



MONARCH INSTRUMENT

Instruction Manual

Track-It™ Pressure/Temp Vacuum/Temp Data Logger with Display



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SAFEGUARD AND PRECAUTIONS



1. Read and follow all instructions in this manual carefully, and retain this manual for future reference.
2. Do not open the unit in a high humidity environment; it will cause condensation inside the unit.
3. Do not operate this device in flammable or explosive atmospheres.
4. This device has no power switch. It will be in operation as soon as power is connected or battery is inserted.
5. Do not use this instrument in any manner inconsistent with these operating instructions or under any conditions that exceed the environmental specifications stated.
6. There are no user serviceable parts in this instrument. Refer service to a qualified technician.



In order to comply with EU Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE): This product may contain material which  could be hazardous to human health and the environment. DO NOT DISPOSE of this product as unsorted municipal waste. This product needs to be RECYCLED in accordance with local regulations; contact your local authorities for more information. This product may be returnable to your distributor for recycling; contact the distributor for details.

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 Track-It™ Pressure/Temperature and Vacuum/Temperature Data Loggers with Display are battery-powered, standalone, watertight data loggers that emulate a pressure gauge. They can be configured to record both Pressure and Temperature up to 130,000 samples or Pressure alone, to maximize data storage space. Real-time data, alarms, and min/max information can be displayed on the multi-line LCD. The unit is easily configured using the free downloadable Track-It™ PC Software. There is a mini-USB connector on the rear of the unit, allowing connection to a PC for programming and data upload. Data upload can also be done with a device for Android™ using the Transporter App available on the Google Play™ store.

The Logger can be programmed to record data from 10 times a second up to once a day. The user initiates the recording immediately, manually via the keypad buttons, at some future preset time, or on an alarm condition.

The display can be programmed to display pressure in various engineering units depending on pressure range. It can also display temperature, minimum and maximum values, percentage of memory used, time and date.

Track-It Pressure/Temp and Vacuum/Temp Data Loggers are packaged in a rugged, watertight anodized aluminum and stainless steel housing and have a standard ¼" NPT fitting for vacuum and pressure ranges up to 5800 PSI or ½" NPT for higher pressure ranges. The replaceable internal lithium battery has up to a 3-year life.



2.0 TRACK-IT™ PC SOFTWARE INSTALLATION

IMPORTANT: Before using your Track-It Data Logger, you must first download and install the USB Drivers and PC 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 PC Software gives the user complete control in programming the Logger and allows for the upload, examination, and archiving of data recorded on the Logger.

Advanced features include:

- Real-time data view and record of PC when connected via USB
- 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 10 times a second up to 24 hours; instantaneous, average, maximum or minimum values
- Two Alarms: high or low, latched or momentary, and record under these alarm conditions
- Display of data graphically, digitally or tabular formats with alarm indication
- Export user-selected data in CSV formats for import into Excel®; filter data to be exported

Track-It Software is available for download:

https://monarchinstrument.com/Software/Track-It_Software.zip

3.0 TRACK-IT™ TRANSPORT APP



Track-It Transport 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.



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

4.0 INSTALLATION

The Logger can be ordered with various pressure sensors to cover most applications. Pressure ranges up to 5800 PSI have a 1/4" male NPT thread intended to screw into the pressure source. Ranges over 5800 PSI use 1/2" NPT. Make sure to use suitable tape or thread sealant/dope on the threads before inserting the Logger into the port. Use an adjustable wrench on the **SENSOR NUT** to tighten the device into the port and test for leaks. Do **NOT** tighten by hand turning the display head.

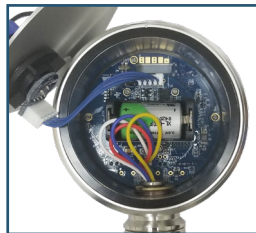
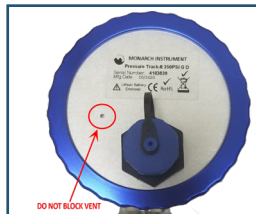
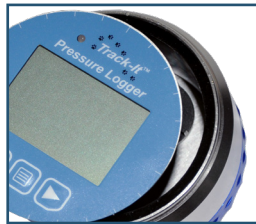
Once installed, the dial can be rotated 300 degrees about the sensor to the intended viewing direction. The gauge face can also be rotated 330 degrees by undoing the blue bezel, lifting the front panel and associated electronics and rotating it to the desired position. Ensure the flat gasket is in place before replacing the bezel. Do not stress any of the internal wiring.

4.1 Vent

All gauge (PSIG) sensors are vented to atmosphere through a small hole on the rear cover. DO NOT cover or block the vent or the logger may read incorrectly. DO NOT insert anything into the vent hole as it may damage the waterproof membrane.

5.0 BATTERY

The unit operates off a 1/2 AA 3.6V lithium battery. The battery is accessed by removing the rear bezel ring and cover. Gently extract the battery and replace as needed. NOTE POLARITY WHEN REPLACING – the unit will not operate if the battery is reversed. Ensure the gasket is in place before replacing the cover and bezel. Do not stress any of the internal wiring.



6.0 BUTTONS AND MENU

If the display is off, pressing any button will turn it on for the duration set in the Track-It PC Software. If the backlight is turned on, it will light for approximately 5 seconds.

There are 3 buttons: ◀ (left arrow), ≡ MENU and ▶ (right arrow).

Pressing the ◀ or ▶ buttons will scroll through the various display values as set in the Track-It PC Software. This includes Pressure, Temperature, Date/Time, Memory Usage, Max/Min for Pressure and/or Temperature.

6.1 Menu Modes

There are two menu modes: the **Regular** menu and the **Admin** menu. What is visible in each menu is a function of how the device is programmed using the PC software. See details below. Some menu items are context sensitive.

The **Regular** menu is accessed by pressing the ≡ MENU button.

The **Admin** menu is accessed by pressing and holding the ◀ (left arrow) button then pressing the ≡ MENU button.

In the menu mode, the ◀ button is the escape or exit button, the ▶ button is the accept/change button, and the MENU button will move to the next menu item. The display will automatically exit back to the real-time display if there is no activity for 10 seconds.

The content of each menu is set up in the Track-It PC Software. In addition, the admin menu can be locked; in this situation, the user at the Logger cannot enter this menu and will receive a LOCK message. See details on the next page.

6.2 Menu Options

The list on the next page is in alphabetical order. Please note that the actual order in which these items appear is dependent on settings set in the Track-It PC Software.

Backlight	BKLT – AUTO/OFF – In Auto Mode, the backlight will come on for 5 seconds each time a button is pressed. Press ► button to toggle auto/off status.
Clear Alarm	Clr ALRM – Will clear any pending Alarm. Press ► button to clear. (Only visible during Alarm.)
Clear Minimum	Clr MIN – Will clear minimum values for Pressure and/or Temperature. Press ► button to clear. It depends on whether Pressure or Temperature is displayed when menu is pressed, and if Pressure maximum is selected in the display menu in the Track-It Software.
Clear Maximum	Clr MAX – Same as above for Maximum.
Cycle Mode	CYCL – On/OFF – If on display will toggle between Pressure and Temperature.
Bar Graph	BAR – On/OFF – Turns the bar graph on or off. Press ► button to toggle on/off status.
Decimal Point	DCPT – AUTO, 0, 1 – Used to set preferred number of decimal places. Auto will use all the digits and adjust the number of digits after the decimal accordingly.
Engineering Units	Unit – Used to change the engineering units for the pressure display. The lower line will show the current engineering units. Use the ► to scroll through the available units and press ◀ to accept. Not all units are available depending on the full scale value of the sensor. The choice is limited by the number of digits on the display.
Record On/Off	rEC – ON/OFF – Will toggle the record mode of the unit (Only visible if record mode set to “Button Press” in the Track-It PC Software). Press ► button to toggle on/off status.

Zero Mode

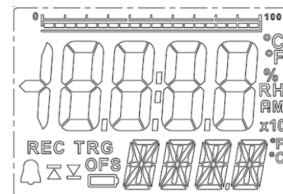
ZERO – OFF/EnAb – Will enable the zero offset feature. Available only in the Admin menu. If Off (not enabled) the Zero Set menu item will not display.

Zero Set

ZERO – Set/OFF – Will set the current Pressure value to zero (offset into relative mode). Press ► button to toggle between modes. Set will activate relative mode, OFF will set to absolute mode. NOTE: When set, the OFS icon will show on the display. This menu item is only visible if the Zero Mode is enabled in the Admin menu and the Admin menu is NOT Locked.

7.0 LCD







The display has 4½ 7-segment digits to show actual values of pressure and temperature. There is also a line of 4 alphanumeric digits used to display ASCII text (e.g. Pressure Units). The display is optionally backlit; the backlight is initiated for 5 seconds by pressing any button. If the pressure is greater than 19999, the resolution is set to 10 units and is indicated by the x10 icon. The maximum value displayed is therefore 199990.




There is a bar graph at the top of the display (which can be turned off by the user) giving an analog indication of values relative to 100% which is the full scale value of the sensor. Note that in the Pressure Offset mode, the bar graph indicates the absolute value of the pressure as a function of full scale.

In addition to these values, the display can be scrolled using the ◀ or ▶ buttons and may show (depending on configuration) minimum and maximum values of pressure and temperature, date as day/month - 24.07 or month/day - 07.24, time in 12 or 24-hour format (12-hour format will be indicated by AM or PM – 08:30 AM), and memory usage as a % of available memory. Values shown are set in the display setup using the Track-It PC Software. See below for details.

There are various icon indications on the display that indicate the following:

- REC** Indicates the unit is currently recording. This icon will blink at a 2 second rate.
- TRG** Indicates the unit is currently triggered and waiting to record. Record is initiated by time delay or button depending on configuration.
-  Indicates an Alarm condition;  High Alarm and  Low Alarm
-  On its own (no Alarm), indicates Maximum value. Visible when scrolling through display if set.
-  On its own, indicates Minimum value. Visible when scrolling through display if set.
- OFS** Indicates the reading has been offset and is relative. (Zero mode active.)
-  If present, this indicates the battery is low and should be replaced. If blinking, it indicates readings may be compromised; unit may shut down and the battery should be replaced immediately.
- x10** Indicates the current numerical value displayed must be multiplied by 10.

 Bar graph shows percentage of full scale (0 to 100%) of the value indicated. This can indicate Pressure, Temperature or percentage of memory used when recording. Note that in the Pressure Offset mode, the bar graph will show the percentage of full scale of the absolute value not the offset value currently displayed. The bar can be disabled in the menu.

8.0 LED

There is an LED (Light Emitting Diode) above the display to the left. This LED is user programmable using the Track-It PC Software (see below) and can indicate that the unit is recording (green blink) or an Alarm condition exists (red blink). It will also blink green when serial communication is taking place through the USB port.

9.0 TRACK-IT SOFTWARE - LOGGER SPECIFIC

The Track-It Software runs on a PC and enables the user to upload data, customize, and program the Logger through a USB connection. The operation of the Track-It Software is described in its own manual which is accessed via the Help - Manual option.

There are a number of unique options specifically for this Display Pressure Logger which are covered below.

9.1 Preferences

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

These engineering units apply to the data read from the Logger and displayed on the graph or in the data table.

If the *Units from Logger* box is checked, the selection of engineering units here is ignored and the engineering units used will be as set by default in the Logger. If the *Units from Logger* box is unchecked, then the unit selected here will override that set in the Logger.

For Absolute pressure ranges, Use *Pressure Offset* can be enabled to mathematically subtract atmospheric pressure providing gauge values. For more information about Absolute versus Gauge measurements, refer to our App Note found here: [click to link](#).

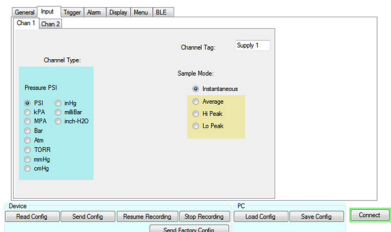
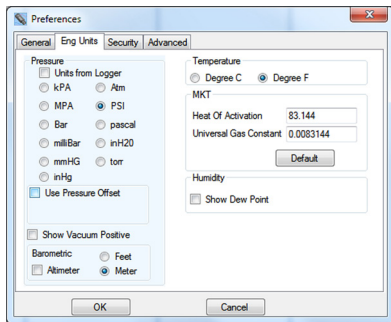
9.2 Input Setup

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

This setting allows the user to select the default engineering units that will be displayed on the Logger LCD. Note that not all engineering units are available; it depends on the full-scale range of the pressure sensor, as some values will be too large to display on the Logger. Also note that these units may be changed locally at the Logger if the menu is set up to allow this. (See next page.)

The units selected here will be used when reading data from the Logger unless overridden in the *Preferences* menu.

The Pressure channel cannot be disabled; the Logger will always record Pressure.



Note that selecting anything other than *Instantaneous* for Sample Mode (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.

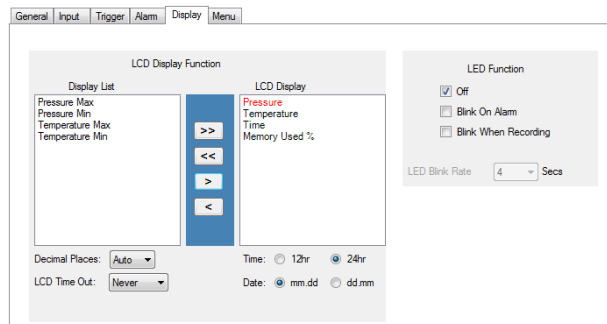
The *Chan 2* tab is similar but for the Temperature channel. The Temperature channel can be disabled; in which case, the Logger will only record Pressure, not Temperature and Pressure.

9.3 Display Setup

Under the *Device Setup* tab select the *Display* tab.

These settings allow the user to decide what is displayed on the Logger LCD and defines the function of the LED.

The Display List column shows the available functions that are available to be displayed on the Logger and the LCD Display column are the functions that will be displayed on the Logger. The user can move the options between the columns by selecting the option (clicking on it) and using the arrow keys. Note that Pressure cannot be moved from the LCD.



Decimal Places defines how the data is displayed; Auto will always use the maximum number of digits available.

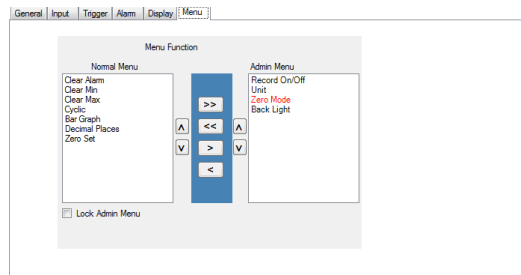
LCD Time Out determines how long the LCD will be on before blanking. Note that as long as the LCD is on, the Logger updates the readings in real-time which has an adverse effect on battery life.

The *Time* and *Date* formats can be selected as shown.

9.4 Menu Setup

Under the *Device Setup* tab select the *Menu* tab.

This setting allows the user to determine which menu functions appear in the Regular menu and which appear in the Admin menu. Menu items will appear in the Logger menus in the order of top to bottom in the below lists. By highlighting a menu item (clicking on it) the user can manipulate its position using the arrow buttons. The Zero Mode cannot be moved from the Admin menu.



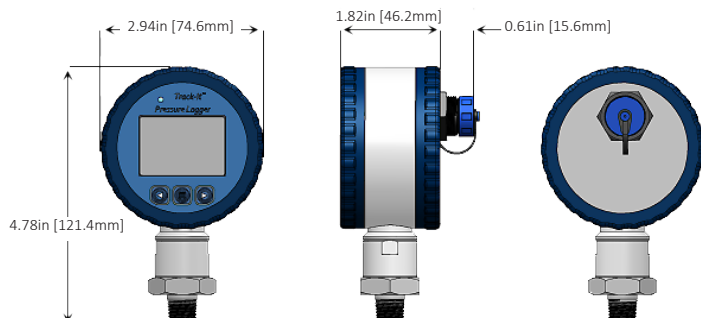
If the *Lock Admin Menu* box is checked, the user will not be able to access the Admin Menu features at the Logger, and the *Zero Set* menu option (display offset) will not be available in the *Normal Menu*.

10.0 SPECIFICATIONS

10.1 General

Record: Sample Rates	User-configured 10 times per second up to 1 every 24 hours
Record: No. of Samples	130,000 (dependent upon setup)
Record Trigger:	Two 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, time duration
Display:	Two-line, 4½-digit 7-segment LCD and 4-digit alphanumeric display with custom icons, multi-segment bar graph for 0-100% indication, backlit
Alarms:	2 user-programmable alarms (High or Low)
Communication:	Mini USB connection
Software:	Track-It Software—Program device, view data (historic or real-time), export to spreadsheet.
Battery:	Lithium 1/2AA 1.2Ah Life: Up to 3 years typical @ 1 minute sample rate (LCD off)
Enclosure:	Anodized Aluminum and 316L Stainless Steel
Dimensions:	2.94" (74.6mm) diameter x 1.82" (46.3mm) deep x 4.78"(121.4mm) tall including port threads

Note: Specifications are subject to change without notice.



10.2 Measurement

Pressure Ranges:	0-3, 0-35, 0-150, 0-350, 0-550, 0-2000, 0-5800, 0-8700, 0-14500 PSI
Vacuum Ranges:	0 to -380 Torr, 0 to -760 Torr, 760 to 0 Torr, 760 to -760 Torr
Accuracy:	±0.25%
Resolution	0.01%
Overpressure Rating:	1.5X max
Port Connection:	¼" NPT male vacuum up to 5800 PSI; ½" NPT male for higher pressure ranges
Temperature Range:	-20 to +85°C / -4 to 185°F
Accuracy	± 1°C 0 to 50°C / 32 to 122°F ± 2°C -20 to 85°C / -4 to 185°F
Resolution	0.1°C / 0.2°F

10.3 Compliance

10.3.1 Battery Compliance








The Lithium battery used in this product meets the requirements of UN DOT 38.3.

Tested by XenoEnergy Co., Ltd (Report Xeno Q110612)

10.3.2 EU Declaration of Conformity

CE Compliant. Please visit our [website's Certificate, Regulatory Compliance and CE Declaration page](#) to download our EU Declaration of Conformity for this product

11.0 ACCESSORIES

Replacement lithium 1/2AA 1.2 AH battery (ER14250)		PN: 5396-9906
Replacement Gaskets		PN: 5396-9919
Replacement O-ring seal, 2-pack		PN: 5396-9916
Garden Hose Adapter with brass coupling		PN: 5396-9907
USB 2.0 to 2.0 mini 3 ft. cable		PN: 5396-9911
USB on-the-go cable for Android devices		PN: 5396-9913
Track-It Software		PN: 5396-9915

For additional accessories and details, see webpage.

12.0 WARRANTY

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

Warranty Registration and Extended Warranty coverage available online at www.monarchinstrument.com.

The Professional's Choice

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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