Hand-held thermometer
Models CTH6500, CTH65I0

Applications

- Calibration of thermometers
- Temperature measurement for the purposes of quality assurance
- Measurements in service and maintenance applications
- Long-term monitoring and online documentation

Special features

- High accuracy of 0.03 K with Pt100
- One- and two-channel versions
- Connection possibilities for various probe types
- Optionally with Ex approval

Hand-held thermometer model CTH6500

Description

The all-purpose model CTH6500 hand-held thermometer, for superior mobile temperature measurement, is notable for its precision, flexibility and ease of handling.
In addition to Pt100 resistance thermometers, it can also process signals from typical thermocouples. Thus temperatures from -200 ... +1760 °C can be measured.

Through its high accuracy of 0.03 K in ranges from -100 ... +150 °C, this instrument can also be used as a reference instrument in biotechnology, pharmaceutical and food industries. The CTH6500 is thus also ideal for all service and maintenance tasks.

Low-drift measuring amplifiers ensure small measurement errors, while easy-to-use adjustment features considerably simplify adjustments and calibrations:

- Calibration by code for fast setting of standard probes via identification numbers

- Physical calibration of probe and display at one, two or three different temperatures

In this way it is possible to reduce measuring errors to a minimum and ensure a high display accuracy.

Additional fields of application
The instrument has been primarily designed for temperature measurement, though it can, with the appropriate probes, also be used for:

- humidity measurement with a combined temperature-humidity probe and for
- flow measurement from 0.1 ... 40 m/s with a vane sensor.

The calibration and adjustment possibilities above are also applicable to these measurement parameters.

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Features of the hand-held thermometer

- Simple handling
- Large display with dual temperature display and bargraph
- Min/Max value for monitoring of temperature limits
- Mean value function for statistical evaluation
- "Fast mode" for faster measurements up to 4/s
- Selectable channel can be switched off to improve the clarity of the display data
- Recording and visualisation of temperature cycles with the help of the SmartGraph software
- Data logger (optional)

Operation

In the SETUP menu, a menu point can be selected and altered using the "UP" and "DOWN" keys. "ENTER" and "ESC" are used for confirmation and exit.

The operator menu is intuitively understandable and is subdivided into only two levels:
Main menu for the selection of the basic functions and parameter menu for setting the parameters.

1. Probe holder
2. Connection port 1 for probe sensor
3. Connection port 2 for probe sensor
4. USB connection port for PC
5. Keyboard
6. Large LCD display

MENU

Unit — Prob — Lin2 — CAL — PrEn — Chnl — ArEA — Lo6
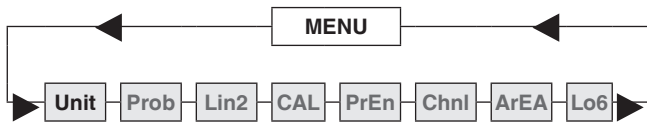
Main menu for CTH6500

Unit	Prob	Lin2	CAL	PrEn	Chnl	ArEA	Lo6
°C	P	T1-T2	OFF	OFF	OFF	c	OFF
°F	J		oP1	ON	ON	m	ON
m/s	K		oP2				
%rh	L						
g/m³	N						
°C td	R						
°F td	S						
Pa	T						
hPa	RH						
m³/s	D						
	Pr						
	H						

Parameter menu for CTH6500

Specifications	Model CTH6500	Model CTH65I0
Probe types	Pt100, thermocouples, humidity, flow	Pt100
Measuring inputs	1 or 2	1 or 2
Measuring ranges		
Pt100	-200 ... +600 °C / -392 ... +1112 °F	-200 ... +600 °C / -392 ... +1112 °F
Thermocouples	-200 ... +1500 °C / -392 ... + 2732 °F	-
Humidity	0 ... 100 % r. H.	-
Flow	0 ... 40 m/s	-
Measurement uncertainties [1]		
■ Pt100	0.03 K for -100 ... +150 °C 0.05 K for -200 ... +200 °C 0.1 % of measured value above 200 °C	0.03 K for -100 ... +150 °C 0.05 K for -200 ... +200 °C -
■ TC K, J, L, N and T	0.2 K for 0 ... 200 °C 0.5 K for 200 ... 1000 °C 1 K above 1000 °C	- - -
■ TC R and S	1 K + 0.1 % of measured value	-
■ Humidity	1.5 % r. H.	-
■ Flow	0.5 % of full-scale value	-
Resolution	0.01 K up to 200 °C, then 0.1 K	0.01 K up to 200 °C, then 0.1 K
Display	two-line LCD display	two-line LCD display
Interface	USB	RS-232 [2]
Power supply	DC 9 V battery or rechargeable battery	DC 9 V battery
Operating time	approx. 20 h with battery	approx. 20 h with battery
Ambient temperature	0 ... 40 °C	0 ... 40 °C
Dimensions (L x W x H)	200 x 93 x 44 mm	200 x 85 x 40 mm
Weight	350 g	300 g
CE conformity		
■ EMC directive	2004/108/EC, EN 61326 Emission (group 1, class B) and Immunity (portable test and measuring equipment)	
■ ATEX directive	-	Category II 2 G, ignition protection type EEx ib IIB T4

1) The measurement uncertainty applies for the respective indicator-probe combination following adjustment and calibration.
2) The Ex measuring instrument has an RS-232 interface which, however, must not be used within an Ex area.

Dimensions in mm

Front view

Side view (left)

Bottom view
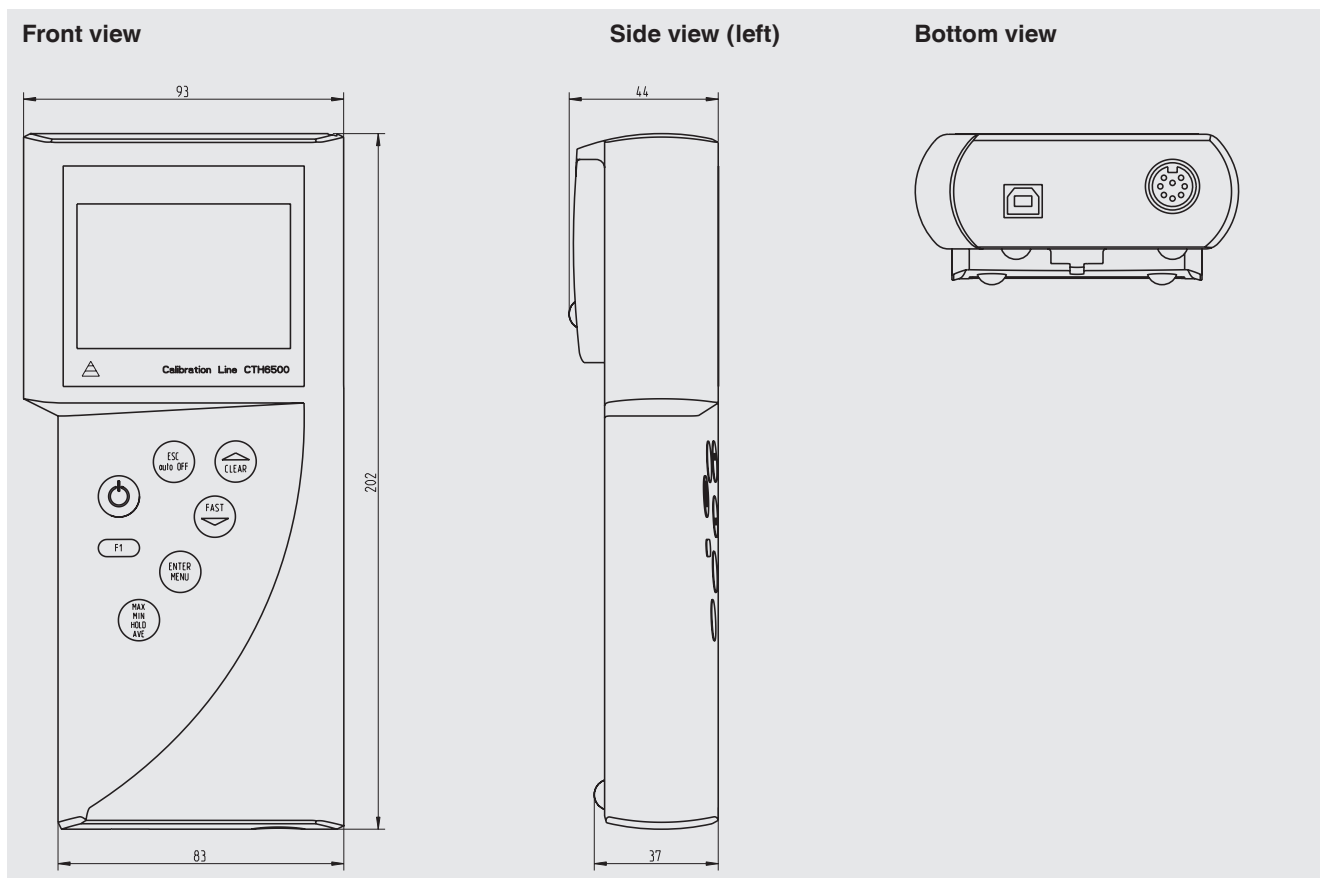
Options and accessories

- Immersion probe
- Penetration probe
- Surface probe
- Customer-specific probes are available on request
- ATEX approval EEx ib IIB T4 (as option)

- AC adapter
- 9 V rechargeable battery and charger
- 9 V battery
- Transport case, robust

- SmartGraph software
- PC adapter cable

Fig. left: hand-held thermometer model CTH65I0
Fig. right: service case

Temperature sensors

Standard probe (immersion probe)	Temperature range	
	°C	°F
Pt100, d = 3 mm, l = 150 mm	-200 ... +450	-392 ... +842
Pt100, d = 3 mm, l = 300 mm	-200 ... +450	-392 ... +842
Pt100, d = 6 mm, l = 300 mm	-200 ... +450	-392 ... +842
TC K, d = 3 mm, l = 300 mm	-200 ... +1100	-392 ... +2012
TC K, d = 3 mm, l = 500 mm	-200 ... +1100	-392 ... +2012

Section through the combined temperature-humidity probe

Fig. left: combined temperature-humidity probe
Fig. centre: immersion probe
Fig. right: vane flow sensor

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