

*LIGO Laboratory / LIGO Scientific Collaboration*

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**TwinCAT Library for  
Shutter Control**

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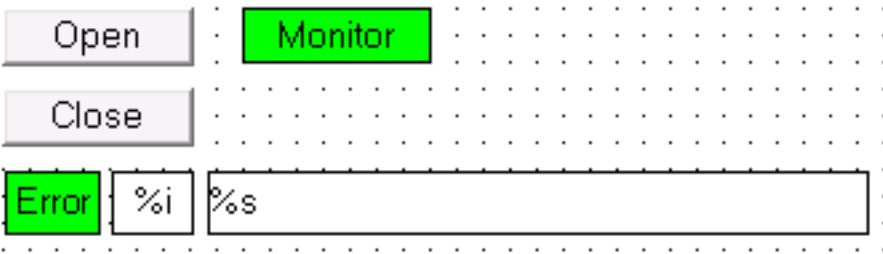
| <b>Library</b>       |                              |
|----------------------|------------------------------|
| Title                | ShutterControl               |
| Version              | 1                            |
| TwinCAT version      | 2.11                         |
| Name space           | –                            |
| Author               | Alexa Staley, Daniel Sigg    |
| Description          | Controls the shutter control |
| Error codes          | None                         |
| Library dependencies | Error                        |

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|---|--|
| <b>Hardware Input Type</b><br>TYPE ShutterControlInStruct :<br>STRUCT<br>ShutterMonitor:                BOOL;<br>END_STRUCT<br>END_TYPE |  |
| Type name   | ShutterControlInStruct   |
| Description   | Structure of the hardware input that are wired up for the shutter control            |
| Definition  | STRUCT   |
| Element   | Name: ShutterMonitor<br>Type: BOOL<br>Description: Binary inputs for shutter monitor |

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| <b>Hardware Output Type</b><br>TYPE ShutterControlOutStruct :<br>STRUCT<br>ShutterClose:                BOOL;<br>ShutterOpen:                BOOL;<br>END_STRUCT<br>END_TYPE |  |
| Type name  | ShutterControlOutStruct  |
| Description  | Structure of the hardware output that are wired up for the shutter control |
| Definition   | STRUCT   |
| Element  | Name: ShutterClose<br>Type: BOOL<br>Description: Close shutter             |
| Element  | Name: ShutterOpen<br>Type: BOOL<br>Description: Open shutter               |

|   |   |
|---|---|
| <b>User Interface Type</b><br>TYPE ShutterControlStruct :<br>STRUCT<br>ShutterMonitor:                BOOL;<br>ShutterClose:                  BOOL;<br>ShutterOpen:                   BOOL;<br>Error:                          ErrorStruct;<br>END_STRUCT<br>END_TYPE |   |
| Type name   | ShutterControlStruct  |
| Description   | Structure of the user interface tags that are used to control the shutter control |
| Definition  | STRUCT  |
| Output Tag  | Name: Error<br>Type: ErrorStruct<br>Description: For error handling               |
| Output Tag  | Name: ShutterMonitor<br>Type: BOOL<br>Description: Monitors shutter               |
| Input Tag   | Name: ShutterClose<br>Type: BOOL<br>Description: Close shutter                    |
| Input Tag   | Name: ShutterOpen<br>Type: BOOL<br>Description: Open shutter                      |

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|---|--|
| <b>Function Block</b><br>FUNCTION_BLOCK ShutterControlFB<br>VAR_INPUT<br>ShutterControlIn:                 ShutterControlInStruct;<br>END_VAR<br>VAR_OUTPUT<br>ShutterControlOut:                 ShutterControlOutStruct;<br>END_VAR<br>VAR<br>END_VAR<br>VAR_IN_OUT<br>ShutterControl:                 ShutterControlStruct;<br>END_VAR |  |
| Name  | ShutterControlFB   |
| Description   | Controls the shutter control   |
| Input argument  | Name: ShutterControlIn<br>Type: ShutterControlInStruct<br>Description: Input hardware structure    |
| Output argument   | Name: ShutterControlOut<br>Type: ShutterControlOutStruct<br>Description: Output hardware structure |
| In/out argument   | Name: ShutterControl<br>Type: ShutterControlStruct<br>Description: User Interface structure        |

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|---|--|
| <b>Visual</b><br> |  |
| Name  | ShutterControlVis  |
| Description   | Displays open and close buttons for the shutter and the shutter monitor                      |
| Placeholder   | Name: ShutterControl<br>Type: ShutterControlStruct<br>Description: Shutter Control structure |

