

Instruction Manual

HI 9041 - HI 9061
HI 93501 - HI 93502
HI 93503
HI 935007

**Portable Microprocessor
Thermometers**

Foodcare

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.

These instruments are in compliance with the **CE** directives.

WARRANTY

All Hanna Instruments **meters are warranted for two years** against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. **Sensors and probes are warranted for a period of six months.**

This warranty is limited to repair or replacement free of charge.

Damages due to accidents, misuse, tampering or lack of prescribed maintenance are 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 failure.

First obtain a Returned Goods Authorization number from the Customer Service department, then return the instrument with the Authorization # included along with shipment costs prepaid. If the repair is not covered by the warranty, you will be notified of the charges.

When shipping any instrument, make sure it is properly packaged 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 (for **HI 93501** and **HI 93503** only);
- Alkaline batteries: 1 x 9V for **HI 9041**; 4 x 1.5V AA for **HI 9061**; 3 x 1.5V AA for **HI 93501**, **HI 93502**, **HI 93503** and **HI 935007**;
- 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 9041 and **HI 9061** are simple-to-operate instruments that provide excellent accuracy and can operate with a wide range of interchangeable probes (designed for air, liquid or penetration; see page 15) without requiring recalibration. **HI 9041** and **HI 9061** are available in either °C or °F models.

HI 93501, **HI 93502**, **HI 93503** and **HI 935007** are professional, rugged and waterproof thermometers, designed to be used on a daily basis in industrial kitchens and catering.

Standard features include low battery detection, auto-off capability and long battery life.

Moreover, **HI 93501**, **HI 93502** and **HI 93503** are provided with the exclusive Cal-Check feature for checking the meter calibration status at any time. They use interchangeable probes (see pages 14-15).

HI 935007 is a K-thermocouple thermometer. It offers a wide temperature range, automatic change of resolution from 0.1° to 1°, and user-selectable measurement unit (°C or °F).

SPECIFICATIONS OF HI 9041C & HI 9041F

Main features:

- HI 765 probes series
- Available HI 765 accuracy test plugs
- Remaining battery life indication / low battery detection
- Available in °C or °F models



	HI 9041
Range	-50.0 to 150.0°C (HI 9041C) -58.0 to 302.0°F (HI 9041F)
Resolution	0.1°C / 0.1°F
Accuracy	±0.4°C / ±0.8°F excluding probe error
Typical EMC Deviation	±0.5°C / ±1°F with HI 765BL probe
Probe	HI 765 series
Battery	1x9V (6LR61) / approx. 700 hours of use
Environment	-10 to 50°C (14 to 122°F); max 95% RH non-condensing
Dimensions	180 x 83 x 40 mm (7.1 x 3.3 x 1.6")
Weight	226 g (8 oz)

SPECIFICATIONS OF HI 9061C & HI 9061F

Main features:

- HI 765 probes series
- Available HI 765 accuracy test plugs
- Remaining battery life indication / low battery detection
- Available in °C or °F models
- Waterproof casing



	HI 9061
Range	-50.0 to 150.0°C (HI 9061C) -58.0 to 302.0°F (HI 9061F)
Resolution	0.1°C / 0.1°F
Accuracy	±0.4°C / ±0.8°F excluding probe error
Typical EMC Deviation	±0.5°C / ±1°F with HI 765BL probe
Probe	HI 765 series
Battery	4x1.5V AA (LR6) / approx. 2000 hours of use
Environment	-10 to 50°C (14 to 122°F); 100% RH
Dimensions	196 x 80 x 60 mm (7.7 x 3.1 x 2.4")
Weight	425 g (15 oz)

SPECIFICATIONS OF HI 93501

Main features:

- HI 762 probes series
- Available HI 762 accuracy test plugs
- Range -50 to 150°C
- Calibration Check feature
- Remaining battery life indication / low battery detection
- Auto-off capability
- Waterproof casing



SPECIFICATIONS	
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	3x1.5V AA (LR6), 2000 hours of continuous use
Auto-off	user selectable: 8 min, 60 min, disabled
Environment	-10 to 50°C (14 to 122°F); RH 100%
Dimensions	150 x 80 x 36 mm (5.9 x 3.1 x 1.4")
Weight	235 g (8.3 oz.)

SPECIFICATIONS OF HI 93502

Main features:

- LUMBERG® socket for temperature probes
- LUMBERG® probes series
- Range -50 to 150°C
- Calibration Check feature
- Remaining battery life indication / low battery detection
- Auto-off capability
- Waterproof casing



SPECIFICATIONS	
Range	-50.0 to 150.0°C
Resolution	0.1°C
Accuracy	±0.4°C excluding probe error
Typical EMC Dev.	±0.4°C (with HI 762PW/LUM probe)
Battery	3x1.5V AA (LR6), 2000 hours of continuous use
Auto-off	user selectable: 8 min, 60 min, disabled
Environment	-10 to 50°C (14 to 122°F); RH 100%
Dimensions	150 x 80 x 36 mm (5.9 x 3.1 x 1.4")
Weight	235 g (8.3 oz.)

SPECIFICATIONS OF HI 93503

Main features:

- HI 765 probes series
- Available HI 765 accuracy test plugs
- Range -50 to 150°C
- Calibration Check feature
- Remaining battery life indication / low battery detection
- Auto-off capability
- Waterproof casing



SPECIFICATIONS	
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	3x1.5V AA (LR6), 2000 hours of continuous use
Auto-off	user selectable: 8 min, 60 min, disabled
Environment	-10 to 50°C (14 to 122°F); RH 100%
Dimensions	150 x 80 x 36 mm (5.9 x 3.1 x 1.4")
Weight	235 g (8.3 oz.)

SPECIFICATIONS OF HI 935007

Main features:

- Direct HI 766C K-thermocouple probe
- Measuring scale selection (°C or °F)
- Range -50.0 to 900°C or -58.0 to 1650°F
- Remaining battery life indication / low battery detection
- Auto-off capability
- Waterproof casing



SPECIFICATIONS	
Range	-50.0 to 199.9°C / 200 to 900°C -58.0 to 399.9°F / 400 to 1650°F
Resolution	0.1°C (up to 199.9°C) / 1°C (outside) 0.1°F (up to 399.9°F) / 1°F (outside)
Accuracy (@20°C/68°F)	±0.2% F.S. excluding probe error
Typical EMC Deviation	±3°C / ±6°F
Battery	3x1.5V AA (LR6), 1600 hours of continuous use
Auto-off	user selectable: 8 min, 60 min, off
Environment	-10 to 50°C (14 to 122°F); RH 100%
Dimensions	150 x 80 x 36 mm (5.9 x 3.1 x 1.4")
Weight	300 g (10.6 oz.)

OPERATIONAL GUIDE

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

Note: HI 93501, HI 93502, HI 93503 and HI 935007 come with batteries already installed.

TAKING MEASUREMENTS

Connect a suitable temperature probe to the meter (see pages 14-15 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 normal 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.

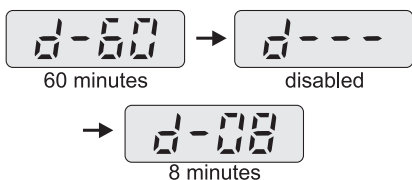
If no temperature probe is plugged in or the reading is over-range, the display shows blinking dashes. If the reading is slightly beyond the measuring range, the meter flashes the closest full-scale value.

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

AUTO SHUT-OFF (not for HI 9041 and HI9061)

To save battery life, HI 93501, HI 93502, HI 93503 and HI 935007 models are provided with an auto-off feature, which switches the instrument off after a certain period of nonuse.

The auto-off delay time (default value is 60 minutes) can be changed by the user (8 minutes, 60 minutes, or disabled) with an internal button located in the battery compartment (see figure on page 12). Unscrew the 4 screws on the back of the meter and select the desired auto-off time period by pressing the button and viewing the value on the LCD.



Reattach the back making sure that the gasket is in place and tighten the 4 screws to ensure a watertight seal.

CALIBRATION CHECK

(for HI 93501, HI 93502 and HI 93503)

The **HI 93501**, **HI 93502** and **HI 93503** models are provided with the Cal-Check feature, which allows the user to check the instrument calibration status at any time.

Press and hold the CAL CHECK button.



If the meter is calibrated, the display will stabilize and show "0.0°C" ($\pm 0.3^\circ\text{C}$) in a few seconds.



To return to measurement mode, release the button.

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

°C/°F SELECTION (HI935007 ONLY)

- The meter displays the measured temperature, automatically switching to the resolution suitable for the temperature range; i.e. 0.1° up to 199.9°C (399.9°F), or 1° above.

- The user can select the measurement unit by pressing the °C/°F button.



BATTERY REPLACEMENT

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



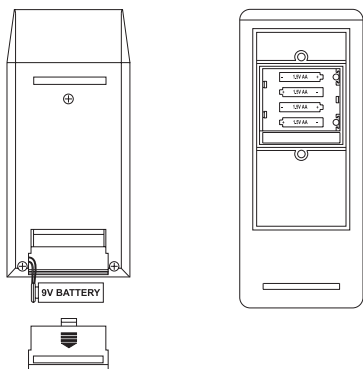
If the battery level is low enough to cause erroneous readings, the Battery Error Prevention System (BEPS) turns the meter off.

Immediately replace the batteries with new ones.

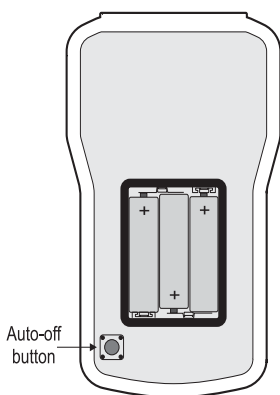
Battery replacement must only take place in a non-hazardous area

using the battery type specified in this instruction manual.

- **HI 9041** and **HI 9061**: remove the battery cover and replace the batteries (1x9V for **HI 9041** or 4x1.5V AA for **HI 9061**) with new ones, while paying attention to their polarity. Reattach the battery cover.



- **HI 93501**, **HI 93502**, **HI 93503** and **HI 935007**: the batteries are accessed by separating the front and the back halves of the meter. Unscrew the 4 screws on the back of the meter and carefully replace the three 1.5V AA alkaline batteries located in the battery compartment, while paying attention to their polarity. Reattach the back making sure that the gasket is in place and tighten the 4 screws to ensure a watertight seal.



FACTORY RECALIBRATION

All Hanna thermometers have been accurately pre-calibrated at the factory. It is generally recommended to have all thermometers recalibrated at least once a year. For an accurate recalibration, contact your nearest Hanna Customer Service Center.

Hanna Accuracy Test Plugs provide a quick and easy way to check the meter's accuracy by simply connecting these Test Plugs to the probe connector of the meter. If the reading differs by more than $\pm 0.4^{\circ}\text{C}$ ($\pm 0.8^{\circ}\text{F}$) from the Test Plug value, the meter is due for recalibration.

Choose the right Test Plug to suit your needs:

FOR HI 9041 AND HI 9061

HI 765-18C	Calibration key, -18.0°C
HI 765000C	Calibration key, 0.0°C
HI 765070C	Calibration key, $+70.0^{\circ}\text{C}$
HI 765-004F	Calibration key, -0.4°F
HI 765032F	Calibration key, 32.0°F
HI 765158F	Calibration key, 158.0°F

Recommendations for Users

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

Operation of these instruments in residential area could cause unacceptable interferences to radio and TV equipments, requiring the operator to take 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 24VAC or 60 VDC.

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

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

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

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.

FOR HI 93501

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 93502 (probes with Lumberg® connector)

- HI 762A/LUM** Air probe, w/1 m (3.3') cable & **white** handle
HI 762BP/T/LUM Frozen Food **between pack** probe, w/1 m (3.3') cable & **white** handle
HI 762L/LUM General purpose **liquid** probe, w/1 m (3.3') cable & **white** handle
HI 762PW/LUM General purpose **penetration** probe, w/1 m (3.3') cable & **white** handle

FOR HI 9041, HI 9061 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

FOR HI 935007

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

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

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