Trademarks

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StowAway®-IS Temp

User's Manual

5190-B MAN-TBIB-IS

onset computer corporation

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Thank you for purchasing a StowAway®-IS Temp, Intrinsically Safe Temperature Logger (Part # TBIB-40+75-IS). Your StowAway-IS, with proper care, will give you years of accurate and reliable measurements.

The StowAway-IS is used to measure and record ambient temperatures between -40°F and +167°F (-40°C to +75°C). The StowAway-IS is rated as Intrinsically Safe, which allows it to be used in many hazardous (classified) environments.

Safety Information—Read First

***Warning**: Only the StowAway-IS is rated as Intrinsically Safe. Do not attempt to download the logger using the Optic Base Station™ or Optic Shuttle™ or Handheld PDA in a hazardous environment, as these devices do not carry the Intrinsically Safe rating and are not intrinsically compatible with the StowAway-IS. See the "Logger Specifications" for the complete Intrinsically Safe listing and see the section of this manual entitled "Intrinsic Safety" for more information about hazardous locations and the StowAway-IS.*

***Warning**: Fire, Explosion, and Severe Burn Hazard. The logger contains a Lithium battery. The battery is not replaceable. The battery may explode if the logger is mistreated. Do not attempt to recharge, disassemble or heat the logger above +212°F (+100°C). Do not dispose of the logger in fire. Do not expose the contents of the battery to water. Dispose of loggers according to local regulations for Lithium batteries.*

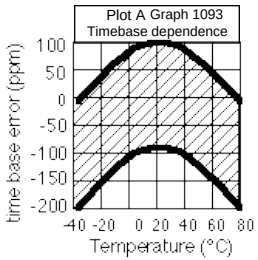
***Warning**: Only qualified personnel should install and service equipment located in Hazardous (Classified) Areas.*

Requirements

The StowAway-IS requires Onset Computer Corporation's BoxCar® Pro or BoxCar® 3.5 or later software, PC Interface Cable, Optic Base Station™, and StowAway-IS Coupler. The StowAway-IS is compatible with the Optic Shuttle™ and Palm® devices running HandCar™ 1.0 (see Warning above).

Logger Specifications

Operating Temp Range*: -40°F to +167°F (-40°C to +75°C)
Operating RH Range:
at 0-100% RH and <+86°F (+30°C): continuous exposure
at 0-95% RH and >+86°F (+30°C): continuous exposure
at 95%-100% RH and >+86°F (+30°C): max of 10 weeks
Note: exposure to continuous moisture above +86°F (+30°C) for more than 10 weeks may affect temperature accuracy
Time Accuracy: ~100 ppm (±1 minute per week)
at +68°F (+20°C), see Plot A for full temperature/time dependence



*Measurement range may differ from operating range due to precision calibration process by up to ±2.0°F (1.1°C)

Warranty

Onset data loggers are warranted to be free from defects in material and workmanship for a period of one year from the date of original purchase. During the warranty period Onset will, at its option, either repair or replace products that prove to be defective. This warranty is void if the Onset products have been damaged by customer error or negligence or if there has been an unauthorized modification.

Returning Products to Onset
Direct all warranty claims to place of purchase.
Before returning a failed unit, you must obtain a Return Merchandise Authorization (RMA) number from Onset. You must provide proof that you purchased the Onset product(s) directly from Onset (purchase order number or Onset invoice number). Onset will issue an RMA number that is valid for 30 days. You must ship the product(s), properly packaged to protect against further damage, to Onset (at your expense) with the RMA number marked clearly on the outside of the package. Onset is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company.
Products must be clean and free of any toxins before they are sent back to Onset or they may be returned to you.

Repair Policy
Products that are returned after the warranty period or that are damaged by the customer as specified in the warranty provisions can be returned to Onset with a valid RMA number for evaluation.

Please contact Onset for more information and prices on:

ASAP Repair Policy
Onset will expedite the repair of a returned product.

Data-back™ Service
StowAway data loggers store data in nonvolatile EEPROM memory. Onset will, if possible, recover your data to a disk.

Tune Up™ Service
Onset will examine and retest any HOBO data logger.

Service and Support

HOBO® products are easy to use and reliable. In the unlikely event that you have a problem with this instrument, please read the following.

Who do I contact?

Contact the company that you bought the loggers from: Onset or an Onset Authorized Dealer.

Before calling, you can evaluate and often solve your problem if you try the following:

1. Read this manual and the ReadMe file on the software disk. It may only take a few moments to get the answers you need.
Note: Software purchased separately

2. Write down the events that led to the problem. Have you changed anything in your computer recently? Are you doing anything differently?

3. Visit the Technical Support section of the Onset web site at www.onsetcomp.com/support.html.

When contacting Onset, please indicate that you need Technical Support for StowAway products. Be prepared to:

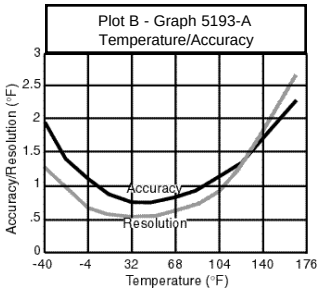
1. Provide the product number and serial number for the StowAway-IS Temp Logger (which is found on the side and bottom of the logger), and software version in question.

2. Provide details on the hardware and software configuration of your computer including manufacturer, model number, peripherals, and version of operating system.

3. Completely describe the problem or question. The more information you provide the faster and more accurately we will be able to respond.

Onset Technical Support
Onset Computer Corporation
470 MacArthur Blvd., Bourne, MA 02532
Mailing: PO Box 3450, Pocasset, MA 02559-3450
Phone: 1-800-LOGGERS (1-800-564-4377) or 508-759-9500
Fax: 508-759-9100
E-mail: loggerhelp@onsetcomp.com
Internet: www.onsetcomp.com

Temperature Accuracy: ±0.72°F (±0.46°C) at +68°F (+20°C), see Plot B for temperature accuracy over the complete operating temperature range
Temperature Resolution: 0.63°F (0.35°C) at +68°F (+20°C), see Plot B for temperature resolution over the complete operating temperature range
Response Time: <60 minutes in still air
Recommended Storage Temperature: -40°F to +122°F (-40°C to +50°C); storage outside this range will reduce battery life



Measurement Capacity: 32K 8-bit measurements
Data Offload Time: 8K in 90 seconds, 32K in 6 minutes
Size: 1.5" diameter, 0.8" height, mounting bail hole diameter 3/16" (5mm)
Weight: 1.1oz (32g)
Battery: 1/10 D, 3.6 Volt Lithium, non-replaceable
Battery Life: 5 years continuous use with a logging interval ≥10 minutes and multiple sampling disabled
Environmental Rating: Tested to NEMA 6 (IP67); **not intended for deployment in water or extended exposure to epoxy-permeating vapors**
Intrinsically Safe Rating: IS, Class I, II, Division 1, Groups A-G, Temperature Code T4 (≤135°C); NI, Class I, Division 2, Groups A-D, Temperature Code T4 (≤135°C); S, Class II, Division 2, Groups F and G

Launch, Operation and Recovery

Launching your StowAway-IS

Connect the Optic Base Station to the host computer using the appropriate interface cable (CABLE-PC-3.5 for a PC and CABLE-MAC-HOBO for a Macintosh). Attach the StowAway-IS coupler to the Optic Base Station (see Figure 1). Place the StowAway-IS into the coupler such that the bail on the StowAway-IS lines up with the alignment arrow on the coupler. Refer to the software user's manual for launching procedures.

Note: Remove the logger from the coupler once launched. The coupler contains a magnet to wake up the logger for communication.

Figure 1

Readout

At the end of the deployment, reconnect the StowAway-IS to the StowAway-IS Coupler and attach the Optic Base Station for readout. The StowAway-IS communicates at 1200 baud, so 8K of data will take about 90 seconds to download and 32K of data will take about 6 minutes.

Shuttle Compatible

The StowAway-IS is compatible with the Optic Shuttle for offload and relaunch when used with the StowAway-IS Coupler. See the Optic Shuttle

Manual for operation instructions. The StowAway-IS is also compatible with HandCar software for the Palm® OS when used with a StowAway-IS Coupler and Optic Base Station. See the HandCar Manual for operation instructions.

Triggered Launch

Launch the StowAway-IS with the triggered launch box checked to enable the triggered launch feature. The yellow LED will blink weakly every four seconds while the logger waits to be triggered but the logger will not be recording measurements. The StowAway-IS will start logging when a strong magnet is brought near the logger. You can use the StowAway-IS coupler, or any powerful magnet to trigger a launch. The yellow LED on the StowAway-IS will flash brightly four times to indicate a successfully triggered launch.

Delayed Start

Launch your StowAway-IS with delayed launch box checked to enable delayed start feature. The yellow LED on the StowAway-IS will flash weakly every six seconds while the logger waits for the delay period to expire. Upon expiration the logger will start recording measurements at every interval.

Multiple Sampling

Launch the StowAway-IS with the multiple sampling box checked to enable the multiple sampling feature. In multiple sampling many measurements are taken in any given logging interval but only one data point is recorded. The exact number of measurements varies with the interval selected. The maximum measurement rate is 1/2 second. The StowAway-IS supports three types of multiple sampling. *Maximum* will command the StowAway-IS to save only the highest measured temperature of the interval. *Minimum* will command the StowAway-IS to save only the lowest measured temperature of the interval. *Average* will command the StowAway-IS to determine the average temperature of the all the temperatures measured in the interval. Note that using multiple sampling for extended periods of time will reduce battery life below five years.

Alarm Indication

The StowAway-IS has two LEDs, one yellow and one red. The yellow LED blinks during use if the alarm has not been tripped. The red LED will blink if the StowAway-IS has recorded a temperature outside the user's set alarm limits. When the StowAway-IS is full or has been downloaded, neither LED will blink. Use of the alarm is optional and its limits are set during launch with the logger software. The alarm limits can be set anywhere between -40°F to +167°F (-40°C to +75°C).

Hardware Details

Logger Construction

The StowAway-IS uses infrared light to communicate which allows the logger to be completely sealed in durable epoxy. The StowAway-IS has been tested to NEMA 6 (IP67). This means that the logger can be used in

dirty locations, sprayed, or even briefly submerged. For data retrieval, be sure to clean the communication port of water, dirt, and dust. Clean the StowAway-IS with a non-abrasive mild soap and warm water and a non-scratching sponge or towel. Scratches or abrasions on the communication port may impair communication. Do not use the StowAway-IS in high temperature condensing environments for extended periods of time as this may affect the accuracy of the temperature measurements. Onset recommends that the StowAway-IS not be used continuously in a condensing environment for more that ten weeks at temperatures exceeding +86°F (+30°C).

Temperature Accuracy and Resolution

The StowAway-IS accuracy and resolution specifications are given in Plot B. The logger's accuracy specification is the maximum measurement error, including the effects of thermistor error and quantization error. In most cases the logger's actual accuracy is better than the specified value. The logger's resolution is the difference between temperature steps. Factors that affect the StowAway-IS accuracy are thermistor error, component imperfections (resistor variations and A-D nonlinearities), and quantization error (difference between temperature steps). Onset Computer Corporation's proprietary test procedures effectively eliminate the resistor and A-D errors, leaving only the thermistor error, quantization error, and a small residual calibration error. Note that two loggers will not necessarily have exactly the same step value and two loggers exposed to the same temperatures may report different values, however each one will be correct within its accuracy.

Intrinsically Safe

Factory Mutual Research has certified the StowAway-IS is safe for use in certain hazardous areas. The National Electrical Code has classified many types of hazardous locations. The StowAway-IS has been approved to be intrinsically safe in Class I and II locations which are areas where ignitable concentrations of gas (Class I) and/or dust (Class II) exist. The NEC further classifies hazardous locations by Division (1 or 2). The Division designation refers to the likelihood that the area will contain ignitable concentrations of gas or dust. Division 1 locations will have ignitable concentrations of gas or dust continuously or under normal operating conditions. Division 2 locations will have ignitable concentrations of gas or dust only during infrequent or abnormal operation (which may include areas located near Division 1 locations). The StowAway-IS has been approved for use in both Division 1 and 2 locations. The hazardous area classification scheme is further defined by listing the types of ignitable gases and dusts that may be present in a hazardous location. Ignitable gases and dusts are sorted into groups with similar ignition characteristics. The StowAway-IS is certified for all possible groups: A-G for gas and A-D, F and G for dust. Finally every Intrinsically Safe Device is given a temperature rating. The StowAway-IS has a T4 rating, which means that no part of the device will become warmer than +275°F (+135°C) in a worst-case fault. For more information on Hazardous (Classified) Locations visit the Underwriters Laboratory web site at www.ul.com/hazloc/define.htm.