



*LIGO Laboratory / LIGO Scientific Collaboration*

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**TwinCAT Library for Fiber Polarization Correction**

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<b>Library</b>	
Title	FiberPolCorr
Version	1
TwinCAT version	V2.11.0
Name space	
Author	Daniel Sigg
Description	Monitors the fiber polarization
Error Code	None
Library Dependencies	Error, SaveRestore

<b>User Interface Type</b>	
TYPE FiberPolCorrChannel :	
STRUCT	
Error:                    ErrorStruct;	
END_STRUCT;	
END_TYPE;	
Type Name	FiberPolCorrChannel
Description	Structure used in the user interface for various channels
Definition	STRUCT
Output Tag	Name: Error Type: ErrorStruct Description: calls error handler

<b>User Interface Type</b>	
TYPE FiberPolCorrStruct :	
STRUCT	
Error:                    ErrorStruct;	
X:                        FiberPolCorrChannel;	
Y:                        FiberPolCorrChannel;	
END_STRUCT;	
END_TYPE;	
Type Name	FiberPolCorrStruct
Description	Structure used in the user interface
Definition	STRUCT
Output Tag	Name: Error Type: ErrorStruct Description: calls error handler

Output Tag	Name: X Type: FiberPolCorrChannel Description: X channel
Output Tag	Name: Y Type: FiberPolCorrChannel Description: Y channel

<b>User Interface Type</b> TYPE FiberPolCorrMsgInStruct : STRUCT D:                    ARRAY [0...255] of BYTE; ID:                   INT; TimeLo:               UDINT; TimeHi:               UDINT; END_STRUCT; END_TYPE;	
Type Name	FiberPolCorrMsgInStruct
Description	Structure used in the user interface
Definition	STRUCT
Output Tag	Name: D Type: ARRAY [0...255] OF BYTE Description:
Output Tag	Name: ID Type: INT Description:
Output Tag	Name: TimeLo Type: UDINT Description:
Output Tag	Name: TimeHi Type: UDINT Description:

<b>User Interface Type</b> TYPE FiberPolCorrMsgOutStruct : STRUCT D:                    ARRAY [0...255] of BYTE; ID:                   INT; TimeLo:               UDINT; TimeHi:               UDINT; END_STRUCT;	
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END_TYPE;	
Type Name	FiberPolCorrMsgOutStruct
Description	Structure used in the user interface
Definition	STRUCT
Output Tag	Name: D Type: ARRAY [0...255] OF BYTE Description:
Output Tag	Name: ID Type: INT Description:
Output Tag	Name: TimeLo Type: UDINT Description:
Output Tag	Name: TimeHi Type: UDINT Description:

<b>User Interface Type</b>	
TYPE FiberPolCorrSerialPortBufferStruct :	
STRUCT	
RxBuffer: ComBuffer; TxBuffer: ComBuffer; COMportControlError: BOOL; COMportControlErrorID: ComError_t;	
END_STRUCT;	
END_TYPE;	
Type Name	FiberPolCorrSerialPortBufferStruct
Description	Structure used in the user interface
Definition	STRUCT
Output Tag	Name: RxBuffer Type: ComBuffer Description: Receive data buffer; used with all receive function blocks
Output Tag	Name: TxBuffer Type: ComBuffer Description: Transmit data buffer; used with all transmit function blocks
Output Tag	Name: COMportControlError Type: BOOL Description: Error flag
Output Tag	Name: COMportControlErrorID

	Type: BOOL Description: Error ID
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<b>Function Block</b> TYPE FiberPolCorrFB: VAR_INPUT Request:                 SaveRestoreEnum; MsgIn:                   FiberPolCorrMsgOutStruct; END_VAR; VAR_OUTPUT MsgOut:                 FiberPolCorrMsgInStruct; END_VAR; VAR_IN_OUT FiberPolCorr:           FiberPolCorrStruct; FiberPolCorrInit:       FiberPolCorrStruct; END_VAR; END_TYPE;	
Type Name	FiberPolCorrFB
Description	Function block used to monitor the fiber polarization corr
Definition	Function Block
Input Argument	Name: Request Type: SaveRestoreEnum Description: Request for save/restore/safe mode or noop
Input Argument	Name: MsgIn Type: FiberPolCorrMsgOutStruct Description: Input structure
Output Argument	Name: MsgOut Type: FiberPolCorrMsgInStruct Description: Output structure
In/out Argument	Name: FiberPolCorr Type: FiberPolCorrStruct Description: User interface structure
In/out Argument	Name: FiberPolCorrInit Type: FiberPolCorrStruct Description: Save/restore variable in persistent memory

<b>Function Block</b> TYPE FiberPolCorrMsgFB: VAR_INPUT	
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<pre> MsgIn:          FiberPolCorrMsgInStruct; END_VAR; VAR_OUTPUT     MsgOut:      FiberPolCorrMsgOutStruct; END_VAR; VAR_IN_OUT     ComPortData: FiberPolCorrSerialPortBufferStruct; END_VAR; END_TYPE;                 </pre>	
Type Name	FiberPolCorrMsgFB
Description	Function block used to monitor the fiber polarization corr message
Definition	Function Block
Input Argument	Name: MsgIn Type: FiberPolCorrMsgInStruct Description: Input structure
Output Argument	Name: MsgOut Type: FiberPolCorrMsgOutStruct Description: Output structure
Out/in Argument	Name: ComPortData Type: FiberPolCorrSerialPortBufferStruct Description: Receive and transmit buffers

<p><b>Function Block</b></p> <pre> TYPE FiberPolCorrSerialPortControlFB: VAR_INPUT     Mode:          ComSerialLineMode_t;     pComIn:        POINTER TO ARRAY[0..65] OF BYTE;     pComOut:       POINTER TO ARRAY[0..65] OF BYTE;     SizeComIn:     UNIT; END_VAR; VAR_IN_OUT     Com:           FiberPolCorrSerialPortBufferStruct; END_VAR; END_TYPE;                 </pre>	
Type Name	FiberPolCorrSerialPortControlFB
Description	Function block used to monitor the fiber polarization corr serial port control
Definition	Function Block
Input Argument	Name: Mode Type: ComSerialLineMode_t Description:

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Input Argument	Name: pComIn: Type: POINTER TO ARRAY [0..65] OF BYTE Description:
Input Argument	Name: pComOut: Type: POINTER TO ARRAY [0..65] OF BYTE Description:
Input Argument	Name: SizeComIn: Type: UNIT Description:
In/out Argument	Name: Com Type: FiberPolCorrSerialPortByfferStruct Description: