Handheld instrument

Display /Controller

logger / EASYBus

Transmitter

Temperature probe

Simulator

Alarm/Protection, Level

HUMIDITY /
FLOW RATE

	GMH 3330 + TFS 0100 E	GMH 3350 + TFS 0100 E	GFTH 96	GFTH 200	GFTB 200
Application:					
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	●	●			
Ausstattung:					
Plug-in probe	●	●		● (Temperature)	
General functions	●	●		●	●
Serial interface	●	●			●
Alarm		●			●
Data logger		●			
Device information:					
Catalogue page	28	28	30	30	27

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

FUNCTIONS:

AUTO OFF
BAT
HOLD
MIN MAX
O/S-CORR

ADDITIONAL DISPLAY FOR FURTHER PARAMETERS, E.G. DEW POINT TEMPERATURE AND ABSOLUTE HUMIDITY

ALARM FUNCTION WITH INTEGRATED BUZZER

PC INTERFACE

GFTB 200
Product-ID: 600161
Digital-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 1/3 DIN B)
Air humidity:	±2.5 % RH (at range 11 ... 90 %)
Air pressure:	±1.5 mbar (750 ... 1100 mbar)
Sensors:	
Temperature:	Pt1000
Air humidity:	capacitive polymer humidity sensor
Air pressure:	piezo-resistive sensor hybrid
Response time:	T_{90} = 10 s
Display:	4½ -digit, approx. 11 mm high LCD-display with additional displays
Operation elements:	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
Current consumption:	approx. 30 µA at 1 measuring / 60 s (mode SLOW) approx. 70 µA 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 und 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:	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, manual

Variante:
GFTB 200-KIT
Product-ID:600890
Digital-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
Product-ID: 601056
case (235 x 185 x 48 mm) with foam lining

ISO-WPF4
Product-ID: 602543
Certificate of calibration, humidity, for ISO9000ff (p.r.t. page 7)

ISO- WPD5
Product-ID: 602514
Certificate of calibration, pressure, for ISO9000ff (p.r.t. page 7)

HIGHLIGHTS:

• *easy and fast search for thermal bridges*

• *targeting laser for precise location even of inaccessible areas*

• *audible alarm below dewpoint*

GFTB 200 SET
Product-ID: 600163
Measurement set GFTB200 incl. infrared thermometer GIM 530 MS and case GKK 3000

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 24.

Display / Controller
Logger / EASYBus
Transmitter
Temperature probe
Simulator
Alarm / Protection, Level

Handheld instrument
Display / Controller
Logger / EASYBus
Transmitter
Temperature probe
Simulator
Alarm / Protection, Level

HUMIDITY, TEMPERATURE AND FLOW RATE MEASURING DEVICE

STANDARD-FUNCTIONS:

AUTO OFF
BAT
HOLD
MIN MAX

CALCULATION OF DEW POINT TEMPERATURE,
DEW POINT DISTANCE
AND ENTHALPY

ADDITIONAL TEMPERATURE INPUT (TYPE K)

ADDITIONAL FUNCTIONS GMH 3350:

ALARM LOGG

GMH 3330
Product-ID: 600343
climate measuring device, probe not included

GMH 3350
Product-ID: 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 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 ranges:

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)
Power consumption:	approx. 2.5 mA (incl. TFS 0100)
Housing:	Impact-resistant ABS plastic housing, membrane keyboard, transparent panel, front side IP65, 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

Additional functions:
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. 20). 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
- **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.

Accessories and spare parts:
GNG 10/3000
Product-ID: 600273
plug-in power supply

USB 3100 N
Product-ID: 601092
interface converter, electrically isolated

GSOFT 3050
Product-ID: 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
Product-ID: 601132
Switching module for devices of the GMH3xxx-series incl. alarm output

ST-RN
Product-ID: 601074
device protection bag with cut out for sensor connection, suitable for: GMH3330, GMH3350

GKK 3500
Product-ID: 601052
case with cut-outs for GMH3xxx

GKK 3600
Product-ID: 601062
case with foam lining for universal use

COMPLETE SOLUTION

GMH 3330-TFS 0100E-WPF4
Product-ID: 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.

Handheld instrument
Display / Controller
Logger / EASYBus
Transmitter
Temperature probe
Simulator
Alarm / Protection, Level

SUITABLE MEASURING PROBES

HUMIDITY / TEMPERATURE

TFS 0100 E
Product-ID: 601488
(0.0 ... 100.0 % RH)
Humidity / temperature probe, exchangeable

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
Temperature:	±0.5 °C
Sensors:	
Humidity:	capacitive polymer humidity sensor
Temperature:	Pt1000, 1/3 DIN
Electronics:	PC board with amplifier and data memory for sensor data (calibration, etc.) integrated in probe handle.
Working temperature:	-25 ... +60 °C (handle and electronics) -40 ... +100 °C (for short time up to +120 °C) (sensor head and tube)
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 *Product-ID: 606784* Humidity / temperature sensor with plastic paper filter for use in dusty environments and also in powder colors and granulates

GFN-SET1
Product-ID: 602708
Humidity reference cells for ~33 and ~76 % RH,
probe adapter and robust carry case

General:
Humidity reference cells works on the basis of physiochemical processes. A specific value of relative humidity adjusts itself over a saturated salt solution. The test chamber is separated from the solution by a diaphragm so that the sensor under test is protected against contamination by the solution. The test container can be used in all mounted positions.

Accessories and spare parts:
GFN 33 *Product-ID: 602715* humidity reference cell for ~33 % RH, incl. adapter
GFN 76 *Product-ID: 602717* humidity reference cell for ~76 % RH, incl. adapter

SURFACE TEMPERATURE:

GOF 400VE
Product-ID: 600496
(p.r.t. page 20)
Quick-response surface probes for walls, floors etc.

GTF 300
Product-ID: 600072
(p.r.t. page 22)
Quick-response basic thermocouple probe for universal applications
(surface measurement)

FLOW SPEED

STS 005
Product-ID: 602396
(0.05 ... 5.00 m / s)
Flow measuring probe with snap-on head, exchangeable

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:	-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 005 *Product-ID: 602406* Spare snap-on head for STS 005
STS 005-GTS *Product-ID: 602645* GTS Telescopic rod (overall length 1 m)

FLOW / AIR

STS 020
Product-ID: 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 *Product-ID: 602519* Spare snap-on head for STS 020
STS 020-GTS *Product-ID: 604217* GTS Telescopic rod (overall length 1 m)

picture shows GTS with assembled STS 020

Handheld instrument

Display / Controller

Logger / EASYBus

Transmitter

Temperature probe

Simulator

Alarm / Protection, Level

HUMIDITY/TEMPERATURE MEASURING DEVICE

HUMIDITY / TEMPERATURE / DEW POINT MEASURING DEVICE

FUNCTIONS:

BAT

FUNCTIONS:

BAT
HOLD
MIN MAX
O/S-CORR

EXTERNAL PT1000 TEMPERATURE PROBE CONNECTABLE

RELATIVE HUMIDITY, TEMPERATURE AND DEW POINT IN JUST ONE INSTRUMENT

GFTH 200

GFTH 95
Product-ID: 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 enginee-ring, air conditioning, for building sites / technology, for inspectors or rendering of expert opinions etc.

Specifications:

Measuring range:	
°C:	-20.0 ... +70.0 °C
% RH:	10 ... 95 % RH (recommanded range: 30 ... 80 %)
Resolution:	0.1 °C or 0.1 % RH
Accuracy: (±1 digit) (at nominal temperature = 25 °C)	
temperature:	±0.5 % of m.v. ±0.1 °C
humidity:	±3 % RH (for range 30 ... 80 %)
Measuring probe:	
temperature:	Pt 1000
humidity:	capacitive polymer humidity sensor
Response time	T_{90} = 15 s
Display:	3½-digit, 13 mm high LCD-display
Operation elements:	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
Power consumption:	max. 0.1 mA
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
Product-ID: 601115
spare battery

GKK 252
Product-ID: 601056
case (235 x 185 x 48 mm) with foam lining

WPF4
Product-ID: 602543
Certificate of calibration for ISO9000ff (p.r.t. page 7)

GFTH 200
Product-ID: 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 13)
Display:	3½-digit, 13 mm high LCD-display
operation elements:	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
Power consumption:	approx. 9 µA at 1 measuring / 60 s approx. 100 µA at 1 measuring / s (mode FAST)
Housing:	impact resistant ABS-housing
Dimensions:	approx. 106 x 67 x 30 mm (H x W x D), plus sensor head protruding at the longer side 35 mm long and 14 mm Ø, overall length 141 mm.
Weight:	approx. 135 g incl. battery
Scope of supply:	Device, battery, manual

Accessories and spare parts:

GOF 175 Mini
Product-ID: 600436
temperature probe for surface temperature measuring (p.r.t. page 13)

further temperature probe   refer to page 13

GKK 252
Product-ID: 601056
case (235 x 185 x 48 mm) with foam lining

ISO-WPF4
Product-ID: 602543
Certificate of calibration for ISO9000ff (p.r.t. page 7)

COMPLETE SOLUTION

GFTH 200-WPF4
Product-ID: 602678
Complete solution incl. certificate of calibration WPF4 (~20 % / ~40 % / ~60% / ~80% RH increasing and decreasing) and case GKK 252.

EASY SEARCH FOR THERMAL BRIDGES

GFTH 200 SET

GFTH 200 SET
Product-ID: 600285
Measuring set incl. infrared thermometer GIM 530 MS and case GKK 3000

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 tem-perature 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 3000, manual

GIM 530 MS:
for technical data for this instrument please refer to page 24.