

# Digital precision quick-response thermometer with freely adjustable analog output 0-1V



- freely adjustable analog output or serial interface
- 5 different thermocouples can be used! (types J, K, N, S, T)
- Display in °C or °F (selectable)
- Correction of meas. values for surface meas. can be switched on / off
- Serial interface
- Device can be connected to a bus system (up to 5 devices can be connected to one PC interface)
- Min./Max. value memory, Hold function
- Zero-point offset entry
- Battery and d.c. operation
- Low power consumption of ca 0.3 mA (with included standard battery 1000 hours of operation!)

## GMH 3210 access. not incl.

Digital-precision quick-response thermometer for thermocouples connection of plug-in probes (p.r.t. page 87 - 91)

### Specification :

**Thermocouples:** J, K, N, S, T (acc. to DIN EN 60584)

**Measuring ranges:** (extract)

**Type K:** (NiCr-Ni) -65,0 ... +300,0°C bzw. -220 ... +1372°C  
(-85,0 ... +572,0°F bzw. -364 ... +2500°F)

**Type N:** (NiCrSi-NiSi) -100,0 ... +380,0°C bzw. -200 ... +1300°C  
(-148,0 ... +482,0°F bzw. -328 ... +2372°F)

**Type S:** (Pt10Rh-Pt) -50 ... +1768°C (-58 ... +3214°F)

**Resolution:** 0,1°C or 1°C (0,1°F or 1°F)

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

**Type K:** -65,0 ... +300,0°C: ±0,03%v.MW. ±0,05%FS  
-220 ... +1372°C: ±0,08%v.MW. ±0,1%FS

**Type N:** -100,0 ... +380,0°C: ±0,03%v.MW. ±0,05%FS  
-200 ... +1300°C: ±0,08%v.MW. ±0,1%FS (T≥-100°C)  
±1°C ±0,1%FS (T<-100°C)

**Type S:** -50 ... +1768°C: ±0,1%v.MW. ±0,1%FS (T≥200°C)  
±1°C ±0,1%FS (T<200°C)

**Temperature drift:** 0,01%/K

**Point of comparison:** ±0,3°C

**Working temperature:-** 25 to +50°C

**Relative humidity:** 0 to +95%r.h. (non-condensing)

**Storage temperature:** -25 to +70°C

**Probe connections:** flat-pin plug

**Display:** 2 four digit LCDs (12.4mm and/or 7mm high) for temperature, min./max. values, hold function, etc. as well as additional functional arrows.

**Pushbuttons:** 6 membrane keys for ON/OFF-switch, selection of thermocouples, min. and max. value memory, hold-function, etc.

**Output:** 3-pin jack connector Ø3.5mm, choice between seriell interface or analog output

- **seriell interface:** direct connection to RS232 or USB interface of a PC via electrically isolated interface adapter GRS3100 or GRS3105 resp. USB3100 (p.r.t. accessories).

- **analog output:** 0...1V, freely adjustable (resolution 13bit, accuracy 0.05% at nominal temperature)

**Min./Max. value memory:** Memorizing of max. and min. values.

**Hold function:** By pressing a button the current values will be memorized..

**Power supply:** 9V-battery, type IEC 6F22 (included) as well as additional d.c. connector for external 10.5-12V direct voltage supply. (suitable power supply: GNG10/3000)

**Auto-Off-function:** When the Auto Off function is activated, the device switches automatically off, if its interface and keypad is not attended for a longer time (selectable 1..120min)

**Low battery warning:**  $\Delta$  and 'bAt'

**Power consumption:** approx. 0.3 mA

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

Impact-resistant ABS plastic housing. Front side IP65, integrated pop-up clip for table top or suspended use.

**Weight:** approx. 155 g

**Special applications:**

- **Compensation value for surface measurements:**

A compensation value (to compensate for the loss when transferring heat from the meas. object to the probe) can be set and switched on/off for surface measurements if required.

- **Zero-point offset entry:**

By entering the offset temperature the parameter can be moved parallel to the calibration graph.

### Accessories:

**GNG 10/3000** power supply

**GB 9 V** spare battery

**GKK 3000** case (275 x 229 x 83 mm)  
with punched lining for all GMH3xxx-devices

**GKK 3100** case (275 x 229 x 83 mm)  
with foam lining for universal use

**GKK 3500** large case (394 x 294 x 106 mm)  
with punched lining for all GMH3xxx-devices

**ST-N1** device protection bag with cut out for sensor connection  
punch: 1 right-angled hole, suitable for: GMH3210, GMH1150, GMH1170

**ST-N2** device protection bag with cut outs for sensor connection  
punch: 2 right-angled holes, suitable for: GMH3230, GMH3250

**GRS 3100** interface converter to RS232, electrically isolated

**GRS 3105** interface converter to RS232 with 5 connection points, electr. isolated, for the connection of 5 GMH3xxx to one PC.

**USB 3100** interface converter to USB, electrically isolated

**EBS 9M** software for transmission, recording and archiving measuring values obtained from one GMH3xxx (p.r.t. page 36).

**suitable plug-in probes type K** (up to 1150°C) p.r.t. p. 87 - 91

**suitable plug-in probes type N** (up to 1300°C) p.r.t. page 87

**suitable plug-in probes type S** (up to 1600°C) p.r.t. page 87

**miscellaneous accessories (cases, mains adaptors etc.)**  
**suitable for all GMH3xxx devices** p.r.t. page 35 - 36

# Double/difference quick-response thermometer for 5 different thermocouples!



- 2 plug-in probes can be connected and read simultaneously
- 5 different thermocouples can be used! (types J, K, N, S, T)
- Temperature differences (probe1 - probe 2) can also be measured on metal surfaces and in liquid with non volt-free probes!
- Correction of meas. values for surface meas. can be switched on / off
- Serial interface, device can be connected to bus system (up to 5 devices can be connected to one PC interface)
- Min./Max. value memory, Hold function, Tare/diff-function
- Battery and d.c. operation
- Zero-point offset entry for each probe

## Additional functions of the GMH3250:

- 2 integrated logger functions
- Optical and acoustic min-/max- alarm
- Real-time clock with day, month and year

**GMH 3230** access. not incl.

**GMH 3250** access. not incl.

**Digital-precision quick-response thermometer for thermo-couples**  
simultaneous connection of 2 plug-in probes (p.r.t. page 87 - 91)

## Specification :

**Thermocouples:** J, K, N, S, T (acc. to DIN EN 60584)

**Measuring ranges:** (extract)

**Type K:** (NiCr-Ni) -199,9 ... +999,9°C or -220 ... +1370°C  
(-199,9 ... +999,9°F or -364 ... +2498°F)

**Type N:** (NiCrSi-NiSi) -199,9 ... +999,9°C or -200 ... +1300°C  
(-199,9 ... +999,9°F or -328 ... +2372°F)

**Type S:** (Pt10Rh-Pt) 0,0 ... +999,9°C or -50 ... +1750°C  
(32,0 ... +999,9°F or -58 ... +3182°F)

**Resolution:** 0,1°C or 1°C (0,1°F or 1°F)

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

**Type K:** -199,9 ... +999,9°C: ±0,03% of m.v. ±0,05% f.s. (T≥-60°C)  
±0,2% of m.v. ±0,05% f.s. (T<-60°C)  
-220 ... +1370°C: ±0,08% of m.v. ±0,1% f.s. (T≥-100°C)  
±1°C ±0,1% f.s. (T<-100°C)

**Type S:** 0,0 ... +999,9°C: ±0,05% of m.v. ±0,08% f.s. (T≥200°C)  
±1°C ±0,08% f.s. (T<200°C)  
-50 ... +1750°C: ±0,1% of m.v. ±0,1% f.s. (T≥200°C)  
±1°C ±0,1% f.s. (T<200°C)

**Temperature drift:** 0,01%/K

**Point of comparison:** ±0,3°C

**Working temperature:** -25 to +50°C

**Relative humidity:** 0 to +95%r.h. (non-condensing)

**Storage temperature:** -25 to +70°C

**Probe connections:** 2 jacks for flat-pin plug

**Display:** two 4 digit LCDs (12.4mm or 7mm high), as well as additional functional arrows.

**Pushbuttons:** 6 membrane keys

**Interface:** Serial interface, direct connection to RS232 or USB interface of a PC via electrically isolated interface adapter GRS3100 or GRS3105 resp. USB3100 (p.r.t. accessories).

**Power supply:** 9V-battery, type IEC 6F22 (included) as well as additional d.c. connector for external 10.5-12V direct voltage supply. (suitable power supply: GNG10/3000)

**Auto-Off-Function:** 1...120min (can also be deactivated).

**Low battery warning:**  $\Delta$  and 'bAt'

**Power consumption:** approx. 1.6 mA

**Min./max. value memory:** Memorizing of max. and min. values for probe 1, probe 2 and difference.

**Hold function:** By pressing a button all current values will be memorized.

**Housing dimensions:** 142 x 71 x 26 mm (L x W x D)

Impact-resistant ABS plastic housing. Front side IP65, integrated pop-up clip for table top or suspended use

**Weight:** approx. 155 g

## Special applications:

**Difference measurements:** with a resolution of 0,1° or 1°. Temperature difference probe 1 - probe 2 can be displayed if 2 probes are connected.

**Tare/diff-function:** Press button to set the difference display 'probe 1 - probe 2' to zero

**Zero-point offset entry:** By entering the offset temperature the parameter can be moved parallel to the calibration graph.

## Compensation value for surface measurements:

A compensation value (to compensate for the loss when transferring heat from the meas. object to the probe) can be set and switched on/off for surface measurements if required.

## Additional functions of the GMH3250:

**Min-/Max-alarm:** The meas. values of probe 1 or 2, probes 1 and 2 or the temp. difference are constantly monitored reg. the min. and max. values set.

**- Alarm:** 3 different alarm settings

off: alarm function not activated

on: visual alarm via display, integrated buzzer and interface

no Sound: alarm via display and interface

**- Controlling function:** with the help of the switching module GAM3000 (optionally) electric equipment can be switched on/off or alarm memorized (p.r.t. catalogue page 35)

## Logger functions:

**-manually:** 99 data sets (data recall via keyboard or interface)

**-cycle:** 9.999 data sets (data recall via interface)

**-adjustable cycle time:** 1sec. ... 1h

Logger start and stop via the keyboard or interface. Comfortable read-out and display software (GSOFT3050) available as additional equipment.

**Real-time clock:** clock with day, month and year

## Accessories:

### GSOFT 3050

software for the setting, data read-out and printing of all logger data stored for devices of the GMH3xxx-series. (p.r.t. page 36)

### GAM 3000

Switching module for devices of the GMH3xxx-series incl. alarm output

**suitable plug-in probes type K, N and S p.r.t. p. 87 - 91**

**miscellaneous accessories (cases, mains adaptors etc.) suitable for all GMH3xxx devices p.r.t. page 35 - 36**