PORTABLE INSTRUMENTS

SOFTWARE

ACCESSORIES

ALARM / PROTECTION LEVEL

PT100 – HIGH PRECISION THERMOMETER

AUTOOFF

AUTORANGE

ISO

HOLD

MIN MAX

O / S-CORR

HIGHLIGHTS:

○ Reference device for all calibration tasks

○ highest accuracy

○ Resolution (0.01 °C)

○ including test report

ADDITIONAL FUNCTIONS WITH GMH 3750:

ALARM   LOGG

GMH 3710
Item No. 600332
Pt100 4-wire high-precision thermometer, device supplied without temperature sensor

GMH 3750
Item No. 600335
Pt100 4-wire high-precision thermometer with data logger, device supplied without temperature sensor

APPLICATIONS:

Reference control measurements in liquids, soft plastic media, air / gases

TECHNICAL SPECIFICATIONS:

Measuring ranges:	-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
Linearization:	Characteristic according to DIN EN 60751. With GMH 3750 additional user-specific characteristic
Accuracy: (± 1 digit) (at nominal temperature = 25 °C)	≤0.03 °C / 0.06 °F with a resolution of 0.01 ° ≤0.1 °C / 0.2 °F with a resolution of 0.1 °
Temperature drift:	≤ 0.002 °C / K
Sensor connection:	via 4-pole, shielded mini-DIN socket, Pt100, 4-wire, according to DIN EN 60751
Nominal temperature:	25 °C
Working temperature:	-25 .. + 50 °C
Relative humidity:	0 .. + 95 % RH (not condensing)
Storage temperature:	-25 .. + 70 °C
Display:	two 4½-digit LCD displays (12.4 mm or 7 mm high) and other pointers
Control elements:	6 membrane buttons
Output:	3-pole jack socket Ø 3.5 mm, either serial interface or analog output
Serial interface:	It can be connected directly to the RS232 or PC USB input via the galvanically isolated interface converter GRS 3100 or GRS 3105 or USB 3100 N (accessory).
Analog output:	0..1 V, freely scalable (resolution 13 bit, accuracy 0.05 % at nominal temperature)
Power supply:	9 V battery and additional power supply socket for external 10.5-12 V DC voltage supply
Power consumption:	approx. 1 mA, approx. 300 h
Housing:	Made of impact-resistant ABS, 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 delivery:	Device, battery, test report, operating instructions

ADDITIONALLY FOR GMH 3750:

User-specific sensor characteristic:
50 support points (only GMH 3750)
Logger functions (only GMH 3750):
manual: 99 data records (retrieval of data via keyboard or interface)
cyclical: 16,384 data records (retrieval of data via interface)
adjustable cycle time: 1 s..1 h
The logger is started and stopped via the keyboard or interface. An easy-to-use software GSOFT 3050 (see accessories) is available for reading-out the logger data.
Min / Max alarm

ACCESSORIES OR SPARE PARTS:

MINIDIN 4S
Item No. 601111
Mini-DIN plug, 4-pole with locking for self-assembly

USB 3100 N
Item No. 601092
Interface converter GMH3xxx <=> PC, USB

GSOFT 3050
Item No. 601336
Windows software for GMH 3000 and GMH 5000 with logger

GNG 10/3000
Item No. 600273
Plug power supply for GMH 3XXX series

ST-R1
Item No. 601066
Protective bag, leather

GKK 1100
Item No. 601060
Case with knob foam for universal use

GMH Config
(on our homepage: Download -> Software)
Program description: Convenient software for editing the user characteristics of the GMH 3750. (e.g. for calibration laboratories, etc.)

Note: Please take into account that an interface converter (USB 3100 N) is required for the device interface operation.

for further information p.r.t. www.gsg-e-shop.com | Phone no.: + 49 931 30 40 8-0

SUITABLE PT100 MEASURING SENSOR (4-WIRE)

ACCURACIES PT100:

Sensor accuracy according to DIN EN 60751

DIN class B: (validity range: -50 .. + 500 °C) ± 0.3 °C at 0 °C
DIN class A: (validity range: -30 .. + 300 °C) ± 0.15 °C at 0 °C
DIN class AA = 1/3 DIN class B: (Validity range: 0 .. + 150 °C) ± 0.1 °C at 0 °C
1/10 DIN Kl. B: (validity range: 0 .. + 100 °C) ± 0.03 °C at 0 °C

SURCHARGES SPECIAL DESIGNS:
(DESIGN-RELATED VARIATIONS ARE AVAILABLE)

longer sensor tube: surcharge per additional 100 mm or part thereof
longer sensor cable (PVC): surcharge per additional 1 m or part thereof
Coiled cable stretched ap prox. 1.2 m
other cable types on request
Sensor tube with teflon shrinkage
(for temperature sensors up to 200 mm)
(for measurements in acids and sea water. max.measuring range = 250 °C)
Sensor handle waterproof encapsulated (only possible with PVC cable -20 .. + 105 °C)
higher sensor accuracy: DIN class AA, for Pt100, tolerances: 0.1 °C at 0 °C
higher sensor accuracy:
1/10 DIN class B, for Pt100 sensors, tolerances: 0.03 °C at 0 °C
Handling fee for custom-made products

GTF 401
-50 °C / +400 °C
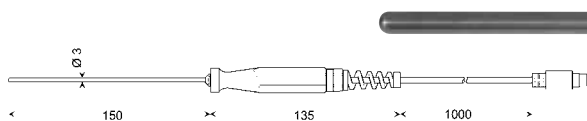*Item No. 600377*
Immersion sensor for liquids / gases
-50 .. + 400 °C, DIN class B

GTF 401 DIN class AA
-50 °C / +400 °C
Item No. 600378
Immersion sensor for liquids / gases
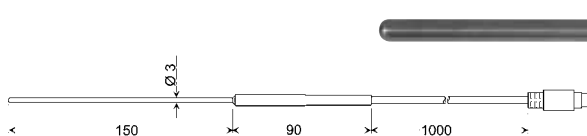-50 .. + 400 °C, DIN class AA (± 0.1 °C at 0 °C)

corrosion-resistant V4A pipe Ø 3 mm, plastic handle, anti-kink screw connection,
approx. 1 m 4-pole PVC cable, 4-pole Mini DIN connector
Response time T$_{90}$: Water 0.4 m / s approx. 10 s, air 2 m / s approx. 40 s

GTF 35
-50 °C / +400 °C
Item No. 600391
Immersion sensor for liquids / gases
-50 .. + 400 °C, DIN class B

corrosion-resistant V4A pipe Ø 3 mm, shrink tubing,
approx. 1 m 4-pole PVC cable, 4-pole Mini DIN connector
Response time T$_{90}$: Water 0.4 m / s approx. 10 s, air 2 m / s approx. 40 s

GES 401
-50 °C / +400 °C
Item No. 600384
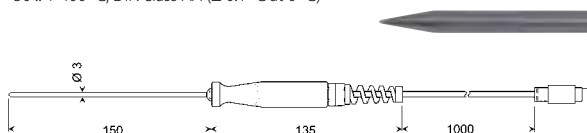Insertion sensor for soft plastic media
-50 .. + 400 °C, DIN class B

GES 401 DIN class AA
-50 °C / +400 °C
Item No. 600385
Insertion sensor for soft plastic media
-50 .. + 400 °C, DIN class AA (± 0.1 °C at 0 °C)

V4A tube Ø 3 mm with needle-shaped penetration tip, plastic handle, anti-kink
screw connection, approx. 1 m 4-pole PVC cable, 4-pole mini DIN connector
Response time T$_{90}$: Water 0.4 m / s approx. 10 s, air 2 m / s approx. 40 s

GES 20-P4 DIN class A
-70 °C / +250 °C
Item No. 414061
Core temperature / food probe, compact teflon handle -70..+250 °C,
Pt100 class A

GES 20-P4 DIN class B
Item No. 413543
Core temperature / food probe, compact teflon handle
-70..+250 °C, Pt100 class B

V4A tube with Ø 1.5 mm slim penetration tip, small teflon handle, stainless steel
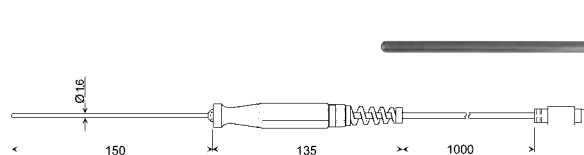Anti-kink protection, 1 m teflon cable, 4-pole mini DIN connector
Response time T$_{90}$: Water 0.4 m / s <1 s, air 2 m / s approx. 12 s

Advantages of the sheathed element Pt100:
- high temperature resistance
- sheathed tube is bendable
- high shock resistance
- long lifetime

GTF 401 / 1.6
-50 °C / +400 °C
Item No. 602066
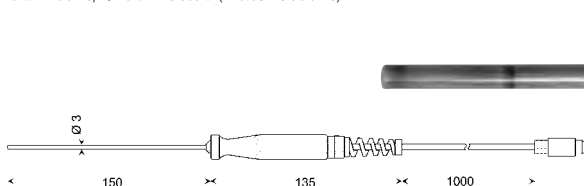Immersion sensor with sheathed element Pt100 -50 .. + 400 °C, DIN class B

V4A shealted element, bendable, Ø 1.6 mm, plastic handle, anti-kink screw
connection, approx. 1 m 4-pole PVC cable, 4-pole mini DIN connector
Response time T$_{90}$: Water 0.4 m / s <2 s, air 2 m / s approx. 25 s

GTF 401 1/10 DIN
-50 °C / +400 °C
Item No. 600379
Immersion sensor with sheathed element Pt100 -50 ... +400 °C, recommended:
0 ... +100 °C, 1/10 DIN class B (± 0.03 °C at 0 °C)

V4A sheathed element, bendable, Ø 3 mm, plastic handle, anti-kink screw
connection, approx. 1 m 4-pole PVC cable, 4-pole mini DIN connector
Response time T$_{90}$: Water 0.4 m / s <5 s, air 2 m / s approx. 60 s

IMPORTANT NOTE:
ACCURACY DIN CLASS AA (1/3 DIN) ONLY IN THE RANGE 0 .. + 150 °C. ACCURACY 1/10 DIN ONLY IN THE RANGE 0 ..+100 °C. IF THE TEMPERATURE SENSOR IS USED IN HIGHER MEASURING RANGES, THE ACCURACY IN THE VALIDITY RANGE CAN NO LONGER BE GUARANTEED; IN EXTREME CASES THE SENSOR MAY EVEN PERMANENTLY LOSE THE ACCURACY CLASS!

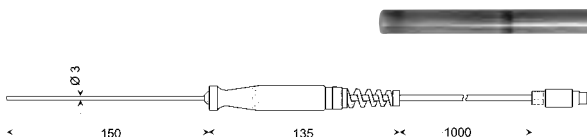## SUITABLE PT100 MEASURING SENSORS (4-WIRE)

GTF 601
-200 °C / +600 °C

Item No. 600387
Immersion probe with sheathed element Pt100 -200 .. + 600 °C, DIN class B

### GTF 601 DIN class AA
-200 °C / +600 °C

Item No. 600388
Immersion sensor with sheathed element Pt100
-200 .. + 600 °C, DIN class AA (± 0.1 °C at 0 °C)

Ø 3

150 — 135 — 1000

V4A sheathed element, bendable, Ø 3 mm, plastic handle, anti-kink screw connection, approx. 1 m 4-pole PVC cable, 4-pole mini DIN connector
Response time T_{90} Water 0.4 m/s <5 s, air 2 m/s approx. 60 s
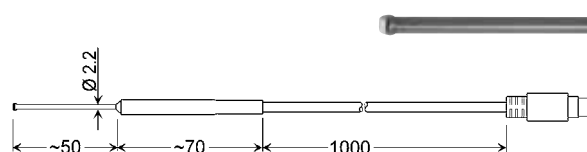
GLF 401 Mini
-25 °C / +70 °C

Item No. 600395
Ambient air sensor without cable,
-25 .. + 70 °C, DIN class A

Ø1.6

40
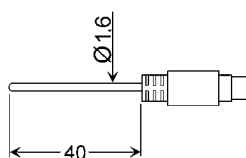
V4A pipe Ø 1.6 mm, FL = approx. 40 mm, 4-pole mini DIN connector
Response time T_{90}: Air 2 m/s approx. 25 s

GOF 401 Mini
-50 °C / +200 °C

Item No. 600396
Surface sensor, ceramic front side
-50 .. + 200 °C, DIN class B

Ø 2.2

~50 — ~70 — 1000

Front side Pt100 ceramic plate 2 x 2.3 mm, V4A tube Ø 2.2 mm, approx. 1 m 4-pole PVC cable, 4-pole mini DIN connector
Response time T_{90}: approx. 15 s

CALIBRATED MEASURING SYSTEMS PT 100

GENERAL:

The total measurement errors result, among other things, from the sum of the measurement errors of the device and the probe. In order to keep this as low as possible, we offer you the following calibrated and optimized measuring systems. Due to their excellent system accuracy, these are excellently suited for quality assurance within the scope of ISO9000ff, as reference devices in production, service, and maintenance, etc. The system is optimized by creating a characteristic curve that is determined separately for each temperature sensor and stored in the device (GMH 3750) or by sensor calibration with the aid of zero point and slope (GMH 3710). Due to the low measuring current, there is no self-heating of the sensor; furthermore, the measurement is thermo-voltage compensated.

GMH 3750 / SET1
Item No. 602690
Set including device, GTF401 AA, ISO calibration certificate -20 ... 70 °C and case GKK3500

TECHNICAL SPECIFICATIONS:

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

GMH 3750 / SET2
Item No. 602691
Set including device, GTF401 AA, ISO calibration certificate 0 ... 250 °C and case GKK3500

TECHNICAL SPECIFICATIONS:

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

GMH 3710 / SET1
Item No. 602687
Set including device, GTF401 AA, ISO calibration certificate -20 ... 70 °C and case GKK3500

TECHNICAL SPECIFICATIONS:

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

GMH 3710 / DKD1
Item No. 602689
Set including device, GTF401 AA, DKD calibration certificate -20 ... 70 °C and case GKK3500

TECHNICAL SPECIFICATIONS:

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

SCOPE OF DELIVERY:

Measuring instrument GMH 3750 or GMH 3710, temperature sensor GTF 401 DIN class AA, plastic case GKK 3500 and calibration certificate with 3 calibration points

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