

*LIGO Laboratory / LIGO Scientific Collaboration*

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**TwinCAT Library for  
Auxiliary Channels**

Alexa Staley, Daniel Sigg

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This is an internal working note  
of the LIGO Laboratory.

**California Institute of Technology**  
**LIGO Project – MS 18-34**  
**1200 E. California Blvd.**  
**Pasadena, CA 91125**  
Phone (626) 395-2129  
Fax (626) 304-9834  
E-mail: [info@ligo.caltech.edu](mailto:info@ligo.caltech.edu)

**Massachusetts Institute of Technology**  
**LIGO Project – NW22-295**  
**185 Albany St**  
**Cambridge, MA 02139**  
Phone (617) 253-4824  
Fax (617) 253-7014  
E-mail: [info@ligo.mit.edu](mailto:info@ligo.mit.edu)

**LIGO Hanford Observatory**  
**P.O. Box 159**  
**Richland WA 99352**  
Phone 509-372-8106  
Fax 509-372-8137

**LIGO Livingston Observatory**  
**P.O. Box 940**  
**Livingston, LA 70754**  
Phone 225-686-3100  
Fax 225-686-7189

<http://www.ligo.caltech.edu/>

<b>Library</b>	
Title	Auxiliary
Version	1
TwinCAT version	2.11
Name space	–
Author	Alexa Staley, Daniel Sigg
Description	Controls the auxiliary
Error codes	None
Library dependencies	Error

<b>Hardware Input Type</b>	
TYPE AuxiliaryInStruct :	
STRUCT	
AuxAI1: INT;	
AuxAI2: INT;	
AuxAI3: INT;	
AuxAI4: INT;	
AuxBI1: INT;	
AuxBI2: INT;	
AuxBI3: INT;	
AuxBI4: INT;	
END_STRUCT	
END_TYPE	
	AuxiliaryInStruct
Description	Structure of the hardware input that are wired up for the auxiliary
Definition	STRUCT
Element	Name: AuxAI1 Type: INT Description: Analog input 1
Element	Name: AuxAI2 Type: INT Description: Analog input 2
Element	Name: AuxAI3 Type: INT Description: Analog input 3
Element	Name: AuxAI4 Type: INT

	Description: Analog input 4
Element	Name: AuxBI1 Type: INT Description: Binary input 1
Element	Name: AuxBI2 Type: INT Description: Binary input 2
Element	Name: AuxBI3 Type: INT Description: Binary input 3
Element	Name: AuxBI4 Type: INT Description: Binary input 4

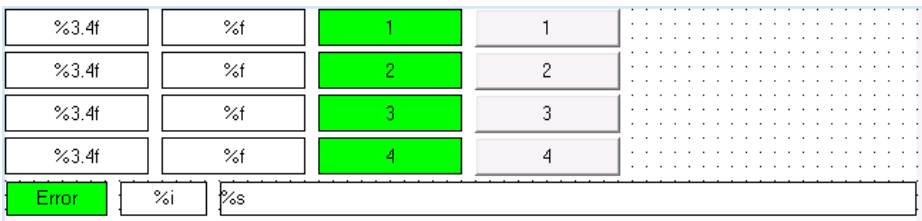
<b>Hardware Output Type</b> TYPE AuxiliaryOutStruct : STRUCT AuxAO1:                  INT; AuxAO2:                  INT; AuxAO3:                  INT; AuxAO4:                  INT; AuxBO1:                  INT; AuxBO2:                  INT; AuxBO3:                  INT; AuxBO4:                  INT; END_STRUCT END_TYPE	
	AuxiliaryOutStruct
Description	Structure of the hardware output that are wired up for the auxiliary
Definition	STRUCT
Element	Name: AuxAO1 Type: INT Description: Analog output 1
Element	Name: AuxAO2 Type: INT Description: Analog output 2
Element	Name: AuxAO3 Type: INT Description: Analog output 3
Element	Name: AuxAO4 Type: INT Description: Analog output 4
Element	Name: AuxBO1 Type: INT Description: Binary output 1
Element	Name: AuxBO2 Type: INT Description: Binary output 2
Element	Name: AuxBO3 Type: INT Description: Binary output 3
Element	Name: AuxBO4 Type: INT

	Description: Binary output 4
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<p><b>User Interface Type</b>          TYPE AuxiliaryStruct :          STRUCT</p> <pre>             Error:                ErrorStruct;             AuxAI1:                LREAL;             AuxAI2:                LREAL;             AuxAI3:                LREAL;             AuxAI4:                LREAL;             AuxBI1:                LREAL;             AuxBI2:                LREAL;             AuxBI3:                LREAL;             AuxBI4:                LREAL;             AuxAO1:                LREAL;             AuxAO2:                LREAL;             AuxAO3:                LREAL;             AuxAO4:                LREAL;             AuxBO1:                LREAL;             AuxBO2:                LREAL;             AuxBO3:                LREAL;             AuxBO4:                LREAL;         </pre> <p>END_STRUCT          END_TYPE</p>	
Type name	AuxiliaryStruct
Description	Structure of the user interface tags that are used to control the auxiliary
Definition	STRUCT
Output Tag	Name: Error Type: ErrorStruct Description: For error handling
Input Tag	Name: AuxAI1 Type: LREAL Description: Analog input 1
Input Tag	Name: AuxAI2 Type: LREAL Description: Analog input 2
Input Tag	Name: AuxAI3 Type: LREAL Description: Analog input 3
Input Tag	Name: AuxAI4 Type: LREAL Description: Analog input 4
Input Tag	Name: AuxBI1

	Type: LREAL Description: Binary input 1
Input Tag	Name: AuxBI2 Type: LREAL Description: Binary input 2
Input Tag	Name: AuxBI3 Type: LREAL Description: Binary input 3
Input Tag	Name: AuxBI4 Type: LREAL Description: Binary input 4
Output Tag	Name: AuxAO1 Type: LREAL Description: Analog output 1
Output Tag	Name: AuxAO2 Type: LREAL Description: Analog output 2
Output Tag	Name: AuxAO3 Type: LREAL Description: Analog output 3
Output Tag	Name: AuxAO4 Type: LREAL Description: Analog output 4
Output Tag	Name: AuxBO1 Type: LREAL Description: Binary output 1
Output Tag	Name: AuxBO2 Type: LREAL Description: Binary output 2
Output Tag	Name: AuxBO3 Type: LREAL Description: Binary output 3
Output Tag	Name: AuxBO4 Type: LREAL Description: Binary output 4

<b>Function Block</b> FUNCTION_BLOCK AuxiliaryFB VAR_INPUT AuxiliaryIn:            AuxiliaryInStruct; END_VAR VAR_OUTPUT AuxiliaryOut:         AuxiliaryOutStruct; END_VAR VAR_IN_OUT Auxiliary:            AuxiliaryStruct; END_VAR	
Name	AuxiliaryFB
Description	Controls the auxiliary channels
Input argument	Name: AuxiliaryIn Type: AuxiliaryInStruct Description: Input hardware structure
Output argument	Name: AuxiliaryOut Type: AuxiliaryOutStruct Description: Output hardware structure
In/out argument	Name: Auxiliary Type: AuxiliaryStruct Description: User Interface structure

<b>Visual</b>  <p>The screenshot shows a visualization interface with a grid of four rows. Each row contains a floating-point input field (format %3.4f), a floating-point output field (format %f), a green button with a number (1, 2, 3, 4), and a grey button with the same number. To the right of the grid is a dotted area. Below the grid is an error message field with a green 'Error' button, an integer input field (format %i), and a string input field (format %s).</p>	
Name	AuxiliaryVis
Description	Displays auxiliary input and output, and standard error message
Placeholder	Name: AuxiliaryStruct Type: Auxiliary Description: Auxiliary structure



