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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-range16#02 — RF power level out-of-range16#04 — External PD16#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: RfMonType: INTDescription: Monitors the RF power after the amp in dBm |
| Output Tag | Name: ExternalPdMonType: INTDescription: Monitors the external PD readback |
| Output Tag | Name: InternalPdMonType: INTDescription: Monitors the internal PD readback |
| Output Tag | Name: PowerOkType: INTDescription: 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: DummyType: BOOLDescription: 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: ErrorType: ErroStructDescription: Calls the error handler |
| Output Tag | Name: RfMonType: LREALDescription: Monitors the RF power after the amp in dBm |
| Output  | Name: RfNomType: LREALDescription: Nom Rf power at the amp output |
| Output Tag | Name: ExternalType: LsDcStructDescription:  |
| Output Tag | Name: InternalType: LsDcStructDescription:  |
| Output Tag | Name: PowerOkType: BOOLDescription: 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: RequestType: SaveRestoreEnumDescription: Request for save/restore/safe mode or noop |
| Input Argument | Name: FiberDistributionInType: FiberDistributionInStructDescription: Input structure |
| Output Argument | Name: FiberDistributionOutType: FiberDistributionOutStructDescription: Output structure |
| In/out Argument | Name: FiberDistributionType: FiberDistributionStructDescription: User interface structure |
| In/out Argument | Name: FiberDistributionInitType: FiberDistributionStructDescription: Save/restore variable in persistent memory |