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TwinCAT Library for Summing Node

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| **Library** | |
| Title | SummingNode |
| Version | 1 |
| TwinCAT version | V2.11.0 |
| Name space |  |
| Author | Daniel Sigg |
| Description | Information about the summing node |
| Error Code | 16#01 — Power supply voltages out-of-range |
| Library Dependencies | Error, ReadADC, WriteADC, SaveRestore |

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| **User Interface Type**  TYPE SummingNodeInStruct :  STRUCT  In1Mon: INT;  In2Mon: INT;  SumMon: INT;  Ok: BOOL;  END\_STRUCT;  END\_TYPE; | |
| Type Name | SummingNodeInStruct |
| Description | Input structure |
| Definition | STRUCT |
| Output Tag | Name: In1Mon  Type: INT  Description: Input monitor channel 1 |
| Output Tag | Name: In2Mon  Type: INT  Description: Input monitor channel 2 |
| Output Tag | Name: SumMon  Type: INT  Description: Sum monitor |
| Output Tag | Name: Ok  Type: BOOL  Description: Voltages are within range |

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| **User Interface Type**  TYPE SummingNodeOutStruct :  STRUCT  Ofs: INT;  In1Pol: BOOL;  In2Pol: BOOL;  In1En: BOOL;  In2En: BOOL;  In1Gain: INT;  In2Gain: INT;  OutSw: BOOL;  Boost: BOOL;  Comp: BOOL;  Opt: BOOL;  END\_STRUCT;  END\_TYPE; | |
| Type Name | SummingNodeOutStruct |
| Description | Out structure |
| Definition | STRUCT |
| Input Tag | Name: Ofs  Type: INT  Description: Common path offset adjust |
| Output Tag | Name: In1Pol  Type: BOOL  Description: Input 1 polarity |
| Output Tag | Name: In2Pol  Type: BOOL  Description: Input 2 polarity |
| Output Tag | Name: In1En  Type: BOOL  Description: Input 1 enable |
| Output Tag | Name: In2En  Type: BOOL  Description: Input 2 enable |
| Output Tag | Name: In1Gain  Type: INT  Description: Input 1 gain |
| Output Tag | Name: In2Gain  Type: INT  Description: Input 2 gain |
| Output Tag | Name: OutSw  Type: BOOL  Description: Output 1 switch |
| Input Tag | Name: Boost  Type: BOOL  Description: Enable boost switch |
| Input Tag | Name: Comp  Type: BOOL  Description: Compensation enable |
| Input Tag | Name: Opt  Type: BOOL  Description: Option enable |

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| **User Interface Type**  TYPE SummingNodeStruct :  STRUCT  Error: ErrorStruct;  In1Mon: LREAL;  In2Mon: LREAL;  SumMon: LREAL;  Ok: BOOL;  Ofs: LREAL;  In1Pol: BOOL;  In2Pol: BOOL;  In1En: BOOL;  In2En: BOOL;  In1Gain: INT;  In2Gain: INT;  OutSw: BOOL;  Boost: BOOL;  Comp: BOOL;  Opt: BOOL;  END\_STRUCT;  END\_TYPE; | |
| Type Name | SummingNodeStruct |
| Description | Structure used in the user interface |
| Definition | STRUCT |
| In/Out Tag | Name: Error  Type: ErrorStruct  Description: Calls error handler |
| Output Tag | Name: In1Mon  Type: LREAL  Description: Input monitor channel 1 |
| Output Tag | Name: In2Mon  Type: LREAL  Description: Input monitor channel 2 |
| Output Tag | Name: SumMon  Type: LREAL  Description: Sum monitor |
| Output Tag | Name: Ok  Type: BOOL  Description: Voltages are within range |
| Input Tag | Name: Ofs  Type: LREAL  Description: Common path offset adjust |
| Output Tag | Name: In1Pol  Type: BOOL  Description: Input 1 polarity |
| Output Tag | Name: In2Pol  Type: BOOL  Description: Input 2 polarity |
| Output Tag | Name: In1En  Type: BOOL  Description: Input 1 enable |
| Output Tag | Name: In2En  Type: BOOL  Description: Input 2 enable |
| Output Tag | Name: In1Gain  Type: INT  Description: Input 1 gain |
| Output Tag | Name: In2Gain  Type: INT  Description: Input 2 gain |
| Output Tag | Name: OutSw  Type: BOOL  Description: Output 1 switch |
| Input Tag | Name: Boost  Type: BOOL  Description: Enable boost switch |
| Input Tag | Name: Comp  Type: BOOL  Description: Compensation enable |
| Input Tag | Name: Opt  Type: BOOL  Description: Option enable |

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| **Function Block**  TYPE SummingNodeFB:  VAR\_INPUT  Request: SaveRestoreEnum;  SummingNodeIn: SummingNodeInStruct;  END\_VAR;  VAR\_OUTPUT  SummingNodeOut: SummingNodeOutStruct;  END\_VAR;  VAR\_IN\_OUT  SummingNodeInit: SummingNodeStruct;  SummingNode: SummingNodeStruct;  END\_VAR:  END\_TYPE; | |
| Type Name | SummingNodeFB |
| Description | Function block used to monitor the PSL environment |
| Definition | Function Block |
| Input Argument | Name: Request  Type: SaveRestoreEnum  Description: Request for save/restore/safe mode or noop |
| Input Argument | Name: SummingNodeIn  Type: SummingNodeInStruct  Description: Input structure |
| Output Argument | Name: SummingNodeOut  Type: SummingNodeOutStruct  Description: Output Structure |
| In/out Argument | Name: SummingNodeInit  Type: SummingNodeStruct  Description: Save/restore variable in persistent memory |
| In/out Argument | Name: SummingNode  Type: SummingNodeStruct  Description: User interface structure |