



TANGO
Device
Server

AcqPrinceton User's Guide

AcqPrinceton Class

Revision: keyword substitution - Author: stephle
Implemented in C++ - CVS repository: tango-ds

Introduction:

Princeton CCD acquisition device

Class Inheritance:

- Tango::Device_4Impl
 - AcqPrinceton

Properties:

Device Properties		
Property name	Property type	Description
CamId	Tango::DEV_STRING	Camera identifier
CamType	Tango::DEV_LONG	Camera type 0 = Princeton

Device Properties Default Values:

Property Name	Default Values
CamId	0
CamType	0

There is no Class properties.

States:

States	
Names	Descriptions
ALARM	*
CLOSE	The camera is closed
FAULT	*
INIT	The device is initializing
OPEN	The camera is open, ready to accept commands
RUNNING	The camera is running, taking pictures
UNKNOWN	The device is in unknown state

Attributes:

Scalar Attributes			
Attribute name	Data Type	R/W Type	Expert
acqMode: Write : Acquisition mode 0 = Focus 1 = Sequence	DEV_LONG	WRITE	No
checkTemperature	DEV_BOOLEAN	WRITE	No
depth: Read : detected depth of the CCD in bits (8/16/24/32)	DEV_LONG	READ	No

exposure: Write : desired exposure time in ms	DEV_DOUBLE	WRITE	No
fileFormat: NOT USED : for compatibility with CCD abstract device	DEV_STRING	WRITE	Yes
fileName: NOT USED : for compatibility with CCD abstract device	DEV_STRING	WRITE	Yes
frames: Write : number of frames to take in each sequence Read : current number of frames taken	DEV_LONG	READ_WRITE	No
height: Read : detected height of the CCD in pixels	DEV_LONG	READ	No
numFrame: Write : select frame number	DEV_LONG	WRITE	No
rotateImage	DEV_LONG	WRITE	No
saturation	DEV_DOUBLE	READ	No
saturationAlarm	DEV_DOUBLE	WRITE	No
saturationMax	DEV_DOUBLE	WRITE	No
shutterMode: 0=OPEN_NEVER, 1=OPEN_PRE_EXPOSURE, 2=OPEN_PRE_SEQUENCE, 3=OPEN_PRE_TRIGGER, 4=OPEN_NO_CHANGE	DEV_LONG	WRITE	No
temperature: Write : temperature set point Read : measured temperature	DEV_DOUBLE	READ_WRITE	No
timing: Write : software trigger timing (ms) Read : measured time between frames (ms)	DEV_DOUBLE	READ_WRITE	No
trigger: Write : trigger mode 0 = freerun 1 = software trigger 2 = external trigger, positive edge 3 = external trigger, negative edge	DEV_LONG	WRITE	No
useROI: Write : using roi setup true = use defined roi false = do not use roi	DEV_BOOLEAN	WRITE	No
width: Read : detected width of the CCD in pixels	DEV_LONG	READ	No
shutterCloseDelay	DEV_DOUBLE	WRITE	No
roi1xmin	DEV_LONG	WRITE	No
roi1xmax	DEV_LONG	WRITE	No
roi1ymin	DEV_LONG	WRITE	No
roi1ymax	DEV_LONG	WRITE	No
xbin	DEV_LONG	WRITE	No
ybin	DEV_LONG	WRITE	No
nbROI	DEV_LONG	WRITE	No
intensityZone1	DEV_DOUBLE	READ	No
intensityZone2	DEV_DOUBLE	READ	No
intensityZone3	DEV_DOUBLE	READ	No
intensityZone4	DEV_DOUBLE	READ	No
intensityZone5	DEV_DOUBLE	READ	No

intensityZone6	DEV_DOUBLE	READ	No
intensityZone7	DEV_DOUBLE	READ	No
intensityZone8	DEV_DOUBLE	READ	No
intensityZone9	DEV_DOUBLE	READ	No
intensityZone10	DEV_DOUBLE	READ	No
intensityZone11	DEV_DOUBLE	READ	No
intensityZone12	DEV_DOUBLE	READ	No
intensityNbZones	DEV_LONG	WRITE	No

Spectrum Attributes			
Attribute name	Data Type	X Data Length	Expert
absorption: Read : last absorption spectrum (state RUNNING) or selected absorption spectrum (state OPEN)	DEV_DOUBLE	8192	No
averageIntensity	DEV_DOUBLE	8192	No
fileParms: NOT USED : for compatibility with CCD abstract device	DEV_STRING	4	Yes
intensity: Read : last intensity spectrum (state RUNNING) or selected intensity spectrum (state OPEN)	DEV_DOUBLE	8192	No
intensity0: Read : measured Intensity0 spectrum	DEV_DOUBLE	8192	No
intensityBlack: Read : measured IntensityBlack spectrum	DEV_DOUBLE	8192	No
roi	DEV_LONG	4	No
binning	DEV_LONG	2	No

Image Attributes				
Attribute name	Data Type	X Data Length	Y Data Length	Expert
image: Read : last image (state RUNNING) or selected image (state OPEN)	DEV_USHORT	8192	8192	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
AcquireIntensity0	DEV_VOID	DEV_VOID
AcquireIntensityBlack	DEV_VOID	DEV_VOID
Close	DEV_VOID	DEV_VOID
GetParam	DEV_STRING	DEV_STRING
Open	DEV_VOID	DEV_VOID
ResetIntensityBlack	DEV_VOID	DEV_VOID
SetParam	DEVVAR_STRINGARRAY	DEV_VOID
Start	DEV_VOID	DEV_VOID
Stop	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::ALARM
 - Tango::CLOSE
 - Tango::FAULT
 - Tango::INIT
 - Tango::OPEN
 - Tango::RUNNING
 - Tango::UNKNOWN

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::ALARM
 - Tango::CLOSE
 - Tango::FAULT
 - Tango::INIT
 - Tango::OPEN
 - Tango::RUNNING
 - Tango::UNKNOWN

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::ALARM
 - Tango::CLOSE
 - Tango::FAULT
 - Tango::INIT
 - Tango::OPEN
 - Tango::RUNNING
 - Tango::UNKNOWN

4 - AcquireIntensity0

- **Description:** Sets the intensity0 attribute with the latest measured intensity
- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :

- **Command allowed for:**

- Tango::ALARM
- Tango::OPEN
- Tango::RUNNING

5 - AcquireIntensityBlack

- **Description:** Sets the intensityBlack attribute with the latest measured intensity

- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :

- **Command allowed for:**

- Tango::ALARM
- Tango::OPEN
- Tango::RUNNING

6 - Close

- **Description:** Frees the current camera, prepares it for power-down

- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :

- **Command allowed for:**

- Tango::ALARM
- Tango::FAULT
- Tango::OPEN
- Tango::RUNNING

7 - GetParam

- **Description:**

- **Argin:**

DEV_STRING : name

- **Argout:**
DEV_STRING : value

- **Command allowed for:**

- Tango::ALARM
- Tango::OPEN
- Tango::RUNNING

8 - Open

- **Description:** Reserves and initializes the camera hardware - Detects the characteristics of the CCD : width, height, depth wich can be read using the device's attributes - Sets the desired temperature

- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :

- **Command allowed for:**

- Tango::ALARM
- Tango::CLOSE
- Tango::FAULT
- Tango::OPEN
- Tango::RUNNING

9 - ResetIntensityBlack

- **Description:**

- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :

- **Command allowed for:**

- Tango::ALARM
- Tango::OPEN
- Tango::RUNNING

10 - SetParam

- **Description:**
- **Argin:**
DEVVAR_STRINGARRAY : name,value
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ALARM
 - Tango::OPEN
 - Tango::RUNNING

11 - Start

- **Description:** Starts exposing - the desired exposing mode (continuous or sequence) must be previously defined with SetMode() command
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ALARM
 - Tango::OPEN
 - Tango::RUNNING

12 - Stop

- **Description:** Stops the current sequence of exposing
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ALARM
 - Tango::FAULT
 - Tango::OPEN
 - Tango::RUNNING

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