. 601261
Measuring cable, BNC to 2x banana plug, legth 90 cm

2

GHE 91*
Art. no. 601263
Impact electrode, to drive in Ø 2.5 mm steel pins without auxiliary aids

3

GSE 91*
Art. no. 601266
Impact electrode, to drive in 2.5 mm Ø 2.5 mm steel pins

4

GEG 91
Art. no. 601268
Handle for retrofit of impact electrode

5

GSG 91*
Art. no. 601270
impact electrode with handle, to drive in Ø 2.5 mm steel pins or for GMS 300/91

6

GST 91
Art. no. 601273
Steel pins
9 steel nails (3 pieces each, 12, 16 and 23 mm long) in plastic case, Ø 2.5 mm

GST 91/40
Art. no. 601275
Steel pins
10 steel nails, 40 mm long, Ø 2.5 mm, in plastic case

7

GST 45i
Art. no. 601277
Steel pins
2 Teflon isolated steel nails, 45 mm long, Ø 2.5 mm

GST 60i
Art. no. 601279
Steel pins, as above, 60 mm long

8

GOK 91
Art. no. 601287
Surface measuring caps (pair, to be screwed on GSG 91/ GSE 91)

9

GMS 300/91
Art. no. 601289
measuring pins 300 mm long (pair, to be screwed on GSG 91/GSE 91), for wood chips, wood wool, paper, carton, etc.

10

GST 15B*
Art. no. 601281
Steel pins
2 steel nails with bore hole, 15 mm long, Ø 3.8 mm (for direct connection of measuring cable GMK 38)

GST 25B*
Art. no. 601283
Steel pins, as above, Ø 3.8 x 25 mm

GST 40B*
Art. no. 601285
Steel pins, as above, Ø 3.8 x 40 mm

11

GBSK 91*
Art. no. 601293
brush-type probe (pair, banana socket Ø 4 mm), depth down to approx. 100 mm

12

GBSL 91*
Art. no. 601294
Short brush-type probe, (pair, banana socket Ø 4 mm), depth down to approx. 300 mm

13

GEF 38*
Art. no. 601296
Flat electrode (pair, banana socket Ø 4 mm), for screed, paper, etc.

14

GLP 91
Art. no. 601299
Conducting paste 100 ml, for surface measurements and depth indication in walls, wash floors etc. with brush probes

15

GSP 91*
Art. no. 601301
Sensor for surface measurements on paper, textiles etc.

GSP 91 ES
Art. no. 601303
Spare sensor element for GSP 91

16

GMZ 38*
Art. no. 605783
Moisture tongs, for measurements of veneers or thin wood (up to approx. 10 mm)

17

GSF 50 (110 cm)
Art. no. 601306
GSF 50K (43 cm)
Art. no. 601308
Material moisture insertion probe, (without temperature sensor) for measurement up to a depth of 40 cm or 107 cm, incl. 1 m connection cable.
Suitable for: wood chips, wood wool, straw, hay, grain, saw dust, etc.

18

GSF 50TF (110 cm)
Art. no. 601312
GSF 50TFK (43 cm)
Art. no. 601313
Material moisture insertion probe, with temperature sensor), for measurement up to a depth of 40 cm or 107 cm, incl. 1 m connection cable.
Suitable for: wood chips, wood wool, straw, hay, grain, saw dust, etc.

19

GSF 40 (67 cm)
Art. no. 601316
Material moisture insertion probe, without temperature sensor, for measurement of pressed bales up to a depth of 60 cm, incl. 1 m connection cable. Suitable for: pressed hay or straw bales, grain

** Measuring cable GMK 38 necessary for GHE 91, GSE 91, GSG 91, GST 15B / 25B / 40B, GBSK 91, GBSL 91, GEF 38, GSP 91, GMZ 38*

OPTIONAL ACCESSORIES

20

GSF 40TF (67 cm)
Art. no. 601319
Material moisture insertion probe, with temperature sensor, for measurement of pressed bales up to a depth of 60 cm, incl. 1 m connection cable. Suitable for: pressed hay or straw bales, grain

21

GTF 38
Art. no. 601347
Material moisture temperature probe Ø 2.2 mm, to be inserted in measuring pins holes, potential free, recommended for wood moisture measurements

22

GES 38
Art. no. 601350
NiCr-Ni injection probe potential free, Ø 4 x 150 mm, 1 m cable (recommended for wood moisture measurements)

23

GPAD 38
Art. no. 601328
Testing adapter (with 2 test points) for GMH 38xx and GMR 110

24

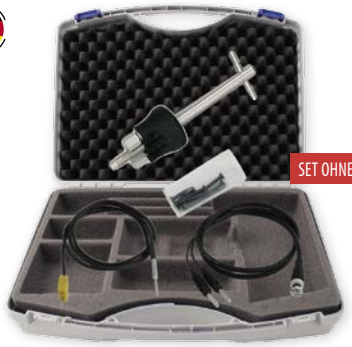
GKK 3500
Art. no. 601052
Plastic case (394 x 294 x 106 mm) with cut-outs for device and accessories (device and accessories are not included)

25

pict.: GMH3831 in ST-RN

ST-RN
Art. no. 601074
Protection bag with blanked out sensor connections (suitable for GMH 3831, GMH 3851)

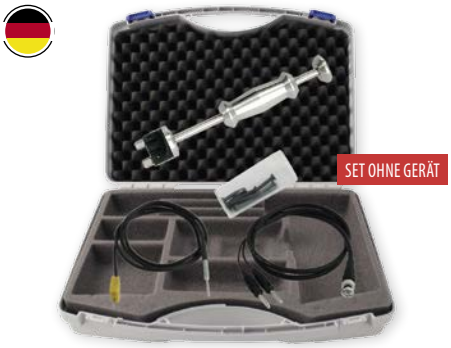
ACCESSORIES-SETS



SET 38 HF
Art. no. 602071
Material moisture accessory set for GMH 3831/51 (without instrument), Wood moisture

Content:
- GKK 3500 (case)
- GMK 38 (measuring cable)
- GSE 91 (impact electrode)
- GST 91 (measuring nails)
- GTF 38 (temperature probe)

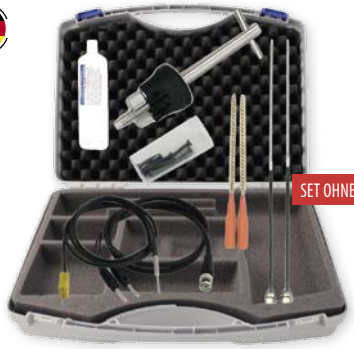
Application:
Wood



SET 38 MPA
Art. no. 602075
Material moisture accessory set for GMH 3831/51 (without instrument), MPA wood moisture, accessories tested like wood glulam subject to mandatory approval by MPA

Content:
- GKK 3500 (case)
- GMK 38 (measuring cable)
- GHE 91 (reciprocating piston electrode)
- GST 91 (measuring nails)
- GTF 38 (temperature probe)

Application:
wood, gluelam, production of laminated timber



SET 38 BF
Art. no. 602073
Material moisture accessory set for GMH 3831/51 (without instrument), Wood and building moisture set

Content:
- GKK 3500 (case)
- GMK 38 (measuring cable)
- GSE 91 (impact electrode)
- GST 91 (measuring nails)
- GTF 38 (temperature probe)
- GMS 300/91 (measuring rods)
- GBSK 91 (wire brush)
- GLP 91 (conductive paste)

Application:
wood, concrete, screed, plaster