

TacoMotor Tango Cpp Class

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TacoMotor Class Identification :

Contact : at dl.ac.uk - g.r.mant
 Class Family : Motion
 Platform : All Platforms
 Bus : Not Applicable
 Manufacturer : none
 Manufacturer ref. :

TacoMotor Class Inheritance :

- [Tango::DeviceImpl](#)
 - Motor
 - TacoMotor

TacoMotor Class Description :

This class wraps a taco motor compliant to the standard Motor abstract class

TacoMotor Properties :

There is no class properties

Device Properties			
Name	Description	Type	Default Value
Motor_device	name of motor device	String	none
Axis_number	axis number	int	1
Calibrated		boolean	false

TacoMotor 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.
On	DEV_VOID	DEV_VOID	OPERATOR	Enable power on motor
Off	DEV_VOID	DEV_VOID	OPERATOR	Disable power on motor
GoHome	DEV_VOID	DEV_VOID	OPERATOR	Move the motor to the home position given by a home switch.
Abort	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	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	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	true	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command Off :

Disable power on motor

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

Command Abort :

Stop immediately the motor

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

TacoMotor Class Attributes							
Name	Inherited	Abstract	Attr. type	R/W type	Data type	Level	Description
Steps_per_unit	true	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	
Steps	true	false	Scalar	READ_WRITE	Tango::DEV_LONG	OPERATOR	number of steps in the step counter\n
Position	true	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	The actual motor position.
Acceleration	true	false	Scalar	READ_WRITE	Tango::DEV_LONG	EXPERT	The acceleration of the motor.
Velocity	true	false	Scalar	READ_WRITE	Tango::DEV_LONG	EXPERT	The constant velocity of the motor.
Backlash	true	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	Backlash to be applied to each motor movement
Home_position	true	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	Position of the home switch
HardLimitLow	true	false	Scalar	READ	Tango::DEV_BOOLEAN	OPERATOR	
HardLimitHigh	true	false	Scalar	READ	Tango::DEV_BOOLEAN	OPERATOR	
PresetPosition	true	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	preset the position in the step counter
FirstVelocity	true	false	Scalar	READ_WRITE	Tango::DEV_LONG	EXPERT	number of step/s for the first step and for the move reference
Home_side	true	false	Scalar	READ	Tango::DEV_BOOLEAN	OPERATOR	indicates if the axis is below or above the

							position of the home switch
StepSize	true	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Size of the relative step performed by the StepUp and StepDown commands.\n\nThe StepSize is expressed in physical unit.
Offset	true	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	

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	true
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	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	true
Abstract	false
Polling Period	Not polled
Memorized	Not set
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

Attribute Properties	
label	position
unit	mm
standard unit	
display unit	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set

Inherited	true
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	Not set
Read allowed for	All states
Write allowed for	All states

format	%7.3f
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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 :

The acceleration of the motor.

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_LONG
Display Level	EXPERT
Inherited	true
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	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	true
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	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

Attribute Properties	
label	Backlash

Attribute Event Criteria	
Periodic	Not set

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

unit	mm
standard unit	
display unit	
format	%5.3f
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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_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	true
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read	

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

allowed for	All states
Write allowed for	All states

code	
Push DataReady event by user code	Not set

Attribute HardLimitLow :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_BOOLEAN
Display Level	OPERATOR
Inherited	true
Abstract	false
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 HardLimitHigh :

Attribute Definition	

Attribute Properties	

Attribute Event Criteria	

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

label	up 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	

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 PresetPosition :

preset the position in the step counter

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

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	false

Write allowed for	All states
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delta_val	
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code	
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute FirstVelocity :

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	true
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	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	true
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	
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 StepSize :

Size of the relative step performed by the StepUp and StepDown commands. The 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	true
Abstract	false
Polling Period	Not polled
Memorized	true

Attribute Properties	
label	StepSize
unit	mm
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

Write hardware at init.	true
Read allowed for	All states
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 Offset :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	true
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	
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

TacoMotor 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