

# CONEX-PSD

**Two-Axis Position  
& Power Sensing device**

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Original instructions.

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# Preface

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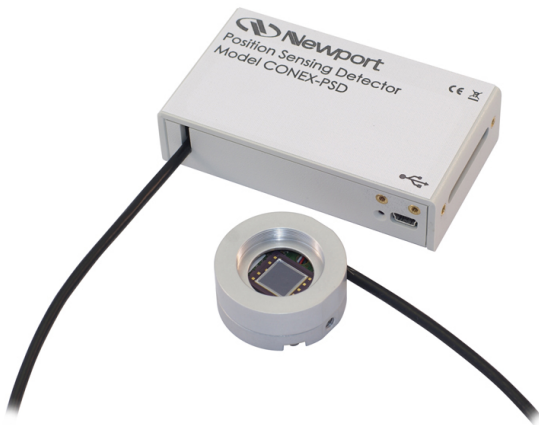
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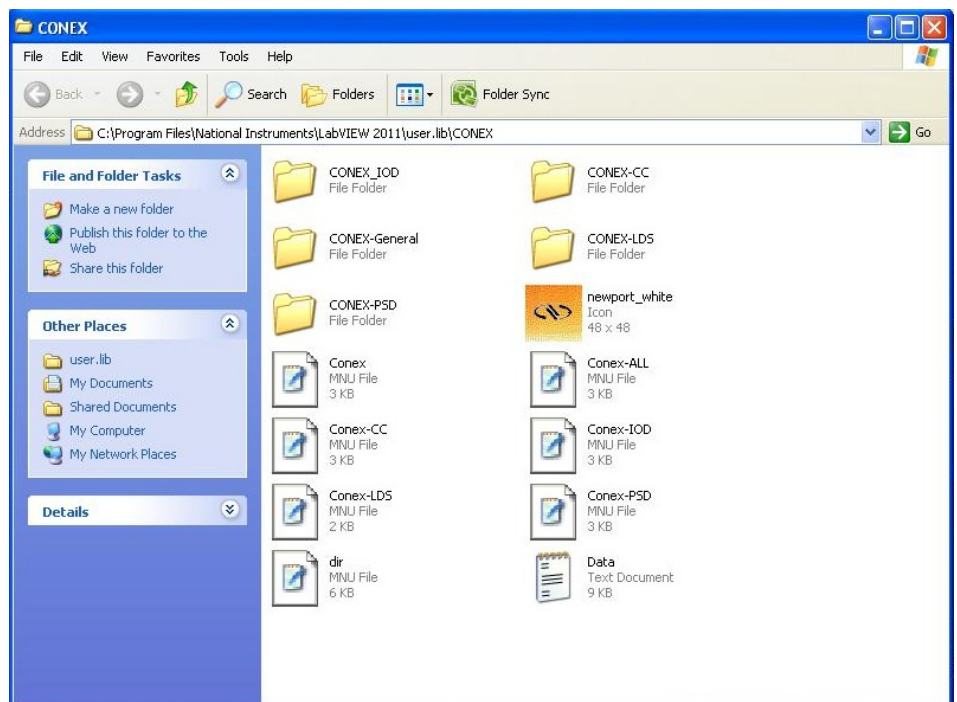
## Two-Axis Position & Power Sensing Device CONEX-PSD

### 1.0 CONEX-PSD LabVIEW Drivers

#### NOTE

You must use at least the [2010](#) of LabVIEW.

Copy the directory CONEX under the directory **user.lib** of LabVIEW 20xx.



This general directory contains documented VIs, menu to access the different VIs and controls for CONEX instruments.

In each VI, there is a connection cluster that contains the following components:



**Connection Cluster in** Connection components:

VISA Resource name - passed to low level vi's

Device name - Readable description of device

Controller address - Channel number

error - Error reporting (status = true for error)

Note on Controller Address:

(Important for other devices with multiple RS485 connections, used to match command syntax of these similar RS485 instruments, however, for USB connection only one channel is addressed per USB cable, so all addresses can be set to 1, regardless of number of connected devices).



**VISA resource name**



**Device name**



**Controller address**



**Error: error in** can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.



**Status: status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.



**Code: code** is the error or warning code.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.



**Source: source** describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

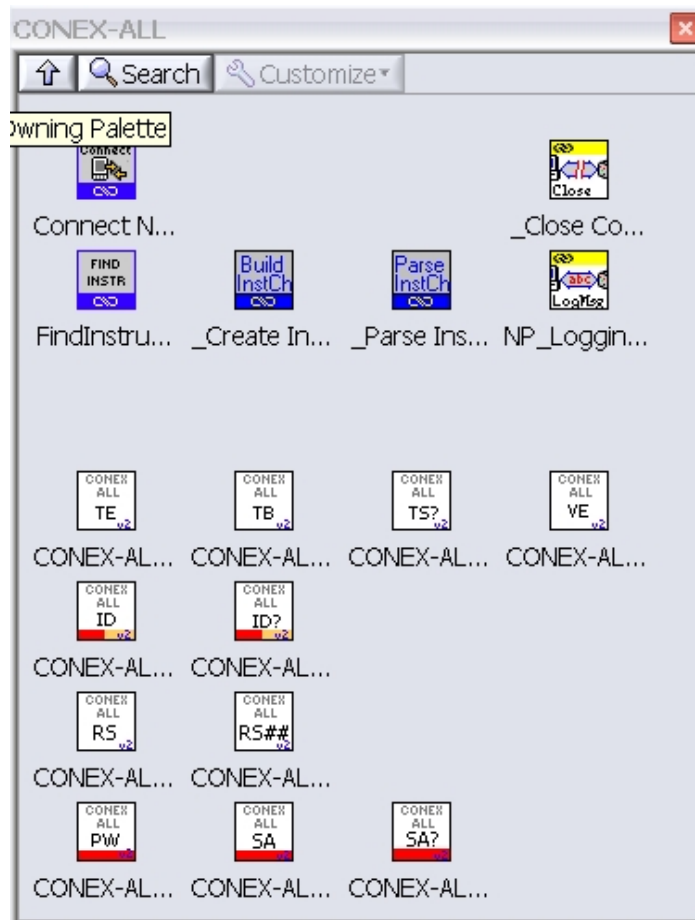


## 2.0 VI's Libraries

### 2.1 CONEX-ALL General Menu – Communication VI's

The Communication VISs at the top are low-level sub-VIs that talk to the device for you. The lower VIs with white background are configuration Vis common to all the CONEX family of devices.

The “Connect Newport Instrument.vi” will setup a connection and build a Connection Cluster that is all you need to pass to the other CONEX-CC specific function sub-VIs.

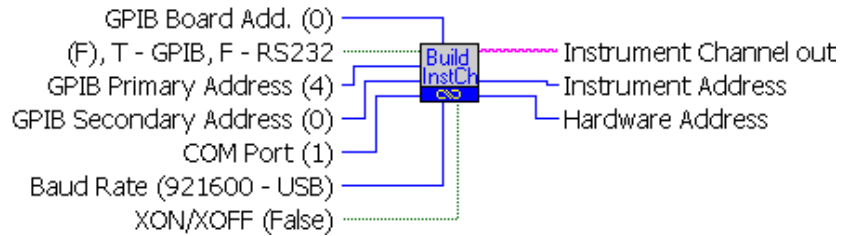












2.1.1 **\_Create Instrument Channel.vi**

Builds the instrument channel handle (string) for an instrument connected over GPIB or RS-232. The default output String for a USB is RS-232 at a Baud Rate of 921600.

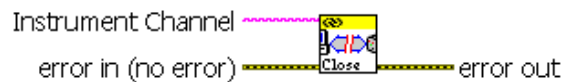
This string should be passed in and out of the library VIs to control the specified instrument. Different handles should be used for controlling multiple instruments.




This will also initialize the RS-232 port to the speed specified; which must be done manually if not using this VI.



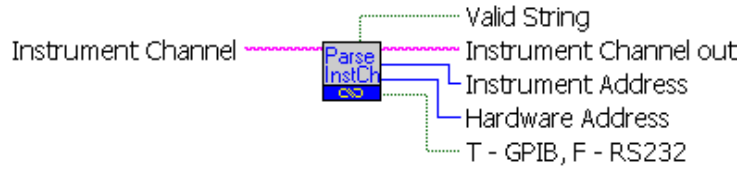
-  (F), T - GPIB, F - RS232
-  GPIB Primary Address (4)
-  COM Port (1)
-  GPIB Secondary Address (0)
-  GPIB Board Add. (0)
-  Baud Rate (921600 - USB)
-  XON/XOFF (False)
-  Instrument Channel out
-  Instrument Address
-  Hardware Address







2.1.2 **\_Close Communications.vi**



-  error in (no error)
-  Instrument Channel
-  Instrument Channel

2.1.3 **\_Parse Instrument Channel.vi**



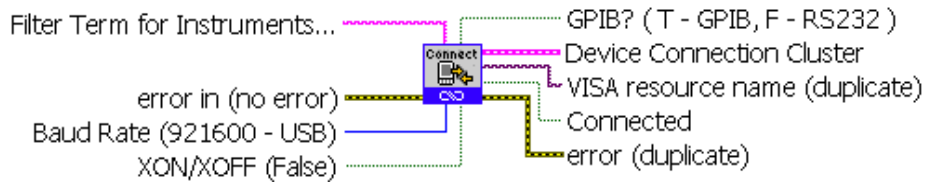
-  **Instrument Channel in**
-  **Instrument Channel out**
-  **Instrument Address**
-  **Hardware Address**
-  **T - GPIB, F - RS232**
-  **Valid String**









2.1.4 **Connect Newport Instrument.vi**

Connect Newport Device

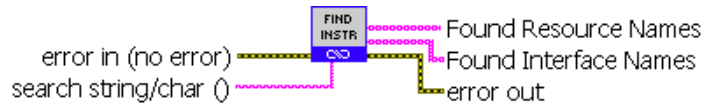
Get list of instrument, filter (if set) and allow for selection of device to talk to.


This is generic selection of the instrument to connected to, so look in system settings or on device to verify it is the correct port.



-  **Instrument Filter Term for Instruments (" " - none)**  
String used to verify expected device is found.
-  **error in (no error)**
-  **Baud Rate (921600 - USB)**
-  **XON/XOFF (False)**
-  **Connected**  
Connected = true when connection is successful
-  **VISA resource name (duplicate)**
-  **error (duplicate)**
-  **GPIB? ( T - GPIB, F - RS232 )**

2.1.5 FindInstrument.vi



 search string/char ()

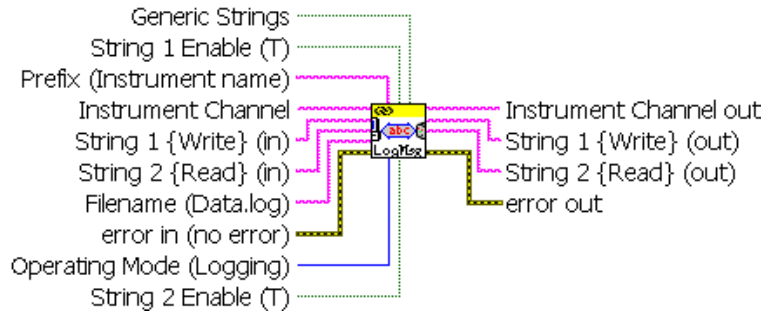
 error in (no error)

 error out

 Found Resource Names

 Found Interface Names

2.1.6 NP\_Logging.vi




 error in (no error)

 Operating Mode (Logging)

 String 1 {Write} (in)


 String 2 {Read} (in)

 Filename (Data.log)

 Generic Strings


 String 1 Enable (T)

 String 2 Enable (T)

 Prefix (Instrument name)

 Instrument Channel

 error out

 String 2 {Read} (out)

 String 1 {Write} (out)

 Instrument Channel out

**2.2 CONEX-ALL Enter-Leave CONFIGURATION State v2.vi**



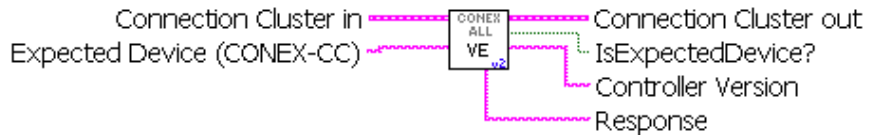
- TF** Go to CONFIGURATION State  
Configuration State?  
T - In Configuration State

**2.3 CONEX-ALL Get Command Error String v2.vi**



- abc** Error code  
Error Code
- abc** Error description  
Description of input error code.

**2.4 CONEX-ALL Get Controller Version v2.vi**



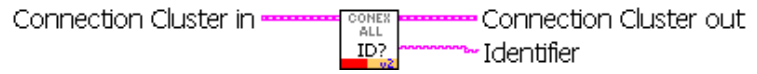
- abc** Expected Device (CONEX-CC)
- abc** Response  
Full Response
- abc** Controller Version  
Controller Version information
- TF** IsExpectedDevice?  
Is CONEX - CC?

**2.5 CONEX-ALL Get Controller's address v2.vi**



- abc** Controller's address  
Controllers address

**2.6 CONEX-ALL Get Identifier v2.vi**



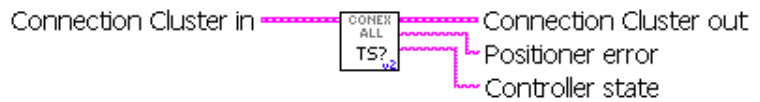
**abc** **Identifier**  
 Identification of attached hardware.

**2.7 CONEX-ALL Get Last Command Error v2.vi**



**abc** **Error code**  
 Last Command Error

**2.8 CONEX-ALL Get Positioner Error And Controller State v2.vi**



**abc** **Positioner error**  
 Positioner Error

**abc** **Controller state**  
 Controller State

**2.9 CONEX-ALL Reset Controller v2.vi**



Resets CONEX-CC

**2.10 CONEX-ALL Reset Controller's Address To 1 v2.vi**

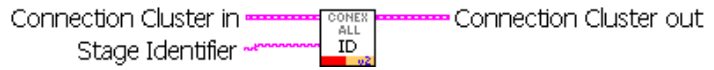


**2.11 CONEX-ALL Set Controller's address v2.vi**



**132** **Controller's address**  
Controller's RS-485 address

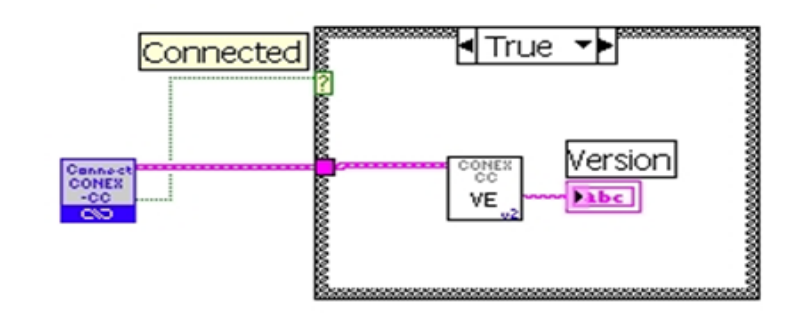
**2.12 CONEX-ALL Set Identifier v2.vi**



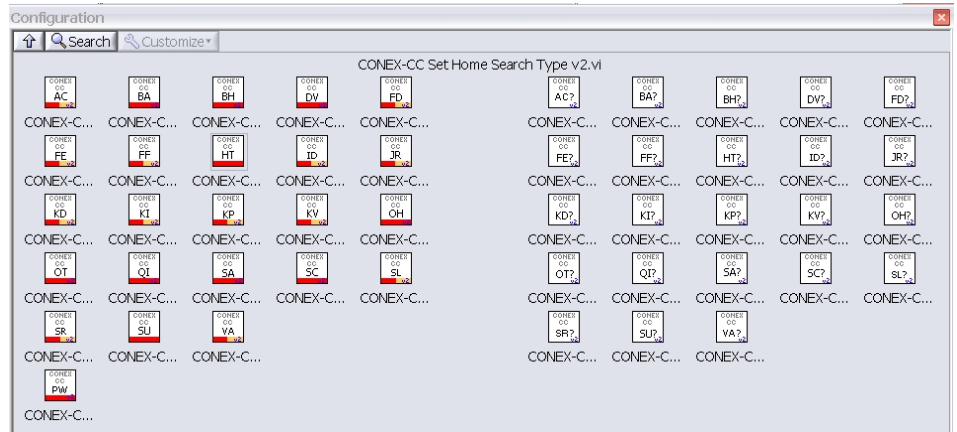
**abc** **Stage Identifier**  
Stage Identifier

**2.13 Examples**

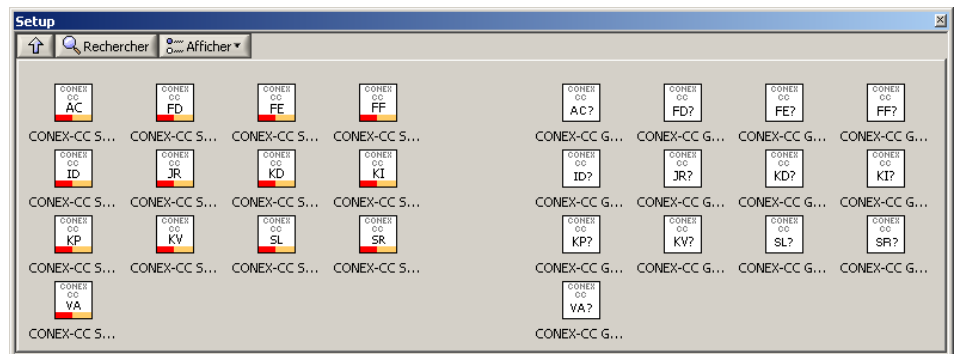
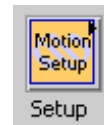
CONEX-Sample.vi shows how easy it is to find, connect and get version:



## 2.14 CONEX Configuration

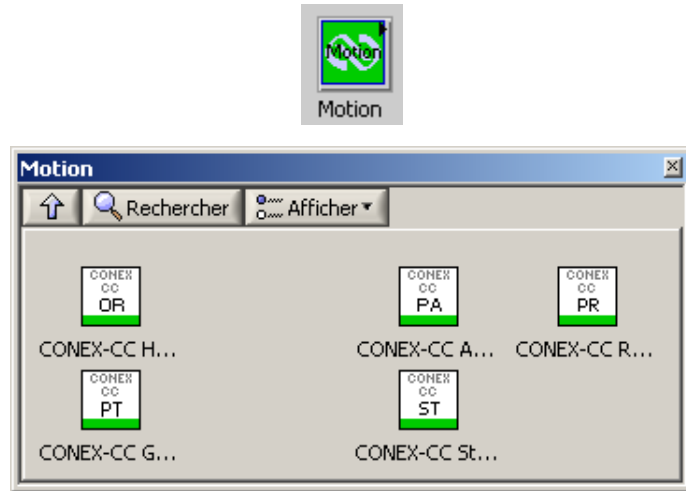


## 2.15 Motion Setup

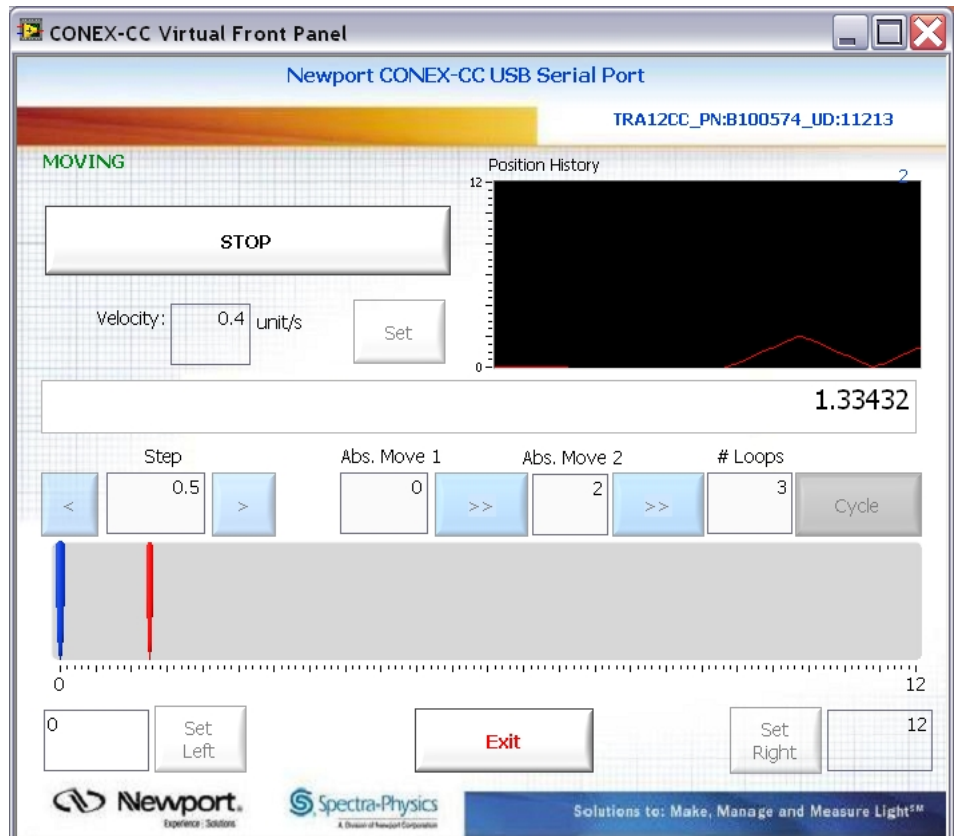
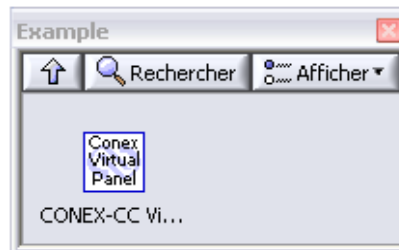




### 2.16 Motion



### 2.17 Example



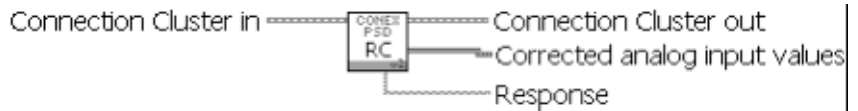
### 3.0 VI'S Description

#### 3.1 CONEX-PSD Get Corrected Analog Input Values v2.vi

RC - Get corrected analog input values

**Output:**

- Corrected X, Y and Summ values cluster
- Raw Response string



Response

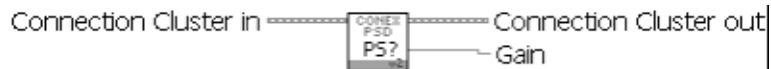
Corrected analog input values

X

Y

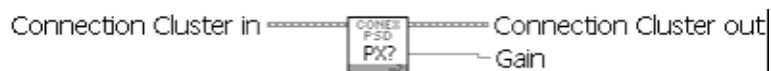
Summ

#### 3.2 CONEX-PSD Get Gain on ADC Input Summ v2.vi



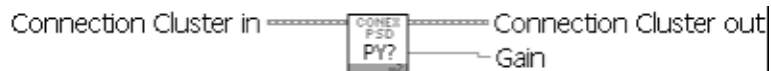
Gain

#### 3.3 CONEX-PSD Get Gain on ADC Input X v2.vi



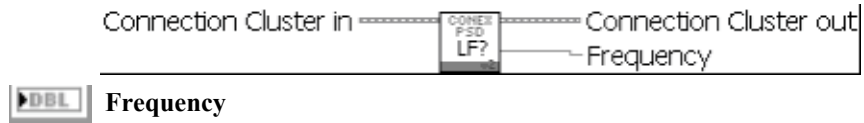
Gain

#### 3.4 CONEX-PSD Get Gain on ADC Input Y v2.vi

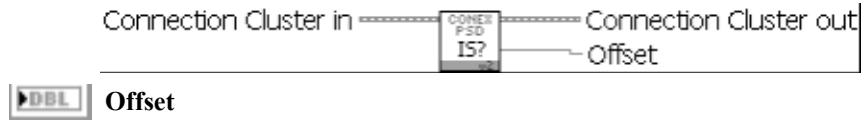


Gain

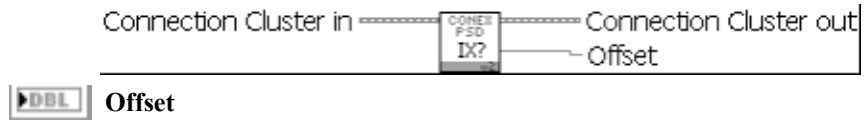
**3.5 CONEX-PSD Get Low Pass Filter Frequency v2.vi**



**3.6 CONEX-PSD Get Offset on ADC Input Summ v2.vi**



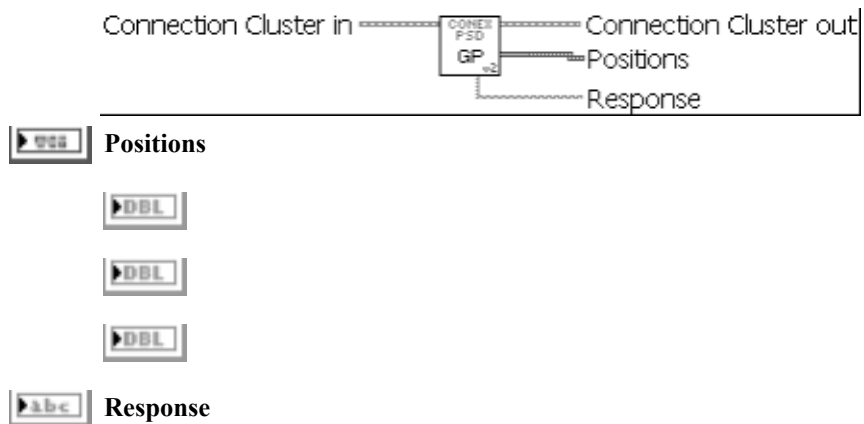
**3.7 CONEX-PSD Get Offset on ADC Input X v2.vi**



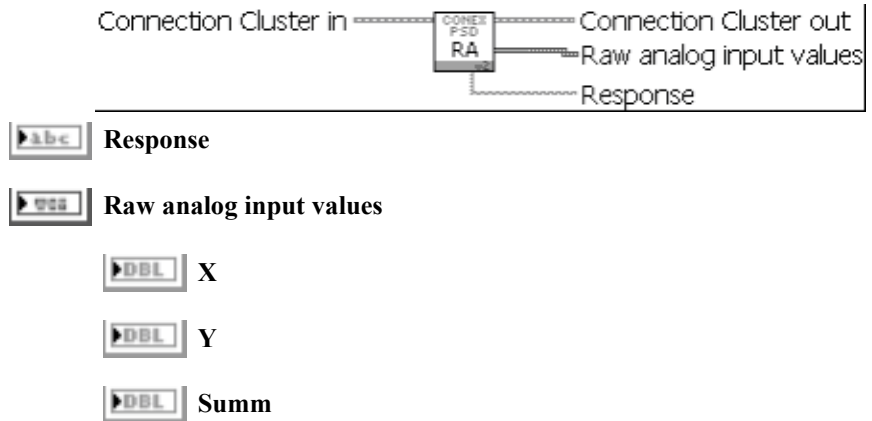
**3.8 CONEX-PSD Get Offset on ADC Input Y v2.vi**



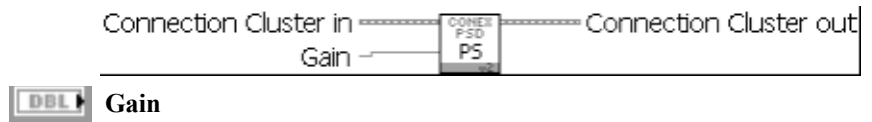
**3.9 CONEX-PSD Get Positions v2.vi**



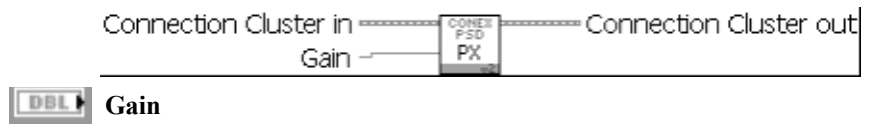
**3.10 CONEX-PSD Get Raw Analog Input Values v2.vi**



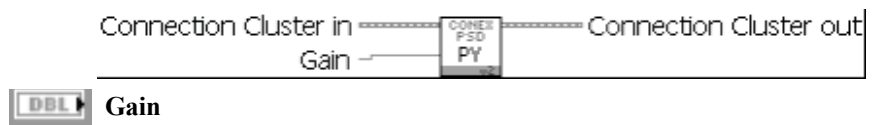
**3.11 CONEX-PSD Set Gain on ADC Input Summ v2.vi**



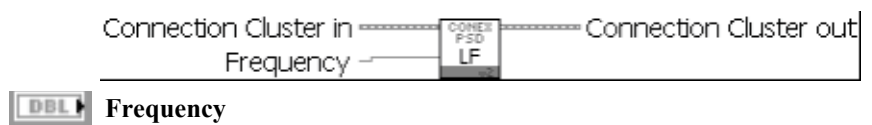
**3.12 CONEX-PSD Set Gain on ADC Input X v2.vi**



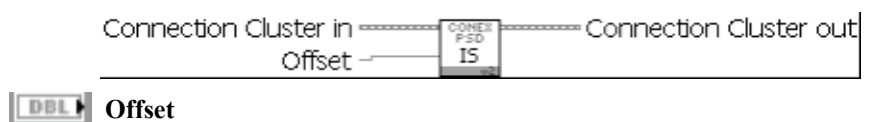
**3.13 CONEX-PSD Set Gain on ADC Input Y v2.vi**



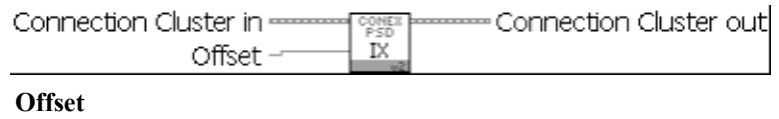
**3.14 CONEX-PSD Set Low Pass Filter Frequency v2.vi**



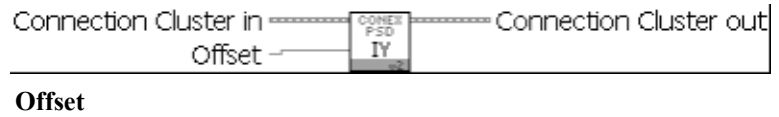
**3.15 CONEX-PSD Set Offset on ADC Input Summ v2.vi**



**3.16 CONEX-PSD Set Offset on ADC Input X v2.vi**



**3.17 CONEX-PSD Set Offset on ADC Input Y v2.vi**









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