Tango class for VpapMotor board
User's Guide

VpapMotor Class

Revision: V1_3 - Author: chaize
Implemented in C++ - CVS repository: ESRF

Introduction:

This class implement Tango devices for each axe of a VpapMotor VME board

Class Inheritance:

- Tango::DeviceImpl
  - Motor
    - VpapMotor

Properties:

Device Properties

Property name	Property type	Description
Calibrated	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.
Inode_name	Tango::DEV_STRING	name of the board descriptor. (e.g. /dev/vsm0)
Channel	Tango::DEV_SHORT	channel number. (between 1 to 8)
Powerdriver	Tango::DEV_STRING	type of power driver used. It can be DPAP or ADAS
Init_enable	Tango::DEV_BOOLEAN	define if the motor should be powered at server startup
HomePolarity	Tango::DEV_SHORT	define the polarity of the home switch. (-1 or +1). from this polarity, the command GoHome will go in a direction or another
Inertia_delay	Tango::DEV_LONG	the minimum time to wait between a request for movment and the effective starting of the motor. This delay is by default 100 usec for light masses but should be increased if the mass in movment is heavy. (expressed in microseconds)
Auto_off	Tango::DEV_USHORT	if specified, the motor will be automatically switched OFF few minute after the end of last movment. The value of the property define the number of minutes) means no auto_off

Device Properties Default Values:

Property Name	Default Values
Calibrated	false
Inode_name	/dev/vsm0
Channel	1
Powerdriver	DPAP
Init_enable	true
HomePolarity	1
Inertia_delay	100
Auto_off	0

There is no Class properties.

States:

States	
Names	**Descriptions**
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

Attributes:

Scalar Attributes			
Attribute name	**Data Type**	**R/W Type**	**Expert**
Steps_per_unit	DEV_DOUBLE	READ_WRITE	Yes
Steps: number of steps in the step counter	DEV_LONG	READ_WRITE	No
Position: The actual motor position.	DEV_DOUBLE	READ_WRITE	No
Home_side	DEV_BOOLEAN	READ	No
HardLimitLow	DEV_BOOLEAN	READ	No
HardLimitHigh	DEV_BOOLEAN	READ	No
Velocity: The constant velocity of the motor.	DEV_LONG	READ_WRITE	Yes
Acceleration: The acceleration of the motor.	DEV_LONG	READ_WRITE	Yes
FirstVelocity	DEV_LONG	READ_WRITE	No
Backlash: Backlash to be applied to each motor movement	DEV_DOUBLE	READ_WRITE	Yes
Home_position	DEV_DOUBLE	READ_WRITE	Yes
PresetPosition: preset the position in the step counter	DEV_DOUBLE	WRITE	Yes
StepSize: Size of the relative step performed by the StepUp and StepDown commands. The StepSize is expressed in physical unit.	DEV_DOUBLE	READ_WRITE	No

Commands:

More Details on commands....

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

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::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

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 - Reset

- **Description:** perform a full reset of the channel and reassign the different parameters

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

- Tango::ON
- Tango::MOVING
- Tango::FAULT
- Tango::ALARM
- Tango::OFF
- Tango::DISABLE

9 - 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::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF
  - Tango::DISABLE

10 - 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::MOVING
  - Tango::FAULT
  - Tango::ALARM
  - Tango::OFF

- Tango::DISABLE