

HUMIDITY / FLOW RATE

GMH 3330
+ TFS 0100 EGMH 3350
+ TFS 0100 E

GFTH 95



GFTH 200



GFTB 200

APPLICATION:

Air conditioning /
Ambient air monitoring

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Meteorology

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Room climate

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Flow measurement

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Air pressure measuring

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Calculation of:

Dew point Td

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Wet bulb temperatur Twb

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Moisture content x /
Absolute humidity d

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Dew point distance / Enthalpy

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EQUIPMENT:

Plug-in probe

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• (temperature)

Min/Max, Hold, Auto-Off

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Serial interface

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Alarm

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Data logger

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HUMIDITY, TEMPERATURE AND FLOW RATE MEASURING DEVICE



HIGHLIGHTS:

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

ADDITIONAL FUNCTIONS GMH 3350:



GMH 3330

Art. no. 600343

Climate measuring device, probe not included

GMH 3350

Art. no. 600345

Climate 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 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 (p.r.t. 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. 32). 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 GSOF3050 (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

USB 3100 N

Art. no. 601092

Interface converter, electrically isolated

GSOF 3050

Art. no. 601336

Software for the setting, data read-out and printing of all logger data stored for devices of the GMH3xxx-series with logger function

GAM 3000

Art. no. 601132

Switching module for devices of the GMH3xxx-series incl. alarm output

ST-RN

Art. no. 601074

Device protection bag with cut out for sensor connection

GKK 3500

Art. no. 601052

Big case with cut-outs for GMH3xxx

GKK 3600

Art. no. 601062

case with foam lining for universal use

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, 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

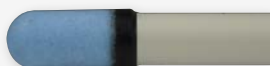
Weight: approx. 90 g

Scope of supply: Sensor, Manual

Variant:**TFS 0100 E-POR**

Art. no. 603438

Humidity / temperature sensor 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 32)

Quick-response surface probes for walls, floors etc.

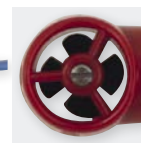
GTF 300

Art. no. 600072

(p.r.t. page 34)

Quick-response basic thermocouple probe for universal applications
(surface measurement)

MEASURING PROBES FLOW SPEED

**STS 005**

Art. no. 602396

(0.05 ... 5.00 m/s)

Flow measuring probe with snap-on head, 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

STS 005-GTS

Art. no. 602645

GTS Telescopic rod (overall length 1 m)

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

**STS 020-GTS**

Art. no. 604217

GTS Telescopic rod (overall length 1 m)



picture shows GTS with assembled 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 % v. MW. ±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: T₉₀ = 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, consisting of:

- 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

Certificate of calibration, humidity, for ISO9000ff (p.r.t. page 15)

ISO-WPD5

Art. no. 602514

Certificate of calibration, 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 37.

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 (recommended 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**GKK 252**Art. no. 601056
case (235 x 185 x 48 mm) with foam lining**ISO-WPF4**Art. no. 602543
Certificate of calibration for ISO9000ff (p.r.t. page 15)

HUMIDITY / TEMPERATURE / DEW POINT MEASURING DEVICE

**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

HIGHLIGHTS:

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

Accessories and spare parts:**GOF 175 Mini**

Art. no. 600436

temperature probe for surface temperature measuring (p.r.t. page 22)

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 Certificate of calibration for ISO9000ff (p.r.t. page 15)

COMPLETE SOLUTION**GFTH 200-WPF4**

Art. no. 602678

Complete solution incl. certificate of calibration 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 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.

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 37.

MATERIAL MOISTURE



APPLICATION:

Carpenter, joiners, DIY

Boat & Caravan (wood & GFK)

Certified glue lam

Foelwood, wooden log

Wood chips

Plaster, screed, concrete, bricks,
lime mortarsConstruction-damage assess-
ment / Water damage restorationHay bale / bale of straw/
Corn (barley, wheat)

EQUIPMENT:

Method

capacitive (non-destructive)

resistive (resistance)

Sensor / Probe

integrated

integrated

external

external
GSF 40external
GSF 40TF

Characteristics

14

18

4

494

4

494

User curves

4

General functions

Hold,
Auto-OffHold,
Auto-OffHold,
Auto-OffHold, Auto-
Off, SortHold, Auto-
Off, SortHold, Auto-
Off, SortHold,
Auto-OffHold, Auto-
Off, Sort

Serial interface / Analog output

• / 0 ... 1 V

• / 0 ... 1 V

• / 0 ... 1 V

Data logger

•

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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 lumbars 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 [%] =
 $(\text{mass wet} - \text{mass dry}) / \text{mass dry} * 100$
Particularly important for carpenters, joiners, etc.

Moisture content w :

material moisture related to wet total mass
moisture content w [%] =
 $(\text{mass wet} - \text{mass dry}) / \text{mass wet} * 100$
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 pavement:	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



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

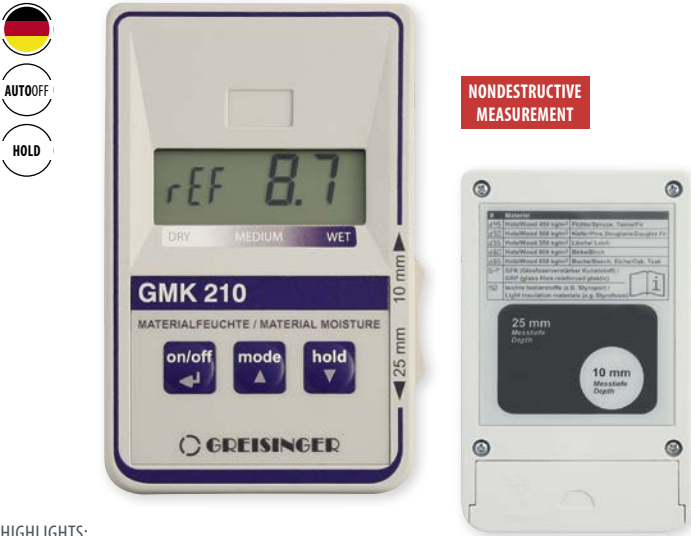
GMK 100

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 device	

MEASURING DEVICE MOISTURE



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
Material 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 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 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 device	

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



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:



Conform to
EN 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

external: thermocouple, NiCr-Ni (type K)

internal: NTC

Characteristic curves: 494 material characteristics

Measuring range:

Moisture: 0.0 ... 100 % u (material moisture)
0.0 ... 50 % 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) ± 0.2 % 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: 1 s ... 1 h

The logger is started or stopped by keypad or interface. The software GSOF3050 (see accessories) is available for comfortable read-out of logger data.

Accessories and spare parts:

GSOF3050

Art. no. 601336

Logger operation software

GRS 3100

Art. no. 601097

RS232 interface converter

USB 3100 N

Art. no. 601092

Interface converter

additional accessories: see next page

OPTIONAL ACCESSORIES

1

**GMK 38**

Art. no. 601261

Connection cable

BNC to 2 x banana plug, approx. 90 cm long

2

**GHE 91**

Art. no. 601263

Reciprocating piston electrode *

to drive measuring nails into material without auxiliary devices

3

**GSE 91**

Art. no. 601266

Impact electrode *

to drive measuring nails into material

4

**GEG 91**

Art. no. 601268

Handle

suitable for GSE 91

5

**GSG 91**

Art. no. 601270

Penetration electrode *

adequate for steel nails and measuring rods

6

**GST 91**

Art. no. 601273

Steel nails

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 nails

10 steel nails, 40 mm long, Ø 2.5 mm, in plastic case

7

**GST 45i**

Art. no. 601277

Steel nails

2 Teflon isolated steel nails, 45 mm long, Ø 2.5 mm

GST 60i

Art. no. 601279

Steel nails, as above, 60 mm long

8

**GOK 91**

Art. no. 601287

Measuring cap

Surface measuring caps (pair) (for use with GSG 91 or GSE 91)

9

**GMS 300/91**

Art. no. 601289

Measuring rods

300 mm long (pair), for wood chips, wood wool, paper, carton, etc. (for use with GSG 91 or GSE 91)

10

**GST 15B**

Art. no. 601281

steel nails *

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 nails * as above, Ø 3.8 x 25 mm**GST 40B**

Art. no. 601285

steel nails * as above, Ø 3.8 x 40 mm

11

**GBSK 91**

Art. no. 601293

Wire brush (pair) short *

for depths up to approx. 100 mm

12

**GBSL 91**

Art. no. 601294

Wire brush (pair) long *

for depths up to approx. 300 mm

13

**GEF 38**

Art. no. 601296

Flat electrode (pair) *

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

Measuring clamp *

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

Injection 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. 601314

Injection 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.

* 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

19

**GSF 40 (67 cm)**

Art. no. 601316

Injection 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

20

**GSF 40TF (67 cm)**

Art. no. 601319

Injection 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

NiCr-Ni temperature probe

potential free, Ø 2.2 x 25 mm, 1 m cable (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

Test adapter

(with 2 reference values) for testing 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 WITHOUT DEVICE

SET 38 HF

Art. no. 602071

Wood moisture set

Content:

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

Application:

Holz



SET WITHOUT DEVICE

SET 38 BF

Art. no. 602073

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



SET WITHOUT DEVICE

SET 38 MPA

Art. no. 602075

MPA wood moisture set

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

MOISTURE COMPLET SET

**GMH 38-LW1-TF**

Art. no. 606470

GMH 38-LW1-TFK

Art. no. 606462

GMH 38-LW2-TF

Art. no. 606471

GMH 38-LW2-TFK

Art. no. 606463

Moister complete set for for agricultural use.

General:

Measuring device for fast moisture analysis in lumps and bulks. Universally applicable tool damage prevention and quality assurance. The more than 1 m long insertion probe with integrated temperature sensor is very good for measuring in hay and straw lump and bulk suitable. Material humidity and temperature can be easily determined by piercing the object.

Application:

- Hay, flax
- Straw, cereals
- Wood chips
- Wheat
- Barley

the simple humidity indication is done in nine steps.

Specifications:

Device:	GMH 3831 or GMH 3851, see page 47
Penetration:	GSF 50, GSF 50K, GSF 50TF, GSF 50TFK, see page 48

Scope of supply

GMH 38-LW1-TF:	GMH 3831, GSF 50 TF, battery, manual
GMH 38-LW1-TFK:	GMH 3831, GSF 50 TFK, battery, manual
GMH 38-LW2-TF:	GMH 3851, GSF 50 TF, battery, manual
GMH 38-LW2-TFK:	GMH 3851, GSF 50 TFK, battery, manual

RESISTIVE MATERIAL-MOISTURE MEASURING DEVICE



HIGHLIGHTS:

- 494 characteristic curves
- incl. calibration protocol

FOR WOOD AND BUILDING MATERIALS

GMH 3810

Art. no. 600350

Resistive material-moisture measuring device with integrated measuring pins

General:

The measuring pins integrated on the reinforced front numerous measurements can be done without additional accessories. For measuring of very hard materials we suggest the components shown at the accessories section.

Specifications:

Measuring principle

Moisture: resistive material-moisture-measuring according to DIN EN 13183-2:2002

Temperature internal: NTC

Curves: 494 material characteristics

Measuring range

Moisture: 0.0 ... 100.0 % moisture content
0.0 ... 50.0 % water content
(depending on characteristic curve)

Temperature: -25.0 ... +50.0 °C (-13.0 ... +122.0 °F)

Estimation: in 9 steps (dry ... wet)

Resolution: 0.1 % or 0.1 °C (0.1 °F)

Accuracy device: (at nominal temperature = 25 °C)

wood: ±0.2 % moisture content
(deviation from characteristic curve at range 6 ... 30 %)

building material: ±0.2 % moisture content (deviation from characteristic curve)

Temperature compensation: automatically or manual

Measuring probe: 2 pin holders M6 x 0.75 with 19 mm pins (12 mm utilisable)

Perm. working temperature -5 ... +50 °C (not frozen)

Storage temperature: -25 ... +70 °C

Relative humidity: 0 ... 95 % RH (non condensing)

Display: two 4-digit LCDs

Sort: the material selection is restricted to up to 8 favorites

Power supply: 9 V battery

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: 175 g

Scope of supply: Device, battery, calibration protocol, manual

Accessories and spare parts:

GST 3810

Art. no. 601392
replacement pins (10 pcs.)

GMK 3810

Art. no. 603070
1 m connection cable with 2 x banana plugs and 2 adapters. Allows connection of accessories (except GSF38..., GTF38 and GES38) on GMH3810 / GMR110.

RESISTIVE MATERIAL-MOISTURE MEASURING DEVICE



AUTOMATIC TEMPERATURE COMPENSATION



rear side of device

COMFORTABLE CHARACTERISTIC CURVE- AND RATED DISPLAY

GMR 110

Art. no. 600101

Resistive material moisture measuring device with integrated measuring needles.

General:

Compact and robust measuring device for fast evaluation of material moisture in firewood, timber, flake board, inlay, plaster, cement and lots more. A suitable characteristic is selected with help of material table on the rear side of the device before measuring. The material is contacted by pressing the measuring needles into it. The measured value is displayed only a short time afterwards. The device is especially designed for precise firewood and timber measurements, however, a lot of additional building materials can be rated.

- Material tables on rear side of device
- Integrated, exchangeable measuring needles
- Moisture rating (wet/dry) via bar graph
- Display of material moisture or water content
- Integrated temperature compensation
- Characteristic curve display

Specifications:

Measuring principle: resistive material moisture measurement acc. to DIN EN 13183

Characteristic curves: 3 different wood groups (h.01, h.02, h.03) for a total of 130 wood types and 8 different building material curves (c.01, c.02, c.03, c.04, c.05, c.06, c.07, c.08)

Measuring range: 0.0 ... 100 % material moisture (depends on selected characteristics)

Moisture rating: in 6 steps (wet ... dry)

Resolution: 0.1 % (<20 %), 1 % (>20 %)

Accuracy: (at nominal temperature = 25 °C)

Wood: ±0.2 % material moisture (Deviation to wood characteristic curve in range 6 ... 20 %)

Building materials: ±0.2 % material moisture (Deviation to corresponding characteristic curve)

Temperature compensation: automatically or manual

Measuring probe: 2 needle holder M6 x 0.75 with 19 mm measuring needles (12 mm usable length)

Perm. working temperature: -5 ... +50 °C (not frozen)

Storage temperature: -25 ... +70 °C

Relative humidity: 0 ... 95 % RH (non condensing)

Display: 2 LCD displays for characteristic and measuring value

Power supply: 9 V battery

Battery life: approx. 170 h

Housing: Impact-resistant ABS plastic housing, membrane keyboard, transparent panel

Dimensions: 110 x 67 x 30 mm + needles 26 mm

Weight: approx. 155 g

Scope of supply: device, 2 needle protection caps, battery, calibration protocol, manual

Characteristic curves:

3 wood groups:

- h.01 spruce, pine
- h.02 maple, birch, beech, larch (EUR), ash (EUR), fir
- h.03 oak, ash (AM), poplar, douglas fir

a lot of additional wood types can be determined with the table of the instruction manual

8 building material curves:

- c.01 cement screed, concrete
- c.02 anhydrite screed
- c.03 plaster, lime mortar
- c.04 cement mortar
- c.05 gas concrete
- c.06 lime sand brick
- c.07 clay brick
- c.08 gypsum plaster

Accessories and spare parts:

GST 3810

Art. no. 601392
replacement pins (10 pcs.)

GMK 3810

Art. no. 603070
1 m connection cable with 2 x banana plugs and 2 adapters. Allows connection of accessories (except GSF38..., GTF38 and GES38) on GMH3810 / GMR110.

additional special accessories at page 48.

GB 9 V

Art. no. 601115
Spare battery

GKK 252

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



HAY AND STRAW HUMIDITY MEASURING DEVICE



- HIGHLIGHTS:**
- robust 60 cm V4A measuring rod
 - characteristics for hay, straw and grain

BaleCheck 100

Art. no. 600103

Hay and straw humidity measuring device (incl. measuring rod and protective bag)

General:

The BaleCheck 100 is a professional measuring device for measuring the moisture in bales of pressed hay and straw. It allows to easily determine the suitability for storage and quality of hay and straw – important especially in agriculture, stock breeding and horse keeping. The slim but robust measuring rod should be used for measurements in different depths. If the maximal moisture is <16.0 % u, the material can be stored or spent without hesitation.

Application:

- agriculture
- processing or storing of hay or straw
- hay and straw trading
- stock breeding
- horse keeping

Specifications:

Measuring range:	0.0 ... 100 % u (material moisture) 0.0 ... 50 % w (water content)
Resolution:	0.1 % (till 19.9 %) and 1 % (from 20 %)
Characteristics:	hay, straw, grain, reference characteristics
Moisture rating:	6-step bar graph (wet ... dry)
Temperature compensation:	manual
Display:	2 displays for characteristics and measuring value
Operating conditions:	-25 ... +50 °C (device), 0 ... +100 °C (rod), 0 ... 95 % RH (non condensing)
Measuring rod:	V4A stainless steel, 600 mm x Ø 10 mm, 1 m connection cable with BNC-plug, 260 g, design of probe handle offers comfortable operation
Power supply:	9 V battery
Battery life:	approx. 170 h
Housing:	impact-resistant ABS
Dimensions:	110 x 67 x 30 mm (H x W x D)
Weight:	155 g
Scope of supply:	Device, measuring rod GSF 40, protective bag, battery, calibration protocol, manual

HAY AND STRAW HUMIDITY MEASURING DEVICE
INCL. TEMPERATURE MEASUREMENT

- HIGHLIGHTS:**
- fast temperature measurement integrated
 - robust 60 cm V4A measuring rod
 - characteristics for hay, straw and grain

BaleCheck 200

Art. no. 600354

Hay and straw humidity measuring device incl. temperature measurement, measuring rod 620 mm

General:

The BaleCheck 200 is a professional measuring device for measuring the moisture in bales of pressed hay and straw. It allows to very precisely determine the suitability for storage and quality of hay and straw as well as grain – important especially in agriculture, stock breeding and horse keeping. The slim but robust measuring rod should be used for measurements in different depths. If the maximal moisture is <16.0 % u, the material can be stored or spent without hesitation. The additional temperature measurement makes an automatic temperature compensation possible and supports fire prevention (proof of due diligence).

Application:

- fire prevention
- agriculture
- processing / storing / trading of hay or straw
- stock breeding, horse keeping

Specifications:

Measuring range:	0.0 ... 100.0 % u (material moisture) 0.0 ... 50.0 % w (water content) -40.0 ... +200.0 °C (device)
Resolution:	0.1 %, 0.1 %
Characteristics:	hay, straw, grain, reference characteristics, approx. 480 additional material moisture characteristics
Moisture rating:	9-step bar graph (wet ... dry)
Temperature compensation:	automatic or manual
Display:	two 4-digit LCD displays (12.4 mm and 7 mm)
Operating conditions:	-25 ... +50 °C (device), 0 ... +100 °C (rod), 0 ... 95 % RH (non condensing)
Measuring rod:	V4A stainless steel, 600 mm x Ø 10 mm, 1 m connection cable with BNC-/type K- plug, temperature 0 ... 100 °C, 260 g
Features:	interface, analog output (0 ... 1 V), power supply terminal (10.5 ... 12 VDC)
Sort:	the material selection is restricted to up to 8 favorites
Power supply:	9 V battery
Battery life:	approx. 120 h
Housing:	impact-resistant ABS
Dimensions:	142 x 71 x 26 mm (H x W x D)
Weight:	155 g
Scope of supply:	Device, measuring rod GSF 40 TF with temperature sensor, protective bag, battery, calibration protocol, manual

Variants:**BaleCheck 200 - 1000**

Art. no. 607147

Hay and straw humidity measuring device incl. measuring rod 1000 mm

BaleCheck 200 - 1500

Art. no. 607146

Hay and straw humidity measuring device incl. measuring rod 1500 mm