



HXP

Hexapod Motion Controller



LabVIEW Drivers Manual

Intaller Pack Version #30002

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Original instructions.

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Hexapod Motion Controller HXP

1.0 Introduction

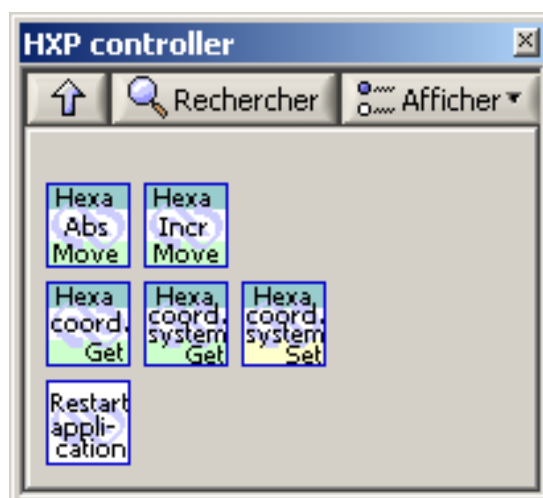
The LabVIEW drivers for the HXP Hexapod Controller have been developed under LABVIEW 8.6.

You must use at least the [version 8.6](#) of LabVIEW.

2.0 HXP Controller



2.1 VIs Description

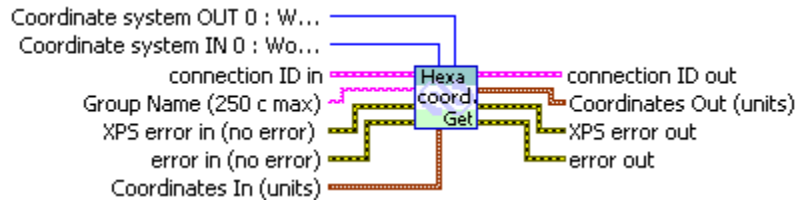


2.1.1 HexapodCoordinatesGet.vi

The HexapodCoordinatesGet function takes a coordinate (X, Y, Z, U, V, W) as input in a specified coordinate system (0 = Work, 1 = Tool, 2 = Base) and gives its coordinate (X, Y, Z, U, V, W) in another coordinate system (0 = Work, 1 = Tool, 2 = Base).

This function transforms a position (specified in one coordinate system - Work, Tool or Base) into its position in one other coordinate system (Work, Tool or Base).

Connector Pane



Controls and indicators

connection ID in A unique reference to a HXP connection gets by TCP Open VI. It identifies the TCP/IP connection used for communicate with the HXP and the identifiant of the logging file if log to file is active. See the TCP Open VI for more information

error in (no error) The **error in** cluster 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. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

Group Name (250 c max)

HXP error in (no error) The **HXP error in** cluster 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.

Coordinate system IN (0: Work 1 : Tool 2 : Base)

Coordinate system OUT (0 : Work 1 : Tool 2 : Base)

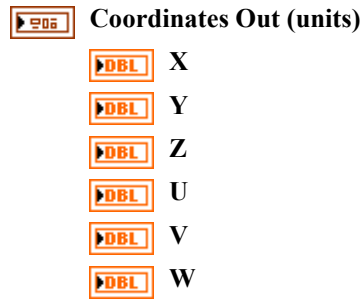
Coordinates In (units)

- X**
- Y**
- Z**
- U**
- V**
- W**

connection ID out This is a copy of the connection ID in. It is used programmatically to pass the connection ID in to any calling VIs. It simplifies dataflow programming by providing an easy method of chaining VIs together, thereby simplifying the diagram's structure.

error out The **error out** cluster passes error or warning information out of a VI to be used by other VIs. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

HXP error out The **HXP error out** cluster passes HXP error information out of a VI to be used by other VIs.

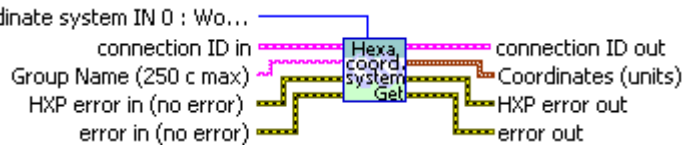


2.1.2 HexapodCoordinateSystemGet.vi


This function allows you to get the position of a coordinate system in its predecessor.


- Work (0) is defined in World
- Tool (1) is defined in Carriage
- Base (2) is defined in World

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Controls and indicators


 **connection ID in** A unique reference to a HXP connection gets by TCP Open VI. It identifies theTCP/IP connection used for communicate with the HXP and the identifiant of the logging file if log to file is active. See the TCP Open VI for more information.


 **error in (no error)** The **error in** cluster 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. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.


 **Group Name (250 c max)**

 **HXP error in (no error)** The **HXP error in** cluster 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.

 **Coordinate system IN 0 : Work 1 : Tool 2 : Base**

 **connection ID out** This is a copy of the connection ID in. It is used programmatically to pass the connection ID in to any calling VIs. It simplifies dataflow programming by providing an easy method of chaining VIs together, thereby simplifying the diagram's structure.

 **error out** The **error out** cluster passes error or warning information out of a VI to be used by other VIs. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

 **HXP error out** The **HXP error out** cluster passes HXP error information out of a VI to be used by other VIs.

 **Coordinates (units)**

-  X
-  Y
-  Z
-  U
-  V
-  W

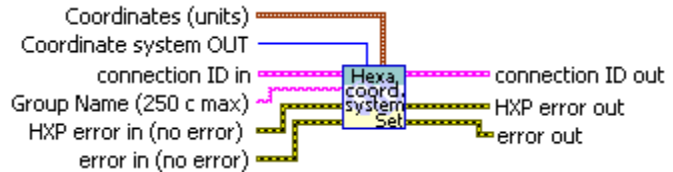
2.1.3 HexapodCoordinateSystemSet.vi

This function allows you to set the position of a coordinate system in its predecessor.

- Work (0) is defined in World
- Tool (1) is defined in Carriage
- Base (2) is defined in World

The modification is NOT recorded in the configuration files, thus will be forgotten at next reboot.

Connector Pane



Controls and indicators

connection ID in A unique reference to a HXP connection gets by TCP Open VI. It identifies the TCP/IP connection used for communicate with the HXP and the identifiand of the logging file if log to file is active. See the TCP Open VI for more information.

error in (no error) The **error in** cluster 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. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

Group Name (250 c max)

HXP error in (no error) The **HXP error in** cluster 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.

Coordinate system 0 : Work 1 : Tool 2 : Base

Coordinates (units)

- X**
- Y**
- Z**
- U**
- V**
- W**

connection ID out This is a copy of the connection ID in. It is used programmatically to pass the connection ID in to any calling VIs. It simplifies dataflow programming by providing an easy method of chaining VIs together, thereby simplifying the diagram’s structure.

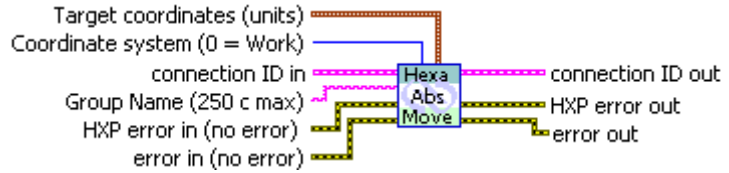
error out The **error out** cluster passes error or warning information out of a VI to be used by other VIs. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

HXP error out The **HXP error out** cluster passes HXP error information out of a VI to be used by other VIs.

2.1.4 HexapodMoveAbsolute.vi

This function executes an absolute move of the Tool coordinate system in the Work (0) coordinate system.

Connector Pane



Controls and indicators

connection ID in A unique reference to a HXP connection gets by TCP Open VI. It identifies the TCP/IP connection used for communicate with the HXP and the identifiant of the logging file if log to file is active. See the TCP Open VI for more information.

error in (no error) The **error in** cluster 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. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

Group Name (250 c max)

HXP error in (no error) The **HXP error in** cluster 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.

Coordinate system 0 : Work 1 : Tool 2 : Base

Target coordinates (units)

- X**
- Y**
- Z**
- U**
- V**
- W**

connection ID out This is a copy of the connection ID in. It is used programmatically to pass the connection ID in to any calling VIs. It simplifies dataflow programming by providing an easy method of chaining VIs together, thereby simplifying the diagram's structure.

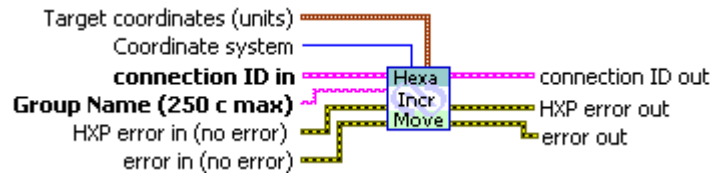
error out The **error out** cluster passes error or warning information out of a VI to be used by other VIs. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

HXP error out The **HXP error out** cluster passes HXP error information out of a VI to be used by other VIs.

2.1.5 HexapodMoveIncremental.vi

The HexapodMoveIncremental function does an incremental move in the Tool (1) coordinate system or in the Work (0) coordinate system.

Connector Pane



Controls and indicators

connection ID in A unique reference to a HXP connection gets by TCP Open VI. It identifies the TCP/IP connection used for communicate with the HXP and the identifiand of the logging file if log to file is active. See the TCP Open VI for more information.

error in (no error) The **error in** cluster 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. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

Group Name (250 c max)

HXP error in (no error) The **HXP error in** cluster 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.

Coordinate system (0 : Work or 1 : Tool)

Target coordinates (units)

- X**
- Y**
- Z**
- U**
- V**
- W**

connection ID out This is a copy of the connection ID in. It is used programmatically to pass the connection ID in to any calling VIs. It simplifies dataflow programming by providing an easy method of chaining VIs together, thereby simplifying the diagram’s structure.

error out The **error out** cluster passes error or warning information out of a VI to be used by other VIs. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

HXP error out The **HXP error out** cluster passes HXP error information out of a VI to be used by other VIs.







2.1.6 RestartApplication.vi

This function restarts the controller's application and avoids hardware reboot.

Connector Pane



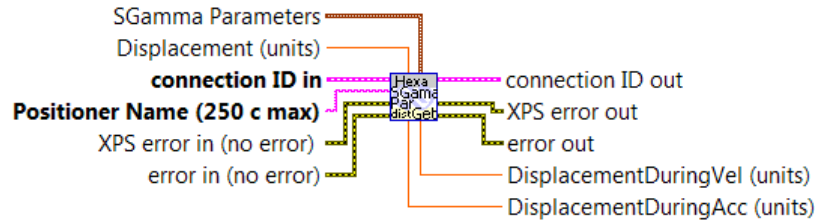
Controls and indicators

- 
connection ID in A unique reference to a XPS connection gets by TCP Open VI. It identifies the TCP/IP connection used for communicate with the XPS and the identifier of the logging file if log to file is active. See the TCP Open VI for more information.
- 
error in (no error) The **error in** cluster 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. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.
- 
HXP error in (no error) The **XPS error in** cluster 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.
- 
connection ID out This is a copy of the connection ID in. It is used programmatically to pass the connection ID in to any calling VIs. It simplifies dataflow programming by providing an easy method of chaining VIs together, thereby simplifying the diagram's structure.
- 
error out The **error out** cluster passes error or warning information out of a VI to be used by other VIs. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.
- 
HXP error out The **XPS error out** cluster passes XPS error information out of a VI to be used by other VIs.
















2.1.7 HexapodSGammaParametersDistanceGet.vi

This function allows getting the distance during acceleration phase and the distance during constant velocity phase of the virtual SGamma motion profile used in the hexapod trajectory definition.

Connector Pane



Controls and indicators

-  **connection ID in** A unique reference to a XPS connection gets by TCP Open VI. It identifies theTCP/IP connection used for communicate with the XPS and the identifiand of the logging file if log to file is active. See the TCP Open VI for more information.
-  **error in (no error)** The **error in** cluster 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. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.
-  **XPS error in (no error)** The **XPS error in** cluster 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.
-  **Positioner Name (250 c max)**
-  **SGamma Parameters** Dynamic Parameters of the actuator for a future Motion
 -  **Velocity (units/seconds)**
 -  **Acceleration (units/seconds²)**
 -  **Minimum Jerk Time (seconds)**
 -  **Maximum Jerk Time (seconds)**
-  **Displacement (units)**
-  **connection ID out** This is a copy of the connection ID in. It is used programmatically to pass the connection ID in to any calling VIs. It simplifies dataflow programming by providing an easy method of chaining VIs together, thereby simplifying the diagram's structure.
-  **error out** The **error out** cluster passes error or warning information out of a VI to be used by other VIs. The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.
-  **XPS error out** The **XPS error out** cluster passes XPS error information out of a VI to be used by other VIs.
-  **DisplacementDuringAcc (units)**
-  **DisplacementDuringVel (units)**



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