

Instruction Manual

HI 9241
HI 93501
HI 93501S
HI 93503
HI 935007

**Portable Microprocessor
Thermometers**

Foodcare

 **HANNA**[®]
instruments
www.hannainst.com

Dear Customer,
Thank you for choosing a Hanna product.
Please read this instruction manual carefully before using the instrument.
This manual will provide you with the necessary information for correct use of the instrument, as well as a more precise idea of its versatility.
If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com.

WARRANTY

HI 9241, HI 93501, HI 93501S, HI 93503 and HI 935007 are guaranteed for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. Electrodes and probes are guaranteed for six months. 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 the dealer from whom you purchased the instrument. 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 instrument 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 instrument, make sure it is properly packed for complete protection.

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PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it to make sure that no damage has occurred during shipping. If there is any damage, notify your dealer or the nearest Hanna Customer Service Center.

Each meter is supplied complete with:

- Temperature probe
- Alkaline batteries: 3 x 1.5V AAA
- Instruction manual.

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

GENERAL DESCRIPTION

Temperature plays a very important role in the food industry, and it also has to be checked in the warehouses, loading docks and in transportation vehicles.

You can choose the Hanna food-thermometer which best meets your needs, among several models:

HI 9241, HI 93501, HI 93501S, HI 93503 and HI 935007 are professional, rugged and waterproof thermometers, designed to be used on a daily basis in industrial kitchens and catering. They provide excellent accuracy and can operate with a wide range of interchangeable probes (designed for air, liquid or penetration; see page 12) without requiring recalibration.

Standard features include Cal-Check feature for checking the meter calibration status any time, low battery detection, auto-off capability and long battery life.

Moreover, **HI 93501S** and **HI 93503** are provided with stability indicator, a bargraph with seven level of stability and Hold function to freeze the reading on the LCD.

HI 935007 is a K-thermocouple thermometer. It offers a wide temperature range, automatic change of resolution from 0.1 °C to 1 °C.

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SPECIFICATIONS OF HI 9241

Main features:

- HI 765 probes series
- Calibration Check feature
- Remaining battery life indication / low battery detection
- Auto-off capability
- Waterproof casing

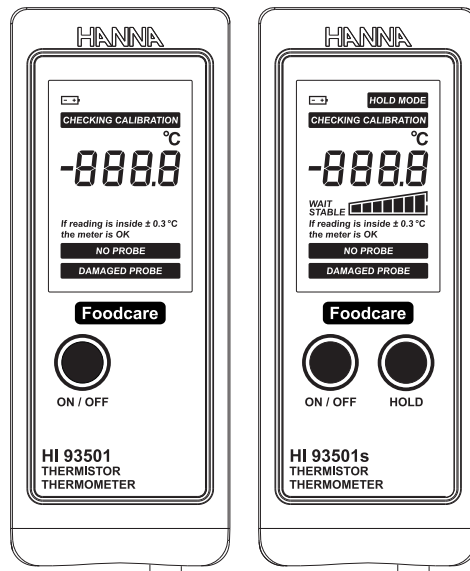


Range	-50.0 to 150.0 °C
Resolution	0.1 °C
Accuracy	±0.4 °C excluding probe error
Typical EMC Deviation	±0.5 °C (with HI 765BL probe)
Battery	3 x 1.5V AAA, approx. 2000 hours of continuous use
Auto-off	after 8 minutes of non use
Environment	-10 to 50 °C (14 to 122 °F); max 100% RH non-condensing
Dimensions	152 x 58 x 30 mm (6.0 x 2.3 x 1.2")
Weight	205 g (7.2 oz)

SPECIFICATIONS OF HI 93501 & HI 93501s

Main features:

- HI 762 probes series
- Range -50 to 150 °C
- Calibration Check feature
- Remaining battery life indication / low battery detection
- Stability indicator (S model)
- Hold feature (S model)
- Auto-off capability
- Waterproof casing



Range	-50.0 to 150.0 °C
Resolution	0.1 °C
Accuracy	±0.4 °C excluding probe error
Typical EMC Deviation	±0.4 °C (with HI 762PWL probe)
Battery	3 x 1.5V AAA, approx. 2000 hours of continuous use
Auto-off	after 8 minutes of non use
Environment	-10 to 50 °C (14 to 122 °F); RH 100%
Dimensions	152 x 58 x 30 mm (6.0 x 2.3 x 1.2")
Weight	205 g (7.2 oz.)

SPECIFICATIONS OF HI 93503

Main features:

- HI 765 probes series
- Range -50 to 150 °C
- Calibration Check feature
- Remaining battery life indication / low battery detection
- Stability indicator
- Hold feature
- Auto-off capability
- Waterproof casing



Range	-50.0 to 150.0 °C
Resolution	0.1 °C
Accuracy	±0.4 °C excluding probe error
Typical EMC Deviation	±0.4 °C (with HI 765PWL probe)
Battery	3 x 1.5V AAA, approx. 2000 hours of continuous use
Auto-off	after 8 minutes of non use
Environment	-10 to 50 °C (14 to 122 °F); RH 100%
Dimensions	152 x 58 x 30 mm (6.0 x 2.3 x 1.2")
Weight	205 g (7.2 oz.)

SPECIFICATIONS OF HI 935007

Main features:

- Direct HI 766C K-thermocouple probe
- Available in °C
- Range -50.0 to 1350 °C
- Remaining battery life indication / low battery detection
- Auto-off capability
- Waterproof casing



Range	-50.0 to 199.9°C 200 to 1350 °C
Resolution	0.1 °C (up to 199.9 °C) 1 °C (outside)
Accuracy	±0.2% F.S. excluding probe error
Typical EMC Deviation	±3 °C
Battery	3 x 1.5V AAA, approx. 1000 hours of continuous use
Auto-off	after 8 minutes of non use
Environment	-10 to 50 °C (14 to 122 °F); RH 100%
Dimensions	152 x 58 x 30 mm (6.0 x 2.3 x 1.2")
Weight	205 g (7.2 oz.)

OPERATIONAL GUIDE

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

TAKING MEASUREMENTS

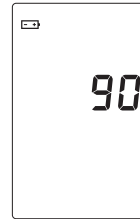
Connect a suitable temperature probe to the meter (see pages 12-14 for a complete list of Hanna probes).

Note: HI 935007 has 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; then it enters Cal Check mode and then enters measurement mode.



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

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

If no temperature probe is plugged in or the reading is over-range, the display shows blinking dashes. If the reading is slightly beyond the measuring range, the meter flashes the closest full-scale value.

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

AUTO-OFF FEATURE

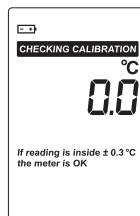
To save battery life, each model is provided with an auto-off feature, which switches the instrument off after a certain period of non use. The auto-off delay time is 8 minutes.

CALIBRATION CHECK

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

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

Contact your dealer or your nearest Hanna Service Center for recalibration, if necessary.

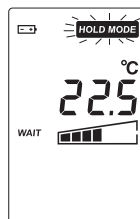


HOLD FEATURE (HI 93501S, HI 93503)

The hold function is activated by pressing the **HOLD** key.

The measured temperature and the stability bargraph is held on the display until **HOLD** is pressed again.

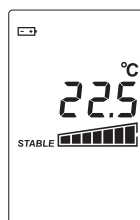
The "HOLD MODE" tag blinks on the display while in Hold mode.



STABILITY INDICATOR (HI 93501S, HI 93503)

A stability indicator with seven levels of bargraph is provided on the LCD. Until the reading become stable the "WAIT" tag is on.

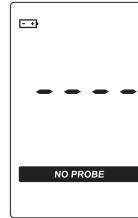
When the reading is inside ± 0.1 °C window the "STABLE" tag become on stability bargraph is full.



WARNING MESSAGES

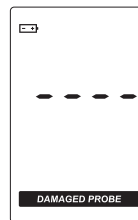
NO PROBE message

If the probe is not connected "NO PROBE" message is displayed.



DAMAGED PROBE message

When the readings are very far from the reading range, the probe can be damaged, "DAMAGED PROBE" message is displayed.

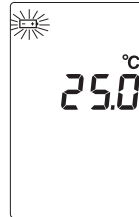


BATTERY REPLACEMENT

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

If the battery level is low enough to cause erroneous readings, the Battery Error Prevention System (BEPS) turns the meter off.

Immediately replace the batteries with new ones.

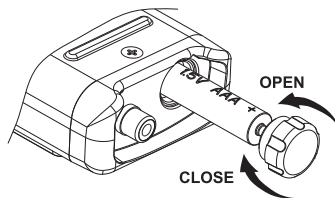
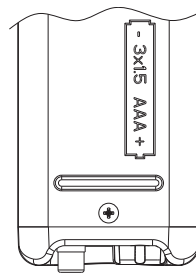


Battery replacement must only take place in a non-hazardous area.

The batteries are accessed by opening the battery compartment cap on the bottom of the instrument.

Replace the three 1.5V AAA alkaline batteries located in the battery compartment, observing the polarity on the rear of the instrument.

Reattach the battery compartment cap making sure that the gasket is in place.



TEMPERATURE PROBES

Hanna offers a wide range of probes to meet your needs with air, liquid, penetration and surface measurements.

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

Hanna probes are also available in different handle colors to avoid cross contamination during testing.

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

FOR HI 93501 AND HI 93501S

HI 762A	Air probe, w/1 m (3.3') cable & white handle
HI 762A/10	Air probe, w/10 m (33') cable & white handle
HI 762BL	General purpose liquid probe, w/1 m (3.3') cable & black handle
HI 762L	General purpose liquid probe, w/1 m (3.3') cable & white handle
HI 762L/2	General purpose liquid probe, w/2 m (6.6') cable & white handle
HI 762L/10	General purpose liquid probe, w/10 m (33') cable & white handle
HI 762PBL	General purpose penetration probe w/1 m (3.3') cable & blue handle
HI 762PBL/10	General purpose penetration probe w/10 m (33') cable & blue handle
HI 762PG	General purpose penetration probe with 1 m (3.3') cable and green handle
HI 762PG/10	General purpose penetration probe w/10 m (33') cable & green handle
HI 762PR	General purpose penetration probe w/1 m (3.3') cable & red handle
HI 762PR/10	General purpose penetration probe w/10 m (33') cable & red handle
HI 762PW	General purpose penetration probe w/1 m (3.3') cable & white handle
HI 762PW/10	General purpose penetration probe w/10 m (33') cable & white handle

HI 762PWL	Penetration probe w/1 m (3.3') cable & white handle
HI 762W	Wire probe without handle for hard-to-reach places w/1 m (3.3') cable
HI 762W/10	Wire probe, without handle for hard-to-reach places w/10 m (33') cable

FOR HI 9241 AND HI 93503

HI 765A	Air probe, w/1 m (3.3') cable & white handle
HI 765A/10	Air probe, w/10 m (33') cable & white handle
HI 765BL	General purpose liquid probe, w/1 m (3.3') cable & black handle
HI 765L	General purpose liquid probe, w/1 m (3.3') cable & white handle
HI 765L/10	General purpose liquid probe, w/10 m (33') cable & white handle
HI 765PBL	General purpose penetration probe w/1 m (3.3') cable & blue handle
HI 765PBL/10	General purpose penetration probe w/10 m (33') cable & blue handle
HI 765PG	General purpose penetration probe w/1 m (3.3') cable & green handle
HI 765PG/10	General purpose penetration probe w/10 m (33') cable & green handle
HI 765PR	General purpose penetration probe w/1 m (3.3') cable & red handle
HI 765PR/10	General purpose penetration probe w/10 m (33') cable & red handle
HI 765PW	General purpose penetration probe w/1 m (3.3') cable & white handle
HI 765PW/10	General purpose penetration probe w/10 m (33') cable & white handle
HI 765PWL	Penetration probe w/1 m (3.3') cable & white handle
HI 765W	Wire probe without handle for hard-to-reach places w/1 m (3.3') cable
HI 765W/10	Wire probe without handle for hard-to-reach places w/10 m (33') cable

places w/10 m (33') cable

FOR HI 935007

HI 766C (*) Penetration, K-type thermocouple probe w/1 m
(3.3') cable

(*) To be replaced only by authorized service technicians.

RECOMMENDATIONS FOR USERS

Before using these products, make sure they are entirely suitable for the environment in which they are used.

Operation of these instruments in residential areas could cause unacceptable interferences to radio and TV equipment, requiring the operator to follow all necessary steps to correct interferences.

Any variation introduced by the user to the supplied equipment may degrade the instruments' EMC performance.

To avoid electrical shock, do not use these instruments when voltages at the measurement surface exceed 24 VAC or 60 VDC.

To avoid damage or burns, do not perform any measurement in microwave ovens.

Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice.



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