

### CsEx\_ConfigureFft.vi

This VI configures FFT settings for the CompuScope system. The FFT settings are applicable only if the optional FFT firmware has been loaded (using CsLv\_ConfigureAcquisition.vi)

The CompuScope system is identified by Handle, which is obtained with CsLv\_GetSystem.vi

The FFT configuration settings are Enable, Average, Real Only, Window, Inverse FFT and FftMulRec. Valid values must be supplied for all settings. If no connection is made to an input, the default value for that input will be used. If an invalid setting is sent to the VI, an appropriate error code is returned. Note: Average and Real Only are currently unavailable and are set to false by default.

If the VI fails, an appropriate error code is returned in the Error Code indicator. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.

#### Input Value Descriptions:

Enable (default = true)

This Boolean parameter selects whether to perform the FFT. If Enable is false, the FFT firmware will be bypassed and a normal capture performed.

Average (default = false)

If true, results will be averaged. Currently unavailable, set to false.

Real Only (default = true)

If true, only real values are used as input. If false, two channels can be used as inputs, one with real values and one with imaginary values. Currently unavailable, set to true.

Window(default = false)

If enabled, the FFT firmware will perform a windowing function. The window coefficients are set by calling CsLv\_ConfigureFftWindow.vi. If this flag is not enabled no windowing is performed.

Inverse FFT(default = false)

If enabled, an inverse FFT is performed.

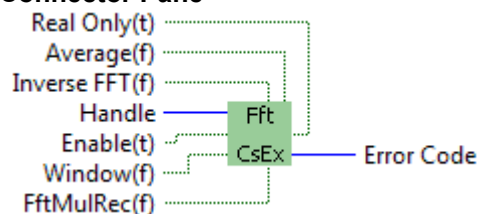
FftMulRec(default = false)

If enabled, the FFT firmware will do one FFT for each acquisition segment. If false, all FFT blocks are processed from the same acquisition segment.









Once the capture and FFT are completed, the data can be returned by calling CsLv\_TransferFFT. All FFTs that have been done are returned in one buffer (for each channel) in the call to CsLv\_Transfer.vi.

If the call is successful, a 1 is returned in the Error Code indicator. Otherwise, an error code is returned. A descriptive error string may be obtained by using CsLv\_GetErrorString.vi.

#### Connector Pane



#### Controls and Indicators

-  **Handle**
-  **Enable(t)**
-  **Average(f)**
-  **Real Only(t)**
-  **Inverse FFT(f)**
-  **FftMulRec(f)**
-  **Window(f)**
-  **Error Code**

### **CsEx\_ConfigureFftWindow.vi**

This VI configures FFT window settings for the CompuScope system. The FFT settings are applicable only if the optional FFT firmware has been loaded (using CsLv\_ConfigureAcquisition.vi). The CompuScope system is identified by Handle, which is obtained with CsLv\_GetSystem.vi.

The FFT window configuration settings are Handle, Window Size and Coefficients. Valid values must be supplied for all settings. If an invalid setting is sent to the VI, an error code is returned.

If the VI fails, an appropriate error code is returned in the Error Code indicator. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.

#### **Input Value Descriptions:**

##### **Handle**

This integer value uniquely identifies a CompuScope system. It is obtained by calling CsLv\_GetSystem.vi.

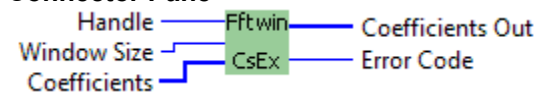
##### **Window Size**

This integer is the size of the window to use. It should be half of the FFT size, which can be obtained by using CsLv\_GetFftSize.vi.

##### **Coefficients**

This array of 16-bit integer values assigns the window coefficients. The actual values can be obtained by using LabVIEW vi's or can be user generated. The array is also returned as Coefficients Out.

#### **Connector Pane**



#### **Controls and Indicators**

-  **Handle**
-  **Window Size**
-  **Coefficients**

 **Numeric**

 **Error Code**

 **Coefficients Out**

 **Numeric**

### CsEx\_ConfigureFir.vi

This VI configures FIR settings for the CompuScope system. The FIR settings are applicable only if the optional FIR firmware has been loaded (using CsLv\_ConfigureAcquisition.vi)

The FIR configuration settings are Enable, Symmetrical, Factor and Coefficients. Valid values must be supplied for all settings. If no connection is made to an input, the default value for that input will be used. If an invalid setting is sent to the VI, an appropriate error code is returned.

If the VI fails, an appropriate error code is returned in the Error Code indicator. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.

Input Value Descriptions:

Enable (default = true)

This Boolean parameter selects whether to perform filtering. If Enable is false, a unity filter will be used.

Symmetrical (default = true)

This Boolean parameter sets the mode of FIR. Available values are:

    true = 20 input FIR coefficients are interpreted as one side of  
          the set of 39 symmetrical taps.

    false = FIR coefficients are treated as a full asymmetric set.

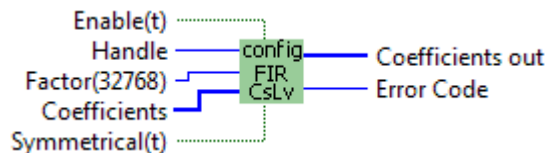
Factor (default = 32768)

A scaling factor for FIR coefficients. Allowed values are: 8, 32, 128, 512, 2048, 8192, 32768, 131072, 524288

Coefficients

This array of integer values assigns the 20 FIR coefficients. If the array size is longer than 20, the first 20 elements are used. If the array size is shorter than 20, it is padded with zeros at the beginning. The resulting array is returned as Coefficients Out.

### Connector Pane









### Controls and Indicators

 **Handle**

 **Enable(t)**

 **Symmetrical(t)**

	<b>Factor(32768)</b>
	<b>Coefficients</b>
	<b>Numeric</b>
	<b>Error Code</b>
	<b>Coefficients out</b>
	<b>Numeric</b>

### CsEx\_ConfigureMulRecAveraging.vi

This VI configures multiple record averaging settings for the CompuScope system identified by Handle, which is obtained by using CsLv\_GetSystem.vi. These settings are applicable only if the optional MulRec Averaging firmware has been loaded (using CsLv\_ConfigureAcquisition.vi). The requested settings are not actually sent to the CompuScope hardware until CsLv\_Commit.vi (or CsTool-Commit.vi) is called.

The MulRec Averaging configuration setting that can be set is the number of averages. Valid values must be supplied for all settings. If no connection is made to an input, the default value for that input will be used. If an invalid setting is sent to the VI, an appropriate error code is returned.

If the VI fails, an appropriate error code is returned in the Error Code indicator. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.

Input Value Descriptions:

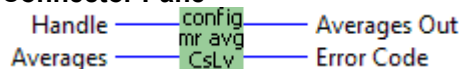
Handle (default = 0)

A unique integer that identifies the current CompuScope system.





Averages (default = 1)

The number of averages to perform for each multiple record segment. The maximum allowed value is 1024.

### Connector Pane



### Controls and Indicators

	<b>Handle</b>
	<b>Averages</b>
	<b>Error Code</b>
	<b>Averages Out</b>

### CsEx\_ConfigureTrigOutDelay.vi

This VI configures the Trigger Out settings for the CompuScope system identified by Handle, which is obtained by using CsLv\_GetSystem.vi. These settings are applicable only if the CompuScope system has Trigger Out control capabilities. The requested settings are not actually sent to the CompuScope hardware until CsLv\_Commit.vi (or CsTool-Commit.vi) is called.

The configuration settings that can be set are the Trigger Out Delay and the Trigger Out Clock polarity. Valid values must be supplied for all settings. If no connection is made to an input, the default value for that input will be used. If an invalid setting is sent to the VI, an appropriate error code is returned.

If the VI fails, an appropriate error code is returned in the Error Code indicator. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.

#### Input Value Descriptions:

Handle (default = 0)

A unique integer that identifies the current CompuScope system.

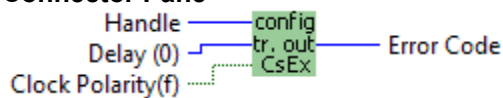
Delay (default = 0)

The number of samples from the occurrence of a trigger in which to delay the Trigger Out Signal. The maximum allowed value is 65535. Note that the delay is added to the normal fixed delay time in which the Trigger Out signal will occur.

Clock Polarity (default = false)

The polarity of the sampling clock edge with which to synchronize the Trigger Out signal. A value of false = Rising (positive) edge and true = Falling (negative) edge.

#### Connector Pane



#### Controls and Indicators

 **Handle**

 **Delay (0)**

 **Clock Polarity(f)**

 **Error Code**

#### CSEx\_DecodeFftBlock.vi

This vi takes a buffer of raw FFT data values retrieved from the CsLv\_TransferFFt.vi and converts them into a buffer of power spectrum values. The raw FFT values come in through the Input buffer, are converted and sent out through the Output buffer.

The Decode FFT Block inputs are Input buffer, Block, FFT size, Sample bits and Coherent gain. Valid values should be supplied for all settings. The outputs are Output buffer and Error.

If the VI fails, an appropriate error code is returned in the Error Code indicator. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi. For the Decode FFT block.vi, the only error will occur if the Input buffer is too small.

#### Input Value Descriptions:

Input buffer

This is an array of unsigned 32 bit values that are retrieved from a CompuScope system that has FFT enabled by calling CsLv\_TransferFFT.vi.

Block

This integer value identifies the FFT block number within the buffer whose values are to be converted. Block numbers begin at 0.

FFT size

This integer value is the size of the FFT. This value is dependent on the FFT firmware image on the CompuScope board. It can be obtained by using CsLv\_GetFftSize.vi.

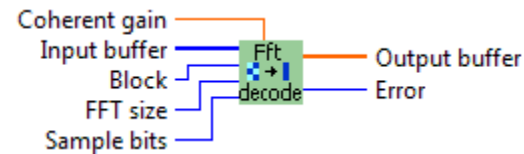
Sample bits (default = 12)

This integer value is the number of sample bits used by the CompuScope. This value can be obtained by calling CsTool-GetSystemInfo.vi.

Coherent gain (default = 1.00)

This double value is the coherent gain that was used with the window coefficients. If windowing was not enabled for the FFT, this value should be set to 1.00.

### Connector Pane



### Controls and Indicators

**U32** Input buffer

**U32** Numeric

**I32** Sample bits

**DBL** Coherent gain

**U32** Block

**U16** FFT size

**DBL** Output buffer

**DBL** Numeric

**I32** Error

### CsEx\_DiskStreamClose.vi

This VI closes the Disk Stream subsystem and frees any resources that have been allocated. Once this vi has been called, the Disk Stream subsystem must be initialized again (by calling the CsLv\_DiskStreamInitialize.vi) before any other Disk Stream calls can be made. The CompuScope system is identified by Handle, which is obtained with CsLv\_GetSystem.vi

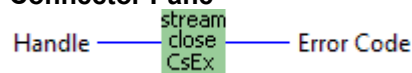
If the call is successful, a 1 is returned in the Error Code indicator. Otherwise, an error code is returned. A descriptive error string may be obtained by using CsLv\_GetErrorString.vi.

The input parameters are:


Handle

This is an integer which uniquely describes a CompuScope system. It is obtained by calling the CsLv\_GetSystem.vi.

#### Connector Pane



#### Controls and Indicators

 Handle

 Error Code

#### CsEx\_DiskStreamGetAcqCount.vi

This VI returns the number of acquisitions that have occurred so far on the CompuScope system uniquely identified by handle. The handle must have been previously obtained by calling the CsLv\_GetSystem.vi.

If the call is successful, the number of acquisitions will be put in the Acq Count indicator. Otherwise, an error code is returned. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.

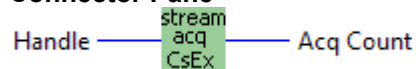
Because the acquisitions are occurring in a separate thread, the actual value reported may have changed by the time it is reported.

The input parameters are:

Handle

This is an integer which uniquely describes a CompuScope system. It is obtained by calling the CsLv\_GetSystem.vi.

#### Connector Pane



#### Controls and Indicators

 Handle

 Acq Count

#### CsEx\_DiskStreamGetError.vi

This VI is used to report errors that occur during the acquisition, transfer or saving of a DiskStream acquisition by the CompuScope system uniquely identified by handle. The handle must have been previously obtained by calling the CsLv\_GetSystem.vi.

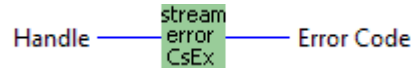
Because the acquisition, transfer and file saving are done by separate threads, errors are often not reported immediately. Therefore, the errors are saved and can be retrieved by this function after CsLv\_DiskStreamStop.vi has been called or the acquisition has been otherwise completed. This function should be called before calling CsLv\_DiskStreamClose.vi. The error code is returned in the Error Code indicator and a descriptive message can be obtained by calling the CsLv\_GetErrorString.vi. In the case of multiple errors, only the first error is returned. This vi is intended for the case where errors are occurring and the Error Codes from sother CsLv\_DiskStream vi's are not returning errors.

The input parameters are:

Handle

This is an integer which uniquely describes a CompuScope system. It is obtained by calling the CsLv\_GetSystem.vi.

#### Connector Pane



#### Controls and Indicators

 Handle

 Error Code

#### CsEx\_DiskStreamGetStatus.vi

This VI returns the status of the current DiskStream acquisition cycle on the CompuScope system uniquely defined by handle.

A return value of 1 indicates that the current requested number of acquisitions, transfers and writes are finished. A 0 indicates that the system is not finished. A negative value indicates that an error has occurred. A descriptive error string can be obtained by using CsLv\_GetErrorString.vi.

The input parameters are:

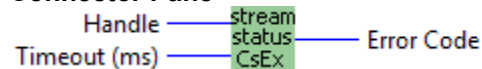
Handle

This is an integer which uniquely describes a CompuScope system. It is obtained by calling the CsLv\_GetSystem.vi.

Timeout (ms) (default = 0)

A ulInt32 value representing the time to wait before returning the status. A longer wait time may make the overall system more responsive, while a shorter wait time is more accurate.

#### Connector Pane



#### Controls and Indicators

 Handle

 Timeout (ms)

 Error Code

#### CsEx\_DiskStreamGetWriteCount.vi

This VI returns the number of file writes that have occurred so far on the CompuScope system uniquely identified by handle. The handle must have been previously obtained by calling the CsLv\_GetSystem.vi.

If the call is successful, the number of file writes will be put in the Write Count indicator. Otherwise, an error code is returned. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.



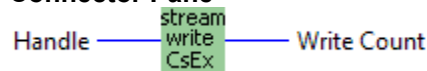
Because the file writes are occurring in a separate thread, the actual value reported may have changed by the time it is reported.

The input parameters are:

Handle

This is an integer which uniquely describes a CompuScope system. It is obtained by calling the CsLv\_GetSystem.vi.

#### Connector Pane



#### Controls and Indicators

 Handle

 Write Count

#### CsEx\_DiskStreamInitialize.vi

This VI initializes the Disk Stream subsystem, which will acquire, transfer and save the data to GageScope SIG files according to the supplied parameters. The Disk Stream subsystem must be initialized before any other calls to it can be made. The CompuScope system is identified by Handle, which is obtained with CsLv\_GetSystem.vi.

The required number of SIG files are pre-created by this vi to speed up the acquisition, transfer and write cycle when CsLv\_DiskStreamStart is called. Files are organized as follows according to the transfer length:

- 1) Transfer lengths < 1 MByte are saved together in SIG files up to 1 MByte in size. For example, 4 acquisitions of 512 Kbytes would be saved as 2 1 megabyte files.
- 2) Transfer lengths > 1Mbytes and < 250 Mbytes are saved in their own file.
- 3) Transfer lengths > 250 Megabytes are split across multiple files.

If the call is successful, a 1 is returned in the Error Code indicator. Otherwise, an error code is returned. A descriptive error string may be obtained by using CsLv\_GetErrorString.vi.

The input parameters are:

Handle

This is an integer which uniquely describes a CompuScope system. It is obtained by calling the CsLv\_GetSystem.vi.

Trigger Timeout (ms) (default = 0xFFFFFFFF)

A uint32 parameter that gives the time to wait (in milliseconds) for a trigger before forcing one. This trigger timeout will take precedence over the one set in the Acquisition Config cluster.

Transfer Start (default = 0)

A double value which represents the starting address (in samples) of the data to transfer and save to the file. Use a negative number to download pre-trigger data.

Transfer Length (default = 8192)

A double value which represents the amount of data (in samples) to transfer and save to file. Transfer will begin at the Transfer Start address.

Record Start (default = 1)

A uint32 value representing the segment number to start transferring from. Single record acquisitions should set this to 1.

Record Count (default = 1)

The number of segments to transfer starting from Record Start. Single record acquisitions should set this to 1.

Acquisition Count (default = 1)

The number of acquisition to make during the Disk Stream process. The Disk Stream threads will end when this number of acquisitions, transfers and file writes are finished.

Time Stamp (default = false)

A boolean flag which tells the system whether or not to write the time stamp value to the header of the SIG file. A value of true mean write the time stamp, false means do not write. The time stamp is saved with 100ths of a second resolution.

Channel Count (default = 1)

The number of channels to transfer and save.

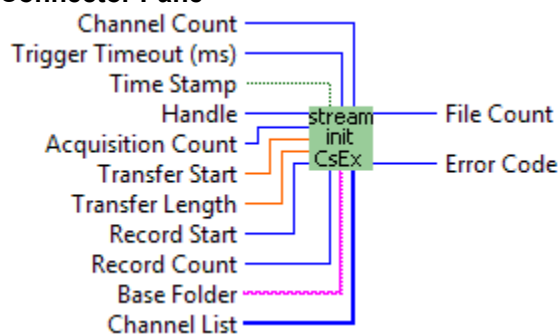
Channel List (default = 0)

An array of uint16's that represent the channels to transfer and save. The first ChannelCount number of channels in the array will be transferred and saved. For example, an array of [0,2] will transfer and save channels 0 and 2. The channels begin at 0 and must be valid for the current CompuScope system and acquisition mode.

Base Folder (default = Signal Files)

A string that represents the base folder in which to store the SIG files. If it is not an absolute path (i.e g:\SigFiles), it is assumed to be a folder under the current directory. Files will be organized under the base directory in channel and folder directories.

### Connector Pane



### Controls and Indicators



Handle



Trigger Timeout (ms)












Transfer Start



Transfer Length



Record Start

-  **Record Count**
-  **Acquisition Count**
-  **Channel Count**
-  **Time Stamp**
-  **Channel List**
-  **Numeric**
-  **Base Folder**
-  **Error Code**
-  **File Count**

### **CsEx\_DiskStreamStart.vi**

This VI starts the acquisition and transfer process on the Disk Stream subsystem. Once the process is started it will continue until all acquisitions, transfers and writes are done, the user calls CsLv\_DiskStreamStop or an error occurs.

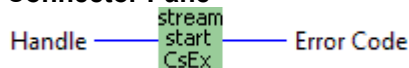
If the call is successful, a 1 is returned in the Error Code indicator. Otherwise, an error code is returned. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.

The input parameters are:



Handle

This is an integer which uniquely describes a CompuScope system. It is obtained by calling the CsLv\_GetSystem.vi.

### **Connector Pane**



### **Controls and Indicators**

-  **Handle**
-  **Error Code**

### **CsEx\_DiskStreamStop.vi**

This VI stops the acquisition and transfer process on the Disk Stream subsystem in the event that it is necessary to abort before the requested number of acquisitions has been completed. Once the vi is called, the DiskStream threads will finish their current acquisition, transfer or write and then abort. Note that because the requested number of SIG files are pre-created during CsLv\_DiskStreamInitialize, there will be files consisting of only a header (and no data) if the acquisition is aborted early.

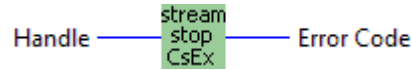
If the call is successful, a 1 is returned in the Error Code indicator. Otherwise, an error code is returned. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.

The input parameters are:

Handle

This is an integer which uniquely describes a CompuScope system. It is obtained by calling the CsLv\_GetSystem.vi.

#### Connector Pane



#### Controls and Indicators

 Handle

 Error Code

#### CsEx\_GetFftSize.vi

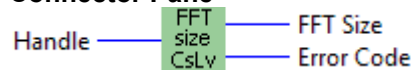
This VI retrieves the FFT size from the CompuScope driver. The FFT is the size of FFT that will be performed and is set by the firmware. If the capture is larger than the FFT size, the firmware will fit as many FFTs as it can into the transfer. Note that the FFT size is the data size of the FFT. The actual size that gets transferred is this size plus 1 (for the exponent).

The FFT settings are applicable only if the optional FFT firmware has been loaded (using CsLv\_ConfigureAcquisition.vi)

The CompuScope system is identified by Handle, which is obtained with CsLv\_GetSystem.vi

If the call is successful, a 1 is returned in the Error Code indicator. Otherwise, an error code is returned. A descriptive error string may be obtained by using CsLv\_GetErrorString.vi.

#### Connector Pane



#### Controls and Indicators

 Handle

 Error Code

 FFT Size

#### CsEx\_QueryTrigOutDelay.vi

This VI queries the Trigger Out settings for the CompuScope system identified by Handle, which is obtained by using CsLv\_GetSystem.vi. These values are valid only if the CompuScope system has Trigger Out control capabilities. The queried settings will not be valid unless CsLv\_Commit.vi (or CsTool-Commit.vi) has been called.

The configuration settings that can be queried are the Trigger Out Delay and the Trigger Out Clock polarity. Valid values must be supplied for all input controls. If no connection is made to an input, the default value for that input will be used. If an invalid setting is sent to the VI, an appropriate error code is returned.

If the VI fails, an appropriate error code is returned in the Error Code indicator. A descriptive error string may be obtained by calling CsLv\_GetErrorString.vi.

#### Input Value Descriptions:

Handle (default = 0)

A unique integer that identifies the current CompuScope system.

#### Output Value Descriptions:

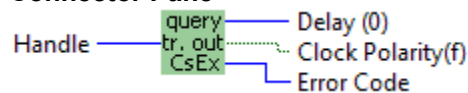
Delay

The number of samples from the occurrence of a trigger in which to delay the Trigger Out Signal. The maximum allowed value is 65535. Note that the delay is added to the normal fixed delay time in which the Trigger Out signal will occur.


Clock Polarity (default = false)

The polarity of the sampling clock edge with which to synchronize the Trigger Out signal. A value of false = Rising (positive) edge and true = Falling (negative) edge.

#### Connector Pane



#### Controls and Indicators

 Handle

 Error Code

 Delay (0)

 Clock Polarity(f)

#### CsEx\_TransferFFT.vi

This VI transfers FFT data from one channel of the CompuScope system identified by Handle, which is obtained by using CsLv\_GetSystem.vi.

This VI should only be used for transferring FFT data from CompuScope cards that have Expert FFT firmware enabled. Data are transferred from on-board CompuScope memory to PC RAM using PCI Bus Mastering at rates of up to 200 MB/s.

CsLv\_TransferFFT.vi transfers raw integer ADC code values. The VI will not return programmatic control to LabVIEW until all of the data have been transferred. The vi puts as many FFT blocks as it can fit into the supplied buffer.

If the call is successful, a 1 is returned in the Error Code indicator and the transferred data will be available in Buffer. If the call is unsuccessful, an appropriate error code is returned. A descriptive error string may be obtained by using CsLv\_GetErrorString.vi.

#### Input Value Descriptions:

Channel

This integer value specifies the channel from which data are to be transferred. The default value is 0 for the first channel in the CompuScope system. Channel numbers in a LabVIEW CompuScope system begin at 0. (The channel numbers are incremented by 1 before being sent down to the driver, as required by the C API.) If an invalid channel number is specified, an appropriate error code is returned.

### Mode

This integer value determines the current transfer mode. Currently, the only valid value for this VI is 16.

### Segment

This integer value determines which Multiple Record segment is to be transferred, if the CompuScope hardware was operating in Multiple Record Mode. For Single Record acquisitions, the user must always set the Segment to 1, which is the default value. If the Segment value is too large, an error will occur.

### Start

This double variable value determines the requested starting point of the data transfer from the CompuScope memory to PC RAM. Start is specified relative to the trigger address for the acquisition. A Start value of 0 will cause data transfer to begin at the trigger address. Negative Start values are for the transfer of pre-trigger data. Positive Start values may be used to begin transfer after the trigger address. The default Start value is 0.

### Length

This double variable value specifies the amount of data, in samples, to be transferred. The default is 4096.

### Return Value Descriptions:

#### Buffer

This is an `uint32` LabVIEW buffer variable into which transferred data are returned. The size of the array will be at least Length samples. Data returned are as raw ADC values.

#### Actual Start

This double variable value returns the actual start address point of the data array. The Actual Start may be lower than the requested Start value. This is because the CompuScope memory architecture may force the drivers to download data from an earlier point than the start position. For example, if Start is input to `CsLv_TransferFFT.vi` as 0, the Actual Start may return as -2, indicating that two extra samples were returned before the Start position.

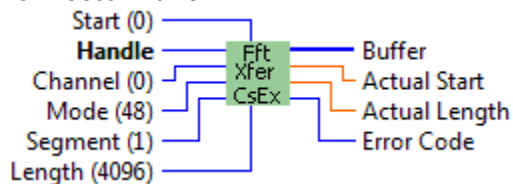
The user may choose to ignore samples transferred from before the Start position. Alternatively, the user may conserve these samples, accounting for the fact that the values begin at Actual Start.

#### Actual Length












This double variable value returns the actual amount of data transferred, which may be different from the requested Length. The difference, if any, results from CompuScope memory architecture.

If the call is successful, a 1 is returned in the Error Code indicator. Otherwise, an error code is returned. A descriptive error string may be obtained by using `CsLv_GetErrorString.vi`.

### Connector Pane



## Controls and Indicators

	Handle
	Channel (0)
	Segment (1)
	Start (0)
	Length (4096)
	Mode (48)
	Buffer
	Numeric
	Actual Length
	Error Code
	Actual Start

### CsEx\_TransferInPercent.vi

This VI transfers the data from one channel of the CompuScope system identified by Handle Cluster, which is obtained by calling CsTool-GetSystem.vi. Each data value is returned as a percentage of full scale (between -1 and 1). For accurate interpretation of the transferred data, the user should always use the returned Actual Start and Actual Length, and not the requested values.

This VI can be used for transferring data from 8, 12, 14, and 16 bit CompuScope hardware. Data are transferred from on-board CompuScope memory to PC RAM using PCI Bus Mastering at rates of up to 200 MB/s. The VI will not return programmatic control to LabVIEW until all of the data have been transferred.

If the call is successful, a 1 is returned in the Error Code indicator. If the call is unsuccessful, an appropriate error code is returned. A descriptive error string may be obtained by calling CsTool-ErrorHandler.vi.

#### Input Value Descriptions:

##### Channel

This integer value specifies the channel from which data are to be transferred. The default value is 0 for the first channel in the CompuScope system. Channels in a LabVIEW CompuScope system begin at 0. If an invalid channel number is given, an error will be returned. Please see the CompuScope hardware manual for more information on channel enumeration.

##### Mode

This integer value determines the current transfer mode. Currently, the only valid value for this input is 0.

##### Segment(1)

This integer value determines which Multiple Record segment is to be transferred, if the CompuScope hardware was operating in Multiple Record Mode. For Single Record Mode acquisitions, the user must always set the Record value to 1, which is the default value. If the Record value is too large, an error code will be returned.

#### Start

This double variable value determines the requested starting point of the data transfer from CompuScope memory to PC RAM. Start is specified relative to the trigger address for the acquisition. A Start value of 0 will cause data transfer to begin at the trigger address. Negative Start values are used for the transfer of pre-trigger data. Positive Start values may be used to begin transfer after the trigger address. The default Start value is 0.

#### IgnoreActualStart (False)

This boolean value will ignore the actual start of the buffer and transfer everything from the first sample, ignoring any information on the trigger data.

#### Length

This double variable value specifies the amount of data, in samples, to be transferred. The default value is 4096.

#### Data in Percent Full Scale

This array variable, of type double, is the LabVIEW buffer variable into which transferred data are returned. The size of the array will be at least Length samples. Data is returned as a percentage of full scale (between -1 and 1), who's conversion depends upon the resolution of the CompuScope system and on the current input range.

#### Actual Start

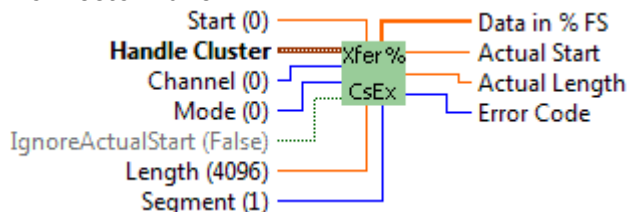
This double variable value returns the actual start point of the data array. The Actual Start may be lower than the requested Start value. This is because the CompuScope memory architecture may force the drivers to download data from an earlier point than the start position. For example, if Start is input to TransferInPercent.vi as 0, the Actual Start may return as -2, indicating that two extra samples were returned before the Start position.

The user must account for the discrepancy between the Start and the Actual Start. The user may choose to ignore samples transferred from before the Start position. Alternatively, the user may conserve these samples, accounting for the fact that the values begin at Actual Start.

#### Actual Length

This double variable value returns the actual amount of data transferred, which may be different from the requested Length. The difference, if any, results from CompuScope memory architecture.

#### Connector Pane





#### Controls and Indicators


 Channel (0)


 Segment (1)





 **Start (0)**


 **Length (4096)**


 **Mode (0)**


 **Handle Cluster**


 **Handle**


 **Sample size**


 **Resolution**


 **Offset**


 **Channels**


 **Boards**


 **IgnoreActualStart (False)**

 **Data in % FS**

 **Numeric**

 **Actual Length**

 **Error Code**

 **Actual Start**