

TEMPERATURE



	GMH 3710	GMH 3750	GMH 2710-T /-E	GMH 2710-K /-G	GMH 2710-F /-I	GTH 175 PT-T /-E	GTH 175 PT-K /-G	G 1700	G 1710/20/30	HD 2178.2	GTH 200 air
APPLICATION:											
Reference- / precision measurement	•	•	•	•	•	•	•	•	•	•	•
Quality management	•	•	•	•	•	•	•	•	•	•	•
Difference measurement											
Surface measurement											•
Core temperature measurement	•	•		•	•	•	•	•	•	•	•
High-temperature measurement	•	•								•	
Food, HACCP	•	•	•	•	•	•	•	•	•	•	•
Water-proof			•	•	•			•	•		
EQUIPMENT:											
Sensor element	Pt100	Pt100	Pt1000	Pt1000	Pt1000	Pt1000	Pt1000	Pt1000	Pt1000	1 x Pt100/1000 1 x Thermo	Pt1000
Max. measuring range [°C]	-200 ... +850	-200 ... +850	-200 ... +200	-200 ... +250	-70 ... +250	-199 ... +199	-199 ... +199	-200 ... +450	-70 ... +250	-200 ... +650 (Pt) -200...+1300 (TE)	-25 ... +70
Min. Resolution [°C]	0,01	0,01	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Plug-in probe	•	•						•		•	
Measurement inputs	1	1	1	1	1	1	1	1	1	2	1
Min/Max, Hold, Auto-Off	•	•	•	•	•			•	•	•	•
Alarm (buzzer) / Data logger		•						• / -	• / -	- / •	
DEVICE INFORMATION:											
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HANDHELD INSTRUMENT

DISPLAY / CONTROLLER

LOGGER- / BUS SYSTEMS

TRANSMITTER

TEMPERATURE PROBE

ALARM / PROTECTION, LEVEL

INFORMATION

Background knowledge in temperature measurement

Resistance: Pt100, Pt1000

The sensor element's ohmic resistance changes with temperature. This can be evaluated by the displaying device and afterwards converted to the corresponding temperature. Especially for Pt100 one distinguishes between 2-, 3- and 4-wire connection. The 3- and 4-wire connection allows for automatic compensation of measuring error caused by the serial cable resistance.

Features:

- Highest accuracies possible
- High reproducibility of results with exchanged sensors, especially for Pt100 and Pt1000
- Standard measuring method for reference measurements

CONCLUSION:

a little slower, but highly precise

Thermocouple: type K, type N, type S,...

The contact of two different metal compositions (e.g. NiCr and NiAl) results in a voltage between contact spot (probe) and the displaying device. This voltage is almost proportional to the temperature difference and gets evaluated and converted to a temperature by the displaying device.

Features:

- Very small sensors are possible, therefore:
 - Very short response times possible
 - Highly suitable for surface measurements
- Temperatures up to 1750 °C can be measured (depending on design of probe and type of used thermocouple)

CONCLUSION:

very fast, very flexible and wide measuring range



GMH 3211	GMH 3221	GMH 3231	GMH 3251	HD 32-8-16	GTH 1150	GMH 1150	GTH 1170	GMH 1170
				•				
•	•	•	•	•			•	•
		•	•	•				
•	•	•	•	•	•	•	•	•
•	•	•	•		•	•	•	•
•	•	•	•	•	•	•	•	•
•	•	•	•					

EQUIPMENT:

J, K, N, S, T, E, B	K	J, K, N, S, T, E, B	J, K, N, S, T, E, B	K, J, T, N, R, S, B, E	K	K	K	K
-220 ... +1750	-220 ... +1372	-220 ... +1750	-220 ... +1750	-200 ... +1800	-50 ... +1150	-50 ... +1150	-65 ... +1150	-65 ... +1150
0,1	0,1	0,1	0,1	0,05	1	1	1	1
•	•	•	•	•	•	•	•	•
1	2	2	2	16	1	1	1	1
•	•	•	•	•			•	•
				•				

DEVICE INFORMATION:

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PT100 - HIGH-PRECISION THERMOMETER



AUTO OFF

AUTORANGE

ISO

HOLD

MIN MAX

0/S-CORR



HIGHLIGHTS:

- Reference meter for any calibration requirement
- Highest accuracy
- Resolution (0.01 °C)
- Incl. calibration protocol

ADDITIONAL FUNCTIONS AT GMH 3750:



GMH 3710

Art. no. 600332

Pt100 - High-Precision Thermometer, Accessories not incl., 4-wire

GMH 3750

Art. no. 600335

Pt100 - High-Precision Thermometer, Accessories not incl., 4-wire, Data logger

Application:

Reference measuring device in liquids, soft media, air/gases.

Specifications:

Measuring range:	-199.99 ... +199.99 °C or -200.0 ... + 850.0 °C -199.99 ... +199.99 °F or -328.0 ... +1562.0 °F
Resolution:	0.01 °C or 0.1 °C 0.01 °F or 0.1 °F
Linearisation:	Curve according to DIN EN 60751. GMH 3750 add. supports an userdefined curve.
Accuracy: (±1 digit) (at nominal temperature = 25 °C)	≤0.03 °C / 0.06 °F at resolution 0.01° ≤0.1 °C / 0.2 °F at resolution 0.1°
Temperature drift:	≤0.002 °C / K
Probe connection:	via 4-pin miniature DIN-plug, Pt100, 4-wire, in acc. to DIN EN 60751
Nominal temperature:	25 °C
Working temperature:	-25 ... +50 °C
Relative humidity:	0 ... +95 % RH (non-condensing)
Storage temperature:	-25 ... +70 °C
Display:	two 4½ digit LCDs (12.4 mm or 7 mm high), as well as additional arrows.
Pushbuttons:	6 membrane keys
Output:	3-pin jack connector Ø 3.5 mm, choice between serial interface or analog output
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).
Analog output:	freely adjustable (resolution 13 bit, accuracy 0.05 % at nominal temperature)
Power supply:	9 V-battery, as well as additional d.c. connector for external 10.5 ... 12 V voltage supply.
Power consumption:	approx. 1 mA, approx. 300 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:	approx. 155 g
Scope of supply:	Device, battery, calibration protocol, Manual

additional at GMH 3750:

Userdefined sensor curve:

50 interpolation points (GMH 3750 only)

Logger function (GMH 3750 only):

manual: 99 data sets (fetch data via buttons or interface)

cyclic: 16.384 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:

USB 3100 N

Art. no. 601092

Interface converter

GSOFT 3050

Art. no. 601336

Operating software (p.r.t. page 109)

GNG 10 / 3000

Art. no. 600273

Power supply

ST-R1

Art. no. 601066

Device protection bag (p.r.t. page 112)

GKK 1100

Art. no. 601060

Case (340 x 275 x 83 mm) with foam lining for universal use

GMHKonfig

(visit our homepage: Download --> Software)

Software description:

Comfortable software to edit the user defined sensor curve of the GMH 3750.

(e.g. for calibration laboratories etc.)

Note:

Please note that for the interface communication with the device a interface converter (USB 3100 N) is necessary (p.r.t. page 113).

SUITABLE PT100 MEASURING PROBE (4-WIRE)

Accuracy Pt100:

Sensor accuracy acc. to DIN EN 60751	
DIN cl. B: (area of validity: -50 ... +500 °C)	±0.3 °C at 0 °C
DIN cl. A: (area of validity: -30 ... +300 °C)	±0.15 °C at 0 °C
DIN cl. AA = 1/3 DIN cl. B: (area of validity: 0 ... +150 °C)	±0.1 °C at 0 °C
1/10 DIN cl. B: (area of validity: -50 ... +100 °C)	±0.03 °C at 0 °C


Upcharges special designs:

- longer probe tube**
upcharge per further starting 100 mm
- longer cable (silicone)**
upcharge per further starting meter
- other cable material**
upcharge per meter (wiring price p.r.t. page 163)
- teflon covered probe tube**
(for probes up to 200 mm)
(for probes used in acids and salt water, upper temperature range 250 °C)
- waterproof probe handle**
(only possible with PVC cable -20 ... +105 °C)
- higher sensor accuracy:**
DIN cl. AA, for Pt100, tolerances: 0.1 °C at 0 °C
- higher sensor accuracy:**
1/10 DIN cl. B, for Pt100-probes, tolerances: 0.03 °C at 0 °C

basic fee for custom made probe


-50 °C
+400 °C

GTF 401
Art. no. 600377
Immersion probe for liquids / gases
-50 ... +400 °C, DIN cl. B



-50 °C
+400 °C

GTF 401 DIN KI. AA
Art. no. 600378
Immersion probe for liquids / gases
-50 ... +400 °C, DIN cl. AA (±0.1 °C at 0 °C)




non-corrosive stainless steel tube (V4A) Ø 3 mm, plastic handle, anti-buckling glanding, approx. 1 m 4-wire PVC cable, 4-pin miniature DIN-type plug

Response time T₉₀ water 0.4 m/s approx. 10 s, air 2 m/s approx. 40 s

-50 °C
+400 °C

GTF 35
Art. no. 600391
Immersion probe for liquids / gases
-50 ... +400 °C, DIN cl. B



non-corrosive stainless steel tube (V4A) Ø 3 mm, shrink sleeving, approx. 1 m 4-wire PVC cable, 4-pin miniature DIN-type plug

Response time T₉₀ water 0.4 m/s approx. 10 s, air 2 m/s approx. 40 s


-50 °C
+400 °C

GES 401
Art. no. 600384
Insertion probe for soft media
-50 ... +400 °C, DIN cl. B



-50 °C
+400 °C

GES 401 DIN KI. AA
Art. no. 600385
Insertion probe for soft media
-50 ... +400 °C, DIN cl. AA (±0.1 °C at 0 °C)



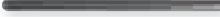
stainless steel tube (V4A) Ø 3 mm with needle type prod, plastic handle, anti-buckling glanding, approx. 1 m 4-wire PVC cable, 4-pin miniature DIN-type plug

Response time T₉₀ water 0.4 m/s approx. 10 s, air 2 m/s approx. 40 s

- Advantages of sheath element Pt100:**
- high temperature resistance
 - sheath cable is bendable
 - high shock resistance
 - high service life


-50 °C
+400 °C

GTF 401 / 1.6
Art. no. 602066
Immersion probe with sheath element Pt100
-50 ... +400 °C, DIN cl. B




-50 °C
+400 °C

GTF 401 1/10 DIN
Art. no. 600379
Immersion probe with sheath element Pt100
-50 ... +400 °C, 1/10 DIN class B (±0.03 °C at 0 °C)




-200 °C
+600 °C

GTF 601
Art. no. 600387
Immersion probe with sheath element Pt100
-200 ... +600 °C, DIN cl. B



-200 °C
+600 °C

GTF 601 DIN KI. AA
Art. no. 600388
Immersion probe with sheath element Pt100
-200 ... +600 °C, DIN cl. AA (±0.1 °C at 0 °C)



-25 °C
+70 °C

GLF 401 Mini
Art. no. 600395
Ambient air probe
-25 ... +70 °C, DIN cl. A



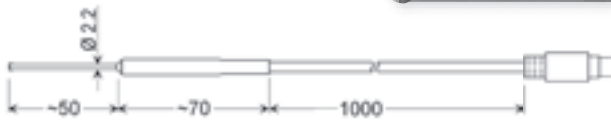
-50 °C
+200 °C

GOF 401 Mini
Art. no. 600396
Surface probe for solid surfaces
-50 ... +200 °C, DIN cl. B



-50 °C
+200 °C

GOF 401 Mini
Art. no. 600396
Surface probe for solid surfaces
-50 ... +200 °C, DIN cl. B



Frontal Pt100 ceramic plate 2 x 2.3 mm, V4A tube Ø 2.2 mm, approx. 1 m 4-wire PVC cable, 4-pin miniature DIN-type plug

Response time T₉₀ approx. 15 s

CALIBRATED SYSTEMS PT 100

**General:**

The overall error of a measuring consists of the sum of the instrument error and the probe error. To minimize the overall error, we offer calibrated and optimized systems below. Due to their excellent system accuracy they are especially suitable for quality assurance according to ISO9000ff, as reference instruments in manufacturing processes, laboratory, service and maintenance, etc. The system optimization is done via a special characteristic curve which is determined for each temperature probe separately and stored in the instrument (GMH 3750) or with probe adjusting via offset and slope input (GMH 3710). Because of the low measuring current there is no self heating effect of the sensor and the measurement is thermoelectrically compensated.

GMH 3750 / SET1

Art. no. 602690

Measuring set incl. ISO certificate of calibration

Specifications:

Optimized measuring range:	-20 ... +70 °C
Temperature probe:	GTF 401 DIN cl. AA, Pt100, 4-wire
System accuracy:	better than 0.07 °C (at opt. range)
Calibration points:	-20 °C / 0 °C / +70 °C

GMH 3750 / SET2

Art. no. 602691

Measuring set incl. ISO certificate of calibration

Specifications:

Optimized measuring range:	0 ... +250 °C
Temperature probe:	GTF 401 DIN cl. AA, Pt100, 4-wire
System accuracy:	better than 0.3 °C (at opt. range)
Calibration points:	0 °C / 100 °C / 250 °C

GMH 3710 / SET1

Art. no. 602687

Measuring set incl. ISO certificate of calibration

Specifications:

Optimized measuring range:	-20 ... +70 °C
Temperature probe:	GTF 401 DIN cl. AA, Pt100, 4-wire
System accuracy:	better than 0.1 °C (at opt. range)
Calibration points:	-20 °C / 0 °C / +70 °C

GMH 3710 / DKD1

Art. no. 602689

Measuring set incl. DAKkS calibration certificate DIN 17025

Specifications:

Optimized measuring range:	-20 ... +70 °C
Temperature probe:	GTF 401 DIN cl. AA, Pt100, 4-wire
System accuracy:	better than 0.1 °C (at opt. range)
Calibration points:	-20 °C / 0 °C / +70 °C

Scope of supply:

Measuring device GMH 3750 or GMH 3710, temperature probe GTF 401 DIN Kl. AA, plastic case GKK 3500 and ISO certificate of calibration with 3 calibration points.

ROOM THERMOMETER



AUTO OFF

ISO

MIN MAX

SCHNELLE MESSUNG
DER RAUMTEMPERATURCOMFORTABLE HANDLING
WITH ONLY ONE HAND**GTH 200 air**

Art. no. 600251

Precision room thermometer

General:

The exposed but yet protected temperature sensor provides fast and precise measurements of ± 0.2 °C (at 20 °C). The device has undergone a streamlining process and is optimized to its key features, ensuring a comfortable and efficient handling with only one hand.

Application:

The room thermometer GTH 200 air is an essential tool for fast and precise temperature measurements in

- calibration rooms
- production / computer rooms
- living space
- laboratories, etc.

Specifications:

Measuring range:	-25.0 ... +70.0 °C
Resolution:	0.1 °C
Accuracy:	(± 1 digit) (at nominal temperature) ± 0.5 % of meas. value ± 0.1 °C
Sensor:	Pt 1000, DIN class AA
Response time T_{90}:	approx. 5 s
Display:	4½ digit, 11 mm high LCD-display
Nominal temperature:	25 °C
Working temperature:	-20 ... +70 °C
Relative humidity:	0 ... 95 % RH (non condensing)
Storage temperature:	-25 ... +70 °C
Power supply:	9V battery
Power consumption:	max. 0.1 mA
Battery life:	approx. 6000 operating hours with alkaline battery
Housing:	impact-resistant ABS housing
Dimensions:	approx. 106 x 67 x 30 mm (H x W x D), additionally the sensor head at the front side, 35 mm long, \varnothing 14 mm, resulting total length 141 mm
Weight:	approx. 135 g incl. battery
Scope of supply:	device, battery, manual

PRECISE PT 1000 UNIVERSAL THERMOMETER



DURABLE AND AFFORDABLE

HIGHLIGHTS:

- Modern and functional housing
- 3-line display / overhead display at the push of a button
- Backlighting
- Alarm function
- Waterproof (IP65 / IP67)
- Durable, long battery life

G 1710, G 1720, G 1730 WITH PERMANENTLY CONNECTED SENSOR SEE PAGE 24



Connection

G 1700

Art. no. 609826

Precise universal thermometer, with BNC connection, without sensor

General:

The primary focus in the development of the new GMH 1000 series was placed on the essential functions of the measurement technology. Pure measurement with a focus on precision, speed and reliability packaged in a compact housing distinguish an impressive price/performance ratio, Made in Germany.

The new handheld measuring devices also impress with their ergonomic design, dust and water-protected design in accordance with IP 65/67 and the illuminated display. The compact thermometer is available with a practical BNC connection for interchangeable sensors. The device redefines our entry-level measurement class - calibration log included.

Application:

The highest-precision measurements in liquids and in air, for measurement of core temperatures (with insertion sensor); laboratories, quality assurance, service, food, etc.

Specifications:

Measuring range:	-200.0 ... +450.0 °C (-328.0 ... +842.0 °F) with plug-in sensor (Observe the permissible range of application of the sensor that is used!)
Accuracy (device): (at nominal temperature = 25 °C)	-20 ... +100 °C: ±0.1 K ±1 digit otherwise 0.1 % of m. v. ±2 digits
Operating conditions:	-20 ... +50 °C; 0 ... 95 % RH (non condensing)
Display:	3-line unit, with background light, protected by an unbreakable pane, overhead display at the push of a button
Power supply:	2 x AA battery, >5000 h operating time
Sensor:	Pt1000 2-wire can be used with BNC connection
Protection rating:	IP65 / IP67 (only with sensors identified as waterproof in the connected state)
Housing:	break-proof ABS housing
Dimensions:	108 x 54 x 28 mm (H x W x D) without sensor connection
Weight:	130 g (without sensor)
Scope of supply:	Device, calibration protocol, 2 x battery, manual

Accessories and spare parts:

GF 1T-T3-B-BNC

Art. no. 609549

Pt1000 handheld sensor, Pt1000 Class B, with BNC connector, Ø 3 mm, p.r.t. page 22

GF 1T-E3-B-BNC

Art. no. 609639

Pt1000 insertion sensor, Pt1000 Class B, with BNC connector, Ø 3 mm, p.r.t. page 22

GF 1T-E1.5-B-BNC

Art. no. 609645

Extra-thin Pt1000 insertion sensor, Pt1000 Class B, with BNC connector, Ø 1.5 mm, p.r.t. page 22

ST-G1000

Art. no. 611373

Device protection bag with 1 round cut-out

GB AA

Art.-Nr: 610049

Spare battery AA (2 batteries required)

Further sensors see page 21-23

SUITABLE PT1000 - MEASURING PROBES, 2-WIRE

Accuracy Pt1000:

sensor accuracy acc. to DIN EN 60751

DIN cl. B: (area of validity: -50 ... +500 °C)

±0.3 °C at 0 °C

DIN cl. A: (area of validity: -30 ... +300 °C)

±0.15 °C at 0 °C

DIN cl. AA = 1/3 DIN cl. B: (area of validity: 0 ... +150 °C)

±0.1 °C at 0 °C

Upcharges special designs:

longer probe tube

upcharge per further starting 100 mm

longer cable (silicone)

upcharge per further starting meter

other cable material

upcharge per meter p.r.t. page 220

teflon covered probe tube

(for probes up to 200 mm)

(for probes used in acids and salt water, upper temperature range 250 °C)

casted waterproof probe handle

(only possible with PVC cable -20 ... +105 °C)

higher sensor accuracy:

DIN cl. AA, for Pt1000, tolerances: 0.1 °C at 0 °C

higher sensor accuracy:

1/10 DIN cl. B, for Pt1000-probes, tolerances: 0.03 °C at 0 °C

basic fee for custom made probe

All types of probes also available for Pt100 2- / 3- or 4-wire connection
We manufacture all types of probes according to your special desires - low priced and fast. Please contact us.



GTF 175-BNC

Art. no. 607165

Immersion for liquids / gases

-70 ... +250 °C, Pt1000 cl. B



non-corrosive V4A tube, Ø 3 mm, plastic handle, anti-buckling glanding, 1 m highly flexible silicone cable, BNC connector

Response time T₉₀: water 0.4 m/s <2 s, air 2 m/s approx. 40 s

Advantages of sheath element Pt1000:

- high temperature resistance
- sheath cable is bendable
- high shock resistance
- high service life

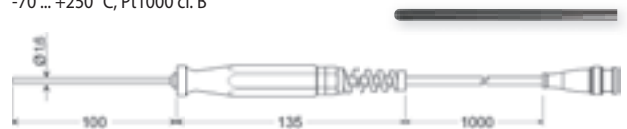


GTF 175 / 1.6-BNC

Art. no. 611323

Immersion probe with sheath element Pt1000

-70 ... +250 °C, Pt1000 cl. B



stainless steel tube (V4A), flexible, Ø 1.6 mm, plastic handle, anti-buckling glanding, 1 m highly flexible silicone cable, BNC connector

Response time T₉₀: water 0.4 m/s <2 s, air 2 m/s approx. 25 s

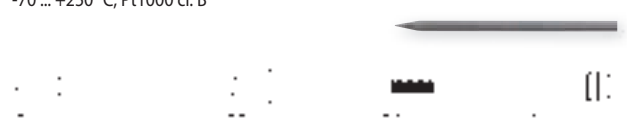


GES 20-BNC

Art. no. 607377

Insertion probe for soft media

-70 ... +250 °C, Pt1000 cl. B



V4A tube with Ø 1.5 mm slim insertion tip, small teflon handle, stainless steel kink protection, 1 m Teflon cable, BNC connector

Response time T₉₀: water 0.4 m/s <1 s, air 2 m/s approx. 12 s

SUITABLE PT1000 - MEASURING PROBES, 2-WIRE

HANDHELD INSTRUMENT

DISPLAY / CONTROLLER

LOGGER- / BUS SYSTEMS

TRANSMITTER

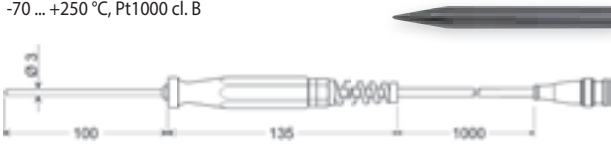
TEMPERATURE PROBE

ALARM / PROTECTION, LEVEL

-70 °C
+250 °C

GES 175-BNC

Art. no. 611324
Insertion probe for soft media
-70 ... +250 °C, Pt1000 cl. B



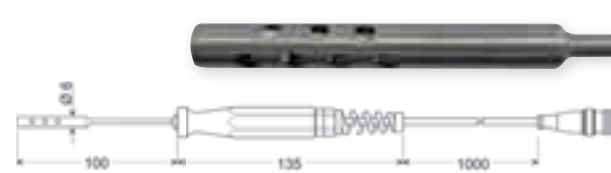
V4A tube Ø 3 mm with slim insertion tip, plastic handle, anti-buckling glanding, 1 m highly flexible silicone cable, BNC connector

Response time T₉₀: water 0.4 m/s <2 s, air 2 m/s approx. 40 s

-70 °C
+250 °C

GLF 175-BNC

Art. no. 607162
Air/gas probe for clean media
-70 ... +250 °C, Pt1000 cl. B



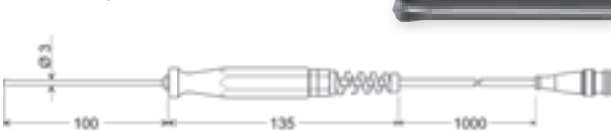
(for dirty measurands use GTF 175), punched V4A protection tube, fast miniaturized Pt1000 mounted freely in tube, resulting in fast response, plastic handle, anti-buckling glanding, 1 m highly flexible silicone cable, BNC connector

Response time T₉₀: air 2 m/s approx. 15 s

-70 °C
+250 °C

GOF 175-BNC

Art. no. 607163
Surface probe for solid surfaces
-70 ... +250 °C, Pt1000 cl. B



2 x 2.3 mm ceramic Pt1000 sensor mounted at the tip, V4A tube, quadratic 3 x 3 mm at the tip, plastic handle, anti-buckling glanding, 1 m highly flexible silicone cable, BNC connector

Response time T₉₀: approx. 15 s

-70 °C
+120 °C

GOF 175 Mini-BNC

Art. no. 610399
Surface probe for solid surfaces
-70 ... +120 °C, Pt1000 cl. B



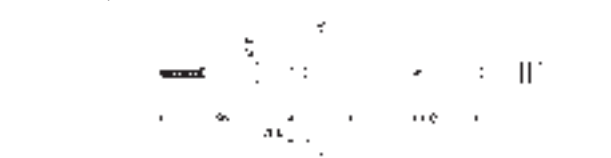
2 x 2.3 mm ceramic Pt1000 sensor mounted at the tip, V4A tube Ø 2.2 mm, 1 m highly flexible silicone cable, BNC connector

Response time T₉₀: approx. 15 s

-70 °C
+250 °C

GGF 175-BNC

Art. no. 610397
Probe for deep-frozen products
-70 ... +250 °C, Pt1000 cl. B



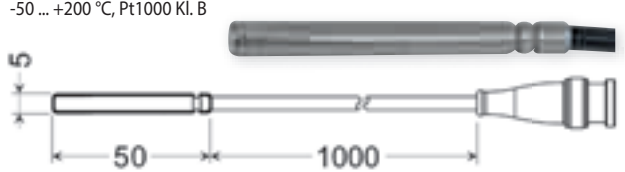
to screw into deep-frozen products, etc. no predrilling required. V4A tube, 6 mm Ø with screw prod, 1 m highly flexible silicone cable, BNC connector

Response time T₉₀: approx. 15 s

-50 °C
+200 °C

GTF 2000-BNC

Art. no. 607164
Air- / tube mounting probe
-50 ... +200 °C, Pt1000 Kl. B



V4A-sensor sleeve Ø 5 mm, 1 m highly flexible silicone cable, BNC connector, each beginning meter upcharge

Response time T₉₀: water 0.4 m/s <10 s, air 2 m/s approx. 60 s

Variant:

GTF 2000-WD

Art. no. 602362
water proof type, construction like described before, but cable of PVC and tube enclosed water proof. Max. 105 °C!



HIGHLIGHTS:

- Lightweight, manageable handle with optimised ergonomics and flexible cable
- Waterproof: can be completely immersed
- Temporary temperature resistance of up to 250 °C

-70 °C
+250 °C

GF 1T-T3-B-BNC

Art. no. 609549
Pt1000 handheld sensor,
-70 ... +250 °C, Pt1000 cl. B

GF 1T-T3-AA-BNC

Art. no. 609550
Precision Pt1000 handheld sensor,
-70 ... +250 °C, Pt1000 cl. AA



Immersion probe Ø 3 mm made of V4A tube, black silicone handle from -50 ... +250 °C, 1 m Silicone cable from -50 ... +230 °C continuously / +250 °C for 2 h, sensor probe and silicone handle IP67, BNC connector

Response time T₉₀: water 0.4 m/s <2 s, air 2 m/s approx. 40 s

Variants:

GF 1T-T3-B-LE

Art. no. 609547
Pt1000 handheld sensor, Pt1000 cl. B, with loose ends

GF 1T-T3-AA-LE

Art. no. 609548
Precision Pt1000 handheld sensor, Pt1000 cl. AA, with loose ends

SUITABLE PT1000 - MEASURING PROBES, 2-WIRE

-200 °C
+250 °C**GF 1T-T3-B-BNC-MB4**

Art. no. 611763

Pt1000 handheld probe for low temperatures, -200 ... +250 °C, Pt1000 cl. B

NEW!

immersion probe Ø 3 mm made of V4A tube, black silicone handle -50 ... +250 °C, 1 m silicone cable, -50 ... +230 °C permanently / +250 °C for 2 h, probe tip and silicone handle IP67, BNC plug

Response time T₉₀: water 0.4 m/s <2 s, air 2 m/s approx. 40 s-70 °C
+250 °C**GF 1T-E3-B-BNC**

Art. no. 609639

Pt1000 insertion sensor, -70 ... +250 °C, Pt1000 cl. B

GF 1T-E3-AA-BNC

Art. no. 609640

Precision Pt1000 insertion sensor, -70 ... +250 °C, Pt1000 cl. AA



Insertion probe Ø 3 mm made of V4A tube, black silicone handle from -50 ... +250 °C, 1 m silicone cable from -50 ... +230 °C continuously / +250 °C for 2 h, sensor probe and silicone handle IP67, BNC connector,

Response time T₉₀: water 0.4 m/s <2 s, air 2 m/s approx. 40 s**Variants:****GF 1T-E3-B-LE**

Art. no. 609637

Pt1000 insertion sensor, Pt1000 cl. B, with loose ends

GF 1T-E3-AA-LE

Art. no. 609638

Precision Pt1000 insertion sensor, Pt1000 Cl. AA, with loose ends

-70 °C
+250 °C**GF 1T-E1.5-B-BNC**

Art. no. 609645

Extra-thin Pt1000 insertion sensor, -70 ... +250 °C, Pt1000 cl. B

GF 1T-E1.5-A-BNC

Art. no. 609646

Extra-thin Pt1000 insertion sensor, -70 ... +250 °C, Pt1000 cl. A



Insertion probe Ø 1.5 mm made of V4A tube, black silicone handle from -50 ... +250 °C, 1 m silicone cable from -50 ... +230 °C continuously / +250 °C for 2 h, sensor probe and silicone handle IP67, BNC connector

Response time T₉₀: water 0.4 m/s <1 s, air 2 m/s approx. 12 s**Variants:****GF 1T-E1.5-B-LE**

Art. no. 609643

Extra-thin Pt1000 insertion sensor, Pt1000 Cl. B, with loose ends

GF 1T-E1.5-A-LE

Art. no. 609644

Extra-thin Pt1000 insertion sensor, Pt1000 Cl. A, with loose ends

-70 °C
+250 °C**GF 2T-E3-B-BNC**

Art. no. 609926

Pt1000 insertion sensor, BNC connector, without cable -70 ... +250 °C, Pt1000 cl. B



Insertion probe Ø 3 mm made of V4A tube, IP67 in connected state, BNC connector with EPDM grommet up to +75 °C

Response time T₉₀: water 0.4 m/s <2 s, air 2 m/s approx. 40 s-70 °C
+250 °C**GF 2T-E1.5-A-BNC**

Art. no. 609824

Pt1000 insertion sensor, BNC connector, without cable -70 ... +250 °C, Pt1000 cl. A



Insertion probe Ø 1.5 mm made of V4A tube, IP67 in connected state, BNC connector with EPDM grommet up to +75 °C

Response time T₉₀: water 0.4 m/s <1 s, air 2 m/s approx. 12 s-70 °C
+250 °C**GF 1T-L3-B-BNC**

Art. no. 611297

Pt1000 air sensor for clean media -70 ... +250 °C, Pt1000 cl. B

NEW!

(use GF 1T-T3 for contaminated media), perforated V4A tube Ø 3 mm, quick-reaction Pt1000 freely arranged, black silicone handle, up to +250 °C, 1 m silicone cable, up to +230 °C permanently / +250 °C for 2 h, BNC plug

Response time T₉₀: air 2 m/s approx. 15 s**Variant:****GF 1T-L3-B-LE**

Art. no. 611298

Pt1000 air sensor, Pt1000 Class B, with loose ends

-70 °C
+400 °C**GF 3T-E3-BNC**

Art. no. 611301

Pt1000 grill sensor -70 ... +400 °C, Pt1000 cl. B

NEW!

insertion probe Ø 3 mm made of bent V4A tube, 1 m glass fibre insulated cable with stainless steel branding up to +350 °C continuously / +400 °C for 2 h, BNC plug

Response time T₉₀: water 0.4 m/s approx. 10 s, air 2 m/s approx. 40 s**Variant:****GF 3T-E3-B-LE**

Art. no. 611302

Pt1000 grill sensor, Pt1000 Class B, with loose ends

PRECISE UNIVERSAL THERMOMETER



HIGHLIGHTS:

- Modern and functional housing
- 3-line display / overhead display at the push of a button
- Backlighting
- Alarm function
- Waterproof (IP65 / IP67)
- Durable, long battery life
- High-quality sensors: complete with Pt1000 handheld sensor (up to 250 °C incl. handle and cable!)

G 1700 WITH BNC CONNECTION FOR CHANGEABLE PROBES SEE PAGE 21

DURABLE AND AFFORDABLE

G 1710

Art. no. 609828

Precise universal thermometer with permanently connected immersion sensor, Ø 3 mm

G 1720

Art. no. 609829

Precise universal thermometer with permanently connected insertion sensor, Ø 3 mm

G 1730

Art. no. 609832

Precise universal thermometer with permanently connected insertion sensor, Ø 1.5 mm

General:

The primary focus in the development of the new GMH 1000 series was placed on the essential functions of the measurement technology. Pure measurement with a focus on precision, speed and reliability packaged in a compact housing distinguish an impressive price/performance ratio. Made in Germany.

The new handheld measuring devices also impress with their ergonomic design, dust and water-protected design in accordance with IP 65/67 and the illuminated display. The compact thermometer is available as a complete device including sensor with maximum overall precision. The device redefines our entry-level measurement class - calibration log included. The matching sensors can be used at temperatures of up to 250 °C (incl. handle and cable) and are distinguished by their compact design and small tube diameter. Integrated: High-quality Pt1000 sensors.

Application:

The highest-precision measurements in liquids and in air, for measurement of core temperatures (with insertion sensor); sensor handle and cable temperature range of up to 250 °C (permanent use temperature of 230 °C); laboratories, quality assurance, service, food, etc.

Specifications:

Measuring range:	-70.0 ... +250.0 °C (-94.0 ... +482.0 °F)
Accuracy: (at nominal temperature = 25 °C)	-20 ... +100 °C: ±0.1 K ±1 digit -70 ... +250 °C: ±0.2 % of m. v. ±2 digit
Operating conditions:	-20 ... +50 °C; 0 ... 95 % RH (non condensing)
Display:	3-line unit, with background light, protected by an unbreakable pane, overhead display at the push of a button
Power supply:	2 x AA battery, >5000 h operating time
Sensor	
G 1710:	Immersion sensor Ø 3 mm, Pt1000 permanent 2-wire connection, V4A, 1 m cable
G 1720:	Durable insertion sensor Ø 3 mm, Pt1000 permanent 2-wire connection, V4A, 1 m cable
G 1730:	Extra-thin insertion sensor Ø 1.5 mm, Pt1000 permanent 2-wire connection, V4A, 1 m cable
Response time T₉₀:	Ø 3 mm: water 0.4 m/s <2 s; Ø 1.5 mm: water 0.4 m/s <1 s
Protection rating:	IP65 / IP67
Housing:	Break-proof ABS housing
Dimensions:	108 x 54 x 28 mm (H x W x D) without sensor connection
Weight:	130 g (without sensor)
Scope of supply:	Device with integrated sensor, calibration log, 2 x battery, manual

Accessories and spare parts:**ST-G1000**

Art. no. 611373

Device protection bag with 1 round cut-out

GB AA

Art.-Nr: 610049

Spare battery AA (2 batteries required)

HAY THERMOMETER



NEW!

HIGHLIGHTS:

- Fiberglass probe 4 meter long
- Backlight
- Alarm function

hardened cutting tip

HayTemp 1700

Art. no. 611377
Hay thermometer

General:

Stored hay or straw, etc. is prone to overheating (depreciation) or even self-ignition, because of biological processes. This problem is even emphasized with higher moisture contents. Therefore a regular temperature check is crucial. The HayTemp 1700 optimally supports farmers as well as firefighters.

Application:

Hay or straw measurements at depth up to 4 m.

Specifications:

Device:	G 1700
Probe connection:	BNC, Pt1000, 2-wire
Measuring rod:	Fiberglass probe, approx. 4 m long, approx. 10 mm Ø, 1 measuring point at probe tip
Cutting tip:	screwable, double-edged tip with integrated temperature sensor
Weight:	Measuring rod with cutting tip approx. 600 g
Scope of supply:	Device, fiberglass rod, probe tip Pt1000, BNC cable (1.5 m), battery, manual

Accessories and spare parts:

G 1700

Art. no. 609826

Precise universal thermometer, with BNC connection, without sensor

Fiberglasrohr

Art. no. 604407

4 m, without probe and without tip

Sondenspitze

Art. no. 606889

With integrated temperature sensor

Kabel BNC/BNC

Art. no. 602855

Connection cable with 1.5 m length

ST-G1000

Art. no. 611373

Device protection bag with 1 round cut-out

Instruments for hay and straw humidity measurements: see BaleCheck page 51!

SOIL THERMOMETER



NEW!

HIGHLIGHTS:

- robust probe made of stainless steel
- ergonomic T-handle probe designed for comfortable use

1 M ROBUST PROBE MADE OF STAINLESS STEEL

SoilTemp 1700

Art. no. 611374
Soil thermometer

General:

The universal display device combined with an extremely robust, but yet ergonomic T-handle probe made of stainless steel allows multiple measurements in soils or bulk materials.

Application:

Silo checking, measurements in soils, waste dumps, silages, compost, etc.

Specifications:

Device:	G 1700
Probe connection:	BNC, Pt1000, 2-wire
Measuring range:	-50.0 ... +250.0 °C
Measuring rod:	Stainless steel, 1000 mm x Ø 10 mm, 1 m connection cable with BNC plug, 350 g, probe handle designed for comfortable use
Scope of supply:	Device, GTF 40 T, battery, manual

Accessories and spare parts:

G 1700

Art. no. 609826

Precise universal thermometer, with BNC connection, without sensor

GTF 40 T-620

Art. no. 606803

Stainless steel insertion probe, FL 620 mm, with 1 m cable and BNC plug

GTF 40 T-1000

Art. no. 606791

Stainless steel insertion probe, FL 1000 mm, with 1 m cable and BNC plug

GTF 40 T-1500

Art. no. 606792

Stainless steel insertion probe, FL 1500 mm, with 1 m cable and BNC plug

ST-G1000

Art. no. 611373

Device protection bag with 1 round cut-out

PRECISION POCKET THERMOMETER WITH PT1000 PROBE



LIQUIDS
AIR / GAS

GTH 175 PT-T



SOFT MEDIA

GTH 175 PT-E



CORE TEMPERATURE
FOOD, Ø 3 MM

GTH 175 PT-K



CORE TEMPERATURE
MEAT, Ø 1.5 MM

GTH 175 PT-G

HIGHLIGHTS:

- Easy handling
- High accuracy and precision

GTH 175 PT-T

Art. no. 600051
Temperature measuring device incl. universal probe

GTH 175 PT-E

Art. no. 600052
Temperature measuring device incl. insertion probe

GTH 175 PT-K

Art. no. 600053
Temperature measuring device incl. Teflon insertion probe

GTH 175 PT-G

Art. no. 601836
Temperature measuring device incl. mini Teflon probe

Application:

Accurate measurements in liquids, as core measuring device (with insertion probe) or for air/gas measurements. Handle and cable of -T and -E are resistant to temperatures up to 100 °C, -K and -G up to 250 °C.

Specifications:

Measuring range: -199.9 ... +199.9 °C

Resolution: 0.1 °C

Accuracy (at nominal temperature) 0.1 % of meas. value ±2 digit (at range: -70.0 ... +199.9 °C), Probe and device are calibrated together, resulting in an error of about 0.1 °C ±1 digit in range 0 ... 100 °C.

Probes: All probes are permanently connected to device.

GTH 175 PT-T Pt1000, 2-wire, isolated in V4A tube 3 mm Ø and approx. 100 mm long, plastic handle approx. 135 mm long, kink protection and approx. 1 m highly flexible silicone cable

GTH 175 PT-E Probe (V4A, Ø 3 mm x 100 mm) as above, but additional slim insertion tip for all soft media. Handle and cable are resistant to temperatures up to 100 °C.

GTH 175 PT-K Probe (V4A, Ø 3 mm x 100 mm) as above, but with Teflon handle and 1 m Teflon cable. Handle and cable are resistant to air temperatures up to 250 °C.

GTH 175 PT-G

Probe (V4A, Ø 1.5 mm x 100 mm) as above, but with Teflon handle and 1 m Teflon cable. Handle and cable are resistant to air temperatures up to 250 °C.

Response time T₉₀: Ø 3 mm: water 0.4 m/s <2 s;
Ø 1.5 mm: water 0.4 m/s <1 s

Display: 3½-digit, 13 mm high LCD display

Nominal temperature: +25 °C

Working temperature: -30 ... +45 °C

Storage temperature: -30 ... +70 °C

Power supply: 9 V battery

Battery life: approx. 200 operating hours

Protection rating: IP65

Housing: made of impact-resistant ABS

Dimensions: approx. 106 x 67 x 30 mm
(H x W x D)

Weight: approx. 190 g
(incl. battery and probe)

Scope of supply: device incl. probe, battery, manual

Variants:

GTH 175 PT-T - WD

Art. no. 600050

GTH 175 PT-E - WD

Art. no. 602307

Probe design: water-proof

Probe with PVC cable and sealed handle (max. 100 °C).

(Not possible for GTH 175 PT-K and GTH 175 PT-G)

Special designs upon request: e.g. longer cable or probe tube.

Accessories and spare parts:

GB 9 V

Art. no. 601115

Spare battery

ST-KR

Art. no. 601082

Device protection bag with round cut-out (central)

GKK 1100

Art. no. 601060

Case (340 x 275 x 83 mm) with foam lining

COMPLETE SOLUTIONS



GTH 175 PT-T-WPT2

Art. no. 602670

Complete solution incl. immersion probe and ISO certificate of calibration WPT2 A (0 °C / 70 °C) and case GKK 252.

GTH 175 PT-T-WPT3

Art. no. 602673

Complete solution incl. immersion probe and ISO certificate of calibration WPT 3 (-20 / 0 / +70 °C) and case GKK 252.

GTH 175 PT-E-WPT3

Art. no. 602674

Complete solution incl. insertion probe and ISO certificate of calibration WPT 3 (-20 / 0 / +70 °C) and case GKK 252.

WATER-PROOF HACCP THERMOMETER WITH PT1000 PROBE



HIGHLIGHTS:

- Easy handling
- Battery life time > 6000 hours
- Device and probe are Water-proof and very robust
- Incl. calibration protocol

GMH 2710-T

Art. no. 602034

Temperature measuring device incl. universal probe

GMH 2710-E

Art. no. 602036

Temperature measuring device incl. insertion probe

GMH 2710-K

Art. no. 602038

Temperature measuring device incl. Teflon insertion probe

GMH 2710-G

Art. no. 602040

Temperature measuring device incl. mini Teflon probe

GMH 2710-F

Art. no. 604035

Single-hand temperature measurement device with integrated immersion probe

GMH 2710-I

Art. no. 604611

Single-hand temperature measurement device with integrated insertion probe

General:

Accurate measurements for laboratories, quality management, and monitoring of production processes

Application:

Food (HACCP), medical / pharmaceutical science, chemistry, aquaristics, fish farming, aquaculture, etc.

GMH 2710-F/-I:

Optimal for measurements at places difficult to access, e.g.

- storage temperature control (especially food)
- temperature control for food measurements (HACCP)
- incoming inspection
- temperature measurements as part of legionellae tests

These measurements may cause problems with ordinary thermometers.

Specifications:**Measuring range:****GMH 2710-T / -E** -199.9 ... +200.0 °C**GMH 2710-K / -G** -199.9 ... +250.0 °C**GMH 2710-F / -I** -70 ... +250 °C**Resolution:** 0.1 °C**Accuracy:****at -20.0 ... +100.0 °C** ±0.1 °C ±1 digit**at -70.0 ... +200.0 °C** ±0.1 % of meas. value ±2 digit, sensor calibrated with device**Probe:**

Pt1000, 2-wire, isolated, water- and steam-proof, permanently connected to device

GMH 2710-T plastic handle 135 mm long
1 m PVC cable (max 100 °C) Ø 3 mm / length: 100 mm**GMH 2710-E** plastic handle 135 mm long, additionally with slim insertion tip for all soft media. 1 m PVC cable (max 100 °C) Ø 3 mm / length: 100 mm**GMH 2710-K** design type with big Teflon handle and 1 m Teflon cable, with slim insertion tip, handle and cable are resistant to temperatures up to 250 °C air temperature. Stainless steel kink protection, Ø 3 mm / length: 100 mm**GMH 2710-G** design type with small Teflon handle and 1 m Teflon cable, with slim insertion tip, handle and cable are suitable for permanent application at temperatures up to 250 °C. Stainless steel kink protection, Ø 1.5 mm / length: 100 mm**GMH 2710-F** V4A mantle tube, bendable, Ø 3 mm, length 150 mm**GMH 2710-I** V4A mantle tube with needle-shaped insertion tip, bendable, Ø 3 mm, length 150 mm**Response time T_{90} :** Ø 3 mm: water 0.4 m/s <2 s;
Ø 1.5 mm: water 0.4 m/s <1 s**Display:** two 4-digit LCD (12.4 mm and 7 mm)**Nominal temperature:** +25 °C**Working temperature:** -25 ... +50 °C**Storage temperature:** -30 ... +70 °C**Power supply:** 2 x AAA batteries**Battery life:** >6000 hours**Protection class:** IP65 / IP67**Housing:** made of impact-resistant ABS**Dimensions:** 154 x 81 x 31 mm (H x W x D)**Weight:** 215 g (incl. battery and probe)**Scope of supply:** device incl. probe, battery, calibration protocol, manual**Accessories and spare parts:****K 50 BL**

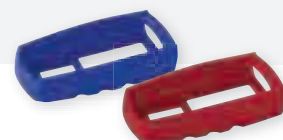
Art. no. 601352

Silicone protection cover blue

K 50 RE

Art. no. 607456

Silicone protection cover red



PRECISION QUICK-RESPONSE THERMOMETER FOR THERMOCOUPLES

HANDHELD INSTRUMENT

DISPLAY/CONTROLLER

LOGGER-/BUS SYSTEMS

TRANSMITTER

TEMPERATURE PROBE

ALARM/PROTECTION, LEVEL

-
-
-
-
-
-

NEW!



VERY QUICK RESPONSE TIME!

HIGHLIGHTS:

- Serial interface (except GMH 3221)
- Correction factor for surface measuring can be switched on / off (except GMH 3221)

GMH 3221, GMH 3231 AND GMH 3251:

- 2 plug-in probes can be connected and read simultaneously
- Temperature differences

ADDITIONAL FUNCTIONS

GMH 3221 / 3231:



GMH 3251:



SUITABLE PROBES P.R.T. P. 32



GMH 3211 connection



GMH 3221 connection



GMH 3231/51 connection

GMH 3221

Art. no. 611384

Simple two channel precision quick-response thermometer, accessories not included, 2 inputs

GMH 3231

Art. no. 611382

Two channel precision quick-response thermometer, accessories not included, 2 inputs, interface

GMH 3251

Art. no. 611383

Two channel precision quick-response thermometer, accessories not included, 2 inputs, data logger

GMH 3211

Art. no. 611381

Precision quick-response thermometer, accessories not included, 1 input

Specifications:	GMH 3211	GMH 3221	GMH 3231	GMH 3251
Thermocouples:	K, J, T, N, S, E, B	K	K, J, T, N, S, E, B	K, J, T, N, S, E, B
Measuring channels:	1 thermocouple input (type K balancing material)		2 thermocouple inputs (type K balancing material)	
Measuring ranges				
type K:	-220.0 ... +1372.0 °C	-220.0 ... +1372.0 °C	-220.0 ... +1372.0 °C	-220.0 ... +1372.0 °C
type J:	-200.0 ... +1100.0 °C	-	-200.0 ... +1100.0 °C	-200.0 ... +1100.0 °C
type T:	-200.0 ... +400.0 °C	-	-200.0 ... +400.0 °C	-200.0 ... +400.0 °C
type N:	-200.0 ... +1300.0 °C	-	-200.0 ... +1300.0 °C	-200.0 ... +1300.0 °C
type S:	-50.0 ... +1768.0 °C	-	-50.0 ... +1768.0 °C	-50.0 ... +1768.0 °C
type E:	-60.0 ... +850.0 °C NEW	-	-60.0 ... +850.0 °C NEW	-60.0 ... +850.0 °C NEW
type B:	+300 ... +1750 °C NEW	-	+300 ... +1750 °C NEW	+300 ... +1750 °C NEW
Accuracy: (at nominal temperature)	±(0.5 °C +0.2 % of m.v.) (J, K, N, T, E) ±(0.8 °C +0.4 % of m.v.) (S, B)	±(0.5 °C +0.2 % of m.v.)		±(0.5 °C +0.2 % of m.v.) (J, K, N, T, E) ±(0.8 °C +0.4 % of m.v.) (S, B)
Analog output:	no	no	no	0 ... 1 V
Alarm:	no	no	no	CH1, CH2, CH1+2, DIF
Data logger:	no	no	no	manual: 1.000 data sets cyclic: 10.000 data sets
Probe connections (miniature flat plug):	1	2	2	2
Serial interface:	3-pin jack connector Ø 3.5 mm	-	3-pin jack connector Ø 3.5 mm	3-pin jack connector Ø 3.5 mm
Difference measurement:			Temperature difference probe 1 - probe 2 can be displayed if 2 probes are connected.	
Compensation value for surface measurements:	adjustable	-	adjustable	adjustable
Power supply:	9 V battery, d.c. connector	9 V battery	9 V battery, d.c. connector	9 V battery, d.c. connector
Battery life:	approx. 500 h	approx. 300 h	approx. 300 h	approx. 300 h

PRECISION QUICK-RESPONSE THERMOMETER FOR THERMOCOUPLES

General specifications:

Resolution:	0.1 °C or 1 °C
Working temperature:	-25 ... +50 °C
Display:	two 4½-digit LCDs (12.4 mm and 7 mm high)
Serial interface (except GMH 3221):	3-pole jack socket Ø 3.5 mm, direct connection to RS232 or USB interface of a PC via electrically isolated interface adapter GRS 310x or USB 3100 N (p.r.t. accessories).
Data logger (GMH 3251 only):	manual: 1.000 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 GSOF 3050 (see accessories) is available for comfortable read-out of logger data, see page 109.
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)
Nominal temperature:	25 °C ±5 K
Weight:	approx. 155 g
Scope of supply:	device, battery, calibration protocol, manual

Accessories and spare parts:

GB 9 V

Art. no. 601115
Spare battery 9V

GNG 10/3000

Art. no. 600273
Plug-in power supply (220 / 240 V, 50 / 60 Hz), output voltage: 10.5 V / 10 mA, suitable for devices with power supply socket

ST-RN

Art. no. 601074
Nappa leathern device protection bag with 2 round cut-outs for sensor connection (1 x round, 1 x rectangular)

ST-N2

Art. no. 601072
Nappa leathern device protection bag with 2 rectangular cut-outs for sensor connection

GKK 3500

Art. no. 601052
with punched lining for 1 device (394 x 294 x 106 mm)

16 CHANNEL PRECISION QUICK-RESPONSE THERMOMETER FOR THERMOCOUPLES



HIGHLIGHTS:

- simultaneous display of 4 inputs
- 800.000 measuring data storable
- for thermocouples type K, J, T, N, R, S, B, E

16 INTERCHANGEABLE
SENSORS CONNECTABLE



HD32-8-16

Art. no. 700077

Precision quick-response thermometer without accessories, 16 interchangeable sensor inputs, with data logger

General:

Ideal for complex temperature measuring tasks in which multiple temperature values must be measured, recorded and displayed at the same time.

Application:

Testing systems, drying and baking ovens, air conditioning control units, production and manufacturing processes, temperature monitoring in concrete or asphalt on roads and buildings

Specifications:

Thermocouples:	K, J, T, N, R, S, B, E	
Resolution:	0.05 °C or 0.1 °C	
Measuring range: (depends on thermocouple)	Type K: -200 °C ... +1370 °C Type J: -100 °C ... +750 °C Type T: -200 °C ... +400 °C Type N: -200 °C ... +1300 °C	Type R: +200 °C ... +1480 °C Type S: +200 °C ... +1480 °C Type B: +200 °C ... +1800 °C Type E: -200 °C ... +750 °C
Accuracy: (depends on thermocouple)	±0.1 ... ±0.4 °C	
Number of inputs:	16	
Operating conditions:	-5 ... +50 °C working temperature, -25 ... +65 °C storage temperature, 0 ... 90 % relative humidity	
Logger function:	800.000 data sets	
Display:	LCD display with background illumination, 128 x 64 pixel, simultaneous display of 4 inputs	
Serial interface:	Communication via galvanically isolated 9-pin USB connecting cable	
Power supply:	4 x 1,5 V Alkaline Batterie, über externes 12 V DC Netzteil oder über die Schnittstelle am PC	
Housing:	ABS, IP64	
Dimensions:	220 x 180 x 50 mm	
Weight:	1100 g	
Scope of supply:	Device, DeltaLog9 Software, carrying strap, batteries, manual	

Accessories and spare parts:

SWD-10

Art. no. 700039
power supply, 100 ... 240 V AC/12 V DC/1 A mains voltage

CP22

Art. no. 700078
Connection cable USB 2.0 for connection to PC.

Note:

Connection cable for PC and temperature sensors (page 32) must be ordered separately.

QUICK RESPONSE THERMOMETER TYPE K

PRECISION QUICK RESPONSE THERMOMETER TYPE K



GTH 1150

Art. no. 600047

Quick response thermometer, accessories not included, for plug-in probes

GMH 1150

Art. no. 600045

Quick response thermometer, accessories not included, for plug-in probes

Application:

Quick response measurements on surfaces, in liquids, soft media, air/gases, at the smallest objects etc. For all applications where a resolution of 1 °C is sufficient.

Specifications:

Measuring range:	-50 ... +1150 °C
Resolution:	1 °C
Accuracy: (at nominal temperature = 25 °C)	≤1 % ±1 digit (from -20 ... +550 and 920 ... 1150 °C) ≤1.5 % ±1 digit (from 550 ... 920 °C) from -20 ... -50 °C according to attached correction table
Probe connection:	Thermoelectric-voltage-free miniature socket, suitable for all type K (NiCr-Ni) measuring sensors with mini flat plug
Display:	3½ digit, approx. 13 mm high LCD
Working temperature:	0 ... 45 °C
Storage temperature:	-20 ... +70 °C
Power supply:	9 V battery (included), Additional at GMH 1150: d.c. connector for external 10.5 ... 12 V direct voltage supply. (suitable power supply: GNG10/3000)
Battery life:	approx. 700 operating hours
Dimensions:	GTH 1150: approx. 106 x 67 x 30 mm (H x W x D). Impact resistant ABS plastic housing GMH 1150: approx. 142 x 71 x 26 mm (H x W x D). Impact-resistant ABS plastic housing, membrane keyboard, transparent panel, integrated pop-up clip
Weight:	approx. 150 g (GTH 1150), approx. 160 g (GMH 1150)
Scope of supply:	Device, battery, manual

Accessories and spare parts:

- GTF 300**
Art. no. 600072
wire probe
- additional NiCr-Ni probes (type K)** p.r.t. page from 32
- GB 9 V**
Art. no. 601115
spare battery
- GNG 10 / 3000**
Art. no. 600273
power supply
- ST-KN**
Art. no. 601080
device protection bag, suitable for GTH 1150
- ST-N1**
Art. no. 601070
device protection bag, suitable for GMH 1150

GTH 1170

Art. no. 600000

Precision quick response thermometer, accessories not included, for plug-in probes

GMH 1170

Art. no. 600113

Precision quick response thermometer, accessories not included, for plug-in probes

Application:

Quick response measurements on surfaces, in liquids, air/gases etc.

Specifications:

Measuring range:	-65.0 ... +199.9 °C or -65 ... +1150 °C (-85.0 ... +199.9 °F or -85 ... +1999 °F)
Resolution:	0.1 °C or 1 °C (0.1 °F or 1 °F)
Accuracy: ±1 digit (at nominal temperature)	-65.0 ... +199.9 °C: ±0.05 % of m.v. ±0.2 % FS -65 ... +1150 °C: ±0.1 % of m.v. ±0.2 % FS
Temperature drift:	0.01 %/K
Point of comparison:	±0.3 °C
Probe connection:	Thermoelectric-voltage-free miniature socket, suitable for all type K (NiCr-Ni) measuring sensors with mini flat plug
Display:	3½ digit, LCD display approx. 13 mm high
Working temperature:	-25 ... +50 °C
Storage temperature:	-25 ... +70 °C
Power supply:	9 V battery
Measuring interval:	approx. 3 meas. / s
Battery life:	approx. 2000 operating hours
Dimensions:	GTH 1170: approx. 106 x 67 x 30 mm (H x W x D), impact resistant ABS plastic housing; GMH 1170: approx. 142 x 71 x 26 mm (H x W x D), Impact-resistant ABS plastic housing, membrane keyboard, transparent panel, integrated pop-up clip
Weight:	approx. 135 g (GTH 1170), approx. 150 g (GMH 1170)
Scope of supply:	Device, battery, manual

Accessories and spare parts:

- NiCr-Ni (Type K)-Fühler** ab Seite 32
- GB 9 V**
Art. no. 601115
spare battery
- ST-KN**
Art. no. 601080
device protection bag, suitable for GTH 1150
- ST-N1**
Art. no. 601070
device protection bag, suitable for GMH 1170
- GTH 1170-GTF 900-WPT**
Art. no. 602675
Complete Solution incl. immersion probe GTF 900 and certificate of calibration WPT (with meas. points: 0 / 100 / 250 / 500 °C) and case GKK 1100.



HANDHELD INSTRUMENT | DISPLAY/CONTROLLER | LOGGER-/BUS SYSTEMS | TRANSMITTER | TEMPERATURE PROBE | ALARM/PROTECTION, LEVEL

THERMOMETER/DATALOGGER WITH PT100 AND THERMOCOUPLE INPUT

NEW!



HIGHLIGHTS:

- Input for Pt100 sensor (SICRAM plug) and thermocouple
- Data logger function
- USB connection and software for realtime monitoring

SUITABLE THERMOCOUPLES OF TYPE K, J, T, N, E AND CORRESPONDING SENSOR SPECIFICATIONS STARTING ON PAGE 32

HD 2178.2

Thermometer mit zwei Eingängen (1 x Pt 100, 1 x Thermoelement) mit großem LCD Display und Datenloggerfunktion

General:

The HD2178.2 can be used with Pt 100 sensors and with thermocouples. Pt 100 sensors with SICRAM plugs (8-pin DIN 45326 plug) can be connected to connection B. The SICRAM plug already has all of the sensor data, including serial number and calibration data. A thermocouple of the type K, J, T, N and E with miniature flat plug can be connected to connection A. The data logger stores up to 80,000 measurements, which can be transferred conveniently via USB cable and supplied software. Battery operation, large display and durability make the HD2178.2 a perfect all-rounder. Of course, the HD2178.2 also offers MAX, MIN, AVG, REL and HOLD functions.

Application:

With the large variety of available sensors (as contact, immersion, insertion or air temperature sensors), a multitude of applications in the widest range of sectors opens up.

Specifications:

Display:	LCD, 52 x 42 mm
Operating temperature:	-5 ... +50 °C (Instrument)
Protection degree:	IP 66
Power supply:	4 batteries 1.5 V type AA (Optional mains adapter)
Unit of measurement:	°C or °F
Security of stored data:	Unlimited, independent of battery charge conditions
Measured values storage:	2000 pages each one containing 40 samples, quantity 80000 samples in total
Storage interval:	1, 5, 10, 15, 30 s; 1, 2, 5, 10, 15, 20, 30 min; 1 h
USB interface:	USB 2.0, type B mini USB connection
Housing:	Material: ABS plastic, rubber
Dimensions:	185 x 90 x 40 mm
Weight:	470 g (complete with batteries)
Scope of supply:	Device including batteries, case for HD 2178.2, DeltaLog 9 software. Measuring probes, connecting cable and mains adapter are not included in the scope of supply.

Pt100 sensor with SICRAM plug selection
(Additional versions available on request, including ball temperature)

Example: TP 472 I (immersion sensor)



Immersion probe, -196 ... +500 °C, ±0.25 °C (-196 ... +300 °C), Ø 3mm, sensor length 300 mm, cable length 2 m

Accessories and spare parts:

CP23

USB connecting cable (mini USB plug on the device and PC USB plug)

SWD10

Art. no. 700039

Stabilised mains adapter, 100 ... 240 VAC, 12 VDC 1 A

Recommended accessories (PT100 sensor with SICRAM plug):

TP 472 I

Immersion probe, Pt100, Ø 3 mm, length 300 mm, cable length 2 m, measuring range: -196 ... +500 °C, Accuracy: ±0.25 °C (-196 ... +300 °C), ±0.5 °C (+300 ... +500 °C)

TP 472 I.O

Immersion probe, Pt100, Ø 3 mm, length 230 mm, cable length 2 m, measuring range: -50 ... +300 °C, Accuracy: ±0.25 °C (-50 ... +300 °C)

TP 473 P.I

Insertion probe, Pt100, Ø 4 mm, length 150 mm, cable length 2 m, Measuring range: -50 ... +400 °C, Accuracy: ±0.25 °C (-50 ... +300 °C), ±0.5 °C (+300 ... +400 °C)

TP 473 P.O

Insertion probe, Pt100, Ø 4 mm, length 150 mm, cable length 2 m, Measuring range: -50 ... +300 °C, Accuracy: ±0.25 °C (-50 ... +300 °C)

TP 474 C.O

Contact probe, Pt100, Ø 4 mm, length 230 mm, contact surface Ø 5 mm, cable length 2 m, Measuring range: -50 ... +300 °C, Accuracy: ±0.3 °C (-50 ... +300 °C)

TO 475 A.O

Air probe, Pt100, Ø 4 mm, length 230 mm, cable length 2 m, Measuring range: -50 ... +250 °C, Accuracy: ±0.3 °C (-50 ... +250 °C)

TP47

SICRAM plug for connection of Pt sensors without SICRAM connection (4-wire direct Pt 100, 2-wire Pt 1000)