WeatherJack

OPERATING MANUAL

CONEX ELECTRO SYSTEMS

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The baud rate is 2400 (8 bits, 1 stop bit, no parity. Flow control = none)

To make sure the unit is on line, send an X. the machine will respond with an X or an L (for low power). It will also abort a pending command. E.g., if you send a 'G' but meant an 'S', simply send an 'X' as your next character.

Any spaces will be ignored.

The temperature is stored in 1/2º C units. For example, a reading of 33 from the WeatherJack is the equivalent of 16.5º C. This reading is then converted to F with the following equation: F = (9/5C + 32). If the temperature falls below 0º C, subtract 65536 from the reading. This value would then be used to compute the temperature using the procedure described above.

Pressure is converted from the raw value in the WeatherJack to inches by multiplying a conversion factor (0.0039890) and adding an offset.

To compute the offset:

(Assume the raw value from the WeatherJack is 2613 and the local airport pressure is 30.19)

Offset = (Pressure in inches from your airport) - (raw value * 0.0037907)

= (30.19) - (2613 * 0.0039890)

= (30.19 - 10.42) = 19.77

Inches = (Reading * 0.0039890) + Offset

= 10.42 + 19.77

= 30.19"

To convert to millibars, multiply this result by 33.864

= 1022 mb.

Notes:

Raw values are stored in the WeatherJack log file (baro.log)

If the temperature probe is not plugged in, the WeatherJack will report a steady temperature of 32º F.

WeatherJack Command Structure

Some WeatherJack users may want to interface the WeatherJack to another software package or even some other hardware. To facilitate this, we designed the WeatherJack with an RS-232 interface. You can control the WeatherJack with simple ASCII commands. The pressure and temperature data is transmitted to your software or device in the form of a simple data structure so you use the information quickly and easily.

WeatherJack Commands

There are two groups of WeatherJack commands... **GET** commands and **SET** commands.

The parameters sent and received are in the following format:

nn - number
cc - clock value
ppppp - pressure value
t t t t t - temperature value

The **GET** commands get information from the WeatherJack and are defined as follows:

Command	Description	Weather Jack Returns
GN	Get number of stored records	nn<cr>
GC	Get current values as they exist right now	ppppp t t t t t cc:cc:cc<cr>
GT	Get time to next sample	nn<cr>
GL	Get list of samples	ppppp t t t t t <cr>
GI	Get interval between samples	nn<cr>

The Following are the **SET** commands

Command	Description	Keystrokes
SC	Clears the sample list	SC<cr>
ST	Sets number of minutes to next sample	STn...n<cr> *
SI	Sets the interval in minutes	STn...n<cr> *

* If x = number of minutes, then n = 100 - x. For example, if you want the sampling interval to be every 5 minutes, then n = 100 - 5 = 95. The command would be: ST95<cr>

Notes:

The ST and SI parameters nn should be limited from 1 - 99

Due to the nature of the serial I/O in this device, the first character is ignored if no characters have been received for more than 1 second. As spaces are ignored anyway, it is better to send a space before a command

Also, the characters should have about 1 ms between them in order to assure that the command is received correctly.

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This manual will help you get the WeatherJack up and running quickly and easily.

SYSTEM REQUIREMENTS

To run the WeatherJack to your PC, you will need the following:

a. Windows® 3.1 or Windows 95 or 98®
b. Minimum of 8 Megabytes RAM
c. VGA Monitor
d. Spare serial port

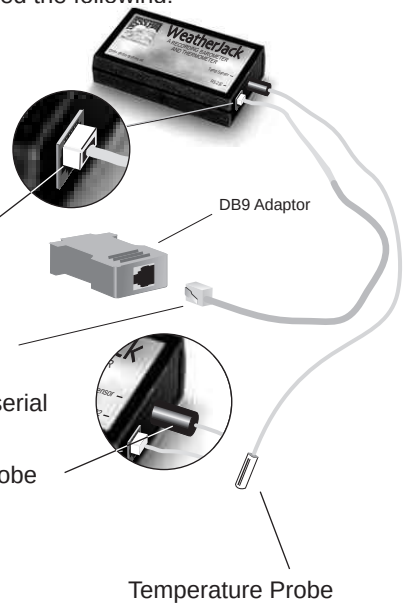
CONNECTING THE WEATHERJACK

a. Connect one end of the enclosed cable to the RS-232 connector on the WeatherJack.

b. Connect the other end of the cable to the enclosed RJ11/DB9 adaptor.

c. Plug the DB9 adaptor into the spare serial port on your PC

d. Connect the enclosed temperature probe to the temperature probe input on the WeatherJack.



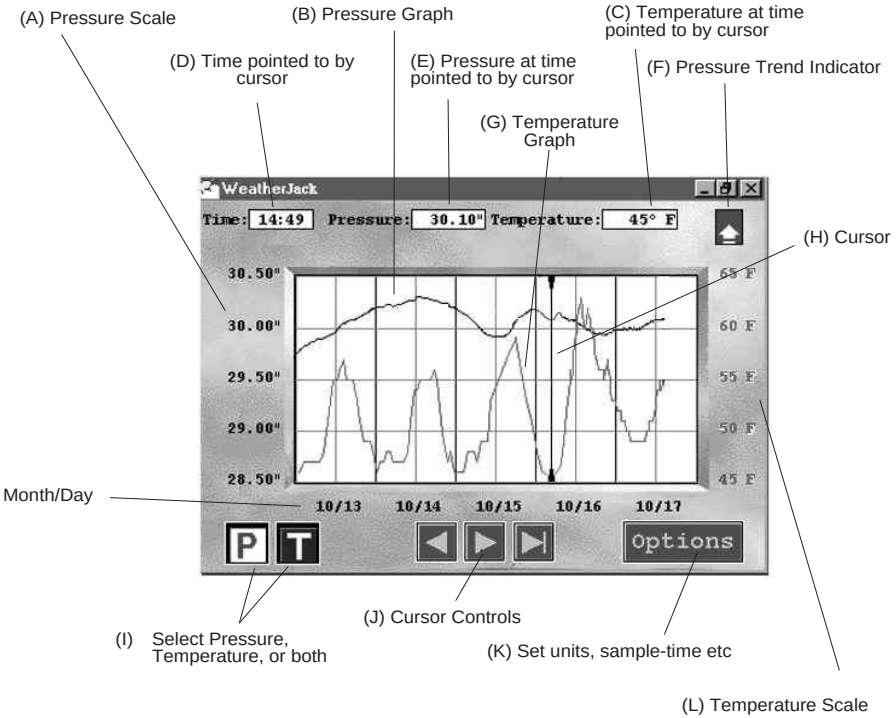
SOFTWARE INSTALLATION

a.. Start Microsoft® Windows or Windows 95 (98)
b. Insert the WeatherJack **Install Diskette** into disk drive A (or your desired drive)
c. From the **Program Manager**, select the **File** menu and choose **Run**
d.. In response to the Command Line prompt, enter the path name that identifies the SETUP.EXE file on the diskette
e. Now follow the instructions on the screen to install the WeatherJack software.

Operating The WeatherJack

Once all the connections are made to the WeatherJack and the software has been installed, turn your computer on and start the WeatherJack software.

Once started, you should see the following window on your monitor.



Note: The various buttons on the WeatherJack display can be accessed with your mouse or via your keyboard. The left and right cursor keys on your keyboard select the button and the space bar presses it.

A. Pressure Scale

This scale indicates the barometric pressure in either inches or millibars depending on which unit was selected in the options window. (See paragraph K)

B. Pressure Graph

The pressure graph tracks the pressure at the rate determined by the selection made in the in the **Options Window**. (See paragraph K)

C. Temperature Display

This box displays the temperature at the place on the graph pointed to by the cursor.

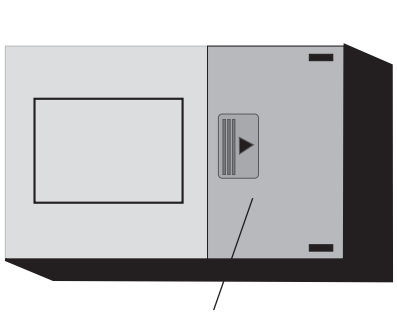
Clicking the box stops the WeatherJack program and clears the screen of the WeatherJack window.

Clicking the box clears the screen of the WeatherJack window but the program continues to run. A WeatherJack tab is set at the bottom of the screen. Clicking this tab will restore the WeatherJack window.

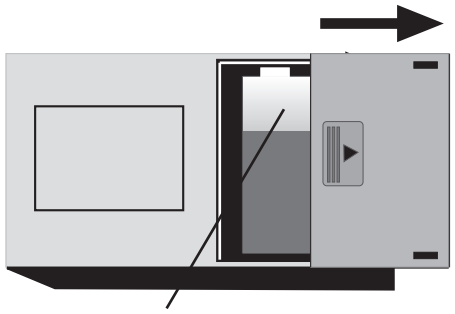
Battery Replacement

The WeatherJack operates on a single 9 Volt Battery.
A warning message will appear on the title bar if the battery voltage drops below the recommended level. If this happens, you should replace the battery as soon as you can.

The battery is replaced by turning the WeatherJack over and sliding the battery compartment door open as shown below.



Battery compartment door



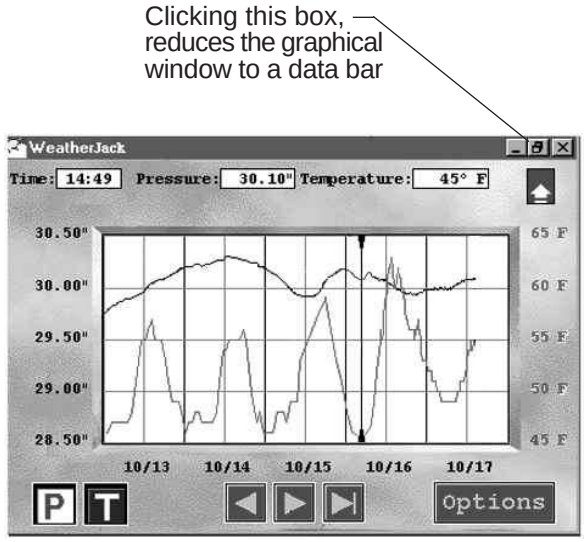
9 volt alkaline battery

(L) Temperature Scale

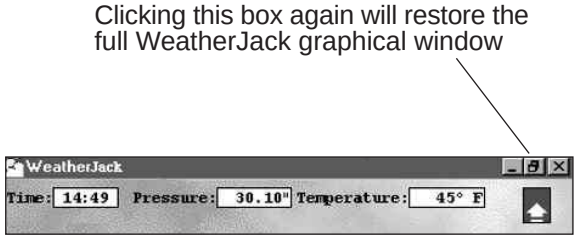
This scale indicates the temperature in either Fahrenheit or Celsius depending on which option was selected on the options window. (See paragraph (K))

Other Features

The WeatherJack incorporates the Window's conventions for collapsing the WeatherJack window to show a bar that contains the trend indicator, time, pressure and temperature boxes. (Doing this allows you to view the pertinent information while saving window space.



Graphical Window



Data Bar

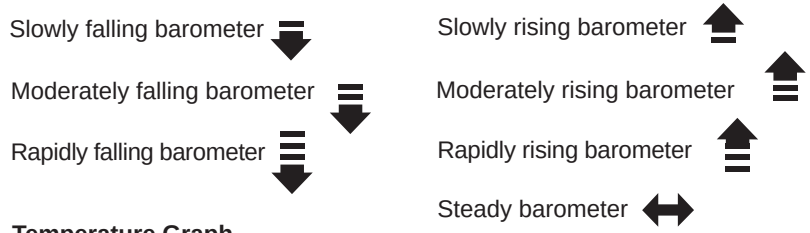
If the cursor is at the '**LATEST READING**' position (the far right) (see **H**) on the graph, the temperature in the box is the current temperature. 32º F is indicated by a fixed red horizontal line on the display.

D. Time Display

This box displays the time at the place on the graph pointed to by the cursor. If the cursor is at the far right, the time displayed is the time of the last reading.

F Pressure Trend Indicator

The **pressure trend indicator** denotes the rate of change of the barometric pressure. A longer arrow indicates a more rapidly changing pressure. A rapidly changing barometric pressure generally means a weather front is approaching or leaving your area. A steady pressure is depicted by horizontal arrows.

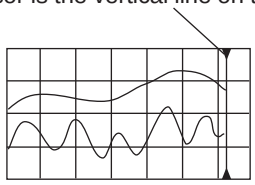


G. Temperature Graph

The temperature graph tracks the temperature at the rate determined by the selection made in the options window.

H. Cursor

The cursor is the vertical line on the graphical window with arrow heads on each end.

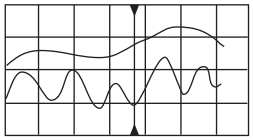


Cursor shown in the 'Latest Reading' position. When the cursor is in this position, it is black with black arrow heads.

When the cursor is just to the right of the pressure and temperature graphs, it is said to be in the 'Latest Reading' position. This means that the time, pressure and temperature readings shown in the boxes above the graph are the most recent. The cursor is shown as a black line with black arrow heads when it is in this position.

The cursor can be moved to a previous time by pressing the left arrow key. When the cursor is in any position but the Latest Reading' position, it will be shown as a red line with red arrow heads.

Each press will move the cursor to the left by one sampling interval. (If the sampling interval is 15 minutes, each press of the left arrow key will move the cursor back in time by 15 minutes. The time, pressure and temperature boxes will display the readings taken at this cursor position.



The right arrow key will move the cursor forward in time by the sampling time chosen in the option window. Pressing the 'Latest Data' key will always return the cursor to the end of the pressure and temperature graphs and the boxes above will display the latest readings.

(I) Pressure And Temperature Buttons

The pressure and temperature buttons are push-on, push-off types. Pressing either of these buttons once will turn it on. Pressing it again will turn it off. Turning the Pressure button **ON** will cause the pressure graph to be displayed. Turning it **OFF** will make the pressure graph disappear.

(J) Cursor Controls

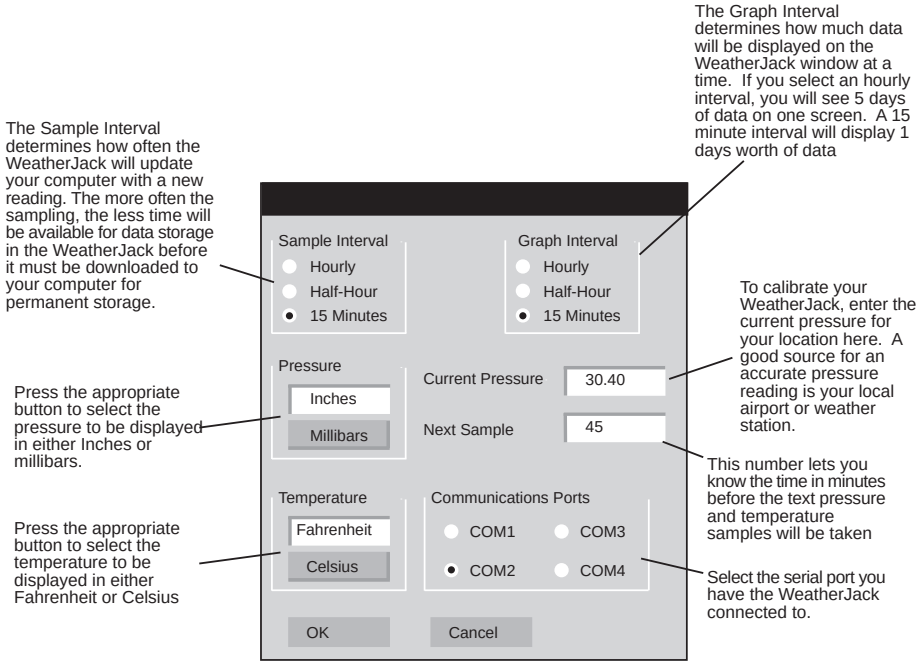
Pressing the left cursor button will move the cursor to the left by one sampling time interval (this is the time you select in the options window under **Sample Interval**. (See paragraph K). When the cursor reaches the left side of the graph window, one more press of this button will cause the screen to scroll to the right by one-half window and the cursor will reposition itself to the middle of the screen. You can continue to do this until there is no more weather data stored on your computer to view. The Time, Pressure and Temperature boxes above the Weather Graph change to reflect the data pointed to by the cursor.

Pressing the right cursor button will move the cursor to the right by one sampling time interval. When the cursor reaches the right side of the graph window, pressing this button one more time will cause the screen to scroll to the left by one-half window and the cursor will reposition itself to the middle of the screen. You can continue to do this until you reach the latest weather sample as (indicated by the end of the pressure and/or temperature graphs on your screen and the black color cursor.)

Pressing the 'Latest Data' key will always move the cursor to the latest data sample position on the graph. It's a quick way to put the WeatherJack back in it's normal viewing mode. In this mode, the Time, Pressure and Temperature boxes above the weather graph will automatically update with each new sample so while you are in this mode, you will always be viewing the current weather information.

(K) Option button

Pressing the option button will bring up the following window.



Options Window