INSTRUCTION MANUAL

PConnectCE for Pocket PC Handheld Software Support for Campbell Scientific Dataloggers

Version 2.33

Revision: 9/09

License for Use

This software is protected by United States copyright law and international copyright treaty provisions. The installation and use of this software constitutes an agreement to abide by the provisions of this license agreement.

Campbell Scientific grants you a non-exclusive license to use this software in accordance with the following:

(1) The purchase of this software allows you to install and use the software on one computer only.

(2) This software cannot be loaded on a network server for the purposes of distribution or for access to the software by multiple operators. If the software can be used from any computer other than the computer on which it is installed, you must license a copy of the software for each additional computer from which the software may be accessed.

(3) If this copy of the software is an upgrade from a previous version, you must possess a valid license for the earlier version of software. You may continue to use the earlier copy of software only if the upgrade copy and earlier version are installed and used on the same computer. The earlier version of software may not be installed and used on a separate computer or transferred to another party.

(4) This software package is licensed as a single product. Its component parts may not be separated for use on more than one computer.

(5) You may make one (1) backup copy of this software onto media similar to the original distribution, to protect your investment in the software in case of damage or loss. This backup copy can be used only to replace an unusable copy of the original installation media.

This software may not be sold, included or redistributed in any other software, or altered in any way without prior written permission from Campbell Scientific. All copyright notices and labeling must be left intact.

Limited Warranty

The following warranties are in effect for ninety (90) days from the date of shipment of the original purchase. These warranties are not extended by the installation of upgrades or patches offered free of charge.

Campbell Scientific warrants that the installation media on which the software is recorded and the documentation provided with it are free from physical defects in materials and workmanship under normal use. The warranty does not cover any installation media that has been damaged, lost, or abused. You are urged to make a backup copy (as set forth above) to protect your investment. Damaged or lost media is the sole responsibility of the licensee and will not be replaced by Campbell Scientific.

Campbell Scientific warrants that the software itself will perform substantially in accordance with the specifications set forth in the instruction manual when properly installed and used in a manner consistent with the published recommendations, including recommended system requirements. Campbell Scientific does not warrant that the software will meet licensee's requirements for use, or that the software or documentation are error free, or that the operation of the software will be uninterrupted.

Campbell Scientific will either replace or correct any software that does not perform substantially according to the specifications set forth in the instruction manual with a corrected copy of the software or corrective code. In the case of significant error in the installation media or documentation, Campbell Scientific will correct errors without charge by providing new media, addenda, or substitute pages. If Campbell Scientific is unable to replace defective media or documentation, or if it is unable to provide corrected software or corrected documentation within a reasonable time, it will either replace the software with a functionally similar program or refund the purchase price paid for the software.

All warranties of merchantability and fitness for a particular purpose are disclaimed and excluded. Campbell Scientific shall not in any case be liable for special, incidental, consequential, indirect, or other similar damages even if Campbell Scientific has been advised of the possibility of such damages. Campbell Scientific is not responsible for any costs incurred as a result of lost profits or revenue, loss of use of the software, loss of data, cost of re-creating lost data, the cost of any substitute program, telecommunication access costs, claims by any party other than licensee, or for other similar costs.

This warranty does not cover any software that has been altered or changed in any way by anyone other than Campbell Scientific. Campbell Scientific is not responsible for problems caused by computer hardware, computer operating systems, or the use of Campbell Scientific's software with non-Campbell Scientific software.

Licensee's sole and exclusive remedy is set forth in this limited warranty. Campbell Scientific's aggregate liability arising from or relating to this agreement or the software or documentation (regardless of the form of action; e.g., contract, tort, computer malpractice, fraud and/or otherwise) is limited to the purchase price paid by the licensee.

PConnectCE Table of Contents

PDF viewers note: These page numbers refer to the printed version of this document. Use the Adobe Acrobat® bookmarks tab for links to specific sections.

PConnectCE for the Pocket PC Handhelds[1]

1. Introduction

Welcome to *PConnectCE for Pocket PC Handhelds* support software for Campbell Scientific dataloggers. PConnectCE supports the CR10/10X, CR500/510, CR23X, 21X, CR7, CR200, CR1000, CR800/850, CR3000, CR10XPB, CR510PB, and CR23XPB datalogger s.

PConnectCE software allows you to connect your Pocket PC handheld to a Campbell Scientific datalogger to perform all of the standard datalogger support functions, including:

- check and set the datalogger clock
- send and receive datalogger programs
- view and edit input locations and labels
- set flags and ports
- collect data
- access the datalogger's remote keyboard mode through a terminal interface, and
- view collected data in a tabular display.

PConnectCE stores collected datalogger data in the handheld's internal memory. (Expansion memory cards are not supported.) Using the data display feature, you can view this data while at the site. When the handheld is synchronized with the desktop computer, this data is moved to a specified data folder on the PC. New data from each station is appended to any existing data file on the PC.

The synchronization process also synchronizes datalogger program files between the PC and handheld device. Datalogger program files and their associated files copied to the handheld device's PConnectCE folder will automatically be transferred to the handheld during the next synchronization process. Using this process, you can store program files on the handheld device, and subsequently send them to the datalogger or use them for labels when viewing measurements (input locations). You can also retrieve programs from dataloggers to the handheld device, and use the synchronization process to copy them to the PC. If two different programs—one on the handheld device and another in PConnectCE's programs folder on the PC—have the same name when you synchronize, the program file on the PC will overwrite the program file on the handheld device.

---

[1] PConnectCE is a trademark of MeasureTek, Inc.

PConnectCE was developed as a field tool to collect data from one datalogger at a time over a direct serial connection (or a connection that mimics a serial connection). It is not intended for use via phone modem or in a distributed PakBus network. PConnectCE does not support data collection from Campbell Scientific's Storage Modules or Card Storage Modules.

1.1 Contents of Shipment

The following items are shipped with PConnectCE software (model no. PCONNECTCE):

- PConnectCE software CD

- PDA to CS I/O connector (for communication via a datalogger's CS I/O port)

- PConnect/PConnectCE PDA to RS-232 cable (for communication via a CR200's, CR1000's, CR3000's, or CR23X's RS-232 port)

The following items are shipped with the Juniper Systems Archer Field PC with PConnectCE software (model no. ARCHER-PCON):

- Juniper Systems Archer Field PC and standard accessories

- PConnectCE Software on CD

- SC32B CS I/O to RS232 Interface (for communication via a datalogger's CS I/O port)

- 10873 RS232 cable (for communication via a datalogger's RS232 port)

2. Software Installation

2.1 Initial Installation

PConnectCE requires a handheld computer running Microsoft® Pocket PC or Windows Mobile®, with a StrongARM, Hitachi SH3, MIPS, or Intel PXA250 processor. Computer requirements include a PC running a Windows-based, 32-bit operating system (Windows 95, 98, ME, NT, 2000, or XP) with a compatible version of Microsoft ActiveSync® installed.[2]

NOTES

There is a difference in Pocket PC and Handheld PC. PConnectCE is not compatible with devices running the Handheld PC operating system.

The PDA must be capable of serial communication, and a PDA to 9-pin female serial cable must be available to connect directly to the datalogger. Some PDAs are not capable of serial communication. Alternately you can communicate via IR using an SC-IRDA purchased from CSI or via Bluetooth using a third party Bluetooth to serial port adapter.

---

[2] Microsoft, Windows Mobile, and ActiveSync are registered trademarks of Microsoft Corporation in the United States and other countries.

Make sure ActiveSync is installed on your PC and that a device partnership has been established with ActiveSync for the handheld device. A "New Partnership Wizard" that sets up this partnership is automatically launched in ActiveSync the first time you connect your handheld device to your computer. For additional information, refer to the ActiveSync on-line help.

Insert the PConnectCE compact disk into your CD-ROM drive and run the Setup.exe program from the disk. Follow the instructions on the screen to install the software. During the installation, you will be prompted for "Destination Location" for the software (the default is C:\Program Files\CampbellSci\PConnectCE). You will then be prompted to "Choose Working Folder" (default is C:\CampbellSci\PConnectCE). When you synchronize with the handheld device to download the PConnectCE software, a subdirectory for the device will be created in this Working Folder directory (e.g., C:\CampbellSci\PConnectCE*devicename*). This subdirectory is where the data files retrieved using PConnectCE will be saved when you synchronize your handheld with the PC after data has been collected from a datalogger. This will also be the directory into which you will copy any files that should be transferred to the handheld for use with the datalogger, such as a new program file (*.DLD, *.CR1, *.BIN).

After you have installed the software on your PC, synchronize with your handheld device using ActiveSync. This will install PConnectCE on the handheld. After PConnectCE is installed, you will be asked to ensure that no further steps are required on the handheld to complete the installation.

On Windows Mobile devices that support landscape mode, you will receive the message, "The program you have installed may not display properly because it was designed for a previous version of Windows Mobile software." This message can be ignored. PConnectCE has been installed and will operate on the device. Note, however, that PConnectCE does not support landscape mode. If the device is operated in landscape mode, part of the PConnectCE window will not be displayed.

During the installation process an item will be placed on the handheld's Start | Programs | PConnectCE menu. Select this menu option to start the program.

NOTE   PConnectCE must be selected under ActiveSync's Tools | Options, Sync Options tab for data to be transferred to/from the handheld when it is synchronized with the computer. It is selected when a check mark appears beside the application name in the Sync Options list. In most instances, PConnectCE is selected automatically, but with some devices the user must do this manually. Sync Options can only be changed when the PDA is disconnected from the computer.

If PConnectCE appears in the Sync Options list but its status is reflected as "Not Installed", close ActiveSync and disconnect the handheld. When you reopen ActiveSync's Sync Options list, PConnectCE should be available for selection.

After installation, you may change the folders for the data and program files by opening ActiveSync, Choosing Tools | Options from the menu, selecting PConnectCE from the list of programs on the Sync Options tab, and pressing the Settings button. A window will be displayed where you can specify a new

directory to which the *.DAT files will be saved and where the files to be sent to the handheld are placed.
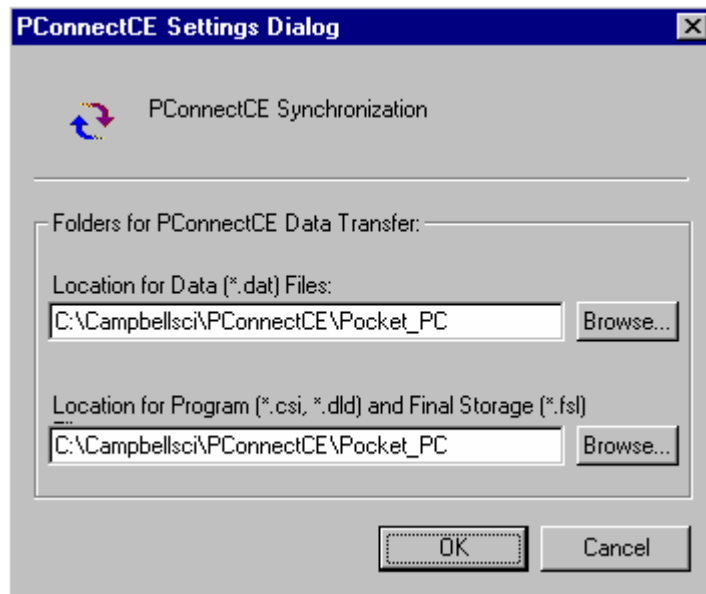
You are now ready to use the PConnectCE software.

2.2 Installing the PConnectCE Upgrade

1. Disconnect the Pocket PC device from the computer.

2. From the ActiveSync menu, select **Tools | Options**.

3. On the **Sync Options** tab, clear the check box for the PConnectCE conduit. Press **OK** to close the Options dialog box.

4. Synchronize with the Pocket PC device. This will unload the ActiveSync provider for PConnectCE.

NOTE   This step is crucial. If it is not followed, the software will not install properly on the Pocket PC device.

5. Install the PConnectCE upgrade on your computer. The installation will ask if you want to upgrade the application; select **Yes**.

6. Open **Tools | Options** again from the ActiveSync menu. Re-enable the PConnectCE conduit by selecting the check box beside the text **PConnectCE** and close the dialog by selecting **OK**.

7. Synchronize again with the Pocket PC device; the software installation will be complete.

3. Connecting Your Pocket PC Handheld to the Datalogger

The following connection descriptions assume that the PDA acts as a DCE device (data communications equipment), with the 9-pin cable terminating in a female connection. Some PDAs, including Juniper Systems' Archer Field PC, act like a DTE device (data terminal equipment) and the 9-pin cable terminates in a male connection.

For communication via a DTE device's RS232 port and a datalogger's CS I/O port, use an SC32B rather than the PDA to CS I/O connector. For communication via a DTE device's RS232 port and the datalogger's RS232 port, the PDA's serial cable can be plugged in directly to the datalogger's RS232 port (or a standard serial cable can be used if extended cable length is required).

PConnectCE software (model no. PCONNECTCE) ships with the cables appropriate for a DCE device. If your PDA functions as a DTE device, the SC32B (for CS I/O) or RS232 cable can be purchased separately (the PDA to CS I/O adapter and PDA to RS232 cable are not used).

The Archer Field PC & PConnectCE software package (model no. ARCHER-PCON) ships with the appropriate interface device and cable for connecting to CSI dataloggers (SC32B and standard RS232 serial cable).

In the descriptions that follow, if you are using a DTE device and the connection calls for a PDA to CS I/O adapter, use the SC32B instead. If the connection calls for the PDA to RS232 cable, use a standard RS232 cable instead.

3.1 Direct Serial Connection

3.1.1 CS I/O Connection (Mixed Array and PakBus OS Dataloggers — CR10(X), CR500/510, CR23X, CR1000, CR800/850, CR3000, CR7, 21X)

The most common method of connecting the PDA to the datalogger is using a direct serial connection to the datalogger's CS I/O port. The handheld connects to the datalogger via the communications port on the bottom of the device. If you do not have one already, you will need to purchase a cable for your handheld that connects to the PDA's communication port and terminates in a 9-pin (female) serial port connector. Since this cable is specific to each handheld model it is not included with the PConnectCE software, but can be purchased separately from PDA cable retailers.

After connecting the PDA's serial cable to the bottom of the handheld, use the supplied PDA to CS I/O adapter to connect to the datalogger's CS I/O port:

Palm
Handheld

PDA to Serial Cable
(purchased separately)

PConnector Adapter
(supplied with
PConnect)
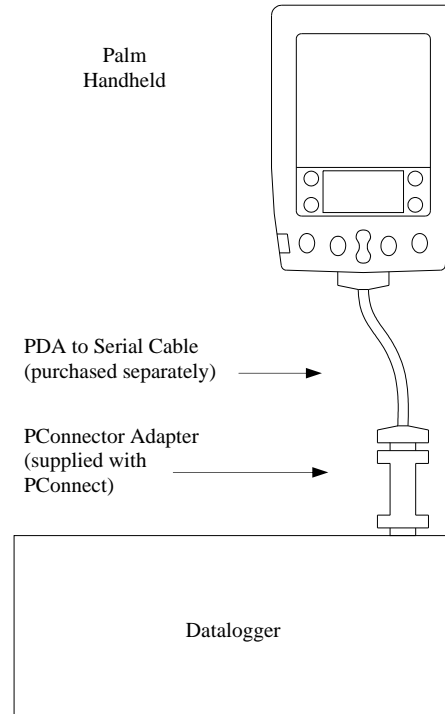
Datalogger

Note that one side of the connector is labeled Datalogger, and the other side is labeled PDA. If the connections are reversed, communication with the datalogger will fail.

3.1.2 RS-232 Connection (CR200 Series, CR23X, CR1000, CR800/850, and CR3000 Dataloggers)

When connecting to a CR200 Series datalogger, or to the RS-232 port of the CR23X, CR1000, CR800/850, or CR3000, the PConnect PDA to RS-232 cable must be used between the PDA and the datalogger. The PDA to CS I/O connector is not used.

The cable is connected between the PDA's cable and the datalogger's serial port (similar to the figure above).

3.2 RF4xx Radio Communication

Two RF4xx radios can be used to communicate with the datalogger using the handheld (or one RF radio and a CR205). With this setup, the PDA to CS I/O connector is not used.

At the datalogger site, the CS I/O ports of the RF4xx radio and the datalogger are connected using an SC12 or similar cable. Power for the RF4xx is supplied by the datalogger's CS I/O port pin 8, which supplies 12 V.

The PDA is connected to the base RF4xx radio by using the PDA to RS-232 cable between the Palm's serial connection and the RF4xx's RS-232 port. An external power source will be needed for the RF4xx base radio, since it cannot be powered by the handheld device.

Power supplies can be purchased from Campbell Scientific. The RF4xx Base Station Kit (P/N 14220) provides an AC to 12V DC transformer for the RF4xx. The Field Power Cable (P/N 14291) provides a 12V DC barrel plug on one end for connection to the RF4xx and two pigtails on the other end for use with other power supplies such as a vehicle's 12V cigarette lighter accessory.

The communications protocol for the RF4xx radios must be set to Transparent mode. PConnectCE was not designed to function as a PakBus Node or work in a PakBus Aware network.

3.3 IR Communication

Campbell Scientific's SC-IRDA infrared interface device can be used to communicate with the datalogger using the handheld device's IR port and the datalogger's CS I/O port. The SC-IRDA connects directly to the datalogger's CS I/O port; the PDA to CS I/O connector is not used. Best performance is seen when the PDA is within three feet of the SC-IRDA and the two IR ports are directly aligned. The two ports must be aligned for a second or two, prior to attempting communication, to allow the two IR devices to acknowledge each other.

NOTE   IR communication is not available for CR200 Series dataloggers.

3.4 Bluetooth

If the PDA you are using is capable of Bluetooth communication, a third party Bluetooth to serial adapter can be used to communicate with the datalogger. If you are connecting the Bluetooth adapter to the CS I/O port, you will need to connect the PDA to CS I/O adapter between the datalogger's CS I/O port and the Bluetooth adapter. If you are connecting the Bluetooth adapter to the RS232 port, you will need to connect the PDA to RS232 cable between the datalogger's RS232 port and the Bluetooth adapter. The adapter must be configured as Discoverable (inquiry scan) and Connectable (page scan).

Note that Bluetooth to serial adapters require external power, typically between 5 and 12Vs. This power can be supplied from the datalogger's wiring panel; however, this additional power consumption must be taken into account when calculating the overall power requirements for your system.

4. Using the PConnectCE Software

PConnectCE is started by selecting Start | Programs | PConnectCE on the handheld. The software has three main windows: the Station window, the Data window, and the Program window. You can navigate between these windows by pressing the lettered box for each window (S for Station, D for Data, and P for Program). The Station window is used to set up and communicate with the datalogger. The Data window is used to view a data file that has been collected from the datalogger. The Program window is used to view the program files that have been copied to the handheld.

Close
PConnectCE

CONNECT

New Edit View Help S D P
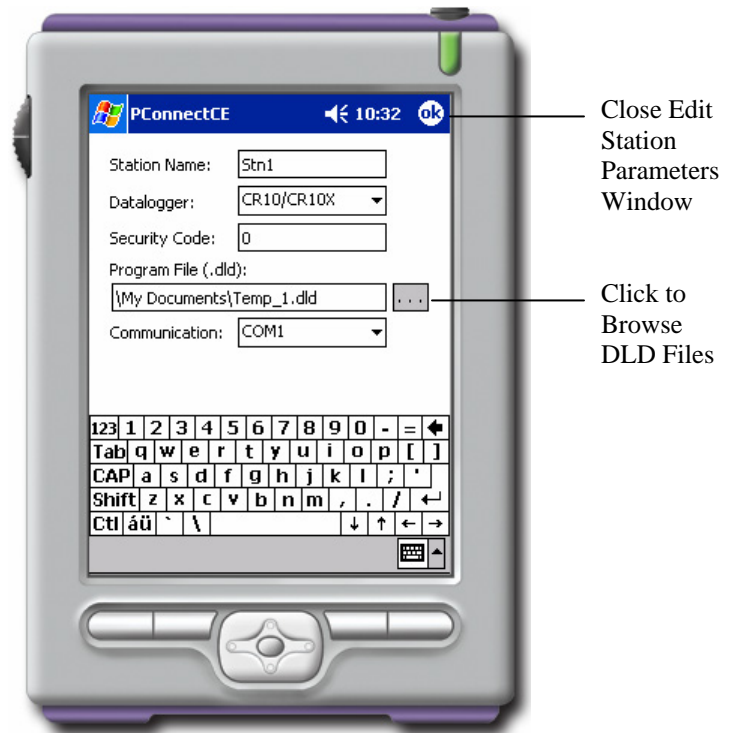
Station
Window

Data Window

Program
Window

4.1 Configuring Stations

When PConnectCE is first started, a welcome message will appear. Press OK
in the upper right corner of the window to clear the message and open
PConnectCE to the Station window. The first step is to configure the station
for communication.

To set up a new station, select New from the bottom left side of the Station
window. A dialog box will appear from which to select the datalogger model
you are setting up.

Once the datalogger model is selected, a Setup screen is displayed.

Close Edit Station Parameters Window

Click to Browse DLD Files

Mixed Array Datalogger Edit Screen

PakBus Datalogger Edit Screen

On this screen you can change the **Station Name**, select the **Datalogger** model, enter a **Security Code** and select the mode of **Communication**. If you are setting up a mixed array datalogger, you will also see a **Program File** field. If you are setting up a PakBus datalogger, you will also see a **PakBus Address** field and a **Settings** button.

The **Station** name is a name of up to 8 characters. It must contain alpha and/or numeric characters and cannot contain any spaces.

NOTE	The following Microsoft reserved words cannot be used as station names: AUX, CON, NUL, PRN, LPT1-9, or COM1-9. The maximum number of stations that can be added is 100.

The datalogger model of the station can be changed by pressing the arrow to the right of the **Datalogger** field and selecting the desired datalogger type. Note, however, that if you selected a mixed array datalogger from the datalogger selection window, only mixed array dataloggers will be available in the list. Likewise, if you selected a PakBus datalogger from the datalogger selection window, only PakBus dataloggers will be available in the list.

Dataloggers may have up to three levels of **Security**. Security is typically set by datalogger programming, but it can also be set from the datalogger's status table (for the CR1000, CR800/850, and CR3000 dataloggers) or the datalogger's *C mode (for all other dataloggers except the CR200, which does not support security). If security is enabled in the datalogger, you may need to enter the security code to collect data, set the datalogger's clock, and depending

upon the level of security, even to connect to the datalogger. Refer to the datalogger's user manual for complete information on security codes.

NOTE

Security is not available for the CR200 datalogger.

A **Program File** can be associated with a mixed array datalogger to provide labels for the input locations when viewing them on the Measurements tab. (Note: only DLD files created with Edlog version 2.0 and greater will have these labels stored in the DLD.) If a program is already running in the datalogger and you have a copy of the DLD on the handheld, you can associate the program with the station. When you download a new program to the datalogger using PConnectCE, you will be asked if you want the label descriptions to be changed to reflect the new program. Note that PakBus dataloggers store their measurement labels internally so this field is not available.

If the datalogger being set up is a PakBus datalogger (CR10XPB, CR510PB, CR23XPB, CR200 Series, CR1000, CR800/850, or CR3000), the Settings window will have a field for the datalogger's PakBus Address. The default address for a PakBus datalogger is 1, though this address can be any value between 1 and 4094. To retrieve the PakBus address from a datalogger, press the Settings button. PConnectCE will query the datalogger and display some control codes. The datalogger's PakBus address will automatically be inserted in the PakBus Address field during this inquiry process.

PConnectCE must also have a PakBus address. By default, this value is 4091. Refer to Section 4.6 for additional information.

The communication mode can be specified by selecting it from the **Communication** field. PConnectCE supports direct serial communication (COM1 through COM8), Infrared, Bluetooth, and point-to-multipoint RF400 radio communication (see Section 3) in a Transparent RF network.

NOTE

Infrared communication is not available for the CR200 datalogger.

The communications protocol for RF4xx radios must be set to Transparent. PConnectCE will not be able to connect reliably with the dataloggers if PakBus Aware or PakBus Node is selected. When the RF400 is selected, an RF Net Address and an RF Radio Address must be entered. These two settings must reflect the settings in the remote RF400 radio. PConnectCE will temporarily set the RF base modem's addresses to the addresses specified, and then return them to the previous values after you disconnect.

When you have finished editing the station parameters, touch **OK**. You will be returned to the *Stations* window.

If you will be using the handheld to collect data from more than one datalogger, you will need to create additional stations. To change the settings of an existing datalogger, select that datalogger and select Edit from the lower left side of the Station window. A station can be deleted by highlighting it and pressing the **Delete** button. You will be prompted to confirm the deletion.

4.2 Connecting to the Station

From the Station window, choose a station to connect to and touch **Connect**. The *Measurements* tab will appear, displaying the current input locations or Public variables in the datalogger.
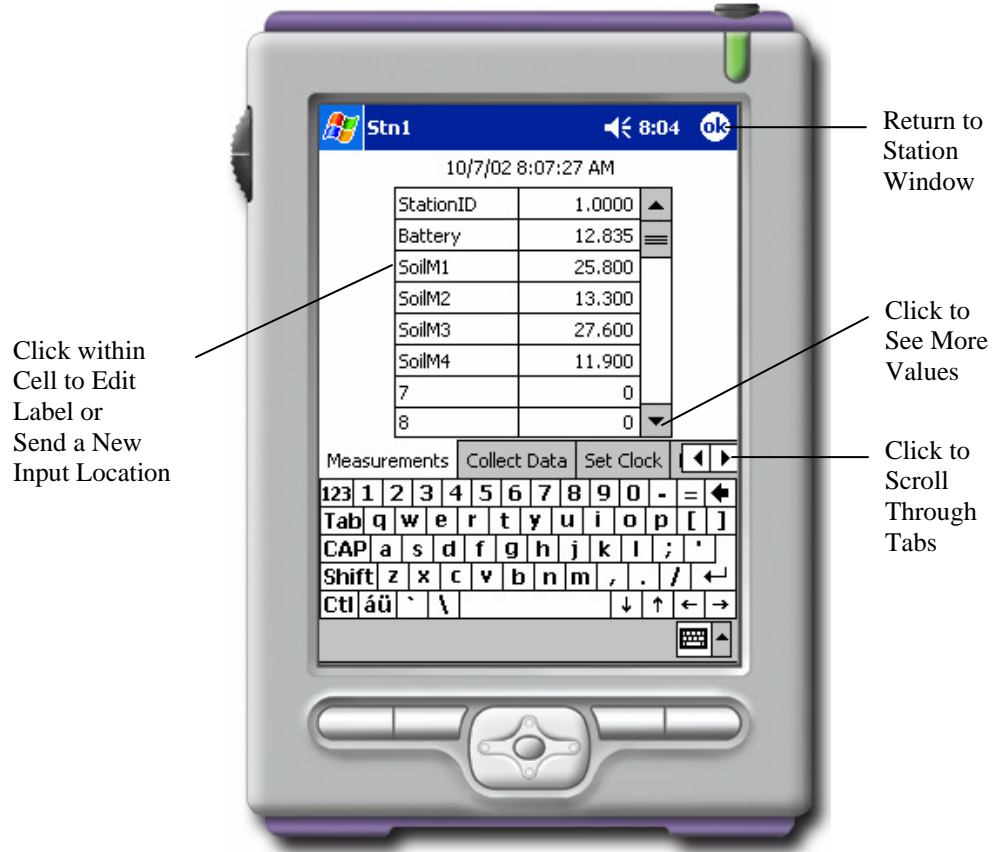
If you are connected to a PakBus datalogger, you will see a list box below the Measurement cells. This list box contains the names of the tables in the datalogger. Select a table from this list to view.

Because of the small screen size, you may see only a portion of the input locations in the datalogger. Touch the up or down arrows to the right of the measurement cells to scroll through the values.

The value of an input location or Public variable can be changed from the Measurements tab. Highlight the cell, enter a new value, and press Enter. You can change the descriptive labels for the measurements similarly.

There are six other tabs you can switch to, to accomplish other tasks with the datalogger. They are the Collect Data tab, the Set Clock tab, the Ports/Flags tab, the Terminal tab, the Transfer Program tab, and the File Control tab (CR1000, CR800/850, and CR3000 only).

Collect Data

The Collect Data tab is used to collect data from the datalogger and store it to a file on the handheld. The name of the file is the *station_name.dat*. Data files are stored in ASCII format on the handheld.

There are three data collection options:

- Collect Since Last Time - This will collect only the new data that has been stored since the last time data was collected using this handheld. If this is a first data collection attempt, all data will be collected.

- Collect All - This will collect all data currently in datalogger memory, regardless of whether the data has been collected previously.

- Collect Last # of Arrays/Records - This will collect only the number of arrays/records entered into the adjacent field. The maximum number of records or arrays that can be collected is 9999.

If the datalogger type you selected was a CR510PB, CR10XPB, CR23XPB, CR1000, CR800/850, CR3000, or a CR200 Series datalogger, you will see a pick list at the top of the Data Collection window which allows you to select the table(s) from which data should be collected. You can collect data from All Tables or from a single table. Data from each table will be stored on the PDA in a separate file.

When the handheld is synchronized with the PC and the data file is transferred, the data will be appended to any data file that exists with the same name. After the file is transferred, the *.DAT file is deleted from the handheld.

NOTE   If the *.DAT file is not deleted from the handheld, it is likely some other hot sync process transferred the file. It will also most likely be stored in a directory other than the PConnectCE data directory.

Set Clock

The datalogger's clock can be set to that of the handheld's by switching to the Set Clock tab and touching the Set Clock button. Note that the two clocks may not match exactly, since there will always be some time lag between when the command is sent and when it is received by the datalogger.

Campbell Scientific typically advises against frequent routine setting of the datalogger's clock. In most instances, the datalogger's clock will be much more accurate than the handheld's. Setting the clock could result in data with duplicate or missing timestamps, especially if data is being saved in final storage fairly quickly. For instance, assume you are storing 1-minute data. If the datalogger's clock reaches 11:45 and it stores data for that period, and then you set the clock using a handheld whose internal clock reads 11:44, you will end up with two different arrays of data with a timestamp of 11:45.

Flags/Ports

The datalogger's ports and flags can be viewed and toggled from the Flags/Ports tab. All of the flags and ports in the datalogger are displayed on the screen. If a flag or port is High, a check mark will appear in the box beside the port or flag. If a flag or port is low, the box will be empty.

To change the state of a port or flag, touch the box for that port or flag. There may be a small time lag between when the box is touched and when the state of the port or flag appears to change.

NOTES

Flags and Ports for CR510PB, CR10XPB, and CR23XPB dataloggers also can be viewed and toggled from the Measurements window.

CR200 Series dataloggers do not have Flags or Ports which can be toggled.

Flags are displayed for the CR1000, CR800/850, and CR3000 only if the datalogger program has a Public variable array defined, with the name of flag (i.e., Flag (4)). Any element in the Flag array that is subsequently Aliased will not show up in the list of Flags. Its value can be changed from the Numeric Monitor if needed.

Terminal

When the Terminal tab is selected, the remote communications command is sent to the datalogger and it is put into a remote communications state. This state allows the user to send telecommunications command directly to the datalogger and is typically used for trouble-shooting.

Keypad for Entering Commands

For all dataloggers except the CR1000, CR200, CR800/850, and CR3000, the datalogger's keyboard/display keypad is depicted on the *Terminal* window. The PDA's grafitti pad or keyboard can also be used to enter characters. For CR1000, CR200, CR800/850, and CR3000 dataloggers, there is no keyboard/display depicted, so the graffiti pad or keyboard must be used.

For mixed array dataloggers, to return the datalogger to its program execution state, enter *0. LOG1, LOG2, or LOG12 should be displayed indicating that the code in program table 1, and/or program table 2, is being run. PakBus dataloggers do not need to be returned to a logging state.

Terminal mode should be used with caution since it is possible to delete instructions in the datalogger's program or delete data from the datalogger while in this mode. Refer to the datalogger's user manual for complete information on the remote communications mode.

Transfer Program

Switch to the *Transfer Program* tab to send a new program file to the datalogger, or to retrieve the program file that is currently running in the datalogger.

| **NOTE** | Program files cannot be retrieved from CR200 Series dataloggers. |

First, select the desired option, and then touch the Browse button to the right of the File field to choose the file to be sent or to enter a name for the retrieved file. After the File field is completed, press the Send (or Retrieve) button.

Program files (*.DLD, *.FSL, *.BIN, or *.CR*) are copied to the PDA by placing the file or files in the handheld device's Working Directory folder on the PC (by default, this is C:\campbellsci\PConnectCE*PDAname*). The next time you HotSync with the handheld, the file(s) will be copied.

If you retrieve a program file from the datalogger, the next time you HotSync with the handheld, the file will be uploaded to the Working Directory for the device.

Program Transfer Considerations for CR200 Series Dataloggers

The CR200 Series datalogger is unique in that it does not have an on-board program compiler like other CSI dataloggers. This means that the CRBasic file (*.CR2) must be compiled on a computer first, and then the compiled binary file (*.BIN) must be sent to the datalogger using PConnectCE.

It is very important that the compiler used to generate the *.BIN file match the operating system version in the datalogger. If a *.BIN file is sent to the datalogger and the compiled version does not match the current OS, PConnectCE will display a message suggesting that you do not proceed with the program download.

If you receive this message, check the operating system version in the CR200 Series and recompile the program in CRBasic using the appropriate compiler. The most recent compiler can be downloaded from our web site. If you continue to experience problems, contact Campbell Scientific.

Browse
DLD
Files

File Control

The File Control window is applicable only to the CR1000, CR800/850, and CR3000 dataloggers. It lets you manipulate the files that are stored on the datalogger's CPU, card (if one is installed), or USR drive.

The device (CPU, Card, or USR) is selected from the list box at the top of the window. The files stored on the device are displayed in the field below.

Run - This option allows you to set the run attribute of a program file. Run Now begins running the selected program immediately; all of the existing data tables are deleted. Run on Start-up will set the file to run when the datalogger is powered down and powered back up. Run Now and on Startup sets both the Run Now and Run on Start-up options.

NOTE

If a program has been stopped, but data tables have been maintained, you will be presented with the options Restart Program and Run On Power-up. If you choose Restart Program, you will be asked whether to delete or maintain the existing tables.

Stop - Stops the execution of the program currently running in the datalogger. You will be asked whether to delete or maintain the existing data tables.

Format - Formats the selected device. This option should be used with caution, since all files stored on the device will be lost.

Send - Displays a standard file dialog box from which to choose a file to be sent to the selected device. You can send a CR* program file, a voice text file, operating system file, or other file type.

Retrieve – Retrieves a file stored on the datalogger's CPU, CRD, or USR drive to the PDA. Note that only program associated files are transferred when you hot sync with the computer. JPG, Cal, or other files must be copied to the computer manually.

Delete - Deletes the selected file from datalogger memory.

4.3 Viewing Data on the Handheld

Once data is collected onto your handheld, you can view the file in a comma-separated or tabular format. You can also graph the values for one data point at a time.

From the Station window, press the letter D to open a window that displays all of the data files on the handheld. To view a data file, simply double-click the filename.

When the data file is opened, it will be displayed in a tabular format. There are three items at the lower left of the screen: an Options menu and two icons. From the Options menu, you can set the font size for the file being viewed. If the data file is from a mixed array datalogger, you can also associate an FSL file that will be used when displaying column headers (see below). The two icons are used to select whether the file is displayed in tabular format (icon on the left) or comma separated format (icon on the right).

As you scroll through the data for mixed array dataloggers, note that all of the collected arrays are displayed intermixed as they were retrieved from the datalogger. To graph a column of data, you must limit the display to only one array ID. Tap the Array ID drop-down arrow and select the ID of the array from which you want to graph data. Tap the column header for the data value you want to graph to graph it. You can scroll back and forth within the data. To see the value and the time stamp of a particular point, just tap that point.

For mixed array dataloggers if an FSL file with the same name as the DLD file name exists on the handheld, PConnectCE will use the FSL to derive column labels, graph labels, and time stamps when viewing the data. If an FSL with the same program name does not exist, PConnectCE will prompt you to select a file. To transfer an FSL file to the handheld, place the file in the C:\Campbellsci\PConnectCE*devicename* directory and the file will be copied during the next synchronization operation.

A data file can be deleted from the handheld device by pressing the **Delete** button. You will be asked to confirm the deletion. A data file that has been deleted will not be transferred when the handheld device is synchronized with the computer, and it cannot be restored once deleted.

Touch to
Display
Data in
Tabular
Format

Select
Only
One
Array
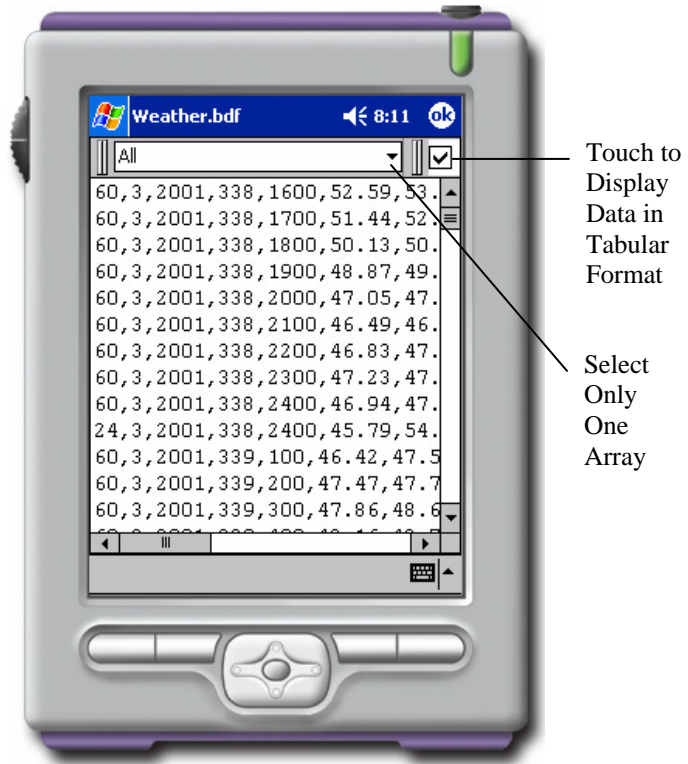
4.4 Viewing Datalogger Program Files

If there were any program files in the handheld device's working directory
when you synchronized it with the computer, they will be transferred to the
handheld. To see a list of the datalogger program files that are stored on the
handheld, touch the letter P to display the Program window.

A list of available programs will be displayed on the left side of the window.
On the right side of the window, the date of the last time the program was
downloaded to the handheld will be displayed. To view a program, simply
highlight the program name. The file will be displayed; however, it cannot be
edited. To close the program, touch the OK.

4.5 Transferring Data to Your Desktop Computer

Once data is collected onto your handheld, you can synchronize with your desktop computer and the data will automatically transfer to the folder you specified during the initial setup. The transferred data is saved to (or appended to) the data file on the PC **named after the station** from which it was retrieved. After the data file is transferred to the PC, it is deleted from the PDA. Note that any non-program or data files, such a JPG, Cal, or other files retrieved from the datalogger are not transferred during the hot sync process. They must be copied to the computer manually.

4.6 PConnectCE Settings

For the PDA to be able to communicate with PakBus devices (CR1000, CR800/850, CR3000, CR200, CR10XPB, CR510PB, and CR23XPB), it must be assigned a PakBus address. The default address for the PConnect and PConnectCE software is 4091.

It is necessary that all devices participating in communication in a PakBus network be given unique PakBus addresses. Failing to do so could render one or more devices in the PakBus network unreachable for a period of time. If some other device is using 4091, and the PakBus address for PConnectCE needs to be changed, you can do this by selecting Edit from the bottom of PConnectCE's main window, and selecting PConnectCE Settings from the resulting list.

23

NOTE	Campbell Scientific uses the following PakBus addresses for its software:

PConnect/PConnectCE	4091
PC200W	4092
PC400	4093
LoggerNet	4094

4.7 Updating Table Definitions for PakBus Dataloggers

PakBus dataloggers have table definitions stored in internal memory. Table definitions define the structure of the data tables and the names of the associated variables. Communication software uses these table definitions to display and collect the data. If a new program is downloaded to the datalogger by some means other than PConnectCE, or if the program is edited in any way, the table definitions that the software has stored and the actual table definitions in the datalogger may not match. In most instances, PConnectCE will automatically update the table definitions. However, there may be times when PConnectCE displays a message asking that the table definitions be updated manually (or reset).

To manually update the table definitions, highlight the datalogger on the main Station window and select Edit. From the bottom of the Station Editing window, select Tools and choose Reset Table Definitions.

Campbell Scientific Companies

Campbell Scientific, Inc. (CSI)
815 West 1800 North
Logan, Utah 84321
UNITED STATES
www.campbellsci.com • info@campbellsci.com

Campbell Scientific Africa Pty. Ltd. (CSAf)
PO Box 2450
Somerset West 7129
SOUTH AFRICA
www.csafrica.co.za • cleroux@csafrica.co.za

Campbell Scientific Australia Pty. Ltd. (CSA)
PO Box 444
Thuringowa Central
QLD 4812 AUSTRALIA
www.campbellsci.com.au • info@campbellsci.com.au

Campbell Scientific do Brazil Ltda. (CSB)
Rua Luisa Crapsi Orsi, 15 Butantã
CEP: 005543-000 São Paulo SP BRAZIL
www.campbellsci.com.br • suporte@campbellsci.com.br

Campbell Scientific Canada Corp. (CSC)
11564 - 149th Street NW
Edmonton, Alberta T5M 1W7
CANADA
www.campbellsci.ca • dataloggers@campbellsci.ca

Campbell Scientific Centro Caribe S.A. (CSCC)
300 N Cementerio, Edificio Breller
Santo Domingo, Heredia 40305
COSTA RICA
www.campbellsci.cc • info@campbellsci.cc

Campbell Scientific Ltd. (CSL)
Campbell Park
80 Hathern Road
Shepshed, Loughborough LE12 9GX
UNITED KINGDOM
www.campbellsci.co.uk • sales@campbellsci.co.uk

Campbell Scientific Ltd. (France)
Miniparc du Verger - Bat. H
1, rue de Terre Neuve - Les Ulis
91967 COURTABOEUF CEDEX
FRANCE
www.campbellsci.fr • info@campbellsci.fr

Campbell Scientific Spain, S. L.
Psg. Font 14, local 8
08013 Barcelona
SPAIN
www.campbellsci.es • info@campbellsci.es

Please visit www.campbellsci.com to obtain contact information for your local US or International representative.