



TANGO
Device
Server

Keithley 2701 DMM device server User's Guide

Keithley2701 Class

Revision: - Author: peru
Implemented in C++ - CVS repository: ESRF

Introduction:

This device server is intended to drive a Keithley 2701 digital multimeter (DMM). A 7706 multiplexer card must be installed inside the DMM, it is used for the calibration of the current transformer.

Class Inheritance:

- Tango::Device_4Impl
 - Keithley2701

Class Description:

This device server is intended to drive a Keithley 2701 digital multimeter (DMM).

Properties:

Device Properties		
Property name	Property type	Description
IpAddress	Tango::DEV_STRING	The IP address of the device.
AnalogInputResistor	Tango::DEV_SHORT	The Keithley name for the analog input in charge of the resistor voltage measure.
AnalogInputCT	Tango::DEV_SHORT	The Keithley name for the analog input in charge of the CT voltage measure.
AnalogOutputCalibration	Tango::DEV_SHORT	The Keithley name for the analog output in charge of adjusting the calibration current.
DigitalOutput	Tango::DEV_SHORT	The Keithley name for the digital output in charge of the CT range setting.
DigitalInput	Tango::DEV_SHORT	The Keithley name for the digital input in charge of the CT range readout.
HasCalibrationHardware	Tango::DEV_BOOLEAN	Set to true if the extension card required for the calibration of the PCT is installed in the DMM.

Device Properties Default Values:

Property Name	Default Values
IpAddress	No default value
AnalogInputResistor	No default value
AnalogInputCT	No default value
AnalogOutputCalibration	No default value
DigitalOutput	No default value
DigitalInput	No default value
HasCalibrationHardware	No default value

There is no Class properties.

States:

States	
Names	Descriptions
ON	Normal state when the continuous acquisition mode is engaged.
FAULT	This state is set in case of a problem while dialoging with the DMM
OFF	This is the state when the continuous acquisition mode is not engaged.

Attributes:

Scalar Attributes			
Attribute name	Data Type	R/W Type	Expert
LastVoltageValue	DEV_DOUBLE	READ	No
BufferSize	DEV_SHORT	READ	No
ThreadReady	DEV_BOOLEAN	READ	No

Spectrum Attributes			
Attribute name	Data Type	X Data Length	Expert
VoltageAndTimestampBuffer	DEV_DOUBLE	3000	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
StartContinuousAcquisition	DEV_VOID	DEV_VOID
StopContinuousAcquisition	DEV_VOID	DEV_VOID
DisplayString	DEV_STRING	DEV_VOID
Undisplay	DEV_VOID	DEV_VOID
SetOutputPort	DEV_SHORT	DEV_VOID
GetOutputPort	DEV_VOID	DEV_SHORT
ToggleDebug	DEV_VOID	DEV_VOID
ConnectCT	DEV_VOID	DEV_VOID
ConnectResistor	DEV_VOID	DEV_VOID
SetDCOutput	DEV_DOUBLE	DEV_VOID
ResetTimestamp	DEV_VOID	DEV_VOID
ConnectChannel	DEV_USHORT	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
 - Tango::OFF

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
 - Tango::OFF

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
 - Tango::OFF

4 - StartContinuousAcquisition

- **Description:** Enter the continuous acquisition mode. The DMM must be externally triggered.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF

5 - StopContinuousAcquisition

- **Description:** Stop a continuous acquisition in progress.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF

6 - DisplayString

- **Description:** Makes the DMM displaying the string on the front panel.
- **Argin:**
DEV_STRING : The string to be displayed
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

7 - Undisplay

- **Description:** The front panel display is set back to normal mode.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

8 - SetOutputPort

- **Description:** Apply the pattern to the output port. By default the output port is set to 121.
- **Argin:**
DEV_SHORT : Pattern to be applied
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

9 - GetOutputPort

- **Description:** Get the output port pattern value. By default the output port is set to 121.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_SHORT :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

10 - ToggleDebug

- **Description:**
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

11 - ConnectCT

- **Description:** Connect the CT output to the DMM input.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

12 - ConnectResistor

- **Description:** Connect the resistor to the DMM input.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

13 - SetDCOutput

- **Description:** Set the analog output to "argin" volts.
- **Argin:**
DEV_DOUBLE :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

14 - ResetTimestamp

- **Description:** Implemented for test purposes.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

15 - ConnectChannel

- **Description:** Connect one of the analog inputs of the 7706 extension card to the input of the DMM.
- **Argin:**
DEV_USHORT : Channel number
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::OFF

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