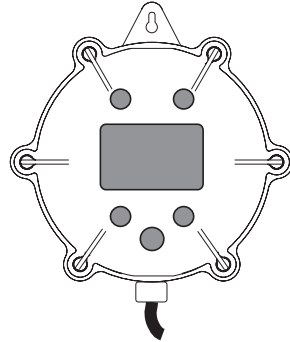


Instruction Manual

HI 141 Series NTC Thermologgers & HI 141001 Infrared Transmitter



HANNA
instruments
www.hannainst.com

WARRANTY

HI 141 loggers are warranted for one year 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. 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.

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

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

Dear Customer,

Thank you for choosing a Hanna product. This manual will provide you with the necessary information for correct operation.

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.

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 comes complete with one 3.6V Lithium AA battery, HI 740221 magnetic start key 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 141 series of temperature data loggers are provided with either one or two channels, and an optional LCD. The user interacts with the logger, setting data acquisition parameters or downloading logged data, through a RS232 serial port on a Windows® PC. The HI 141000 Windows® application software supports the communication between the logger and the PC through the HI 141001 Infrared Transmitter.

Several models are available, as shown in the following table:

CODES GUIDE

HI 141 models	LCD	LEDs	Internal sensor	External sensor(s)
A (H)		●	●	
B (H)		●		●
C (H)	●	●	●	
D (H)	●	●		●
E (H)		●	●	●
F (H)		●		●●
G (H)	●	●	●	●
J (H)	●	●		●●

Note: models that end with H have a hook in the bottom casing.

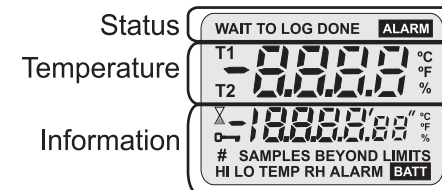
The main features of the HI 141 thermologgers include:

- One or two channels, with internal or external sensor;
- 16000 samples (for 1 channel models) or 8000 samples/channel (for 2 channels models);
- Logging interval from 1 second to 24 hours;
- Storing of temperature at logging interval, or min or max temperature between logging intervals;
- Logging delay start up to 199 hours, and magnetic start through magnetic key provided with the thermologger;
- Programmable high and low alarms;
- Non-volatile storage of logging parameters and data in EEPROM;
- BEPS (Battery Error Prevention System);
- Security Password and lot serial number;
- Optional LCD with status, temperature and information display;
- IP67 waterproof casing.

The expected life is about 4 years at 1 minute measuring and logging intervals.

All HI 141 thermologgers are factory calibrated.

The optional LCD is divided into 3 areas: the status on the top, the temperature readout in the middle, and useful information at the bottom.



The information shown on the bottom is user-selectable, and can include the current number of samples, the samples beyond alarm limits, the min and max temperature, and the high and low alarm thresholds.

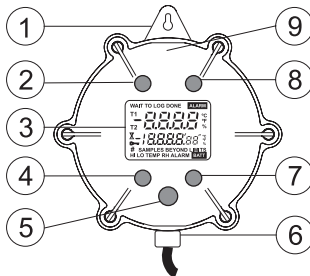


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FUNCTIONAL DESCRIPTION



- | | |
|---------------------|---|
| 1. Hook* | 6. Connection for external sensor(s)* |
| 2. Green LED | 7. Infrared LED |
| 3. LCD* | 8. Red LED |
| 4. Photo LED | 9. Internal magnetic switch: touch the top of the meter with magnetic key for activating magnetic start |
| 5. Internal sensor* | |

* depending on model

The status of the thermologger is indicated by the green and red LEDs, and optional LCD:

Condition	LEDs	LCD Status Line
Waiting to start logging	Green LED flashes twice every 4 seconds	WAIT TO LOG
Currently logging	Green LED flashes once every 4 seconds	LOG
Completed logging	Green LED off	LOG DONE
User alarm thresholds exceeded during logging	Red LED flashes once every 4 seconds	ALARM
Low battery	Red LED flashes once every 4 seconds	BATT
Dead battery	Red LED flashes twice every 4 seconds	BATT only

Green LED will light up when magnetic switch is activated by the key. When the key is removed from the top of the meter, the green LED switches off.

SPECIFICATIONS

Model	Sensor(s)	Range
HI 141A (H)	T1 internal	-40.0 to 80.0°C / -40.0 to 175.0°F
HI 141B (H)	T1 external	-40.0 to 125.0°C / -40.0 to 257.0°F
HI 141C (H)*	T1 internal	-20.0 to 70.0°C / -4.0 to 158.0°F
HI 141D (H)	T1 external	-40.0 to 125.0°C / -40.0 to 257.0°F
HI 141E (H)	T1 internal T2 external	-40.0 to 80.0°C / -40.0 to 175.0°F -40.0 to 125.0°C / -40.0 to 257.0°F
HI 141F (H)	T1 external T2 external	-40.0 to 125.0°C / -40.0 to 257.0°F -40.0 to 125.0°C / -40.0 to 257.0°F
HI 141G (H)*	T1 internal T2 external	-20.0 to 70.0°C / -4.0 to 158.0°F -40.0 to 125.0°C / -40.0 to 257.0°F
HI 141J (H)	T1 external T2 external	-40.0 to 125.0°C / -40.0 to 257.0°F -40.0 to 125.0°C / -40.0 to 257.0°F

*** Warning:** T1 temperature range is limited by LCD characteristics.
Do not use the logger out of this range.

Note: For models with two external sensors, T1 and T2 channels are indicated on the probes (T1 is red marked, T2 is white).

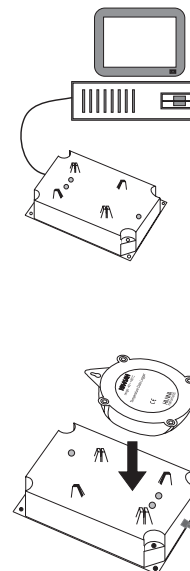
Resolution	0.1°C (-40.0 to 100.0°C); 0.2°C (temp. > 100.0°C) 0.1°F (-40.0 to 190.0°F); 0.3°F (temp. > 190.0°F)
Accuracy	±0.5°C (-40.0 to 0.0 and 70.0 to 100.0 °C) ±0.4°C (0.0 to 70.0 °C) ±1.0°C (temperature > 100.0°C) ±1.0°F (-40.0 to 32.0 and 158.0 to 212.0°F) ±0.8°F (32.0 to 158.0 °F) ±2.0°F (temperature > 212.0°F)
	HI 141 HI 141001
EXTERNAL DIAMETER	86.5 mm (3.4") 159 mm (6.3")
HEIGHT	35 mm (1.4") 60 mm (23.6")
WEIGHT	150 g (5.54 oz.) 200 g (7.39 oz.)

START UP

In order to communicate with the HI 141 thermologger, the HI 141000 application software must be installed on your PC. This is done by inserting the first floppy disk in the driver and running Setup.exe.

Connect the HI 141001 Infrared Transmitter to your computer through an available RS232 port. Place the HI 141 on the transmitter, taking care to align the ribs on the logger with the slots on the transmitter.

Run HI 141000 software and refer to the on-line help for any further information about setting the parameters of the logger, acquiring logged data, etc.



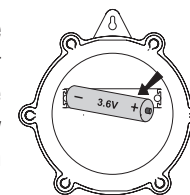
BATTERY REPLACEMENT

Battery replacement must only take place in a non hazardous area using the appropriate battery type (3.6V Lithium AA battery).

When the battery needs to be replaced, simply remove the four screws on the rear cover of the logger and replace the battery with a new one paying attention to the correct polarity. Replace the cover and tighten the four screws.

When battery is replaced, both LEDs will turn on, and the Red LED will then turn off followed by the Green LED. This indicates that a proper reset of the logger has been done. Should this not occur, please reinstall the battery.

For loggers with LCD, the LCD will also light up for about 1 second, showing all segments.



Note: Dispose of the Lithium (Li) battery according to local regulations.