



Compact Data Logger Quick Start Guide

April 2003 Edition

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Introduction

Small, simple and affordable, *Monarch* data loggers measure and record data at user specified intervals ranging from once every 2 seconds to once every 12 hours. *Monarch's* Data Recording Software requires no programming skills, and enables you to effortlessly select a reading rate, specify a user ID, and initiate the start of data collection. The data logger will be ready to use in just moments.

In addition, all data can be saved in a format easily compatible with spreadsheet applications such as "Microsoft Excel" or "Lotus 1-2-3".

It is our goal to bring you accurate, low-cost, easy-to-use data loggers that will easily integrate into your working environment. To better serve you and understand your needs, we welcome and appreciate your feedback.

Thank you for choosing *Monarch* for your data logging requirements.

Warranty

Products manufactured by Monarch Instrument are warranted against defective material and workmanship for a period of one year, starting from the date of shipment. In the event that a Monarch product is found to be defective, Monarch will repair or replace the product at its sole discretion. Such repair or replacement shall be the sole remedy of this warranty.

This warranty extends only to the original purchasing customer and does not apply to any unit, which in our sole judgment, has been subjected to:

- a) Operating or environmental conditions in excess of our written specifications or recommendations;
- b) Damage, misuse or neglect;
- c) Improper installation, repair or alteration.

This warranty excludes batteries and sensors.

Except as to title, this is our only warranty for the products. Monarch Instrument expressly disclaims all other warranties, guarantees or remedies—whether expressed or implied or statutory—including any implied warranty of merchantability or fitness for a particular purpose. We also disclaim any implied warranty arising out of trade usage or out of a course dealing or course of performance. We do not guarantee the integrity of data or warranty that the products will operate uninterrupted or error-free.

Limitation of Liability

Monarch Instrument data loggers and their associated software have been thoroughly tested and the documentation reviewed. However, *Monarch Instrument* does not warrant the performance of its products for any particular purpose. In no event is *Monarch* liable for any damages resulting, directly or indirectly, from the use of this or any products supplied by *Monarch*.

Battery Warning

See individual units for battery warning.

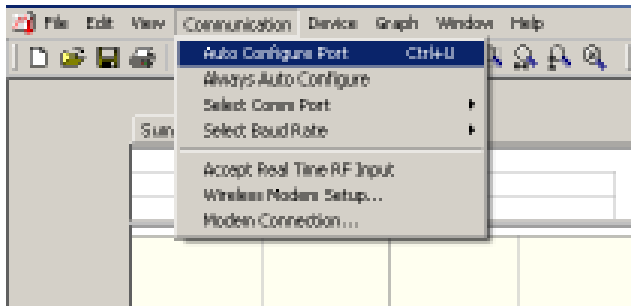
1 Quick Start

To begin using your data logger right away, follow these six simple steps:

1. Install the software. (See [Software Installation](#))
2. Attach the logger to your computer using the interface cable. (See [Hardware Installation](#))
3. From the Communication menu, select "Auto Configure Port".

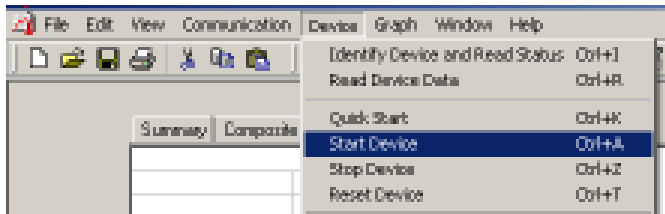
Fig 1.1

Fig 1.1



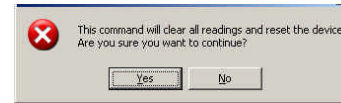
4. From the Device menu, select "Start Device". Fig 1.3

Fig 1.3



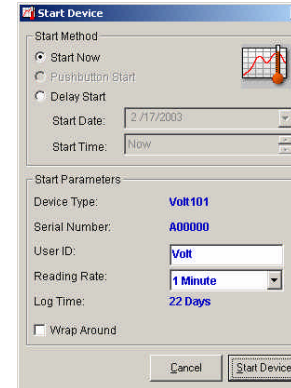
5. A message will appear (fig 1.3) Click Yes to continue. Be sure to have downloaded all previously recorded data before continuing.

Fig 1.3



6. The "Start Device" window will open. Note that there are two sections of this window, the "Start Method" section and the "Start Parameters" section. (Fig 1.4)

Fig 1.4



- a. The "Start Method" section allows the user to choose to "Start Now" or "Delay Start", which allows most devices to record data anywhere from 0 to 60 days from the time it is started.
- b. The "Start Parameters" section allows the user to set three options in the device: User ID, Reading Rate, and Wrap Around.
 - i. The "User ID" field allows the user to store a combination of six letters or numbers in the

device to help you identify the device, or the person who started the device, etc.

- ii. The Reading Rate field allows the user to select a specific reading rate in the device, typically ranging from one reading every 2 seconds to one reading every 12 hours. These ranges can vary depending on the device.
 - iii. The "Wrap Around" field is only available to devices, which have the ability to perform memory wrap around. If the device is able to do so, the user chooses to overwrite the oldest data when the device memory becomes full. If this box is left unchecked, the device will stop recording data when the memory is full.
7. When finished, click on "Start Device".
 8. After a brief pause while the software communicates with the device, you will see the message "Device Started". Your device is now started and will begin taking measurements according to the parameters set in section 6. You may now disconnect the logger and place the device where you need it to perform its measurements. Later, when you are ready to view the measurements, simply reconnect it to the computer, and select "Read Device Data" from the Device menu.

For more detailed information on using our software, please see the help file located under the help menu in the Monarch software.

2 Software Installation

Installing from CD ROM

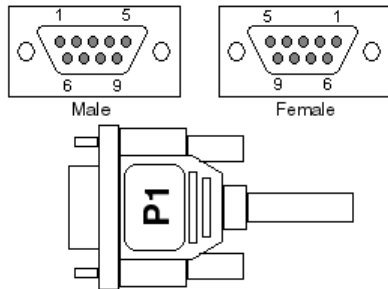
Insert the CD ROM labeled "Monarch Data Recording Software" into your CD ROM drive. From the Windows Start menu, choose the Run command and type *d: \setup* into the Open field and click OK. If your CD ROM drive is not the D: drive, use the correct letter in the instructions above.

After installation, the software will be listed under the default *Monarch* software program group and saved under the default "C:\Program Files\Monarch 2.00" directory.

3 Hardware Installation

1. Connect the DB9 end of the interface cable provided with the software package to the computer's serial port. (Fig 3.1)

Fig. 3.1



2. Connect the stereo jack end of the interface cable to the data logger. Fig 3.2

Fig 3.2



CRYOTEMP

To start the CRYOTEMP refer to "[Quick Start](#)". After starting, the CRYOTEMP is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

Be sure to keep the CRYOTEMP dry. If using the device in a dry ice environment, place the CRYOTEMP in a sealable plastic bag. If using the data logger in a wet ice environment, place the CRYOTEMP in a mason jar and close the cover.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close case and secure with screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

OCTRTD

To start the OCTRTD refer to “[Quick Start](#)”. After starting, the OCTRTD is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The OCTRTD has eight, four-position removable screw terminal connections, and can accept 2, 3 or 4-wire RTD configurations. Temperature probes to be used with the recorder must be 100 ohm platinum RTD's, in the standard 2-, 3- or 4-wire configuration. The OCTRTD is designed to achieve exceptional accuracy with the 4-wire probe, but will still yield measurements better than required for most applications with the 2- or 3-wire probes.

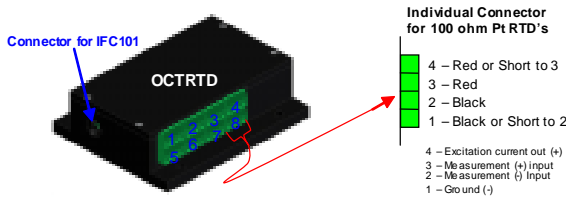
Insure that the probe you select can be connected to the OCTRTD inputs by selecting probes with lead wires, or by attaching an adapter that will allow you to connect wire leads to the probe. OMEGA's PR-10 and PR-11 series of probes have the proper leads for direct connection to the OCTRTD.

For 4-wire RTD probes, connect the four lead wires to the OCTRTD as shown in Fig. A.

For 3-wire RTD probes, short inputs 3 and 4 together, then connect the lead wires to inputs 1, 2 and 3.

For 2-wire RTD probes, short inputs 3 and 4 together and inputs 1 and 2 together, then connect the RTD lead wires to inputs 2 and 3.

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

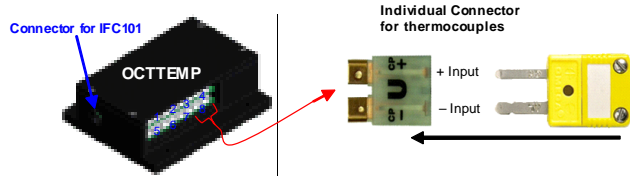
Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

OCTTEMP

To start the OCTTEMP refer to “[Quick Start](#)”. After starting, the OCTTEMP is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The OCTTEMP has eight SMP connections which allow the user to insert subminiature thermocouple plugs into the connectors on the device. Fig. A shows how to connect the individual thermocouples.

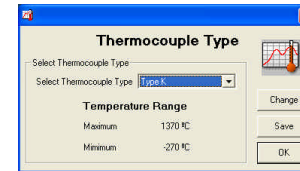
Fig. A



The software accepts eight different thermocouple types: J, K, T, E, R, S, B and N. To select the correct thermocouple type in the Monarch software:

1. Select “Thermocouple Type” from the device menu. (Fig. B)
2. Click on the change button in the Thermocouple Type window.
3. Select the correct thermocouple type from the drop down list.
4. Click on the Save button to store the thermocouple type in the device.
5. Click Ok, to finish.

Fig. B



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

QUADRTD

To start the QUADRTD refer to "[Quick Start](#)". After starting, the QUADRTD is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The QUADRTD has four, four-position removable screw terminal connections. The QUADRTD accepts 2, 3 or 4-wire RTD configurations. Temperature probe to be used with the recorder must be 100 ohm platinum RTD's, in the standard 2-, 3- or 4-wire configuration. The QUADRTD is designed to achieve exceptional accuracy with the 4-wire probe, but will still yield measurements better than required for most applications with the 2- or 3-wire probes.

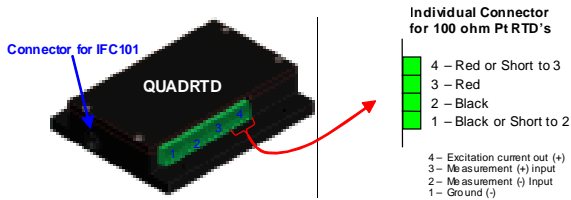
Insure that the probe you select can be connected to the QUADRTD input by selecting a probe with lead wires, or by attaching an adapter that will allow you to connect wire leads to the probe. OMEGA's PR-10 and PR-11 series of probes have the proper leads for direct connection to the QUADRTD.

For 4-wire RTD probes, connect the four lead wires to the QUADRTD as shown in Fig. A.

For 3-wire RTD probes, short inputs 3 and 4 together, then connect the lead wires to inputs 1, 2 and 3.

For 2-wire RTD probes, short inputs 3 and 4 together and inputs 1 and 2 together, then connect the RTD lead wires to inputs 2 and 3.

Fig. A



Battery Warning

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Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

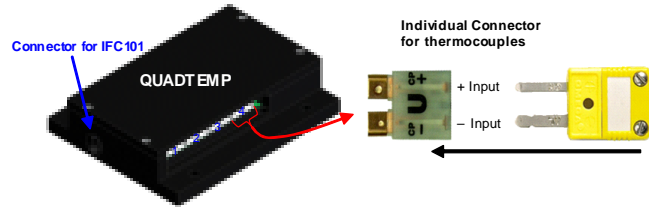
Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

QUADTEMP

To start the QUADTEMP refer to “[Quick Start](#)”. After starting, the QUADTEMP is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The QUADTEMP has four SMP connections which allows the user to insert subminiature thermocouple plugs into the connectors on the device. The diagram below shows how to connect the individual thermocouples.

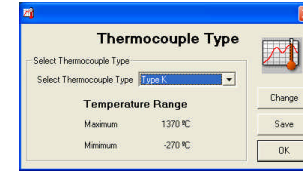
Fig. A



The software accepts eight different thermocouple types: J, K, T, E, R, S, B and N. To select the correct thermocouple type in the Monarch software:

1. Select “Thermocouple Type” from the device menu. (Fig. B)
2. Click on the change button in the Thermocouple Type window.
3. Select the correct thermocouple type from the drop down list.
4. Click on the Save button to store the thermocouple type in the device.
5. Click Ok, to finish.

Fig. B



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MÓNARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

RTDTEMP101

To start the RTDTEMP101 refer to "[Quick Start](#)". After starting, the RTDTEMP101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The RTDTEMP101 has a four-position removable screw terminal connection. The RTDTEMP101 accepts 2, 3 or 4-wire RTD configurations. Temperature probe to be used with the recorder must be a 100 ohm platinum RTD, in the standard 2-, 3- or 4-wire configuration. The RTDTEMP101 is designed to achieve exceptional accuracy with the 4-wire probe, but will still yield measurements better than required for most applications with the 2- or 3-wire probes.

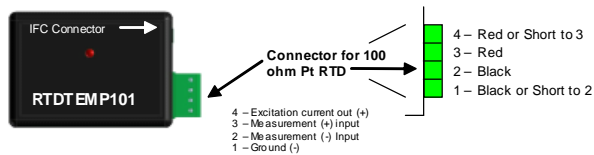
Insure that the probe you select can be connected to the RTDTEMP101 input by selecting a probe with lead wires, or by attaching an adapter that will allow you to connect wire leads to the probe. OMEGA's PR-10 and PR-11 series of probes have the proper leads for direct connection to the RTDTEMP101.

For 4-wire RTD probes, connect the four lead wires to the RTDTEMP101 as shown in Fig A.

For 3-wire RTD probes, short inputs 3 and 4 together, then connect the lead wires to inputs 1, 2 and 3.

For 2-wire RTD probes, short inputs 3 and 4 together and inputs 1 and 2 together, then connect the RTD lead wires to inputs 2 and 3.

Fig A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close case and secure with screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

RTDTEMP110

To start the RTDTEMP110 refer to "[Quick Start](#)". After starting, the RTDTEMP110 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

This device communicates at 57,600 baud. If you do not have the software set to "Always Auto Configure", you must select this baud rate from the communication menu.

The RTDTEMP110 has a four-position removable screw terminal connection. The RTDTEMP110 accepts 2, 3 or 4-wire RTD configurations. Temperature probe to be used with the recorder must be a 100 ohm platinum RTD, in the standard 2-, 3- or 4-wire configuration. The RTDTEMP110 is designed to achieve exceptional accuracy with the 4-wire probe, but will still yield measurements better than required for most applications with the 2- or 3-wire probes.

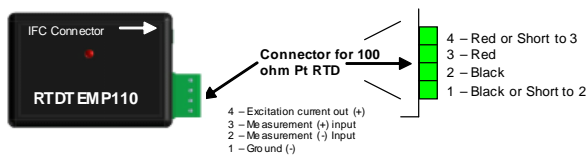
Insure that the probe you select can be connected to the RTDTEMP110 input by selecting a probe with lead wires, or by attaching an adapter that will allow you to connect wire leads to the probe. OMEGA's PR-10 and PR-11 series of probes have the proper leads for direct connection to the RTDTEMP110.

For 4-wire RTD probes, connect the four lead wires to the RTDTEMP110 as shown in Fig. A

For 3-wire RTD probes, short inputs 3 and 4 together, then connect the lead wires to inputs 1, 2 and 3.

For 2-wire RTD probes, short inputs 3 and 4 together and inputs 1 and 2 together, then connect the RTD lead wires to inputs 2 and 3.

Fig. A



Battery Warning

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Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the old battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

SAFETEMP

To start the SAFETEMP without using the push button, refer to the section "[Quick Start](#)". Be sure that the "Push Button Start" button is not selected in the "Start Device" Window.

To start the SAFETEMP using the Push Button, refer to "[Quick Start](#)" and be sure that "Push Button Start" button is selected in the Start Device Window. After starting, the SAFETEMP is armed, but no data will be recorded. To start the device recording, the push button must be pressed and held down for 5 seconds or until both the Red and Green LED's flash momentarily. The device will stop recording when the end of memory is reached or the push button has been held down for 5 seconds. At this point the device will only record data after it has been restarted.

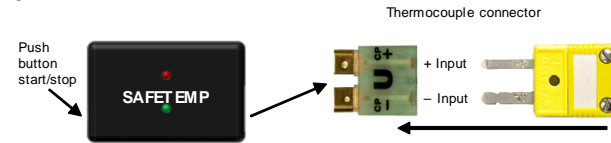
Once started, the green LED will flash every 10 seconds to indicate that the device is running. The red LED will flash if there is an alarm condition.

To change the settings for the temperature alarm, select "Alarm Settings" from the Device menu in the Monarch software. A window will appear, allowing you to set a low and/or high temperature alarm as well as enable or disable an alarm. To clear an active alarm, press the clear alarm button.

The SAFETEMP communicates at 600 baud. If you do not have the software set to "Always Auto Configure", you must select this baud rate from the communication menu.

The standard connector for the SAFETEMP is the SMP connection which allows for the user to insert the subminiature thermocouple plug into the connector on the device. The SAFETEMP will only accommodate a type K thermocouple. Fig A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the old battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

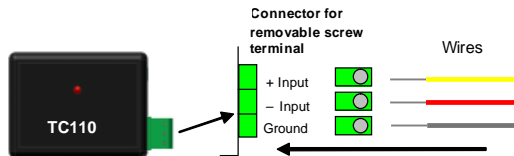
TC110

To start the TC110 refer to "[Quick Start](#)". After starting, the TC110 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

This device communicates at 57,600 baud. If you do not have the software set to "Always Auto Configure", you must select this baud rate from the communication menu.

The TC110 has a three position removable screw terminal. This enables the TC110 to be connected to most 2-wire thermocouples with lead wires, and to have the ability to shield the thermocouple with the ground connection. If the TC110 is to be used with a 2-wire thermocouple without shielding, leave the ground input unconnected. Be sure to connect the thermocouple with the right polarity as marked on the case of the device, the ground connection is optional. Fig A.

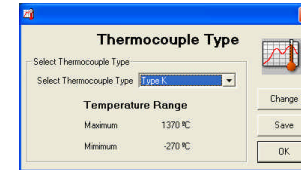
Fig. A



The software accepts eight different thermocouple types: J, K, T, E, R, S, B and N. To select the correct thermocouple type in the Monarch software to match the thermocouple that is being used:

1. Select "Thermocouple Type" from the device menu. Fig. B
2. Click on the change button in the Thermocouple Type window.
3. Select the correct thermocouple type from the drop down list.
4. Click on the Save button to store the thermocouple type in the device.
5. Click Ok, to finish.

Fig. B



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the old battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

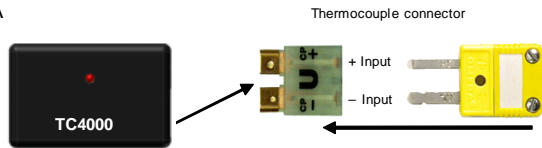
TC4000

To start the TC4000 refer to “[Quick Start](#)”. After starting, the TC4000 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Depending on the physical configuration of the TC4000, the device will either have an input for a subminiature thermocouple connector or a removable screw terminal.

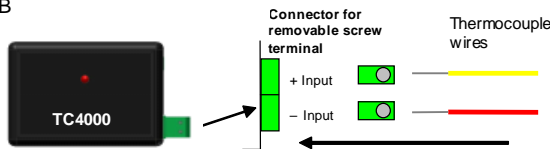
The standard connector for the TC4000 is the SMP connection which allows for the user to insert a subminiature thermocouple plug into the connector on the device. Fig. A

Fig. A



The non-standard connector for the TC4000 is the removable screw terminal. This enables the TC4000 to be connected to most 2-wire thermocouples with lead wires. Be sure to connect the thermocouple with the right polarity as marked on the case of the device. Fig. B

Fig. B

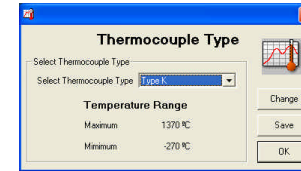


The software accepts eight different thermocouple types: J, K, T, E, R, S, B and N. To select the correct thermocouple type in the Monarch software to match the thermocouple that is being used:

1. Select “Thermocouple Type” from the device menu. Fig. C
2. Click on the change button in the Thermocouple Type window.

3. Select the correct thermocouple type from the drop down list.
4. Click on the Save button to store the thermocouple type in the device.
5. Click Ok, to finish.

Fig. C



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the old battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

TEMP100

To start the TEMP100 without using the push button, refer to the section “[Quick Start](#)”. Be sure that the “Push Button Start” button is not selected in the Start Device Window.

To start the TEMP100 using the Push Button, refer to “[Quick Start](#)” and be sure that “Push Button Start” button is selected in the Start Device Window. After starting, the TEMP100 is armed, but no data will be recorded. To start the device recording, the push button must be pressed and held down for 5 seconds or until both the Red and Green LED’s flash momentarily. The device will stop taking data when the end of memory is reached or the push button has been held down for 5 seconds. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the green LED will flash every 10 seconds to indicate that the device is running. The red LED will flash if there is an alarm condition.

To change the settings for the temperature alarm, select “Alarm Settings” from the Device menu in the Monarch software. A window will appear allowing you set a low and/or high temperature alarm as well as enable or disable the alarm. To clear an active alarm, press the clear alarm button.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the old battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

TEMP101

To start the TEMP101 refer to “[Quick Start](#)”. After starting, the TEMP101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running. The LED will flash in one second intervals if there is an alarm condition.

To change the settings for the temperature alarm, select “Alarm Settings” from the Device menu in the Monarch software. A window will appear allowing you set a low and/or high temperature alarm as well as enable or disable the alarm. To clear an active alarm, press the clear alarm button.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the old battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

TEMP110

To start the TEMP110 refer to “[Quick Start](#)”. After starting, the TEMP110 is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

This device communicates at 57,600 baud. If you do not have the software set to “Always Auto Configure”, you must select this baud rate from the communication menu.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the old battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

TEMP1000

The serial port on the TEMP1000 is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable to the logger. To start the TEMP1000 refer to “[Quick Start](#)”. After starting, the TEMP1000 is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory on replacing the battery.

Warning

This device is intended for waterproof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

TEMP1000FP

The serial port on the TEMP1000FP is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the data logger. To start the TEMP1000FP refer to ["Quick Start"](#). After starting, the TEMP1000FP is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Flexible Probe

The maximum bending radius of the probe is 2", bending only once. Avoid bending the probe anywhere along the first 2.5" from the tip.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for water proof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

TEMP1000IS

The serial port on the TEMP1000IS is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the logger. To start the TEMP1000IS refer to ["Quick Start"](#). After starting, the TEMP1000IS is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for waterproof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

TEMP1000P

The serial port on the TEMP1000P is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the logger. To start the TEMP1000P refer to "[Quick Start](#)". After starting, the TEMP1000P is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for waterproof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

TEMP1000S

The serial port on the TEMP1000S is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the logger. To start the TEMP1000S refer to "[Quick Start](#)". After starting, the TEMP1000S is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for waterproof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

TEMPRETRIEVER

To start the TEMPRETRIEVER refer to the section "[Quick Start](#)". After starting, the TEMP101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running. The LED will flash in one second intervals if there is an alarm condition.

To change the settings for the temperature alarm, select "Alarm Settings" from the Device menu in the Monarch software. A window will appear allowing you set a low and/or high temperature alarm as well as enable or disable the alarm. To clear an active alarm, press the clear alarm button.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the old battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

THERMOVAULT

The THERMOVAULT consists of a TC4000 with a fixed screw terminal connector, and a thermally insulated box (logger box) to house the TC4000. In order to communicate with the THERMOVAULT, the TC4000 must be removed from the box in order to connect the IFC101 to the TC4000.

Follow these instructions on using the THERMOVAULT:

1. To start the TC4000 refer to "[Quick Start](#)". After starting, the TC4000 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.
2. Place the data logger into the box. Wind the thermocouple around the small channel in the logger box. The end of the thermocouple should extend out the edge of the logger box.
3. Place the logger box in oven or on oven conveyor. The oven temperature determines the maximum time the logger box can remain in the oven. The following table shows the maximum duration the box may remain in the oven.

Ambient Temperature, °C (°F)	Max Duration in Minutes
100 (212)	52
150 (302)	30
200 (392)	22
250 (482)	17
260 (500)	16
300 (572)	15
350 (662)	12
400 (752)	10

Leaving the logger box in the oven longer than stated above or immersing logger box into any liquid, could cause loss of data, damage to data logger or the logger box.

4. Remove data logger from the logger box immediately after removing from oven. The outside of the case will be hot, protective gloves or tongs must be used to handle the box. Failure to remove the data logger from the logger box could cause loss of data or damage to the data logger.
5. Allow the logger box to cool to room temperature before using again. Failure to cool the box to room temperature before using again could cause loss to data, damage to the data logger or damage to the logger box.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Remove the TC4000 from the logger box. Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

MICRORHTEMP

To start the MICRORHTEMP, refer to the section "[Quick Start](#)". After starting, the MICRORHTEMP is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the green LED will flash at the selected reading rate to indicate that the device is running. The red LED will flash in one second intervals if there is an alarm condition.

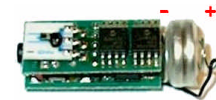
To change the settings for the temperature alarm, select "Alarm Settings" from the Device menu in the Monarch software. A window will appear allowing you set a low and/or high temperature alarm as well as enable or disable the alarm. To clear an active alarm, press the clear alarm button.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Unscrew the cap at the top of the case. Remove the two coin cell batteries; be sure not to remove the device from the case. Insert two Lithium CR1225 batteries by placing the positive ends (flat surface) away from the device, leave enough slack in the black wire to let the spring make contact with the positive end of the battery. Close the case by screwing on the cap.



Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

MICRORHTEMP-EB

To start the MICRORHTEMP-EB, refer to the section “[Quick Start](#)”. After starting, the MICRORHTEMP-EB is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the green LED will flash at the selected reading rate to indicate that the device is running. The red LED will flash in one second intervals if there is an alarm condition.

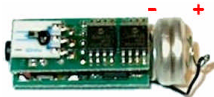
To change the settings for the temperature alarm, select “Alarm Settings” from the Device menu in the Monarch software. A window will appear allowing you set a low and/or high temperature alarm as well as enable or disable the alarm. To clear an active alarm, press the clear alarm button.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Unscrew the cap at the top of the case. Remove the two coin cell batteries; be sure not to remove the device from the case. Insert two Lithium CR1632 batteries by placing the positive ends (flat surface) away from the device, leave enough slack in the black wire to let the spring make contact with the positive end of the battery. Close the case by screwing on the cap.



Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

RHTEMP101

To start the RHTEMP101 refer to “[Quick Start](#)”. After starting, the RHTEMP101 is armed; data will start recording. The device will stop recording when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running. The LED will flash in one second intervals if there is an alarm condition.

To change the settings for the temperature alarm, select “Alarm Settings” from the Device menu in the Monarch software. A window will appear allowing you set a low and/or high temperature alarm as well as enable or disable the alarm. To clear an active alarm, press the clear alarm button.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-3PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

RHTEMP110

To start the RHTEMP110 refer to “[Quick Start](#)”. After starting, the RHTEMP110 is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

This device communicates at 57,600 baud. If you do not have the software set to “Always Auto Configure”, you must select this baud rate from the communication menu.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

RHTEMP1000

The serial port on the RHTEMP1000 is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the logger. To start the RHTEMP1000 refer to “[Quick Start](#)”. After starting the RHTEMP1000, it is armed and data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

For humidity readings, unscrew the cap enough to expose the humidity sensor to the air. The cap is fully open when it becomes difficult to turn. Do not allow water or other liquids to come into contact with the inside of the sensor compartment. If the device needs to be water tight, screw the cap on as tightly as possible.



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for waterproof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

RHTEMP1000IS

The serial port on the RHTEMP1000IS is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the logger. To start the RHTEMP1000IS refer to "[Quick Start](#)". After starting, the RHTEMP1000IS is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

For humidity readings, unscrew the cap enough to expose the humidity sensor to the air. The cap is fully open when it becomes difficult to turn. Do not allow water or other liquids to come into contact with the inside of the sensor compartment. If the device needs to be water tight, screw the cap on as tightly as possible.



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for waterproof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

OCTVOLT

To start the OCTVOLT refer to "[Quick Start](#)". After starting, the OCTVOLT is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

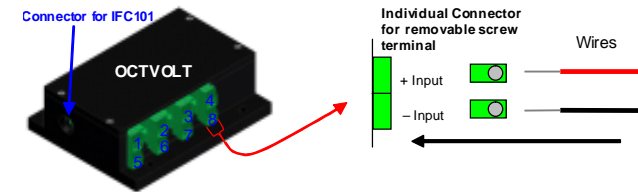
Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The OCTVOLT allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the "[Engineering Units](#)" section.

The OCTVOLT has eight, two-position removable screw terminal connections. The OCTVOLT accepts 2-wire configurations. Insure that the device that is to be measured can be connected to the OCTVOLT input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured.

For a two-wire connection, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

QUADVOLT

To start the QUADVOLT refer to "[Quick Start](#)". After starting, the QUADVOLT is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

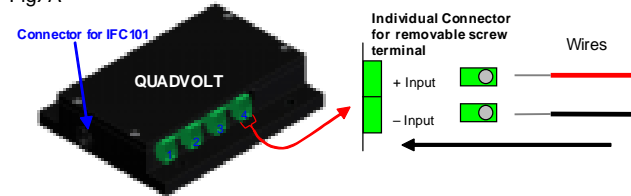
Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The QUADVOLT allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the "[Engineering Units](#)" section.

The QUADVOLT has four two-position removable screw terminal connections. The QUADVOLT accepts 2-wire configurations. Insure that the device that is to be measured can be connected to the QUADVOLT input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured.

For a two-wire connection, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

VOLT101

To start the VOLT101 refer to "[Quick Start](#)". After starting, the VOLT101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

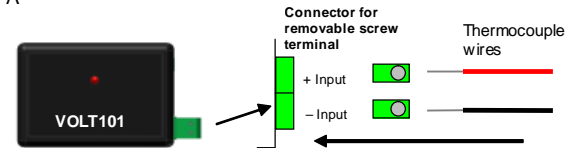
Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The VOLT101 allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the "[Engineering Units](#)" section. (page ?)

The VOLT101 has a two-position removable screw terminal connection. The VOLT101 accepts 2-wire configurations. Insure that the device that is to be measured can be connected to the VOLT101 input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured.

For a two-wire connection, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

VOLT110 – 100mV

To start the VOLT110 – 100 mV refer to [“Quick Start”](#). After starting, the VOLT110 – 100 mV is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

This device communicates at 57,600 baud. If you do not have the software set to “Always Auto Configure”, you must select this baud rate from the communication menu.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

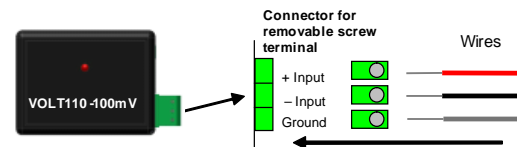
The VOLT110 – 100 mV allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the [“Engineering Units”](#) section. (page ?)

The VOLT110 – 100 mV has a three-position removable screw terminal connection. The VOLT110 – 100 mV measures a differential input and accepts 2 or 3-wire configurations. Insure that the device that is to be measured can be connected to the VOLT110 – 100 mV input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured.

For a two-wire connection, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire).

For a three-wire connection, make the connections as described for the two-wire connection, also connecting Ground to signal ground. Fig. A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

VOLT110 – 2.5, 15 and 30 V

To start the VOLT110 refer to “[Quick Start](#)”. After starting, the VOLT110 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

This device communicates at 57,600 baud. If you do not have the software set to “Always Auto Configure”, you must select this baud rate from the communication menu.

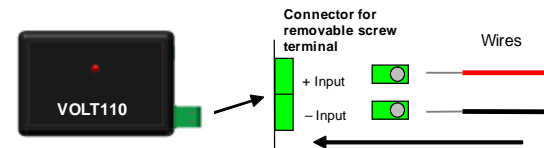
Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The VOLT110 allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the “[Engineering Units](#)” section.

The VOLT110 has a two-position removable screw terminal connection. The VOLT110 accepts 2-wire configurations. Insure that the device that is to be measured can be connected to the VOLT110 input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured.

For a two-wire connection, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

OCTPROCESS

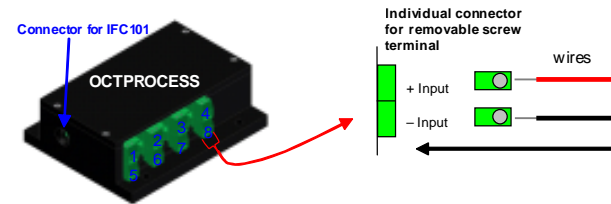
To start the OCTPROCESS refer to "[Quick Start](#)". After starting, the OCTPROCESS is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The OCTPROCESS allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the "[Engineering Units](#)" section.

The OCTPROCESS has eight two-position removable screw terminal connections. The OCTPROCESS accepts 2-wire configurations. Insure that the device that is to be measured can be connected to the OCTPROCESS input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured.

For a two-wire loop, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PROCESS101

To start the PROCESS101 refer to "[Quick Start](#)". After starting, the PROCESS101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

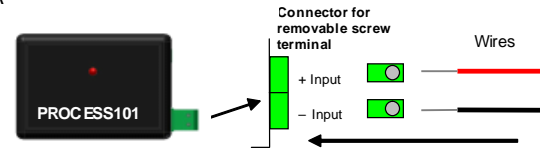
Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The PROCESS101 allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the "[Engineering Units](#)" section.

The PROCESS101 has a two-position removable screw terminal connection. The PROCESS101 accepts 2-wire configurations. Insure that the device that is to be measured can be connected to the PROCESS101 input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured.

For a two-wire loop, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PROCESS110

To start the PROCESS110 refer to "[Quick Start](#)". After starting, the PROCESS110 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

This device communicates at 57,600 baud. If you do not have the software set to "Always Auto Configure", you must select this baud rate from the communication menu.

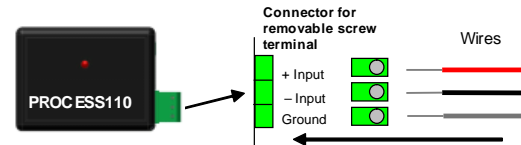
Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The PROCESS110 allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the "[Engineering Units](#)" section.

The PROCESS110 has a three-position removable screw terminal connection. The PROCESS110 accepts 2 or 3-wire configurations. Insure that the device that is to be measured can be connected to the PROCESS110 input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured.

For a two-wire loop, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). You can leave ground unconnected, or connect it to signal shield. Fig. A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

QUADPROCESS

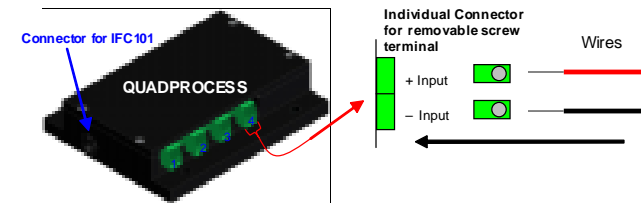
To start the QUADPROCESS refer to "[Quick Start](#)". After starting, the QUADPROCESS is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The QUADPROCESS allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the "[Engineering Units](#)" section.

The QUADPROCESS has four, two-position removable screw terminal connections. The QUADPROCESS accepts 2-wire configurations. Insure that the device that is to be measured can be connected to the QUADPROCESS input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured

For a two-wire loop, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

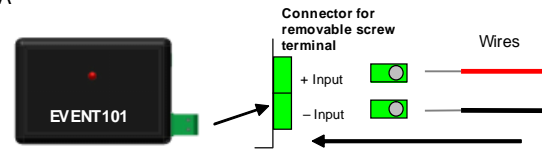
EVENT101

To start the EVENT101 refer to "[Quick Start](#)". After starting, the EVENT101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The EVENT101 has a two-position removable screw terminal connection. The EVENT101 accepts 2-wire configurations. To use, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



The EVENT101 records the time at which a pulse input or contact closure occurs on the input of the device. The device is continuously sampling at 1 kHz, therefore, the pulse input must be at least 1 ms in duration. An input voltage of greater than 30 volts on the input could cause loss of data or damage to data logger. Only one event will be recorded per reading interval (ie. 1 second). The EVENT101 will most often be used with the 1 second reading rate.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

EVENT110

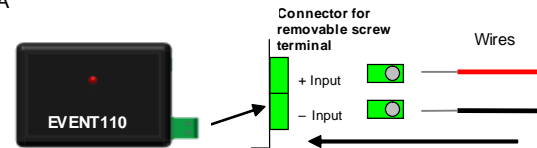
To start the EVENT110 refer to “[Quick Start](#)”. After starting, the EVENT110 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

This device communicates at 57,600 baud. If you do not have the software set to “Always Auto Configure”, you must select this baud rate from the communication menu.

The EVENT110 has a two-position removable screw terminal connection. The EVENT110 accepts 2-wire configurations. To use, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig A

Fig. A



The EVENT110 records the time at which a pulse input or contact closure occurs on the input of the device. The device is continuously sampling at 1 kHz, therefore, the pulse input must be at least 1 ms in duration. An input voltage of greater than 30 volts on the input could cause loss of data or damage to data logger. Only one event will be recorded per reading interval (i.e. 1 second). The EVENT110 will most often be used with the 1 second reading rate.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PULSE101

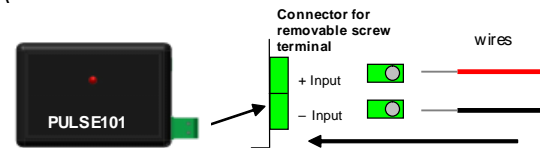
To start the PULSE101 refer to "[Quick Start](#)". After starting, the PULSE101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The PULSE101 allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the "Engineering Units" section. (page ?)

The PULSE101 has a two-position removable screw terminal connection. The PULSE101 accepts 2-wire configurations. To use, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



The PULSE101 records the number of pulse inputs or contact closures on the input of the device. The input is continuously sampled at 1 kHz, therefore, the input pulse must be at least 1 ms in duration. This device will read up to 100 pulses per second. The counter is reset at the beginning, and is recorded at the end of each sample interval. The counter is incremented when the input transitions high during the reading interval.

Note: An input voltage of greater than 30 volts on the input could cause loss of data or damage to data logger.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PULSE110

To start the PULSE110 refer to "[Quick Start](#)". After starting, the PULSE110 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

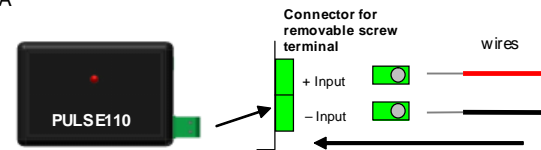
Once started, the LED will flash at the selected reading rate to indicate that the device is running.

This device communicates at 57,600 baud. If you do not have the software set to "Always Auto Configure", you must select this baud rate from the communication menu.

The PULSE110 allows for user-defined units to be programmed into the device. To use the programmable engineering units, refer to the "Engineering Units" section. (page ?)

The PULSE110 has a two-position removable screw terminal connection. The PULSE110 accepts 2-wire configurations. To use, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



The PULSE110 records the number of pulse inputs or contact closures on the input of the device. The input is continuously sampled at 1 kHz, therefore, the input pulse must be at least 1 ms in duration. This device will read up to 100 pulses per second. The counter is reset at the beginning, and is recorded at the end of each sample interval. The counter is incremented when the input transitions high during the reading interval.

Note: An input voltage of greater than 30 volts on the input could cause loss of data or damage to data logger.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

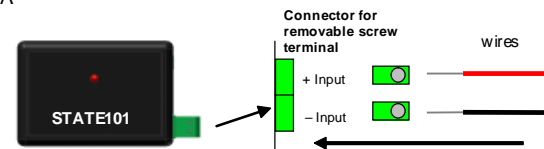
STATE101

To start the STATE101 refer to "[Quick Start](#)". After starting, the STATE101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The STATE101 has a two-position removable screw terminal connection. The STATE101 accepts 2-wire configurations. To use, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



The STATE101 records the state of the input of the device at the selected reading rate. To ensure that the STATE101 captures the state of the input, be sure to have a contact closure that lasts at least the length of the selected reading rate. The device will only record if the state has changed when the input is sampled. The date and time is recorded along with the change of state.

Note: An input voltage of greater than 30 volts on the input could cause loss of data or damage to data logger.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

STATE110

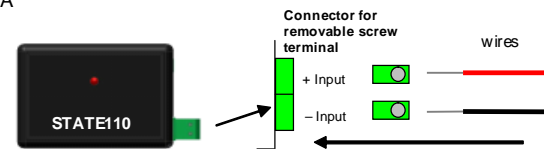
To start the STATE110 refer to "[Quick Start](#)". After starting, the STATE110 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

This device communicates at 57,600 baud. If you do not have the software set to "Always Auto Configure", you must select this baud rate from the communication menu.

The STATE110 has a two-position removable screw terminal connection. The STATE110 accepts 2-wire configurations. To use, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



The STATE110 records the state of the input of the device at the selected reading rate. To ensure that the STATE110 captures the state of the input, be sure to have a contact closure that lasts at least the length of the selected reading rate. The device will only record if the state has changed when the input is sampled. The date and time is recorded along with the change of state.

Note: An input voltage of greater than 30 volts on the input could cause loss of data or damage to data logger.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PRHTEMP101

To start the PRHTEMP101 refer to "[Quick Start](#)". After starting, the PRHTEMP101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PRHTEMP110

To start the PRHTEMP110 refer to “[Quick Start](#)”. After starting, the PRHTEMP110 is armed, data will start recording. The device will stop recording when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

This device communicates at 57,600 baud. If you do not have the software set to “Always Auto Configure”, you must select this baud rate from the communication menu.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PRTEMP101

To start the PRTEMP101 refer to “[Quick Start](#)”. After starting, the PRTEMP101 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PRTEMP110

To start the PRTEMP110 refer to “[Quick Start](#)”. After starting, the PRTEMP110 is armed, data will start recording. The device will stop recording when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Once started, the LED will flash at the selected reading rate to indicate that the device is running.

This device communicates at 57,600 baud. If you do not have the software set to “Always Auto Configure”, you must select this baud rate from the communication menu.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PRTEMP1000

The serial port on the PRTEMP1000 is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the logger. To start the PRTEMP1000 refer to “[Quick Start](#)”. After starting the PRTEMP1000, it is armed and data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

To use the pressure sensor for gauge measurements, screw the ¼” male NPT fitting into the pipe to be measured. The NPT fitting can also be used for absolute and submersible applications, but it is preferable to use the submersible fitting for these applications.



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for waterproof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

PRTEMP1000P

The serial port on the PRTEMP1000 is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the logger. To start the PRTEMP1000 refer to "[Quick Start](#)". After starting the PRTEMP1000, it is armed and data will start recording. The device will stop recording when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for waterproof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

pHTEMP101

To start the pHTEMP101 refer to "[Quick Start](#)". After starting, the pHTEMP101 is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

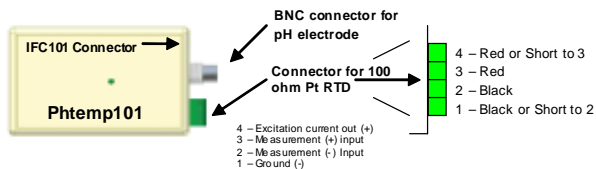
Although the pHTEMP101 is used in essentially the same manner as the rest of the Monarch data loggers, a few extra considerations are necessary to achieve the best performance. Determination of pH requires the measurement of two parameters: electrical potential and temperature. Thus, the pHTemp101 has inputs for two external probes: a BNC jack that will accept most standard pH electrodes, and a 4-position header block that can be easily configured to accept a variety of temperature probes.

To use the pHTEMP101 data recorder:

1. The selected pH electrode to be used with the recorder should have a BNC output connection, or an appropriate adapter. To minimize measurement error, you should select a probe with an output impedance less than 300 megaohms at the desired temperature. The OMEGA PHE-4200 Series of probes satisfy this condition above 0 °C (32 °F), and have a BNC output connection.
2. The selected temperature probe to be used with the recorder must be a 100 ohm platinum RTD, in the standard 2-,3- or 4-wire configuration. The pHTEMP101 is designed to achieve exceptional accuracy with the 4-wire probe, but will still yield measurements better than required for a pH-measurement with the 2- or 3-wire probes.
3. Insure that the probe you select can be connected to the Phtemp101 RTD input by selecting a probe with lead wires, or by attaching an adapter that will allow you to connect wire leads to the probe. OMEGA's PR-10 and PR-11 series of probes have the proper leads for direct connection to the Phtemp101.
4. Connect the probes to the data logger. Fig. A
5. Refer to the description of your pH probe for an applicable calibration procedure.

6. You may now use the pHTEMP101 exactly as you would any other Monarch data loggers.

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. Replace the battery with a Lithium U9VL-J. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

LEVEL1000

The serial port on the LEVEL1000 is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the logger. To start the LEVEL1000 refer to "[Quick Start](#)". After starting the LEVEL1000, it is armed and data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

This device is not atmospheric pressure compensated, therefore, a reading should be taken prior to submerging the device into water. That reading will then need to be subtracted from all readings to provide accurate water level measurement. When submersing into water, be sure to connect the key ring at the top of the logger to a secure line.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for water proof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

LEVEL2000

The serial port on the LEVEL2000 is located under the cap with the key ring. To connect the logger to the interface cable, unscrew the cap and insert the stereo jack end of the interface cable into the logger. To start the LEVEL2000 refer to "[Quick Start](#)". After starting the LEVEL2000, it is armed and data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

This device is atmospheric pressure compensated; therefore, the end of the tubing must remain above water. The tubing also contains a serial cable for connecting the data logger to a pc; do not allow water or other liquids to come into contact with the end of the serial cable. When submersing into water, be sure to connect the key ring at the top of the logger to a secure line.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Contact the factory for information on replacing the battery.

Warning

This device is intended for waterproof applications. THIS UNIT MUST BE PROPERLY SEALED BEFORE SUBMERSING IN WATER OR OTHER MEDIUM. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

SHOCK101

To start the SHOCK101 refer to "[Quick Start](#)". After starting, the SHOCK101 is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The SHOCK101 records peak acceleration levels for a specified reading interval. This means that the SHOCK101 will record the largest acceleration level on each of the axis's during each reading interval. For example, if the reading rate is set at 2 seconds, then the largest acceleration value during the 2 seconds will be recorded for each of the x, y and z axis's. Due to the noise of the electronics, there is typically ± 0.2 to 0.3 g of noise on each of the axis's.

During real-time operation, the SHOCK101 will only take one measurement during the reading interval, therefore in real-time operation, the device is not measuring the peak acceleration levels.

When setting up the SHOCK101, note which way the axis's are to determine which direction the shock or acceleration occurs. When the SHOCK101 is laying flat with the label facing up, the x-axis is the one that reads left to right and will read around 0 when still. The y-axis reads top to bottom and will read around 0 when still. The z-axis reads perpendicular to the other two axis's, and will read around 1 when still.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

SHOCK101-EB

To start the SHOCK101-EB, refer to "[Quick Start](#)". After starting, the SHOCK101-EB is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The SHOCK101-EB records peak acceleration levels for a specified reading interval. This means that the SHOCK101-EB will record the largest acceleration level on each of the axis's during each reading interval. For example, if the reading rate is set at 2 seconds, then the largest acceleration value during the 2 seconds will be recorded for each of the x, y and z axis's. Due to the noise of the electronics, there is typically ± 0.2 to 0.3 g of noise on each of the axis's.

During real-time operation, the SHOCK101-EB will only take one measurement during the reading interval, therefore in real-time operation, the device is not measuring the peak acceleration levels.

When setting up the SHOCK101-EB, notice which way the axis's are to determine which direction the shock or acceleration occurs. When the SHOCK101-EB is laying flat with the label facing up, the x-axis is the one that reads left to right and will read around 0 when still. The y-axis reads top to bottom and will read around 0 when still. The z-axis reads perpendicular to the other two axis's, and will read around 1 when still.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCHQ PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the bottom of the large case. Disconnect the battery connector to allow the cover to completely open. Remove the 6 D-cell batteries from the holder. Replace the batteries with 6 D-cell batteries. Reconnect the battery connector, close the case and secure with the screws.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

ULTRASHOCK

To start the ULTRASHOCK refer to "[Quick Start](#)". After starting, the ULTRASHOCK is armed, data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The ULTRASHOCK records peak acceleration levels for a specified reading interval. This means that the ULTRASHOCK will record the largest acceleration level on each of the axis's during each reading interval. For example, if the reading rate is set at 2 seconds, then the largest acceleration value during the 2 seconds will be recorded for each of the x, y and z axis's. Due to the noise of the electronics, there is typically ± 0.2 to 0.3 g of noise on each of the axis's.

During real-time operation, the ULTRASHOCK will only take one measurement during the reading interval, therefore in real-time operation, the device not measuring the peak acceleration levels.

When setting up the ULTRASHOCK, notice which way the axis's are to determine which direction the shock or acceleration occurs. When the ULTRASHOCK is laying flat with the label facing up, the x-axis is the one that reads left to right and will read around 0 when still. The y-axis reads top to bottom and will read around 0 when still. The z-axis reads perpendicular to the other two axis's, and will read around 1 when still.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PHONEPROCESS

The PHONEPROCESS differs from other Monarch data loggers by communicating through an onboard modem. In order to communicate to the PHONEPROCESS, the data logger must be connected to a phone line. To use the software to connect to the data logger, the correct COM port must be selected in our software. If you are unsure which COM port the modem is on, you can use Window's Device Manager to locate the port number. The PHONEPROCESS communicates at 2400 baud; therefore, the correct baud rate in the software must be selected.

To connect, use the "Modem Connection" feature of the Monarch software located under the communication menu. In the "telephone number" field, enter the telephone number of the line that the PHONEPROCESS is on. The PHONEPROCESS will then answer the call and connect to the Monarch software. To start the PHONEPROCESS refer to "[Quick Start](#)" and skip ahead to section 4. After starting, the PHONEPROCESS is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

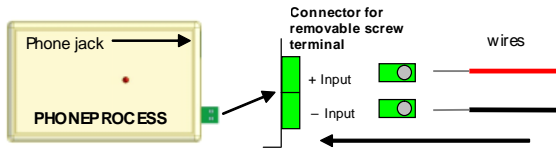
Once started, the LED will flash at the selected reading rate to indicate that the device is running.

The PHONEPROCESS allows for user defined units to be programmed into the device. To use the programmable engineering units, refer to the "[Engineering Units](#)" section. (page ?)

The PHONEPROCESS has a two-position removable screw terminal connection. The PHONEPROCESS accepts 2-wire configurations. Insure that the device that is to be measured can be connected to the PHONEPROCESS input by selecting an output connection with lead wires, or by attaching an adapter that will allow you to connect wire leads to the device to be measured.

For a two-wire loop, connect IN+ to positive signal (typically the red wire) and IN- to the negative signal (typically the black wire). Fig. A

Fig. A



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. Replace the battery with a Lithium U9VL-J. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

PHONETEMP

The PHONETEMP differs from other Monarch data loggers by communicating through an onboard modem. In order to communicate to the PHONETEMP, the data logger must be connected to a phone line. In order to use the software to connect to the data logger, the correct COM port must be selected in our software. If you are unsure which COM port the modem is on, you can use Window's Device Manager to locate the port number. The PHONETEMP communicates at 2400 baud; therefore, the correct baud rate in the software must be selected.

To connect, use the "Modem Connection" feature of the Monarch software located under the communication menu. In the "telephone number" field, enter the telephone number of the line that the PHONETEMP is on. The PHONETEMP will then answer the call and connect to the Monarch software. To start the PHONETEMP refer to ["Quick Start"](#) and skip ahead to section 4. After starting, the PHONETEMP is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. Replace the battery with a Lithium U9VL-J. Close the case and secure with the screw.

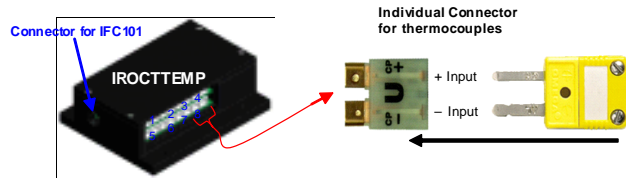
Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

IROCTTEMP

To start the IROCTTEMP refer to “[Quick Start](#)”. After starting, the IROCTTEMP is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The IROCTTEMP has eight SMP connections, which allows the user to insert subminiature thermocouple plugs into the connectors on the device. Fig. A

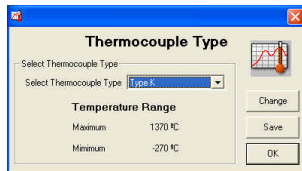
Fig. A



The software accepts eight different thermocouple types: J, K, T, E, R, S, B and N. To select the correct thermocouple type in the Monarch software to match the thermocouple that is being used:

1. Select “Thermocouple Type” from the device menu. Fig. B
2. Click on the change button in the Thermocouple Type window.
3. Select the correct thermocouple type from the drop down list.
4. Click on the Save button to store the thermocouple type in the device.
5. Click Ok, to finish.

Fig. B



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

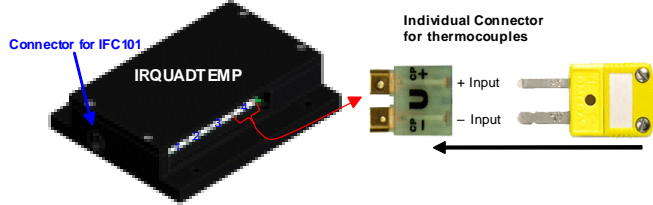
Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

IRQUADTEMP

To start the IRQUADTEMP refer to “[Quick Start](#)”. After starting, the IRQUADTEMP is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

The IRQUADTEMP has four SMP connections, which allows the user to insert subminiature thermocouple plugs into the connectors on the device. Fig. A

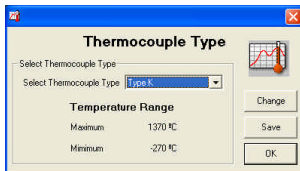
Fig. A



The software accepts eight different thermocouple types: J, K, T, E, R, S, B and N. To select the correct thermocouple type in the Monarch software to match the thermocouple that is being used:

1. Select “Thermocouple Type” from the device menu. Fig. B
2. Click on the change button in the Thermocouple Type window.
3. Select the correct thermocouple type from the drop down list.
4. Click on the Save button to store the thermocouple type in the device.
5. Click Ok, to finish.

Fig. B



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the four screws on the top of the case. Disconnect the battery from the battery connector. Replace the battery with a Lithium U9VL-J. Close the case and secure with screws, making sure that the wires for the battery connector do not get pinched between the cover and the case.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

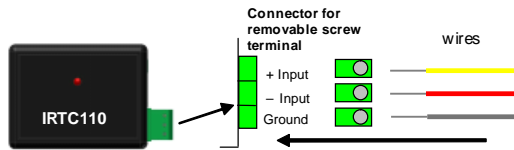
IRTC110

To start the IRTC110 refer to “[Quick Start](#)”. After starting, the IRTC110 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

This device communicates at 57,600 baud. If you do not have the software set to “Always Auto Configure”, you must select this baud rate from the communication menu.

The IRTC110 has a three-position removable screw terminal. This allows the IRTC110 to be connected to most 2-wire thermocouples with lead wires, and the ability to shield the thermocouple with the ground connection. Be sure to connect the thermocouple with the right polarity as marked on the case of the device, the ground connection is optional. Fig. A

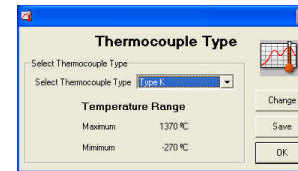
Fig. A



The software accepts eight different thermocouple types: J, K, T, E, R, S, B and N. To select the correct thermocouple type in the Monarch software to match the thermocouple that is being used:

1. Select “Thermocouple Type” from the device menu. Fig. B
2. Click on the change button in the Thermocouple Type window.
3. Select the correct thermocouple type from the drop down list.
4. Click on the Save button to store the thermocouple type in the device.
5. Click Ok, to finish.

Fig. B



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw. For 10+ year operation, be sure to set the reading rate to no more than one reading every 15 minutes.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

IRTC4000

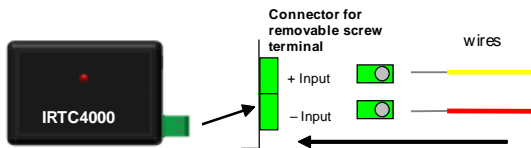
To start the IRTC4000 refer to “[Quick Start](#)”. After starting, the IRTC4000 is armed; data will start recording. The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Depending on the physical configuration of the IRTC4000, it will either have an input for a subminiature thermocouple connector or a removable screw terminal.

The standard connector for the IRTC4000 is the SMP connection which allows for the user to insert the subminiature thermocouple plug into the connector on the device.

The non-standard connector for the IRTC4000 is the removable screw terminal. This allows the IRTC4000 to be connected to most 2-wire thermocouples with lead wires. Be sure to connect the thermocouple with the right polarity as marked on the case of the device. Fig. A

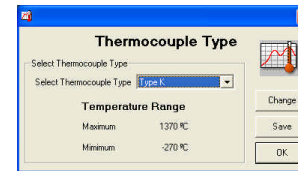
Fig. A



The software accepts eight different thermocouple types: J, K, T, E, R, S, B and N. To select the correct thermocouple type in the Monarch software to match the thermocouple that is being used:

1. Select “Thermocouple Type” from the device menu. Fig. B
2. Click on the change button in the Thermocouple Type window.
3. Select the correct thermocouple type from the drop down list.
4. Click on the Save button to store the thermocouple type in the device.
5. Click Ok, to finish.

Fig. B



Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

Battery Replacement

Open the case by removing the screw in the back. Remove the battery from the battery sockets. If necessary, trim the new battery leads to match the length of the existing battery leads. Replace the battery with a Lithium LTC-7PN. Close the case and secure with the screw.

Note: Before replacing the battery, be sure to stop and download the data from the logger. This will ensure that the date and time stamp of the data set is accurate.

BRIDGE110

Battery Warning

Monarch data loggers contain a lithium battery. Do not cut open, incinerate, heat above 85 °C, recharge, submerge under water or other liquid, or expose the battery to rain or excess humidity. Dispose per local regulations. FOR QUESTIONS REGARDING THE SAFETY OF ANY MONARCH PRODUCTS, PLEASE CALL OUR FACTORY.

ENGINEERING UNITS

To use the programmable engineering units for applicable devices, select “Engineering Units” from the device menu in the software. There are two options for entering the engineering units.

The first option is to use the “Engineering Units Wizard”. This method will automatically calculate the gain and offset values based on the information provided. To start the wizard, click on the “Wizard” button in the “Engineering Units” window and follow these simple instructions:

1. The Engineering Units Wizard window will appear. The first screen is an introduction to the Wizard, click next to continue.
2. Enter the label of the units that are to be used. Click next to continue.
3. Enter the description of the units to be used. Click next to continue.
4. Enter the range in which the device will be measuring. If the device will read 0-100 mA, but only 4-20 mA is going to be used, enter a low limit of 4 and a high limit of 20. Click next to continue.
5. Enter the range in which you want the data to be displayed. For example if you want to see 0-14 pH, then enter 0 in the low limit box, and enter 14 in the high limit box. Click next to continue.
6. Click finish to return to the “Engineering Units” screen.

When finished, click save to store the engineering units in the device. After the software has downloaded all the data, click ok to exit out of the Engineering Units setup.

The second option is to calculate the gain and offset by hand and enter those values in the Engineering units gain and offset fields. Engineering units consist of two parts, the gain and the offset. In order to calculate the gain and offset, look at the example below. Here we are trying to convert mA on a scale of 4 to 20 to pH on a scale of 0 to 14.

$$1. \quad \text{Gain} = \frac{14 \text{ pH} - 0 \text{ pH}}{20 \text{ mA} - 4 \text{ mA}} = \frac{14 \text{ pH}}{16 \text{ mA}} = 0.875$$

2.
$$\text{Offset} = 14 \text{ pH} - \text{Gain} * 20 \text{ mA} = -3.5 \text{ pH}$$

After calculating the gain and offset, enter those values in their respective fields. You will also need to enter a unit description and label in their respective fields. When finished, click save to store the engineering units in the device. After the software has downloaded all the data, click ok to exit out of the Engineering Units setup.

Calibration

Monarch's software allows for our data loggers to be calibrated by the user without mechanical calibration. To calibrate Monarch devices, simply compare the readings taken by the device to actual known parameters. To open the calibration window, select "Calibration" under the device menu in the software. There are two options in setting the calibration values into the device.

The first option is to use the "Calibration Wizard". This method will automatically calculate the gain and offset values based on the information provided. To start the wizard, click on the "Wizard" button in the Calibration window and follow these simple instructions:

1. The Calibration Wizard window will appear. The first screen is an introduction to the Wizard, click next to continue.
2. Depending on the device to be calibrated, a channel may require a one or two point calibration.
 - a. If the channel requires a one point calibration, then enter the actual known value in the "Calibration Point" field. Enter the value read by the device in the "Value Read by the Device at the Calibration Point" field. Click next to continue.
 - b. If the channel requires a two point calibration, there will be two sets of two fields. One set will be the "Low Measurement and Reading (LMR)", the other set will be the "High Measurement and Reading (HMR)". In the LMR section, enter the actual known value in the top box. Enter the value read by the device in the "Reading" field. In the HMR section, enter the actual known value in the top box. Enter the value read by the device in the "Reading" field.
3. Repeat step 2 for each channel the device has. When finished, click finish to return to the "Calibration" screen.

When finished, click save to store the calibration values in the device. After the software has downloaded all the data, click ok to exit out of the calibration setup.

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The second option is to calculate the calibration values by hand and enter those values in the appropriate fields. Depending on the device to be calibrated, a channel may require a one or two point calibration.

For a one-point calibration, there is only the offset to calculate. In order to calculate the offset, take the value read by the device and subtract it from the actual known value. Enter the result in the respective offset value field.

For two point calibration, there are two parts, the gain and the offset. In order to calculate the gain and offset, look at the example below. At the first point, the device read 25.5 °C, but the actual known value was 25 °C. At the second point, the device read 73.0 °C, but the actual known value was 75 °C.

$$1. \quad \text{Gain} = \frac{73 \text{ }^{\circ}\text{C} - 25.5 \text{ }^{\circ}\text{C}}{75 \text{ }^{\circ}\text{C} - 25 \text{ }^{\circ}\text{C}} = \frac{47.5 \text{ }^{\circ}\text{C}}{50 \text{ }^{\circ}\text{C}} = 0.95$$

$$2. \quad \text{Offset} = 73 \text{ }^{\circ}\text{C} - \text{Gain} * 75 \text{ }^{\circ}\text{C} = 1.75 \text{ }^{\circ}\text{C}$$

After calculating the gain and offset, enter those values in their respective fields. You will also need to enter a unit description and label in their respective fields. When finished, click save to store the engineering units in the device. After the software has downloaded all the data, click ok to exit out of the Calibration setup.

RFEXT

The RFEXT allows any Monarch data logger to be remotely accessed up to one mile away from a computer. The system is transparent to the Monarch line of data loggers, therefore, the data loggers can be controlled as if they were physically connected to a computer.

The RFEXT-KIT consists of two transceiver modules. Initially they are both configured by Monarch to be set at Network Address 0 and Module Address 0. If there are no other devices configured for those settings, then the RFEXT-KIT is ready to go out of the box for use with Monarch data loggers communicating at 2400 baud. If it is required to change the baud rate or address of the system, due to multiple units, see the instructions on "Wireless Modem Setup" below.

Physical Setup

Both transceiver modules are exactly alike. Either module can be used as the base or the remote module. For easy setup, follow these simple instructions:

1. To set up the base module, connect the RS-232 cable from the back of the computer to the serial port connector on the first RFEXT module.
2. Connect power to the first RFEXT module.
3. To set up the remote module, connect the IFC1XX cable to the serial port on the second RFEXT module.
4. Connect power to the second RFEXT module.
5. Connect the stereo jack end of the IFC1XX to a Monarch data logger
6. You may now use the data logger connected to the remote (second) module exactly like being physically connected to the computer.

Wireless Modem Setup

To change the configuration of the RFEXT, the module has to be directly connected to the computer. Only one module can be changed at a time,

but both modules that are to communicate with each other need to be configured with the same settings. To configure a module, follow these simple steps:

1. Connect the RS-232 cable from the back of the computer to the serial port connector on the first RFEXT module.
2. Connect power to the first RFEXT module.
3. Under the communication menu in the software, select "Wireless Modem Setup". This will launch the wireless modem setup window.
4. On the bottom left corner of the window, click on "Read Config", this will display the module's current configuration.
5. The Network Address and Module Address distinguish the devices from other devices. For communication between two RFEXT modules, the Network Address of the first module must be the same as the Network Address of the second module. This goes for the Module Addresses as well. The Network Address can be configured for up to 7 different networks (0-6). The Module Address can be configured for up to 65536 different addresses (0-65535).
6. The only other parameter that you may need to change is the baud rate. Select the baud rate in the RFEXT module that will be used to communicate with the Monarch data logger that you will be using (Ex. TC4000 operates at 2400 baud, therefore, set up the baud rate for the RFEXT to be at 2400 baud).
7. To save the configuration of the RFEXT, click on "Write Config", this will store the configuration in the non-volatile memory where it won't be lost when the power is cycled.
8. When done, click ok. Now repeat steps 1 through 7 for the second RFEXT module. When finished configuring the second module, see "Physical Setup" for installation.

Monarch Return Policy

If you have a Monarch product that requires replacement, repairs, or upgrading, contact Customer Service at (603) 883-3390, by fax at (603) 886-3300 or by e-mail at sales@monarchinstrument.com for Monarch RMA #. To process your return, we require the following information:

- a) Monarch RMA #
- b) Product Description
- c) Product Serial Number
- d) Original Monarch Invoice number or your original PO number
- e) Reason for return
- f) If you will be requiring a repair, replacement or a credit for the product.

Please note the above information must be on the paperwork accompanying the return and that returns will not be accepted without the above information.

All returned products must be shipped freight prepaid to Monarch. For products repaired under warranty, Monarch will return the product via the same shipping method and will pay the return freight charges to return the repaired units. If the returned products are not found to be defective there will be a minimum \$25.00 charge as well as return shipping costs. An additional diagnosis time fee may also be charged at the standard rate.

Products repaired under warranty will retain their original warranty period.

Products that were originally purchased with a calibration certificate will be provided with an updated certificate as part of the warranty repair.

Non-warranty repairs are warranted for a period of 90 days from the date of return shipment.

Non-warranty credits will be issued on a case by cases basis with a 10% restocking fee.

The shipping charges for non-warranty repairs will be the responsibility of the customer