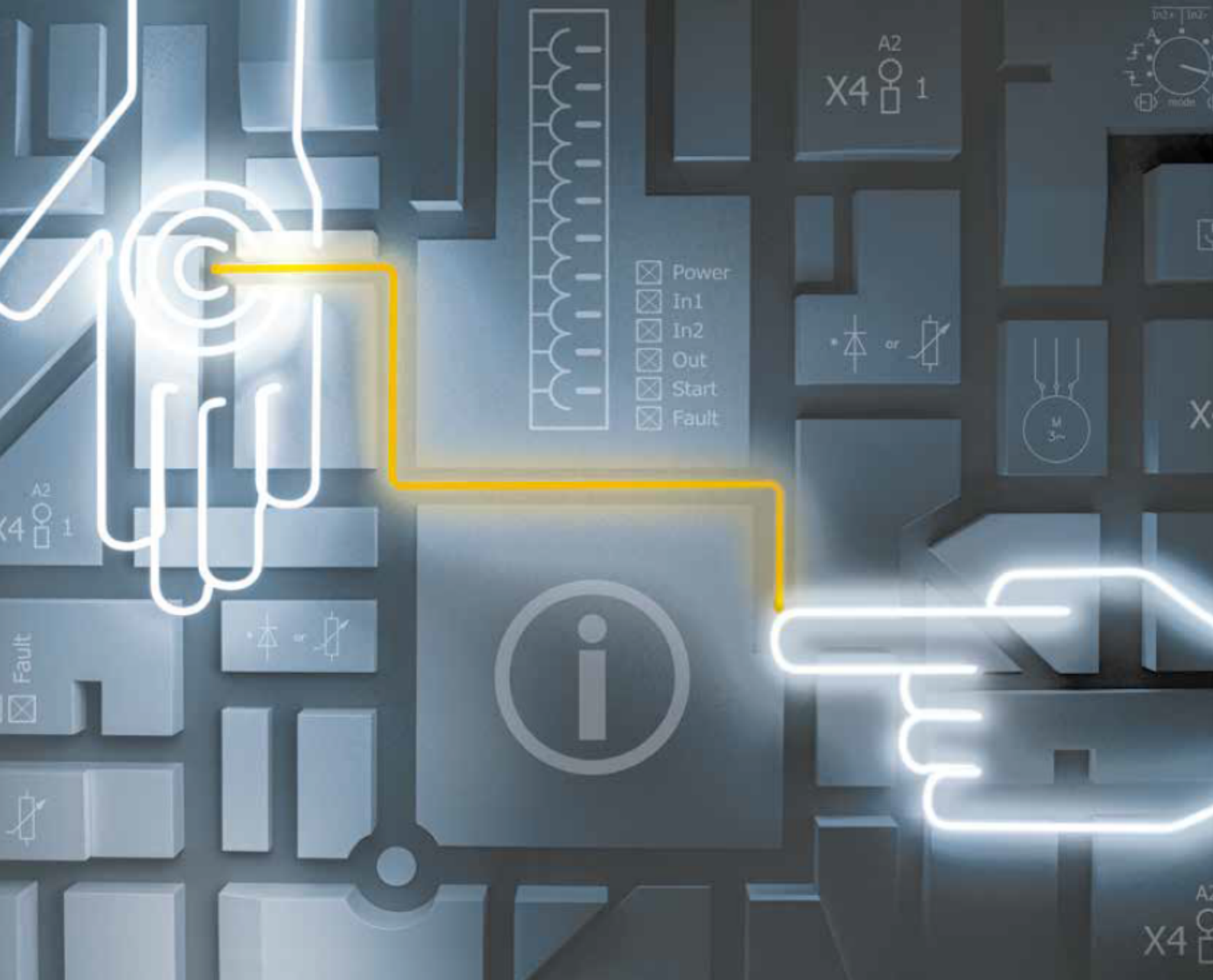




► PSSu XR F-T

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Operating Manual-21884-EN-06

- Decentralised system PSSuniversal I/O



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SD means Secure Digital

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1 Introduction

1.1 Validity of documentation

This documentation is valid for the PSSu XR F-T module. It is valid until new documentation is published.

Please also refer to the following documents:

- ▶ PSSuniversal System Description
- ▶ PSSuniversal Installation Manual

This operating manual explains the function and operation, describes the installation and provides guidelines on how to connect the product.

1.1.1 Retaining the documentation

This documentation is intended for instruction and should be retained for future reference.

1.1.2 Terminology: System environment A and B

The PSSu system can be used in two different system environments. The module's application area is described in the chapter "Intended Use" of the manual.

The distinction is made between

- ▶ PSSu in system environment A
- ▶ PSSu in system environment B

The distinction is based on the application area of the PSSu system.

PSSu in system environment A may be used in the

- ▶ Decentralised system PSSu I/O
- ▶ **Not** in the automation system PSS 4000

PSSu in system environment B may be used in the

- ▶ Automation system PSS 4000, e.g. with
 - Decentralised system PSSu I/O with SafetyNET p
 - Control system PSSu PLC
 - Control system PSSu multi

1.2 Definition of symbols

Information that is particularly important is identified as follows:



DANGER!

This warning must be heeded! It warns of a hazardous situation that poses an immediate threat of serious injury and death and indicates preventive measures that can be taken.



WARNING!

This warning must be heeded! It warns of a hazardous situation that could lead to serious injury and death and indicates preventive measures that can be taken.



CAUTION!

This refers to a hazard that can lead to a less serious or minor injury plus material damage, and also provides information on preventive measures that can be taken.



NOTICE

This describes a situation in which the product or devices could be damaged and also provides information on preventive measures that can be taken. It also highlights areas within the text that are of particular importance.



INFORMATION

This gives advice on applications and provides information on special features.

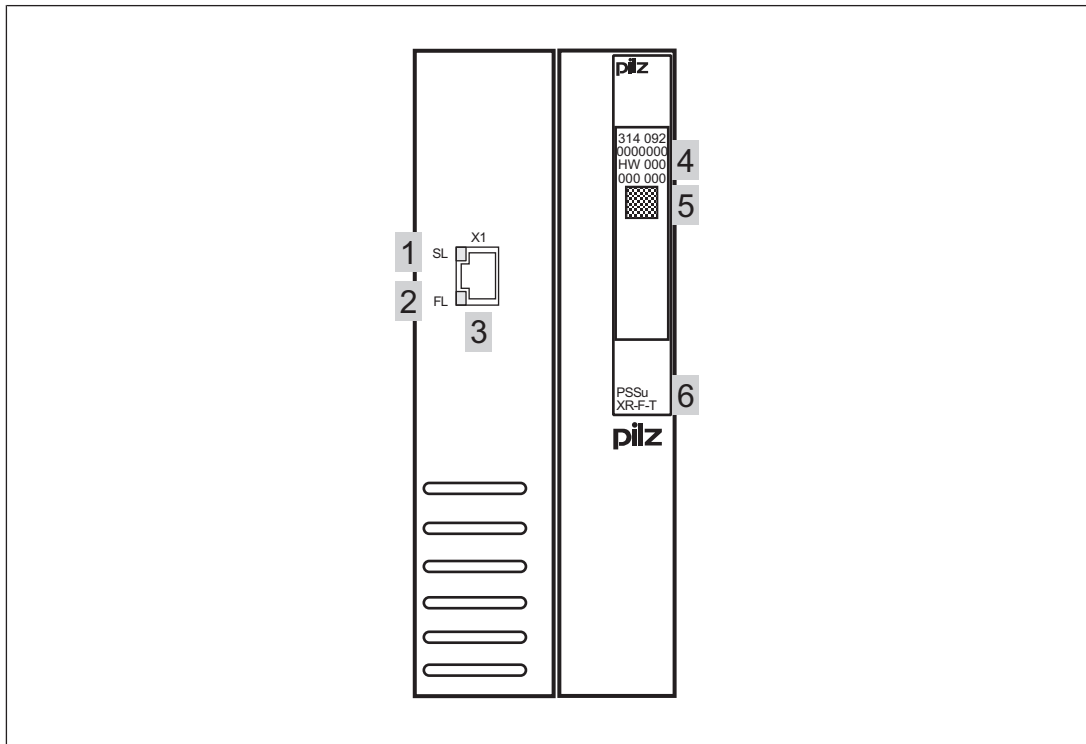
2 Overview

2.1 Module features

The product has the following features:

- ▶ This module represents the first module in a PSSu remote system.
- ▶ The module communicates with a base station PSSu XB F-T.
- ▶ Plug for the module bus connection cable
- ▶ The cable connection transfers:
 - FS data
 - ST data
 - Module supply
- ▶ LED indicators on the RJ45 socket for:
 - Status of ST bus
 - Status of FS bus
- ▶ Electronic modules that can be used for input/output:
 - All failsafe modules
(PSSu E F...)
 - All standard modules
(PSSu E S...)
- ▶ For standard and failsafe applications in system environment A and B

2.2 Front view

**Legend:**

- ▶ 1: LED to display the status of data transfer to the ST module bus
- ▶ 2: LED to display the status of data transfer to the FS module bus
- ▶ 3: RJ45 interface
- ▶ 4: Labelling strip with:
 - Order number
 - Serial number
 - Hardware version number
 - Firmware version number on delivery
- ▶ 5: Field for 2D code
- ▶ 6: Module name

3 Safety

3.1 Intended use

Use in a PSSu system

The module may be used in a PSSu system in system environment A and B.

The head module establishes in what system environment a PSSu system can be used.

► System environment A

A PSSu system in system environment A is a decentralised system PSSu I/O with a field-bus, but without SafetyNET p interface. The automation system PSS 4000 does **not** belong to the system environment A.

► System environment

A PSSu system in system environment B is a PSSu system in the h automation system PSS 4000. The PSSu system can belong to one of the following performance classes:

- Decentralised system PSSu I/O (with SafetyNET p)
- Control system PSSu PLC
- Control system PSSu multi

Module's function

The module may be used as a remote station to extend the PSSuniversal module bus inside a control cabinet via a cable connection. It can be operated with a base station of type PSSu XB F-T plus the connection cable PSSu A RJ45-CAB 1.5M.

Failsafe and standard applications

The module may be used for failsafe and standard applications.

Particular application areas

The module PSSu XR F-T is suitable for use where there are increased environmental requirements (see [Technical Details \[18\]](#)).

EMC-compliant installation

Intended use includes making the electrical installation EMC-compliant. Please refer to the guidelines stated in the "PSSuniversal Installation Manual". The module is intended for use in an industrial environment. Interference may occur if used within a domestic environment.

Improper use

The following is deemed improper use in particular

- Any component, technical or electrical modification to the module,
- Use of the module outside the areas described in this operating manual,
- Any use of the module that is not in accordance with the technical details.

Software tools

The module is supported by

- ▶ PSSuniversal Configurator and PSSuniversal Assistant from Version 1.7.0
- ▶ PAS4000 from Version 1.2.0



INFORMATION

We recommend that you always use the latest version of the software tool (download from www.pilz.com).

3.2 Safety regulations

3.2.1 Use of qualified personnel

The products may only be assembled, installed, programmed, commissioned, operated, maintained and decommissioned by persons who are competent to do so.

A competent person is a qualified and knowledgeable person who, because of their training, experience and current professional activity, has the specialist knowledge required. In order to inspect, assess and handle products, devices, systems, plant and machinery, this person must be familiar with the state of the art and the applicable national, European and international laws, directives and standards.

It is the company's responsibility only to employ personnel who

- ▶ Are familiar with the basic regulations concerning health and safety / accident prevention,
- ▶ Have read and understood the information provided in the section entitled Safety
- ▶ Have a good knowledge of the generic and specialist standards applicable to the specific application.

3.2.2 Warranty and liability

All claims to warranty and liability will be rendered invalid if

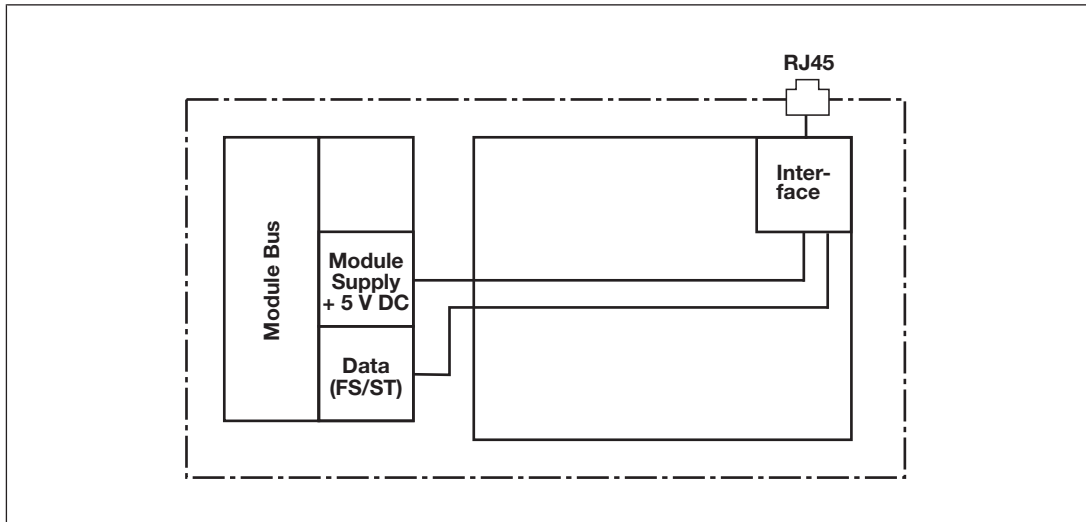
- ▶ The product was used contrary to the purpose for which it is intended,
- ▶ Damage can be attributed to not having followed the guidelines in the manual,
- ▶ Operating personnel are not suitably qualified,
- ▶ Any type of modification has been made (e.g. exchanging components on the PCB boards, soldering work etc.).

3.2.3 Disposal

- ▶ In safety-related applications, please comply with the mission time T_M in the safety-related characteristic data.
- ▶ When decommissioning, please comply with local regulations regarding the disposal of electronic devices (e.g. Electrical and Electronic Equipment Act).

4 Function description

4.1 Block diagram



4.2 Module features

The module is a remote station used to extend the PSSu module bus via a cable connection. The remote station is always the first module in a remote system.

In the remote system, a supply voltage module with the relevant base module must be used after the remote station:

- ▶ For supply voltage modules with infeed for the periphery supply, module supply and C-rail supply, a base module must be used to refresh the supply voltage (PSSu BS-R...).
- ▶ For supply voltage modules with infeed for the periphery supply and C-rail supply, a base module must be used to provide the supply voltage (PSSu BS-R...).

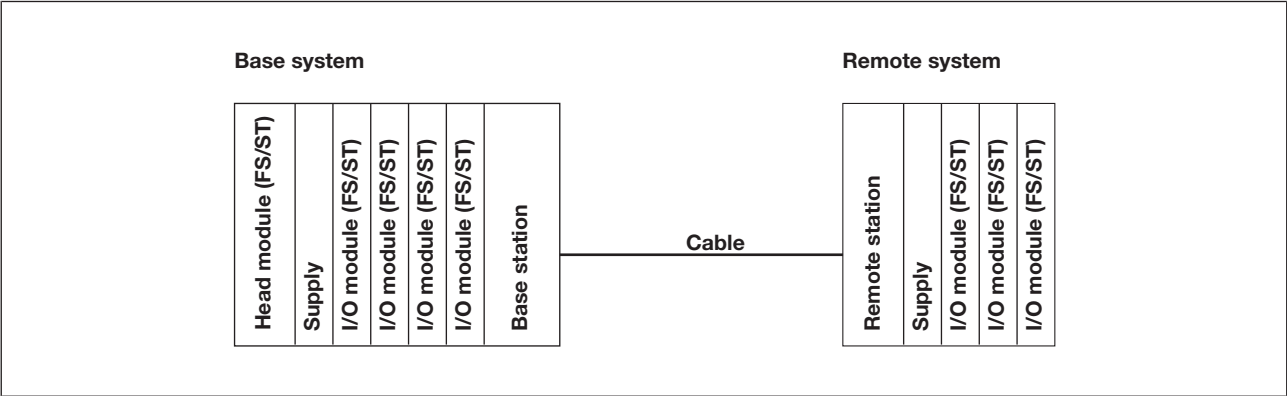
The cable connection disconnects the PSSu module bus on the base station and continues it on the remote station.

All FS data, all ST data plus the module supply are transferred via the cable connection. The periphery supply and C-rail supply are not transferred. Up to three PSSu systems can be connected, i.e. you can have up to two successive cable connections.

The cable connection does not appear in the process image. The cable connection does not need to be considered in the user program. The reaction times of the modules on the remote system are not affected by the cable connection.

The base system is terminated using a special terminating plate (PSSu A EC XB, supplied with the remote module). The remote system is terminated using the terminating plate supplied with the head module.

Cable connection PSSu XB F-T – PSSu XR F-T



4.3 Configuration

The module does not have to be configured.
The module does not occupy any addresses in the process image.

5 Installation

5.1 General installation guidelines

Please also refer to the PSSuniversal Installation Manual.

The description below assumes that the mounting rail is already installed.

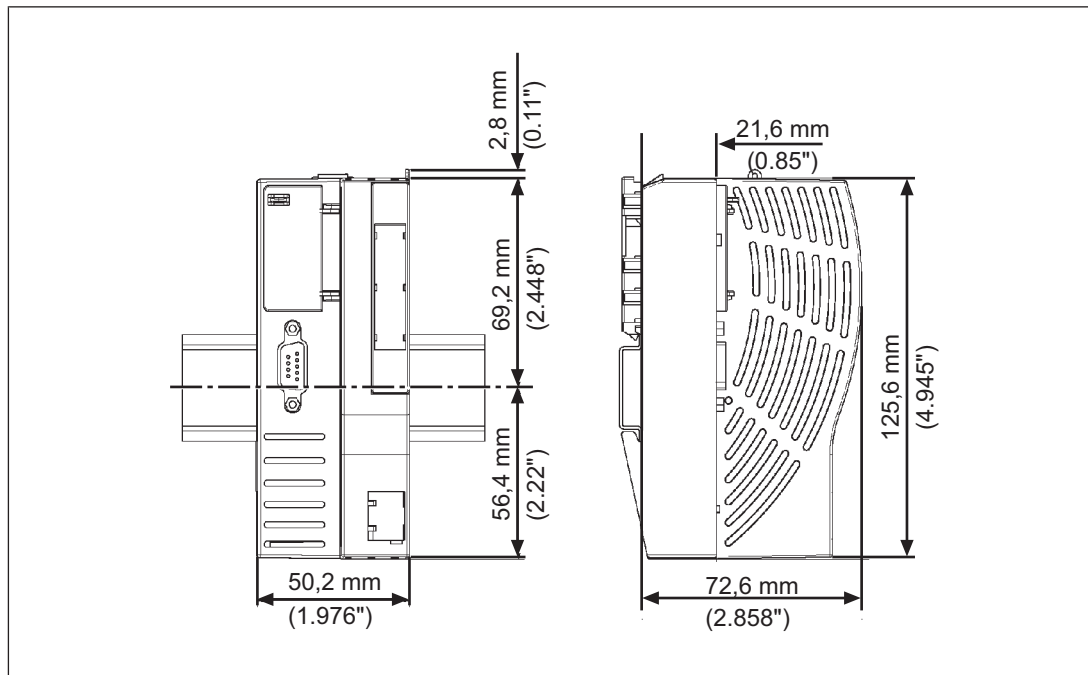


NOTICE

Damage due to electrostatic discharge!

Electrostatic discharge can damage components. Ensure against discharge before touching the product, e.g. by touching an earthed, conductive surface or by wearing an earthed armband.

5.1.1 Dimensions



5.2 Install remote station

The remote station is installed in exactly the same way as a PSSuniversal head module.

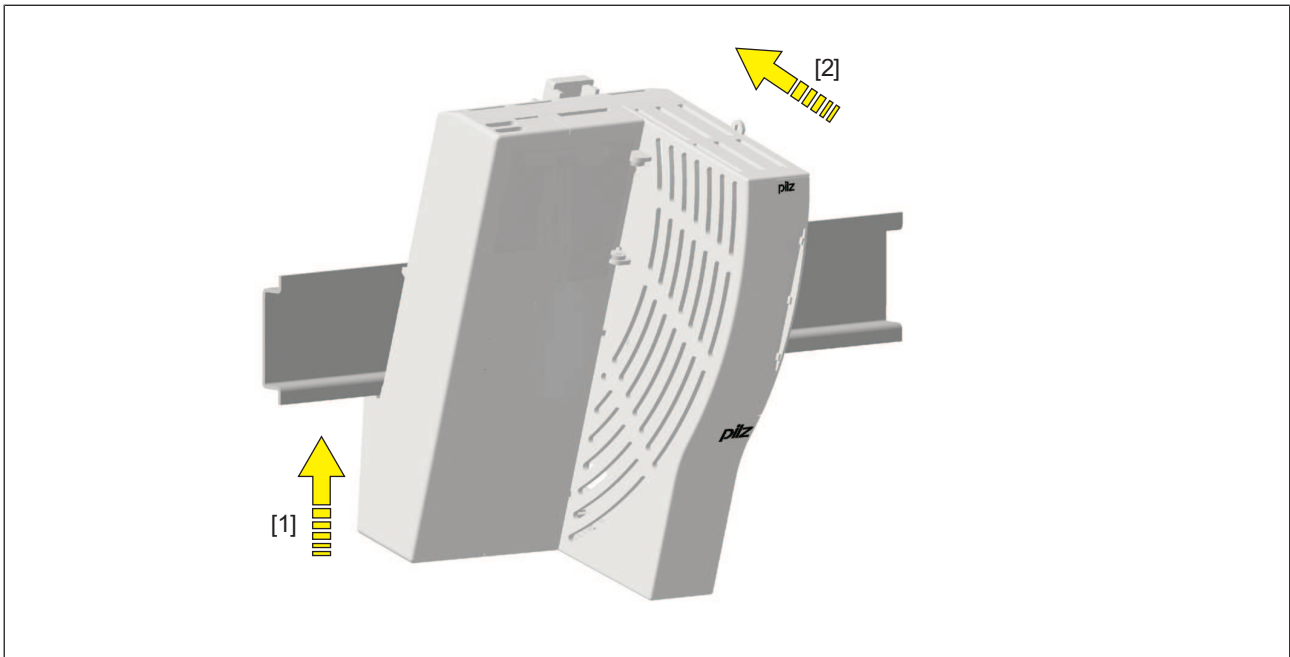
Prerequisite:

- ▶ The mounting rail must be installed.

Procedure:

- ▶ Install an end bracket to the left of the head module or leave enough space for one.
- ▶ Slot the groove on the head module on to the mounting rail from below [1].
- ▶ Push the head module back [2] until you hear it lock into position.

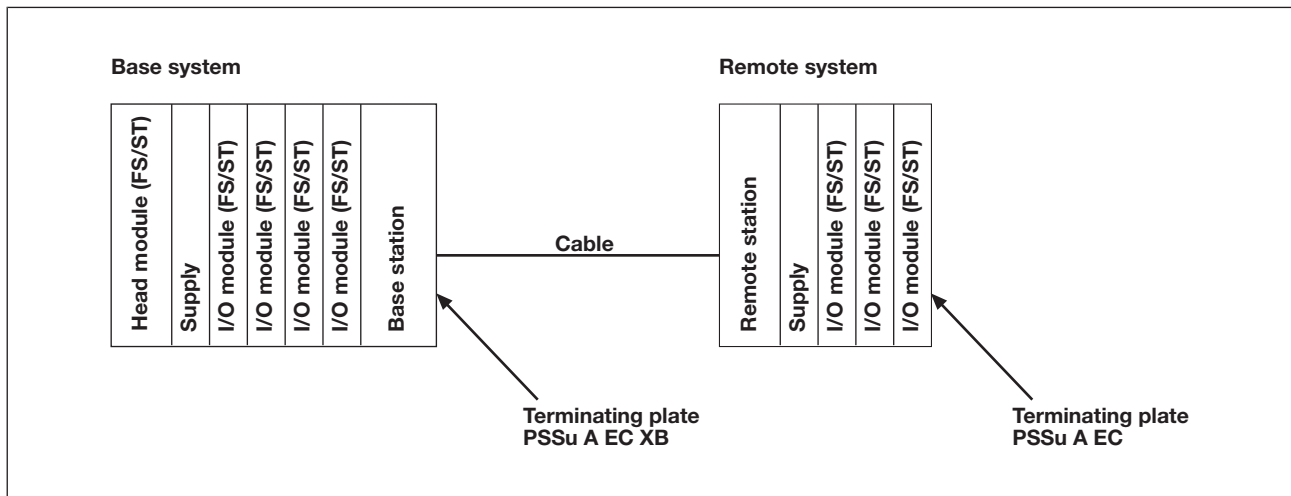
Schematic representation:



5.3 Install a terminating plate

You will need two different terminating plates for installation:

- ▶ PSSu A EC XB
 - is supplied with the remote module.
 - The base system is terminated using the terminating plate PSSu A EC XB.
- ▶ PSSu A EC(-T)
 - is supplied with the PSSu head modules.
 - The remote system is terminated using the terminating plate PSSu A EC.

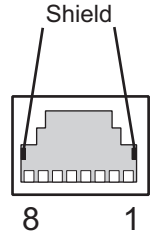


INFORMATION

If the base system is accidentally terminated using the terminating plate PSSu A EC, the I/O modules in the remote system will not be recognised and will not appear in the process image.

6 Interfaces and wiring

6.1 Interface assignment

RJ45 interface	Layout	
RJ45 connector	The connection cable PSSu A RJ45-CAB 1.5M is available as an accessory.	 Shield 8 1

6.2 Wiring

Please note:

- ▶ The connection cable PSSu A RJ45-CAB 1.5M is available as an accessory.
- ▶ The base station and remote station must be in the same control cabinet.

The C-rail supply and the periphery supply are not transferred via the cable connection, so the remote system forms a new supply group.



WARNING!

Risk of electrocution!

Always connect the mounting rail to the protective earth via an earthing terminal. This will be used to dissipate hazardous voltages in the case of a fault.

If voltages higher than 50 VAC or 120 VDC are connected to the PSSuniversal, e.g. to switch contacts on relay modules, please note the following:

- Specific accident prevention regulations apply.
- The C-rail of the supply group should only be connected to the protective earth (PE).

7 Operation

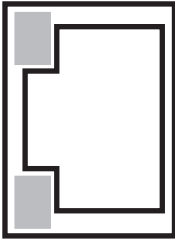
7.1 Display elements

Legend

-  LED on
-  LED flashes
-  LED off

The module has two LEDs to display the status of the data transfer via the cable connection.

These LEDs are on the RJ45 socket.

	LED			Meaning
	Colour	PSSu module bus	Status	
	1: Green	ST bus		No data transfer
				Data is being transferred
	2: Yellow	FS bus		No data transfer
				Data is being transferred



INFORMATION

If the cable is not connected and both LEDs are lit, either the terminating plate is missing or the wrong terminating plate has been installed.

8 Technical details

General	
Certifications	CE, EAC, KOSHA, TÜV, UKCA, cULus Listed
Application range	Standard/failsafe
Application in system environment A	
from FS firmware version, other head modules	1
from ST firmware version, other head modules	1
from FS firmware version PSSu H F PN	1
from ST firmware version PSSu H S PN	1
from ST firmware version PSSu WR S IDN	1
Application in system environment B	
from FS firmware version, head modules	1.2.0
from ST firmware version, head modules	1.2.0
Electrical data	
Internal supply voltage (module supply)	
Module's power consumption	0,1 W
Environmental data	
Climatic suitability	EN 60068-2-1, EN 60068-2-14, EN 60068-2-2, EN 60068-2-30, EN 60068-2-78
Ambient temperature	
in accordance with the standard	EN 60068-2-14
Temperature range	-40 - 70 °C
Storage temperature	
in accordance with the standard	EN 60068-2-1/-2
Temperature range	-40 - 70 °C
Climatic suitability	
in accordance with the standard	EN 60068-2-78
Humidity	93 % r. h. at 40 °C
Condensation during operation	EN 60068-2-30, short-term
Max. operating height above SL	5000 m
EMC	EN 61000-6-2, EN 61000-6-4, EN 61131-2
Vibration	
in accordance with the standard	EN 60068-2-6
Frequency	10 - 150 Hz
Acceleration	10 m/s ²
Shock stress	
in accordance with the standard	EN 60068-2-27
Number of shocks	6
Acceleration	150 m/s ²
Duration	11 ms
Airgap creepage	
in accordance with the standard	EN 61131-2
Overvoltage category	II
Pollution degree	2

Environmental data

Protection type	
in accordance with the standard	EN 60529
Housing	IP20
Mounting area (e.g. control cabinet)	IP54

Mechanical data

Material	
Bottom	PC
Front	PC
Mounting type	plug-in
Dimensions	
Height	125,6 mm
Width	50,2 mm
Depth	72,6 mm
Weight	115 g

Where standards are undated, the 2022-01 latest editions shall apply.

9 Order reference

9.1 Product

Product type	Features	Order no.
PSSu XR F-T	Remote station, including terminating plate PSSu A EC XB, T type	314093

9.2 Accessories

Connection cable

Product type	Features	Order no.
PSSu A RJ45-CAB 1.5M	Connection cable	314094

Support

Technical support is available from Pilz round the clock.

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