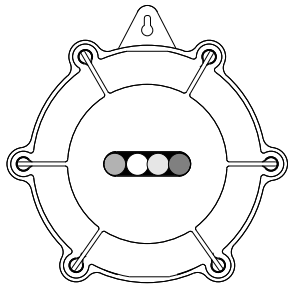


Instruction Manual

HI 140 Series of Thermologgers & HI 90140 Infrared Transmitter



www.hannainst.com

Dear Customer,
Thank you for choosing a Hanna Instruments product.
Please read this instruction manual carefully before using this instrument.
This manual will provide you with the necessary information for correct use of this instrument, 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.

PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify your Dealer or the nearest Hanna Customer Service Center.

Each thermologger is supplied complete with batteries and instructions.

Note: Conserve all packing material until the instrument has been observed to function correctly because any defective item must be returned to the Dealer in its original packing.

GENERAL DESCRIPTION





HI 140 series is a family of temperature loggers with different ranges (see "Specifications" table). The user can interact with the meter, i.e. acquire logged data or set logger parameters, through an RS232 communication protocol and a PC.

The HI 92140 Windows® compatible software supports the communication between the instrument and the PC through the HI 90140 infrared transmitter. For further details, see the program on-line help.

The HI 140 main features are: selectable logging enable/disable; programmable high and low alarm thresholds; programmable logging interval; logging start delay; programmable user ID; green and red LED indicators; RS232 optical communication link; non-volatile data storage in EEPROM of logging parameters and logged data; programmable real time clock; BEPS (Battery Error Prevention System). The loggers can memorize up to 7600 samples.

The expected battery life is about 4 years at 25 °C operating temperature.

All thermologgers are factory calibrated.
The case of the loggers is waterproof IP67. A plastic window on the top case enables optical data transmission to the HI 90140 infrared transmitter and status indication for the user. The two external LEDs are used for communicating with the transmitter, while the logger status is indicated by the 2 central LEDs (green and red) as follows:

1. GREEN LED ALWAYS ON: this condition occurs when the meter has been reset, i.e. when batteries are changed, requiring a new setting of the logger parameters. 
2. GREEN LED FLASHES ONCE EVERY 4": the meter is logging. 
3. GREEN LED FLASHES TWICE EVERY 4": the meter is waiting for a delayed logging start. 
4. RED LED FLASHES: an alarm condition has occurred (at least once). 

SPECIFICATIONS

Model	Range	Resolution	Accuracy
HI 140A(H)	-30.0 to 70.0 °C	0.5 °C	±1.5 °C
	-22.0 to 158.0 °F	0.5 °F	±3 °F
HI 140B(H)	-10.0 to 30.0 °C	0.2 °C	±0.5 °C
	14 to 86 °F	0.4 °F	±1 °F
HI 140C(H)	-30.0 to 10.0 °C	0.2 °C	±0.5 °C
	-22 to 50 °F	0.4 °F	±1 °F
HI 140D(H)	20.0 to 60.0 °C	0.2 °C	±0.5 °C
	68 to 140 °F	0.4 °F	±1 °F
HI 140E(H)	-30.0 to -10.0 °C	0.1 °C	±0.3 °C
	-22 to 14 °F	0.2 °F	±0.6 °F
HI 140F(H)	20.0 to 40.0 °C	0.1 °C	±0.3 °C
	68 to 104 °F	0.2 °F	±0.6 °F
HI 140G(H)	-5.0 to 15.0 °C	0.1 °C	±0.3 °C
	23 to 59 °F	0.2 °F	±0.6 °F
HI 140H(H)	10 to 120 °C	1 °C	±2 °C
	50 to 248 °F	2 °F	±4 °F

Part numbers ending with "H" are provided with a molded eye (hook) for easy mounting. Models **HI 140H** & **HI 140 HH** are provided with an external probe with 1.5 m (5') cable.

	HI 140	HI 90140
EXTERNAL DIAMETER	86.5 mm (3.4")	159 mm (6.3")
HEIGHT	35 mm (1.4")	47.5 mm (1.9")
WEIGHT	150 g (5.54 oz.)	150 g (5.54 oz.)

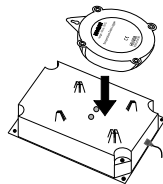
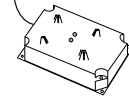
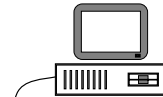
START UP

In order to communicate with the **HI 140** thermologger, the **HI 92140** application software must be installed on your PC.

Connect the **HI 90140** infrared transmitter to your computer through an RS232 port.

Place the **HI 140** on the transmitter as shown in the picture.

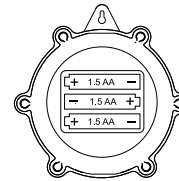
Run the **HI 92140** software and refer to the on-line help for any further information about setting the parameters of the logger, acquire logged data, etc.



BATTERY REPLACEMENT

Battery replacement must only take place in a non hazardous area using the appropriate battery type (1.5V AA).

When the batteries need to be replaced, simply remove the screws on the rear cover of the logger and replace the three batteries with new ones, while paying attention to the correct polarity.



After replacing the batteries, press the reset button on the printed circuit board. The red LED blinks and then the green LED stays on.

Reattach the cover and tighten the screws.

Note: Each time the batteries are replaced, all logger parameters have to be set again by the user as soon as possible to avoid draining the batteries.

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

WARRANTY

HI 140 loggers are guaranteed 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 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.

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