



**TANGO**  
Device  
Server

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# **class to drive motorisation User's Guide**

## **SimAxis Class**

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**Revision: Release-1\_3 - Author: penel  
Implemented in C++ - CVS repository: ESRF**

### **Introduction:**

### **Class Identification:**

- **Contact** : at esrf.fr - penel
- **Class Family** : Motion
- **Platform** : Unix Like
- **Bus** : Serial Line
- **Manufacturer** : Berger Lahr
- **Reference** : SDP2-2

### **Class Inheritance:**

- Tango::DeviceImpl
  - Motor
    - SimAxis

## Properties:

<b>Device Properties</b>		
<b>Property name</b>	<b>Property type</b>	<b>Description</b>
<b>Calibrated</b>	Tango::DEV_BOOLEAN	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.
<b>HighLimitPos</b>	Tango::DEV_DOUBLE	Position of High limitSwitch
<b>LowLimitPos</b>	Tango::DEV_DOUBLE	Low limit switch position

## Device Properties Default Values:

<b>Property Name</b>	<b>Default Values</b>
Calibrated	No default value
HighLimitPos	500
LowLimitPos	10

**There is no Class properties.**

## States:

<b>States</b>	
<b>Names</b>	<b>Descriptions</b>
<b>ON</b>	The motor powered on and is ready to move.
<b>MOVING</b>	The motor is moving
<b>FAULT</b>	The motor indicates a fault.
<b>ALARM</b>	The motor indicates an alarm state for example has reached a limit switch.
<b>OFF</b>	The power on the moror drive is switched off.
<b>DISABLE</b>	The motor is in slave mode and disabled for normal use

## Attributes:

<b>Scalar Attributes</b>			
<b>Attribute name</b>	<b>Data Type</b>	<b>R/W Type</b>	<b>Expert</b>
<b>Steps_per_unit</b>	DEV_DOUBLE	READ_WRITE	Yes
<b>Steps:</b> number of steps in the step counter	DEV_DOUBLE	READ_WRITE	No
<b>Position:</b> The actual motor position.	DEV_DOUBLE	READ_WRITE	No
<b>Acceleration:</b> The acceleration of the motor.	DEV_DOUBLE	READ_WRITE	No
<b>Velocity:</b> The constant velocity of the motor.	DEV_DOUBLE	READ_WRITE	No
<b>Home_position:</b> Position of the home switch	DEV_DOUBLE	READ_WRITE	Yes
<b>HardLimitLow</b>	DEV_BOOLEAN	READ	No
<b>HardLimitHigh</b>	DEV_BOOLEAN	READ	No
<b>PresetPosition:</b> preset the position in the step counter	DEV_DOUBLE	READ_WRITE	Yes
<b>FirstVelocity:</b> number of step/s for the first step and for the move reference	DEV_DOUBLE	READ_WRITE	Yes
<b>Home_side:</b> indicates if the axis is below or above the position of the home switch	DEV_BOOLEAN	READ	No
<b>StepSize:</b> Size of the relative step performed by the StepUp and StepDown commands. The StepSize is expressed in physical unit.	DEV_DOUBLE	READ_WRITE	No
<b>Backlash</b>	DEV_DOUBLE	READ_WRITE	No
<b>InstantSpeed</b>	DEV_DOUBLE	READ	No
<b>AddOffset</b>	DEV_DOUBLE	READ_WRITE	Yes

## Commands:

More Details on commands....

Device Commands for Operator Level		
Command name	Argument In	Argument Out
<b>Init</b>	DEV_VOID	DEV_VOID
<b>State</b>	DEV_VOID	DEV_STATE
<b>Status</b>	DEV_VOID	CONST_DEV_STRING
<b>On</b>	DEV_VOID	DEV_VOID
<b>Off</b>	DEV_VOID	DEV_VOID
<b>GoHome</b>	DEV_VOID	DEV_VOID
<b>Abort</b>	DEV_VOID	DEV_VOID
<b>StepUp</b>	DEV_VOID	DEV_VOID
<b>StepDown</b>	DEV_VOID	DEV_VOID
<b>Reset</b>	DEV_VOID	DEV_VOID

Device Commands for Expert Level Only		
Command name	Argument In	Argument Out
<b>Get_mot_ack</b>	DEV_VOID	DEV_BOOLEAN
<b>Send_cmd</b>	DEV_STRING	DEV_BOOLEAN
<b>Get_response</b>	DEV_VOID	DEV_STRING

## 1 - Init

- **Description:** This commands re-initialise a device keeping the same network connection. After an Init command executed on a device, it is not necessary for client to re-connect to the device. This command first calls the device *delete\_device()* method and then execute its *init\_device()* method. For C++ device server, all the memory allocated in the *nit\_device()* method must be freed in the *delete\_device()* method. The language device desctructor automatically calls the *delete\_device()* method.
- **Argin:**  
**DEV\_VOID** : none.
- **Argout:**  
**DEV\_VOID** : none.
- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT

- Tango::ALARM
- Tango::OFF
- Tango::DISABLE

## 2 - State

- **Description:** This command gets the device state (stored in its *device\_state* data member) and returns it to the caller.
- **Argin:**  
**DEV\_VOID** : none.
- **Argout:**  
**DEV\_STATE** : State Code
- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

## 3 - Status

- **Description:** This command gets the device status (stored in its *device\_status* data member) and returns it to the caller.
- **Argin:**  
**DEV\_VOID** : none.
- **Argout:**  
**CONST\_DEV\_STRING** : Status description
- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

## 4 - On

- **Description:** Enable power on motor
- **Argin:**  
**DEV\_VOID :**
- **Argout:**  
**DEV\_VOID :**
- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

## 5 - Off

- **Description:** Desable power on motor
- **Argin:**  
**DEV\_VOID :**
- **Argout:**  
**DEV\_VOID :**
- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

## 6 - GoHome

- **Description:** Move the motor to the home position given by a home switch.
- **Argin:**

**DEV\_VOID :**

- **Argout:**  
**DEV\_VOID :**
- **Command allowed for:**
  - Tango::ON
  - Tango::ALARM

## 7 - Abort

- **Description:** Stop immediately the motor
- **Argin:**  
**DEV\_VOID :**
- **Argout:**  
**DEV\_VOID :**
- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

## 8 - StepUp

- **Description:** perform a relative motion of "stepSize" in the forward direction. StepSize is defined as an attribute of the device.
- **Argin:**  
**DEV\_VOID :**
- **Argout:**  
**DEV\_VOID :**
- **Command allowed for:**
  - Tango::ON
  - Tango::ALARM

## 9 - StepDown

- **Description:** perform a relative motion of "stepSize" in the backward direction. StepSize is defined as an attribute of the device.
- **Argin:**  
**DEV\_VOID :**
- **Argout:**  
**DEV\_VOID :**
- **Command allowed for:**
  - Tango::ON
  - Tango::ALARM

## 10 - Get\_mot\_ack (for expert only)

- **Description:** verify that last command was well interpreted
- **Argin:**  
**DEV\_VOID :**
- **Argout:**  
**DEV\_BOOLEAN :**
- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

## 11 - Send\_cmd (for expert only)

- **Description:** Send command send the argin cmd adding \x0d at the end
- **Argin:**  
**DEV\_STRING :** cmd to send
- **Argout:**



**DEV\_BOOLEAN :**

- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

## **12 - Get\_response (for expert only)**

- **Description:** Berger response .
- **Argin:**  
**DEV\_VOID :**
- **Argout:**  
**DEV\_STRING :** response of Berger
- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

## **13 - Reset**

- **Description:** delete devices proxy and reinit motorization
- **Argin:**  
**DEV\_VOID :**
- **Argout:**  
**DEV\_VOID :**
- **Command allowed for:**
  - Tango::ON
  - Tango::MOVING
  - Tango::FAULT

- Tango::ALARM
- Tango::OFF
- Tango::DISABLE

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