

## FMBOxfDCMEnergy Tango Cpp Class

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### **FMBOxfDCMEnergy Class Identification :**

Contact : at desy.de - maria-teresa.nunez-pardo-de-vera  
 Class Family : Motion  
 Platform : Unix Like  
 Bus : Serial Line  
 Manufacturer : none  
 Manufacturer ref. :

### **FMBOxfDCMEnergy Class Inheritance :**

- [Tango::DeviceImpl](#)
  - FMBOxfDCMEnergy

### **FMBOxfDCMEnergy Class Description :**

Class for controlling the FMB Oxford Double Crystal Monochromator

## FMBOxfDCMEnergy Properties :

There is no class properties

Device Properties			
Name	Description	Type	Default Value
FMBOxfDCMCtrlDevice	FMBOxfDCMCtrl server for RS232 interface	String	none
SimulationMode	0 -> real mode, 1 -> simulation mode	int	0
Version	0 -> old , 1 -> new	int	0
BraggDevice	Name of the Tango device for the Bragg motor	String	none
FMBOxfDCMCtrlDevice2	Second controller in case of motors not controlled via global movements (version 10)	String	none
ParDevice	Name of the Tango device for the parallel motor	String	none
PerpDevice	Name of the Tango device for the perpendicular motor	String	none
Bragg2Device	Tango Device Name for the second bragg motor (version 10, DCM gkss)	String	none
LongitudinalDevice	Tango Device Name for the longitudinal motor (version 10, DCM gkss)	String	none
ChannelCutGap	Gap for the channel cut.	float	11.0
BraggOffsetC0	Bragg Offset for crystal 0	double	-9999.
BraggOffsetC1	Bragg Offset for crystal 1	double	-9999.
BraggOffsetC2	Bragg Offset for crystal 2	double	-9999.
ParOffsetC0	Parallel Offset crystal 0	double	-9999.
ParOffsetC1	Parallel Offset crystal 1	double	-9999.
ParOffsetC2	Parallel offset crystal 2	double	-9999.
PerpOffsetC0	Perpendicular offset crystal 0	double	-9999.
PerpOffsetC1	Perpendicular Offset crystal 1	double	-9999.
PerpOffsetC2	Perpendicular Offset crystal 2	double	-9999.
Bragg2OffsetC0	Bragg2 offset crystal 0	double	-9999.
Bragg2OffsetC1	Bragg2 offset crystal 1	double	-9999.
Bragg2OffsetC2	Bragg2 offset crystal 2	double	-9999.
LongitudinalOffsetC0	Longitudinal offset crystal 0	double	-9999.
LongitudinalOffsetC1	Longitudinal Offset crystal 1	double	-9999.
LongitudinalOffsetC2	Longitudinal Offset crystal 2	double	-9999.
Beamline	Beamline number. Needed for shutter,	int	0
DCrystalSI111	Lattice spacing for SI111 crystal. If value is not set or set to 0 or negative a default value is taken.	double	0.
DCrystalSI311	Lattice spacing for SI311 crystal. If value is not set or set to 0 or negative a default value is taken.	double	0.
BraggOffsetC3	Bragg Offset for crystal 3	double	-9999.
ParOffsetC3	Parallel Offset crystal 3	double	-9999.
PerpOffsetC3	Perpendicular offset crystal 3	double	-9999.

FMBOxfDCMEnergy Class Commands				
Name	Input type	Output type	Level	Description
<a href="#">State</a>	DEV_VOID	DEV_STATE	OPERATOR	This command gets the device state (stored in its <i>device_state</i> data member) and returns it to the caller.

<a href="#">Status</a>	DEV_VOID	CONST_DEV_STRING	OPERATOR	This command gets the device status (stored in its <i>device_status</i> data member) and returns it to the caller.
<a href="#">StartUp</a>	DEV_VOID	DEV_VOID	EXPERT	Automated system startup
<a href="#">Shutdown</a>	DEV_VOID	DEV_VOID	EXPERT	Automatic system shutdown
<a href="#">CheckError</a>	DEV_VOID	DEV_LONG	OPERATOR	Read the error flags and return an error: bit 1 BraggAxisInErr bit 2 PerpAxisInErr bit 3 ParAxisInErr bit 4 TmOutErrFlag bit 5 Skipped
<a href="#">StopMove</a>	DEV_VOID	DEV_VOID	OPERATOR	Stop a movement
<a href="#">HomeAll</a>	DEV_VOID	DEV_VOID	OPERATOR	Home motors for version 10.
<a href="#">Calibrate</a>	DEV_DOUBLE	DEV_LONG	OPERATOR	Calibrate the energy: current energy is calibrated to be the value given as an argument
<a href="#">HomeJacks</a>	DEV_VOID	DEV_VOID	OPERATOR	Home jack motors for DCM GKSS
<a href="#">HomeLaterals</a>	DEV_VOID	DEV_VOID	OPERATOR	Home lateral motors for DCM GKSS
<a href="#">ChangeCrystalAndRecalibrate</a>	DEV_LONG	DEV_VOID	OPERATOR	Change the crystal and recalibrate the motors with hardcoded constants.
<a href="#">ClearState</a>	DEV_VOID	DEV_VOID	OPERATOR	Set state to ON.
<a href="#">BrakeWithCorrection</a>	DEV_VOID	DEV_VOID	OPERATOR	Prepare the system for movements with a fixed energy and less vibrations.
<a href="#">Brake</a>	DEV_VOID	DEV_VOID	OPERATOR	Activate the Bragg brake in the current position

### **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	true	..
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	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command StartUp :**

Automated system startup

<b>StartUp Definition</b>		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command Shutdown :**

Automatic system shutdown

<b>Shutdown Definition</b>		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	EXPERT	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command CheckError :**

Read the error flags and return an error:

- bit 1 BraggAxisInErr
- bit 2 PerpAxisInErr
- bit 3 ParAxisInErr
- bit 4 TmOutErrFlag
- bit 5 Skipped

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

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### **Command StopMove :**

Stop a movement

StopMove 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	..

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### **Command HomeAll :**

Home motors for version 10.

HomeAll 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	..

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### **Command Calibrate :**

Calibrate the energy: current energy is calibrated to be the value given as an argument

Calibrate Definition		
Input Argument	Tango::DEV_DOUBLE	Value to be calibrated
Output Argument	Tango::DEV_LONG	Completion status
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command HomeJacks :**

Home jack motors for DCM GKSS

HomeJacks 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	..

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### **Command HomeLaterals :**

Home lateral motors for DCM GKSS

HomeLaterals 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	..

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### **Command ChangeCrystalAndRecalibrate :**

Change the crystal and recalibrate the motors with hardcoded constants.

<b>ChangeCrystalAndRecalibrate Definition</b>		
Input Argument	Tango::DEV_LONG	Crystal number
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

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### **Command ClearState :**

Set state to ON.

<b>ClearState Definition</b>		
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	..

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### **Command BrakeWithCorrection :**

Prepare the system for movements with a fixed energy and less vibrations.

<b>BrakeWithCorrection Definition</b>		
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 Brake :**

Activate the Bragg brake in the current position

Brake 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	..

FMBoxfDCMEnergy Class Attributes							
Name	Inherited	Abstract	Attr. type	R/W type	Data type	Level	Description
<a href="#">BraggAngle</a>	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">ExitOffset</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">PhasingMode</a>	false	false	Scalar	READ_WRITE	Tango::DEV_LONG	OPERATOR	0 -> Soft Phasing Mode 1 -> Forced Phasing Mode
<a href="#">Crystal</a>	false	false	Scalar	READ_WRITE	Tango::DEV_LONG	OPERATOR	Select the crystal type for the energy move. 0 -> CrystalSi111 1 -> CrystalSi311 2 -> Si111 ChannelCut 3 -> Si311 as Si111
<a href="#">Position</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Monochromator Energy
<a href="#">UnitLimitMax</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Software limit for maximum Position
<a href="#">UnitLimitMin</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Software limit for minimum Position
<a href="#">PositionSim</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	
<a href="#">UpdateStatusRate</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Rate for checking status of the motors during a movement.
<a href="#">PositionAccuracy</a>	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	Reads PositionAccuracy from Bragg motor device and transforme it to eV.
<a href="#">ExitOffsetC1</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	ExitOffset to be restored when crystal is changed to 1 with the ChangeCrystalAndRecalibrate command.
<a href="#">ExitOffsetC0</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	ExitOffset to be restored when crystal is changed to 0 with the ChangeCrystalAndRecalibrate command.
							Masked motors will not be set the state to FAULT if they can



<a href="#">MaskMoveMotors</a>	false	false	Scalar	READ_WRITE	Tango::DEV_LONG	OPERATOR	not be moved. 1 (Perp) & 2 (Par)
<a href="#">PseudoChannelCutMode</a>	false	false	Scalar	READ_WRITE	Tango::DEV_LONG	OPERATOR	If 1 the PseudoChannelCutMode is activated: \nparallel axis not moved for small angles.
<a href="#">BraggOffset</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Offset used only in p01 when the crystal Si311 is used as Si111
<a href="#">BraggOffset0</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	Value to be restored in BraggOffset if crystal is changed to Si111 - crystal 0 (only for p01).
<a href="#">BraggOffset1</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	Value to be restored in BraggOffset if crystal is changed to Si311 - crystal 1 (only for p01).
<a href="#">BraggOffset3</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	EXPERT	Value to be restored in BraggOffset if crystal is changed to Si311 as Si111 - crystal 3 (only for p01).
<a href="#">ResultSim</a>	false	false	Spectrum	READ	Tango::DEV_STRING	OPERATOR	

FMBOxfDCMEnergy Class Dynamic Attributes							
Name	Inherited	Abstract	Attr. type	R/W type	Data type	Level	Description
<a href="#">ParInclination</a>	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Error in the angle between first crystal and parallel axis. Used at p01 for computing parallell motor position.

### Attribute BraggAngle :

Attribute Definition	
Attribute Type	Scalar
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	Bragg Angle
unit	degrees
standard unit	degrees
display unit	degrees
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 ExitOffset :**

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	mm
standard unit	mm
display unit	mm
format	
max_value	28
min_value	15
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 PhasingMode :**

0 -> Soft Phasing Mode\n1-> Forced Phasing Mode

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_LONG
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	
standard unit	0->soft,1->forced
display unit	0->soft,1->forced
format	
max_value	1
min_value	0
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 Crystal :

Select the crystal type for the energy move.

- 0 -> CrystalSi111
- 1 -> CrystalSi311
- 2->Si111 ChannelCut
- 3-> Si311 as Si111

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_LONG
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	0->Si111,1->Si311,2->Si111 ChannelCut,3->Si3111 as Si111
standard unit	0->Si111,1->Si311,2->Si111 ChannelCut,3->Si3111 as Si111
display unit	0->Si111,1->Si311,2->Si111 ChannelCut,3->Si3111 as Si111
format	
max_value	3
min_value	0
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	false

### Attribute Position :

Monochromator Energy

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled

Attribute Properties	
label	
unit	eV
standard unit	eV
display unit	eV
format	%7.2f
max_value	103402
min_value	2400
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
Archive Absolute Change	Not set

Memorized	Not set
Read allowed for	All states
Write allowed for	All states

min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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

**Attribute UnitLimitMax :**

Software limit for maximum Position

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	eV
standard unit	
display unit	
format	%8.2f
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 UnitLimitMin :**

Software limit for minimum Position

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	eV
standard unit	
display unit	
format	%8.2f
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

Read allowed for	All states
Write allowed for	All states

min_warning	
delta_time	
delta_val	

Push DataReady event by user code	Not set
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**Attribute PositionSim :**

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

Attribute Properties	
label	
unit	eV
standard unit	
display unit	
format	%8.2f
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 UpdateStatusRate :**

Rate for checking status of the motors during a movement.

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	s
standard unit	
display unit	
format	
max_value	1
min_value	0
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 PositionAccuracy :**

Reads PositionAccuracy from Bragg motor device and transforme it to eV.

Attribute Definition	
Attribute Type	Scalar
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	
unit	eV
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 ExitOffsetC1 :**

ExitOffset to be restored when crystal is changed to 1 with the ChangeCrystalAndRecalibrate command.

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	mm
standard unit	mm
display unit	mm
format	
max_value	28
min_value	15
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 ExitOffsetC0 :**

ExitOffset to be restored when crystal is changed to 0 with the ChangeCrystalAndRecalibrate command.

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	mm
standard unit	mm
display unit	mm
format	
max_value	28
min_value	15
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 MaskMoveMotors :**

Masked motors will not be set the state to FAULT if they can not be moved. 1 (Perp) & 2 (Par)

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_LONG
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	1 (Perp) & 2 (Par)
standard unit	
display unit	
format	
max_value	3
min_value	0
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 PseudoChannelCutMode :**

If 1 the PseudoChannelCutMode is activated: \nparallel axis not moved for small angles.

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_LONG
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	0->off, 1->on
standard unit	
display unit	
format	
max_value	1
min_value	0
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 BraggOffset :**

Offset used only in p01 when the crystal Si311 is used as Si111

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	Degrees
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	false



**Attribute BraggOffset0 :**

Value to be restored in BraggOffset if crystal is changed to Si111 - crystal 0 (only for p01).

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	Degrees
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	false

**Attribute BraggOffset1 :**

Value to be restored in BraggOffset if crystal is changed to Si311 - crystal 1 (only for p01).

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	Degrees
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	false

**Attribute BraggOffset3 :**

Value to be restored in BraggOffset if crystal is changed to Si311 as Si111 - crystal 3 (only for p01).

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	Degrees
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	false

#### **Attribute ResultSim :**

Attribute Definition	
Attribute Type	Spectrum ( 20 )
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	
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

#### **Dynamic attribute ParInclination :**

Error in the angle between first crystal and parallel axis. Used at p01 for computing parallel motor position.

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	deg
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	false

FMBOxfDCMEnergy Class States	
Name	Description
ON	
MOVING	Thread busy performing some command.
FAULT	Some motor can not be moved.