



TANGO Device Server

I404 BPM
User's Guide

I404 Class

Revision: - Author: tkracht
Implemented in C++

Introduction:

four channel digital electrometer used for BPMs

Class Inheritance:

- Tango::Device_4Impl
  - I404

Properties:

Device Properties		
Property name	**Property type**	**Description**
SimulationMode	Tango::DEV_LONG	0 real mode, 1 simulation mode
HostName	Tango::DEV_STRING	the terminal server host name
PortNo	Tango::DEV_LONG	the TCP/IP port number

Device Properties Default Values:

Property Name	**Default Values**
SimulationMode	0
HostName	No default value
PortNo	No default value

There is no Class properties.

Attributes:

Scalar Attributes			
Attribute name	**Data Type**	**R/W Type**	**Expert**
Calib_source: set/query internal calibration source state, 0 - off, 1 - to channel 1, etc.	DEV_LONG	READ_WRITE	No
Conf_capacitor: set feedback capacitor 0 - 100 pF, 1 - 3300 pF	DEV_LONG	READ_WRITE	No
Conf_hv_max: set maximum allowable hv setting in volts	DEV_LONG	READ_WRITE	No
Conf_intavg: the number of integrations to average per reading, 1 to 15	DEV_LONG	READ_WRITE	No
Conf_hv_set: set the external hv in volts	DEV_LONG	READ_WRITE	No
Conf_monitor: thset the position function that is performed internally by the I404 and the signals that are put out on the analog voltage and frequency monitor 1 no position calculation 2 quadrant mode calculations 3 split mode calculations	DEV_LONG	READ_WRITE	No
Conf_period: tthe integration period in seconds	DEV_FLOAT	READ_WRITE	No
Conf_pos_polarity: set/query the polarity of the current readings used for the calculations 0 - +ve, 1 - -ve	DEV_LONG	READ_WRITE	No
Conf_pos_threshold: set/query threshold (in per cent of full current scale in use) for data to be included in position calculations	DEV_FLOAT	READ_WRITE	No
Conf_range: set/query a full scale current range in amps, integration period and capacitor selection are calculated by the I404	DEV_FLOAT	READ_WRITE	No

Conf_readavg: set/query the number of adc readings to be taken in each integration period	DEV_LONG	READ_WRITE	No
Conf_resolution: set/query the number of bits of effective resolution, 16 - 20, the i404 calculates the number of integration periods and adc readings per integration	DEV_LONG	READ_WRITE	No
Read_current1: query current reading of channel 1	DEV_FLOAT	READ	No
Read_current2: query current reading of channel 2	DEV_FLOAT	READ	No
Read_current3: query current reading of channel 3	DEV_FLOAT	READ	No
Read_current4: query current reading of channel 4	DEV_FLOAT	READ	No
Read_integrationtime: integration time used	DEV_FLOAT	READ	No
Read_hv: read hv output sense	DEV_FLOAT	READ	No
Read_position_x: perform position calculation in configured mode	DEV_FLOAT	READ	No
Read_position_y: perform position calculation in configured mode	DEV_FLOAT	READ	No
Syst_frequency: set/query the dominant noise frequency in Hz to be suppressed in the calibration routine, 50 or 60 Hz	DEV_LONG	READ_WRITE	No
Syst_save: 0 do not go to safe state when disconnected, 1 - go to safe state when disconnected (hv off)	DEV_LONG	READ_WRITE	No
Syst_serial: query the system serial number	DEV_LONG	READ	No
Position_x: x-position, in standard P-3 coordinate frame	DEV_FLOAT	READ	No
Position_y: y-position, in standard P-3 coordinate frame	DEV_FLOAT	READ	No
Factor_x: position_x = read_position_x * factor_x	DEV_FLOAT	READ_WRITE	No
Factor_y: position_y = read_position_y * factor_y	DEV_FLOAT	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
Reset	DEV_VOID	DEV_LONG
Calib_gain	DEV_VOID	DEV_LONG
Calib_rcl	DEV_VOID	DEV_LONG
Calib_sav	DEV_VOID	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:**

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:**

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:**

4 - Reset

- **Description:** return the device to *RST default conditions

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_LONG :

- **Command allowed for:**

5 - Calib_gain

- **Description:** reset stored gains to nominal

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_LONG : 1 for successful operation

- **Command allowed for:**

6 - Calib_rcl

- **Description:** recalls the stored calibration

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_LONG : 1 for successful operation

- **Command allowed for:**

7 - Calib_sav

- **Description:** saves teh active calibration to eeprom

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_LONG : 1 for successful operation

- **Command allowed for:**