

Rontec Tango Cpp Class

Contents :

- [Description](#)
- [Properties](#)
- [Commands](#)
 - [State](#)
 - [Status](#)
 - [Abort](#)
 - [Arm](#)
 - [ClearData](#)
 - [GetPartOfSpectrum](#)
 - [GetPauseStatus](#)
 - [GetSpeedAndResolutionConfiguration](#)
 - [Reset](#)
 - [SendRontecMessage](#)
 - [SetROIs](#)
 - [SetSingleROI](#)
 - [SetSpeedAndResolutionConfiguration](#)
 - [Start](#)
- [Attributes](#)
 - [countRate](#)
 - [cycleTime](#)
 - [dataSource](#)
 - [deadTime](#)
 - [detectorTemperature](#)
 - [spectrumEndValue](#)
 - [energyRange](#)
 - [integrationTime](#)
 - [liveTime](#)
 - [nbChannels](#)
 - [readDataSpectrum](#)
 - [realTime](#)
 - [roi1](#)
 - [roi2](#)
 - [roi3](#)
 - [roi4](#)
 - [roi5](#)
 - [roi6](#)
 - [roi7](#)
 - [roi8](#)
 - [spectrumStartValue](#)
 - [timingType](#)
 - [energyMode](#)
 - [dataSpectrum](#)
 - [offsetGain](#)
 - [roisEnds](#)
 - [roisStarts](#)
 - [roisStartsEnds](#)
 - [energySpectrum](#)
- [States](#)

Rontec Class Identification :

Contact : at null - null

Rontec Class Inheritance :

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

Class Family :
 Platform :
 Bus :
 Manufacturer :
 Manufacturer ref. :

Rontec Class Description :

handles Rontec MCA channel analyser through a serial RS232 line

Rontec Properties :

There is no class properties

Device Properties			
Name	Description	Type	Default Value
ConnectedROIMask	list of the TTL outputs connected to a counter just for control and throw exception if try to configure a ROI that is not in the list 8 TTL outputs are available with the current RONTEC MCA hardware example : 1 4 represents : ouptut1, output 4 connected default : 1	String	1 2 3 4
MaxFluoEnergy	maximum fluo energy of the last MCA channel. with the current RONTEC MCA Hardware can be 10, 20, 40, or 80 KeV default : 80.0	double	80
NumberOfChannels	number of channels of the MCA. The current RONTEC MCA hardware has 4096 channels. this is for extentions purpose only, let the default value of 4096	int	4096
SerialLineUrl	Tango name of the serial line device the other serial line properties are fixed for the RONTEC RCL : N(no parity),8(data bits),1(stop bit), hardware handshake (RTS/CTS	String	test/rontec/serial
SpectrumPacketSize	Spectrum read packet size used in reading thread	int	256
EnergyCoeff0	Energy conversion polynomial coefficient order 0	double[]	0
EnergyCoeff1	Energy conversion polynomial coefficient order 0	double[]	0
EnergyCoeff2	Energy conversion polynomial coefficient order 2	double[]	0
IsLiveTimeImplemented	some RONTEC have live time implemented, some not. If live time is implemented, set this attribute to TRUE otherwise to false important for performance and memory leak	boolean	true

Rontec Class Commands				
Name	Input type	Output type	Level	Description
State	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.
				This command gets the

Status	DEV_VOID	CONST_DEV_STRING	OPERATOR	device status (stored in its <i>device_status</i> data member) and returns it to the caller.
Abort	DEV_VOID	DEV_VOID	OPERATOR	stops acquisition already running
Arm	DEV_VOID	DEV_VOID	OPERATOR	will Arm the MCA (ie prepare the MCA).
ClearData	DEV_VOID	DEV_VOID	OPERATOR	clears the acquisition memory
GetPartOfSpectrum	DEVVAR_DOUBLEARRAY	DEVVAR_LONGARRAY	OPERATOR	returns the data starting at <i>argin[0]</i> (exception if <i>argin[0]</i> < starting channel cofigured for <i>argin[1]</i> channel truncated if exceeds the <i>end_channel</i> configured
GetPauseStatus	DEV_VOID	DEV_STRING	OPERATOR	returns PAUSE or RUNNING according to acquisition stopped or running
GetSpeedAndResolutionConfiguration	DEV_VOID	DEV_LONG	OPERATOR	returns the processor configured : 0 : max cps 1 : ... cps 2 : cps 3 : min cps
Reset	DEV_VOID	DEV_STRING	OPERATOR	None.
SendRontecMessage	DEV_STRING	DEV_STRING	OPERATOR	None.
SetROIs	DEVVAR_DOUBLEARRAY	DEV_VOID	OPERATOR	Set the ROIs. the parameter is an array with values going by pair: <i>tab[0]</i> =126, <i>tab[1]</i> =238 -> first ROI starts from 126, ends to 238 <i>tab[2]</i> =1569, <i>tab[3]</i> =2368 -> second ROI starts from 1569, ends to 2368.
SetSingleROI	DEVVAR_DOUBLEARRAY	DEV_VOID	OPERATOR	configures the TTL output number for pulse output photons processed with <i>low_channel</i> < energy < <i>high_channel</i> the RONTEC waits for energy so we retrieve energy in DServer from channel and <i>MaxFluoEnergy</i> channels are retrieved according amplifier and energy calibration. not allowed if acquisition is running Exception if ROI number not in the <i>ConnectedROIMask</i> property
SetSpeedAndResolutionConfiguration	DEV_LONG	DEV_VOID	OPERATOR	selects the processor 0 : max cps 3 : min cps depends on real hardware exception if error
Start	DEV_VOID	DEV_VOID	OPERATOR	starts a acquisition previously configured with attributes <i>startingChannel</i> , <i>endingChannel</i> , <i>integrationTime</i> for time given in <i>integrationTime</i>

			clears memory in the MCA if not done. for continuous acquisition : integrationTime=0
--	--	--	--

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	..

Command Abort :

stops acquisition already running

Abort 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	<ul style="list-style-type: none"> • UNKNOWN • INIT 	..

Command Arm :

will Arm the MCA (ie prepare the MCA).

Arm 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	<ul style="list-style-type: none"> • UNKNOWN • INIT 	..

Command ClearData :

clears the acquisition memory

ClearData 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	<ul style="list-style-type: none"> • UNKNOWN • INIT 	..

Command GetPartOfSpectrum :

returns the data starting at argin[0] (exception if argin[0] < starting channel cofigured for argin[1] channel truncated if exceeds the end_channel configured

GetPartOfSpectrum Definition		
Input Argument	Tango::DEVVAR_DOUBLEARRAY	[0]starting channel, [1] size of channel
Output Argument	Tango::DEVVAR_LONGARRAY	the data
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none">• UNKNOWN• INIT	..

Command GetPauseStatus :

returns PAUSE or RUNNING according to acquisition stopped or running

GetPauseStatus Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_STRING	PAUSE/RUNNING
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none">• UNKNOWN• INIT	..

Command GetSpeedAndResolutionConfiguration :

returns the processor configured :
0 : max cps 1 : ... cps 2 : cps 3 : min cps

GetSpeedAndResolutionConfiguration Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_LONG	processor number actually selected
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..

Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT 	..

Command Reset :

Reset Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_STRING	string returned by the rontec
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT 	..

Command SendRontecMessage :

SendRontecMessage Definition		
Input Argument	Tango::DEV_STRING	the command and arguments to be sent
Output Argument	Tango::DEV_STRING	the rontec answer as string
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT 	..

Command SetROIs :

Set the ROIs. the parameter is an array with values going by pair: tab[0]=126, tab[1]=238 -> first ROI starts from 126, ends to 238
tab[2]=1569,tab[3]=2368 -> second ROI starts from 1569, ends to 2368.

SetROIs Definition		
Input Argument	Tango::DEVVAR_DOUBLEARRAY	starts and ends of the ROI. eg: tab[0]=126, tab[1]=238, tab[2]=1569,tab[3]=2368

Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT 	..

Command SetSingleROI :

configures the TTL output number for pulse output photons processed with
low_channel < energy < high_channel
the RONTEC waits for energy so we retrieve energy in DServer from channel and MaxFluoEnergy
channels are retrieved according amplifier and energy calibration.
not allowed if acquisition is running
Exception if ROI number not in the ConnectedROIMask property

SetSingleROI Definition		
Input Argument	Tango::DEVVAR_DOUBLEARRAY	[0] : TTL output number, [1] low energy (eV), [2] high energy (eV)
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT 	..

Command SetSpeedAndResolutionConfiguration :

selects the processor
0 : max cps 3 : min cps
depends on real hardware
exception if error

SetSpeedAndResolutionConfiguration Definition		
Input Argument	Tango::DEV_LONG	the processor selected 0..3
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN 	..

Command Start :

starts a acquisition previously configured with attributes startingChannel, endingChannel, integrationTime
 for time given in integrationTime
 clears memory in the MCA if not done.
 for continuous acquisition : integrationTime=0

Start 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	<ul style="list-style-type: none"> • RUNNING • UNKNOWN • INIT 	..

Rontec Class Attributes							
Name	Inherited	Abstract	Attr. type	R/W type	Data type	Level	Description
countRate	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	This is the input count rate. \nRem : output count rate = countRate * (1-deadTime / 100)
cycleTime	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	
dataSource	false	false	Scalar	READ	Tango::DEV_STRING	OPERATOR	Display the current data source or NONE if not open
deadTime	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	Dead time = [(Real - Live) / Real] * 100
detectorTemperature	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	
spectrumEndValue	false	false	Scalar	WRITE	Tango::DEV_DOUBLE	OPERATOR	
energyRange	false	false	Scalar	READ_WRITE	Tango::DEV_LONG	OPERATOR	
integrationTime	false	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	Time of integration (ie counting time)
liveTime	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	Live Time: time which does not take into account the dead time.\nShould be shorter than real time
nbChannels	false	false	Scalar	READ_WRITE	Tango::DEV_SHORT	OPERATOR	Number of Channels to get from the DataSource
readDataSpectrum	false	false	Scalar	WRITE	Tango::DEV_BOOLEAN	OPERATOR	
realTime	false	false	Scalar	READ	Tango::DEV_DOUBLE	OPERATOR	Real Time : time taking into account the dead time
roi1	false	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	

roi2	false	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	
roi3	false	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	
roi4	false	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	
roi5	false	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	
roi6	false	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	
roi7	false	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	
roi8	false	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	
spectrumStartValue	false	false	Scalar	WRITE	Tango::DEV_DOUBLE	OPERATOR	
timingType	false	false	Scalar	READ_WRITE	Tango::DEV_SHORT	EXPERT	Type of timing: \n0 -> Live (like an OS time) \n1 -> Real (the real time according to deadTime).
energyMode	false	false	Scalar	WRITE	Tango::DEV_BOOLEAN	OPERATOR	
dataSpectrum	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	fluo spectrum returned by the RONTEC MCA\nmax channels number set in NumberOfChannels property\nstarting channel fixed by SetStartingChannel,\nending channel set by SetEndingChannel
offsetGain	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	
roisEnds	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	End Positions of the ROIs
roisStarts	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	
roisStartsEnds	false	false	Spectrum	READ	Tango::DEV_DOUBLE	EXPERT	All the ROIs starts ends: they are in pair\n: start-end.
energySpectrum	false	false	Spectrum	READ	Tango::DEV_DOUBLE	OPERATOR	

There is no dynamic attribute defined.

Attribute countRate :

This is the input count rate. \nRem : output count rate = countRate * (1-deadTime / 100)

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 NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT

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

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

delta_time
delta_val

Push DataReady event by user code | Not set

Attribute cycleTime :

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 NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT
Write 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 dataSource :

Display the current data source or NONE if not open

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 NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT

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

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

delta_val	
-----------	--

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

Attribute deadTime :

$$\text{Dead time} = [(\text{Real} - \text{Live}) / \text{Real}] * 100$$

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 NOT allowed for	<ul style="list-style-type: none"> UNKNOWN INIT

Attribute Properties	
label	Dead Time
unit	
standard unit	
display unit	%
format	%9.3f
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 detectorTemperature :

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

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
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
Archive Absolute Change	Not set
Push Change event by user code	false

Read NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT
----------------------	---

min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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

Attribute spectrumEndValue :

Attribute Definition	
Attribute Type	Scalar
R/W Type	WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Write 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 energyRange :

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	Not set
Read NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT
Write 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	

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

delta_val

Attribute integrationTime :

Time of integration (ie counting time)

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 NOT allowed for	<ul style="list-style-type: none">UNKNOWNINIT
Write allowed for	All states

Attribute Properties	
label	Integration Time
unit	
standard unit	
display unit	s.
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 liveTime :

Live Time: time which does not take into account the dead time.\nShould be shorter than real time

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

Attribute Properties	
label	Live Time
unit	
standard unit	
display unit	s
format	%4.1f
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 NOT allowed for	<ul style="list-style-type: none"> UNKNOWN INIT
----------------------	---

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 nbChannels :

Number of Channels to get from the DataSource

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_SHORT
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> UNKNOWN INIT
Write allowed for	All states

Attribute Properties	
label	Nb Channels
unit	
standard unit	
display unit	
format	
max_value	16384
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 readDataSpectrum :

Attribute Definition	
Attribute Type	Scalar
R/W Type	WRITE
Data Type	Tango::DEV_BOOLEAN
Display Level	OPERATOR

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	

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

Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Write allowed for	All states

max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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 realTime :

Real Time : time taking into account the dead time

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 NOT allowed for	<ul style="list-style-type: none"> UNKNOWN INIT

Attribute Properties	
label	Real Time
unit	
standard unit	
display unit	s
format	%4.1f
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 roi1 :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG

Attribute Properties	
label	
unit	
standard unit	
display unit	

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

Display Level Inherited	OPERATOR false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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 roi2 :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG
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 roi3 :

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

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	

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

max_alarm
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 roi4 :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG
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 roi5 :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG
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	

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

min_warning	
delta_time	
delta_val	

Push DataReady event by user code	Not set
-----------------------------------	---------

Attribute roi6 :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG
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 roi7 :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG
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 roi8 :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG
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 spectrumStartValue :

Attribute Definition	
Attribute Type	Scalar
R/W Type	WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Write 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 timingType :

Type of timing:

\n0 -> Live (like an OS time)

\n1 -> Real (the real time according to deadTime).

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_SHORT
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> UNKNOWN INIT
Write allowed for	All states

Attribute Properties	
label	Timing Type
unit	
standard unit	
display unit	
format	%1d
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 energyMode :

Attribute Definition	
Attribute Type	Scalar
R/W Type	WRITE
Data Type	Tango::DEV_BOOLEAN
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	true
Write hardware at init.	true
Write 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 dataSpectrum :

fluo spectrum returned by the RONTEC MCA\nmax channels number set in NumberOfChannels property\nstarting channel fixed by SetStartingChannel,\nending channel set by SetEndingChannel

Attribute Definition	
Attribute Type	Spectrum (8192)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT

Attribute Properties	
label	fluo spectrum
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 offsetGain :

Attribute Definition	
Attribute Type	Spectrum (2)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT

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

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

delta_val

Attribute roisEnds :

End Positions of the ROIs

Attribute Definition	
Attribute Type	Spectrum (40)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none">• UNKNOWN• INIT

Attribute Properties	
label	ROIs Ends
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 roisStarts :

Attribute Definition	
Attribute Type	Spectrum (40)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none">• UNKNOWN• INIT

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

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

min_warning	
delta_time	
delta_val	

Push DataReady event by user code Not set

Attribute roisStartsEnds :

All the ROIs starts ends: they are in pair\n: start-end.

Attribute Definition	
Attribute Type	Spectrum (80)
R/W Type	READ
Data Type	Tango::DEV_DOUBLE
Display Level	EXPERT
Inherited	false
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read NOT allowed for	<ul style="list-style-type: none"> • UNKNOWN • INIT

Attribute Properties	
label	ROIs
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 energySpectrum :

Attribute Definition	
Attribute Type	Spectrum (8192)
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	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	

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

Rontec Class States	
Name	Description
FAULT	command error
INIT	*
RUNNING	acquisition in progress
STANDBY	RONTEC OK, ready to accept command
UNKNOWN	communication loosed with RONTEC