Bilt Tango Cpp Class

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Bilt Class Identification :

Contact	: at esrf.fr - bourtemb
Class Family	: PowerSupply
Platform	: Unix Like
Bus	: Ethernet
Manufacturer	: iTest
Manufacturer ref.	: Module BE548

Bilt Class Inheritance :

- Tango::DeviceImpl
  - Bilt

Bilt Class Description :

The BILT multi channel power supply will be used with 3 channels for the ESRF fast feedback systems.
The power supply can be controlled in 2 ways :
By this device server for slow or human control or
by the Libera Beam Position monitors for fast feedback with closed loop control.
The devices are exported as one device per steerer magnet. Every device has three channels. The channels (poles) cannot be switched on individually but have their individual set points and measurement values.

Bilt Properties :

There is no class properties

Device Properties			
Name	**Description**	**Type**	**Default Value**
IPAddress	IP Address of BILT controller. Each controller includes several magnets and each magnet includes 3 power supplies, for corrections in the X, Y and Z planes.	String	0.0.0.0
MagnetNumber	Magnet number from 1 to 48	short	0
UpdatePeriod	The update period for the data reading from the power supply in milli seconds.	int	1000

Bilt Class Commands				
Name	**Input type**	**Output type**	**Level**	**Description**
State	DEV_VOID	DEV_STATE	OPERATOR	This command gets the device state (stored in its *device_state* data member) and returns it to the caller.
Status	DEV_VOID	CONST_DEV_STRING	OPERATOR	This command gets the device status (stored in its *device_status* data member) and returns it to the caller.
On	DEV_VOID	DEV_VOID	OPERATOR	Turns on power supply.
Off	DEV_VOID	DEV_VOID	OPERATOR	Turns of power supply
Reset	DEV_VOID	DEV_VOID	OPERATOR	Reset faults and alarms
SetPoleAcCurrent	DEVVAR_DOUBLEARRAY	DEV_VOID	EXPERT	Set the AC current for one Pole. [0] = pole number, [1] = current
LocalPoleControl	DEVVAR_SHORTARRAY	DEV_VOID	EXPERT	Set the AC current for one Pole. [0] = pole number, [1] = local control true/false
SetpointCheck	DEVVAR_DOUBLEARRAY	DEV_BOOLEAN	OPERATOR	Check the given current values against the specified limits.
SetPoleCurrent	DEVVAR_DOUBLEARRAY	DEV_VOID	EXPERT	Set the current for one Pole. [0] = pole number, [1] = current
EnableAcCurrent	DEV_VOID	DEV_VOID	OPERATOR	Enables the dynamic 10kHz AC current settings from the Liberas.
DisableAcCurrent	DEV_VOID	DEV_VOID	OPERATOR	Disables the dynamic 10kHz AC current settings from the Liberas.

Command State :

This command gets the device state (stored in its *device_state* data member) and returns it to the caller.

State Definition		
Input Argument	Tango::DEV_VOID	none.
Output Argument	Tango::DEV_STATE	State Code
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command Status :

This command gets the device status (stored in its *device_status* data member) and returns it to the caller.

Status Definition		
Input Argument	Tango::DEV_VOID	none.
Output Argument	Tango::CONST_DEV_STRING	Status description
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command On :

Turns on power supply.

On Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	• ON • FAULT • ALARM	..

	• UNKNOWN	

Command Off :

Turns of power supply

Off Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	• OFF	..

Command Reset :

Reset faults and alarms

Reset Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command SetPoleAcCurrent :

Set the AC current for one Pole.
[0] = pole number, [1] = current

SetPoleAcCurrent Definition		
Input Argument	Tango::DEVVAR_DOUBLEARRAY	[0] = pole number, [1] = current

Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command LocalPoleControl :

Set the AC current for one Pole.
[0] = pole number, [1] = local control true/false

LocalPoleControl Definition		
Input Argument	Tango::DEVVAR_SHORTARRAY	[0] = pole number, [1] = local control true/false
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	• OFF • FAULT • UNKNOWN	..

Command SetpointCheck :

Check the given current values against the specified limits.

SetpointCheck Definition		
Input Argument	Tango::DEVVAR_DOUBLEARRAY	Setpoint values for the Poles
Output Argument	Tango::DEV_BOOLEAN	true when settings are OK
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command SetPoleCurrent :

Set the current for one Pole.
[0] = pole number, [1] = current

SetPoleCurrent Definition		
Input Argument	Tango::DEVVAR_DOUBLEARRAY	[0] = pole number, [1] = current
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command EnableAcCurrent :

Enables the dynamic 10kHz AC current settings from the Liberas.

EnableAcCurrent Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	• OFF • FAULT • UNKNOWN	..

Command DisableAcCurrent :

Disables the dynamic 10kHz AC current settings from the Liberas.

DisableAcCurrent Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..

Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	• OFF • FAULT • UNKNOWN	..

Bilt Class Attributes							
Name	**Inherited**	**Abstract**	**Attr. type**	**R/W type**	**Data type**	**Level**	**Description**
Location	false	false	Scalar	READ	Tango::DEV_STRING	OPERATOR	The pysical location of the power supply in the form:\n
Currents	false	false	Spectrum	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	The measured currents of the three poles.
Voltages	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	The measured voltages of the three poles.
Impedances	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	Calculated impedances for the three poles.
SetCurrentsRMS	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	Statistic when driven by the Libera. One RMS value for every pole\nof the magnet.\nRMS value of the AC setpoint applied on the DAC during the last second.\nX=sqr((sum(setAC)*sum(setAC)) / n - ((sum(setAC)/n) * (sum(setAC)/n)))
SetCurrentsAverage	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	Statistic when driven by the Libera. One average value for every pole\nof the magnet.\nAverage value of the AC setpoint applied on the DAC during the last second.
FramesPerSecond	false	false	Spectrum	READ	Tango::DEV_ULONG	OPERATOR	Number of settings applied during the last second
ErrorsPerSecond	false	false	Spectrum	READ	Tango::DEV_ULONG	OPERATOR	Errors detected during the last second
ErrorCounters	false	false	Spectrum	READ	Tango::DEV_ULONG	OPERATOR	Statistic when driven by the Libera.\nThe total number of errors since the last reset for the \nthree poles.
LocalControls	false	false	Spectrum	READ	Tango::DEV_BOOLEAN	OPERATOR	Indicated whether the individual channels are in local control mode for the \nAC current control. True = local control activated.
Temperatures	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	Temperature measurements for the three poles.

There is no dynamic attribute defined.

Attribute Location :

The pysical location of the power supply in the form:\n

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_STRING
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	Location
unit	
standard unit	
display unit	
format	%s
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute Currents :

The measured currents of the three poles.

Attribute Definition	
Attribute Type	Spectrum (3)
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false

Attribute Properties	
label	Currents
unit	A
standard unit	
display unit	
format	%6.4f
max_value	1.8

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not

Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

min_value	-1.8
max_alarm	1.5
min_alarm	-1.5
max_warning	
min_warning	
delta_time	
delta_val	

	set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute Voltages :

The measured voltages of the three poles.

Attribute Definition	
Attribute Type	Spectrum (3)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	Voltages
unit	V
standard unit	
display unit	
format	%6.4
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute Impedances :

Calculated impedances for the three poles.

Attribute	

Attribute	

Attribute Event Criteria	

Definition	
Attribute Type	Spectrum (3)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	3000
Memorized	Not set
Read allowed for	All states

Properties	
label	Impedances
unit	Ohm
standard unit	
display unit	
format	%4.2f
max_value	
min_value	
max_alarm	5.0
min_alarm	2.8
max_warning	
min_warning	
delta_time	
delta_val	

Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute SetCurrentsRMS :

Statistic when driven by the Libera. One RMS value for every pole\nof the magnet.\nRMS value of the AC setpoint applied on the DAC during the last second.\nX=sqr((sum(setAC)*sum(setAC)) / n - ((sum(setAC)/n) *(sum(setAC)/n)))

Attribute Definition	
Attribute Type	Spectrum (3)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	RMS AC current setpoints/s
unit	mA
standard unit	
display unit	
format	%6.3
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute SetCurrentsAverage :

Statistic when driven by the Libera. One average value for every pole\nof the magnet.\nAverage value of the AC setpoint applied on the DAC during the last second.

Attribute Definition	
Attribute Type	Spectrum (3)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	Average AC current setpoints/s
unit	mA
standard unit	
display unit	
format	%6.3
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute FramesPerSecond :

Number of settings applied during the last second

Attribute Definition	
Attribute Type	Spectrum (3)
R/W Type	READ
Data Type	Tango::DEV_ULONG
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set

Attribute Properties	
label	Frames per second
unit	
standard unit	
display unit	
format	%6d
max_value	
min_value	
max_alarm	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set

Read allowed for	All states

min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute ErrorsPerSecond :

Errors detected during the last second

Attribute Definition	
Attribute Type	Spectrum (3)
R/W Type	READ
Data Type	Tango::DEV_ULONG
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	Errors per second
unit	
standard unit	
display unit	
format	%6d
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute ErrorCounters :

Statistic when driven by the Libera.\nThe total number of errors since the last reset for the \nthree poles.

Attribute Definition	
Attribute Type	Spectrum (3)
R/W Type	READ
Data Type	Tango::DEV_ULONG
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	Error counters
unit	
standard unit	
display unit	
format	%6d
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute LocalControls :

Indicated whether the individual channels are in local control mode for the \nAC current control. True = local control activated.

Attribute Definition	
Attribute Type	Spectrum (5)
R/W Type	READ
Data Type	Tango::DEV_BOOLEAN
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Attribute Temperatures :

Temperature measurements for the three poles.

Attribute Definition	
Attribute Type	Spectrum (6)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	30000
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	Temperatures
unit	C
standard unit	
display unit	
format	%6.0f
max_value	
min_value	
max_alarm	50
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

Bilt Class States	
Name	**Description**
ON	Magnet is ON, all three channels are ON.
OFF	Magnet is OFF, all three channels are OFF.
FAULT	Error detected by the BILT magnet.
ALARM	Alarm detected on one or more channels.
UNKNOWN	Communication fault