

## HexapodNewport Tango Cpp Class

### **Contents :**

- [Description](#)
- [Properties](#)
- [Commands](#)
  - [State](#)
  - [Status](#)
  - [InitializeReferencePosition](#)
  - [GoToPosition](#)
  - [SetSystemCoordinates](#)
  - [GetSystemCoordinates](#)
  - [Stop](#)
  - [Kill](#)
  - [DefinePosition](#)
- [Attributes](#)
  - [x](#)
  - [y](#)
  - [z](#)
  - [u](#)
  - [v](#)
  - [w](#)
  - [freeze](#)
- [States](#)

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### **HexapodNewport Class Identification :**

Contact : at synchrotron-soleil.fr - jean.coquet  
Class Family : Motion  
Platform : All Platforms  
Bus : Ethernet  
Manufacturer : Newport  
Manufacturer ref. : HXP

### **HexapodNewport Class Inheritance :**

- [Tango::DeviceImpl](#)
  - HexapodNewport

### **HexapodNewport Class Description :**

controls hexapods from Newport (HXP controllers)

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### **HexapodNewport Properties :**

**There is no class properties**

Device Properties			
Name	Description	Type	Default Value
Url	IP Address of the HXP Controller	String	none
Port	port to connect to HXP	short	none
Period	polling period	short	none
PositioningType	type of positioning [Absolute Relative] if Absolute, positioning performs GroupMoveAbsolute (Absolute positions) if Relative, positioning performs GroupMoveRelative (Requested Positions - Current Positions) Default : no default	String	none

HexapodNewport Class Commands				
Name	Input type	Output type	Level	Description
<a href="#">State</a>	DEV_VOID	DEV_STATE	OPERATOR	This command gets the device state (stored in its <i>device_state</i> data member) and returns it to the caller.
<a href="#">Status</a>	DEV_VOID	CONST_DEV_STRING	OPERATOR	This command gets the device status (stored in its <i>device_status</i> data member) and returns it to the caller.
<a href="#">InitializeReferencePosition</a>	DEV_VOID	DEV_VOID	EXPERT	starts the homing process
<a href="#">GoToPosition</a>	DEVVAR_DOUBLEARRAY	DEV_VOID	EXPERT	sends the hexapod to the 6 given positions values X Y Z U V W
<a href="#">SetSystemCoordinates</a>	DEV_STRING	DEV_VOID	EXPERT	sets the system coordinates (Work, Base, Tool) and the 6 coordinates form : Work, 0,-1.0, -0.003,27,33,134.5
<a href="#">GetSystemCoordinates</a>	DEV_STRING	DEV_STRING	EXPERT	gets the system coordinates (Work, Base, Tool) and the 6 coordinates input form : Work output form : Work,0,-1.0, -0.003,27,33,134.5
<a href="#">Stop</a>	DEV_VOID	DEV_VOID	OPERATOR	Stops all movements
				kill all movements

<a href="#">Kill</a>	DEV_VOID	DEV_VOID	EXPERT	deinitializes the Hexapod (which means an InitializeReferencePosition is mandatory after this operation)
<a href="#">DefinePosition</a>	DEVVAR_DOUBLEARRAY	DEV_VOID	EXPERT	defines the position as the XYZUVW

### **Command State :**

This command gets the device state (stored in its *device\_state* data member) and returns it to the caller.

State Definition		
Input Argument	Tango::DEV_VOID	none.
Output Argument	Tango::DEV_STATE	State Code
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command Status :**

This command gets the device status (stored in its *device\_status* data member) and returns it to the caller.

Status Definition		
Input Argument	Tango::DEV_VOID	none.
Output Argument	Tango::CONST_DEV_STRING	Status description
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command InitializeReferencePosition :**

starts the homing process

<b>InitializeReferencePosition Definition</b>		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command GoToPosition :**

sends the hexapod to the 6 given positions values X Y Z U V W

<b>GoToPosition Definition</b>		
Input Argument	Tango::DEVVAR_DOUBLEARRAY	the 6 positions X Y Z U V W
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command SetSystemCoordinates :**

sets the system coordinates (Work, Base, Tool) and the 6 coordinates form :

Work, 0,-1.0, -0.003,27,33,134.5



<b>SetSystemCoordinates Definition</b>		
Input Argument	Tango::DEV_STRING	the name of the coordinates and the XYZUVW coordinates
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command GetSystemCoordinates :**

gets the system coordinates (Work, Base, Tool) and the 6 coordinates

input form : Work

output form : Work,0,-1.0, -0.003,27,33,134.5

<b>GetSystemCoordinates Definition</b>		
Input Argument	Tango::DEV_STRING	the name of the coordinate system
Output Argument	Tango::DEV_STRING	the name of the coordinate system and the 6 values
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

### **Command Stop :**

Stops all movements

<b>Stop Definition</b>		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..

Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command Kill :**

kill all movements

deinitializes the Hexapod (which means an InitializeReferencePosition is mandatory after this operation)

<b>Kill Definition</b>		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command DefinePosition :**

defines the position as the XYZUVW

<b>DefinePosition Definition</b>		
Input Argument	Tango::DEVVAR_DOUBLEARRAY	the XYZUVW positions
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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HexapodNewport Class Attributes							
Name	Inherited	Abstract	Attr. type	R/W type	Data type	Level	Description
<a href="#">x</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	translation suivant X dans le repere en cours???
<a href="#">y</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	translation suivant Y dans le repere en cours???
<a href="#">z</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	translation suivant Z dans le repere en cours???
<a href="#">u</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	rotation suivant X
<a href="#">v</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	rotation suivant Y
<a href="#">w</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	rotation suivant Z
<a href="#">freeze</a>	false	false	Scalar	READ_WRITE	Tango::DEV_BOOLEAN	OPERATOR	freezes the hexapod when true: \nyou can write attributes x,y,z,u,v,w without a real move.\nwhen written to false sends the command with the values written to the HXP

**There is no dynamic attribute defined.**

**Attribute x :**

translation suivant X dans le repere en cours???

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	X
unit	mm
standard unit	mm
display unit	mm
format	%6.3f
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false

Push Archive event by user code	false
Push DataReady event by user code	Not set

**Attribute y :**

translation suivant Y dans le repere en cours???

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	Y
unit	mm
standard unit	mm
display unit	mm
format	%6.3f
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

**Attribute z :**

translation suivant Z dans le repere en cours???

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Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	Z
unit	mm
standard unit	mm
display unit	mm
format	%6.3f
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

### **Attribute u :**

rotation suivant X

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	U
unit	$\tilde{I}_c \frac{1}{2}$
standard unit	$\tilde{I}_c \frac{1}{2}$
display unit	$\tilde{I}_c \frac{1}{2}$
format	%6.3f
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false

Push Archive event by user code	false
Push DataReady event by user code	Not set

**Attribute v :**

rotation suivant Y

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	V
unit	V 1/2
standard unit	V 1/2
display unit	V 1/2
format	%6.3f
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

**Attribute w :**

rotation suivant Z

Attribute	
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Attribute	
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Attribute Event Criteria	
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Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Properties	
label	W
unit	$\bar{i}_i \frac{1}{2}$
standard unit	$\bar{i}_i \frac{1}{2}$
display unit	$\bar{i}_i \frac{1}{2}$
format	%6.3f
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

### **Attribute freeze :**

freezes the hexapod when true: \nyou can write attributes x,y,z,u,v,w without a real move.\nwhen written to false sends the command with the values written to the HXP

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_BOOLEAN
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	freeze
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user	

code	false
Push DataReady event by user code	Not set

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**There is no state defined**