Documentation for solution

TwinCAT SAFETY

Safety

Project CRC: 0x61D2

Programmer:

Print Name	Signature	Date

Customer:

Print Name	Signature	Date

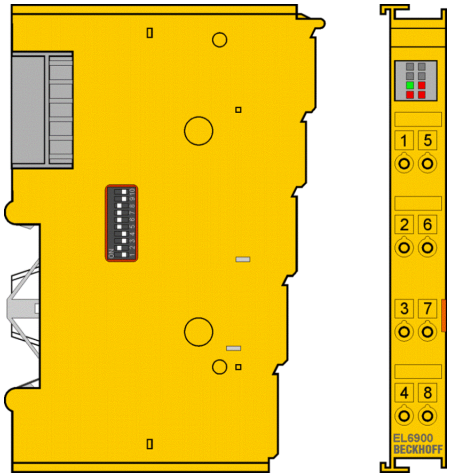
Date	09/05/2019
Editor	pc
Plot	09/05/2019

BECKHOFF
Beckhoff Automation GmbH

Table of Contents

Target System	2
Alias Device Overview	3
Group : TwinSafeGroup1	4
Term 4 (EL1904) - Module 1 (FSOES)	5
Term 5 (EL1904) - Module 1 (FSOES)	8
Term 6 (EL2904) - Module 1 (FSOES)	11
Standard Variables Table	14
Function Block Overview	15
Group : TwinSafeGroup1	16
Network : Network1	20
FBEstop1	21

Target System



Platform: EL6900

Parameters

Version number: 1
Serial Number: 261285
Type: EL6900, TwinSAFE PLC
Product/Revision: EL6900-0000-0016
Auto Inc Addr: 65535
EtherCAT Addr: 1002
Previous Port: B1001

Safety Project

Project CRC: 0x61D2

Safe address: 1

Switch setting:

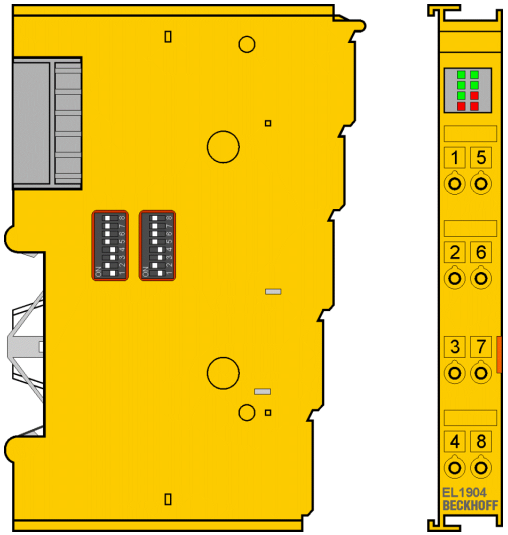
Alias Device Overview

Group : TwinSafeGroup1	4
Term 4 (EL1904) - Module 1 (FSOES)	5
Term 5 (EL1904) - Module 1 (FSOES)	8
Term 6 (EL2904) - Module 1 (FSOES)	11
Standard Variables Table	14

Group : TwinSafeGroup1

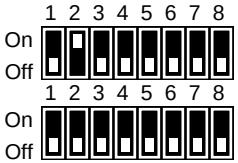
Term 4 (EL1904) - Module 1 (FSOES)

Type: 4 digital inputs (EtherCAT)



FSoE address: 2

Switch setting:



EtherCAT Parameter

Type:	EL1904, 4 Ch. Safety Input 24V, TwinSAFE
Product/Revision:	EL1904-0000-0016
Auto Inc Addr:	65534
EtherCAT Addr:	1003
Identification Value:	
Previous Port:	B1002

TwinSAFE Connection Parameter

Name:	Message_3
Conn-No:	1
Conn-Id:	3
FSoE Watchdog:	100
Mode:	FSoE_master

Term 4 (EL1904) - Module 1 (FSOES)

8000:01 Operating Mode:	digital (0)
8001:01 Sensor test Channel 1 active:	TRUE (1)
8001:02 Sensor test Channel 2 active:	FALSE (0)
8001:03 Sensor test Channel 3 active:	FALSE (0)
8001:04 Sensor test Channel 4 active:	FALSE (0)
8002:01 Logic of Channel 1 and 2:	single logic channel 1/2 (0)
8002:03 Logic of Channel 3 and 4:	single logic channel 3/4 (0)

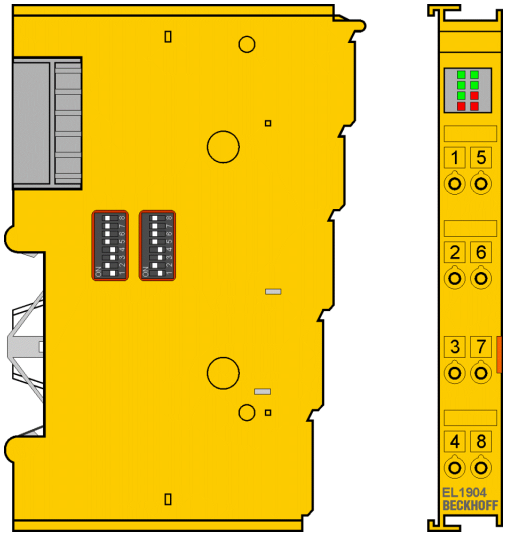
Term 4 (EL1904) - Module 1 (FSOES)

Type: 4 digital inputs (EtherCAT)

Channel	Connection Name
InputChannel1	AssignedVariable : inputCanal1 (TwinSafeGroup1)

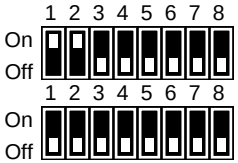
Term 5 (EL1904) - Module 1 (FSOES)

Type: 4 digital inputs (EtherCAT)



FSoE address: 3

Switch setting:



EtherCAT Parameter

Type:	EL1904, 4 Ch. Safety Input 24V, TwinSAFE
Product/Revision:	EL1904-0000-0016
Auto Inc Addr:	65533
EtherCAT Addr:	1004
Identification Value:	
Previous Port:	B1003

TwinSAFE Connection Parameter

Name:	Message_4
Conn-No:	2
Conn-Id:	4
FSoE Watchdog:	100
Mode:	FSoE_master

Term 5 (EL1904) - Module 1 (FSOES)

8000:01 Operating Mode:	digital (0)
8001:01 Sensor test Channel 1 active:	TRUE (1)
8001:02 Sensor test Channel 2 active:	FALSE (0)
8001:03 Sensor test Channel 3 active:	FALSE (0)
8001:04 Sensor test Channel 4 active:	FALSE (0)
8002:01 Logic of Channel 1 and 2:	single logic channel 1/2 (0)
8002:03 Logic of Channel 3 and 4:	single logic channel 3/4 (0)

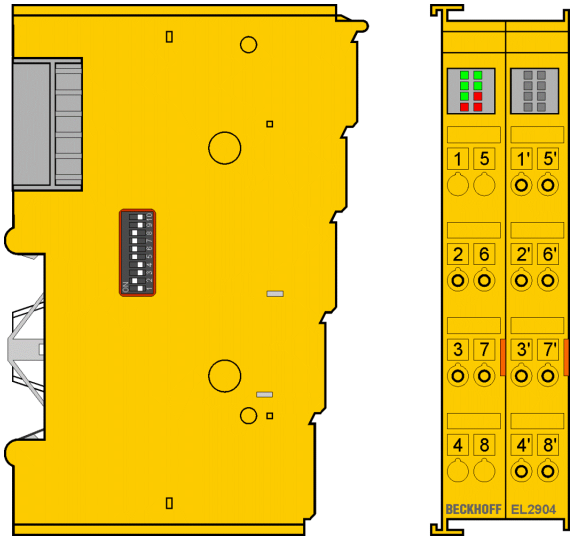
Term 5 (EL1904) - Module 1 (FSOES)

Type: 4 digital inputs (EtherCAT)

Channel	Connection Name
InputChannel1	AssignedVariable : rearmament (TwinSafeGroup1)

Term 6 (EL2904) - Module 1 (FSOES)

Type: 4 digital outputs (EtherCAT)



FSoE address: 4

Switch setting:

EtherCAT Parameter

Type:	EL2904, 4 Ch. Safety Output 24V, 0.5A, TwinSAFE
Product/Revision:	EL2904-0000-0016
Auto Inc Addr:	65532
EtherCAT Addr:	1005
Identification Value:	
Previous Port:	B1004

TwinSAFE Connection Parameter

Name:	Message_5
Conn-No:	3
Conn-Id:	5
FSoE Watchdog:	100
Mode:	FSoE_master

Term 6 (EL2904) - Module 1 (FSOES)

8000:01 Standard outputs active:	FALSE (0)
8000:02 Current measurement active:	TRUE (1)
8000:03 Testing of outputs active:	TRUE (1)
8000:04 Error acknowledge active:	FALSE (0)

Term 6 (EL2904) - Module 1 (FSOES)

Type: 4 digital outputs (EtherCAT)

Channel	Connection Name
OutputChannel1	AssignedVariable : outputStop (TwinSafeGroup1)

Standard Variables Table

Alias Device	Information
ErrorAcknowledgement	Type : BIT From : - To : - TwinSafeGroup1.Err Ack (TwinSafeGroup1)
Run	Type : BIT From : - To : - TwinSafeGroup1.Run/Stop (TwinSafeGroup1)

Function Block Overview

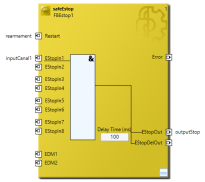
Group : TwinSafeGroup1 16

Network : Network1 20

FBEstop1 21

Group : TwinSafeGroup1

Network1



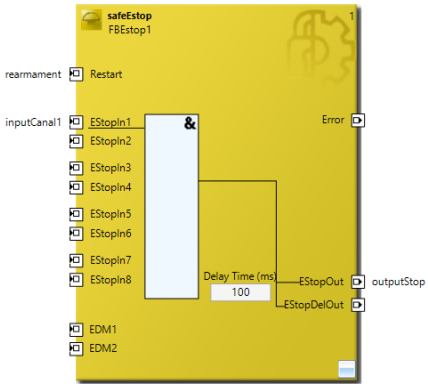
Map State: True

Map Diag: True

Date	09/05/2019	BECKHOFF	Group : TwinSafeGroup1
Editor	pc	Beckhoff Automation GmbH	
Plot	09/05/2019		Page Number: 16

Group : TwinSafeGroup1

Network1



Map State: True

Map Diag: True

Crop: 1

Date	09/05/2019	BECKHOFF	Group : TwinSafeGroup1
Editor	pc	Beckhoff Automation GmbH	
Plot	09/05/2019		Page Number: 17

Group : TwinSafeGroup1

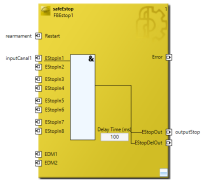
Map State: True
Map Diag: True
Crop: 2

Group : TwinSafeGroup1

Map State: True
Map Diag: True
Crop: 3

Network : Network1

Network1

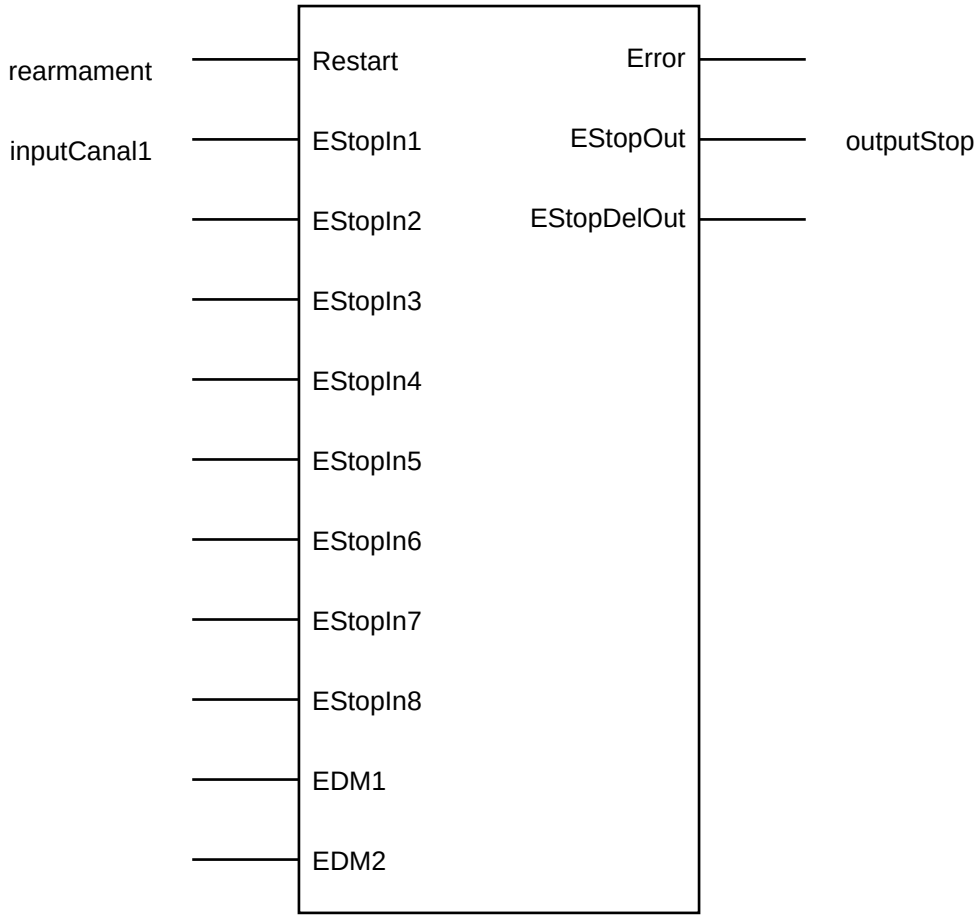


Map State: True

Map Diag: True

Date	09/05/2019	BECKHOFF Beckhoff Automation GmbH	Network : Network1
Editor	pc		
Plot	09/05/2019		Page Number: 20

FBEstop1



Type: safeEstop
Map State: False
Map Diag: False
Order of Execution: 1

Delay Time (ms): 100

Date	09/05/2019	BECKHOFF	FBEstop1	
Editor	pc			
Plot	09/05/2019	Beckhoff Automation GmbH	Group : TwinSafeGroup1; Network : Network1	Page Number: 21

FBEstop1

Type: safeEstop

FunctionBlockPort	Connection Name
Restart	AssignedVariable : rearmament : Term 5 (EL1904) - Module 1 (FSOES).InputChannel1 (TwinSafeGroup1)
EStopIn1	AssignedVariable : inputCanal1 : Term 4 (EL1904) - Module 1 (FSOES).InputChannel1 (TwinSafeGroup1)
EStopOut	AssignedVariable : outputStop : Term 6 (EL2904) - Module 1 (FSOES).OutputChannel1 (TwinSafeGroup1)