



TANGO
Device
Server

eleta encoder driving User's Guide

Encoder Class

**Revision: Release_1_0 - Author: penel
Implemented in C++ - CVS repository: ESRF**

Introduction:

Classe writen to read an encoder

Class Description:

Properties:

| Device Properties | | |
|--------------------------|----------------------|--|
| Property name | Property type | Description |
| Line | Tango::DEV_STRING | serial line device name ex : " id/ser/i7" |
| Steps_by_unit | Tango::DEV_DOUBLE | number of encoder steps for a unit (ex : 10000) |
| Direction | Tango::DEV_SHORT | The rotation direction (+1 or -1) |
| Steps_at_ref | Tango::DEV_DOUBLE | number of step read at ref position (ex typical 500000) |
| Pos_at_ref | Tango::DEV_DOUBLE | Position at reference in mm (ex 480 ; this position is the position return when the encoder return step_at_ref) |
| Max_char_in_buff | Tango::DEV_SHORT | The Max number of caractere allowed in the serial line buffer. If this number is reach then the encoder goes in FAULT state. Status signal Buffer OVERLOAD |

Device Properties Default Values:

| Property Name | Default Values |
|----------------------|-----------------------|
| Line | No default value |
| Steps_by_unit | No default value |
| Direction | No default value |
| Steps_at_ref | No default value |
| Pos_at_ref | No default value |
| Max_char_in_buff | No default value |

There is no Class properties.

States:

| States | |
|---------------|--|
| Names | Descriptions |
| ON | Encoder is ON and OK |
| FAULT | fault on encoder could come from serial line probleme : timeout; bad setting ,lost of caracter, reading too old..... |

Attributes:

| Scalar Attributes | | | |
|--|------------|----------|--------|
| Attribute name | Data Type | R/W Type | Expert |
| Position: the Position give by the Encoder after compute. NB : the attribute is automaticcly refresh after each encoder message each message from the serial line . | DEV_DOUBLE | READ | 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 |
| Reset | DEV_VOID | DEV_VOID |
| DevReadPos | DEV_VOID | DEV_DOUBLE |

| Device Commands for Expert Level Only | | |
|---------------------------------------|-------------|--------------|
| Command name | Argument In | Argument Out |
| SetPos | DEV_STRING | 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::FAULT

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::FAULT

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::FAULT

4 - Reset

- **Description:** reset the encoder Flush the serial line Set the Serial line to the first available message
- **Argin:**

DEV_VOID :

- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::FAULT

5 - DevReadPos

- **Description:** Return the last available value of the encoder in mm. The value you read is the last fresh value send by the Encoder (every 40ms). Don't care on polling of this value it's done by an asynchronous call to the serial line that refresh the value.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_DOUBLE : The position read on the encoder in mm
- **Command allowed for:**
 - Tango::ON

6 - SetPos (for expert only)

- **Description:** This command is used by the asynchronous callback to set .It compute the position from the string that is return from the Encoder. $Pos=(direction /step_by_unit) \times value(READ_string) +pos_at_ref-(steps_at_ref*direction)/steps_by_unit$ NB this command is availabale in Expert Mode Only
- **Argin:**
DEV_STRING : Position receive from the encoder line
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT

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Device Servers : CVS repository on tango-ds project