

# INSTRUCTION MANUAL



## DataView (CD294) Dual Line Data Display

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# ***DataView (CD294)***

## ***Dual Line Data Display***

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### **1. Introduction**

The DataView is a two-line, 32-character LCD that displays a real time input location value along with a pre-defined description string and units string. Two buttons allow the user to scroll through the programmed locations that are updated as often as they are measured. When the user has not pressed a button in the last two minutes the DataView switches to low power mode, drawing a current of less than 100  $\mu$ A. The DataView is easily programmed using the Windows based PC294W package.

### **2. Installation Procedure**

1. Using the CD from the CD294 shipping kit, install PC294W on your PC.
2. Connect the gray programming cable's RJ11 connector into the back of the CD294 and the other end into your PC's serial COM port.
3. Program the CD294 to display input locations as required.
4. Remove the programming cable.
5. Mount the CD294 into your datalogger enclosure.
6. Connect the CD294 data cable to the datalogger's CS I/O port.
7. Power-up the datalogger and verify correct operation.
8. The CD294 can be reprogrammed at any time if required.

### **3. Software**

#### **COMPUTER SYSTEM REQUIREMENTS**

##### **MINIMUM CONFIGURATION**

IBM 486 PC/Compatible with 16 MB Ram running Windows 3.x/95.

##### **INSTALLATION**

Included in the CD294 shipping kit is a CD containing PC294W. The software can also be downloaded from the CSA web site. The address to collect the file from is:

<ftp://campbellsci.com.au/pub/PC294W>

##### **Windows 3.1x**

1. Insert the PC294 CD into the CD ROM drive.
2. From the Program manager or File manager select 'Run' from the File menu.
3. Type N:\setup (where N is the CD drive).
4. Click OK.
5. Follow the installation instructions as they are presented.

#### Windows 95 / 98/ 2000

1. Insert the PC294 CD into the CD drive.
2. From the Start menu select 'Run'.
3. Type N:\setup (where N is the CD drive).
4. Click OK.
5. Follow the installation instructions as they are presented.

In either of the above installations, PC294W will create a program group and all the necessary files will be installed. In addition to the program files there will be a sample LCD file called TEST.LCD and a download file called TEST.DLD. These files can be used to modify and send to the DataView.

## 4. Programming

The DataView is programmed using PC294W, a windows based program which guides the user through the programming process.

The program has the following limitations:

- Only the first 255 input locations can be sent to the DataView
- The DataView can be configured to display up to 18 locations.

For help on the function of any of the buttons, simply leave the mouse positioned over a button for a short period of time and an extended message will appear.

The program briefly displays a splash screen that displays information about the program, including the License details and the version number.

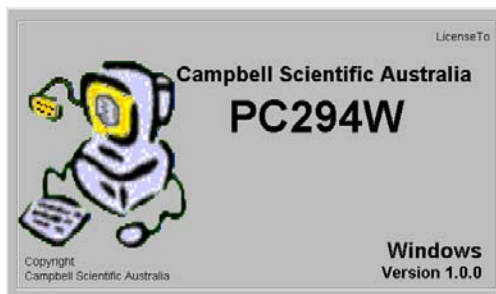


FIGURE 1. Splash Screen

Click the left mouse button on the splash screen to move to the Open File window.

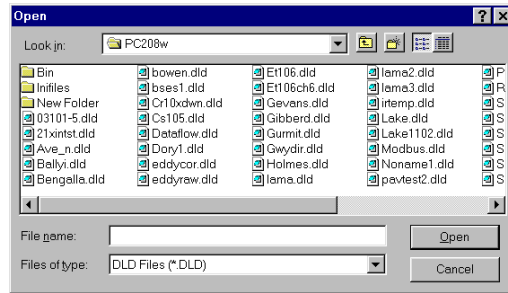


FIGURE 2. Open File Window

The program will automatically search for any Campbell Scientific program directories and if found, will list the appropriate files in that directory. Using standard Windows commands, find the desired file and either double click on it, or select it and press the Open button to load the file. The default file type to load is a DLD (Download) file, but a pre-existing LCD file can also be used. To select this type, press the down arrow to the side of the Files of type box and select LCD Files (\*.LCD). If the Cancel button is pressed, a message will appear, warning you that pressing this button will exit the program. A file must be loaded for PC294W to operate.

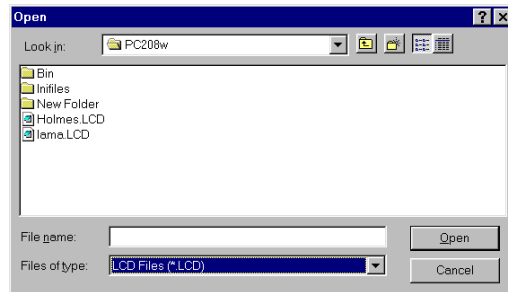


FIGURE 3. Open LCD File Window

Once a file has been selected one of several windows may be displayed to give you some information about the file selected. For example, if you select a DLD file that already has an existing LCD file, the screen in FIGURE 4 will be displayed.

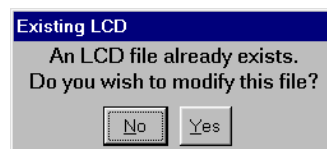


FIGURE 4. Existing LCD File Window

If you wish to use the existing LCD file and modify the location description and units, select Yes. If you wish to reload the DLD and start with no selected input locations, then select No.

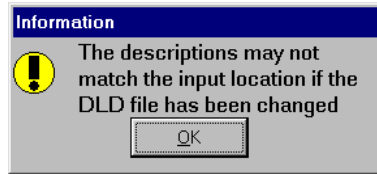


FIGURE 5. Information Window

If you selected a DLD file that has an existing LCD file and wanted to modify the LCD file, then the information window in FIGURE 5 will be displayed. This screen is reminding you that any changes made to the DLD file since the LCD file was created will not be contained in the old LCD file. For example, if you created a LCD file and then added an extra location to the program file, then this location will not be in the input location list in the old LCD file.

Once a file has been selected the main editing screen will appear.

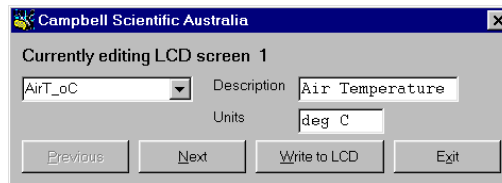


FIGURE 6. Main Screen

The information contained in this window is the LCD screen number, the Input location, the description text and the units text. The length of the description text is limited to 16 characters. This is the length of one line. The program will not allow you to enter any more characters than this. The units text is limited to 8 characters in length. The number read from the datalogger is a five-digit number plus a decimal place and a position for a negative sign.

To add another screen to the LCD, click on the Next button and the window will change to that shown in FIGURE 7.

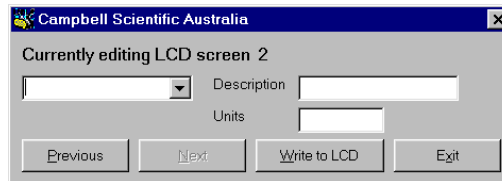


FIGURE 7. New Location



The information in this screen has been cleared as there has been no data entered for this screen. The Previous button has now been enabled so that you can go back, but the Next button has been disabled as this is the last screen (data needs to be entered for this screen before another new screen can be created). To select an Input Location, select the down arrow underneath the LCD screen number.

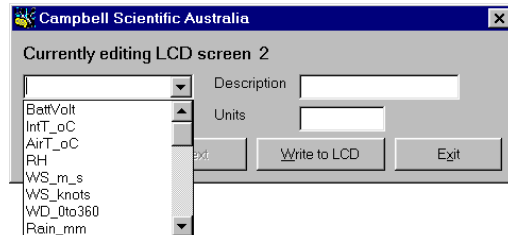


FIGURE 8. Input Location List

This will display the list of available input locations. Use the scroll bar on the side to move down the list. Click on the desired location to close the pull-down list. Once a location has been selected you can enter the appropriate description and units. The completed screen is shown in FIGURE 9.

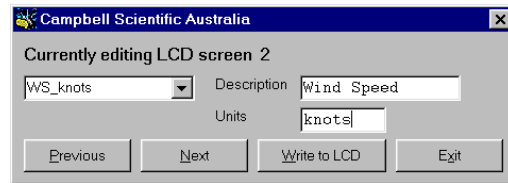


FIGURE 9. Completed Screen

Continue to add screens until you have selected all the desired locations. The screen shown in FIGURE 10 is used to complete the example. If 20 screens have been entered, the Next button will not be enabled and so no further screens can be added. If you want to change the information contained on any of the screens, simply go back to the desired screen number and change the location displayed and the description and units text.

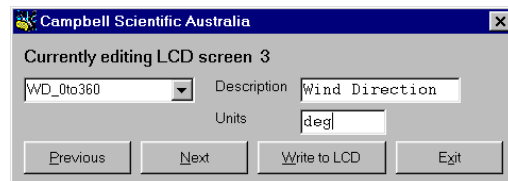


FIGURE 10. Final Screen

Once you are ready to send the data to the LCD click on the Write to LCD button. This will bring up the window shown in FIGURE 11.



FIGURE 11. Communication Options

The only option to select in this window is the COM port. At this stage you can plug the DataView into the desired COM port using the custom programming cable supplied. Click on the Start Comms button to begin transferring the data.

When the Start Comms button is pressed the program actually writes the LCD file to disk, along with the information about the first 255 input locations and the execution interval. The name of this file is the same as the DLD except with LCD for the extension. This all occurs in the background before the data is sent to the DataView.

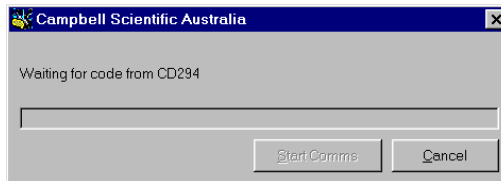


FIGURE 12. Waiting for Acknowledge

Once communications has begun, the program will wait for the DataView to return an acknowledge code and will then begin transferring the data.

When data transfer is complete, the DataView configuration is complete. The custom programming cable can now be removed from both the computer and the DataView. It will not be required unless you wish to reprogram the DataView at a later date.

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**NOTE**

Store the custom programming cable in a safe place. This is a custom cable and cannot be purchased other than through an authorized Campbell Scientific distributor. Loss of this cable could result in prolonged delays while waiting for a replacement. Should a replacement be required, order part # SC294 from your authorized Campbell Scientific distributor.

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## 5. Mounting in Enclosure Door

Use the template provided to mark out the four mounting holes and cut-out for the CD294. Drill the four corner holes using a 4.5 mm drill and cut out the mounting hole using a jig-saw or nibbler. Use the screws and nuts provided to attach the CD294, ensuring that the rubber o-ring is located correctly in the o-ring groove to provide sealing.



## 6. Shipping Kit

The CD294 DataView Shipping Kit includes:

1. CD294 DataView display with data cable
2. Custom CD294 programming cable
3. Compact Disc containing PC294 programming software, CD294 Manual, SDS511 manual and example software
4. CD294 Mounting Template
5. 4 x Mounting screws, nuts, metal washers and sealing washers
6. 2 mm silicon o-ring

## 7. Hardware

### SPECIFICATIONS

#### Physical

Width:	130 mm
Height:	100 mm
Depth:	25 mm
Weight:	150 g
Supply Requirements:	5 VDC (Powered from datalogger)

#### Power

Current consumption:	
Operating:	5.5 mA typical while display is active
Quiescent:	<100 $\mu$ A

Operating temperature range:  
0°C to +55°C  
Low power mode temperature range:  
-20°C to +55°C

**Environmental**

IP65 when using supplied sealant.

**Operation**

Once the DataView has been programmed to display the desired location, it can be connected directly to the datalogger via the flying lead and DB9 connector. If the datalogger has power, then the DataView will attempt to collect the desired locations from the logger. If successful, the display will contain the first description, with the first selected input location value and the first units description. For example, assume that the LCD file described in the Programming section was created and sent to the DataView then the first screen displayed will be:

```
Air Temperature  
24.591 deg C
```

Pressing the down button will make the program advance to the second screen that is

```
Wind Speed  
1.2315 knots
```

Another press of the down button will display the third screen

```
Wind Direction  
95.343 deg
```

Pressing the down button again will wrap around to the first screen again. The up button will go in the reverse direction.

The operation of the DataView once programmed is designed to be as simple as possible and so operation at this stage consists of pressing either up and down to move through the screens.

If no button has been pressed for the previous two minutes, the DataView will go into low power mode and the display will be turned off. To re-activate the unit simply press either button. The display will begin at screen 1 again.

**Using in conjunction with SDS511**

Often, the DataView is used in conjunction with the SDS511 dual port adaptor. This allows the display to be permanently plugged into the datalogger while still allowing the user to plug in their computer or a modem (for example) into the datalogger as well.

**Data transfer between the datalogger and the DataView**

PC294W sends the execution interval of the program to the DataView when it sends the locations to display. The DataView uses this information to decide when to collect the data. Once the data has initially been collected from the datalogger, the DataView then waits another full execution interval before re-reading the input location values. This allows the communications port to be used for other purposes in the meantime. If the communications port is busy

(for example: a modem is being used) when the next execution interval occurs, then the DataView will continue to display the old values. Once the communications port has become available the DataView will attempt to get the new values.

If the datalogger is busy when the DataView is first connected, the display will contain the description and units for the first location, but will display black boxes where the numbers will usually be. For example:

Air Temperature  
 deg C

When the datalogger becomes available the DataView will attempt to read the correct values.

## 8. Problems

### The DataView displays Location 1...

If the screen on the DataView displays

Location 1  
 12.345

then the DataView has not been programmed. This is the default message when the DataView is sent out. A program needs to be sent to the unit. See the program section for instructions.

### PC294W does not get past the message Waiting for code from DataView...

Have you selected the correct communications port? Is the custom programming cable properly connected?

### PC294W displays the screen:

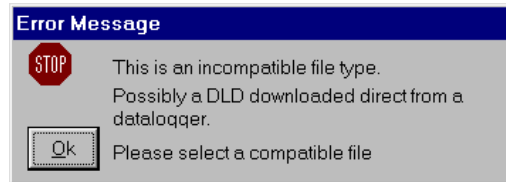
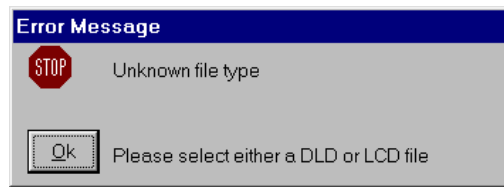


FIGURE 13. Incompatible File Type

A DLD program being downloaded from a datalogger usually causes this error message. To use this DLD file, it must be loaded into Edlog using the Document DLD function and subsequently recompiled. This file will not load directly into PC294W because it does not contain any input location labels. These are added during the documentation process.



*FIGURE 14. Unknown File Type*

This file is not a DLD file or a LCD file. The format is not recognized by the program and therefore cannot be used.

# ***Appendix A. Custom Programming Cable***

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PC END  
(2) Rx  
(3) Tx  
(4) DTR  
(5) GND







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