

## ADSC\_CCD Tango Cpp Class

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### ADSC\_CCD Class Identification :

Contact : at null - null  
 Class Family :  
 Platform :  
 Bus :  
 Manufacturer :  
 Manufacturer ref. :

### ADSC\_CCD Class Inheritance :

- [Tango::DeviceImpl](#)
  - ADSC\_CCD

### ADSC\_CCD Class Description :

**ADSC\_CCD Properties :**

**There is no class properties**

| Device Properties  |   |        |  |
|--------------------|---|--------|--|
| Name               | Description                                   | Type   | Default Value                                |
| HostName           | hostname for the CCD controller eg raid927    | String | raid927                                      |
| LocalLog           | file for library logging (with path)          | String | ./default_library_log.txt                    |
| XFPort             | port for XF communication (image gather port) | String | 8046   |
| DTPort             | port for DT (Detector) communication          | String | 8041   |
| DTSecPort          | 2nd port for DT (Detector) port communication | String | 8049   |
| XFHostName         | hostname for image gathering                  | String | raid927                                      |
| DCConfig           | configuration file for the Detector           | String | /data/ccd/ccd_dist/tables_api_927/config_ccd |
| NumberOfCCDModules | number of CCD modules                         | String | 9  |

| ADSC_CCD 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="#">Start</a>             | DEV_VOID           | DEV_VOID           | OPERATOR | starts the acquisition  |
| <a href="#">Stop</a>              | DEV_VOID           | DEV_VOID           | OPERATOR | sops the acquisition  |
| <a href="#">GetFileParameters</a> | DEV_VOID           | DEVVAR_STRINGARRAY | EXPERT   | returns the full set of file parameters. Implemented for compatibility with TACO DeviceServer   |
| <a href="#">SetFileParameters</a> | DEVVAR_STRINGARRAY | DEV_VOID           | EXPERT   | sets a file parameters. Implemented for compatibility with TACO DeviceServer  |
| <a href="#">SetHWParameters</a>   | DEVVAR_STRINGARRAY | DEV_VOID           | EXPERT   | sets hardware parameter(s). Implemented for compatibility with TACO DeviceServer<br><br>name min_value max_value<br>bin, 1, 2<br>adc, 0, 1<br>save_raw, 0, 1<br>dark,0, 1<br>dark_mode, 0, 1<br>no_xform, 0, 1<br>loadfile, 0, 1<br>temp_cold, 0, 1<br>temp_warm, 0, 1<br>temp_mode, 0, 1 |

|  |          |                    |          |   |
|--|----------|--------------------|----------|---|
|  |          |                    |          | temp_value, -47, +20  |
| <a href="#">GetHWParameters</a>          | DEV_VOID | DEVVAR_STRINGARRAY | EXPERT   | returns the full set of hardware parameters                                       |
| <a href="#">EnableTemperatureControl</a> | DEV_VOID | DEV_VOID           | EXPERT   | None.   |
| <a href="#">Reset</a>                    | DEV_VOID | DEV_VOID           | OPERATOR | Issues an Abort on the HW :<br>stops the running acquisition<br>cleans the buffer |
| <a href="#">WriteFile</a>                | DEV_VOID | DEV_VOID           | OPERATOR | sends to the HW a command to write<br>the image file on disk                      |
| <a href="#">SetDetectorCold</a>          | DEV_VOID | DEV_VOID           | EXPERT   | turns the detector cooling system to<br>Cold                                      |
| <a href="#">SetDetectorWarm</a>          | DEV_VOID | DEV_VOID           | EXPERT   | turns the detector cooling system to<br>Warm                                      |

### 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 Start :**

starts the acquisition

| Start 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 Stop :**

sops the acquisition

| Stop 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 GetFileParameters :**

returns the full set of file parameters.  
Implemented for compatibility with TACO DeviceServer

| GetFileParameters Definition |                           |    |
|------------------------------|---------------------------|----|
| Input Argument               | Tango::DEV_VOID           |    |
| Output Argument              | Tango::DEVVAR_STRINGARRAY |    |
| DisplayLevel                 | EXPERT                    | .. |
| Inherited                    | false                     | .. |
| Abstract                     | false                     | .. |

|                     |            |    |
|---------------------|------------|----|
| Polling Period      | Not polled | .. |
|                     |            | .. |
| Command allowed for | All states | .. |

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### **Command SetFileParameters :**

sets a file parameters.  
Implemented for compatibility with TACO DeviceServer

| <b>SetFileParameters Definition</b> |                           |    |
|-------------------------------------|---------------------------|----|
| Input Argument                      | Tango::DEVVAR_STRINGARRAY |    |
| 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 SetHWParameters :**

sets hardware parameter(s).  
Implemented for compatibility with TACO DeviceServer

name min\_value max\_value  
bin, 1, 2  
adc, 0, 1  
save\_raw, 0, 1  
dark, 0, 1  
dark\_mode, 0, 1  
no\_xform, 0, 1  
loadfile, 0, 1  
temp\_cold, 0, 1  
temp\_warm, 0, 1  
temp\_mode, 0, 1  
temp\_value, -47, +20

| <b>SetHWParameters Definition</b> |                           |    |
|-----------------------------------|---------------------------|----|
| Input Argument                    | Tango::DEVVAR_STRINGARRAY |    |
| 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 GetHWParameters :**

returns the full set of hardware parameters

| GetHWParameters Definition |                           |    |
|----------------------------|---------------------------|----|
| Input Argument             | Tango::DEV_VOID           |    |
| Output Argument            | Tango::DEVVAR_STRINGARRAY |    |
| DisplayLevel               | EXPERT                    | .. |
| Inherited                  | false                     | .. |
| Abstract                   | false                     | .. |
| Polling Period             | Not polled                | .. |
|                            |                           | .. |
| Command allowed for        | All states                | .. |

---

**Command EnableTemperatureControl :**

| EnableTemperatureControl Definition |                 |    |
|-------------------------------------|-----------------|----|
| 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 Reset :**

Issues an Abort on the HW :  
stops the running acquisition  
cleans the buffer

| 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 | .. |

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**Command WriteFile :**

sends to the HW a command to write the image file on disk

| <b>WriteFile 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 SetDetectorCold :**

turns the detector cooling system to Cold

| <b>SetDetectorCold 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 SetDetectorWarm :**

turns the detector cooling system to Warm

| SetDetectorWarm Definition |                 |    |
|----------------------------|-----------------|----|
| 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      | .. |

| ADSC_CCD Class Attributes        |           |          |            |            |                    |          |   |
|----------------------------------|-----------|----------|------------|------------|--------------------|----------|---|
| Name                             | Inherited | Abstract | Attr. type | R/W type   | Data type          | Level    | Description   |
| <a href="#">binning</a>          | false     | false    | Scalar     | READ_WRITE | Tango::DEV_USHORT  | OPERATOR | binning in x/y  |
| <a href="#">fileName</a>         | false     | false    | Scalar     | READ_WRITE | Tango::DEV_STRING  | OPERATOR | set here the file name form<br>:\n\data/tmp/my_file_name\ndo<br>not add extension\nimage<br>number and extension will be<br>automatically added according<br>to imageStartNumber ans<br>fileExtension |
| <a href="#">fileExtension</a>    | false     | false    | Scalar     | READ_WRITE | Tango::DEV_STRING  | OPERATOR | set here the file extension   |
| <a href="#">imageStartNumber</a> | false     | false    | Scalar     | READ_WRITE | Tango::DEV_LONG    | OPERATOR | W : image start number \nR :<br>current image number  |
| <a href="#">collectAxis</a>      | false     | false    | Scalar     | READ_WRITE | Tango::DEV_STRING  | OPERATOR | set here the Axis name for the<br>current collect\nmust be<br>omega or phi\nif mismatch<br>defaults to omega  |
| <a href="#">collectAxisAngle</a> | false     | false    | Scalar     | WRITE      | Tango::DEV_FLOAT   | OPERATOR | current angle for the collect<br>axis (see colletAxis definition)   |
| <a href="#">distance</a>         | false     | false    | Scalar     | WRITE      | Tango::DEV_FLOAT   | OPERATOR | distance detector-cristal   |
| <a href="#">wavelength</a>       | false     | false    | Scalar     | WRITE      | Tango::DEV_FLOAT   | OPERATOR | longueur d'onde   |
| <a href="#">oscRange</a>         | false     | false    | Scalar     | WRITE      | Tango::DEV_FLOAT   | OPERATOR | Oscillation Range   |
| <a href="#">time</a>             | false     | false    | Scalar     | WRITE      | Tango::DEV_FLOAT   | OPERATOR | Exposure time   |
| <a href="#">beam_x</a>           | false     | false    | Scalar     | WRITE      | Tango::DEV_FLOAT   | OPERATOR | X position of beam  |
| <a href="#">beam_y</a>           | false     | false    | Scalar     | WRITE      | Tango::DEV_FLOAT   | OPERATOR | Y position of beam  |
| <a href="#">jpeg1FileName</a>    | false     | false    | Scalar     | READ_WRITE | Tango::DEV_STRING  | OPERATOR | set here the jpeg 1 file name   |
| <a href="#">jpeg1Size</a>        | false     | false    | Scalar     | READ_WRITE | Tango::DEV_STRING  | OPERATOR | set here the jpeg 1 image size<br>form 128x128  |
| <a href="#">jpeg2FileName</a>    | false     | false    | Scalar     | READ_WRITE | Tango::DEV_STRING  | OPERATOR | set here the jpeg 2 file name   |
| <a href="#">jpeg2Size</a>        | false     | false    | Scalar     | READ_WRITE | Tango::DEV_STRING  | OPERATOR | set here the jpeg 2 image size<br>form 128x128  |
| <a href="#">imageKind</a>        | false     | false    | Scalar     | READ_WRITE | Tango::DEV_SHORT   | OPERATOR | image kind :\n0 : dark<br>image\n1 : 2nd dark image\n4<br>: normal image\n5 : normal<br>image   |
| <a href="#">lastImage</a>        | false     | false    | Scalar     | READ_WRITE | Tango::DEV_BOOLEAN | OPERATOR | this parameter when set<br>causes the current image to be<br>written out  |
|                                  |           |          |            |            |                    |          | temperatures of the   |

|                             |       |       |          |            |                   |        |  |
|-----------------------------|-------|-------|----------|------------|-------------------|--------|--|
| <a href="#">temperature</a> | false | false | Spectrum | READ_WRITE | Tango::DEV_DOUBLE | EXPERT | detector\n9 temperatures for the 9 CCD modules\n |
|-----------------------------|-------|-------|----------|------------|-------------------|--------|--|

**There is no dynamic attribute defined.**

**Attribute binning :**

binning in x/y

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

| Attribute Properties |         |
|----------------------|---------|
| label                | Binning |
| 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 fileName :**

set here the file name form : \n\data/tmp/my\_file\_name\n do not add extension\n image number and extension will be automatically added according to imageStartNumber ans fileExtension

| Attribute Definition |                   |
|----------------------|-------------------|
| Attribute Type       | Scalar            |
| R/W Type             | READ_WRITE        |
| Data Type            | Tango::DEV_STRING |
| Display Level        | OPERATOR          |
| Inherited            | false             |

| Attribute Properties |           |
|----------------------|-----------|
| label                | file name |
| unit                 |           |
| standard unit        |           |
| display unit         |           |

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

|                         |            |
|-------------------------|------------|
| Abstract                | false      |
| Polling Period          | Not polled |
| Memorized               | true       |
| Write hardware at init. | Not set    |
|                         |            |
| Read allowed for        | All states |
| Write 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 fileExtension :**

set here the file extension

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

| Attribute Properties |                |
|----------------------|----------------|
| label                | file extension |
| 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 imageStartNumber :**

W : image start number \nR : current image number

|                             |  |
|-----------------------------|--|
| <b>Attribute Definition</b> |  |
|-----------------------------|--|

|                             |  |
|-----------------------------|--|
| <b>Attribute Properties</b> |  |
|-----------------------------|--|

|                                 |  |
|---------------------------------|--|
| <b>Attribute Event Criteria</b> |  |
|---------------------------------|--|

|                         |                 |
|-------------------------|-----------------|
| 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. | Not set         |
|                         |                 |
| Read allowed for        | All states      |
| Write allowed for       | All states      |

|               |     |
|---------------|-----|
| label         |     |
| unit          |     |
| standard unit |     |
| display unit  |     |
| format        | %4d |
| max_value     |     |
| min_value     |     |
| max_alarm     |     |
| min_alarm     |     |
| 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 collectAxis :**

set here the Axis name for the current collect\nmust be omega or phi\nif mismatch defaults to omega

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

| Attribute Properties |              |
|----------------------|--------------|
| label                | collect Axis |
| 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 collectAxisAngle :**

current angle for the collect axis (see collectAxis definition)

| Attribute Definition    |                  |
|-------------------------|------------------|
| Attribute Type          | Scalar           |
| R/W Type                | WRITE            |
| Data Type               | Tango::DEV_FLOAT |
| Display Level           | OPERATOR         |
| Inherited               | false            |
| Abstract                | false            |
| Polling Period          | Not polled       |
| Memorized               | true             |
| Write hardware at init. | Not set          |
|                         |                  |
| Write allowed for       | All states       |

| Attribute Properties |       |
|----------------------|-------|
| label                | phi   |
| unit                 |       |
| standard unit        |       |
| display unit         |       |
| format               | %5.2f |
| 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 distance :

distance detector-cristal

| Attribute Definition    |                  |
|-------------------------|------------------|
| Attribute Type          | Scalar           |
| R/W Type                | WRITE            |
| Data Type               | Tango::DEV_FLOAT |
| Display Level           | OPERATOR         |
| Inherited               | false            |
| Abstract                | false            |
| Polling Period          | Not polled       |
| Memorized               | true             |
| Write hardware at init. | Not set          |
|                         |                  |
| Write allowed for       | All states       |

| Attribute Properties |          |
|----------------------|----------|
| label                | distance |
| unit                 |          |
| standard unit        |          |
| display unit         |          |
| format               | %5.2f    |
| 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 wavelength :

longueur d`onde

| Attribute Definition    |                  |
|-------------------------|------------------|
| Attribute Type          | Scalar           |
| R/W Type                | WRITE            |
| Data Type               | Tango::DEV_FLOAT |
| Display Level           | OPERATOR         |
| Inherited               | false            |
| Abstract                | false            |
| Polling Period          | Not polled       |
| Memorized               | true             |
| Write hardware at init. | Not set          |
|                         |                  |
| Write allowed for       | All states       |

| Attribute Properties |                 |
|----------------------|-----------------|
| label                | longueur d'onde |
| unit                 |                 |
| standard unit        |                 |
| display unit         |                 |
| format               | %5.2f           |
| 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 oscRange :**

Oscillation Range

| Attribute Definition    |                  |
|-------------------------|------------------|
| Attribute Type          | Scalar           |
| R/W Type                | WRITE            |
| Data Type               | Tango::DEV_FLOAT |
| Display Level           | OPERATOR         |
| Inherited               | false            |
| Abstract                | false            |
| Polling Period          | Not polled       |
| Memorized               | true             |
| Write hardware at init. | Not set          |
|                         |                  |
| Write allowed for       | All states       |

| Attribute Properties |             |
|----------------------|-------------|
| label                | oscillation |
| unit                 |             |
| standard unit        |             |
| display unit         |             |
| format               | %5.2f       |
| 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 time :**

Exposure time

| Attribute Definition    |                  |
|-------------------------|------------------|
| Attribute Type          | Scalar           |
| R/W Type                | WRITE            |
| Data Type               | Tango::DEV_FLOAT |
| Display Level           | OPERATOR         |
| Inherited               | false            |
| Abstract                | false            |
| Polling Period          | Not polled       |
| Memorized               | true             |
| Write hardware at init. | Not set          |
|                         |                  |
| Write allowed for       | All states       |

| Attribute Properties |       |
|----------------------|-------|
| label                | time  |
| unit                 |       |
| standard unit        |       |
| display unit         |       |
| format               | %5.2f |
| 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 beam\_x :**

X position of beam

| Attribute Definition    |                  |
|-------------------------|------------------|
| Attribute Type          | Scalar           |
| R/W Type                | WRITE            |
| Data Type               | Tango::DEV_FLOAT |
| Display Level           | OPERATOR         |
| Inherited               | false            |
| Abstract                | false            |
| Polling Period          | Not polled       |
| Memorized               | true             |
| Write hardware at init. | Not set          |
|                         |                  |
| Write allowed for       | All states       |

| Attribute Properties |                 |
|----------------------|-----------------|
| label                | beam x position |
| unit                 |                 |
| standard unit        |                 |
| display unit         |                 |
| format               | %5.2f           |
| 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    | Not     |

**Attribute beam\_y :**

Y position of beam

| Attribute Definition    |                  |
|-------------------------|------------------|
| Attribute Type          | Scalar           |
| R/W Type                | WRITE            |
| Data Type               | Tango::DEV_FLOAT |
| Display Level           | OPERATOR         |
| Inherited               | false            |
| Abstract                | false            |
| Polling Period          | Not polled       |
| Memorized               | true             |
| Write hardware at init. | Not set          |
| Write allowed for       | All states       |

| Attribute Properties |                 |
|----------------------|-----------------|
| label                | beam y position |
| unit                 |                 |
| standard unit        |                 |
| display unit         |                 |
| format               | %5.2f           |
| 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 jpeg1FileName :**

set here the jpeg 1 file name

| Attribute Definition |                   |
|----------------------|-------------------|
| Attribute Type       | Scalar            |
| R/W Type             | READ_WRITE        |
| Data Type            | Tango::DEV_STRING |
| Display Level        | OPERATOR          |
| Inherited            | false             |
| Abstract             | false             |
| Polling Period       | Not polled        |
| Memorized            | true              |
| Write hardware at    | Not set           |

| Attribute Properties |                 |
|----------------------|-----------------|
| label                | jpeg1 file name |
| 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 |

|                   |            |
|-------------------|------------|
| init.             |            |
| Read allowed for  | All states |
| Write 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 jpeg1Size :**

set here the jpeg 1 image size form 128x128

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

| Attribute Properties |            |
|----------------------|------------|
| label                | jpeg1 size |
| 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 jpeg2FileName :**

set here the jpeg 2 file name

| Attribute Definition |                   |
|----------------------|-------------------|
| Attribute Type       | Scalar            |
| R/W Type             | READ_WRITE        |
| Data Type            | Tango::DEV_STRING |

| Attribute Properties |                  |
|----------------------|------------------|
| label                | jpeg 2 file name |
| unit                 |                  |
| standard unit        |                  |

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

|                         |                   |
|-------------------------|-------------------|
| Display Level Inherited | OPERATOR<br>false |
| Abstract                | false             |
| Polling Period          | Not polled        |
| Memorized               | true              |
| Write hardware at init. | Not set           |
|                         |                   |
| Read allowed for        | All states        |
| Write allowed for       | All states        |

|              |  |
|--------------|--|
| display unit |  |
| format       |  |
| max_value    |  |
| min_value    |  |
| max_alarm    |  |
| min_alarm    |  |
| max_warning  |  |
| min_warning  |  |
| delta_time   |  |
| delta_val    |  |

|                                   |         |
|-----------------------------------|---------|
| Absolute Change                   | 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 jpeg2Size :**

set here the jpeg 2 image size form 128x128

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

| Attribute Properties |             |
|----------------------|-------------|
| label                | jpeg 2 size |
| 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 imageKind :**

image kind :n0 : dark image\n1 : 2nd dark image\n4 : normal image\n5 : normal image

| 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               | true             |
| Write hardware at init. | Not set          |
|                         |                  |
| Read allowed for        | All states       |
| Write allowed for       | All states       |

| Attribute Properties |            |
|----------------------|------------|
| label                | image kind |
| unit                 |            |
| standard unit        |            |
| display unit         |            |
| format               |            |
| max_value            | 5          |
| 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 lastImage :**

this parameter when set causes the current image to be written out

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

| Attribute Properties |            |
|----------------------|------------|
| label                | last image |
| 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 temperature :**

temperatures of the detector\n9 temperatures for the 9 CCD modules\n

| Attribute Definition |                   |
|----------------------|-------------------|
| Attribute Type       | Spectrum ( 9 )    |
| R/W Type             | READ_WRITE        |
| Data Type            | Tango::DEV_DOUBLE |
| Display Level        | EXPERT            |
| Inherited            | false             |
| Abstract             | false             |
| Polling Period       | Not polled        |
| Memorized            | Not set           |
|                      |                   |
| Read allowed for     | All states        |
| Write allowed for    | All states        |

| Attribute Properties |             |
|----------------------|-------------|
| label                | temperature |
| unit                 |             |
| standard unit        |             |
| display unit         |             |
| 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 |

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**There is no state defined**