



TANGO
Device
Server

Libera Brillance Single Pass User's Guide

LiberaSP Class

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

Introduction:

This Tango class is the interface of the Instrumentation Technologies (IT) Libera Brillance Single Pass equipment. This class supports only a subset of all the equipment features. It is the basic equipment for a Injection and Transfer Efficiency Measurement System

Class Identification:

- **Contact** : at esrf.fr - taurel
- **Class Family** : BeamDiag
- **Platform** : Unix Like
- **Bus** : Not Applicable
- **Manufacturer** : Instrumentation Technologies
- **Reference** : Libera Brillance Single Pass

Class Inheritance:

- Tango::Device_4Impl
 - LiberaSP

Class Description:

Properties:

Class Properties		
Property name	Property type	Description
ServiceTaskSleep	Tango::DEV_LONG	Sleeping time (in mS) for the service task between libera boxes request
DataTaskHeartbeat	Tango::DEV_LONG	Heartbeat time (in mS) for the data task

Device Properties		
Property name	Property type	Description
LiberaIpAddr	Tango::DEV_STRING	Libera IP address
LiberaMulticastIpAddr	Tango::DEV_STRING	The IP address used by the Libera box for multicast communication
LiberaPort	Tango::DEV_USHORT	The port number on which the generic server running on the Libera box is listening
Location	Tango::DEV_STRING	The libera box physical place (TL1, BOOSTER,...)
ServiceTaskSleep	Tango::DEV_LONG	Sleeping time (in mS) for the class task between libera boxes request
DataTaskHeartbeat	Tango::DEV_LONG	Heartbeat time (in mS) for the data task
BeamThreshold	Tango::DEV_DOUBLE	Threshold to decide if there is some beam at a given time (at a given index in the ADC buffers)
PositionK	Tango::DEV_DOUBLE	Multiplicatif coefficient to compute beam position
CurrentK	Tango::DEV_DOUBLE	Multiplicative coefficient to compute beam current
CurrentTimeOffset	Tango::DEV_LONG	Time coefficient used in current computation

Class Properties Default Values:

Property Name	Default Values
ServiceTaskSleep	2000
DataTaskHeartbeat	2000

Device Properties Default Values:

Property Name	Default Values
LiberaIpAddr	No default value
LiberaMulticastIpAddr	No default value
LiberaPort	23171
Location	No default value
ServiceTaskSleep	2000
DataTaskHeartbeat	2000
BeamThreshold	No default value
PositionK	No default value
CurrentK	No default value
CurrentTimeOffset	No default value

States:

States	
Names	Descriptions
ON	The Libera box is up and running
UNKNOWN	No possible communication with the Libera box
FAULT	The Libera box is in Fault

Attributes:

Scalar Attributes			
Attribute name	Data Type	R/W Type	Expert
BufferSize: The Libera box ADC buffer size (between 10 and 8192)	DEV_LONG	READ_WRITE	No
Level: The analog channels level. This attribute allows the user to tune the analog channels attenuator. The input is an index within a lookup table in the Libera box	DEV_LONG	READ_WRITE	No
TriggerCounter: Trigger counter. Incremented at each trigger	DEV_ULONG	READ	No
Fan1Speed: First fan speed	DEV_USHORT	READ	Yes
Fan2Speed: Second fan speed	DEV_USHORT	READ	Yes
Temp1: The Libera box first temperature	DEV_USHORT	READ	Yes
Temp2: The Libera box second temperature	DEV_USHORT	READ	Yes
Temp3: The Libera box third temperature	DEV_USHORT	READ	Yes

Spectrum Attributes			
Attribute name	Data Type	X Data Length	Expert
Up: The up StripLine ADC buffer	DEV_SHORT	10000	No
Down: The down StripLine ADC buffer	DEV_SHORT	10000	No
Left: The left StripLine ADC buffer	DEV_SHORT	10000	No
Right: The right StripLine ADC buffer	DEV_SHORT	10000	No
UpT: The up StripLine ADC buffer after some computation: square - double averaging filter - square root	DEV_DOUBLE	10000	No
DownT: The down StripLine ADC buffer after some computation: square - double averaging filter - square root	DEV_DOUBLE	10000	No
LeftT: The left StripLine ADC buffer after some computation: square - double averaging filter - square root	DEV_DOUBLE	10000	No
RightT: The right StripLine ADC buffer after some computation: square - double averaging filter - square root	DEV_DOUBLE	10000	No
Zposition: Beam Z position (vertical)	DEV_DOUBLE	10000	No
Xposition: Beam X position (horizontal)	DEV_DOUBLE	10000	No
Current: Beam current computed from strip lines data	DEV_DOUBLE	100	No
SumT: Sum of the 4 computed ADC outputs (the xxxT attributes)	DEV_DOUBLE	10000	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

Device Commands for Expert Level Only		
Command name	Argument In	Argument Out
ResetTrigger	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::ON
 - Tango::UNKNOWN
 - 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::UNKNOWN
- 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::UNKNOWN
- Tango::FAULT

4 - Reset

- **Description:** Reset the device in case of fault

- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :

- **Command allowed for:**

- Tango::FAULT

5 - ResetTrigger (for expert only)

- **Description:** Reset the trigger counter

- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :

- **Command allowed for:**
 - Tango::ON

TANGO is an open source project hosted by :
SOURCEFORGE.NET®

Core and Tools : CVS repository on tango-cs project
Device Servers : CVS repository on tango-ds project