



**TANGO**  
Device  
Server

# **PlcUndulator User's Guide**

## **PlcUndulator Class**

Revision: - Author: andrea.parenti  
Implemented in C++

### **Introduction:**

This interface to undulators makes use of PLC.

### **Class Identification:**

- **Contact** : at desy.de - andrea.parenti
- **Class Family** : Instrumentation
- **Platform** : Unix Like
- **Bus** : Not Applicable

### **Class Inheritance:**

- Tango::DeviceImpl
  - AbstractMotorHasy
    - PlcUndulator

## Properties:

| Device Properties     |                   |                                             |
|-----------------------|-------------------|---------------------------------------------|
| Property name         | Property type     | Description                                 |
| <b>PlcServer</b>      | Tango::DEV_STRING | The server which exports the undulator PLC. |
| <b>SimulationMode</b> | Tango::DEV_SHORT  | 0 real mode, 1 simulation mode.             |

## Device Properties Default Values:

| Property Name  | Default Values   |
|----------------|------------------|
| PlcServer      | No default value |
| SimulationMode | No default value |

**There is no Class properties.**

## States:

| States        |               |
|---------------|---------------|
| Names         | Descriptions  |
| <b>MOVING</b> | *             |
| <b>FAULT</b>  | *             |
| <b>ON</b>     | motor is idle |

## Attributes:

| Scalar Attributes                                                                                                |            |            |        |
|------------------------------------------------------------------------------------------------------------------|------------|------------|--------|
| Attribute name                                                                                                   | Data Type  | R/W Type   | Expert |
| <b>CurrentUnitPosition:</b> The current Gap in um.                                                               | DEV_DOUBLE | READ       | No     |
| <b>DesiredUnitPosition:</b> The desired Gap in um.                                                               | DEV_LONG   | READ_WRITE | No     |
| <b>UnitLimitMax:</b> The Max allowed value for the Gap, in um. It is at most 225000 um. This value is read-only. | DEV_DOUBLE | READ_WRITE | No     |
| <b>UnitLimitMin:</b> The Min allowed value for the Gap, in um. It is at least 8000 um. This value is read-only.  | DEV_DOUBLE | READ_WRITE | No     |
| <b>CurrentSpeed:</b> The current Speed. Max value (100000) corresponds to 8.56 mm/s.                             | DEV_LONG   | READ       | No     |
| <b>DesiredSpeed:</b> The desired Speed. Max value (100000) corresponds to 8.56 mm/s.                             | DEV_LONG   | READ_WRITE | No     |
| <b>Enable</b>                                                                                                    | DEV_UCHAR  | READ_WRITE | No     |
| <b>CwLimit:</b> Unused.                                                                                          | DEV_LONG   | READ       | Yes    |
| <b>CcwLimit:</b> Unused.                                                                                         | DEV_LONG   | READ       | Yes    |
| <b>SettleTime:</b> Unused.                                                                                       | DEV_DOUBLE | READ_WRITE | Yes    |
| <b>FlagProtected:</b> Unused.                                                                                    | DEV_LONG   | 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>StartMove</b>                   | DEV_VOID    | DEV_LONG         |
| <b>StopMove</b>                    | DEV_VOID    | DEV_LONG         |
| <b>ResetMotor</b>                  | DEV_VOID    | DEV_LONG         |

| Device Commands for Expert Level Only |             |              |
|---------------------------------------|-------------|--------------|
| Command name                          | Argument In | Argument Out |
| <b>CompleteMove</b>                   | DEV_VOID    | DEV_LONG     |
| <b>SetupUnitMove</b>                  | DEV_DOUBLE  | DEV_LONG     |
| <b>Move</b>                           | DEV_DOUBLE  | DEV_LONG     |
| <b>Calibrate</b>                      | DEV_DOUBLE  | DEV_LONG     |
| <b>UserCalibrate</b>                  | DEV_DOUBLE  | DEV_LONG     |

## 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::MOVING
  - Tango::FAULT
  - Tango::ON

## 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::MOVING
- Tango::FAULT
- Tango::ON

### 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::MOVING
  - Tango::FAULT
  - Tango::ON

### 4 - CompleteMove (for expert only)

- **Description:** Unused.
- **Argin:**  
**DEV\_VOID** :
- **Argout:**  
**DEV\_LONG** : return status of execution
- **Command allowed for:**
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ON

### 5 - SetupUnitMove (for expert only)

- **Description:** Unused.
- **Argin:**  
**DEV\_DOUBLE** : final position, in units

- **Argout:**  
**DEV\_LONG** : completion status
- **Command allowed for:**
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ON

## 6 - StartMove

- **Description:** Start to move, the function returns immediately.
- **Argin:**  
**DEV\_VOID** :
- **Argout:**  
**DEV\_LONG** : completion status
- **Command allowed for:**
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ON

## 7 - StopMove

- **Description:** Stop moving, return immediately, don't wait for de-acceleation.
- **Argin:**  
**DEV\_VOID** :
- **Argout:**  
**DEV\_LONG** : completion status
- **Command allowed for:**
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ON

## 8 - Move (for expert only)

- **Description:** Unused.
- **Argin:**  
**DEV\_DOUBLE** : Final position, in units
- **Argout:**  
**DEV\_LONG** : Completion status
- **Command allowed for:**
  - Tango::ON

## 9 - ResetMotor

- **Description:** Reset the motor.
- **Argin:**  
**DEV\_VOID** :
- **Argout:**  
**DEV\_LONG** : Completion status
- **Command allowed for:**
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ON

## 10 - Calibrate (for expert only)

- **Description:** Unused.
- **Argin:**  
**DEV\_DOUBLE** : Value to be calibrated
- **Argout:**  
**DEV\_LONG** : Completion status
- **Command allowed for:**
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ON

## 11 - UserCalibrate (for expert only)

- **Description:** Unused.
- **Argin:**  
**DEV\_DOUBLE** : Value to be calibrated
- **Argout:**  
**DEV\_LONG** : Completion status
- **Command allowed for:**
  - Tango::MOVING
  - Tango::FAULT
  - Tango::ON

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