

AbstractAxis Tango Cpp Class

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AbstractAxis Class Identification :

Contact : at null - null
Class Family :
Platform :
Bus :
Manufacturer :
Manufacturer ref. :

AbstractAxis Class Inheritance :

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

AbstractAxis Class Description :

Pure virtual Class for Axis family

AbstractAxis Properties :

There is no class properties

Device Properties			
Name	Description	Type	Default Value
PositionConversionRatio	conversion factor between user units and hardware units user unit = hardware position PositionConversionRatio default : 1.0	double	none
ReferencePositionStrategy	strategy to find reference position (well-known mechanical position) 0 : makes no sense : absolute encoder. 1 : user defines freely the current position. 2 : reference position on limit switch forward 3 : reference position on limit switch backward 4 : reference position on home switch 5 : reference position on Zero of incremental encoder	int	none

AbstractAxis Class Commands				
Name	Input type	Output type	Level	Description
State	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.
Status	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.
Off	DEV_VOID	DEV_VOID	OPERATOR	Turns off the power unit of the axis
On	DEV_VOID	DEV_VOID	OPERATOR	Turns on the power unit of the axis
Reset	DEV_VOID	DEV_VOID	OPERATOR	reset the memorized faults on the hardware if necessary
Forward	DEV_VOID	DEV_VOID	OPERATOR	continuous move forward, stops with stop command
Backward	DEV_VOID	DEV_VOID	OPERATOR	continuous move backward, stops with stop() command
FindReferencePosition	DEV_DOUBLE	DEV_VOID	OPERATOR	goes to its initial position, as configured by property InitType, and sets its position at argin
Stop	DEV_VOID	DEV_VOID	OPERATOR	Stops the current movement with respect to deceleration Use Off to stop without deceleration

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	true	..
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	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command Off :

Turns off the power unit of the axis

Off Definition		
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	..

Command On :

Turns on the power unit of the axis

On Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	• MOVING	..

Command Reset :

reset the memorized faults on the hardware if necessary

Reset Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	• MOVING	..

Command Forward :

continuous move forward, stops with stop command

Forward Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none"> • MOVING • FAULT • OFF 	..

Command Backward :

continuous move backward, stops with stop() command

Backward Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none"> • MOVING • FAULT • OFF 	..

Command FindReferencePosition :

goes to its initial position, as configured by property InitType, and sets its position at argin

FindReferencePosition Definition		
Input Argument	Tango::DEV_DOUBLE	the value of the home position

Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none"> • MOVING • FAULT • OFF 	..

Command Stop :

Stops the current movement with respect to deceleration
Use Off to stop without deceleration

Stop Definition		
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	..

AbstractAxis Class Attributes							
Name	Inherited	Abstract	Attr. type	R/W type	Data type	Level	Description
position	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	position of the axis in user units
acceleration	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	in user units/sec ²
deceleration	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	in user units/sec ²
velocity	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	maximum velocity for the movements in user units/sec
accuracy	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	position accuracy the final position is considered as correct if position reached -<=

							desired position + or - accuracy
offset	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	Offset subtracted from current hardware position. position = (hardware position * PositionConversionRatio) - Offset

There is no dynamic attribute defined.

Attribute position :

position of the axis in user units

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 NOT allowed for	<ul style="list-style-type: none"> • MOVING • FAULT • OFF
Write allowed for	All states

Attribute Properties	
label	position
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

Attribute acceleration :

in user units/sec^{1/2}

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read NOT allowed for	<ul style="list-style-type: none"> MOVING
Write allowed for	All states

Attribute Properties	
label	acceleration
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

Attribute deceleration :

in user units/sec^{1/2}

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write	

Attribute Properties	
label	deceleration
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set

hardware at init	true
Read NOT allowed for	• MOVING
Write allowed for	All states

max_warning	
min_warning	
delta_time	
delta_val	

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 velocity :

maximum velocity for the movements in user units/sec

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	velocity
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

Attribute accuracy :

position accuracy\n the final position is considered as correct if \nposition reached <= desired position + or - accuracy

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read NOT allowed for	<ul style="list-style-type: none"> MOVING
Write allowed for	All states

Attribute Properties	
label	accuracy
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

Attribute offset :

Offset subtracted from current hardware position. $\backslash\text{position} = (\text{hardware position} * \text{PositionConversionRatio}) - \text{Offset}\backslash$

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true

Attribute Properties	
label	Offset
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	

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

Read NOT allowed for	• MOVING
Write allowed for	All states

min_warning	
delta_time	
delta_val	

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

AbstractAxis Class States	
Name	Description
STANDBY	axis iddle, ready
MOVING	axis moving
ALARM	non-bloquing fault axis can move
FAULT	bloquing fault, axis cannot move
OFF	power unit off