

# ClockCard

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RTC Time Synchronization

## External Clock User's Guide



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beagle software

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[www.beaglesoft.com](http://www.beaglesoft.com)

## Quick Start

### Hardware Installation and Setup

#### Unpack

Unpack the clock, data cable and power supply.  
Locate the ClockWatch ClockCard CD-ROM, which has all the installation files you will need.

#### Position the Clock

Locate the clock indoors away from computers and monitors.

#### Plug in the Power Supply

Plug the 120 VAC power supply into the wall and the 2.1 mm connector on the lower edge of the clock.  
The green LEDs should light when the clock is powered and the switch is on.

#### Connect the Clock to Computer

Connect the clock to the computer serial port using the included DB-9 data cable. Note the COM port number used.

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### Software Installation and Setup

#### Install the ClockCard Software

Insert the CD into the CD drive. The installation wizard will auto-start. On the Welcome window, choose "ClockWatch". This will open a Version window, from which you can choose ClockWatch ClockCard. Choose the "External ClockCard" option.

#### Install ClockWatch

If installing ClockWatch do so after installing ClockCard. Accept all default options for the installation wizard, and enter the key code located on the back of the envelope when requested.

#### Configuring ClockCard for the first time

Run the Real Time program. Select Connection and select the serial port in use. Keep the default baud rate and port parameters. Select RTC as the clock to display on the main screen..

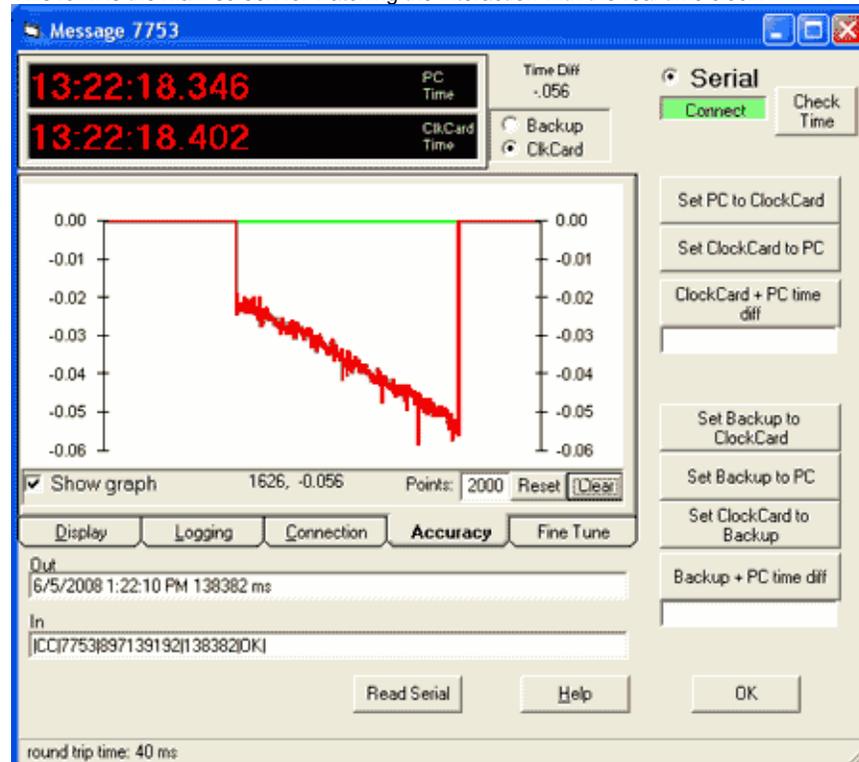
#### Test the Clock in ClockCard

The program will communicate with the clock and show the time on the clock. You can press one of the buttons to set the time the ClockCard or set the PC from the RTC.

## Main Screen

The Real Time Clock application provides a way to monitor and change the settings on Beagle Software External Real Time Clock. The application provides a way to change settings, view time or make changes on the PC, RTC or backup RTC.

This form is the main screen for watching the interaction with the real time clock.



Real Time Clock screen

The main display shows Real Time Clock activity and provides access to setup functions.

### Option Tabs:

**Display:** what will display on the main screen and how often the RTC will be checked.

**Logging:** turns off or on logging function of the RTC admin program.

**Connection:** sets parameters used to connect the computer to the connection to the RTC.

**Accuracy:** Gives a graphical display of the difference of the computer clock and the RTC clock.

**Fine Tune:** Allows you to adjust the RTC to slow it down or speed it up.

**Radio Buttons:**

**Backup** - selects the application display to the backup clock (located on the microcomputer) on the RTC

**ClockCard** - displays the time on the primary clock on the RTC

**Buttons:**

**Check Time:** get the time from the RTC and display it in the program.

**Set PC to ClockCard:** sets the computer clock to RTC clock.

**Set ClockCard to PC:** sets the RTC to the computer clock.

**ClockCard & PC time diff:** shows the difference (in ms) between the computer and RTC

**Set Backup to ClockCard:** set the backup clock on the RTC to the primary clock on RTC.

**Set backup to PC:** set the backup clock on the RTC to the PC.

**Set ClockCard to Backup:** set the main clock on the RTC to the backup clock.

**Backup and PC time diff:** shows the difference (in ms) between the computer and backup clock on the RTC

**Read Serial** force a read of the buffer of the RTC.

**Help** open online help

**OK** exit application

**In & Out boxes**

**Out** - Shows the raw outgoing commands from the program to be sent to the RTC

**In** - shows the raw reply from the RTC.

## Options

The tabs on the main screen open the settings tabs:

### Display

Sets what will display on the main screen, and how often will the RTC will be checked.

**LCD Display** (option). turn on or off the LCD display on the RTC

**Clock:** Turn on or off the RTC

**DST:** turn on to use DST:

**Time Check:** check the time on the RTC every xx seconds.

**Debug:** have the program generate a trace file useful in debugging problems.

### Logging

Turns off or on logging function of the RTC admin program.

**Event Logging:** have the RTC generate an internal event file.

**Save time checks in log:** save all the time checks made by the RTC in the RTC event log.

**Run diagnostic trace:** run trace on the RTC

### Connection

Sets parameters used to connect the computer to the connection to the RTC.

**Serial:** set the serial port settings.

*Note:* use the default values for the serial port settings (115200 baud, n,8,1)

**Serial port:** select the number of the COM port in use.

### **Accuracy**

Gives a graphical display of the difference of the computer clock and the RTC clock.

**Show graph:** graphs the time difference between the PC and the RTC

**Points:** number of data points to display on graph

**Reset:** changes the number of data points without clearing existing data

**Clear:** clears existing data

### **Fine Tune**

Allows you to adjust the RTC to slow it down or speed it up.

**RTC offset value:** index by which the RTC clock is adjusted. Clock can be slowed or speeded up.

Setting to positive values, increases the clock's oscillator frequency speeding up the clock.

Setting to negative values decreases the oscillator frequency slowing down the clock.

The change in part per million (ppm) per index change is different at different temperatures.

One index change typically provides about 0.1ppm change in frequency.

## Troubleshooting

Problems with using ClockCard RTC can be broken down into three categories:

- RTC problems
- Cabling problems
- Serial port configuration

Check first to see if the RTC time is shown in the main display below the PC time. If the time is showing then the program is communicating with the clock.

If the time is not showing then check to see that the clock turned on (LED is green) and that the data cable is connected between the PC and the RTC. Verify that the serial port in use is selected in the [Connection tab](#) of the Real Time application.

With the program running you should see data being sent to the RTC in the Out box and the data returned in the In box. If the data stream is not running then check the serial port in use and that the cable is connected

### Technical Support:

If you are having problems with the clock that this document does not address, please feel free to contact us at:

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Time Synchronization Solutions

