

*LIGO Laboratory / LIGO Scientific Collaboration*

LIGO- E200628-v1

**Advanced LIGO**

6/7/2012

**TwinCAT Library for  
PZT Mirrors**

Alexa Staley, Daniel Sigg

Distribution of this document:  
LIGO Scientific Collaboration

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/>

<b>Library</b>	
Title	PZTMirror
Version	1
TwinCAT version	2.11
Name space	–
Author	Alexa Staley, Daniel Sigg
Description	Controls PZT mirrors.
Error codes	None
Library dependencies	Error

<b>Hardware Input Type</b>	
TYPE PZTMirrorInStruct :	
STRUCT	
HV10MonitorPZTX:          INT;	
PositionSensorPZTX:      INT;	
HV10MonitorPZTY:         INT;	
PositionSensorPZTY:      INT;	
END_STRUCT	
END_TYPE	
Type name	PZTMirrorInStruct
Description	Structure of the hardware input that are wired up for the PZT mirrors
Definition	STRUCT
Element	Name: HV10MonitorPZTX Type: INT Description: HV10 input monitor of PZT mirror X
Element	Name: PositionSensorPZTX Type: INT Description: Position sensor input of PZT mirror X
Element	Name: HV10MonitorPZTY Type: INT Description: HV10 input monitor of PZT mirror Y
Element	Name: PositionSensorPZTY Type: INT Description: Position sensor input of PZT mirror Y

<b>User Interface Type</b> TYPE PZTMirrorStruct : STRUCT HV10MonitorPZTX:        LREAL; PositionSensorPZTX:     LREAL; HV10MonitorPZTY:        LREAL; PositionSensorPZTY:     LREAL; END_STRUCT END_TYPE	
Type name	PZTMirrorStruct
Description	Structure of the user interface tags that are used to control the PZT mirrors
Definition	STRUCT
Output Tag	Name: HV10MonitorPZTX Type: LREAL Description:
Output Tag	Name: PositionSensorPZTX Type: LREAL Description:
Output Tag	Name: HV10MonitorPZTY Type: LREAL Description:
Output Tag	Name: PositionSensorPZTY Type: LREAL Description:

<b>Function Block</b> FUNCTION_BLOCK PZTMirrorFB VAR_INPUT PZTMirrorIn:            PZTMirrorInStruct; END_VAR VAR_OUTPUT END_VAR VAR_IN_OUT PZTMirror:            PZTMirrorStruct; END_VAR VAR END_VAR	
Name	PZTMirrorFB
Description	Controls the PZT mirrors.
Input argument	Name: PZTMirrorIn Type: PZTMirrorInStruct Description: Input hardware structure
In/out argument	Name: PZTMirror Type: PZTMirrorStruct Description: User Interface structure

<b>Visual</b>	
Name	PZTMirrorViz
Description	Displays monitors and sensors for the PZT mirrors
Placeholder	Name: PZTMirror Type: PZTMirrorStruct Description: PZT Mirror structure