

# HUMIDITY / FLOW RATE



GMH 3330  
+ TFS 0100 E

GMH 3350  
+ TFS 0100 E

GFTH 95

GFTB 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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**DEVICE INFORMATION:**

Catalogue page

Page 40

Page 40

Page 43

Page 43

Page 42

## 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:

<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 (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)

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

## Housing:

Impact-resistant ABS plastic housing, membrane keyboard, transparent panel, integrated pop-up clip

**Dimensions:** 142 x 71 x 26 mm (H x W x D)

**Weight:** approx. 160 g (incl. battery)

**Scope of supply:** Device, battery, manual

## Accessories and spare parts:

## GNG 10/3000

Art. no. 600273

Plug-in power supply

## USB 3100 N

Art. no. 601092

Interface converter, electrically isolated

## GSOFT 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**

<b>Humidity:</b>	0.0 ... 100.0 % RH (rec. range of application: 11 ... 90 % RH)
<b>Temperature:</b>	-40.0 ... +120.0 °C (attention: working temperature of electronics!)

**Accuracy (at nominal temperature = 25 °C)**

<b>Humidity:</b>	±2.5 % RH (in the range of 10 ... 90 % RH)
<b>Temperature:</b>	±0.5 °C

**Sensors**

<b>Humidity:</b>	capacitive polymer humidity sensor
<b>Temperature:</b>	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:**

<b>Sensor type:</b>	windmill-type anemometer
<b>Measuring range:</b>	0.05 ... 5.00 m/s (water)
<b>Accuracy:</b>	±1 % of range ±3 % of meas. value (at nominal temperature = 25 °C)
<b>Permiss. angle flow:</b>	±20°, without additional measuring faults
<b>Working temperature:</b>	0 ... +70 °C
<b>Relative humidity:</b>	0 ... +100 % RH (non condensing)
<b>Dimensions:</b>	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
<b>Weight:</b>	approx. 75 g
<b>Scope of supply:</b>	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:**

<b>Sensor type:</b>	windmill-type anemometer
<b>Measuring range:</b>	0.55 ... 20.00 m/s (air)
<b>Accuracy:</b>	±1 % of range ±3 % of meas. value (at nominal temperature) = 25 °C
<b>Permiss. angle flow:</b>	±20°, without additional measuring faults
<b>Working temperature:</b>	-10 ... +80 °C
<b>Relative humidity:</b>	0 ... +100 % RH (non condensing)
<b>Dimensions:</b>	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
<b>Weight:</b>	approx. 75 g
<b>Scope of supply:</b>	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

<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 % v. MW. ±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)

**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 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.