

# HUMIDITY / FLOW RATE



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HANDHELD INSTRUMENTS

SOFTWARE

ACCESSORIES

ALARM / PROTECTION, LEVEL



GMH 3330  
+ TFS 0100 E

GMH 3350  
+ TFS 0100 E

GFTH 95

GFTH 200

GFTB 200

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:					
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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

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 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:**

<b>Relative humidity:</b>	0.0 ... 100.0 % RH
<b>Ambient temperature:</b>	-40.0 ... +120.0 °C (depending on TFS-probe)
<b>Surface temperature:</b>	-80.0 ... +250.0 °C
<b>Flow rate:</b>	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)**

<b>Relative humidity:</b>	±0,1 %
<b>Ambient temperature (Pt1000):</b>	±0.2 %
<b>Surface temperature (NiCr-Ni):</b>	0.5 % of m.v. ±0.5 °C
<b>Flow rate:</b>	±0.1 %

**Probes:** No calibration required for exchange of humidity/temperature or flow rate probe. (p.r.t. next page)**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 GSOF T3050 (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 &lt;=&gt;PC, USB

**GSOF T 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 &amp; 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 &amp; 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 &amp; 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

**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**

<b>Temperature:</b>	-25.0 °C ... +70.0 °C
<b>Air humidity:</b>	0.0 ... 100.0 % RH (recommended range: 11 ... 90 % RH)
<b>Air pressure:</b>	10.0 ... 1100.0 mbar

**Calculated parameters**

<b>Dew point temperature Td:</b>	-40.0 ... +70.0 °C
<b>Wet bulb temperature Twb:</b>	-27.0 ... +70.0 °C
<b>Mixing ratio x:</b>	0.0 ... 280.0 g/kg
<b>Absolute humidity d:</b>	0.0 ... 200.0 g/m <sup>3</sup>

**Resolution:** 0.1 % RH; 0.1 °C or 0.1 °F, 0.1 mbar

**Accuracy: (±1 digit) (at nominal temperature = 25 °C)**

<b>Temperature:</b>	±0.5 % of m.v ±0.1 °C (Pt1000 DIN cl. AA)
<b>Air humidity:</b>	±2.5 % RH (at range 11 ... 90 %)
<b>Air pressure:</b>	±1.5 mbar (750 ... 1100 mbar)

**Messfühler**

<b>Temperature:</b>	Pt1000
<b>Air humidity:</b>	capacitive polymer humidity sensor
<b>Air pressure:</b>	piezo-resistive sensor hybrid

**Response time:** T<sub>90</sub> = 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**

<b>Electronics:</b>	-25 ... +70 °C; 0 ... 80 % RH (non-condensing)
<b>Sensors:</b>	-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)

**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

**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-WPFD5**

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 (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 <sub>90</sub> = 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

**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 <sub>90</sub> = 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  
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.