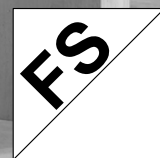




SEW
EURODRIVE

Revision



MOVIPRO®
Functional Safety



Table of contents

| | | |
|----------|---|----------|
| 1 | Revision..... | 4 |
| 2 | Safe state..... | 5 |
| 3 | Safety function..... | 6 |
| 4 | F user data..... | 7 |
| 4.1 | Output data | 7 |
| 4.2 | Input data | 7 |
| 5 | Triggering the PROFIsafe-Option S11 – example..... | 9 |

1 Revision

This revision applies to the following documentation: Manual "MOVIPRO® – Functional Safety", edition 12/2011.

The following chapters are completely replaced by this revision:

- Chapter 5.1 "Safe state"
- Chapter 5.3 "Safety function"
- Chapter 5.5.3 "F user data"
- Chapter 5.5.4 "Example of PROFIsafe option S11 control"

2 Safe state

The safe state for the PROFIsafe option is defined as:

- Safety-related outputs switched off
- Value "0" for the safety-related process data (PROFIsafe F user data)

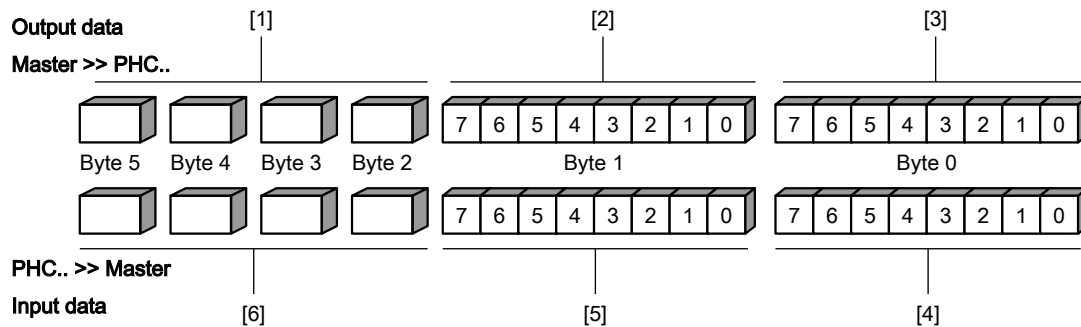
The safety concept is based on this definition.

3 Safety function

The PROFIsafe option S11 provides the safety function in the form of safety-related outputs, which are controlled by a higher-level controller via PROFIsafe communication.

4 F user data

F user data coding is based on the "PROFIdrive on PROFIsafe" V1.0 specifications (PNO order No. 3,272). The "PROFIdrive Safety Block 1" specified there is mapped in byte 0. Byte 1 is manufacturer-specific. With the PROFIsafe option S11, it is used for the safety-related inputs and outputs.



18320795787

4.1 Output data

| | Byte | Bit | Name | Default | Function | Remark |
|-----|-------|-------|--------|---------|---|--|
| [3] | 0 | 0 | STO | 0 | Safety-related disconnection of the drive "Safe Torque Off" | 0-active |
| | | 1 – 7 | – | 0 | Reserved | Do not use. |
| [2] | 1 | 0 | F-DO00 | 0 | Safety-related digital output 0 | Only available in special PHC.., see operating instructions of the basic unit. |
| | | 1 | F-DO01 | 0 | Safety-related digital output 1 | |
| | | 2 – 7 | – | 0 | Reserved | Do not use. |
| [1] | 2 – 5 | – | – | – | Reserved for PROFIsafe telegram backup | – |

4.2 Input data

| | Byte | Bit | Name | Default | Function | Remark |
|-----|------|-------|---------------|---------|---|-------------|
| [4] | 0 | 0 | POWER_REMOVED | 0 | Response safety-related output F-DO_STO switched– "Power removed" | 1-active |
| | | 1 – 7 | – | 0 | Reserved | Do not use. |

4 F user data

Input data

| | Byte | Bit | Name | Default | Function | Remark |
|-----|-------|-------|--------|---------|--|---|
| [5] | 1 | 0 | F-DI00 | 0 | Safety-related digital input 0 | Only available in special PHC..., see operating instructions of the basic unit. |
| | | 1 | F-DI01 | 0 | Safety-related digital input 1 | |
| | | 2 | F-DI02 | 0 | Safety-related digital input 2 | |
| | | 3 | F-DI03 | 0 | Safety-related digital input 3 | |
| | | 4 – 7 | – | 0 | Reserved | Do not use. |
| [6] | 2 – 5 | – | – | – | Reserved for PROFIsafe telegram backup | – |

23574453/EN – 07/2017

5 Triggering the PROFIsafe-Option S11 – example

The example for triggering the failsafe functions of the PROFIsafe option S11 is based on the following assumptions:

- You have already created a safety program and a process group,
- An F control program module exists.

You can activate the failsafe functions and the F periphery as well as the evaluation of the responses by the F periphery by using flags. Note that in STEP7, flags are only permitted as links between the standard user program and the safety program. Flags may not be used as buffers for F data.



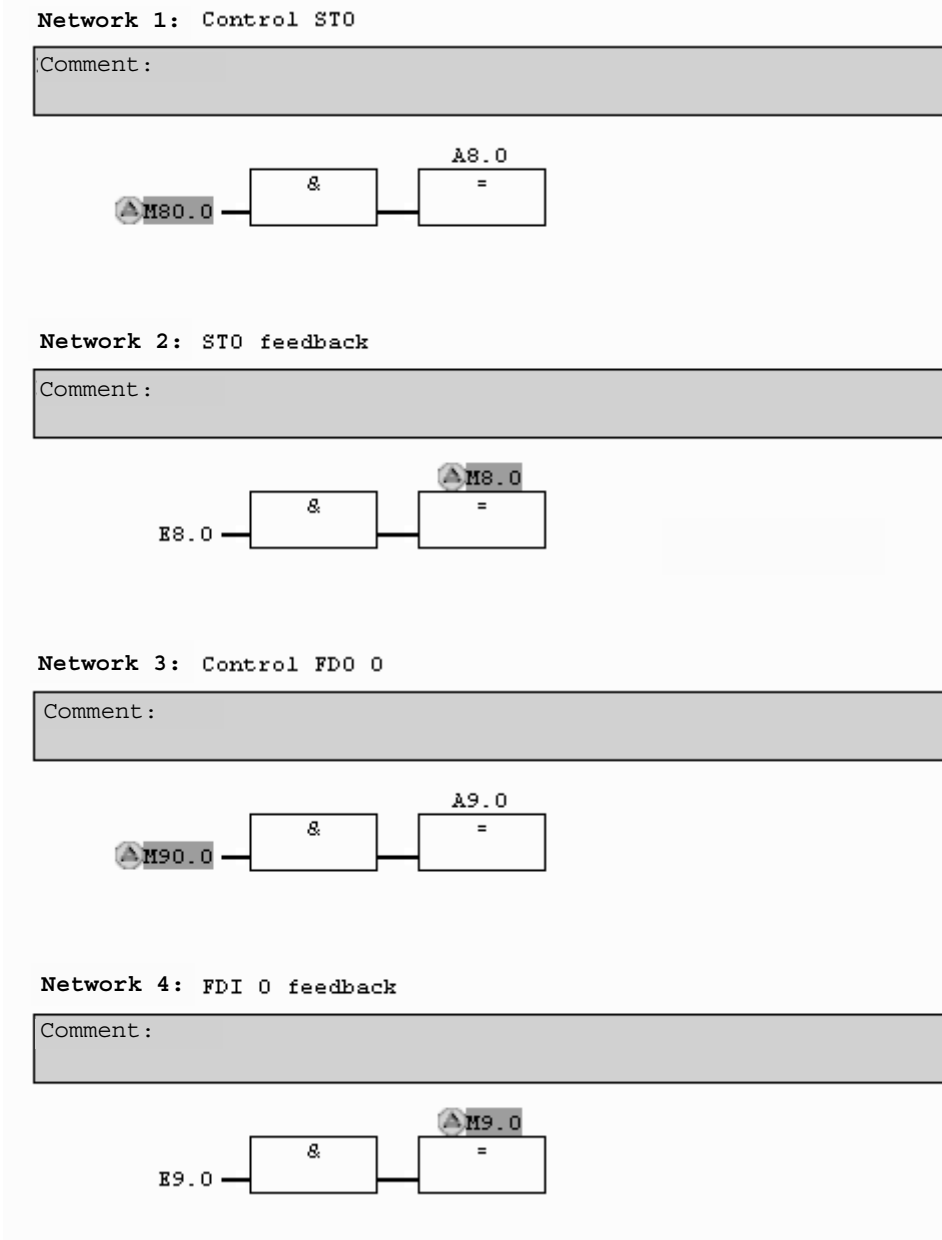
INFORMATION

SEW-EURODRIVE accepts no liability for the information provided in this example. This example does not represent a customer-specific solution. Its aim is simply to assist the reader.

The following table shows the allocation of input/output addresses to flags:

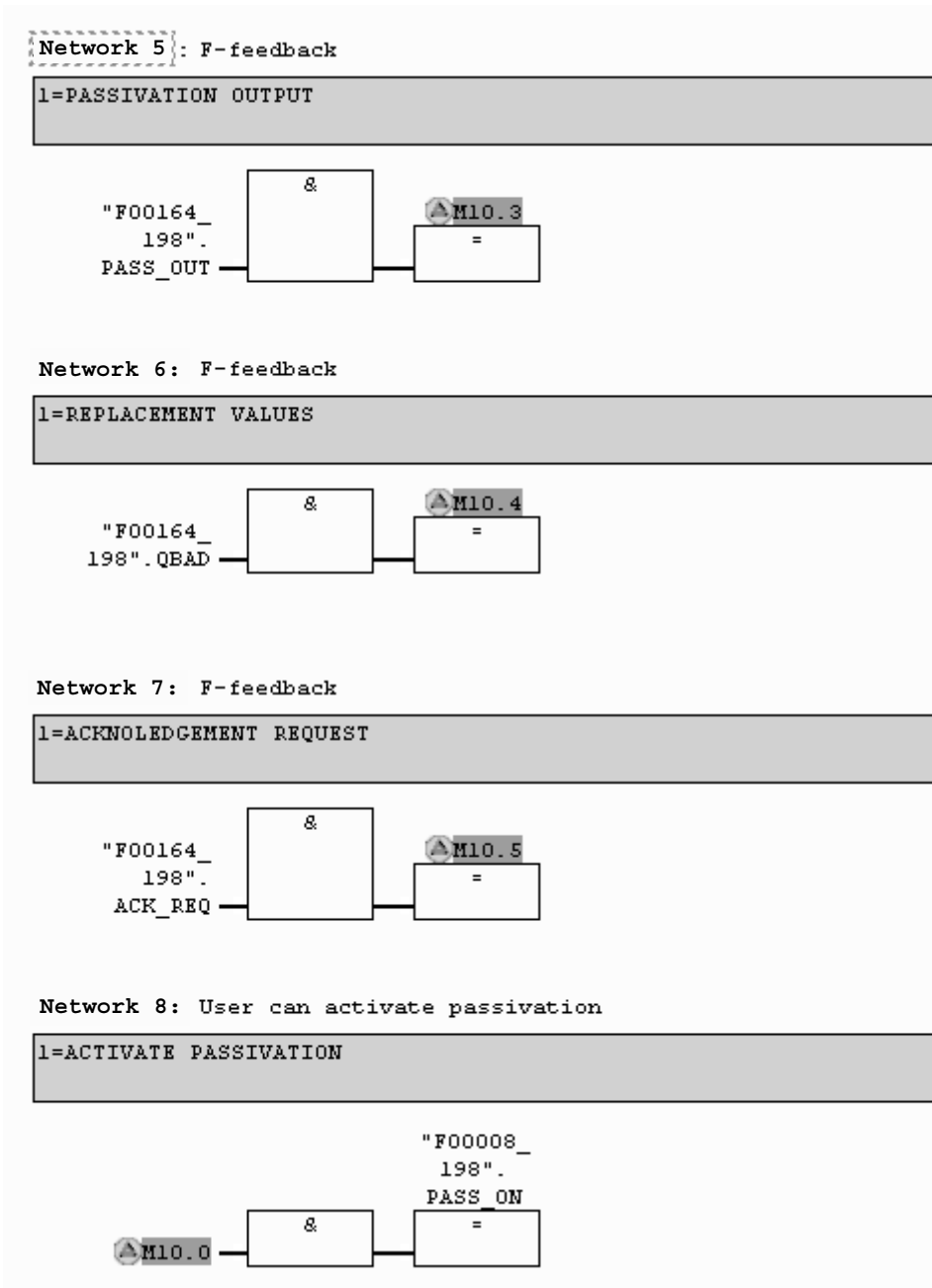
| Address | Symbol | Flag | Meaning |
|--------------|-----------------------|--------|--|
| E 8.0 | S11_PowerRemoved | M 8.0 | Feedback "safety-related output switched" |
| E 9.0 | S11_FDI00 | M 9.0 | Safety-related input 00 |
| E 9.1 | S11_FDI01 | M 9.1 | Safety-related input 01 |
| E 9.2 | S11_FDI02 | M 9.2 | Safety-related input 02 |
| E 9.3 | S11_FDI03 | M 9.3 | Safety-related input 03 |
| A 8.0 | S11_STO | M 80.0 | Safety-related disconnection of the drive |
| A 9.0 | S11_FDO00 | M 90.0 | Safety-related output 00 |
| A 9.1 | S11_FDO01 | M 90.1 | Safety-related output 01 |
| DB811.DBX0.0 | "F00008_198".PASS_ON | M 10.0 | Activate passivation of S11 |
| DB811.DBX0.1 | "F00008_198".ACK_NEC | M 10.1 | Set parameters for reintegration of S11 |
| DB811.DBX0.2 | "F00008_198".ACK_REI | M 10.2 | Activate user acknowledgement of S11 |
| DB811.DBX2.0 | "F00008_198".PASS_OUT | M 10.3 | Passivation of S11 has occurred |
| DB811.DBX2.1 | "F00008_198".QBAD | M 10.4 | Fault in S11 occurred |
| DB811.DBX2.2 | "F00008_198".ACK_REQ | M 10.5 | Indicates whether user acknowledgement is required for reintegration of S11. |

5 Triggering the PROFIsafe-Option S11 – example



4096029963

23574453/EN – 07/2017

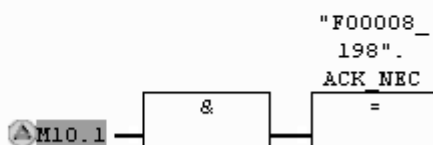


4096083851

5 Triggering the PROFIsafe-Option S11 – example

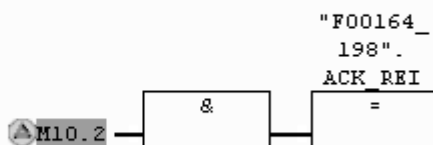
Network 9: Parameterizes the reintegration

1=ACKNOWLEDGEMENT NECESSARY



Network 10: User must acknowledge the reintegration of S11

1=ACKNOWLEDGEMENT FOR REINTEGRATION OF S11



4096087563

23574453/EN – 07/2017









SEW-EURODRIVE
Driving the world

SEW
EURODRIVE

SEW-EURODRIVE GmbH & Co KG
P.O. Box 3023
76642 BRUCHSAL
GERMANY
Phone +49 7251 75-0
Fax +49 7251 75-1970
sew@sew-eurodrive.com
→ www.sew-eurodrive.com