

HI93501, HI935001,
HI935004, HI935007,
HI935008

Portable Thermometers



INSTRUCTION MANUAL

Dear
Customer,

Thank you for choosing a Hanna Instruments product.
Please read this instruction manual carefully before using this meter.

This manual will provide you with the necessary information for correct use of this meter, as well as a precise idea of its versatility.

If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com or view our worldwide contact list at www.hannainst.com.

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Remove the meter from the packing material and examine it to make sure that no damage has occurred during shipping. If there is any damage, contact your local Hanna Instruments Office.

Each meter is supplied complete with:

- Temperature probe
- Alkaline batteries: 1.5V AAA (3 pcs.)
- Quick reference guide
- Instruction manual

Note: Save all packing material until you are sure that the meter functions correctly. All defective items must be returned in the original packing with the supplied accessories.



The thermometers are waterproof and are rated IP65.

The meters are specifically designed for measuring the temperature in all areas of the food sector.

Both air temperature and product internal temperature can be measured with these thermometers.

The probe shaft is designed for continuous contact with foodstuffs in accordance with Regulation (EC) 1935/2004.

Refer to the probe section of this manual for more information on the available probes.

The process variable temperature plays a central function in food commerce. Many aspects of safe food handling require the accurate measurement of temperature. Food service, food preparation, packaging, storage and transport of food require temperature to be monitored or controlled. Spot checking temperatures with Hanna food thermometers ensures daily work routines are carried out at the correct temperature.

Hanna Instruments manufactures food thermometer models to meet the tough environment encountered in the food sector. Standard features of all models include a ruggedized professionally designed waterproof case and stainless steel probe for measurements in semi solid foods, liquids, pastes or air. They provide good accuracy and include features such as CAL Check, low battery detection, auto-off capability, and long battery life.

The model **HI93501** is a thermistor style thermometer. It measures temperatures from -50.0 to 150.0 °C (-58.0 to 302.0 °F). It comes with a stainless steel replaceable style penetration probe (**FC762PW**).

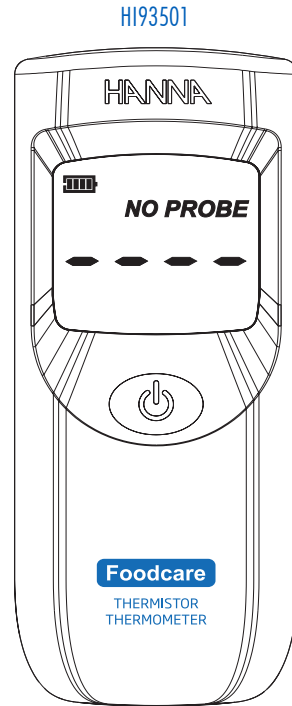
The models **HI935001** and **HI935007** thermometers utilize a K-type thermocouple style probe and provide the large range of temperature measurement; from -50.0 to 300 °C (-58.0 to 573 °F). The model **HI935001** uses a replaceable style probe (**FC766PW**) and the model **HI935007** has a fixed thermocouple probe and is not replaceable.

The models **HI935004** and **HI935008** thermometers utilize a T-type thermocouple style probe and provide the large range of temperature measurement; from -50.0 to 300 °C (-58.0 to 573 °F). The model **HI935004** uses a replaceable style probe (**FC767PW**) and the model **HI935008** has a fixed thermocouple probe and is not replaceable.

Models **HI93501**, **HI935004** and **HI935008** are compliant to standard EN 13485.

Main features:

- EN 13485 compliant
- FC762PW thermistor probe
- Calibration Check feature
- Remaining battery life indication/low battery detection
- Auto-off capability
- Waterproof casing IP65



Interchangeable FC762 series
Thermistor probes

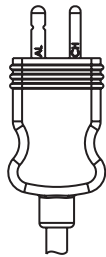
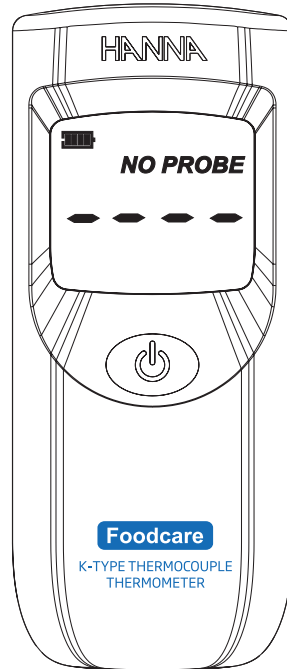
Range*	-50.0 to 150.0 °C -58.0 to 302.0 °F
Resolution	0.1 °C 0.1 °F
Meter Accuracy @ 23.0°C ±5°C	±0.1 °C (-50.0 to 150.0 °C) ±0.2 °F (-58.0 to 302.0 °F)
Probe Accuracy FC762PW	±0.3 °C (-10.0 to 80.0 °C) ±0.5 °F (14 to 176 °F) ±0.7 °C / ±1.3 °F remaining range
Battery type / life	1.5V AAA (3 pcs.) approx. 4500 hours of continuous use
Auto-Off	user selectable: after 8 min, 60 min or disabled
Environment	For air measurement: Type E For product internal measurement: Rated operating condition: -20 to 50 °C (-4 to 122 °F) Limiting condition: -30 to 50 °C (-22 to 122 °F) Storage and transportation condition: -40 to 70 °C (-40 to 158 °F) Relative Humidity 100 %
Storage/transport temperature	-40 to 70 °C (-40 to 158 °F)
Dimensions	140 x 57 x 28 mm (5.5 x 2.2 x 1.1")
Mass	175 g (6.17 oz.)
Certification	EN 13485:2001 Suitability: Storage and transport; Climatic Environment: E; Accuracy Class: 1;

*The measurement range may be limited by probe type, and applies to the probe shaft.

Main features:

- FC766PW K-type thermocouple probe
- Calibration Check feature
- Remaining battery life indication/low battery detection
- Auto-off capability
- Waterproof casing IP65

HI935001



Interchangeable
K-type Thermocouple FC766
series probes

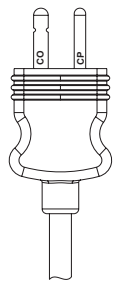
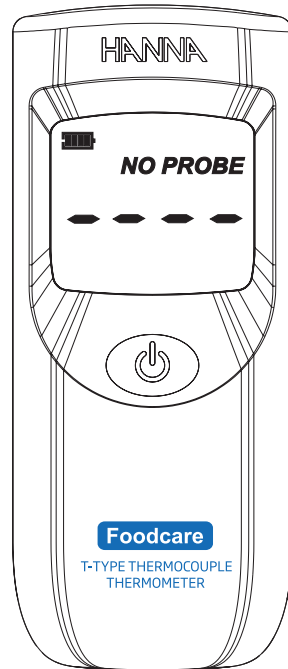
Range*	-50.0 to 199.9 °C ; 200 to 300 °C -58.0 to 399.9 °F ; 400 to 573 °F
Resolution	0.1 °C (-50.0 to 199.9 °C) 1 °C (200 to 300 °C) 0.1 °F (-58.0 to 399.9 °F) 1 °F (400 to 573 °F)
Meter Accuracy @ 23.0°C ±5°C	±0.4 °C (-50.0 to 300 °C) ±0.7 °F (-58.0 to 573 °F)
Probe Accuracy FC766PW	±1.6 °C (-50.0 to 300 °C) ±2.9 °F (-58.0 to 573 °F)
Battery type/life	1.5V AAA (3 pcs.) approx. 3500 hours of continuous use
Auto-Off	user selectable: 8 min, 60 min or disabled
Environment	Limiting condition: -30 to 50 °C (-22 to 122 °F)
	Storage and transportation condition: -40 to 70 °C (-40 to 158 °F)
	Relative Humidity 100 %
Dimensions	140 x 57 x 28 mm (5.5 x 2.2 x 1.1")
Mass	178 g (6.27 oz.)

*The measurement range may be limited by probe type, and applies to the probe shaft.

Main features:

- EN 13485 compliant
- FC767PW T-type thermocouple probe
- Calibration Check feature
- Remaining battery life indication/low battery detection
- Auto-off capability
- Waterproof casing IP65

HI935004



Interchangeable
T-type Thermocouple
FC767 series probes

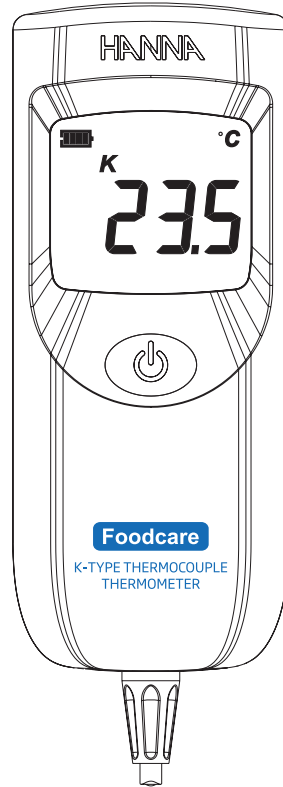
Range*	-50.0 to 199.9 °C ; 200 to 300 °C -58.0 to 399.9 °F ; 400 to 573 °F
Resolution	0.1 °C (-50.0 to 199.9 °C) 1 °C (200 to 300 °C) 0.1 °F (-58.0 to 399.9 °F) 1 °F (400 to 573 °F)
Meter Accuracy @ 23.0°C ±5°C	±0.4 °C (-50.0 to 300 °C) ±0.7 °F (-58.0 to 573 °F)
Probe Accuracy FC767PW	±0.6 °C (-50 to 100.0 °C) ±1.6 °C (100.0 to 300 °C) ±1.1 °F (-58 to 212 °F) ±2.9 °F (212 to 573 °F)
Battery type/life	1.5V AAA (3 pcs.) approx. 3500 hours of continuous use
Auto-Off	user selectable: 8 min, 60 min or disabled
Environment	For air measurement: Type E
	For product internal measurement: Rated operating condition: -20 to 50 °C (-4 to 122 °F) Limiting condition: -30 to 50 °C (-22 to 122 °F) Storage and transportation condition: -40 to 70 °C (-40 to 158 °F)
	Relative Humidity 100 %
Dimensions	140 x 57 x 28 mm (5.5 x 2.2 x 1.1")
Mass	178 g (6.27 oz.)
Certification	EN 13485:2001 Suitability: Storage and transport; Climatic Environment: E; Accuracy Class: 1;

*The measurement range may be limited by probe type, and applies to the probe shaft.

Main features:

- Fixed K-type thermocouple probe
- Calibration Check feature
- Remaining battery life indication/low battery detection
- Auto-off capability
- Waterproof casing IP65

HI935007



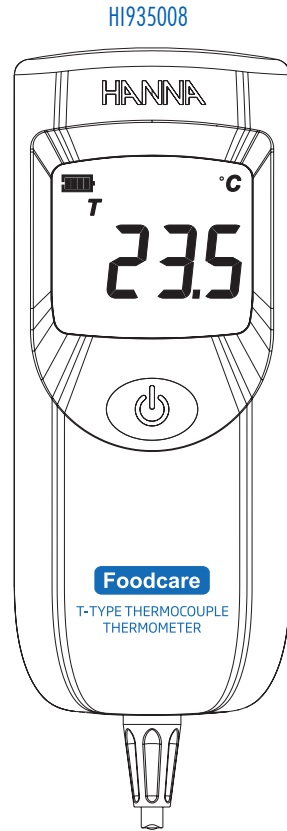
Fixed
K-type Thermocouple probe

Range*	-50.0 to 199.9 °C ; 200 to 300 °C -58.0 to 399.9 °F ; 400 to 573 °F
Resolution	0.1 °C (-50.0 to 199.9 °C) 1 °C (200 to 300 °C) 0.1 °F (-58.0 to 399.9 °F) 1 °F (400 to 573 °F)
System Accuracy (Meter @ 23.0°C ±5°C)	±1 °C (-50.0 to 100.0 °C) ±2 °C (100.0 to 300 °C) ±1.8 °F (-58.0 to 212°F) ±3.6 °F (212 to 573 °F)
Battery type/life	1.5V AAA (3 pcs.) approx. 3500 hours of continuous use
Auto-Off	user selectable: 8 min, 60 min or disabled
Environment	Limiting condition: -30 to 50 °C (-22 to 122 °F)
	Storage and transportation condition: -40 to 70 °C (-40 to 158 °F)
	Relative Humidity 100 %
Dimensions	140 x 57 x 28 mm (5.5 x 2.2 x 1.1")
Mass	178 g (6.27 oz.)

*The measurement range applies to the probe shaft.

Main features:

- EN 13485 compliant
- Fixed T-type thermocouple probe
- Calibration Check feature
- Remaining battery life indication/low battery detection
- Auto-off capability
- Waterproof casing IP65



Fixed
T-type Thermocouple probe

Range*	-50.0 to 199.9 °C ; 200 to 300 °C -58.0 to 399.9 °F ; 400 to 573 °F
Resolution	0.1 °C (-50.0 to 199.9 °C) 1 °C (200 to 300 °C) 0.1 °F (-58.0 to 399.9 °F) 1 °F (400 to 573 °F)
System Accuracy (Meter @ 23.0°C ±5°C)	±0.5 °C (-50.0 to 100.0 °C) ±1 °C (100.0 to 300 °C) ±0.9 °F (-58.0 to 212 °F) ±1.8 °F (212 to 573 °F)
Battery type/life	1.5V AAA (3 pcs.) approx. 3500 hours of continuous use
Auto-Off	user selectable: 8 min, 60 min or disabled
Environment	For air measurement: Type E For product internal measurement: Rated operating condition: -20 to 50 °C (-4 to 122 °F) Limiting condition: -30 to 50 °C (-22 to 122 °F) Storage and transportation condition: -40 to 70 °C (-40 to 158 °F) Relative Humidity 100 %
Dimensions	140 x 57 x 28 mm (5.5 x 2.2 x 1.1")
Mass	178 g (6.27 oz.)
Certification	EN 13485:2001 Suitability: Storage and transport; Climatic Environment: E; Accuracy Class: 0.5;

*The measurement range applies to the probe shaft.

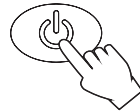
Each meter is supplied with batteries. Remove the battery cover, unwrap the supplied batteries and install them while paying attention to their polarity (see the "Battery replacement" section for more details).

TAKING MEASUREMENTS

Connect a suitable temperature probe to the meter (see page 21 for a complete list of Hanna Instruments probes).

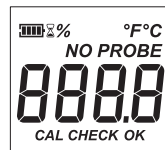
Note: HI935007 and HI935008 have a fixed probe.

To switch the meter ON, press the **ON/OFF** button on the front of the meter. If it does not turn on, make sure that the batteries are properly installed in their place.

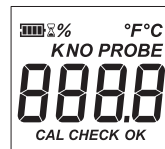


At start-up the thermometer displays all LCD segments for a few seconds, followed by the percentage indication of the remaining battery life. It then enters CAL Check mode followed by measurement mode.

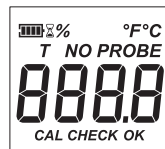
HI93501



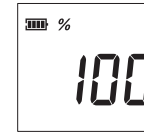
HI935001 and HI935007



HI935004 and HI935008



Note: The full display can be frozen by keeping the ON/OFF button pressed.

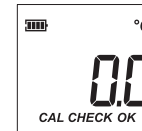


Battery Life

CALIBRATION CHECK

All the models are provided with an automatic CAL Check feature at start-up, which allows the user to check the meter calibration status.

If the meter is calibrated, the display will stabilize and show "0.0 °C" (± 0.3 °C) for a few seconds.



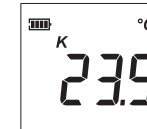
MEASUREMENT

If a temperature probe is plugged in, the meter displays the measured temperature.

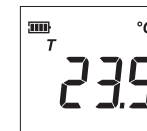
HI93501



HI935001 and HI935007



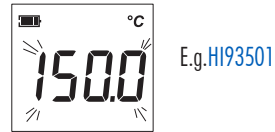
HI935004 and HI935008



If the measurement is unstable, the meter will display ∞ until the measurement becomes stable.



If the reading is slightly beyond the measurement range, the meter flashes the closest full-scale value.



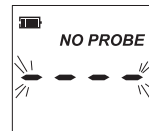
To switch the meter OFF, press the ON/OFF key.

If no temperature probe is plugged in, or the signal is interrupted the display shows blinking dashes and the "NO PROBE" message is displayed.

WARNING MESSAGES

NO PROBE message

If no temperature probe is plugged in, or the signal is interrupted the display shows blinking dashes and the "NO PROBE" message is displayed.

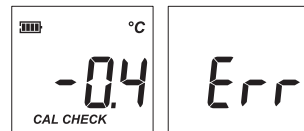


DAMAGED PROBE message

When the readings are very far from the measurement range, the probe may be damaged. The display shows blinking dashes and "NO PROBE" message is displayed.

CALIBRATION CHECK ERROR MESSAGE

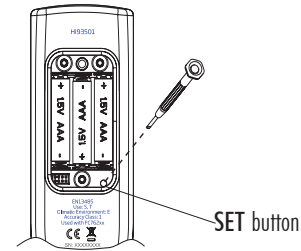
If during CALIBRATION CHECK the meter displays more than ± 0.3 °C, then an "Err" message is displayed.



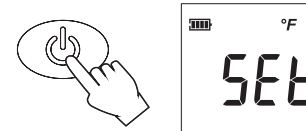
Contact your local Hanna Instruments Office for recalibration.

METER SETUP

Enter Setup Mode to change the temperature unit (°C or °F) or to adjust the auto-off time. To enter the Setup Mode, press the SET button located inside the battery compartment.



- Use the ON/OFF button to switch between "°C" or "°F". Long press the ON/OFF button once to save and continue to auto-off settings.



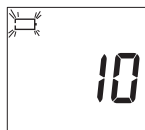
- Use the ON/OFF button to cycle through the following Auto-Off choices: 8 minutes ("d08", default value), 60 minutes ("d60") or OFF ("d---"). Long press the ON/OFF button once to save and continue to normal operation.



Each model is provided with an auto-off feature, which switches the meter off after a certain period of non-use, to save battery life.

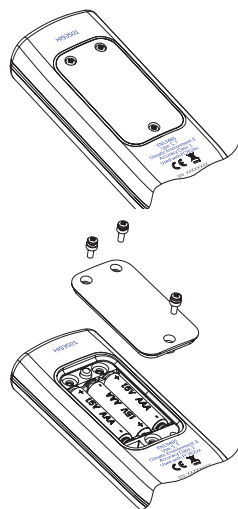
BATTERY REPLACEMENT

When the remaining battery life is less than 10% the battery tag blinks on the display to warn the user.

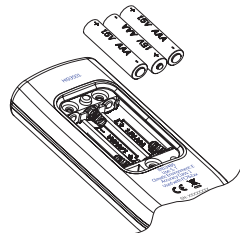


If the display shows battery level "0%" it means the battery charge is not enough to guarantee good measurements and the Battery Error Prevention System (BEPS) turns the meter off. Immediately replace the batteries with new ones.

The batteries are accessed by opening the battery cover on the back of the instrument.

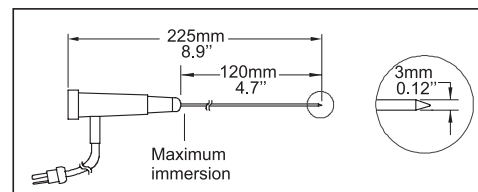


Replace the three 1.5V AAA alkaline batteries located in the battery compartment, observing the indicated polarity.



Replace the battery cover making sure that the gasket is in place.

All Hanna Instruments temperature probes are pre-calibrated at the factory and are ready-to-use. These interchangeable probes make it possible to switch from one probe to another within the family without requiring recalibration.



Note: To clean the meters and the probes, do not use aggressive detergents. It is recommended to use water.

FC762PW	General purpose penetration probe with 1 m (3.3') white cable & white handle for HI93501
FC766PW	Penetration, K-type thermocouple probe with 1 m (3.3') white cable & white handle for HI935001
FC767PW	Penetration, T-type thermocouple probe with 1 m (3.3') white cable & white handle for HI935004
HI710026	Protective Rubber Boot with circular hole used for HI93501 , HI935007 and HI935008
HI710027	Protective Rubber Boot with rectangular hole used for HI935001 and HI935004

Certification

All Hanna Instruments are conform to the CE European Directives.



Disposal of Electrical & Electronic Equipment.

The product should not be treated as household waste. Instead hand it over to the appropriate collection point for the recycling of electrical and electronic equipment which will conserve natural resources.

Disposal of waste batteries. This product contains batteries, do not dispose of them with other household waste. Hand them over to the appropriate collection point for recycling.

Ensuring proper product and battery disposal prevents potential negative consequences for the environment and human health, which may be caused by inappropriate handling. For more information, contact your city, your local household waste disposal service, the place of purchase or go to www.hannainst.com.



Recommendations for Users

Before using these products, make sure they are entirely suitable for your specific application and for the environment in which they are used. Any variation introduced by the user to the supplied equipment may degrade the meters' performance. To avoid electrical shock, do not use these meters when voltages at the measurement surface exceed 24 VAC or 60 VDC. For yours and the meter's safety do not use or store the meter in hazardous environments.

Warranty

HI93501, HI935001, HI935004, HI935007 and HI935008 are warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. This warranty is limited to repair or replacement free of charge. Damage due to accidents, misuse, tampering or lack of prescribed maintenance is not covered.

If service is required, contact your local Hanna Instruments Office. If under warranty, report the model number, date of purchase, serial number and the nature of the problem. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the meter is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization number from the Technical Service department and then send it with shipping costs prepaid. When shipping any meter, make sure it is properly packed for complete protection.

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