MONARCH INSTRUMENT

Instruction Manual

Temp *Track-It*™ and RHTemp *Track-It*™ USB Data Loggers

CE

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SAFEGUARDS AND PRECAUTIONS

1. Read and follow all instructions in this manual carefully, and retain this manual for future reference.
2. Do not use this instrument in any manner inconsistent with these operating instructions or under any conditions that exceed the environmental specifications stated.
3. This instrument is not user serviceable. For technical assistance, contact the sales organization from which you purchased the product.

To comply with worldwide regulations such as the U.S. Environmental Protection Agency Resource Conservation and Recovery Act (RCRA) and EU Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE), you must not discard this electrical/electronic product in domestic household waste. The electronic components in this device may contain environmentally harmful substances. DO NOT DISPOSE of this product as unsorted municipal waste. This product needs to be RECYCLED and disposed of in accordance with environmental regulations in the country of use; contact your local authorities for more information. This product may be returnable to your distributor for recycling; contact the distributor for details.

Temp Track-It™ and RHTemp Track-It™ Data Loggers contain either lithium coin cell or lithium metal batteries which must be recycled and disposed of in accordance with Federal, State, & Local Regulations. Do not incinerate. Batteries should be shipped to a reclamation facility for recovery of the metal and plastic components as the proper method of waste management. Contact the distributor for appropriate product return procedures.

Monarch Instrument's Limited Warranty applies. See www.monarchinstrument.com for details.

Warranty Registration and Extended Warranty Coverage information is available online at www.monarchinstrument.com.

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1.0 DESCRIPTION

The Temp Track-It™ and RHTemp Track-It™ USB Data Loggers are extremely versatile compact battery-powered data loggers that can record up to 2 channels and 64,000 samples of data. The loggers come in various configurations as listed below:

Model	Temperature	Humidity	Display	Battery
Temp Track-It™ Logger with Display	Yes	No	Yes	Standard Coin Cell
Temp Track-It™ LB Logger with Display	Yes	No	Yes	Long-Life Battery
Temp Track-It™ B Logger	Yes	No	No	Standard Coin Cell
Temp Track-It™ BLB Logger	Yes	No	No	Long-Life Battery
RHTemp Track-It™ Logger with Display	Yes	Yes	Yes	Standard Coin Cell
RHTemp Track-It™ LB Logger with Display	Yes	Yes	Yes	Long-Life Battery
RHTemp Track-It™ B Logger	Yes	Yes	No	Standard Coin Cell
RHTemp Track-It™ BLB Logger	Yes	Yes	No	Long-Life Battery

All models have a wide range of triggering and alarm options as well as differing input options. Loggers with a liquid crystal display (LCD) allow you to view data and alarm/recording indications in the field. Loggers with and without a display have a multicolor LED for quick visual of status in the field.

Track-It™ USB Loggers are easily configured using the downloadable Track-It™ DataLogger Software. Simply plug the logger directly into a USB port on the PC to allow for programming, upload of data, and to display data in real time.

2.0 TRACK-IT™ DATALOGGER SOFTWARE INSTALLATION

IMPORTANT: Before using your Track-It™ Data Logger, you should first download and install the USB Drivers and DataLogger Software. Please refer to the Quick Start Guide that was provided with your data logger, or you can download the Quick Start Guide.

The free Track-It™ DataLogger Software gives the user complete control in programming the logger and allows for the upload, examination, and archiving of data recorded on the logger.

Some of the features are:

- Delayed recordings, fixed duration recordings by time or number of samples, multiple record times, manual record by button press, record on alarms
- Sample rates from 2 seconds to 24 hours; instantaneous, average, maximum or minimum values
- Two Alarms (High or Low), latched or momentary, and record under these alarm conditions
- Input scaling and offset for analog modules, engineering unit selection for internal sensors
- Button functions, LED functions, and LCD functions
- Display of data graphically, digitally, or tabular formats with alarm indication
- Export user-selected data in CSV format for import into Excel; filter data to be exported
- Simple setup (single screen) or advanced mode

Track-It™ DataLogger Software is available for download here: Monarch Instrument Software Downloads. Click on the **Download Track-It™ DataLogger Software** button to download the software in a condensed zip file.

3.0 TRACK-IT™ TRANSPORTER APP

Track-It Transporter is a free Android application that allows you to use your Android device to start and stop recording and transfer data using a USB On-The-Go cable.

GET IT ON Google Play

To download, scan QR code with your mobile device or use link: https://play.google.com/store/apps/details?id=com.trackit.transporter&hl=en_US

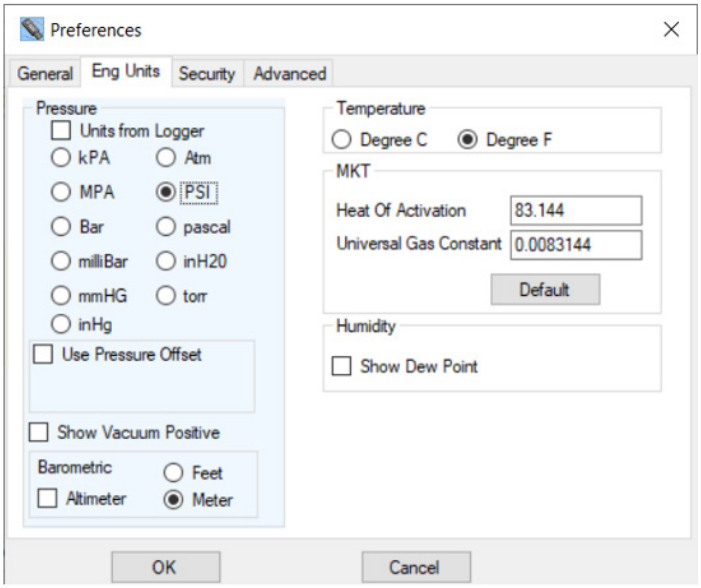
4.0 TRACK-IT™ DATALOGGER SOFTWARE – LOGGER SPECIFIC

The Track-It™ DataLogger Software runs on a PC and allows the user to connect the logger through a USB connection to program the logger or review the data. The operation of the Track-It™ DataLogger Software is described in its own manual which is accessed via the Help – Manual option.

There are a few unique options specifically for these loggers which are covered below.

4.1 Preferences

Select *Preferences* then the *Eng Units* tab. You will see the pop-up box shown right.



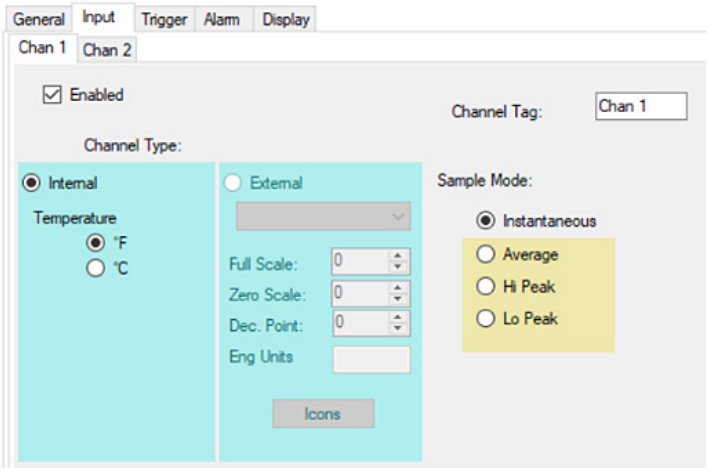
These Engineering Units are logger specific and apply to the data read from the Logger and displayed on the graph or in the data table. Select your desired Temperature Engineering Units.

If the *Units from Logger* box is checked (under Pressure), the selection of engineering units on this tab is ignored and the engineering units used will be as set by the default in the Logger. If the *Units from Logger* box is unchecked, then the unit selected on this tab will override that set in the Logger.

For Temperature or Temp/Humidity loggers, the MKT values can be adjusted. For Temp/Humidity loggers, you can choose whether or not to include the dew point in recordings by checking or unchecking the *Show Dew Point* checkbox.

4.2 Input Setup

Under the *Device Setup* tab, select the *Input* tab and the *Chan 1* tab.



The *Chan 1* Channel Type will always default to be Internal Temperature. Select the Temperature engineering unit which will be the default engineering unit that will be displayed on the Logger LCD (if applicable). The units selected here will be used when reading data from the logger unless overridden in the *Preferences* menu.

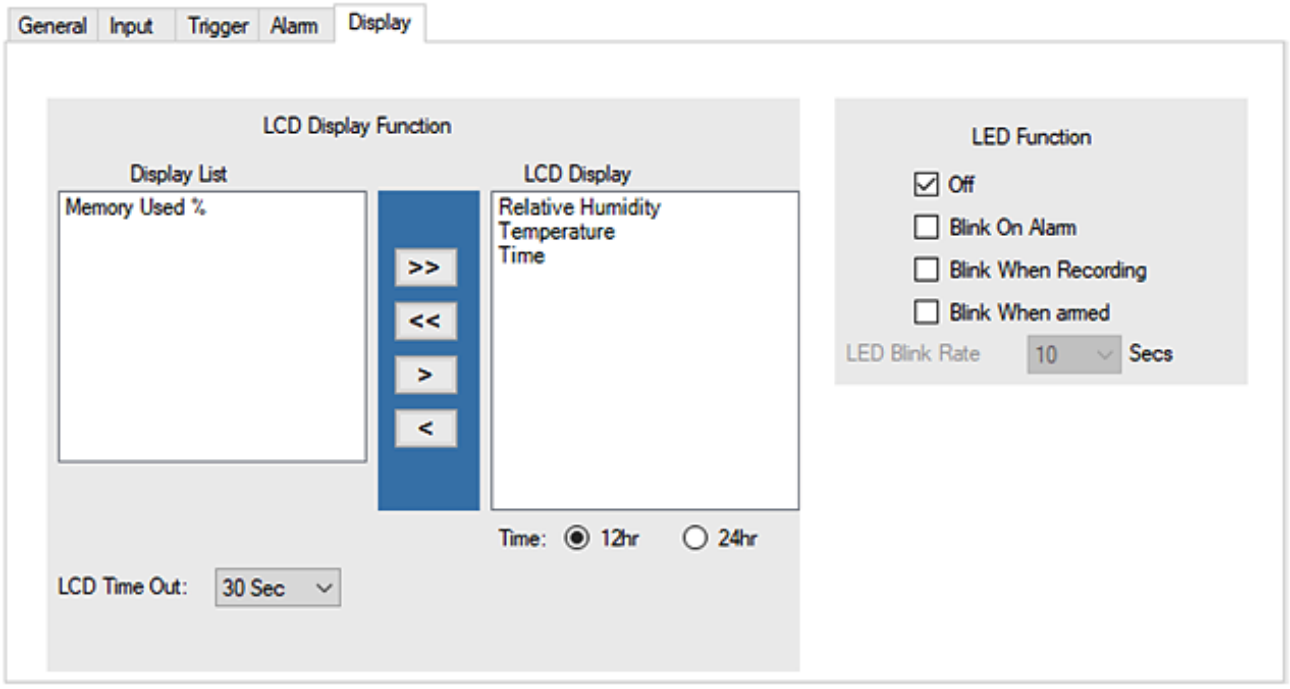
For Temperature only loggers, the *Chan 1* Channel Type can alternately be selected as an External source to program the analog input (*Chan 2* should be disabled). For Temperature/Humidity loggers, *Chan 1* will always be Internal Temperature, but *Chan 2* can be either Internal Humidity %RH or External source. See Software Manual for more details.

Either channel can be disabled; in which case the logger will only record the *Enabled* Channel and not the other.

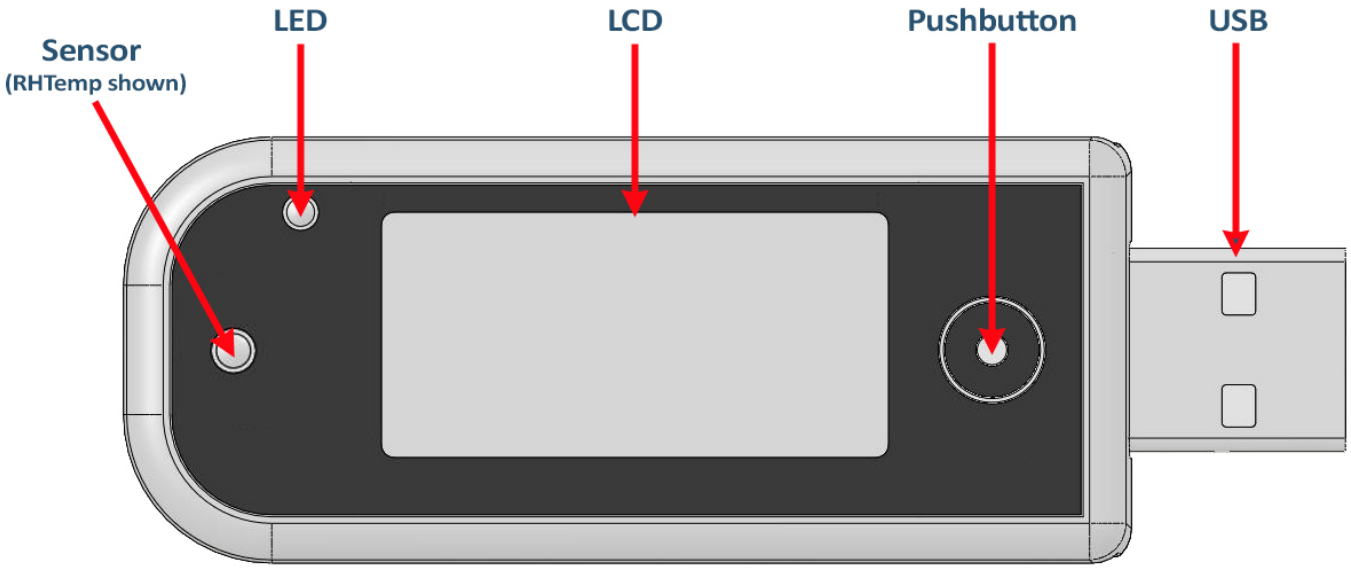
Note that selecting a Sampling Mode for either channel of anything other than Instantaneous (where the Logger only takes a reading at the Record Rate) will cause the Logger to take readings at the highest sample rate and will have an adverse effect on the battery life.

4.3 Display Setup

Under the *Device Setup* tab select the *Display* tab. This tab is only visible for loggers with a display. The content of the Display tab will vary according to the logger attached. See Software Manual for more details.



5.0 DISPLAY MODELS ONLY



Track-It™ Display Logger Features

5.1 LCD

The LCD (Liquid Crystal Display) shows status and real-time information and is user programmable via the Track-It™ DataLogger Software. The LCD is activated when the pushbutton is pressed and will shut off after a predetermined time as programmed. Values and icons visible depend on logger type and setup.

5.1.1 Display Values

The following information may be shown on the display with each button press showing the next value as programmed in Display Setup, Display.

Real-Time Values – Channel 1 and Channel 2 data in engineering units relevant to the logger type, value, and setup.

Time and Date – Time and Date in the form of hours and minutes with blinking colon (12 or 24-hour format) such as 12:20 AM followed by the year (20xx) then the month and date (i.e. 11:25 for November 25).

Memory Used – This display option shows the amount of memory used such as 20.05% m.

5.1.2 Display Icons

Up Arrow/Down Arrow and Bell – Alarm indications. The Bell will be on steady if any alarms are enabled and blink if any alarm is detected. The Up/Down Arrow will indicate whether the alarm is high (up arrow) or low (down arrow). They will blink if any high/low alarm occurred and is current and be on steady if any high/low alarm has been detected since the logger was configured. The logger does not have to be recording for the alarms to be monitored. Alarms can be reset by the user – see 5.3 Pushbutton Function.

Battery Condition – Shows Full (solid), Half, and Empty; blinks when battery is too low to reliably operate.

°C°F %RH **Engineering units** – Indicate engineering units of data value displayed. Other units include A, V, mA, mV, Hz, and RPM.

REC **Recording** – On steady if recording is enabled but the units is not currently recording (armed but not recording); blinking if currently recording data, triggered by any source (timers, alarms, button toggle).

5.2 LED

The LED (Light Emitting Diode) can be programmed to blink when the unit is waiting to record, when the unit is recording (green blink), or when there is an alarm condition (red blink). The blink period (time between blinks) is user programmable. Note that enabling the LED increases the drain on the battery. The LED is also used in conjunction with the pushbutton to indicate setup states..

5.3 Pushbutton Function

The pushbutton functions are programmable using Track-It™ DataLogger Software.

Short press (0 - 1 second) will activate the LCD view. Successive short presses will rotate the views as programmed.

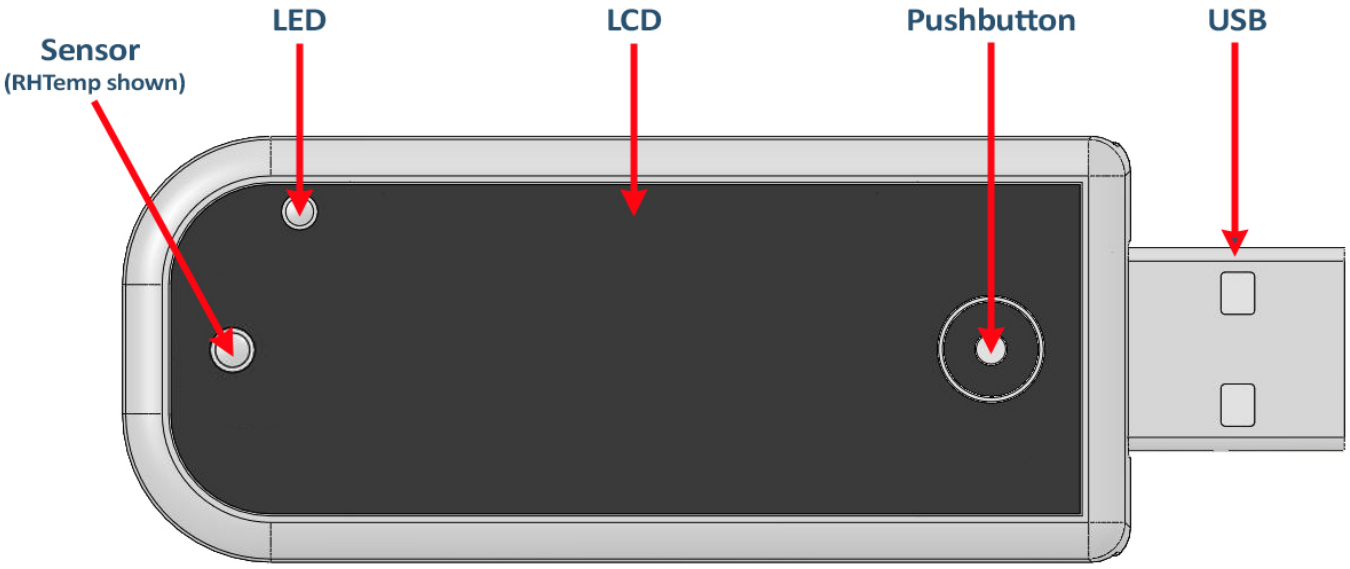
Press and hold - (1 - 2 seconds… LED flashes once ●) – Releasing the button during this interval (if enabled by program) resets any alarms (holds/latches, arrow indications) and will stop any alarm triggered recordings currently active. The display will indicate **rSt** for reset.

Press and hold - (2 - 3 seconds… LED flashes twice ●●) – Releasing the button during this interval (if enabled by program) toggles record mode. If the unit is currently recording, it will stop the recording. If the unit is currently NOT recording, it will start recording.

Note: Other events may impact the record mode if they have been set to trigger the recording. This button will not stop any recording started by other triggers. Display will show **rCOn** for record ON or **rOFF** for record OFF.

Continue to hold the pushbutton until the LED's third flash (●●●), then release button and there will be no change in logger operation

6.0 NON-DISPLAY MODELS ONLY



Track-It™ Display Logger Features

6.1 Pushbutton/LED Function

The pushbutton functions are programmable using Track-It™ DataLogger Software. It can be used to check status or to change the state of the data logger.

6.1.1 To Check Status

Short press and release (0 - 1 second) – The LED will flash in various patterns to indicate data logger status.

The flash sequence is: Battery status → Record Status → Alarm status.

One long red flash at the beginning of the flash sequence indicates low battery. (no red flash = battery ok)

One long red flash at the end of the flash sequence indicates an alarm. (no red flash = no alarm)

Slow red/green blink = Connect to PC. Unit is NOT set up or memory is full.

The table below gives a visual of the LED pattern when checking the status of the data logger:

STATUS - Press and Release Button			STATUS
LED Pattern			
Lo Battery	>>>>> Record >>>>>	Alarm	◄ LED Sequence
			Low Battery - one RED blink (no red it battery is OK)
			Recording or Triggered to Record - *fast* GREEN/RED blink
			Idle/Not Recording - one long GREEN blink
			Alarm Occurred - one long RED blink (no red if no alarm)
			Not set up or memory full - slow RED/GREEN blink, connect to PC

6.1.2 To Change Status

Press and hold button, release when LED turns steady green – Changes record state on/off

Press and hold, release when LED turns steady red – Reset alarm indication

Press and hold, release after LED goes off – No change

The table below shows a visual of the LED pattern and result of button release when changing the state of the data logger:

CHANGE STATE - Press and Hold Button	RESULT OF BUTTON RELEASE
	LED pattern
	Release button while LED GREEN - turn record mode on/off*
	Release button while LED RED - reset alarm indication*
	Release button while LED goes off - no change

*NOTE: Feature must be enabled in software.

7.0 ANALOG INPUT

Temp Track-It™ and RHTemp Track-It™ Data Loggers have the ability to measure analog inputs (4-20 mA or 0-5 V dc) using optional external Input Modules that plug onto the USB connector of the data logger. The following Analog Input Modules are available: 500 mV, 1 V, 5 V, 10 V, or 20 mA. They can be ordered with or without the required logger which needs to be programmed using the Track-It™ DataLogger Software.

7.1 Track-It™ Analog Input Modules

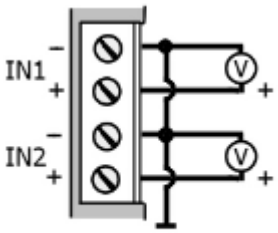
External Track-It™ Input Module (0-5 V DC shown)

The Track-It™ Analog Input Modules allow external signals to be measured by certain Track-It USB Loggers. The signals are superimposed on the logger's USB connector. The modules provide signal conditioning and connection to the external signals.

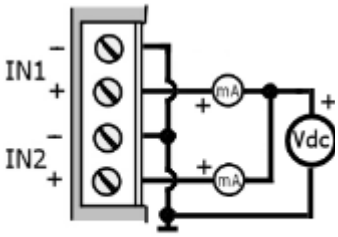
Note: Analog recordings are made via the USB connector. If possible (button programmed), STOP RECORDING before plugging the logger into the PC so as not to record the USB signals; otherwise, use the Track-It™ DataLogger Software ***Stop Recording*** button under the Device Setup tab as soon as the logger is plugged into the PC.

DO NOT EXCEED THE INPUT SPECIFICATION OF YOUR MODULE. YOU MAY DAMAGE THE MODULE AND ATTACHED LOGGER.

7.2 Track-It™ Analog Input Modules Connection Detail



DC Voltage Module



MilliAmp Module
(Must be last in the loop)

Note: The commons on the Analog DC Input Modules (IN1 and IN2) are commoned together in the module. They are not isolated from each other or from the logger.

8.0 PROTECTION

The data logger comes with a protective splash-proof rubber cover to protect the USB connector and provide some degree of bump and water protection. The unit should have the cover on when traveling. The button can be operated when the cover is in place. The cover cannot be fitted when analog modules are attached.

Note: The unit should not be immersed in liquid. This product is not waterproof.

9.0 BATTERY

Temp Track-It™ and RHTemp Track-It™ Data Loggers come with the option of a standard CR2032 3.0 V coin cell or extended long-life EF651625 3.6 V Lithium Thionyl Chloride non-rechargeable battery installed.

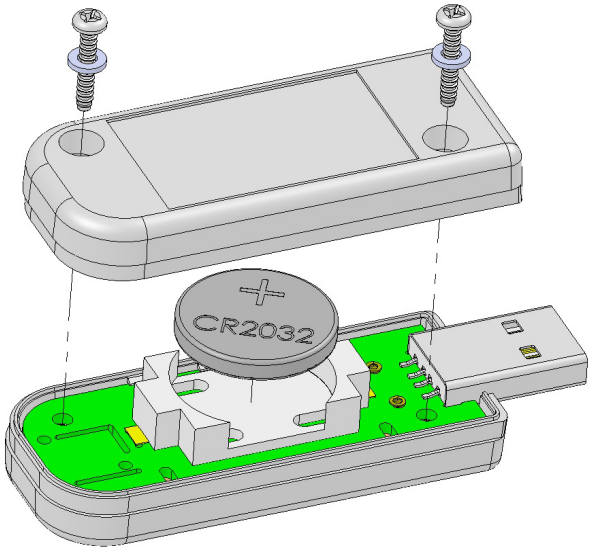
9.1 Replacing the Battery

To replace the battery - loosen the two screws on the back of the logger and remove the bottom case half.

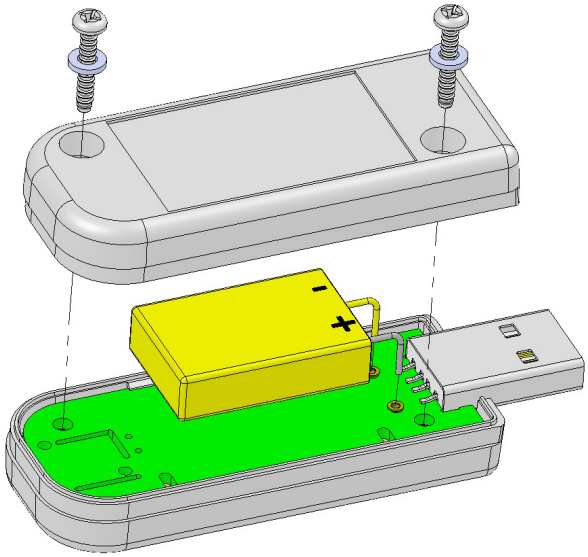
Caution: The screws have small plastic washers.

There are two battery options. Replace the relevant battery, then replace the cover and the screws with washers.

Coin Cell CR2032
3.0V



Lithium Thionyl Chloride EF651625
3.6V (LTC-7PN)



9.2 Battery Disposal

Track-It™ USB Data Loggers come with a lithium non-rechargeable battery installed - either a standard CR2032 3.0V coin cell or extended long-life EF651625 3.6V Lithium Thionyl Chloride.

DO NOT DISPOSE of the lithium battery as unsorted municipal waste. The battery needs to be RECYCLED in accordance with local regulations. The battery should be sent to a recycling center or returned to the factory using appropriate shipping methods.

10.0 SPECIFICATIONS

Specifications*	Temp Track-It™ USB Data Loggers with/without Display RHTemp Track-It™ USB Data Loggers with/without Display
General:	
Record	**Sample rates:** User-configured 1 every 2 seconds to 1 every 24 hours **Number of samples:** up to 64,000 (depends on setup)
Record Trigger	Two (2) independent triggers Multiple trigger modes: instantaneous, button control, on alarm, time and date (start and stop), day of week
Record Mode	Fill to end of memory or cyclic, number of samples and time duration
Display	4-digit LCD, user programmable: indication of data value, eng units, alarms, record mode, battery condition, time/date, memory used %
LED	User programmable: indication of alarms, recording, triggered
Button	User programmable: view display, record on/off, reset alarms
Alarms	Two (2) user-programmable (High or Low)
Communication	Direct USB connection
Software	**Track-It™ DataLogger Software** — program device, view data (historic or real time), export to Excel compatible format; simple and advanced modes **Track-It™ Transporter Android App** — set up device, quick summary, view data in tabular or graphic format, show alarms, email data and configurations
Battery	**Standard:** Lithium CR2032 coin cell, 1-year life typical @ 1 minute sample rate **Extended (Long-life):** Li-SOCI2 EF651625, 3-year life typical @ 1 minute sample rate
Safety	Meets the safety measurements of IEC1010-1. This product is not waterproof.
Dimensions (LxHxW)	3.66 in. x 0.75 in. x 1.16 in. [9.29 cm x 1.91 cm x 2.95 cm]

Specifications*	Temp Track-It™ USB Data Loggers with/without Display RHTemp Track-It™ USB Data Loggers with/without Display
Measurement:	
Temperature Range	-20 to +60 °C / -4 to 140 °F – Standard Battery -20 to +85 °C / -4 to 185 °F – Long-life Battery
Accuracy	±0.5 °C -20 °C to +85 °C / -4 °F to 185 °F
Resolution	0.1 °C displayed, 0.01 °C recorded
Clock Accuracy	±1 minute/year
Specific to RHTemp Track-It™ USB Data Loggers with/without Display	
Measurement:	
Humidity Range	0-100% RH
Accuracy	Max: ±3% (0 to 90%)
Resolution	0.1 %RH displayed, 0.01 %RH recorded
Repeatability	0.1% RH

*Specifications are subject to change without notice.

10.1 Compliance

- **CE Compliant**
  Please visit our website, www.monarchinstrument.com, to download our Declaration of Conformity for this product.

11.0 ACCESSORIES

For details, see Accessories webpage.

PN	Model	Description
5396-9904	Replacement CR2032 Coin Cell Battery	Replacement CR2032 Coin Cell Lithium Battery for Track-It™ Loggers with standard batteries
5396-9905	Replacement Long-Life Battery	Long-Life Replacement EF651625 Battery for Track-It™ Loggers with long-life batteries
5396-9903	Replacement Protective Splash-proof Cover	Replacement Rubber Sleeve Splash-Proof Cover for Temperature, RH/Temp, and Barometric Loggers
5396-9913	USB On-the-Go Cable	USB On-The-Go Cable connects USB loggers to mobile devices with micro USB for use with Track-It Transport App
5396-9901	3 Ft. USB Extension Cable	3 Ft. USB Extension Cable 2.0, male-to-female
5396-9902	Track-It™ DataLogger Software on CD	Track-It™ DataLogger Software on CD

Replacement CR2032 Coin Cell Battery
PN: 5396-9904

Long-Life Replacement Battery
PN: 5396-9905

Replacement Protective Splash-Proof Rubber Cover
PN: 5396-9903

USB On-the-Go Cable
PN: 5396-9913

3 Ft. USB Extention Cable
PN: 5396-9901

Track-It™ Software on CD
PN: 5396-9902

Measure • Monitor • Maintain

Monarch Instrument is committed to excellence and quality in manufacturing, sales, and service.

Portable Tachometers

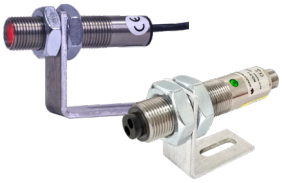
Track-It™ Data Loggers

Panel Tachometers

Fixed Mounted Strobes

Portable Strobes

Frequency Converters



Speed Sensors

DataChart™ Paperless Recorders

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