



TANGO
Device
Server

Tune Monitor User's Guide

TuneMonitor Class

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Implemented in C++ - CVS repository: ESRF**

Introduction:

This class is able to calculate beam tune using ECDR compact PCI board. This board has two input channel (vertical and horizontal) each one is separated in two sub-channel (vertic_1, vertic_2, horiz_1, horiz_2).

Class Description:

Properties:

Device Properties		
Property name	Property type	Description
BoardNumber	Tango::DEV_SHORT	Board (ECCR) number used to create handle.
ConfigPath	Tango::DEV_STRING	Path to find config files
ConfigFileName	Tango::DEV_STRING	ECCR config file used at startup.
RefFrequency	Tango::DEV_DOUBLE	Reference frequency.
ClockFrequency	Tango::DEV_DOUBLE	Input clock frequency
SamplesNumber	Tango::DEV_LONG	Number of samples for acquisition and FFT calculation.
DefaultPmode	Array of long	4 values for Pmode used at startup for each channel.
DefaultOffset	Array of long	4 values for Offset used at startup for each channel.

Device Properties Default Values:

Property Name	Default Values
BoardNumber	No default value
ConfigPath	No default value
ConfigFileName	No default value
RefFrequency	No default value
ClockFrequency	No default value
SamplesNumber	No default value
DefaultPmode	No default value
DefaultOffset	No default value

There is no Class properties.

States:

States	
Names	Descriptions
ON	The ECCR board is OK.
FAULT	An error has occurred during ECCR init.
UNKNOWN	The ECCR is not initialized.

Attributes:

Scalar Attributes			
Attribute name	Data Type	R/W Type	Expert
SamplesNumber: Samples number for acquisition. It must be a power of two.	DEV_LONG	READ_WRITE	No

Spectrum Attributes			
Attribute name	Data Type	X Data Length	Expert
P_mode	DEV_LONG	4	No
Offset	DEV_LONG	4	No
CenterFrequency: Center frequency used on ECDR board on each channel. This frequency is calculated with Pmode and Offset attribute, and RefFrequency property. $F_c = (Pmode * RefFrequency) + Offset$	DEV_DOUBLE	4	No
SpanWidth	DEV_DOUBLE	4	No
FFT_Horiz_1: Fast Fourier Transform calculated with acquisition data on horizontal channel #1	DEV_DOUBLE	2048	No
FFT_Horiz_2: Fast Fourier Transform calculated with acquisition data on horizontal channel #2	DEV_DOUBLE	2048	No
FFT_Vertic_1: Fast Fourier Transform calculated with acquisition data on vertical channel #1	DEV_DOUBLE	2048	No
FFT_Vertic_2: Fast Fourier Transform calculated with acquisition data on vertical channel #2	DEV_DOUBLE	2048	No
Acqu_Horiz_1: Horizontal #1 channel acquisition data. The SampleNumber first data are the real partn and the following data are the imaginary part.	DEV_DOUBLE	4096	No
Acqu_Horiz_2: Horizontal #2 channel acquisition data. The SampleNumber first data are the real partn and the following data are the imaginary part.	DEV_DOUBLE	4096	No
Acqu_Vertic_1: Vertical #1 channel acquisition data. The SampleNumber first data are the real partn and the following data are the imaginary part.	DEV_DOUBLE	4096	No
Acqu_Vertic_2: Vertical #2 channel acquisition data. The SampleNumber first data are the real partn and the following data are the imaginary part.	DEV_DOUBLE	4096	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
ECDRinit	DEV_STRING	DEV_VOID
ECDRinitWithCode	DEV_STRING	DEV_VOID
SetFftAfterAcquisition	DEV_BOOLEAN	DEV_VOID
SetOffset	DEVVAR_LONGARRAY	DEV_VOID
SetPmode	DEVVAR_LONGARRAY	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::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::ON
 - Tango::FAULT
 - 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::ON
 - Tango::FAULT
 - Tango::UNKNOWN

4 - ECDRinit

- **Description:** Initialize ECDR board with argin file name, using ConfigPath property to find it.
- **Argin:**
DEV_STRING : configuration file's name.
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::UNKNOWN

5 - ECDRinitWithCode

- **Description:** Initialize the ECDR board using input code as file.
- **Argin:**
DEV_STRING : Code to initialize ECDR board.
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::UNKNOWN

6 - SetFftAfterAcquisition

- **Description:**
- **Argin:**
DEV_BOOLEAN : True if Acquisition attribute must be returned after an FFT.
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::UNKNOWN

7 - SetOffset

- **Description:** Set the Offset value for specified channel.
- **Argin:**
DEVVAR_LONGARRAY : channel number and offset value.
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::UNKNOWN

8 - SetPmode

- **Description:** Set the Pmode value for specified channel.
- **Argin:**
DEVVAR_LONGARRAY : channel number and p_mode value.
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::FAULT
 - Tango::UNKNOWN

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