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TwinCAT Library for Fiber Distribution

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of the LIGO Laboratory.

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| **Library** | |
| Title | Fiber Distribution |
| Version | 1 |
| TwinCAT version | V2.11.0 |
| Name space |  |
| Author | Daniel Sigg |
| Description | Monitors the fiber distribution |
| Error Code | 16#01 — Power supply voltages out-of-range  16#02 — RF power level out-of-range  16#04 — External PD  16#08 — Internal PD |
| Library Dependencies | DCPower, DelayLogic, Demodulator, Error, IscWhitening, Photodetectors, ReadADC, SaveRestore, WriteDAC |

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| **User Interface Type**  TYPE FiberDistributionInStruct :  STRUCT  RfMon: INT;  ExternalPdMon: INT;  InternalPdMon: INT;  PowerOk: INT;  END\_STRUCT;  END\_TYPE; | |
| Type Name | FiberDistributionInStruct |
| Description | Input Structure used in the user interface |
| Definition | STRUCT |
| Ouput Tag | Name: RfMon  Type: INT  Description: Monitors the RF power after the amp in dBm |
| Output Tag | Name: ExternalPdMon  Type: INT  Description: Monitors the external PD readback |
| Output Tag | Name: InternalPdMon  Type: INT  Description: Monitors the internal PD readback |
| Output Tag | Name: PowerOk  Type: INT  Description: Voltage monitor readback |

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| **User Interface Type**  TYPE FiberDistributionOutStruct :  STRUCT  Dummy: BOOL;  END\_STRUCT;  END\_TYPE; | |
| Type Name | FiberDistributionOutStruct |
| Description | Output Structure used in the user interface |
| Definition | STRUCT |
| Output Tag | Name: Dummy  Type: BOOL  Description: Dummy variable |

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| **User Interface Type**  TYPE FiberDistributionStruct :  STRUCT  Error: ErrorStruct;  RfMon: LREAL;  RfNom: LREAL;  External: LsDcStruct;  Internal: LsDcStruct;  PowerOk: BOOL;  END\_STRUCT;  END\_TYPE; | |
| Type Name | FiberDistributionInStruct |
| Description | Structure used in the user interface to monitor the fiber distribution |
| Definition | STRUCT |
| Output Tag | Name: Error  Type: ErroStruct  Description: Calls the error handler |
| Output Tag | Name: RfMon  Type: LREAL  Description: Monitors the RF power after the amp in dBm |
| Output | Name: RfNom  Type: LREAL  Description: Nom Rf power at the amp output |
| Output Tag | Name: External  Type: LsDcStruct  Description: |
| Output Tag | Name: Internal  Type: LsDcStruct  Description: |
| Output Tag | Name: PowerOk  Type: BOOL  Description: Voltage monitor readback |

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| **Function Block**  TYPE FiberDistributionFB:  VAR\_INPUT  Request: SaveRestoreEnum;  FiberDistributionIn: FiberDistributionInStruct;  END\_VAR;  VAR\_OUTPUT  FiberDistributionOut: FiberDistributionOutStruct;  END\_VAR;  VAR\_IN\_OUT  FiberDistributionInit: FiberDistributionStruct;  FiberDistribution: FiberDistributionStruct;  END\_VAR:  END\_TYPE; | |
| Type Name | FiberDistributionStructFB |
| Description | Function block used to monitor the fiber distribution |
| Definition | Function Block |
| Input Argument | Name: Request  Type: SaveRestoreEnum  Description: Request for save/restore/safe mode or noop |
| Input Argument | Name: FiberDistributionIn  Type: FiberDistributionInStruct  Description: Input structure |
| Output Argument | Name: FiberDistributionOut  Type: FiberDistributionOutStruct  Description: Output structure |
| In/out Argument | Name: FiberDistribution  Type: FiberDistributionStruct  Description: User interface structure |
| In/out Argument | Name: FiberDistributionInit  Type: FiberDistributionStruct  Description: Save/restore variable in persistent memory |