

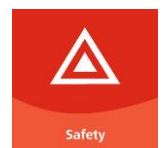
Kuhnke FIO Safety

Control Technology

Kuhnke FIO IO Line CODESYS Safety PLC and Safety I/Os

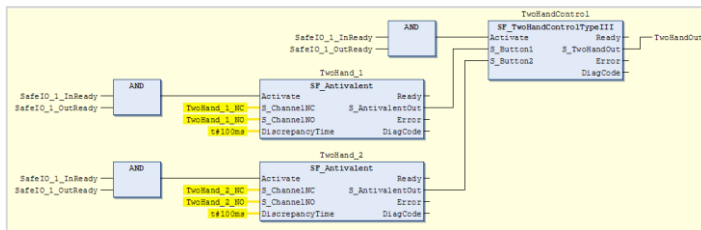
- Modular safety control system
- Safety FD editor integrated in CODESYS
- PLCopen safety components
- Cross-communication between PLC and safety PLC
- Online monitoring of safe and unsafe data
- Fail-safe over EtherCAT® (FSoE)
- SIL 3 to IEC 61508
- PL e to DIN EN ISO 13849

Safety over
EtherCAT

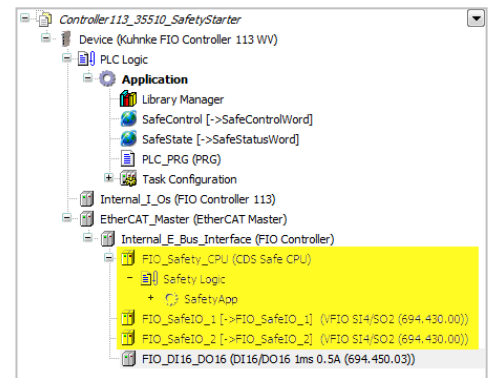


Programming:

- CODESYS V3.5 or higher with safety extension
- PLCopen safety components
- Integrated safety FBD editor
- Safety application integrated in project tree



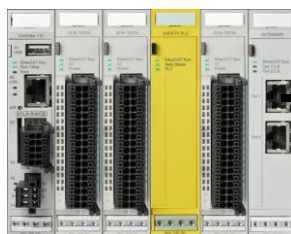
CODESYS V3 safety FBD editor



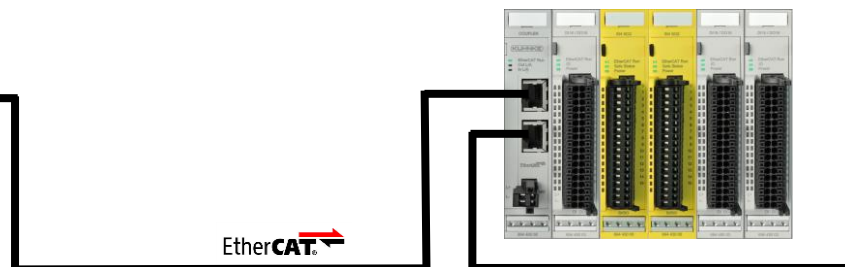
CODESYS V3 devices explorer with integrated safety

System configuration example:

- Standard CODESYS V3 PLC
- Kuhnke FIO bus coupler
- Kuhnke FIO Safety PLC
- Kuhnke FIO Safety I/O
- Expandable by any FIO module



Kuhnke FIO controller with safety PLC



Kuhnke FIO assembly with safety I/Os

Kuhnke FIO Safety Control Technology

Technical data	Kuhnke FIO Safety IO SDI4/SDO2
Safety control unit	Kuhnke FIO Safety PLC
Part number	694 330 00
Runtime system	CODESYS RT Safety
Processor	Cortex M4
Programming tool	CODESYS v3.5 SP5 or higher with integrated safety function modules
E-bus power consumption	max. 240 mA
Safety standards	DIN EN 61508 SIL 3, DIN EN ISO 13849-1 PL e, Cat. 4
Power supply voltage	From bus coupler through E-bus connector
Signal indication	Status LEDs: EtherCAT®, Safety, Power

Safe in-/output terminal	Kuhnke FIO Safety SDI4 / SDO2	Kuhnke FIO Safety SDI8 / SDO2	Kuhnke FIO Safety SDI16 / SDO4	Kuhnke FIO Safety SDI16
Part number	694 430 00	694 430 10	694 430 20	694 431 00
Processor	Cortex M3	Cortex M4	Cortex M4	Cortex M4
Number of inputs	4 safe inputs (configurable)	8 safe inputs (configurable)	16 safe inputs (configurable)	16 safe inputs (configurable)
Number of outputs	2 safe outputs (I _{max} = 2.0 A)	2 safe outputs (I _{max} = 0.5 A)	4 safe outputs (I _{max} = 0.5 A)	-
Clock pulse outputs (OSSD)	4	4	8	8
E-bus power consumption	max. 275 mA	max. 200 mA	max. 200 mA	max. 200 mA
Safety standards	DIN EN 61508 SIL 3, DIN EN ISO 13849-1 PL e, Cat. 3	DIN EN 61508 SIL 3, DIN EN ISO 13849-1 PL e, Cat. 4	DIN EN 61508 SIL 3, DIN EN ISO 13849-1 PL e, Cat. 4	DIN EN 61508 SIL 3, DIN EN ISO 13849-1 PL e, Cat. 4
Terminals	18-pin spring-type connector		36-pin spring-type connector	
Safe response time	< 5 ms (read input, write to E-bus)			
Error response time	≤ watchdog time (configurable)			
Extended diagnostics	via CoE			
Signal indication	LEDs allocated to the point of termination, status LEDs (EtherCAT, Safety, Power)			

General data	
Fieldbus port	EtherCAT® 100 Mbps LVDS: E-bus
Power supply voltage	24 V DC (-15% / +20%)
Installation / mounting pos.	35 mm DIN rail / horizontal
Ambient conditions	0 °C ...+55 °C, IP 20
Housing (W x H x D)	Plastic shroud over aluminium frame, 25 x 120 x 90 mm
Certifications	CE, cULus, TÜV Rheinland

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