

**PONDVIEW 4.0  
CSI AQUACULTURE  
AUTOMATED MONITORING AND CONTROL SUPPORT SOFTWARE  
INSTRUCTION MANUAL**

**REVISION: 6/02**

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# ***PondView Introduction***

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## **I.1 Please Read This**

Welcome to PondView, Campbell Scientific's Windows compatible support software for CR10X-TD Monitoring and Control Systems. **Please** take time to read this manual thoroughly before installing your software. We have designed PondView to be as intuitive as possible, so have intentionally kept this manual short.

This manual assumes that the user is familiar with the Microsoft Windows interface. If you need help with some of Windows' features, please call a Campbell Scientific Applications Engineer.

## **I.2 Overview**

PondView is a combination of two separate software programs that interface together to provide complete monitoring and control support of your Automated Monitoring and Control System via the personal computer.

Initial setup will be supported through LoggerNet, while regular monitoring and control will be a function of the PondView screen.

For most applications LoggerNet will be used very infrequently; however, it will always be running in the background. For some modifications and troubleshooting LoggerNet may be required.

## **I.3 Installation**

As with all software, Campbell Scientific strongly recommends that a back-up of critical files be performed before software installation. In addition, periodic back-ups should be performed on files in the CampbellsSci directory.

PondView requires Windows NT, Windows 2000 or Windows XP operating systems. The computer should have at least a Pentium II processor with 128 MB RAM.

The following instructions assume that drive D: is a CD-ROM drive on the computer from which the software is being installed. If the drive letter is different, substitute the appropriate drive letter.

Install the LoggerNet CD by inserting the CD into the CD slot of the computer; this will initiate the installation process. **DO NOT** change the default locations for the directories and file locations. Follow this installation by installing the PondView CD. As with the LoggerNet CD, this will automatically initiate the installation process. **DO NOT** change the default locations for directories and file locations. Simply select Next.

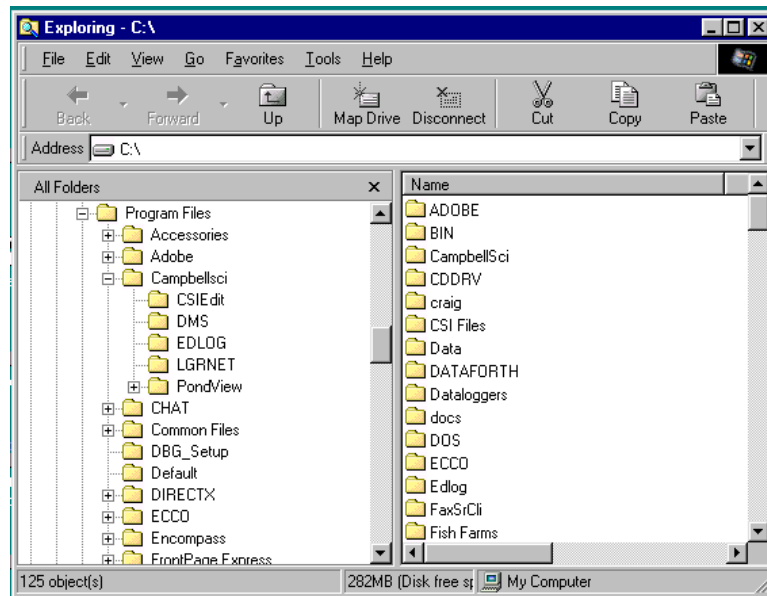
If remote PCs are being used to network with the main server computer, then PondView is the only installation that is required. Installation of LoggerNet is only required on the server PC.

When prompted to restart the computer select Yes. If insertion of the CD does not initiate the installation process, proceed as follows: From the Windows system menu, select **Start | Run**.

Type D:\Setup.exe in the Open field or use the Browse button to access the CD-ROM drive and select the setup executable in the folder.

This activates the PondView Installation Utility. Follow the prompts on the screen to complete the installation.

The file **Campbellsci** will be loaded into the **C:\Program Files** directory. All of the **LoggerNet** and **PondView** files will be found in the **Campbellsci** file.



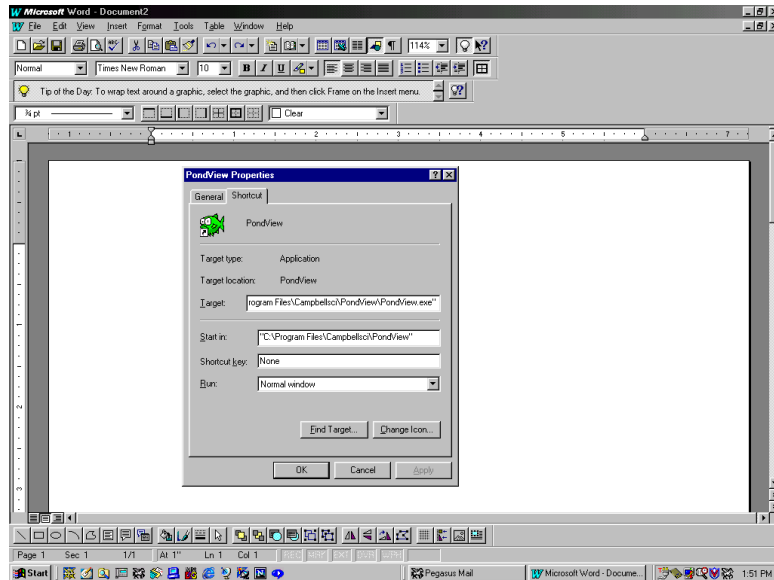
Each PondView software package also includes a customized Application File. This program is found on the 3 ½ floppy disk.

To install this file, insert the floppy disk into your A: drive. Using Windows Explorer select the A: drive. Click the right mouse button and select Copy on PondView.ini. Paste this file to the **C:\Program File\Campbellsci/PondView** folder. This file already exists in the PondView folder so you will be asked if you would like to replace it. Select yes. This will load the proper files to operate your individualized program.

If a remote PC is used to network with the server running LoggerNet, the network path needs to be specified as part of the PondView path.

Right click on PondView, found in START | PROGRAMS. A menu will appear. Select *Properties*.





The Path should read: “C:\Program Files\Campbellsci\PondView\PondView.exe” 192.168.22.131 username password 6789

The 192.168.22.131 is the IP address of the server computer. This will be different for every computer.

If a username or password is not used, then any word can be substituted.

## I.4 Uninstall

Should you need to remove PondView from a computer, an uninstall program is provided. Select **SETTINGS** from the **Start** button then select **CONTROL PANEL**. Double click on **ADD/REMOVE** programs. Select PondView from the list and select the **Add/Remove** button.

## I.5 Some Notes on System Resources

PondView is capable of running in the background while you are doing other work with other programs. To do this, it uses the system’s idle time for some of its serial communications. Some other applications may be so resource intensive that PondView does not receive sufficient time for its communication. PondView will not run reliably with these applications loaded.



# Section 1. Setting Up the Network and Communicating

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## 1.1 Getting Started

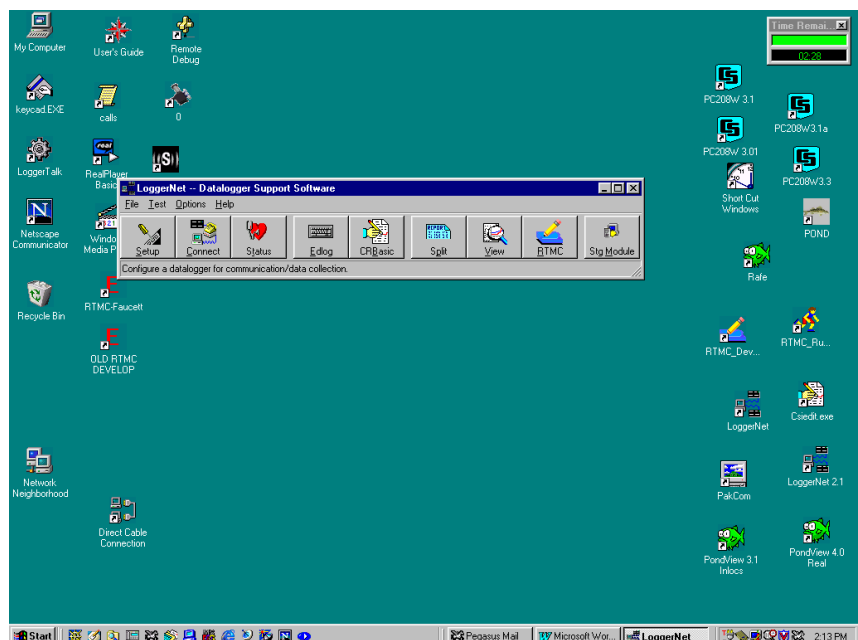
With the software installed, you are probably anxious to start using PondView. If at all possible, prior to deploying the equipment in the field, make sure you can establish a telecommunication link with the CR10X-TD—even if you have to create a temporary setup in your office. Getting familiar with PondView and your CR10X-TD in the comfort of your office will be a lot less frustrating than trying to resolve problems in the field. If your CR10X-TD is already deployed and working, then establishing communications with the CR10X-TD is the place to start. **RF radio telecommunication should not be operated at close distances. Damage to your radios can occur.**

## 1.2 Setup

The LoggerNet communications server is the application that provides the software interface between the computer applications and the CR10X-TD network. **The server software must be running on the computer for data monitoring and control to occur and to allow any of the applications to be used to access information from the CR10X-TD.**

### 1.2.1 Start the Server

The Server is accessed through the PROGRAMS directory. From the **Start** button select PROGRAMS. From the PROGRAMS menu select LoggerNet. A bar menu will be displayed.



## 1.2.2 Configure Communication

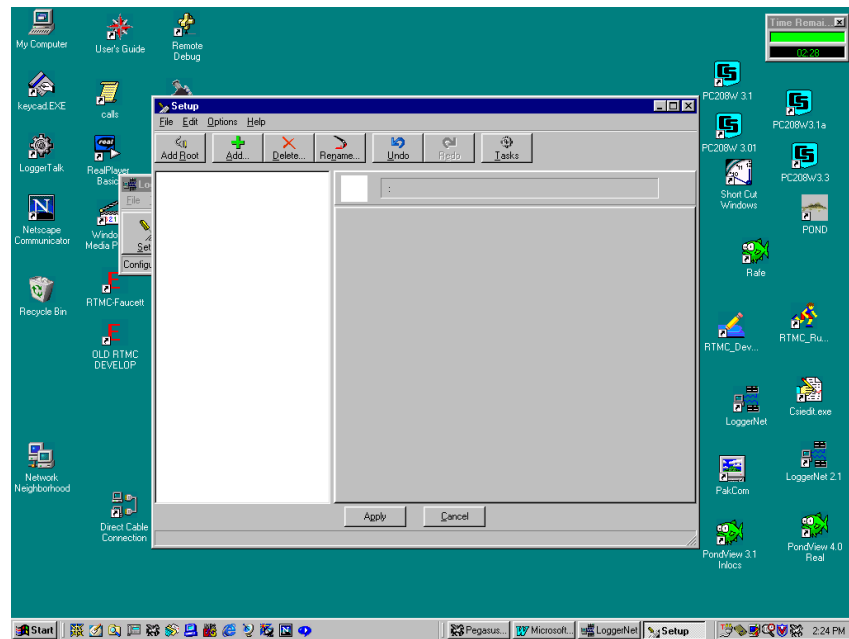
The Setup Screen is used to configure your CR10X-TD network, define the communication link that exists between the computer and the CR10X-TD, and to set up the data collection schedule.

Although many different methods are used for communication between the monitoring system and the PC, the following are the most common methods used.

- Direct Connect - Simple serial communication or RAD Short-Haul Modem communication.
- Spread Spectrum Radio - Connection using Campbell Scientific RF400 or other spread spectrum radios. These radios do not require FCC licenses. Distance for communication is limited.
- Radio Frequency (RF) - Connection over specific frequencies require an FCC license. Distances are generally greater than for the RF400 although both require line-of-site paths.

The Setup Screen is accessed through the LoggerNet Menu Bar. The Setup button is the first button from the left of the Menu Bar.

When you first select the Setup button, the dialog box should appear as:



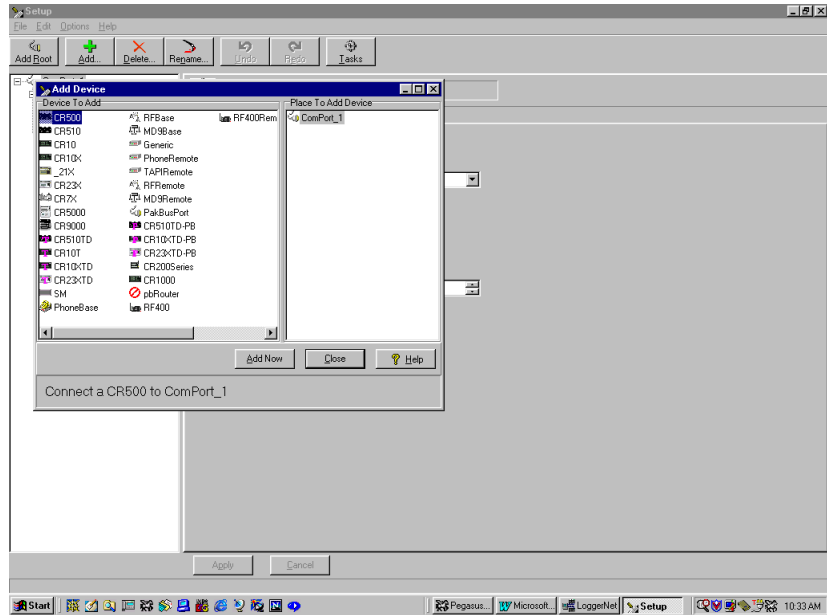
The Setup Screen is divided into two parts: the device map (left side of the screen) and the set up tabs (right side of the screen).

Begin adding devices to the device map in the order that they appear in your communication link. For example, let's assume your CR10X-TD is connected to the computer via an RF400 radio link. You would first add a Serial Port,

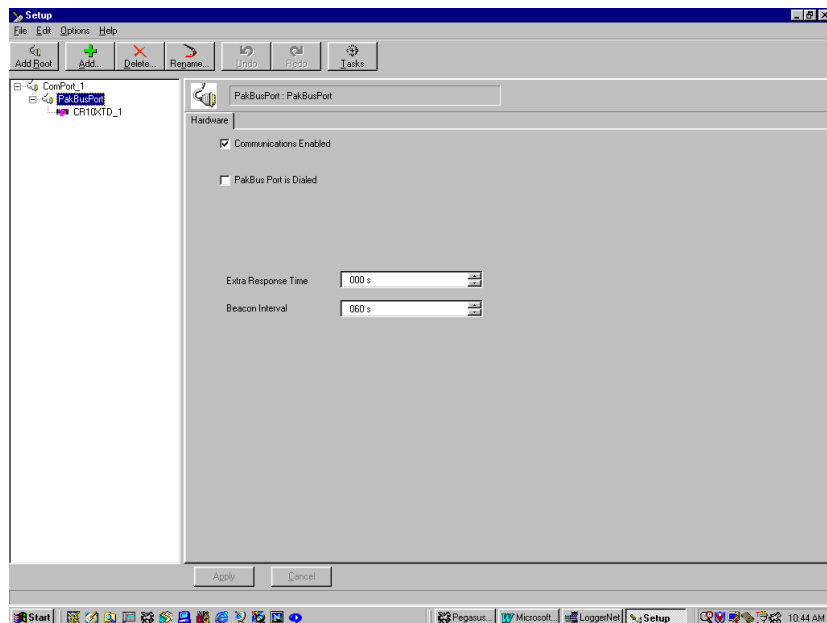
then the PakBusPort, then the CR10X-PB, this is the path of communication from the PC to the CR10X-PB.

A new device can be added to the network device map by choosing **Edit | Add** from the Setup menu. The Add Device Window will appear.

When you select an item from the left side of the Add Device window, valid connections will be displayed in the right-hand column. Highlight the item to which you want to attach the device and select the **Add Now** button. Continue to add devices in this manner until your network map is complete.



For direct connection to the CR10X using short RS232 connection, RAD Short Haul Modems, or RF400 Spread Spectrum Radio the device map would be:



Once all devices are added to the device map, complete the forms associated with each device. Refer to the sections that immediately follow for information on setting up devices. The CR10X-PB is a default label and must be edited. The PondView Software will be looking for a label called CR10XTD\_1. After all settings are configured, apply the Setup program by selecting the **Apply** button; this saves all settings.

## 1.3 Device Configuration Settings

When you highlight any device on the network shown on the left side of the Setup screen, forms appear on the right side with the relevant settings. These settings are different for different devices and are described in detail below.

### 1.3.1 Serial Port

The serial port has only a Hardware tab to configure.

Communication Enable - Before communication can take place, all devices in the communications chain must be enabled. The default setting for this check box is Enabled.

Call-Back Enable - Leave unchecked.

Com Port Connection - This field designates the communications port through which you will be connecting to the CR10X-TD or RF232T Base Station. Select the arrow to the right of the field with a mouse to display Com 1 through Com 8. For most computers Com 1 will be used.

Extra Response Time - Leave this set at the default rate. Additional time may be needed in instances where the communications link is noisy or network traffic is heavy.

### 1.3.2 PakBusPort

Communication Enabled - Must be checked.

PakBus Port is Dialed - Leave unchecked.

Extra Response Time - Leave default value of 000s.

Beacon Interval - Leave default value of 060s.

### 1.3.3 CR10X-TD

The CR10X-TD has four different tabs. Similar to a serial port, a hardware tab is completed to specify communication settings. There are also tabs to define the method of data collection, how often data should be collected, and whether to automatically update the CR10X-TD's clock.

### 1.3.3.1 Hardware Tab

Communication Enable - Before communications can take place, all devices in the chain must be enabled.

Maximum Time On-Line - Set to 5 min.

Maximum Packet Size - Default 2048 bytes should be used.

Extra Response Time - Default 0 ms should be used.

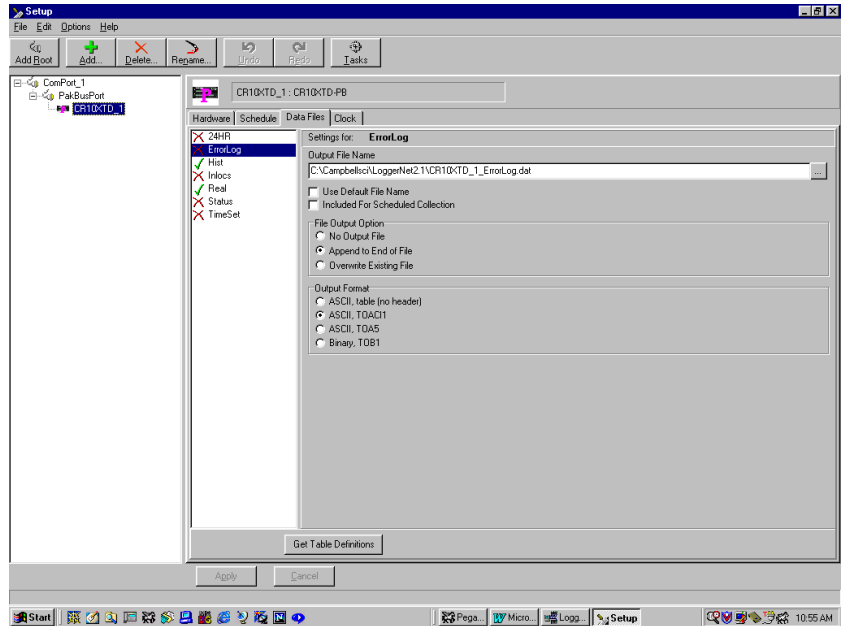
Maximum Baud Rate - Default of 9600.

Security Code - The CR10X-TD can have a security code to restrict access to the system. This helps prevent inadvertent changes to the CR10X-TD's program or memory. Leave this value set to 0. If a security code is needed, the CR10X-TD program must also be changed.

PakBus Address - This must correspond with the value set in the CR10X. Default is 1. Each logger in the network must have individual numbers.

### 1.3.3.2 Data Collection Tab

The data collection tab is used to define what data tables will be copied from the CR10X-TD. The tables available will not be shown until Scheduled Collection has been enabled. Skip to the 1.3.2.3 Scheduled Collection Tab before Data Collection Tab. Tables selected and checked with the green check mark should only include REAL and HIST. All other tables should be marked with the red X, excluding them from the Tables section.



All other parameters should be left as the default value.

### 1.3.3.3 Scheduled Collection Tab

The Scheduled Collection tab defines when PondView will automatically collect data from the CR10X-TD.

Scheduled Collection Enabled - This check box activates the data collection schedule defined on this tab. This box must be checked.

Initial Date - Leave as default date.

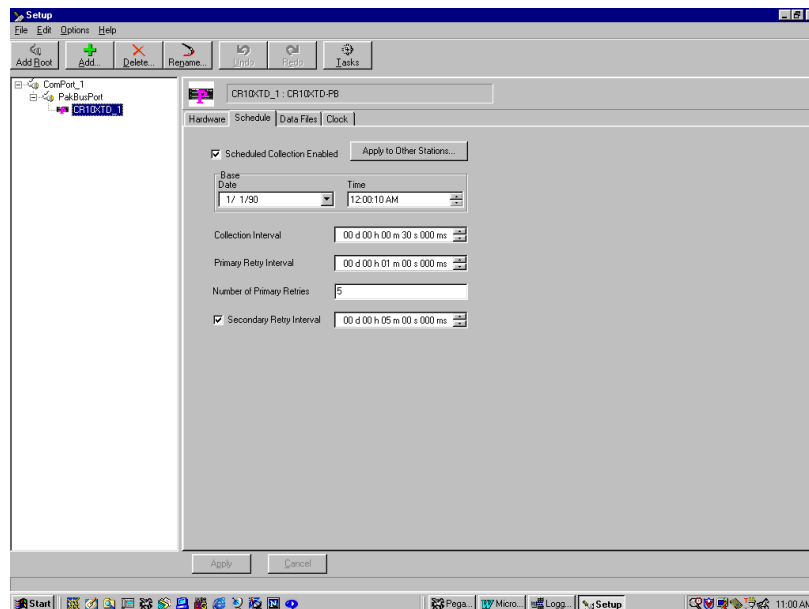
Initial Time - Set this 10 seconds after the hour. This allows all wireless probes to respond to the CR10X before data collection begins.

Collection Interval - This is the interval at which the CR10X-TD will be queried for new data. If this interval is set at 10 minutes, new data will be collected from the CR10X-TD every 10 minutes. One minute is generally quick enough for most data collection. Longer times or shorter times may be set depending upon how frequently data must be updated.

Primary Retry Interval- If a data collection attempt is made but fails, you can specify an interval on which another attempt will be made. The Primary Retry Interval should always be greater than the Collection Interval.

Number of Primary Retries - The number entered into this field is the number of times PondView will attempt to contact the CR10X-TD on the Primary Retry Interval. If the number of collection attempts specified are unsuccessful, then the server will revert to calling on the Secondary Retry Interval.

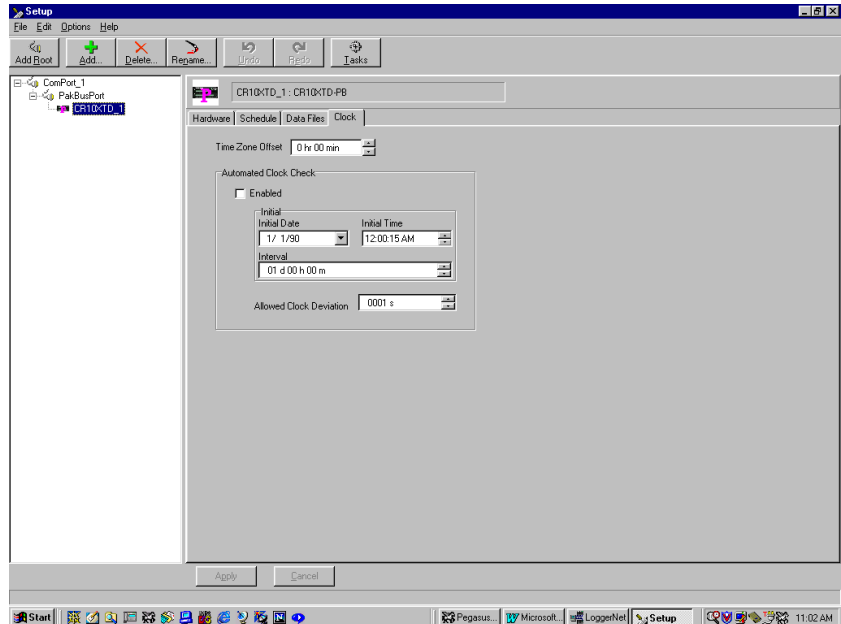
Secondary Retry Interval - The Secondary Retry Interval is a calling interval that will be attempted if all Primary Retries have failed. The Connection Status Screen Alarm on the PondView screen will be activated if the Secondary Retry Interval is reached. Data collection attempts will continue on the Secondary Interval until a data collection attempt is successful, at which time all retry statistics are reset.





### 1.3.3.4 Clock Check/Set Tab

Automated Clock Check - Enable this to compare the CR10X-TD clock to the server computer's clock based on the schedule defined by the other parameters on this tab. If the CR10X-TD's time differs from the PC time by more than a specified amount, the CR10X-TD clock will be set automatically. Enable should be checked. Set the clock initial time to 15 seconds after the hour. All other settings should be left at the default value.

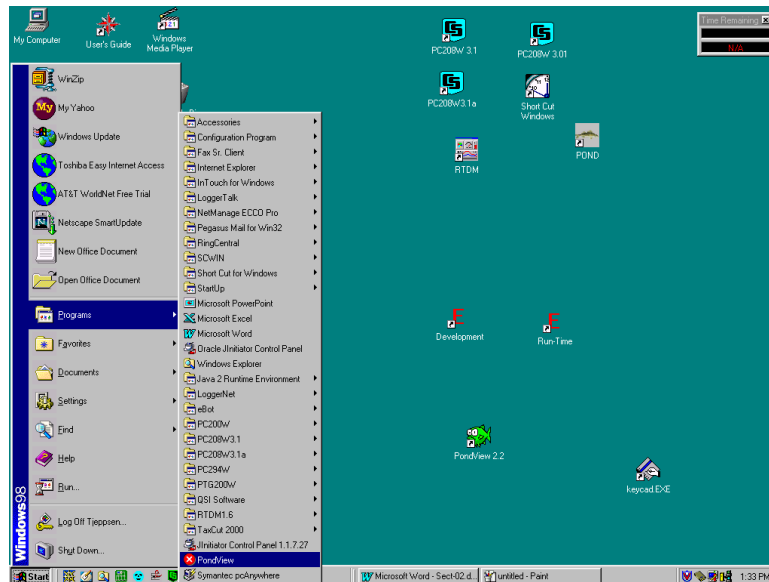




# Section 2. PondView Display Screen

## 2.1 Enable the Display

PondView is activated by selecting **Start|Programs|PondView**.



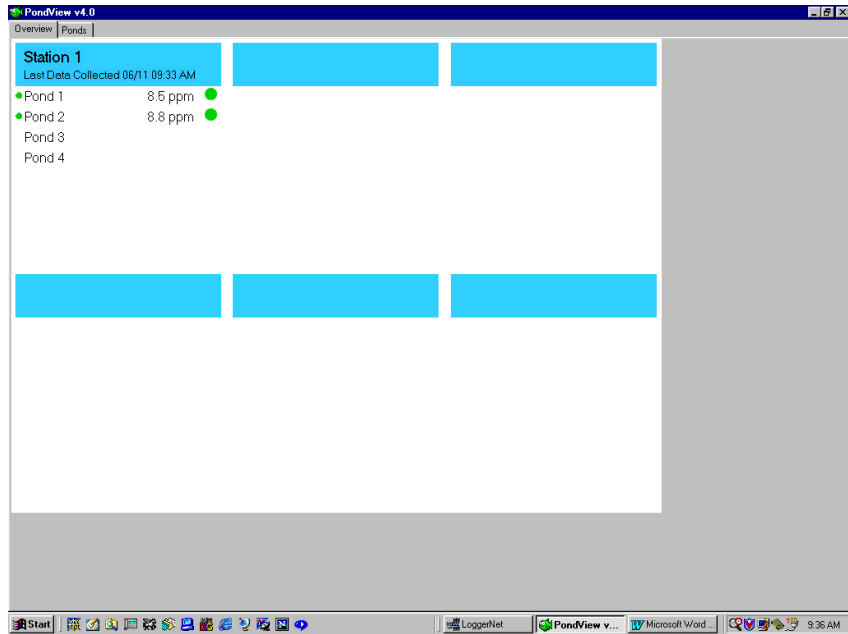
When PondView is first started, please be patient. The initialization may take a few minutes.

## 2.2 Overview Page

The Overview Page provides a quick summary of the dissolved oxygen readings in each pond. Ponds are arranged in sections corresponding to the stations that monitor the pond. Each station group includes a time stamp of when the data was collected.

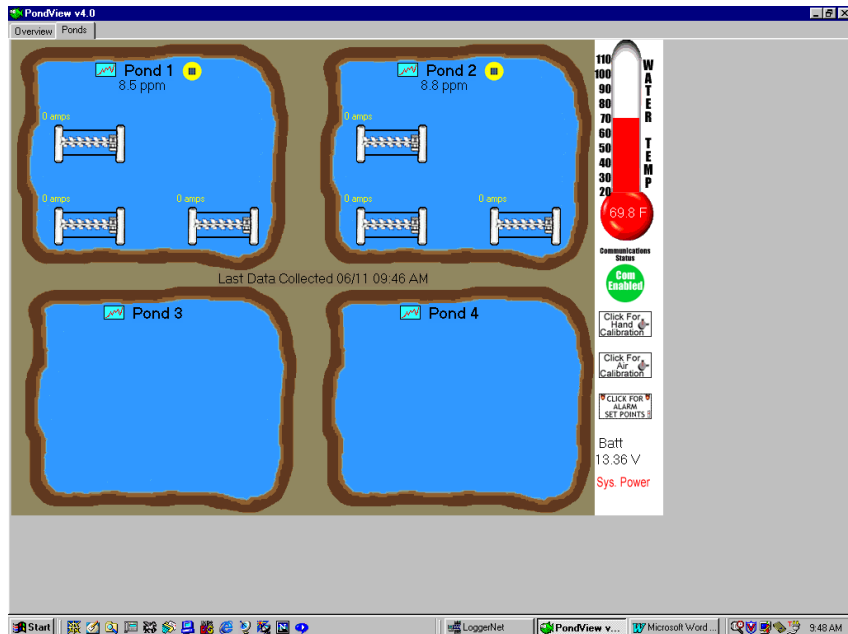
In addition to the dissolved oxygen value, an alarm light is displayed along the right side of each DO value. If the alarm condition occurs, the light will be red; if the alarm is not active, then the light will be green.

A smaller light will be displayed along the left side of the pond label. This alarm light represents communication of the remote buoy to the monitoring station. A green light indicates successful communication between the buoy and monitoring station. A red light indicates communication has been lost.



## 2.3 Pond Page


The Pond Page provides a desktop display for real-time dissolved oxygen and motor amps, and is used for entering set points for alarms, control of aeration, and sensor calibration.



## 2.4 Temperature Thermometer

The temperature thermometer can be used to monitor temperature in degrees Fahrenheit or Celsius. Using the mouse, click on the thermometer the degree units will change to either Celsius or Fahrenheit.

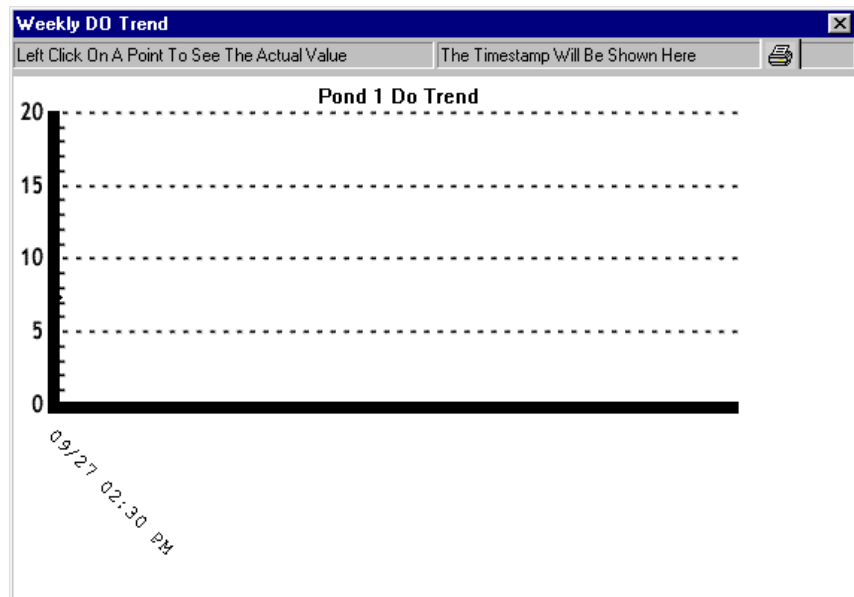
## 2.5 Trends

Seven days of historical data is displayed on the Trends Graph. Select the Trends Graph by using the mouse left button to open the Trends Button .

A specific value with time stamp can be viewed by selecting the data point on the graph with the mouse arrow, then clicking the left mouse button. The selected value will be displayed in the upper right hand corner of the graph. The associated time stamp will be displayed in the upper left hand corner of the graph.

The graph can be sent to a printer by clicking the graph icon in the upper right corner of the graph.

This is only a sample of the data that is being collected and stored by the CR10X-TD. If more data is needed, the PondView Graph can be customized for specific application, or call a Campbell Scientific, Inc. Applications Engineer for help.





# Section 3. Control Set Points and Alarms

## 3.1 Control Set Points

### 3.1.1 Aerator Control

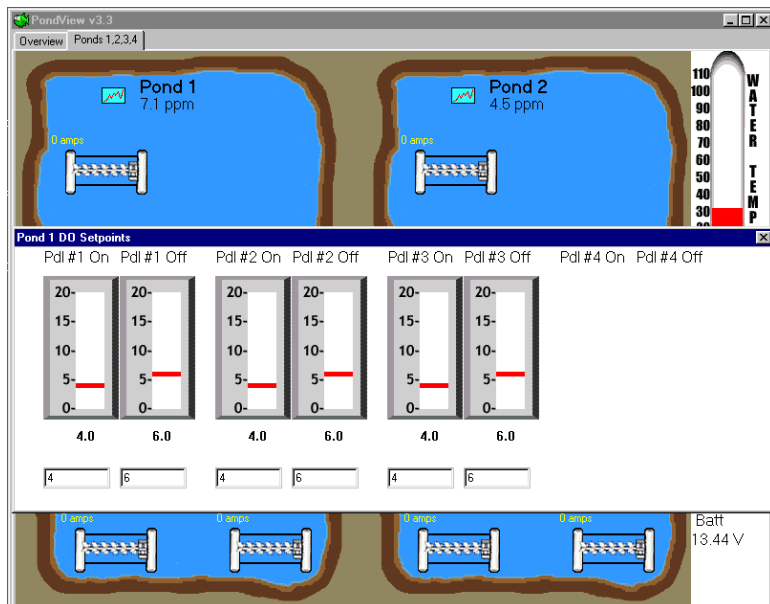
The CR10X-TD automatically controls each aerator. If the dissolved oxygen in the pond is below a user-determined value, then the aerator is switched on. If the dissolved oxygen raises to a high set point, the aerator is switched off.

Double-click on the pond label (example Pond 1). This will pull up a slider switch that is used to set the low and high points for each aerator in Pond 1.

The set point can be changed in two ways. To use the slider bar, point the mouse arrow to the colored bar on the slider. While holding the left button on the mouse slide the bar up to the value desired.

Use the edit box by highlighting the value to be changed and enter the new value. This value will not be sent to the CR10X-TD until the ENTER key on the PC keypad is pushed.

The aerator will switch on when the DO value is less than the value selected with the DO ON slider. The aerator will switch off when the DO value is equal to or greater than the value selected with the DO OFF slider. When changing this value, the bar to show the status by turning black temporarily. At this point the value has been sent to the CR10X-TD and the slider box can be closed (select the X in the upper right corner).



## 3.2 Alarms

PondView provides audio and visual alarms to indicate when critical levels have been reached. These alarms indicate critical levels of dissolved oxygen, aerator motor amps, and communication.

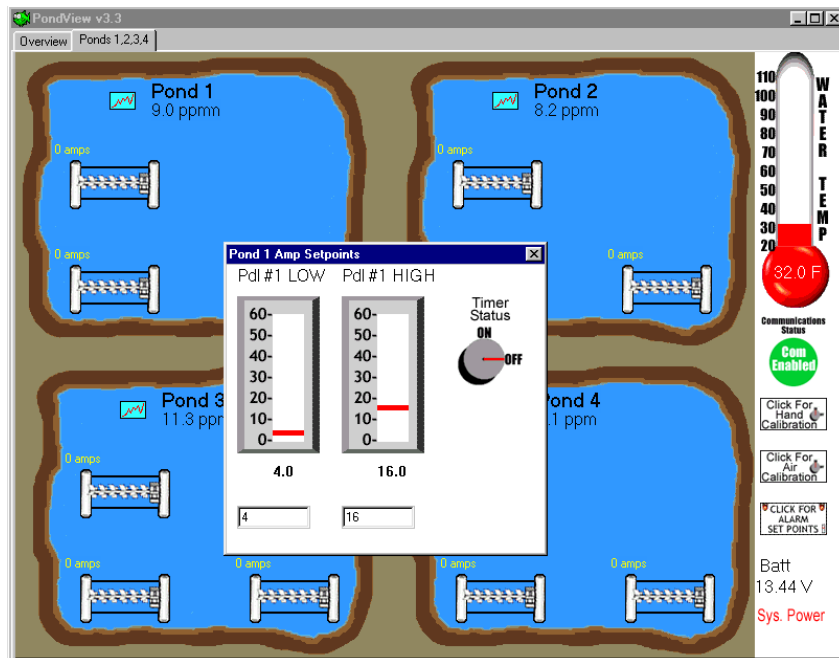
To acknowledge the alarm, point to the visual alarm with the mouse and push the right mouse button. An ALARM ACKNOWLEDGE button will appear. Select this button and the audio alarm will be deactivated. Alarms will switch off if the alarm condition no longer exists.

### 3.2.1 Aerator Alarms

Aerator status is being monitored by the CR10X-TD. Aerator alarms can be activated on two conditions. If the aerator is supposed to be on but if the amps being monitored indicate a value that is lower than expected, the amp alarm will be activated. Also, if the amps being drawn are higher than is expected, the alarm will be activated.

The high set point will also disable the aerator if the condition is met. For example, if the amps high set point on aerator 1 in pond 1 is set at 40 amps, and the amps being monitored indicate 41 amps, then the alarm will be activated and the aerator will be switched off.

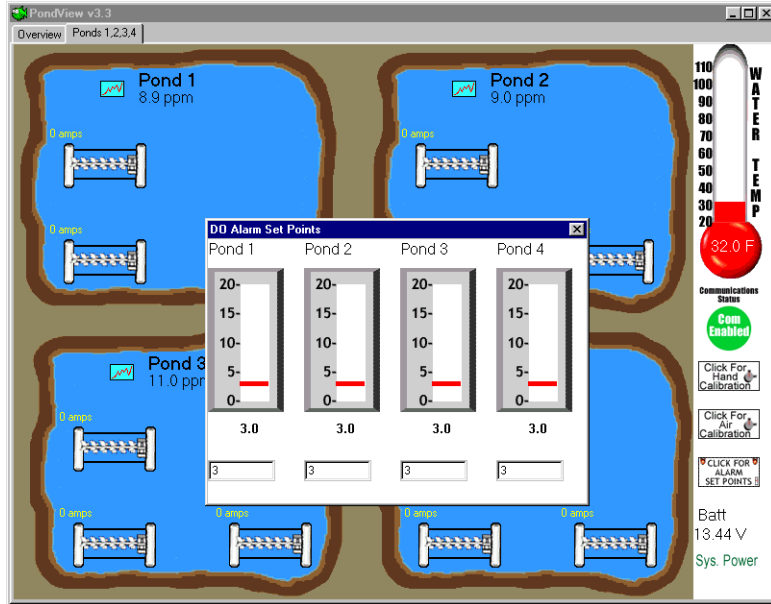
These two set points are selected by clicking with the mouse on the aerator that is desired. Alarms have both a visual display and an audio sound. They are activated every 30 seconds.





### 3.2.2 Dissolved Oxygen Alarm

To select the slider bars for DO alarm set points, double click on the CLICK FOR ALARMS SET POINT box found in the lower right corner. Like the other slider bars, move the bar until the desired set point is found. This enables the alarms for the dissolved oxygen in the ponds. If the DO is lower than the set point, the alarms are activated. These alarms are acknowledged by using the mouse to select the alarm and pressing the right mouse key.



### 3.2.3 Communication Alarm

If communication between the CR10X-TD and PC is disrupted, the Communication Status light will turn red and alarm sounds are activated. Disable this alarm by selecting the acknowledge button.

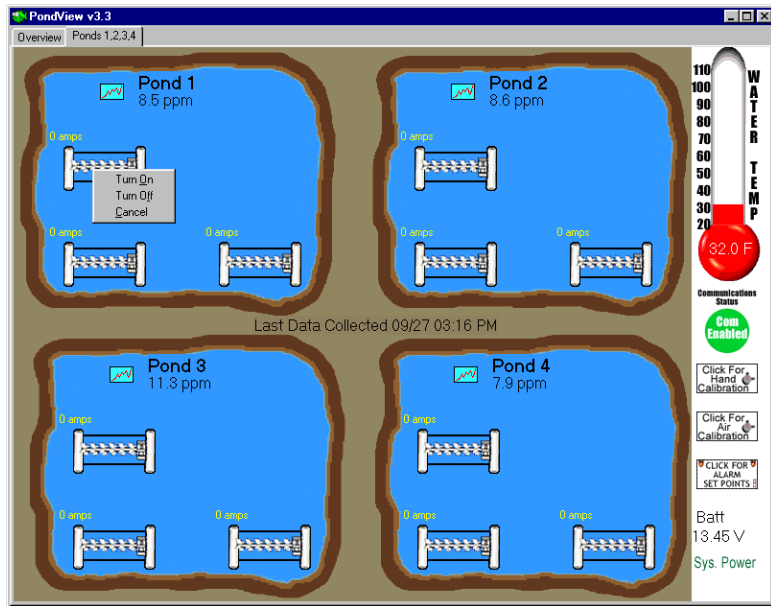


# Section 4. Manual Control

The automated feature of the CR10X-TD can be overridden using the PondView monitor. Switching aerators on or off can also be accomplished using the on-screen display.

## 4.1 Aerator Control

Click the desired aerator with a right mouse. The **Control** button will be displayed. Selecting turn on will override the automated conditions of aerator control and turn the aerator on.



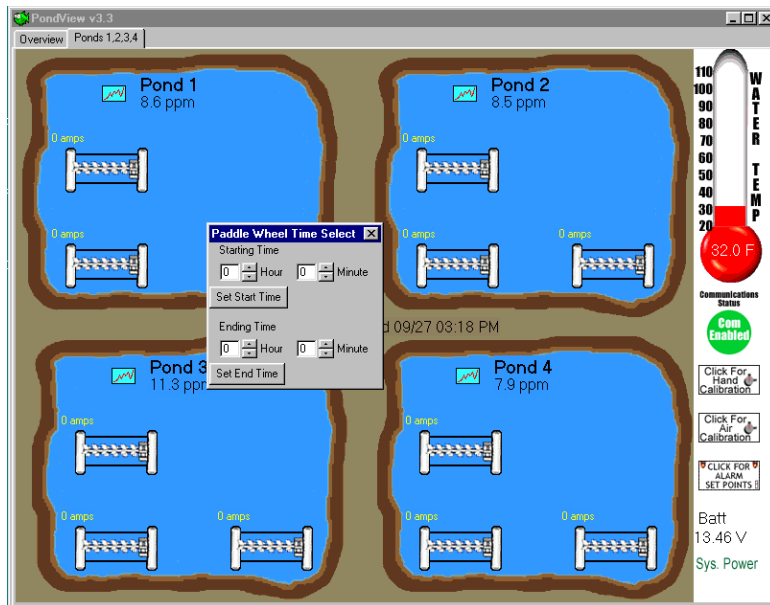
To switch off aerators that have been switched on, click the desired aerator with the right mouse button. The **Control** button will be displayed. Selecting Turn Off will return control of the aerator back to the automated function controlled by the CR10X-TD. The aerator will turn off if the High-Off Set-Point for that aerator is less than the current dissolved oxygen reading.



## Section 5. Timer Aerator Control

In addition to the aerators being controlled automatically by the condition of the dissolved oxygen, and manually by the operator, they can also be controlled by a timer.

Like the manual mode of control, the time mode of control overrides the automated control based on the condition of the dissolved oxygen. The timers will turn the aerator on and off at a user specified time regardless of the condition of the dissolved oxygen.



Click on the desired aerator. Click on the Timer Status button; this will pop up the Paddle Wheel Timer Select screen. In this screen enter the desired start and stop times. These must be entered in military times. After a value is entered in the Set Start Time and Set Stop Time locations, the corresponding button must be pressed in order to send these values to the CR10X-TD.

Even with the start and stop values sent to the CR10X-TD, the timer function is not active until the Timer Status Button is turned ON. To turn the button on, click the Timer Status button with the right mouse. Select ON. The timer is now active and will control the aerators based on the times entered.



# Section 6. DO Probe Calibration

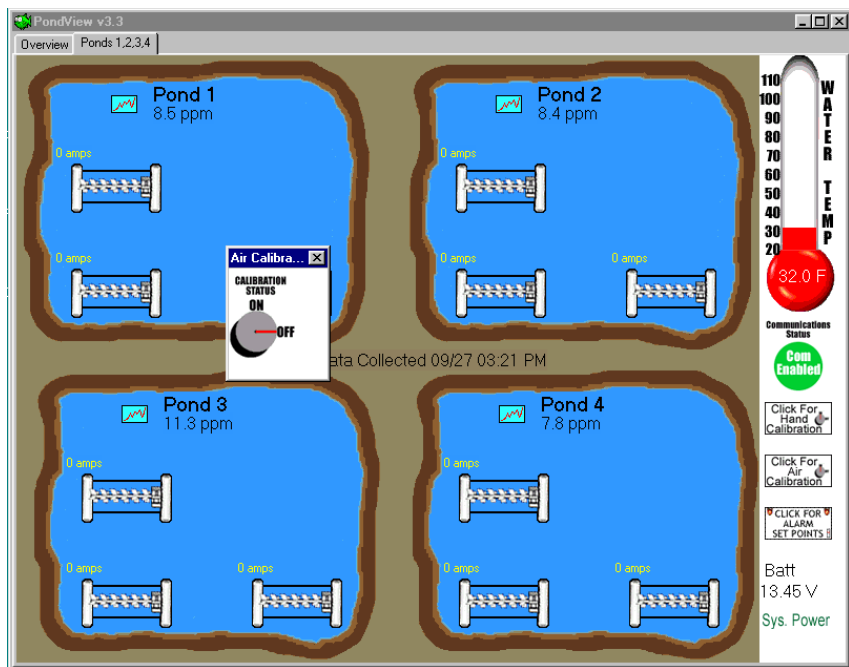
## 6.1 Dissolved Oxygen Calibration

The CR10X-TD is programmed to allow for both automatic dissolved oxygen air calibration and automatic hand calibration of the dissolved oxygen probes. Use whichever method is best for your application.

## 6.2 Air Calibration

Before the air calibration process is enabled the dissolved oxygen probes and temperature sensor must be removed from the water. Since sunlight can greatly heat these probes, which will adversely effect the accuracy of the calibrated value, this process is best performed when the sun is clouded or at dusk or dawn.

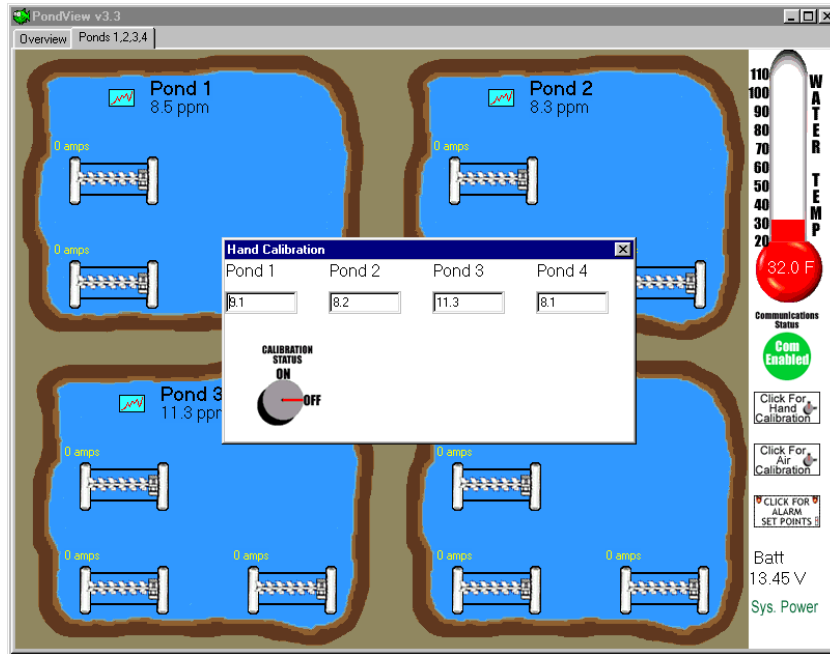
Once the probes are out of the water use the right mouse button to select the calibration mode. An on/off button will be displayed. Click the button with the mouse. The line will change on the Calibration Knob to indicate the calibration status. Give the probes 10 to 15 minutes to stabilize before setting the calibration process off. The Calibration status should be in the off position for normal operations.



## 6.3 Hand Calibration

Hand calibration allows calibrating the submersed dissolved oxygen probe to a value obtained using an accurate hand-held dissolved oxygen meter. Click on the Hand Calibration button. Edit the box corresponding to the DO probe that

is to be calibrated. Enter the value obtained using the hand dissolved oxygen meter. Press the Enter key on the PC keypad to send this new value to the CR10X-TD. Once all of the corrected values have been entered into the edit boxes, click the calibration status button with the right mouse. Select Turn On.



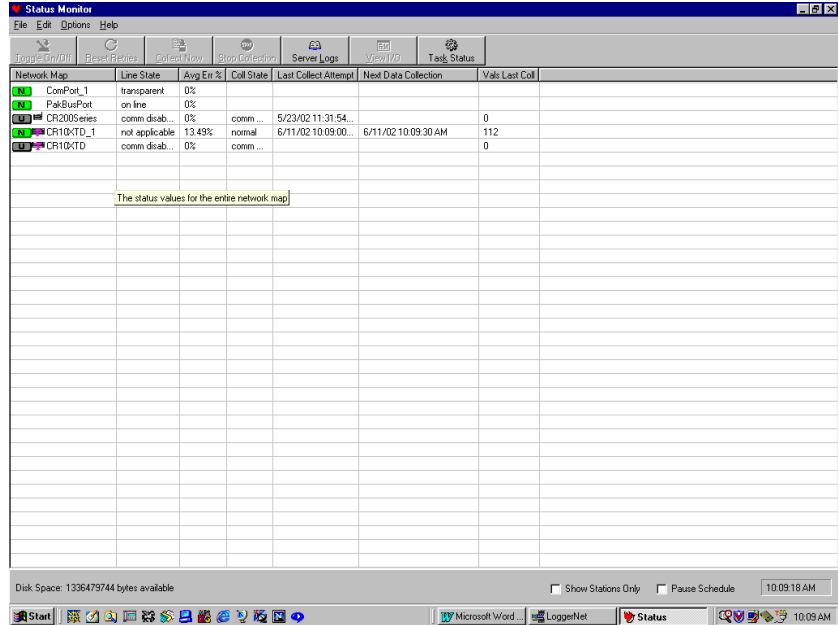
The CR10X-TD will remain in the Hand Calibration mode for 30 seconds, after which it will automatically return to the Normal operation mode.



# Section 7. Communication Status

Communication Status (Status Monitor) provides a way to monitor communication statistics for the CR10X-TD network. Information can be viewed on data collection attempts and communication failures. This program is especially useful when using RF communication.

From the LoggerNet Tool Bar button select STATUS.



Status Monitor is customized to display only those columns containing communication data of interest. To add columns to the Status Monitor window, select Edit | Select Columns. The Column Modifications window appears.

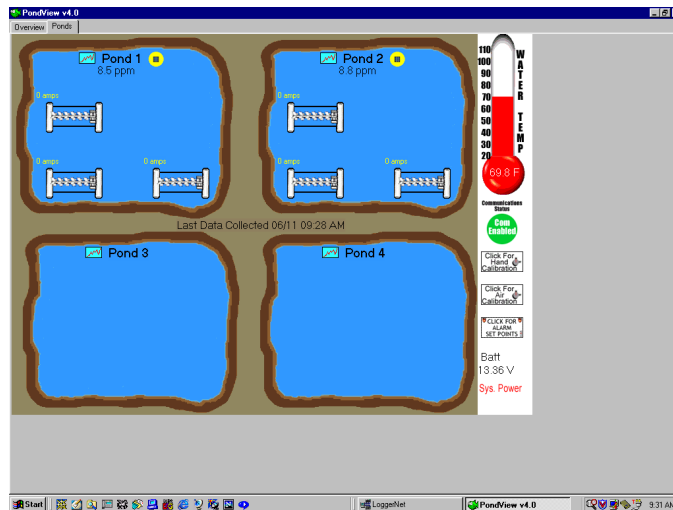
Entries in the Statistics Not Visible field will not be displayed on the main Status Monitor screen. Entries in the Statistics Visible field will be displayed on the screen.



# Section 8. Remote Buoy

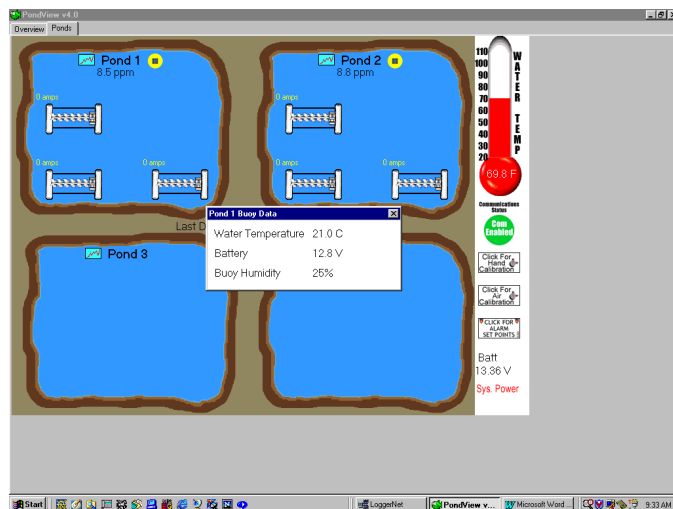
## 8.1 Wireless Dissolved Oxygen Probe

PondView provides data to view the current conditions of the wireless dissolved oxygen probe. The Buoy is only displayed on your screen if you are using the wireless system.



## 8.2 Buoy Parameters

Use the mouse and right click on the yellow buoy to view the critical parameters of the wireless probe.





## Section 9. Troubleshooting

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Problem	Solution
<p>PondView Screen does not represent my pond lay out.</p>	<p>PondView is shipped with a standard .INI file that represents a generic pond lay out. You must replace this generic lay out with one that has been created for your farm. This file is found on the 3-1/2" disk shipped with your equipment.</p>
<p>The program on the CR10X-TD has been changed and now the PondView Screen will not communicate.</p>	<p>The server is looking for a specific list of labels found on the CR10X-TD. If the program has been modified this list may have been changed. To ensure the server is looking for the current labels go the START button on the computer. Select Programs\LoggerNet\Control Panel. Select the appropriate station. Select Options\Advanced\Update Table Definitions.</p>

