E.01.1060-E-181019
www.tempco.be

MATERIAL MOISTURE

	GMK 210	GMK 100	GMI 15	GMR 110	GMH 3810	GMH 3831 + suitable electrode	GMH 3851 + suitable electrode	BaleCheck 100	BaleCheck 200
APPLICATION:									
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 46**	**Page 46**	**Page 45**	**Page 50**	**Page 50**	**Page 47**	**Page 47**	**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 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

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 device

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

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 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 device

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 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 GSOFT3050 (see accessories) is available for comfortable read-out of logger data.

Accessories and spare parts:

GSOFT 3050
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)

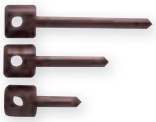
9

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 pase

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

AUTOHOLD
AUTOOFF
HOLD

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 measurings 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

AUTOHOLD
AUTOOFF
HOLD

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

AUTOHOLD
AUTOOFF
HOLD

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

AUTOHOLD
AUTOOFF
HOLD

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