Motor Tango Cpp Class

Contents :

Motor Class Identification :

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

Motor Class Inheritance :

- Tango::DeviceImpl
  - Motor

Motor Class Description :

An abstract class for stepper motot

Motor Properties :

There is no class properties

Device Properties			
Name	**Description**	**Type**	**Default Value**
Calibrated	When this property is different from 0, the motor is considered as calibrated and a certain number of attributes cannot be changed anymore.(e.g. step_per_unit) The goal is to avoid undesired change when the calibratiuon process has been performed.	boolean	none

Motor Class Commands				
Name	**Input type**	**Output type**	**Level**	**Description**
State	DEV_VOID	DEV_STATE	OPERATOR	This command gets the device state (stored in its *device_state* data member) and returns it to the caller.
Status	DEV_VOID	CONST_DEV_STRING	OPERATOR	This command gets the device status (stored in its *device_status* data member) and returns it to the caller.
On	DEV_VOID	DEV_VOID	OPERATOR	Enable power on motor
Off	DEV_VOID	DEV_VOID	OPERATOR	Desable power on motor
GoHome	DEV_VOID	DEV_VOID	OPERATOR	Move the motor to the home position given by a home switch.
Stop	DEV_VOID	DEV_VOID	OPERATOR	Stop immediately the motor
StepUp	DEV_VOID	DEV_VOID	OPERATOR	perform a relative motion of "stepSize" in the forward direction. StepSize is defined as an attribute of the device.
StepDown	DEV_VOID	DEV_VOID	OPERATOR	perform a relative motion of "stepSize" in the backward direction. StepSize is defined as an attribute of the device.

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 On :

Enable power on motor

On Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	null	..
Abstract	true	..

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

Command Off :

Desable power on motor

Off Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	null	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command GoHome :

Move the motor to the home position given by a home switch.

GoHome Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	null	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command Stop :

Stop immediately the motor

Stop Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	null	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command StepUp :

perform a relative motion of "stepSize" in the forward direction. StepSize is defined as an attribute of the device.

StepUp Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	null	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command StepDown :

perform a relative motion of "stepSize" in the backward direction. StepSize is defined as an attribute of the device.

StepDown Definition		
Input Argument	Tango::DEV_VOID	

Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	null	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Motor Class Attributes							
Name	**Inherited**	**Abstract**	**Attr. type**	**R/W type**	**Data type**	**Level**	**Description**
Steps_per_unit	null	true	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	
Steps	null	true	Scalar	READ_WRITE	Tango::DEV_LONG	OPERATOR	number of steps in the step counter\n
Position	null	true	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	The actual motor position.
Acceleration	null	true	Scalar	READ_WRITE	Tango::DEV_LONG	EXPERT	The acceleration of the motor.
Velocity	null	true	Scalar	READ_WRITE	Tango::DEV_LONG	EXPERT	The constant velocity of the motor.
Backlash	null	true	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	Backlash to be applied to each motor movement
Home_position	null	true	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	Position of the home switch
Limitlow	null	true	Scalar	READ	Tango::DEV_BOOLEAN	OPERATOR	
Limitup	null	true	Scalar	READ	Tango::DEV_BOOLEAN	OPERATOR	
PresetPosition	null	true	Scalar	WRITE	Tango::DEV_DOUBLE	EXPERT	preset the position in the step counter
FirstStepVelocity	null	true	Scalar	READ_WRITE	Tango::DEV_LONG	EXPERT	number of step/s for the first step and for the move reference
Home_side	null	true	Scalar	READ	Tango::DEV_BOOLEAN	OPERATOR	indicates if the axis is below or above the position of the home switch
StepSize	null	true	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Size of the relative step performed by the StepUp and StepDown

							commands.\nThe StepSize is expressed in physical unit.

There is no dynamic attribute defined.

Attribute Steps_per_unit :

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

Attribute Properties	
label	Steps per mm
unit	steps/mm
standard unit	
display unit	
format	%7.1f
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 Steps :

number of steps in the step counter\n

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

Attribute Properties	
label	Steps
unit	steps
standard unit	
display unit	
format	%6d
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 Position :

The actual motor position.

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

Attribute Properties	
label	position
unit	mm
standard unit	
display unit	
format	%7.3f
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	

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

for	

delta_val	

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

Attribute Acceleration :

The acceleration of the motor.

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

Attribute Properties	
label	Acceleration
unit	steps/s^2
standard unit	
display unit	
format	%4d
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 Velocity :

The constant velocity of the motor.

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_LONG
Display Level	EXPERT
Inherited	null
Abstract	true
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	steps/s
standard unit	
display unit	
format	%4d
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 Backlash :

Backlash to be applied to each motor movement

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

Attribute Properties	
label	Backlash
unit	mm
standard unit	
display unit	
format	%5.3f
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
	Not

init.	
Read allowed for	All states
Write allowed for	All states

min_warning	
delta_time	
delta_val	

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

Attribute Home_position :

Position of the home switch

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

Attribute Properties	
label	Home position
unit	mm
standard unit	
display unit	
format	%7.3f
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 Limitlow :

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

Attribute Properties	
label	low limit switch state
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 Limitup :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_BOOLEAN
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set

Attribute Properties	
label	up limit switch state
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

Read 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 PresetPosition :

preset the position in the step counter

Attribute Definition	
Attribute Type	Scalar
R/W Type	WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Write allowed for	All states

Attribute Properties	
label	Preset Position
unit	mm
standard unit	
display unit	
format	%.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 FirstStepVelocity :

number of step/s for the first step and for the move reference

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

Attribute Properties	
label	first step velocity
unit	steps/s
standard unit	
display unit	
format	%4d
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 Home_side :

indicates if the axis is below or above the position of the home switch

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_BOOLEAN
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set

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

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

Read allowed for	All states

min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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 StepSize :

Size of the relative step performed by the StepUp and StepDown commands.\nThe StepSize is expressed in physical unit.

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

Attribute Properties	
label	StepSize
unit	mm
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

Motor Class States	
Name	**Description**
ON	The motor powered on and is ready to move.
MOVING	The motor is moving
FAULT	The motor indicates a fault.
ALARM	The motor indicates an alarm state for example has reached a limit switch.
OFF	The power on the moror drive is switched off.
DISABLE	The motor is in slave mode and disabled for normal use