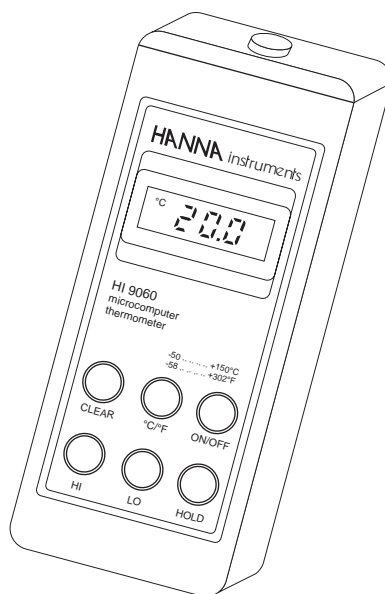


Instruction Manual

HI 9060 HI 9061 HI 91541 Portable Waterproof Microprocessor Thermistor Thermometers



 **HANNA**
instruments
<http://www.hannacan.com>

CE
These Instruments are in
Compliance with the CE Directives

Dear Customer,

Thank you for choosing a Hanna Instruments Product.

Please read this instruction manual carefully before using the instrument.

This manual will provide you with all the necessary information for the correct use of the instrument, as well as a precise idea of its versatility in a wide range of applications.

These instruments are in compliance with **CE** directives EN 50081-1 and 50082-1.

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PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If noticeable damage is found, notify your Dealer.

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

GENERAL DESCRIPTION

HI 9060, **HI 9061** and **HI 91541** waterproof portable thermistor thermometers are very easy to use in any field where high humidity levels and dust could effect the performance of a conventional thermometer.

HI 91541 provides accurate and consistent readings not only for lower values but also for temperatures as high as 300°C (570°F).

To prolong battery life, it shuts itself off automatically after half hour of non-use.

HI 91541 and **HI 9061** have been specifically designed by Hanna Instruments for use in the food industry and are available in two versions:

HI 9061C to measure in degrees Celsius;

HI 9061F to measure in degrees Fahrenheit.

HI 91541C to measure in degrees Celsius;

HI 91541F to measure in degrees Fahrenheit.

Each **HI9061C** and **HI9061F** comes supplied

complete with 4 batteries (1.5V, AA size). Upon request these meters can be supplied with a Factory Calibration Certificate against NIST standard. Several types of **HI765 temperature probes** are available to meet all your requirements (see page 15). A series of **HI765 calibration test plugs** are also available to check the meter's accuracy (see page 13).

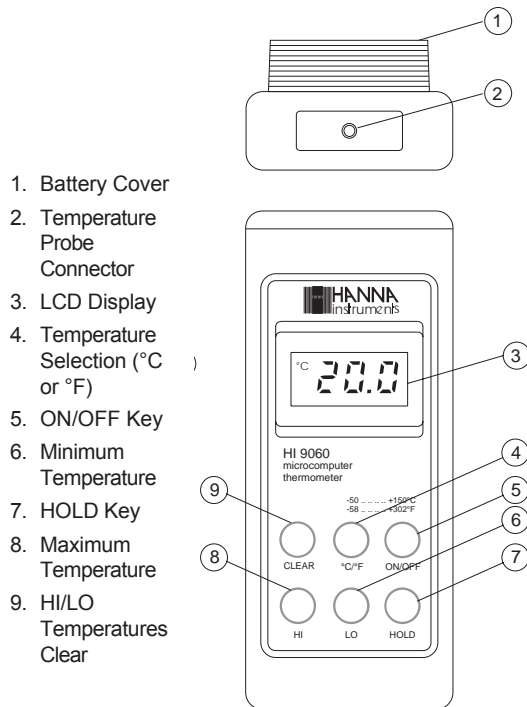
Each **HI91541C** or **HI91541F** comes supplied complete with 4 batteries (1.5V, AA size). Several types of **HI764 temperature probes** are available to meet all your requirements (see page 16). A series of **HI764 calibration test plugs** are also available to check the meter's accuracy (see page 13).

HI9060 can measure in Centigrade and in Fahrenheit.

Other features of **HI9060** include: display and clearing of the maximum / minimum temperature measured reading hold. These functions are easily accessible through the waterproof rubber keypad. Self-explanatory symbols are used to remind the user of the operating mode or condition.

HI9060 comes supplied complete with 4 batteries (1.5V AA size) and a **HI765BL** thermistor probe with 1 meter (3.3') cable. Several types of **HI765 temperature probes** are available to meet all your requirements (see page 15). A series of **HI765 calibration test plugs** are also available to check the meter's accuracy (see page 13).

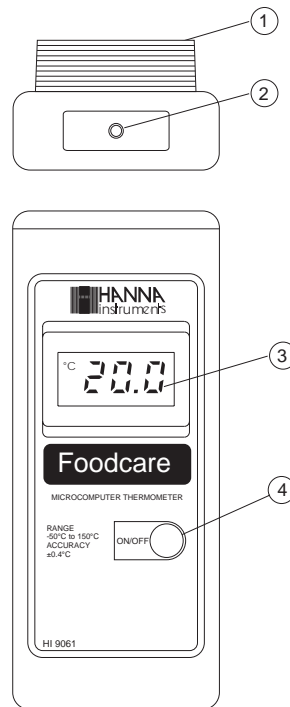
FUNCTIONAL DESCRIPTION HI 9060



1. Battery Cover
2. Temperature Probe Connector
3. LCD Display
4. Temperature Selection (°C or °F)
5. ON/OFF Key
6. Minimum Temperature
7. HOLD Key
8. Maximum Temperature
9. HI/LO Temperatures Clear

Specifications	HI 9060
Range	-50.0 to 150.0°C -58.0 to 199.9 & 200 to 302°F
Resolution	0.1°C / 0.1°F and 1°F
Accuracy (@20°C/68°F)	±0.3% of Full Scale, for one year, excluding probe error
Typical EMC Deviation	±1°C/±2°F with HI 765BL probe
Probe	HI 765BL (included)
Battery Type/Life	4 x 1.5V AA / 200 hours
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.)

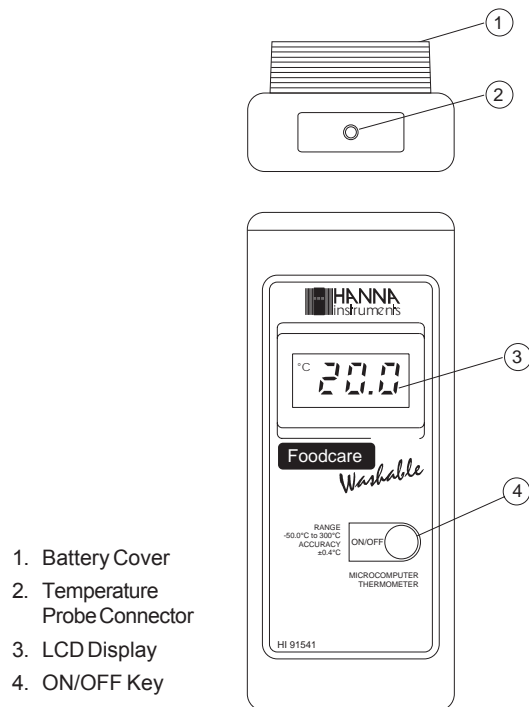
FUNCTIONAL DESCRIPTION HI 9061



1. Battery Cover
2. Temperature Probe Connector
3. LCD Display
4. ON/OFF Key

Specifications	HI 9061C	HI 9061F
Range	-50.0 to 150.0°C	-55.0 to 199.9°F 200 to 302°F
Resolution	0.1°C	0.1 / 1°F
Accuracy (@20°C/68°F)	±0.4°C (-20 to 80°C) ±0.3% F.S. (outside)	±0.8°F (-4 to 176°F) ±0.3% F.S. (outside)
Typical EMC Deviation	±0.5°C	±1°F
	with HI 765BL probe	
Probe	HI 765 series (optional)	
Battery Type/Life	4 x 1.5 V AA / 200 hours	
Environment	0 to 50°C (32 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.)	

FUNCTIONAL DESCRIPTION HI 91541



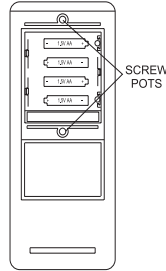
Specifications	HI 91541C	HI 91541F
Range	-50.0 to 300.0°C	-55.0 to 299.9°F 300 to 570°F
Resolution	0.1°C	0.2°F up to 300°F
Accuracy (@20°C/68°F)	±0.4°C (up to 150°C) ±0.3% F.S. (outside)	±0.8°F (up to 300°F) ±0.3% F.S. (outside)
Typical EMC Deviation	±0.5°C	±1°F
Probe	HI 764 series (optional)	
Battery Type/Life	4 x 1.5 V AA / 200 hours	
Environment	0 to 50°C (32 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.)	

OPERATIONAL GUIDE

INITIAL PREPARATION

Each meter is supplied complete with batteries.

Remove the back cover, unwrap the batteries and install them while paying attention to their polarity.

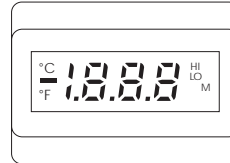


To switch on, press the ON/OFF key on the front of the unit.



If the meter does not come on, make sure that the batteries securely sit in their place.

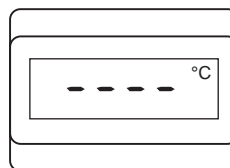
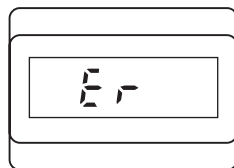
Each time the thermometer is switched on, it will carry a self-test to ensure that no segment is missing. The LCD shows a full set of figures during the self-test.



After the test the thermometer will resume its operational mode.

If a temperature probe is plugged in, the unit displays the probe temperature.

If a probe is not plugged in, or the cable is defective, the display will show "Er" (for **HI9060** and **HI9061**) or "----" (for **HI91541**).



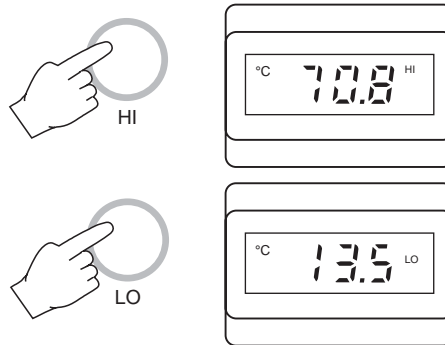
To switch your thermometer off, press the ON/OFF key again.

HI / LO MEMORIES (for HI 9060 only)

The maximum and minimum temperatures are monitored throughout a continuous measuring process. The values may be recalled or cleared at any time during the measurement.

Enquiries of the highest or lowest measured temperature may be made by pressing the respective HI or LO keys.

The appropriate display indicator will appear together with the value retrieved from memory. Release the key to resume normal operation.



By pressing the CLEAR key, the present measurement reading becomes the highest and lowest temperature in memory, i.e. both HI / LO are the same temperature reading.

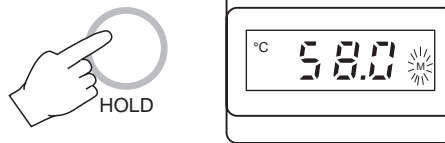
The "HI/LO" display indicator will blink twice to notify user that clearing process is in progress.



HOLD MODE (for HI 9060 only)

The reading hold function is activated by the HOLD key. The measured temperature is frozen on the display when this function key is pressed.

A blinking "M" on the display indicates the operating mode.

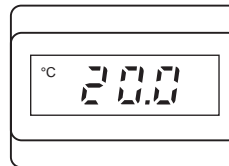


Press the same key again to resume normal operation.



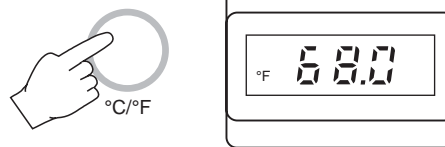
MEASURING SCALE (°C/°F) (for HI9060 only)

When the meter is turned on it automatically defaults to the °C scale.

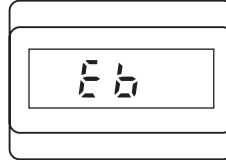


Measurements can be performed in either the Centigrade or Fahrenheit scale. To change the scale, press the °C/°F key once.

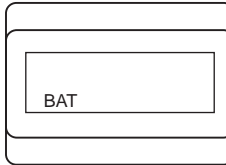
LOW BATTERY DETECTION



HI9060 and **HI9061** stop to operate when the low battery signal is detected. The user is warned by the code "Eb".



HI91541 displays "BAT" when the batteries are run down.



See also the Battery Replacement section on page 14.

DISPLAY CODES GUIDE

Your thermometer is factory programmed to diagnose a fault or warn of low battery levels. This is indicated by the error codes on the LCD. Moreover, self-explanatory symbols are used to remind the user of the operating mode or conditions.

DISPLAY	DESCRIPTION
Er (for HI9060 and HI9061) ----(for HI91541)	The probe is not connected to the instrument or the reading is out of range.
Eb (for HI9060 and HI9061) BAT (for HI91541)	Battery weak, need to be replaced.
All segments lit for more than 3"	Initial input falls out of instrument range.
<i>For HI 9060 only:</i>	
°C	The instrument is reading in the Centigrade scale.
°F	The instrument is reading in the Fahrenheit scale.
M (blinking)	Freeze current reading on display.
HI	The display reports the maximum measured temperature.
LO	The display reports the minimum measured temperature.
HI / LO (blinking)	The instrument is clearing the maximum and minimum measured temperature.

CALIBRATION

All Hanna Instruments 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 annual recalibration, contact your nearest Hanna Service Center.

Hanna Test Plugs provide a quick and easy way to test the meter's accuracy by simply connecting these Test Plugs to the probe connector of the meter. If the reading differs by more than 0.4°C (0.8°F) from the Test Plug value, the unit is due for recalibration.

Choose the right Test Plug to suit your needs:

For **HI 9060** and **HI 9061**:

HI 765-18C	Calibration key, -18.0°C ±0.4°C
HI 765000C	Calibration key, 0.0°C ±0.4°C
HI 765070C	Calibration key, +70.0°C ±0.4°C
HI 765-004F	Calibration key, -0.4°F ±0.8°F
HI 765032F	Calibration key, +32.0°F ±0.8°F
HI 765158F	Calibration key, +158.0°F ±0.8°F

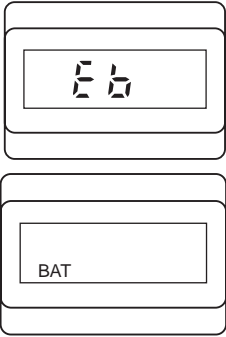
For **HI 91541**:

HI 764-18C	Calibration key, -18.0°C ±0.4°C
HI 764000C	Calibration key, 0.0°C ±0.4°C
HI 764070C	Calibration key, +70.0°C ±0.4°C
HI 764-004F	Calibration key, -0.4°F ±0.8°F
HI 764032F	Calibration key, +32.0°F ±0.8°F
HI 764158F	Calibration key, +158.0°F ±0.8°F



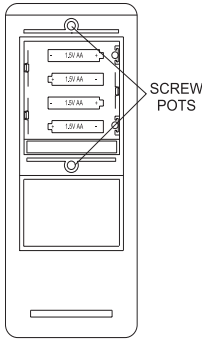
BATTERY REPLACEMENT

When the batteries become weak, the meter displays "Eb" (for **HI9060** and **HI9061**) or "BAT" (for **HI91541**) to warn the user.



Battery replacement must only take place in a non hazardous area using the battery types specified in this instruction manual (see page 17).

In order to replace rundown batteries, simply remove the two screws on the rear cover of the instrument and replace the four batteries with new ones paying attention to the correct polarity.



Replace the cover and tighten the two screws.

TEMPERATURE PROBES & ACCESSORIES

Hanna Instruments offers a wide range of probes to meet all your requirements from liquids to air and penetration to surface.

These probes use highly sensitive thermistor sensors which provide greater accuracy, faster response and a temperature range that is superior to conventional thermistor probes.

All Hanna temperature probes are supplied pre-calibrated from the factory and are ready to be used with your meter.

The probes are easily connected to your meter with a standard RCA jack.

Completely interchangeable, these probes make it possible to switch from one to another without wasting time and money going through tedious calibration procedures.

They are available in different colors to avoid cross contamination during testing:

For **HI 9060** and **HI 9061**:

- HI765A** Air probe, with 1 m (3.3') cable and **white** handle
- HI765A/10** Air probe, with 10 m (33') cable and **white** handle
- HI765BL** General purpose **liquid** probe, with 1 m (3.3') cable and **black** handle
- HI765BL/10** General purpose **liquid** probe, with 10 m (33') cable and **black** handle
- HI765L** General purpose **liquid** probe, with 1 m (3.3') cable and **white** handle
- HI765L/10** General purpose **liquid** probe, with 10 m (33') cable and **white** handle
- HI765PBL** **Penetration** probe with 1 m (3.3') cable and **blue** handle
- HI765PBL/10** **Penetration** probe with 10 m (33') cable and **blue** handle
- HI765PG** **Penetration** probe with 1 m (3.3')

cable and **green** handle

HI765PG/10 **Penetration** probe with 10 m (33') cable and **green** handle

HI765PR **Penetration** probe with 1 m (3.3') cable and **red** handle

HI 765PR/10 **Penetration** probe with 10 m (33') cable and **red** handle

HI 765PW **Penetration** probe with 1 m 3.3') cable and **white** handle

HI 765PW/10 **Penetration** probe with 10 m (33') cable and **white** handle

HI 765W **Wire** probe, without handle (**hard-to-reach places**) with 1 m (3.3') cable

HI 765W/10 **Wire** probe, without handle (**hard-to-reach places**) with 10 m (33') cable

For **HI 91541**:

HI764A **Air** probe, with 1 m (3.3') cable and **white** handle

HI764A/10 **Air** probe, with 10 m (33') cable and **white** handle

HI764L General purpose **liquid** probe, with 1 m (3.3') cable and **white** handle

HI764L/10 General purpose **liquid** probe, with 10 m (33') cable and **white** handle

HI764PBL **Penetration** probe with 1 m (3.3') cable and **blue** handle

HI764PBL/10 **Penetration** probe with 10 m (33') cable and **blue** handle

HI764PG **Penetration** probe with 1 m (3.3') cable and **green** handle

HI764PG/10 **Penetration** probe with 10 m (33') cable and **green** handle

HI764PR **Penetration** probe with 1 m (3.3') cable and **red** handle

HI 764PR/10 **Penetration** probe with 10 m (33') cable and **red** handle

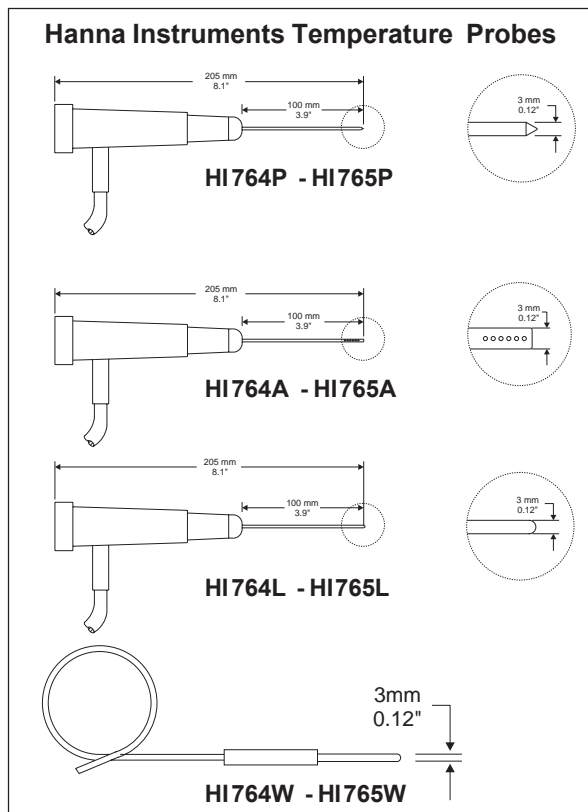
HI 764PW **Penetration** probe with 1 m 3.3') cable and **white** handle

HI 764PW/10 **Penetration** probe with 10 m (33')

cable and **white** handle

HI 764W **Wire** probe, without handle (**hard-to-reach places**) with 1 m (3.3') cable

HI 764W/10 **Wire** probe, without handle (**hard-to-reach places**) with 10 m (33') cable



Other Accessories:

- HI 710002** Soft carrying case measuring 280 x 120 x 50 mm
- HI 721308** 1.5V, AA size alkaline battery (10 pcs)
- HI 721317** Hard carrying case (dimensions: 340 x 230 x 90 mm)
- MAN60R3** Instruction Manual

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.

The probes and calibration keys are warranted for a period of six months.

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

Damages due to accident, 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. 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 Customer Service department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

To validate your warranty, fill out and return the enclosed warranty card within 14 days from the date of purchase.

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

CE DECLARATION OF CONFORMITY



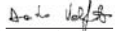
CE
DECLARATION OF CONFORMITY

We
Hanna Instruments Srl
V.le delle industrie 12
35010 Ronchi di Villafranca (PD)
ITALY

herewith certify that the thermometers
HI 9060 HI 9061 HI 91541
have been tested and found to be in compliance with the following regulations:

IEC 801-2	Electrostatic Discharge
IEC 801-3	RF Radiated
EN 55022	Radiated, Class B

Date of Issue: 12-03-1996


D. Volpato - Engineering Manager
On behalf of
Hanna Instruments S.r.l.

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 60VDC.
- To avoid damages or burns, do not perform any measurement in microwave ovens.
- In particular cases HI 9060 could switch from °C to °F or vice-versa. In such cases press the °C/°F key to resume the proper measurement range.
- In particular cases the meters could turn off. In such cases they can be turned on by pressing the ON/OFF key.

HANNA LITERATURE

Hanna publishes a wide range of catalogs and handbooks for an equally wide range of applications. The reference literature currently covers areas such as:

- Water Treatment
- Process
- Swimming Pools
- Agriculture
- Food
- Laboratory
- Thermometry

and many others. New reference material is constantly being added to the library.

For these and other catalogs, handbooks and leaflets, contact your dealer or the Hanna Customer Service Center nearest to you. To find the Hanna Office in your vicinity, check our home page at www.hannacan.com.

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