

INSTRUCTION MANUAL



SC115 CS I/O 2G Flash Memory Drive with USB Interface

Revision: 7/10



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About this manual

Please note that this manual was originally produced by Campbell Scientific Inc. (CSI) primarily for the US market. Some spellings, weights and measures may reflect this origin.

Some useful conversion factors:

Area:	1 in ² (square inch) = 645 mm ²
Length:	1 in. (inch) = 25.4 mm 1 ft (foot) = 304.8 mm 1 yard = 0.914 m 1 mile = 1.609 km
Mass:	1 oz. (ounce) = 28.35 g 1 lb (pound weight) = 0.454 kg
Pressure:	1 psi (lb/in ²) = 68.95 mb
Volume:	1 US gallon = 3.785 litres

In addition, part ordering numbers may vary. For example, the CABLE5CBL is a CSI part number and known as a FIN5COND at Campbell Scientific Canada (CSC). CSC Technical Support will be pleased to assist with any questions.

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SC115 CS I/O 2G Flash Memory Drive with USB Interface

1. SC115 USB Thumb Drive CS I/O Peripheral Overview

CAUTION

To avoid damaging files on the SC115, never remove the SC115 from a datalogger while the LED is flashing. Doing so interrupts the data transfer and will corrupt the data file being transferred to the SC115. The potential also exists that a FAT sector or directory link sector on the SC115 may become corrupted, which could result in the corruption of multiple files.

The SC115 is an innovative instrument, typically serving as a 2-GB storage device with the ability to interface directly with a Campbell Scientific datalogger. It also serves as a USB to CS I/O synchronous device communications (SDC) adapter. When serving as a storage device, the SC115 transports data between a datalogger and PC or augments onsite data storage.

The SC115 can be used with most of our CRBasic dataloggers, and is the only storage device compatible with the CR800 and CR850 dataloggers. This lightweight, portable device has a CS I/O connector at one end for attachment to datalogger CS I/O ports, and a USB 2.0 connector at the other end for attachment to a PC.

1.1 Specifications

Compatible Dataloggers	CR800, CR850, CR1000, CR3000, CR5000, CR9000X
Storage Capacity	2 GB
Dimensions	4.15 x 1.7 x 0.7 in (105.41 x 43.18 x 17.78 mm)
Weight	2.25 oz (63.79 g)
Case	Sealed, custom molded package
Power Requirements	12 VDC through the datalogger CS I/O port, or 5 VDC through PC USB port
Current Drain	200 μ A (quiescent), 35 mA (active)
Operating Temperature Range	-25° to +50°C

1.2 Physical Description

SC115 electronics are housed in a sealed, custom molded package. On one end, the SC115 has a USB 2.0 compatible connector used to attach the SC115 to a PC USB port. On the other end, the SC115 has a CS I/O 9-pin connector that

attaches the SC115 to a Campbell Scientific datalogger CS I/O port. The SC115 may be connected directly to a PC or datalogger. Optionally, an SC12 cable may be used to connect the SC115 to a datalogger, and a short USB extension cable may be used to connect the SC115 to a PC. SC12 and USB extension cables are shipped with the SC115.

The SC115 has a single LED. It is used to indicate activity between the SC115 and its current host. When the SC115 is first attached to a PC USB port, the LED lights solidly as the unit communicates with the PC to obtain a unique address. Once this has occurred, the LED turns off and the SC115 appears as a removable disk in Windows Explorer.

When first attached to the CS I/O port of a datalogger, the LED flickers momentarily as the SC115 and datalogger initiate communication. The LED continues to flicker as any data files, configured through TableFile() instructions, write to the SC115.

CAUTION

To avoid damaging files on the SC115, never remove the SC115 from a datalogger while the LED is flashing. Doing so interrupts the data transfer and will corrupt the data file being transferred to the SC115. The potential also exists that a FAT sector or directory link sector on the SC115 may become corrupted, which could result in the corruption of multiple files.

1.3 Power

The SC115 does not require batteries. Instead, voltage is supplied by a datalogger through the CS I/O port, or by a PC through the USB port.

1.4 Function

The SC115 typically serves as a USB mass storage device with 2 GB of memory. When the SC115 is plugged into a datalogger, the datalogger determines if any TableFile() instructions are set to write to an SC115. If new data is available, the datalogger then transfers this data to the SC115.

The SC115 also functions as a USB to CS I/O synchronous device communications (SDC) adapter. When used in this manner, it provides pass-through communications and works similarly to the SC-USB or an SC32B with a USB to RS-232 converter.

1.5 SDC Address

The SC115 responds to two SDC addresses. SDC Address 0 is used to store data to the SC115 from the datalogger. This setting is not user programmable. When the SC115 sees SDC0, it knows the datalogger is sending a command associated with the file system.

When plugged into a USB port, SDC addresses SDC7, SDC8, SDC10, and SDC11 are available. The SC115 uses the SDC protocol to pass the data through the CS I/O port. This setting defaults to SDC7, but can be changed using the Device Configuration Utility to avoid conflict with another SDC device (see Section 2.2).

2. Configuration

2.1 Device Drivers

To function properly as a storage device and a USB to CS I/O interface, the SC115 requires the installation of two specialized drivers. These drivers are found on the CD that accompanies the SC115. When this disk is inserted into a computer, a menu will appear. Click on *Install Drivers* and follow the on-screen prompts to install the drivers on the computer. Once completed, the SC115 needs to be attached to complete the driver installation process.

2.1.1 Completing the SC115_MSD Device Driver Installation.

Use the following procedure to complete the SC115_MSD (Mass Storage Device) driver installation. This driver allows the SC115 to be configured with the DevConfig utility. The procedure differs between different Windows operating systems.

Windows XP	Windows Vista	Windows 7
<ol style="list-style-type: none"> 1. Insert the SC115 into one of the computer's USB ports, or use the included USB extension cable to connect the SC115 to the computer. 2. The <i>Found New Hardware Wizard</i> window will open. Select "No, not this time," when asked to connect to Windows Update, and then click <i>Next</i>. 3. Select "Install the software automatically," and then click <i>Next</i>. 4. If the <i>Windows Security</i> window appears, select "Install this driver software anyway" to continue. 5. Click <i>Finish</i> to close the <i>found New Hardware Wizard</i> window. 6. The SC115 can now be configured by the DevConfig utility. 	<ol style="list-style-type: none"> 1. Insert the SC115 into one of the computer's USB ports, or use the included USB extension cable to connect the SC115 to the computer. 2. The <i>Found New Hardware</i> window will open. Click on "Locate and install driver software." 3. If the <i>Windows Security</i> window appears, select "Install this driver software anyway." 4. The SC115 can now be configured by the DevConfig utility. 	<ol style="list-style-type: none"> 1. Insert the SC115 into one of the computer's USB ports, or use the included USB extension cable to connect the SC115 to the computer. 2. Windows 7 configures the driver automatically. The SC115 can now be configured by the DevConfig utility.

2.1.2 Completing the SC115 Device Driver Installation.

Use the following procedure to complete the SC115 driver installation. The procedure will differ between different Windows operating systems.

Windows XP	Windows Vista	Windows 7
<ol style="list-style-type: none"> 1. Apply power to a Campbell Scientific datalogger, and then attach the SC115 to the datalogger's CS I/O port. 2. Using the included USB extension cable, attach the SC115 to an open USB port on the computer. 3. The <i>Found New Hardware Wizard</i> window will open. Select "No, not this time," when asked to connect to Windows Update, and then click <i>Next</i>. 4. Select "Install the software automatically," and then click <i>Next</i>. 5. If the <i>Windows Security</i> window appears, select "Install this driver software anyway" to continue. 6. Click <i>Finish</i> to close the <i>found New Hardware Wizard</i> window. 7. The SC115 is now available as a USB to CS I/O interface. 	<ol style="list-style-type: none"> 1. Apply power to a Campbell Scientific datalogger, and then attach the SC115 to the datalogger's CS I/O port. 2. Using the included USB extension cable, attach the SC115 to an open USB port on the computer. 3. The <i>Found New Hardware</i> window will open. Click on "Locate and install driver software." 4. If the <i>Windows Security</i> window appears, select "Install this driver software anyway." 5. The SC115 is now available as USB to CS I/O interface. 	<ol style="list-style-type: none"> 1. Apply power to a Campbell Scientific datalogger, and then attach the SC115 to the datalogger's CS I/O port. 2. Using the included USB extension cable, attach the SC115 to an open USB port on the computer. 3. Windows 7 configures the driver automatically. The SC115 is now available as USB to CS I/O interface.

2.2 Device Configuration Utility (DevConfig)

The SC115 is configured using the DevConfig utility (version 1.15 or newer). DevConfig can be found on the resource CD accompanying the SC115. DevConfig is also included in the LoggerNet, PC400 and PC200W software from Campbell Scientific. DevConfig allows the user to set the synchronous device configuration (SDC). SDC7, SDC8, SDC10, or SDC11 are available, with SDC7 being the default value.

3. Communication

3.1 Data Collection Mode

The primary function of the SC115 is to collect data from one or more Campbell Scientific dataloggers. The user simply plugs the CS I/O end of the SC115 into a datalogger containing a program with a TableFile() instruction with the NumRecs/TimeIntoInterval and Interval parameters (*See Section 4*) set to zero.

When a datalogger contains a program with this command, it will detect the SC115 and begin copying data collected since the SC115 was last inserted (or all data the first time the SC115 has been inserted). The LED will flash repeatedly as the data is transferred. Once the transfer is complete, the LED will stop flashing and the SC115 may be removed from the datalogger.

CAUTION

To avoid corruption of the SC115 file, FAT sector, or directory link sector, never remove the SC115 from the datalogger while the LED is flashing. Doing so will result in corruption of the file being transferred. In some cases, multiple files may be corrupted due to a FAT sector or directory link sector error.

In data collection mode, data will only be transferred to the point in time when the SC115 is first plugged into the datalogger. Leaving the unit attached will not collect any additional data collected by the datalogger. This allows the unit to be used on multiple dataloggers. Once the SC115 has been removed, plugging the unit in a second time will collect only that data which has been collected since the last time the SC115 was plugged in.

When using an SC115 with multiple dataloggers, make sure the TableFile() instruction in each datalogger program specifies a unique filename (*See Section 4*). This will avoid overwriting data files from other dataloggers.

3.2 Resident Mode

With careful planning, an SC115 can be used as external memory to a single datalogger by programming the datalogger to write its data to the SC115 at regular intervals (*See Section 4*). This is based on the NumRecs/TimeIntoInterval or Interval parameters of the TableFile() command.

In residential mode, the user leaves the SC115 attached to a single datalogger. When data collection is required, the user visits the datalogger location with a second SC115. The user verifies the LED on the SC115 is not flashing, and then removes the SC115 from the datalogger. The second SC115 is then inserted into the CS I/O port to continue collecting data while the user takes the original SC115, and the data it contains, for review and further processing.

Alternatively, the user visits the site with a laptop PC. After verifying the SC115 LED is not flashing, the SC115 is removed from the datalogger. The user then inserts the SC115 into a USB port on the laptop and the data is copied to the laptop hard drive. The user has the option of leaving the data on the SC115 or clearing the SC115 memory. The SC115 is then returned to the CS I/O port on the datalogger to continue collecting data until the next visit.

NOTE To avoid losing data, the station must have sufficient storage memory allocated in `DataTable...EndTable` in the form of datalogger internal or CompactFlash®¹ card memory to cover the period of time an SC115 is not present.

When the `TableFile()` command *NumRecs* or *Interval* parameter is set to a non-zero value, there is a small risk that the interval will expire at the exact moment the SC115 is removed, resulting in data corruption. To reduce this potential, set the *NumRecs* parameter to a very high number, or set the *Interval* value to a number (such as 10 seconds) that is easily discernable by the user by watching for the flashing LED. The user then times the removal of the SC115 to fall between writing sessions.

CAUTION To avoid corruption of the SC115 file, FAT sector, or directory link sector, never remove the SC115 from the datalogger while the LED is flashing. Doing so will result in corruption of the file being transferred. In some cases, multiple files may be corrupted due to a FAT sector or directory link sector error.

3.3 USB to CS-I/O Port Communication

The SC115 also functions as a synchronous device communications (SDC) adapter. This allows a datalogger CS I/O port to be connected to a PC USB port through the SC115. The SC115 may be connected directly, or by the cables shipped with the device.

The SC115 uses the SDC protocol to pass information between the datalogger and a PC. The SDC channel can be set to 7, 8, 10, or 11 (See Section 2.2).

The following points must be taken into consideration when using the SC115 as an SDC adapter:

- Attach the SC115 to a powered datalogger and a PC prior to opening LoggerNet.
- When selecting a port in the LoggerNet Network Map for USB to CS I/O port communication, the COM port *SC115 (COM#)* must be selected. The mass storage device, *SC115 MSD (COM#)*, may also appear as a choice, but must not be selected as it does not support CS I/O communications.
- Always click on *Disconnect* within the LoggerNet (connect screen) prior to breaking the physical connection between the SC115 and datalogger.
- It is not recommended that you connect two SC115s to a PC at the same time if both SC115s are attached to powered dataloggers. This can cause confusion of virtual com ports. Without dataloggers, two SC115s may be attached to a PC at the same time. This allows data to be transferred between the two SC115's. Connecting a second SC115 may require installing the device driver a second time.

¹ CompactFlash is a registered trademark of SanDisk Corporation.

4. Datalogger Programming

4.1 TableFile() Instruction

The SC115 requires a TableFile() command in the datalogger program. TableFile() creates a file from data table records, and writes the file to the SC115. The TableFile() instruction must be within the data table declaration. The syntax is given below:

DataTable (TableName, TriggerVariable, Size)

TableFile (FileName,Options,MaxFiles,NumRecs/TimeIntoInterval,Interval,Units,OutStat,LastFileName)

'Output processing instructions

EndTable

CAUTION

DataTable()'s size parameter must be declared large enough to support TableFile() output to the SC115. TableFile() does not have its own memory. It can only use what is allocated for the table by the DataTable() instruction. For example, making the DataTable() size parameter = 0 to store data only to the SC115 will result in files with only 0 to 2 records and many missing records in the file.

The following sections explain each TableFile() parameter in detail.

4.1.1 FileName

The FileName parameter must be a constant and enclosed in quotations. When using the SC115, this parameter is entered in the format of "USB:FileName", where *FileName* is the name of the file to be created. The created file will have a suffix of *X.dat*, where *X* is a number that will be incremented each time a new file is written.

When using a single SC115 to collect data from several dataloggers, the TableFile FileName must be unique for each data table being collected. Otherwise, data may inadvertently be overwritten on the SC115. A suggested naming scheme is to make the station name or serial number part of the TableFileName parameter in the TableFile() instruction. This also allows the source of data to be easily identified during post-processing.

When a program is compiled with the USB (SC115) file path in TableFile(), it searches the attached SC115 for any filenames in the series. If it finds any, it increments the highest numbered filename by one and writes the new data to that file.

If more than one SC115 is used to retrieve data from multiple dataloggers, the dataloggers will not fill data holes on an SC115. The TableFile() simply transfers records that have not already been sent to an SC115. When this occurs, the complete set of records will be spread across the SC115s that were used to retrieve the data.

CAUTION

If data is retrieved from a datalogger using a second SC115 containing filenames matching those created by the datalogger's TableFile(), the files are at risk of being overwritten. Where possible, this risk can be avoided by recompiling with the second SC115 connected to retrieve its directory information. It's best to use unique filenames for each datalogger, such as including the station name or serial number, to prevent data from being overwritten.

4.1.2 Options

The options parameter is used to specify the type of file to be saved and whether to include the header information, timestamp, and/or record number. Options 0, 8, 16, and 20 correspond to Campbell Scientific's defined formats for TOB1, TOA5, CSIXML, and CSIJSON, respectively. Choosing an option that is different than the defined format may make the file incompatible with other Campbell Scientific applications designed to read or write those files (for instance, Option 7 would result in a TOB1 file that could not be read by CardConvert or View Pro). Refer to the CRBasic Help system for a complete listing of option codes.

4.1.3 MaxFiles

The MaxFiles parameter specifies the maximum number of files to retain on an SC115. Refer to the CRBasic Help system for detailed information on this parameter.

4.1.4 NumRecs/TimeIntoInterval Parameter

4.1.4.1 Data Collection Mode

When using the SC115 in Data Collection Mode, this parameter, as well as the Interval parameter, should be set to zero. When these parameters are set to zero, the datalogger will begin writing to the SC115 as soon as it is inserted into the datalogger. All new records will be written into a single file. See 4.4.1 for an example Data Collection program.

4.1.4.2 Resident Mode

The SC115 may remain connected to a datalogger and have the datalogger automatically write data to the SC115. When using the SC115 in this manner, the NumRecs/TimeIntoInterval parameter is used to determine the data that is written to the SC115. The function of this parameter is linked to the Interval parameter. If the Interval parameter is set to zero, enter the number of records to be included in each new file sent to the SC115. The program will create a new file each time this number of records is reached. If Interval is set to a non-zero value, the NumRecs/TimeIntoInterval setting becomes the time into the specified interval that the program will write a new file each time the specified interval is reached.

4.1.5 Interval Parameter

4.1.5.1 Data Collection Mode

For Data Collection Mode to work properly, the Interval parameter must be set to zero. With the Interval and NumRecs/TimeIntoInterval parameters set to

zero, the datalogger will begin writing data to the SC115 as soon as it is connected to the datalogger's CS I/O port.

4.1.5.2 Resident Mode

The SC115 may remain connected to a datalogger and have the datalogger automatically write data to the SC115. When using the SC115 in this manner, the Interval parameter can be used to determine how frequently data is written to the SC115. By setting this parameter to a non-zero number, the datalogger will write a new file to the SC115 at intervals based on this number and the Units parameter.

Set the Interval parameter to a value that is easily discerned by watching the flashing LED as the files are written. This allows the user to remove the SC115 from the datalogger between intervals without risking the loss of any data.

If Interval is set to zero, but NumRecs/TimeIntoInterval is set to a non-zero value, the datalogger will write data to the SC115 whenever the number of new records matches the NumRecs/TimeIntoInterval value.

4.1.6 Units Parameter

The Units parameter is used to specify the units used by the Interval parameter. Refer to the CRBasic Help system for detailed information on this parameter.

4.1.7 OutStat Parameter

The OutStat parameter is a variable that indicates whether or not a new file was stored the last time TableFile() executed. Refer to the CRBasic Help system for detailed information on this parameter.

4.1.8 LastFileName Parameter

The LastFileName parameter is a variable that contains the name of the last file written. Refer to the CRBasic Help system for detailed information on this parameter.

4.2 Scan Interval, Scan Count, CardFlush

To avoid skipped scans, ensure that the scan interval in the datalogger program is long enough to include writing to the SC115. For example, if the program has a single TableFile() command, a 100 mSec scan rate will generally be sufficient. Another 100 mSec should be added for each additional TableFile() command to avoid skipping scans.

Datalogger programs compiled in sequential mode require a longer scan interval than programs compiled in pipeline mode to avoid skipped scans. In pipeline mode, the *Scan/NextScan* instruction's buffer option can help prevent skipped scans. In sequential mode, the TableFile() instruction must finish before continuing to the next instruction, resulting in skipped scans unless the scan interval is large enough to handle all communication, measurement processing, and TableFile() tasks. Sequential mode ignores any scan buffers that may be assigned. Programs may run as much as three times faster in pipeline mode than in sequential mode.

If a pipeline mode TableFile() to SC115 program has occasional missed scans, adding scan buffers will allow make-up writes to store the records on the datalogger and SC115.

If a program scan count is non-zero, the latest data may not be written to the SC115. For example, a datalogger has an SC115 attached to the CS I/O port. With a scan count of 600, a scan interval of 100 mSec, and writing a file after every 10 seconds or every 100 records, only 400–575 records may be written to the SC115 due to the program ending at the 600th scan prior to transferring all the records to the SC115. To transfer the remaining data to the SC115, use the *CardFlush* instruction placed between the *NextScan* and *EndProg* instructions. Section 4.4.2 contains an example of the *CardFlush* instruction.

4.3 CardOut instruction

A datalogger can be programmed to simultaneously store data to internal memory, a CompactFlash® card, and an SC115. The SC115 is typically used to share data among multiple users while internal memory and the CompactFlash® card are used for data collection. For example, a datalogger could use a CompactFlash® card for data collection by the station owner, and a TableFile() instruction (possibly in a custom data table) for another user to retrieve data using an SC115.

The datalogger program needs to include a CardOut() instruction if the SC115 is used in conjunction with a CompactFlash® card. The CardOut() instruction is included in the DataTable declaration. By including the CardOut() instruction, the SC115 may be able to retrieve data from the CompactFlash® card not present in the datalogger's internal memory.

The CompactFlash® card can supply data for a TableFile(). However, data transfer between a CompactFlash® card and the SC115 is slower than transferring data between datalogger internal memory and an SC115. Because of this, collecting data by swapping CompactFlash® cards is preferable.

4.4 Example Programs

4.4.1 Data Collection/CardOut Example

```
Public PanelTemperature, BatteryVoltage, i, Counter(10) As Long, Kounter As Long
Public Outstat, LastFileName As String *25

DataTable (TestMilk1,1,-1)
  DataInterval (0,10,Sec,0)
  CardOut (0, -1)
  TableFile ("USB:DaisyCRD",8,-1,0,0,Min,Outstat,LastFileName) ' for data collection
  Minimum (1,BatteryVoltage,FP2,0,False)
  Sample (1,PanelTemperature,FP2)
  Sample (10,Counter(),Long)
EndTable
```

```

BeginProg
  Scan (500,mSec,1000,0)
    Kounter = Kounter + 1
    Counter(1) = Kounter
  For i = 2 To 10
    Counter(i) = Counter(i-1) + 1
  Next i
PanelTemp (PanelTemperature,250)
  Battery (BatteryVoltage)
  CallTable TestMilk1
  NextScan
EndProg

```

4.4.2 CardFlush Example

```

Public BatteryVoltage, Outstat, LastFileName As String *25
DataTable (TestMilk1,1,-1)
  DataInterval (0,1,Sec,0)
  TableFile ("USB:TestA",8,-1,0,1,Min,Outstat,LastFileName)
  Minimum (1,BatteryVoltage,FP2,0,False)
EndTable

BeginProg
  Scan (100,mSec,100,600)
    Battery (BatteryVoltage)
    CallTable TestMilk1
  NextScan
  CardFlush
EndProg

```

5. Troubleshooting

5.1 Preventing Data Corruption

To avoid corruption of SC115 data files, FAT sector, or directory link sector, never remove the SC115 from the datalogger during data transfer. The flashing LED indicates when data is being written to the SC115. Should the SC115 be removed while the LED is flashing, the most likely result is that the current data file will be corrupted. There is also possibility a FAT sector or the directory link sector might become corrupted, requiring the SC115 memory to be reformatted.

When either the NumRecs/TimeIntoInterval or Interval parameters are set to a non-zero value, there is a risk that the datalogger will begin writing data to the SC115 at the exact moment it is being removed from the datalogger. To prevent this, set the parameters to values that allow the time between writing data to be easily discerned (such as an interval of 10 seconds) by watching the LED. The user then times the removal of the SC115 to occur when the datalogger is not writing data.

Another method is to set the NumRecs/TimeIntoInterval value to match the datalogger internal data table size. This causes the data to be written at very long intervals, greatly reducing the chance of removing the SC115 from the

datalogger while transferring data. Connecting the SC115 for data collection will also reset its number of records, effectively restarting the counter until the next batch of data is written.

5.2 Skipped Scans

To avoid skipped scans, ensure the scan interval in the datalogger program is long enough to include writing to the SC115. For example, if the program has a single `TableFile()` command, a 100 mSec scan rate will generally be sufficient. Another 100 mSec should be added for each additional `TableFile()` command to avoid skipping scans.

Datalogger programs compiled in sequential mode require a longer scan interval than programs compiled in pipeline mode to avoid skipped scans. In pipeline mode, the *Scan/NextScan* instruction's buffer option can help prevent skipped scans. In sequential mode, the `TableFile()` instruction must finish before continuing to the next instruction, resulting in skipped scans unless the scan interval is large enough to handle all communication, measurement processing, and `TableFile()` tasks. Sequential mode ignores any scan buffers that may be assigned. Programs may run as much as three times faster in pipeline mode than sequential mode.

If a pipeline mode program has occasional missed scans, adding scan buffers will allow make-up writes to store the records on the datalogger and SC115.

5.3 Write Failure

Should the `TableFile()` instruction fail (after retries) to write a file to the SC115, it will assume the SC115 is full and adjust its Maximum Number of Files parameter to the number it is currently at. In addition, the datalogger will enter ring mode, overwriting the oldest file with the new data (as if the `TableFile()` `MaxFile` parameter were set to `-1`).

The timeout period between a failed write command and a retry is 8 seconds.

5.4 LoggerNet Issues

5.4.1 Disconnecting the SC115 from LoggerNet

When LoggerNet is connected to a datalogger through an SC115, a communications error may occur if the SC115 is disconnected and then reattached within a one minute timeframe. Under these conditions, LoggerNet will not have had time to discover the broken link and will no longer recognize the SC115 is present. Use the following procedure to reestablish communications between LoggerNet and the SC115.

1. Click on LoggerNet's *Cancel* button.
2. Disconnect the SC115 for at least one minute.
3. Reconnect the SC115.
4. Click on LoggerNet's *Connect* button. If necessary, close LoggerNet and then reopen it again prior to clicking on *Connect*.

To avoid this issue, always select *Disconnect* prior to removing the SC115.

Do not connect two SC115s to a PC at the same time if both SC115s are connected to powered dataloggers. This may cause confusion of virtual com ports. Two SC115s may be attached at the same time if only one (or neither) is connected to a powered datalogger. This allows for data transfer between two SC115s. Connecting a second SC115 may require reinstalling the device driver.

5.4.2 SC115 With High Memory Storage

An SC115 with a large amount of data stored in its memory (either a large number of files, or a few very large files) may respond slower than an SC115 with more free memory. Compiling datalogger programs from a full SC115 may take a longer time than normal.

Opening the SC115 directory in File Control also takes longer if there is a large number of files within the directory. File control can access approximately 20 files per second when opening the directory.

5.5 CompactFlash Card to SC115 Data Transfer

The speed of data transfers from a CompactFlash card to the SC115 are significantly slower than data transfers from internal memory to the SC115. Because of this, transfer the datalogger's data directly to an SC115 instead.

5.6 Slow PC Boot-up

Leaving an SC115 attached to a PC while it is booting up may cause a delay of several minutes to the boot-up process on some computers. The PC will continue to boot normally if the SC115 is removed. The SC115 can then be inserted and used as normal.

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