



*LIGO Laboratory / LIGO Scientific Collaboration*

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**TwinCAT Library for LTC**

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LIGO Scientific Collaboration

This is an internal working note  
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<b>Library</b>	
Title	LTC
Version	1
TwinCAT version	V2.11.0
Name space	
Author	Daniel Sigg
Description	ALS laser temperature controller
Error Code	None
Library Dependencies	None

<b>User Interface Type</b>	
TYPE LTCInStruct : STRUCT INPUT_SIGNAL:                LREAL; END_STRUCT; END_TYPE;	
Type Name	LaserPowerInStruct
Description	Structure used in the user interface
Definition	STRUCT
Output Tag	Name: INPUT_SIGNAL Type: LREAL Description: Input structure

<b>User Interface Type</b>	
TYPE LTCOutStruct : STRUCT OUTPUT_SIGNAL:              LREAL; END_STRUCT; END_TYPE;	
Type Name	LTCOutStruct
Description	Structure used in the user interface
Definition	STRUCT
Output Tag	Name: OUTPUT_SIGNAL Type: LREAL Description: Output structure

**User Interface Type**

TYPE LTCStruct :

STRUCT

```

    IN_MON:                LREAL;
    INPUT_SIGNAL:          LREAL;
    S1_MON:                 LREAL;
    S2_MON:                 LREAL;
    SLIDER_SUM:            LREAL;
    ENAGE_LOOP:            BOOL;
    CTRL_ADD:              BOOL;
    ENGAGE_FILTER_1:       BOOL;
    ENGAGE_INT_1:          BOOL;
    ENGAGE_FILTER_2:       BOOL;
    ENGAGE_INT_2:          BOOL;
    POLARITY:              BOOL;
    ENGAGE_1:              BOOL;
    ENGAGE_2:              BOOL;
    OVERRIDE:              BOOL;
    RESET:                 BOOL;
    INPUT_GAIN:            LREAL;
    FILTER_CONST_1:        LREAL;
    FILTER_CONST_2:        LREAL;
    INT_CONST_1:           LREAL;
    INT_CONST_2:           LREAL;
    MIX_RATIO_1:           LREAL;
    MIX_RATIO_2:           LREAL;
    SLIDER_1G:             INT;
    SLIDER_100M:           INT;
    SLIDER_10M:            INT;
    SLIDER_1M:             INT;
    SLIDER_100K:           INT;

```

END\_STRUCT;

END\_TYPE;

Type Name	LTCStruct
Description	Structure used in the user interface
Definition	STRUCT

**Function Block**

TYPE LTCFB:

<pre> VAR_OUTPUT     LTCOut:      LTCOutStruct; END_VAR; VAR_IN_OUT     LTC:        LTCStruct; END_VAR; END_TYPE; </pre>	
Type Name	LTCFB
Description	Function block used to monitor the laser power
Definition	Function Block
Output Argument	Name: LTCOut Type: LTCOutStruct Description: Output structure
In/out Argument	Name: LTC Type: LTCStruct Description: User interface structure