

→ Series MH

→ Series IR



Including products with:



HAND-HELD INSTRUMENTS →

Hand-Held Instruments

Series MH - for humidity, temperature and pressure

The handy and reliable instruments of the MH range are used for measuring and recording humidity, temperature or pressure. The MH range is very flexible and is equally suitable for simple measurements and special applications.

Sensors and probes

The high accuracy of the signal detection and processing is achieved by means of powerful sensors with electronic linearisation of the characteristic curve. The correct probes are available for a wide range of measuring tasks.

Operating comfort

The innovative design of the attractive housing and the advanced technology make the sensors comfortable to operate. In mobile use, all functions can be selected and carried out easily by pressing the buttons. The membrane keypad guarantees protection against dust and moisture.

Multi-function display

As well as MIN / MAX values, hold function and the selected unit of measurement, various calculation values, such as temperature differential, pressure differential, dew point or heat capacity can also be shown on the multi-function display.

Explosion protection

Hand-held pressure measuring devices and pressure sensors are available in EXI versions (Ex ib IIC T4-03ATEX0136X).

Inputs

Automatic sensor recognition through standard DIN socket provides a plug-&-play solution that is easy to install.



Outputs

Extensive alarm functions via the display and buzzer, freely scalable standard signal output and PC interface are available.

Data storage (Log functions)

Some instruments in the MH range can store data. The integrated memory records up to 16 200 measurement values. The date and time is automatically added to the values. A real time clock is integrated for this purpose.

Two **log functions** are available:

- In the STORE mode, data is transferred by means of pressing a button and 99 records can be stored. The values stored are shown directly on the display.
- In CYCLE operation, values are recorded automatically at a pre-programmed interval. Up to 16 200 records can be stored. The stored values are shown on a PC.

PC Interface

To transfer the measurement values and stored values to a PC, the majority of the MH instruments are fitted with a serial interface.

The EBS 20 M software packages are available with extensive recorder and display functions, as is the SOFT 3050 for evaluation of the logged and alarm values. Process sequences can then be monitored and analysed clearly using the measurement procedures recorded and visualised as well as all data can be exported into standard programs e.g. Excel.

Alarm- & time displays

A visual and acoustic warning signal indicates when measurements exceed or fall below a programmed alarm point. Transmission via PC is also possible. All data can be displayed with the year and date, thanks to the real time clock.



Hand-Held Instruments for Temperature

MH 3710 and MH 3750

MH 3710

Digital universal temperature hand-held instrument
For use with Pt100 exchangeable sensors

- Inputs
1 x mini-DIN-socket for Pt100 / 4-wire
- Measuring ranges /resolution
-199.99...199.99 °C / 0,01 °C
200.0...850.0 °C / 0.1 °C
- Accuracy
±0.015 % full scale ±1 digit
- Units
°C and °F
- Outputs
Analogue output 0...1 V
Scalable for easy data readout
- PC-Interface
Data link with serial PC-Interface
DC-isolated and short-circuit proof

Type MH 3750



Temperature hand-held sensors for MH 3710 and MH 3750

Pt100	Fig. on Page 125	Name	Temperature range	L	D
Standard sensor	Fig.1	GTF401	-50...400 °C	150 mm	3 mm
Spike sensor	Fig.2	GES401	-50...400 °C	150 mm	3 mm
Surface sensor	Fig.3	GOF401	-50...400 °C	300 mm	3 mm (head = 4 mm)
Air / gas sensor	Fig.6	GLF401	-50...400 °C	100 mm	3 mm (head = 6 mm)

MH 3750

Same as MH 3710

Additional logger-, alarm- and clock functions

User-specific sensor linearisation

- Alarm and time display
 - Min-max alarm signal via display, interface and buzzer
 - Real time clock with date and year indication

- Data storage (Log function)

STORE

99 data sets (temp1, time and date)

Manual data set reading via keystroke

CYCLE

16 200 data sets (temp1)

Automatic data set reading in the set interval

Adjustable measurement interval 1 sec...60 minutes



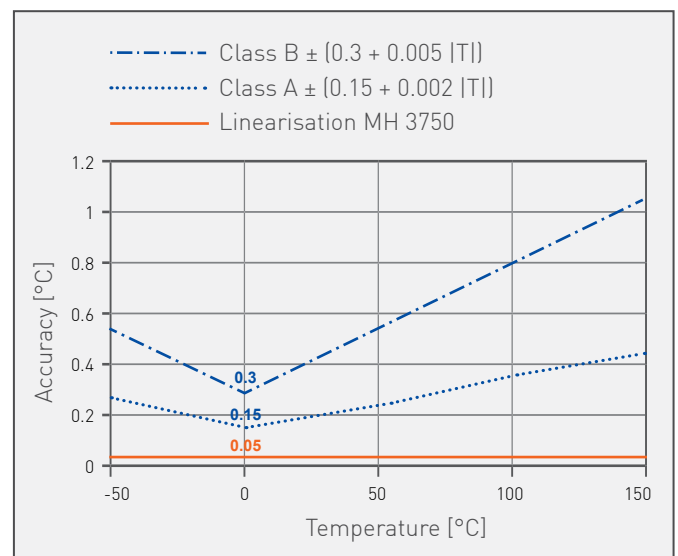
For applications that require a very high degree of accuracy which is higher than the accuracy of the sensor itself, it is recommended that the sensor be calibrated to the MH 3750 by means of a user-defined characteristic curve. In this way, you can meet the highest accuracy requirements in the range ≤ 0.05 °C.

User-defined characteristic curve

With this function, customer-specific curves can be used, alongside the standard calculation of the resistance / temperature characteristic curve in compliance with EN 60751.

The MH 3750 has a very high accuracy of measurement. In order to be able to exploit this high degree of accuracy, appropriate high-quality temperature sensors must be used. Various standard classes of accuracy are available for this purpose.

For applications that require a very high degree of accuracy which is higher than the accuracy of the sensor itself, it is recommended that the sensor be calibrated to the MH 3750 by means of a user-defined characteristic curve.



MH 1150 and MH 1170

MH 1150

Digital temperature hand-held instrument
For use with NiCr-Ni-exchangeable sensors

- Inputs
1 x mini-TC-socket for thermocouple Type K
- Measuring ranges / Resolution
NiCr-Ni -50...1150 °C / 1 °C
- Accuracy
±1 % of rdg. ±1 digit
- Units
°C

MH 1170

Same as MH 1150
Extended resolution and accuracy

- Measuring ranges / resolution
Selectable resolution 0.1 °C or 1 °C
NiCr-Ni -65...199.9 °C or -65...1150 °C
- Accuracy
±0.05 % of rdg. ±0.2 % full scale ±1 digit
- Units
°C and °F



Temperature hand-held sensors for MH 1150, MH 1170, MH 3210, MH 3230 and MH 3250					
Typ K	Fig. Page 125	Name	Temperature range	L	D
Standard sensor	Fig.1	GTF900	-65...1000 °C	130 mm	3 mm
Fast response sensor	Fig.1	GTF400	-65...550 °C	130 mm	1.5 mm
Spike sensor	Fig.2	GES900	-65...1000 °C	100 mm	3 mm
Inconel sensor	Fig.2	GTF1200 / 300	-200...1150 °C	300 mm	3 mm
Surface sensor	Fig.4	GOF130CU	-65...500 °C	130 mm	3 mm (head = 4 mm)
Surface sensor	Fig.5	GOF130	-65...900 °C	130 mm	8 mm
Surface sensor	Fig.7	GOF400VE	-65...400 °C	100 mm	6 mm (head = 17 mm)
Surface sensor	Fig.8	GOF400HO	-65...400 °C	130 / 60 mm	6 mm (head = 17 mm)
Air / gas sensor	Fig.6	GLF900	-65...600 °C	130 mm	3 mm (head = 6 mm)

MH 3210, MH 3230 and MH 3250

MH 3210

Digital universal temperature hand-held instrument
For use with thermocouple exchangeable sensors

- Inputs
1 x mini-TC-socket for thermocouples K / J / S / T / N
- Measuring ranges / resolution
Selectable resolution 0.1 °C or 1 °C
Type K NiCr-Ni -220...1370 °C
Type T Cu-CuNi -200...1100 °C
Type J FeCu-Ni -200...1100 °C
Type N NiCrSi-NiSi -200...1300 °C
Type S Pt10Rh-Pt -50...1750 °C
- Accuracy
±0.2 % full scale ±1 digit
- Units
°C and °F
- Outputs
Analogue output 0...1 V
Scalable for easy data readout
- PC Interface
Data link with serial PC-Interface
DC-isolated and short-circuit proof

MH 3230

Same as MH 3210
Additional measuring input
Differential measurement and TARE
Without analogue output

- Inputs
2 x mini-TC-socket for thermocouples K / J / S / T / N

Type MH 3250



MH 3250

Same as MH 3230
Additional logger-, alarm- and clock functions

- Alarm and time display
Min-max alarm signal via display, interface and buzzer
Real time clock with date and year indication
- Data storage (Log function)
STORE
99 data sets (temp1, temp2, T2-T1, time and date)
Manual data set reading via keystroke
CYCLE
9999 data sets (temp1, temp2, T2-T1)
Automatic data set reading in the set interval
Adjustable measurement interval 1 sec...60 minutes

Temperature hand-held sensors for MH 3210, MH 3230 and MH 3250

Type N	Fig. Page 125	Name	Temperature range	L	D
Standard sensor	Fig.1	GTF101-N250	-50...1300 °C	250 mm	3 mm

MH 175

MH 175

Digital temperature hand-held instrument
For use with Pt1000 exchangeable sensors

- Inputs
1 x jack-socket for Pt1000 / 2-wire
- Measuring ranges / resolution
-70.0...199.9 °C / 0.1 °C
- Accuracy
±0.1 % of rdg. ±1 digit
- Units
°C

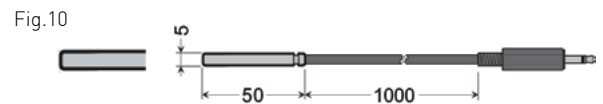
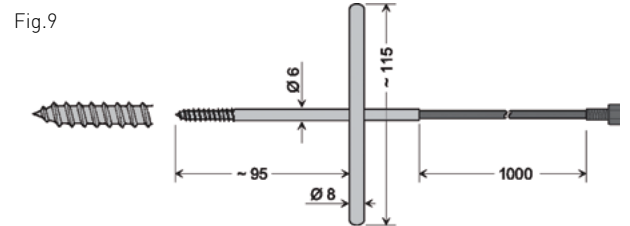
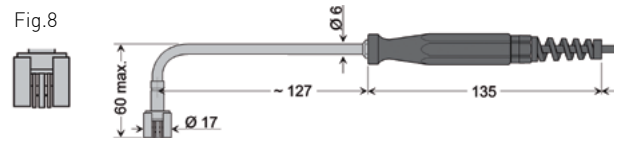
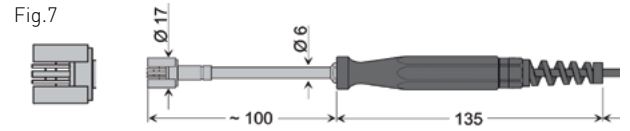
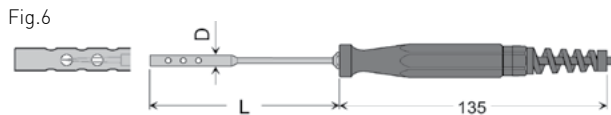
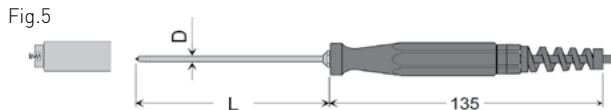
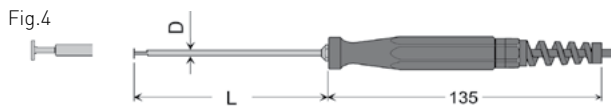
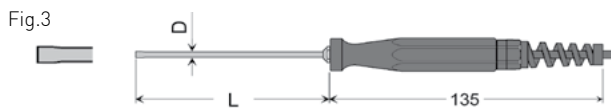
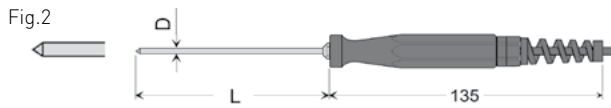
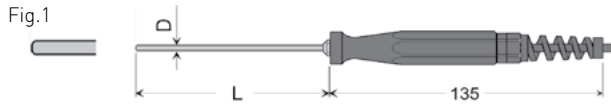


Temperature hand-held sensors for MH 175

Pt1000	Fig. Page 125	Name	Temperature range	L	D
Standard sensor	Fig.1	GTF175	-70...200 °C	100 mm	3 mm
Fast response sensor	Fig.1	GTF175-1.6	-70...200 °C	100 mm	1.6 mm
Spike sensor	Fig.2	GES175	-70...200 °C	100 mm	3 mm
Surface sensor	Fig.3	GOF175	-70...200 °C	100 mm	3 mm (head = 4 mm)
Air / gas sensor	Fig.6	GLF175	-70...200 °C	100 mm	3 mm (head = 6 mm)
Cable sensor	Fig.10	GTF2000	-70...200 °C	50 mm	5 mm
Frozen cargo sensor	Fig.9	GGF175	-70...200 °C	100 mm	6 mm

Temperature Sensors

For temperature hand-held instruments MH-Series



Hand-Held Instruments for Humidity and Temperature

MH 3330 and MH 3350

MH 3330

Digital universal humidity / temperature hand-held instrument
For use with automatically recognizable exchangeable sensor
TFS 0100 E

- Inputs
2 x mini-DIN-sockets for capacitive polymer humidity sensor with Pt1000 temperature sensor 1 x mini-DIN-socket for type K surface temperature
- Measuring ranges / resolution
Humidity 0.0...100.0 % r.H. / 0.1 %
Temperature -40.0...120.0 °C / 0.1 °C
Surface temperature -80.0...250.0 °C / 0.1 °C
- Accuracy
Humidity ±0.1 % full scale
Temperature ±0.2 % full scale ±1 digit
Surface temperature ±0.5 % of rdg. ±0.5 °C ±1 digit
- Units
°C, °F, r.H.
- PC Interface
Data link with serial PC-Interface
DC-isolated and short-circuit proof

MH 3350

Same as MH 3330

Additional logger-, alarm- and clock functions

- Alarm and time display
Min-max alarm signal via display, interface and buzzer
Real time clock with date and year indication

Types MH3330 / 3350 , TFS 0100 E



- Data storage (Log function)
STORE
99 data sets (humidity, temp1, temp2, dew point, dew point distance, heat content, time, date)
Manual data set reading via keystroke
CYCLE
5400 data sets (humidity, temp1, temp2, dew point, dew point distance, heat content)
Automatic data set reading in the set interval
Adjustable measurement interval 1 sec...60 minutes

Sensor TFS 0100 E	
Measuring ranges / resolution	Humidity 0.0...100 % rH / 0.1 % rH Temperature -40.0...120.0 °C / 0.1 °C
Measuring elements	Humidity capacitive polymer sensor Temperature Pt 1000 / 2-wire
Accuracy	Humidity ±2 % of rdg. Temperature 1/3 DIN Pt1000 (±0.1 °C ±0.005 [T])
Electrical connection	PVC cable (1m) with mini-DIN-plug
Tube	Anodized aluminium with plastic sensor head
Dimensions / weight	14 x 120 mm (D x L1) / approx. 110 g

Hand-Held Instruments for Pressure

MH 3161 and MH 3181

MH 3161

Digital universal pressure hand-held instrument with internal piezoresistive pressure sensor for air and non-corrosive / ionizing gases and fluids

- Pressure types
Overpressure, negative pressure, differential and absolute pressure, air pressure/ barometer, vacuum
- Inputs
2 x metal connection plugs for pressure hose 6 x 1 mm
- Measuring ranges / resolution
-19999...19999 digit

Type	Measuring range	Over load	Resolution
MH 3161-01	-1...25 mbar (rel.)	100 mbar	(0.01 mbar)
MH 3161-07	-10...350 mbar (rel.)	1 bar	(0.1 mbar)
MH 3161-12	0...1300 mbar (abs.)	4 bar	(1 mbar)
MH 3161-13	-100...2000 mbar (rel.)	4 bar	(1 mbar)

- Accuracy
±0.2 % full scale (hysteresis and linearity)
- Units
mbar, bar, Pa, kPa, MPa, mmHg, PSI, mH₂O
- PC Interface
Data link with serial PC-Interface
DC-isolated and short-circuit proof
- Measuring rate
4 measurements / sec.

MH3181

Same as MH 3161

Additional analogue output

Logger-, alarm- and clock functions

Selectable measuring rate and average calculation

- Measuring ranges / resolution

Type	Measuring range	Over load	Resolution
MH 3181-01	-1...25 mbar (rel.)	100 mbar	(0.01 mbar)
MH 3181-07	-10...350 mbar (rel.)	1 bar	(0.1 mbar)
MH 3181-12	0...1300 mbar (abs.)	4 bar	(1 mbar)
MH 3181-13	-100...2000 mbar (rel.)	4 bar	(1 mbar)

Types MH 3161 and MH 3181



- Outputs
Analogue output 0...1 V
Scalable for easy data readout
- Alarm and time display
Min-max alarm signal via display, interface and buzzer
Real time clock with date and year indication
- Data storage (Log function)
STORE
99 data sets (measured value, min / max value, time, date)
Manual data set reading via keystroke
CYCLE
9999 data sets (measured or average value, min / max value) Automatic data set reading in the set interval
Adjustable measurement interval 1 sec...60 minutes
- Measuring rates
SLOW = 4 measurements / sec.
FAST = 100 measurements / sec.
PEAK = 1000 measurements / sec.
- Average calculation
Via integration of measurement values at the adjustable interval
- Options
higher accuracy sensor (available from 350 mbar)
EXI-Version (Ex ib IIC T4 - 03ATEX0136X)

MH 3111, MH 3151 and MH 3156

MH 3111

Digital universal pressure hand-held instrument
For use with automatically recognizable exchangeable sensors MSD

- Pressure types
Overpressure, negative pressure, differential and absolute pressure, air pressure / barometer, vacuum (depending on plugged sensor)
- Inputs
1 x mini-DIN-socket
- Measuring range
-19999...19999 digit
- Accuracy
±0.2 % full scale (hysteresis and linearity)
- Units
mbar, bar, Pa, kPa, MPa, mmHg, PSI, mH₂O
- PC Interface
Data link with serial PC-Interface
DC-isolated and short-circuit proof
- Measuring rate
4 measurements / sec.

MH 3151

Same as MH 3111
Analogue output
Logger function, alarm and real time clock
Switchable measuring rate

- Outputs
Analogue output 0...1 V
Scalable for easy data readout
- Alarm and time display
Min-max alarm signal via display, interface and buzzer
Real time clock with date and year indication
- Data storage (Log function)
STORE
99 data sets (measured value, min / max value, time, date)
Manual data set reading via keystroke
CYCLE
9999 data sets (measured value or average value, min / max value)
Automatic data set reading in the set interval
Adjustable measurement interval 1 sec...60 minute

Types MH 3111, 3151 and 3156



- Measuring rates
SLOW = 4 measurements / sec.
FAST = 100 measurements / sec.
PEAK = 1000 measurements / sec.
- Average calculation
Via integration of measurement values at the adjustable interval

MH3156

Same as MH 3151
Additional measuring input
Expand logger function at CYCLE modus

- Inputs
2 x mini-DIN-socket
- Data storage (Log function)
CYCLE
4000 data sets (measurement1 or average1, min1 value, max1 value) (measurement2 or average2, min2 value, max2 value) (diff M1-M2 or diff AV1-AV2, diff min1-min2, diff max1-max2)
Automatic data set reading in the set interval
Adjustable measurement interval 1 sec...60 minutes
- **Options**
Higher accuracy sensor (available from 350 mbar)
EXI-Version (EEx ib IIC T4 - 03ATEX0136X)

Pressure Sensors MSD

For pressure hand-held instruments MH-Series

Nylon type

Piezoresistive pressure sensor for air as well as non-corrosive / ionizing gases and fluids with integrated sensor memory

- Inputs
2 x nylon connection plugs for pressure hose 6 x 1 mm
- Accuracy
±0.2 % full scale (hysteresis and linearity)
- Measuring ranges / resolution

Type (Nylon)	Measuring range	Over load	Resolution
MSD 2.5 MR	-2...2.5 mbar (rel.)	200 mbar	0.001 mbar
MSD 25 MR	-20...25 mbar (rel.)	300 mbar	0.01 mbar
MSD 350 MR	-200...350 mbar (rel.)	1 bar	0.1 mbar
MSD 1.3 BA	0...1.3 bar (abs.)	4 bar	1 mbar
MSD 2 BA	0...2 bar (abs.)	4 bar	1 mbar
MSD 2 BR	-1...2 bar (rel.)	4 bar	1 mbar
MSD 7 BA	0...7 bar (abs.)	10 bar	10 mbar
MSD 10 BR	-1...10 bar (rel.)	10.5 bar	10 mbar

- Electrical Connection
PVC cable (1m) with mini-DIN-plug
- Housing
Robust ABS plastic, Degree of protection IP65
- Dimensions
70 x 30 x 15 mm (H x D x W)
- Weight
Approx. 75 g

Stainless steel type

Piezoresistive pressure sensor for aggressive media, water, gases, and fluids, with internal sensor memory

- Inputs
Stainless steel connection G $\frac{1}{4}$
- Accuracy
±0.2 % full scale (hysteresis and linearity)
- Electrical connection
PVC cable (1 m) with mini-DIN-plug
- Housing
Stainless steel, Degree of protection IP65

Types MSD 250 MRE and MSD 160 BRE



- Dimensions
Approx. 23 x 85 mm (Ø x L)
- Weight
Approx. 175 g
- Measuring range / Resolution

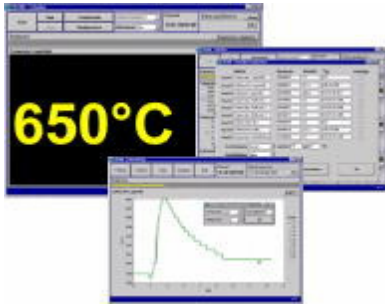
Type (st. steel)	Measuring ranges	Over load	Resolution
MSD 100 MRE	0...100 mbar (rel.)	1 bar	0.1 mbar
MSD 250 MRE	0...250 mbar (rel.)	2 bar	0.1 mbar
MSD 400 MRE	0...400 mbar (rel.)	2 bar	0.1 mbar
MSD 1 BAE	0...1 bar (abs.)	5 bar	1 mbar
MSD 1 BRE	0...1 bar (rel.)	5 bar	1 mbar
MSD -1 / 1.5 BRE	-1...1.5 bar (rel.)	10 bar	1 mbar
MSD -1 / 3 BRE	-1...3 bar (rel.)	17 bar	1 mbar
MSD 2.5 BAE	0...2.5 bar (abs.)	10 bar	1 mbar
MSD 2.5 BRE	0...2.5 bar (rel.)	10 bar	1 mbar
MSD 4 BAE	0...4 bar (abs.)	17 bar	1 mbar
MSD 4 BRE	0...4 bar (rel.)	17 bar	1 mbar
MSD 6 BAE	0...6 bar (abs.)	35 bar	1 mbar
MSD 6 BRE	0...6 bar (rel.)	35 bar	1 mbar
MSD 10 BAE	0...10 bar (abs.)	35 bar	10 mbar
MSD 10 BRE	0...10 bar (rel.)	35 bar	10 mbar
MSD 16 BAE	0...16 bar (abs.)	80 bar	10 mbar
MSD 25 BAE	0...25 bar (abs.)	50 bar	10 mbar
MSD 25 BRE	0...25 bar (rel.)	50 bar	10 mbar
MSD 40 BRE	0...40 bar (rel.)	80 bar	10 mbar
MSD 60 BRE	0...60 bar (rel.)	120 bar	10 mbar
MSD 100 BRE	0...100 bar (rel.)	200 bar	0.1 bar
MSD 160 BRE	0...160 bar (rel.)	320 bar	0.1 bar
MSD 250 BRE	0...250 bar (rel.)	500 bar	0.1 bar
MSD 400 BRE	0...400 bar (rel.)	800 bar	0.1 bar
MSD 600 BRE	0...600 bar (rel.)	1200 bar	0.1 bar
MSD 1000 BRE	0...1000 bar (rel.)	1500 bar	1 bar

- Options for nylon and stainless steel
Higher accuracy sensor (available from 350 mbar)
EXI-Version (Ex ib IIC T4 - 03ATEX0136X)

Accessories

Software

Nearly all instruments in the MH range are fitted with a PC interface, so that the values measured and stored can be transferred and recorded onto a PC. Using the software and an interface converter, a cost-effective measurement data recording system can be easily constructed. The EBS 20 M software packages with extensive recording and display functions are available, as is SOFT 3050 for evaluation of the logged and alarm values. Process sequences can then be monitored and analysed clearly using the measurement procedures recorded and visualised.



WINDOWS PC-software

With a convenient measurement data recording system, recorder, large display, data display for a maximum of 20 measuring channels and graphic presentation of measurement values:

- Adjustable time and measurement value axis
- Adjustable starting and stopping conditions
- Individual labelling of axis
- Adjustable line thickness and colour
- Adjustable labelling of the measurement points
- Digital display of measurement values across the whole screen
- Transfer, recording and archiving of the measurement values
- Adjustable sampling rate
- Large comment field
- Data storage as ASCII code
- Language: German or English can be selected

Interface converter

- Data connection with serial PC interface
- Electrically isolated and protected against short-circuits
- Connection to PC via 9-pin sub-D socket or USB plug
- Power supply directly via PC



Battery / mains and charger

- Regulated plug adapter
- NiCd battery, rechargeable
- Charger for NiCd battery

Service and carrying case / service bag

Hard shell case in various sizes with packing foam and click lock:

- Standard (275 x 229 x 83 mm)
- Large (394 x 294 x 106 mm)
- Service bag with nylon sensor cover



Certificates



To confirm the outstanding accuracy for applications in the service sector, measurement and control workshops and in quality assurance, works or DKD certificates are available to you from our DKD laboratory.

Humidity/temperature certificates

- Works test certificate 9 measurement points with 20 %, 40 %, 60 %, 80 % (rising / falling) and room temperature
- DKD certificate on request

MUSTER

 2008-09

Works Calibration Certificate

Gerät: Pt100-Widerstandsthermometer + Anzeigegerät

Typ: GTF601+NH3750

Messbereich: 0...200 °C

Serien-Nr.: 598865-1 + 598865

Auftrags-Nr.:

Kunde:

Verwendete Normale und Messeinrichtungen:
 DKD-Gebrauchsnormale Pt100, SN ASL-20,
 Kalibrierzeichen 2339 DKD-K-09701/ 2008-03

Umgebungsbedingungen:

Umgebungstemperatur:	RT (23±1)°C
Ref. Luftfeuchtigkeit:	(50±20)%
Luftdruck:	(990 ± 30)mbar

Messergebnisse:

Anzeige [°C]	Sollwert [°C]	Abweichung [°C]
0,00	-0,003	+0,003
50,12	50,120	+0,000
100,26	100,268	-0,008
150,39	150,364	+0,026
199,73	199,732	-0,002

Kaufungen, 24.09.2008

Erstellt durch _____ (O. Schilling)

SIKA Labor Messtechnik

Dr. Siebert & Kühn GmbH & Co. KG · Struthweg 7-9 · 34260 Kaufungen
 Telefon: (05605) 803-0 · Telefax: (05605) 803-54 / 60 · Telex: 99717 sika d

DEUTSCHER KALIBRIERDIENST **DKD**

Kalibrationslaboratorium für thermodynamische und elektrische Messgrößen
 Calibration laboratory for temperature, pressure and electrical measuring instruments
 Akkreditiert durch die / accredited by the
 Akkreditierungsstelle des DKD bei der
 PHYSIKALISCH-TECHNISCHEN BUNDESANSTALT (PTB)

SIKA Labor Messtechnik
 Dr. Siebert & Kühn GmbH & Co. KG
 Struthweg 7-9
 D-34260 Kaufungen

DKD-K-13901

Kalibrierschein
Calibration Certificate

Gegenstand
Object: Temperaturmessgerät mit Pt100-Widerstandsthermometer

Hersteller
Manufacturer: Dr. Siebert & Kühn GmbH & Co. KG D-34260 Kaufungen

Typ
Type: MH3750 + GTF401

Fabrikat/Serien-Nr.
Serial number: 540777 + 540777-1

Auftraggeber
Customer:

Auftragsnummer
Order No.: 540 777

Anzahl der Seiten des Kalibrierscheines
Number of pages of the certificate: 3

Datum der Kalibrierung
Date of calibration: 16.03.06

000033
DKD-K-13901
2008-03

Kalibrierzeichen
Calibration label

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Abstimmung mit dem internationalen Einheitsystem (SI).
 Der DKD ist Unterzeichner der multilateralen Übereinkommen der Europäischen Internationalen Laboratorien Akkreditations Kooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine.
 Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.
 This calibration certificate documents the traceability to national standards, which to the international System of Units (SI).
 The DKD is signatory to the multilateral agreements of the European co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates.
 The user is obliged to have the object recalibrated at appropriate intervals.

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung sowohl der Akkreditierungsstelle des DKD als auch des ausstellenden Kalibrationslaboratoriums.
 This calibration certificate may not be reproduced other than in full except with the permission of both the Accreditation Body of the DKD and the issuing laboratory. Calibration certificates without signature and seal are not valid.

Stempel Datum: 17.03.06
 Seal Date: 17.03.06

Stellv. Leiter des Kalibrationslaboratoriums
 Deputy Head of the calibration laboratory

O. Schilling

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Temperature certificates

- Works test certificate 4 measurement points up to 650 °C
- DKD certificate 4 measurement points up to 500 °C

Pressure certificates

- Works test certificate 10 measurement points
- DKD certificate 10 measurement points



Our products at a glance

Series MH

	Temperature						
	MH 3710	MH 3750	MH 1150	MH 1170	MH 3210	MH 3230	MH 3250
Page	104 - 105		106		107		
Measuring input	Pt100		TC-K	TC-K	TC-K / J / S / T / N		
Measuring ranges	-199.99...199.99 °C 200.0...850.0 °C		-50...1150 °C	-65...199.9 °C 200...1150 °C	-199.9...199.9 °C 200...1750 °C		
Resolution	0.01°C / 0.1 °C autorange		1 °C	0.1°C / 1 °C	0.1°C / 1 °C		
Units	°C / °F		°C	°C / °F	°C / °F		
Display	2 x 4½ digit		3½ digit	3½ digit	2 x 4½ digit		
Linearisation	Offset / slope	Offset / slope	Offset / slope	Offset / slope	Offset		
Inputs	1	1	1	1	1	2	2
Analogue output	✓	✓			✓		
Logger function		✓					✓
PC-Interface	✓	✓			✓	✓	✓
Alarm function (buzzer)		✓					✓
Clock / date (real time)		✓					✓
Sensor specific linearisation		✓					
EXI-Version							
Auto-off function	✓	✓		✓	✓	✓	✓
Min-max-value	✓	✓		✓	✓	✓	✓
Hold-function	✓	✓		✓	✓	✓	✓
Correction value for surface measurement					✓	✓	✓
Differential pressure							
Tare-function							
Sea-level-correction (abs.)							
Extended measurement functions						<ul style="list-style-type: none"> • Differential measurement • Difference function 	

	Temperature	Humidity/Temperature		Pressure				
	MH 175	MH 3330	MH 3350	MH 3161	MH 3181	MH 3111	MH 3151	MH 3156
	108	110		111		112		
	Pt1000	Capacitive polymer sensor / Pt1000 / TC-K		Internal sensor		External sensor		
	-70.0...199.9 °C	0...100.0 % rH -40.0...120.0 °C / -80.0...250 °C		-1...2000 mbar		Depending on the chosen sensor MSD		
	0.1 °C	0.1 % rH / 0.1 °C		0.01 mbar		0.001 mbar...10 mbar, depending on the chosen sensor MSD		
	°C	% rH / °C / °F		Mbar / bar / kPa / MPa / mmHg / PSI / mH ₂ O				
	3½ digit	2 x 4½ digit		2 x 4½ digit				
	Offset / slope	Offset		Offset / slope			Offset / slope	
	1	2	2	2	2	1	1	2
					✓		✓	✓
			✓		✓		✓	✓
		✓	✓	✓	✓	✓	✓	✓
			✓		✓		✓	✓
					✓		✓	✓
				✓	✓	✓	✓	✓
		✓	✓	✓	✓	✓	✓	✓
		✓	✓	✓	✓	✓	✓	✓
		✓	✓					
				✓	✓	✓	✓	✓
				✓	✓			
						✓	✓	✓
		<ul style="list-style-type: none"> Dew point Dew point distance Heat content 			<ul style="list-style-type: none"> Average value Fast / PEAK / SLOW 		<ul style="list-style-type: none"> Average value Fast / PEAK / SLOW 	

Infrared-temperature hand-held measuring instruments

Series IR

When it comes to temperature measurement technique and provided that a combination of simplest control and high measurement accuracy is required, then infrared thermometers will always be the first choice. This choice becomes a must, if one of the following requirements are given:

- Deterioration-free measurement of moving components
- Measurement of dangerous matter e.g. electrically live parts, chemically aggressive materials etc.
- Measurement in inaccessible locations
- Feedback-free measurement of small low-mass components

Without infrared-thermometers are these measurements almost unthinkable.



In this case, nothing is easier as operation according to the motto: targeting – measuring – reading the measurement value. In any area of non contact temperature measurement, SIKA infrared thermometers are reliable partners due to the following features: fully developed laser sight technology, very good optical characteristics, and modern technology with adjustable emissivity, data memory, and numerous additional functions.

Software

To create a high-performance temperature recording and monitoring system, you only need the SIKA software package and a PC. Temperatures measured by MaxiTemp 570 are transferred to the PC via USB-Connection, where data are monitored and evaluated graphically or tabular in form of a company-specific test protocol.

Another highlight of the software package is the user-specific setting of the MaxiTemp-measurement data memory. You can program the alarm limit values, the emissivity, the material, and the number of measurement locations for every measurement point. Continuous measurement value recording and determination of temperature for preventive maintenance becomes an easy task with MaxiTemp, PC and software.

Measuring spots

Hand-held infrared measuring instruments measure the surface temperature of an opaque object.

The instrument's optics detect emitted, reflected, and transmitted energy, which is collected and focused onto a detector.

The electronics translate this information into a temperature measurement and display the temperature. The laser pointer is only used as an pointing device.

To measure a temperature, the hand-held measuring instrument is simply aimed at an object and the measurement activated. Here, the distance and associated spot size is to be observed.

The measuring spot size increases as the distance from the object to be measured increases. The ratio between distance and measuring spot size is represented as optical resolution. The higher the optical resolution, the smaller the measuring spot size is with the same distance.

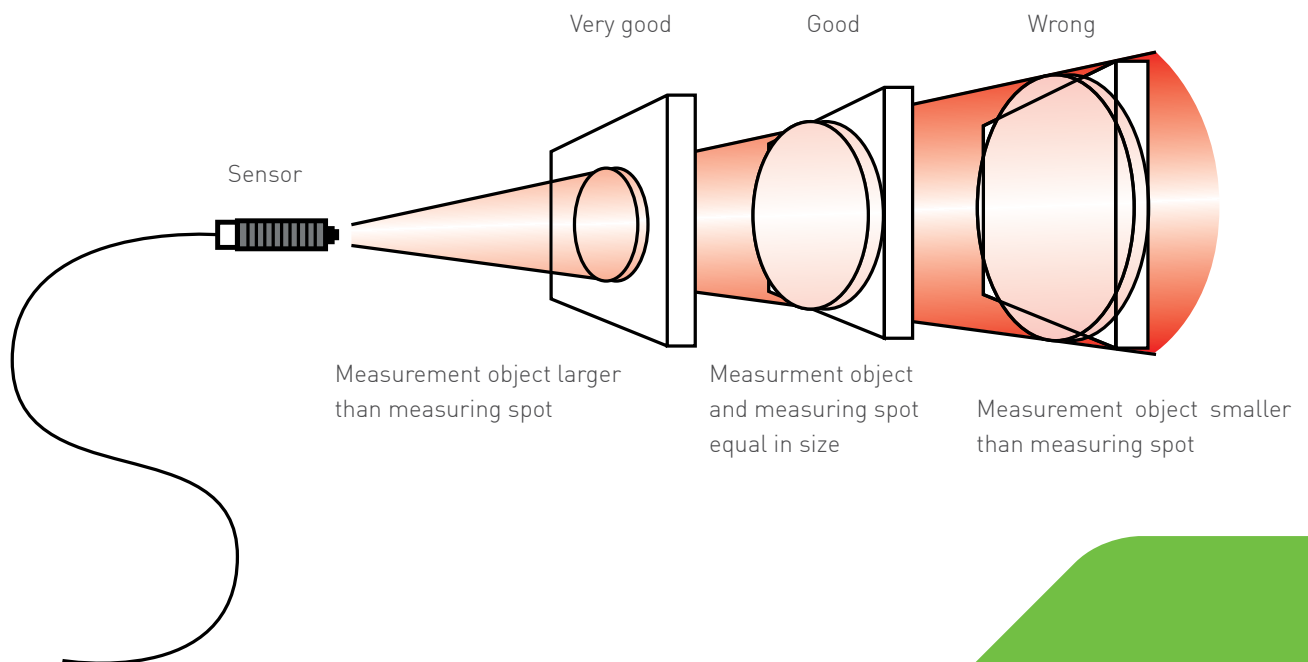


Table of total Emissivity

To ensure a correct setting of the emission factor in the infrared temperature measurement, please visit emissivity.sika.net and download a table of total Emissivity.

MiniTemp 400

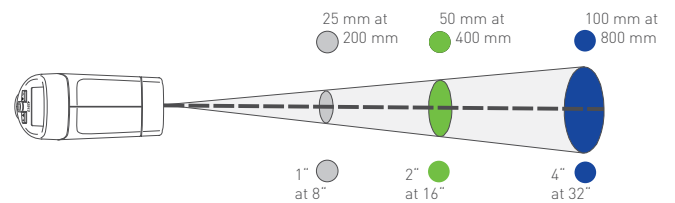
Technical data

- Temperature range -20...330 °C
- Resolution 0.1
- Accuracy < 500 °C: $\pm[2\% \text{ of rdg.} + 2\text{ °C}]$
- Optical resolution 8 / 1
- Emissivity fix 0.95

Type MiniTemp 400



Functions	
Spectral range	8...14 μm
Laser pointer	1
Alarm	
TC connection	
Data Store	
PC connection	
Power supply	9 V
LCD lightning	✓
°C / °F switchable	✓
Bargraph display	
Scan / Hold / Auto OFF	✓
Permanent measuring (Lock)	
Low Bat. indication	✓
MIN / MAX store	✓
AVA / DIF function	
Accessories (incl.)	Battery
Order code	
MiniTemp 400	EME8ETIR400000



SemiTemp 509

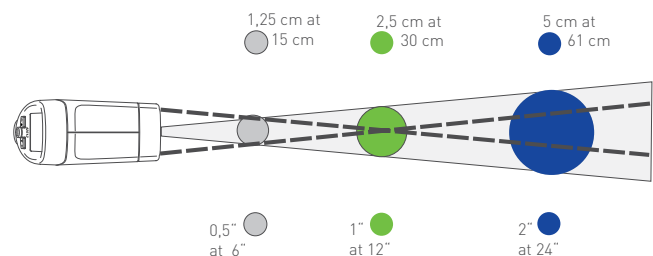
Technical data

- Temperature range -20...510 °C
- Resolution 0.1
- Accuracy < 500 °C: $\pm[2\% \text{ of rdg.} + 2\text{ °C}]$
> 500 °C: $\pm[3\% \text{ of rdg.} + 1\text{ °C}]$
- Optical resolution 12 / 1
- Emissivity 0.10...1.00

Type SemiTemp 509



Functions	
Spectral range	8...14 μm
Laser pointer	2
Alarm	Acustical high / low
TC connection	
Data Store	
PC connection	
Power supply	9 V
LCD lightning	✓
°C / °F switchable	✓
Bargraph display	
Scan / Hold / Auto OFF	✓
Permanent measuring (Lock)	✓
Low Bat. indication	✓
MIN / MAX store	Max
AVA / DIF function	
Accessories (incl.)	Battery
Order code	
SemiTemp 509	EME8ETIR509000



SemiTemp 515

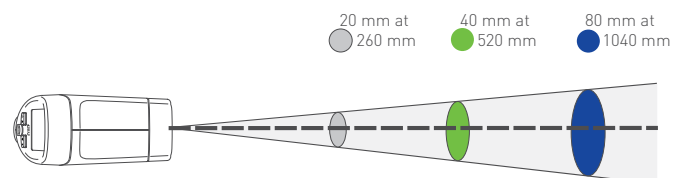
Technical data

- Temperature range -35...800 °C
- Resolution 0.1
- Accuracy <500 °C: $\pm[2\% \text{ of rdg.} + 2\text{ °C}]$
>500 °C: $\pm[3\% \text{ of rdg.} + 1\text{ °C}]$
- Optical Resolution 12 / 1
- Emissivity adjustable 0.10...1.00

Type SemiTemp 515



Functions	
Spectral range	8...14 μm
Laser pointer	1
Alarm	Acustical high / low
TC connection	Type K
Data Store	
PC connection	
Power supply	9 V
LCD lightning	✓
°C / °F switchable	✓
Bargraph display	
Scan / Hold / Auto OFF	✓
Permanent measuring (lock)	✓
Low Bat. indication	✓
MIN / MAX store	✓
AVA / DIF function	✓
Accessories (incl.)	Battery, TC-K
Order code	
SemiTemp 515	EME8ETIR515000



SemiTemp 512

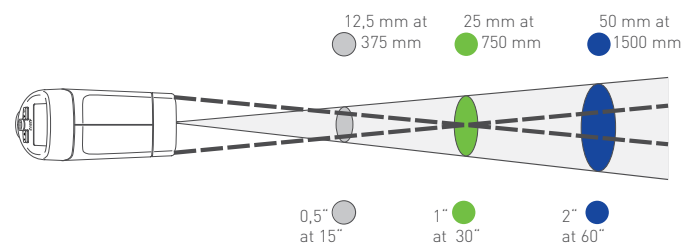
Technical data

- Temperature range -35...1000 °C
- Resolution 0.1
- Accuracy < 500 °C: $\pm[2\% \text{ of rdg.} + 2\text{ °C}]$
> 500 °C: $\pm[3\% \text{ of rdg.} + 1\text{ °C}]$
- Optical Resolution 30 / 1
- Emissivity adjustable 0.10...1.00

Type SemiTemp 512



Functions	
Spectral range	8...14 μm
Laser pointer	2
Alarm	Acustical high / low
TC connection	
Data Store	
PC connection	
Power supply	9 V
LCD lightning	✓
°C / °F switchable	✓
Bargraph display	
Scan / Hold / Auto OFF	✓
Permanent measuring (lock)	✓
Low Bat. indication	✓
MIN / MAX store	Max
AVA / DIF function	
Accessories (incl.)	Battery
Order code	
SemiTemp 512	EME8ETIR512000



MaxiTemp 570

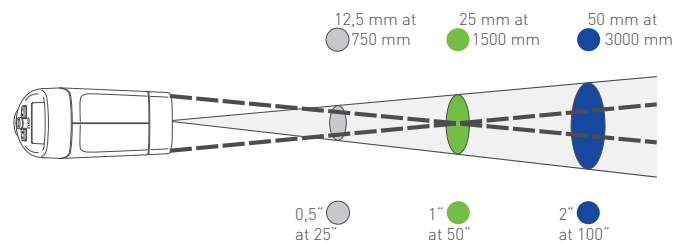
Technical data

- Temperature range -35...1000 °C
- Resolution 0.1
- Accuracy < 500 °C: $\pm[2\% \text{ of rdg.} + 2\text{ °C}]$
> 500 °C: $\pm[3\% \text{ of rdg.} + 1\text{ °C}]$
- Optical Resolution 50 / 1
- Emissivity adjustable 0.10...1.00

Type MaxiTemp 570



Functions	
Spectral range	8...14 μm
Laser pointer	2
Alarm	Acustical (high / low)
TC connection	Type K
Data Store	100
PC connection	USB
Power supply	9V
LCD lightning	✓
°C / °F switchable	✓
Bargraph display	✓
Scan / Hold / Auto OFF	✓
Permanent measuring (lock)	✓
Low Bat. indication	✓
MIN / MAX store	✓
AVA / DIF function	✓
Accessories (incl.)	Battery, TC-K, transport case, software, USB cabel, stand-base
Order code	
MaxiTemp 570	EME8ETIR570000



Our products at a glance

Series IR

	MiniTemp 400	SemiTemp 509	SemiTemp 515	SemiTemp 512	MaxiTemp 570
Temperature range	-20...330 °C	-20...510 °C	-35...800 °C	-35...1000 °C	-35...1000 °C
Resolution	0.1	0.1			0.1
Accuracy < 500 °C > 500 °C	±(2 % of rdg. + 2 °C)	±(2 % of rdg. + 2 °C) ±(3 % of rdg. + 1 °C)			±(2 % of rdg. + 2 °C) ±(3 % of rdg. + 1 °C)
Optical Resolution	8 / 1	12 / 1	12 / 1	30 / 1	50 / 1
Emissivity	Fix 0.95	Adjustable 0.10...1.00			
Spectral range	8...14 µm				
Laser pointer	1	2	1	2	2
Alarm		Acustical (high / low)			Acustical (high / low)
TC connection			Type K		Type K
Store					100
PC connection					USB
Power supply	9 V				
LCD lightning	✓	✓	✓	✓	✓
°C / °F switchable	✓	✓	✓	✓	✓
Bargraph display					✓
Scan / Hold / Auto OFF	✓	✓	✓	✓	✓
Permanent measuring (lock)		✓	✓	✓	✓
Low Bat. indication	✓	✓	✓	✓	✓
MIN / MAX store	✓	Max	✓	Max	✓
AVA / DIF function			✓		✓
Accessories (incl.)	Battery	Battery	Battery, TC-K	Battery	Battery, TC-K, transport case, software, USB cabel, stand base