

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

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

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/>

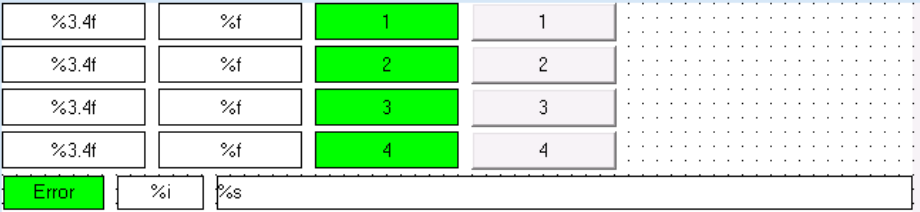
Library	
Title	Auxiliary
Version	3
TwinCAT version	2.11
Name space	–
Author	Alexa Staley, Daniel Sigg
Description	Controls the auxiliary
Error codes	None
Library dependencies	Error, SaveRestore

Hardware Input Type TYPE AuxiliaryInStruct : STRUCT A1: INT; A2: INT; A3: INT; A4: INT; B1: INT; B2: INT; B3: INT; B4: INT; END_STRUCT END_TYPE	
	AuxiliaryInStruct
Description	Structure of the hardware input that are wired up for the auxiliary
Definition	STRUCT
Element	Name: A1 Type: INT Description: Analog input 1
Element	Name: A2 Type: INT Description: Analog input 2
Element	Name: A3 Type: INT Description: Analog input 3
Element	Name: A4 Type: INT Description: Analog input 4
Element	Name: B1 Type: INT Description: Binary input 1
Element	Name: B2 Type: INT Description: Binary input 2
Element	Name: B3 Type: INT Description: Binary input 3
Element	Name: B4 Type: INT Description: Binary input 4

Hardware Output Type TYPE AuxiliaryOutStruct : STRUCT AO1: INT; AO2: INT; AO3: INT; AO4: INT; BO1: INT; BO2: INT; BO3: INT; BO4: INT; END_STRUCT END_TYPE	
	AuxiliaryOutStruct
Description	Structure of the hardware output that are wired up for the auxiliary
Definition	STRUCT
Element	Name: AO1 Type: INT Description: Analog output 1
Element	Name: AO2 Type: INT Description: Analog output 2
Element	Name: AO3 Type: INT Description: Analog output 3
Element	Name: AO4 Type: INT Description: Analog output 4
Element	Name: BO1 Type: INT Description: Binary output 1
Element	Name: BO2 Type: INT Description: Binary output 2
Element	Name: BO3 Type: INT Description: Binary output 3
Element	Name: BO4 Type: INT Description: Binary output 4

User Interface Type TYPE AuxiliaryStruct : STRUCT Error: ErrorStruct; BI: ARRAY [1..4] OF BOOL; BO: ARRAY [1..4] OF BOOL; AI: ARRAY [1..4] OF BOOL; AO: ARRAY [1..4] OF BOOL; END_STRUCT END_TYPE	
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: AI Type: ARRAY [1..4] OF BOOL; Description: Array of analog inputs
Input Tag	Name: BI Type: ARRAY [1..4] OF BOOL; Description: Array of binary inputs
Output Tag	Name: AO Type: ARRAY [1..4] OF BOOL; Description: Array of analog outputs
Output Tag	Name: BO1 Type: ARRAY [1..4] OF BOOL; Description: Array of binary outputs

Function Block FUNCTION_BLOCK AuxiliaryFB VAR_INPUT Request: SaveRestoreEnum; AuxiliaryIn: AuxiliaryInStruct; Momentary: ARRAY[1..4] OF LREAL := 0,0,0,0; END_VAR VAR_OUTPUT AuxiliaryOut: AuxiliaryOutStruct; END_VAR VAR_IN_OUT AuxiliaryInit: AuxiliaryStruct; Auxiliary: AuxiliaryStruct; END_VAR	
Name	AuxiliaryFB
Description	Controls the auxiliary channels
Input argument	Name: Request: Type: SaveRestoreEnum Description: Rquest for save/restore/safemode or noop
Input argument	Name: AuxiliaryIn Type: AuxiliaryInStruct Description: Input hardware structure
Input argument	Name: Momentary Type: ARRAY[1..4] OF LREAL Description: momentary switching on BO channels with the specified on-time or off-time in seconds. Time = 0: level switching Time > 0: momentary switch, normally 0, finite on-time Time < 0: momentary switch, normally 1, finite off-time The time is specified as an array for each BO channel separately.
Output argument	Name: AuxiliaryOut Type: AuxiliaryOutStruct Description: Output hardware structure
In/out argument	Name: AuxiliaryInit Type: AuxiliaryStruct Description: Save/restore variable in persistent memory
In/out argument	Name: Auxiliary Type: AuxiliaryStruct Description: User Interface structure

Visual	
	
Name	AuxiliaryVis
Description	Displays auxiliary input and output, and standard error message
Placeholder	Name: AuxiliaryStruct Type: Auxiliary Description: Auxiliary structure