



Appendix B

130 Troubleshooting

B.1 Frequently Asked Questions

1. Question: Does any data loss occur if acquisition is turned on and the NET is not connected?

The damage that occurs depends upon the parameters of the unit. If the unit parameters are set to dump to disk ONLY then there is no effect, otherwise RAM will fill and acquisition will stop. For further clarification see the explanation in the section "NET Port" on page 1-16.

2. Question: What happens if the Flash drive is pulled from the 130 when the LED is RED.

If the LED shows RED the drive is writing data and should not be removed until the LED changes to GREEN. Data loss can result from pulling a drive when the LED is RED. See further explanation in the "Periodic Maintenance checks" on page 4-74.

3. Question: Can a different sampling rate be used on different datastreams?

- Yes

The sample rate list can be broken into two groups:

Group One: The following rates are only available when recording a single sample rate for all streams: 1000, 500, 250, 125, 50 and 25.

Group Two: The following rates may be recorded in any combination within all streams: 200, 100, 40, 20, 10, 5 and 1.

Case	Description	Example of
Selection of a sample rate from Group One.	When the user activates any of the other data streams, the sample rate chosen must be the SAME.	Selection of 125 SPS for Data Stream 1. This means that when Data Stream 2 is activated the sample rate is fixed at 125 SPS and there are no other sample rate choices available.
Selection of a sample rate from Group Two.	When the user activates any of the other data streams, ANY of the group two sample rates can be chosen.	Selection of 40 SPS for Data Stream 1. This means that when Data Stream 2 is activated the choice is selection of any of Group two sample rates (200, 100, 40, 20, 10, 5, or 1).

All six channels run at the same base sample rate at this time.

4. Question: If two datastreams or more at different sampling rates, without a DSP, were set up, would all datastreams default to the sampling rate on datastream one?

It should default to the sampling rate of the **LAST** datastream, however it always is best to make sure to set all datastreams for the same sample rate.

5. Question: Could a customer send data serially over a spread spectrum radio to a router because data communication via 10/100 base-T as well as PPP on RS-232 and asynchronous RS-232 is supported?

The 130 DAS has three communication ports:

NET Connector: (1) Ethernet 10-Base T
(2) Serial PPP (Asynchronous, RS-232)

SERIAL Connector: (3) Serial Asynchronous, RS-232 for command and control **ONLY**.

The 130 DAS can be used with a spread spectrum radio by direct connection over serial PPP to the spread spectrum radio, no router required. The 130 DAS supports all types of Telemetry configurations.

Its is also possible for the serial line mode to be used with a modem and the user defined init string will be sent to an externally attached modem at powerup (i.e. 130-Modem).

B.2 Ethernet Link is Down and Acq is ON

When the Ethernet Link is down and acquisition is turned on, data loss could occur if the following are not verified:

1. Check your Ethernet Settings (See the *PFC_130 Users Guide*) on the PDA device connection setup screen.

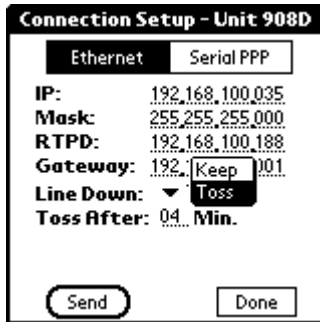


Figure B - 1 Verify ethernet setup screen

2. Check the IP Address, Mask, Host, and Gateway Addresses entered in the PDA device *Connection Setup* screen (See the *PFC_130 Users Guide*).
3. If data is sent via the ethernet, make sure the serial Host address has been "zero-ed" out on the Serial PPP *Connection Setup* screen (all zeros in the Host field).

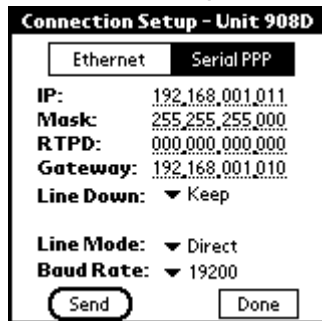
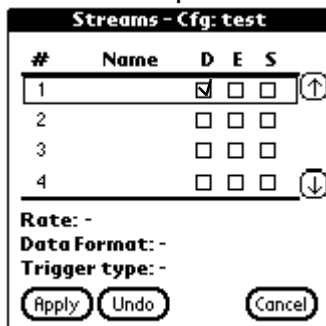


Figure B - 2 Verify serial PPP connection setup

Example NET configurations with Ethernet link down and acquisition on:

1. If the unit parameters in the Streams-Cfg screen are set to dump to disk ONLY then there is no effect.



- If the unit parameters are set to dump to Ethernet and to disk, then the unit will dump the data to disk when the RAM reaches the dump point (default = 66% full), but the RAM will not empty until it is sent out over the Ethernet link.

#	Name	D	E	S
1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rate: -
Data Format: -
Trigger type: -

Apply Undo Cancel



Note: The RAM will continue filling until the RAM is full, acquisition will then stop, and the data will dump to disk again. The RAM is not cleared until the data goes to ALL specified dump locations in the parameter set (Disk and Ethernet in this example). So the Ethernet connection must be re-established in order for the RAM to clear.

- If the data is being sent only to Ethernet, then the RAM will fill and acquisition will stop. Once the Ethernet connection is re-established, the data in RAM will be sent out the Ethernet port and acquisition will re-start automatically.

#	Name	D	E	S
1		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rate: -
Data Format: -
Trigger type: -

Apply Undo Cancel

Note: There will be only a loss of data while the acquisition state is off.

B.3 Firmware update options

WARNING: If the firmware flash is interrupted the 130 may not boot again and the 130 must be returned to the factory for service or optional EEPROM board must be used. If you live in an area of unreliable power a UPS is recommended.

B.3.1 Download firmware from the FTP site

1. Login to our FTP site at: <ftp.reftek.com/pub> as:
User name: Anonymous
Password: Your E-mail address
2. Find the 130 firmware at <ftp.reftek.com/pub/130/cpu/prom>.
3. Download the zip file of the most recently released firmware version.

B.3.2 Firmware update process

Updating firmware in a 130 requires the presence of a firmware file on an installed Compact Flash device.

1. On power-up, the 130 checks the Compact Flash for the presence of '*main.s3*' in the root directory.
2. If the '*main.s3*' file is present on the Compact Flash, the 130:
 - (a) Reads the file.
 - (b) Re-programs the internal flash memory.
 - (c) DELETES the file.

Note: DO NOT DISTURB THE UNIT DURING THIS PROCESS.

B.3.3 Updating firmware from a Compact Flash™

1. Unzip the 'main.s3' file from the downloaded zip file of the most recently released firmware.
2. Copy the desired firmware image to the root of the Compact Flash as 'main.s3' using a PC with a Compact Flash™ reader.
3. Install the Compact Flash™ in the **130-01**.

Updating firmware in a 130 requires the presence of a firmware file on an installed Compact Flash device.

4. On power-up, the 130 checks the Compact Flash™ for the presence of '*main.s3*' in the root directory.
5. If the 'main.s3' file is present on the Compact Flash™, the 130:
 - (a) Reads the file.
 - (b) Re-programs the internal flash memory.
 - (c) DELETES the file.

Note: DO NOT DISTURB THE UNIT DURING THIS PROCESS.

B.3.4 Updating firmware using ftp

1. ftp to the 130 using its IP address:
username: **reftek**
password: **reftek**
2. Use the **ls** ftp command to list the contents of the Compact Flash™.
3. Enter **bi** and **ha** to select Binary and Hash options.
4. Use the **put** ftp command to send the file (**main.s3**) to the Compact Flash™ installed on the 130-01.
5. With the Compact Flash™ with the **main.s3** image installed in the 130 DAS, issue a reset command from the **130-01**
-OR-
 - Use the RTCC command and control interface program
 - Use the RT130-SM GUI Reset System command
6. On power-up, the 130 checks the Compact Flash™ for the presence of '*main.s3*' in the root directory.
7. If the 'main.s3' file is present on the Compact Flash™, the 130:
 - (a) Reads the file.
 - (b) Re-programs the internal flash memory.
 - (c) DELETES the file.

DO NOT DISTURB THE UNIT DURING THIS PROCESS.

B.3.5 Updating firmware at the 130-01

1. Issue a **Reset** command from a PDA running PFC_130 or Physically disconnect and reconnect power to the unit.
2. Observe the LCD for the following messages:
READING DISK DO NOT DISTURB
WRITING FLASH DO NOT DISTURB
3. The 130 DAS resets and returns to normal messaging.

B.3.6 Updating firmware via telemetry mode

- (i) If you are connecting remotely by a TCP connection:
 - (a) **First connect**
 - (b) **Discover the unit**
 - (c) **Acquire status**
- (ii) Issue a reset command from the Status screen.
- (iii) Delete the unit from the Station List screen:
 - (a) **Wait at least 5 minutes**
 - (b) **At the Connections screen (reconnect id using a TCP connection) issue a Station Discovery again to discover the 130 DAS station.**

Note: DO NOT DISTURB THE UNIT until the start-up LCD message reappears.

B.4 Test the 130 DAS Memory

B.4.1 Overview

This Section explains the how the Memory Test (MT) command is handled in the **REF TEK** 130 DAS.

B.4.2 Memory test process

The Memory Test Command causes the **REF TEK** 130 to perform a memory test on data and buffer memory. Since the test overwrites any existing data, the DAS performs several actions prior to starting the actual test. Acquisition is stopped (if currently active), the DAS attempts to dump all recorded data and processes not required to perform the memory test are stopped.

- Memory is checked using 0xAA, 0x55 and incremental data patterns.
- If an error is detected, the test is stopped immediately and the DAS responds with the FAIL result code and failing address.
- Upon successful completion of the test, the DAS responses with the PASS result code and 0x00000000 as the failing address.



Note: The test status and the PASS/FAIL results are also available on the LCD display.

- After a 20 second delay the system automatically reboots.
- All configuration parameters are restored to the conditions prior to the MT command being issued. This includes starting acquisition, if it was running prior to receipt of the command.

B.4.3 PFC_130 RAM Test

This command is used to cause the DAS to perform a check on the memory. Acquisition will be stopped prior to starting the test and the DAS will attempt to flush any remaining data. A Pass or Fail (including 1st failing address) response will be sent. Upon completion of the test the DAS will be reset.

1. To test the DAS memory select the **RAM Test** button.
2. A warning screen will open to approve the test
3. Select the **OK** button to start the test

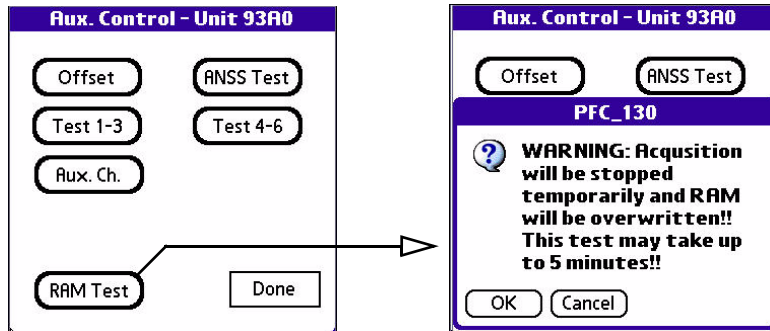
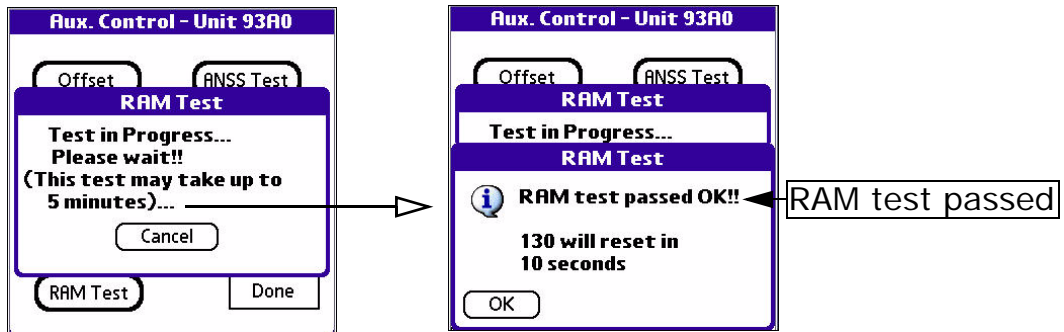


Figure B - 3 Aux Control - RAM Test

4. A screen opens to notify the test has completed and passed.
If the test fails a different screen opens to display the 1st failing address.



B.5 Controlling Ethernet Power in Windows®

The following procedure supplies the steps to setup a laptop for use in the field with the 130 DAS when using battery power on the laptop and there is a loss of ethernet connection.

1. From the Windows® **Start** menu select the **Control Panel**.

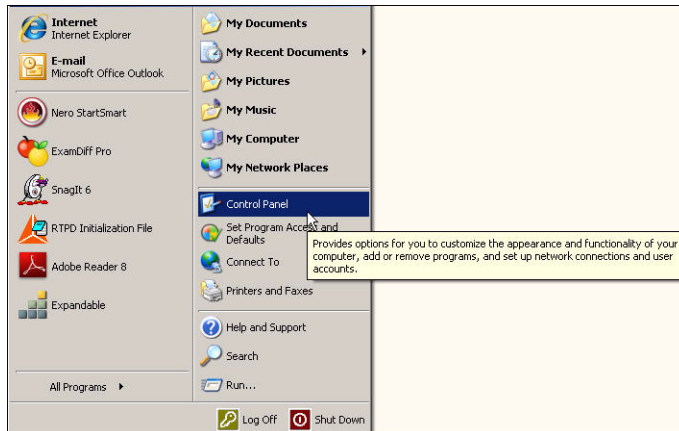
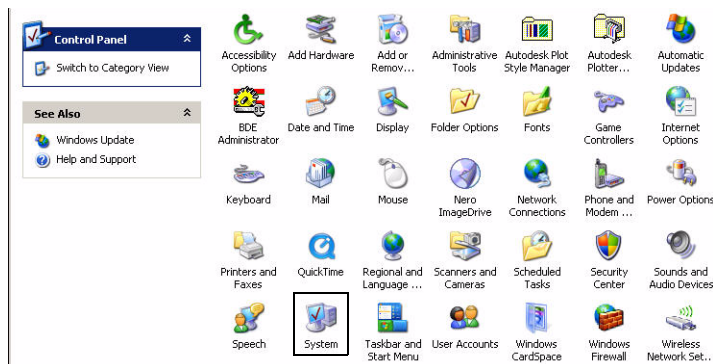
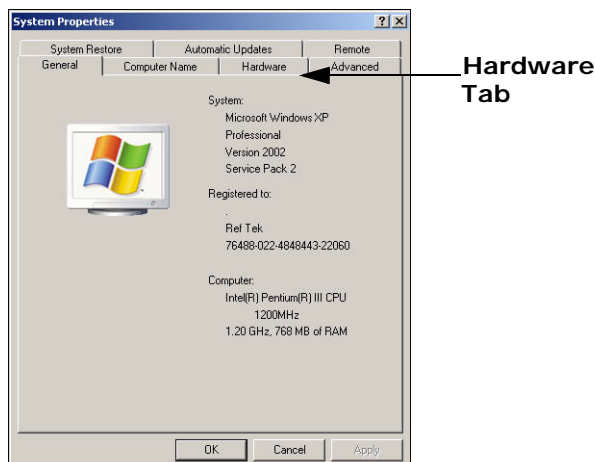


Figure B - 4 Control Panel

The **Control Panel** will display to select the **System** Properties window.



2. Double-Click the **System** properties icon.
3. Select the **Hardware** Tab.



4. Select the **Device Manager** so the Device Manager window opens.

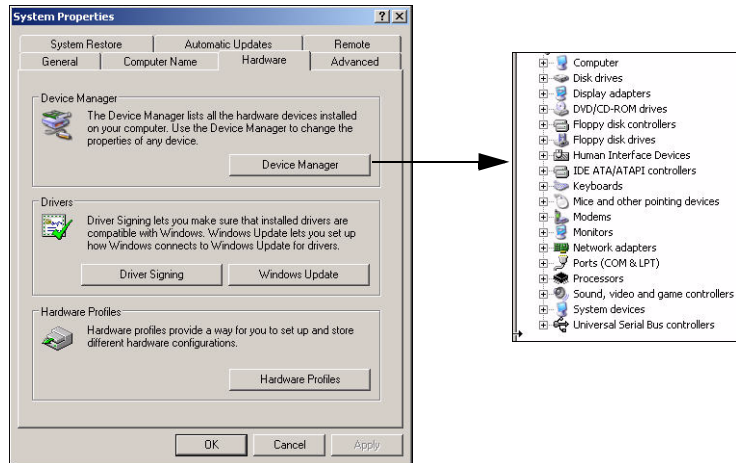


Figure B - 5 Device Manager

5. Select the "+" sign next to the **Network Adapters** to expand it.
6. Right-Mouse Click the Ethernet Adapter to display its properties tab and select it to open the **Properties** display.

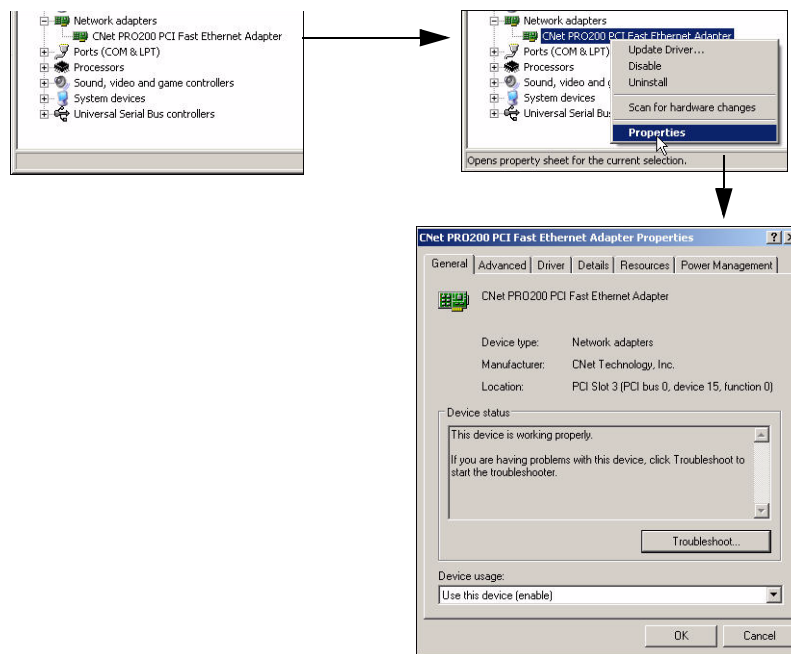


Figure B - 6 Select the Power Management tab.

7. Select the **Power Management** tab.
8. Uncheck the box "Allow the computer to turn off this device to save power".
9. Select the **OK** button to accept the settings.
10. Close the **Device Manager**.
11. Close **System** Properties.

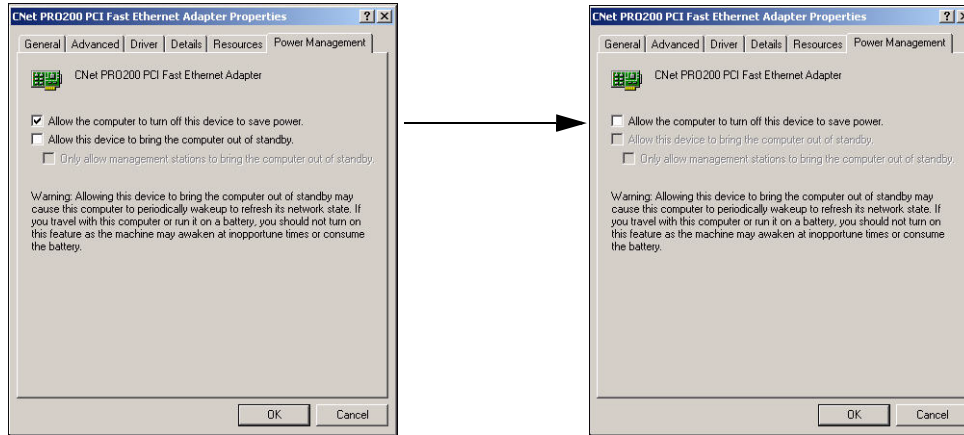


Figure B - 7 Power Management