

PSSu H S PN



Decentralised system PSSuniversal I/O

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SD means Secure Digital.

Contents	Page
Chapter 1 Introduction	
1.1 Validity of documentation	1-1
1.1.1 Retaining the documentation	1-1
1.2 Overview of documentation	1-2
1.3 Definition of symbols	1-3
Chapter 2 Overview	
2.1 Module features	2-1
2.2 Front view	2-2
Chapter 3 Safety	
3.1 Intended use	3-1
3.2 Safety regulations	3-2
3.2.1 Use of qualified personnel	3-2
3.2.2 Warranty and liability	3-2
3.2.3 Disposal	3-2
Chapter 4 Function description	
4.1 Module features	4-1
4.1.1 Integrated protection mechanisms	4-1
4.1.2 Supply voltage	4-1
4.1.3 Projects	4-1
4.2 PROFINET	4-3
4.2.1 Connection to PROFINET	4-3
Chapter 5 Installation	
5.1 General installation guidelines	5-1
5.1.1 Dimensions	5-1
5.2 Installing the head module	5-2
Chapter 6 Interfaces	
6.1 Interface configuration	6-1
6.1.1 Connection to PROFINET	6-1
Chapter 7 Operation	
7.1 Display elements	7-1
Chapter 8 Technical details	
8.1 Technical details	8-1
8.2 Order reference	8-3

1.1 Validity of documentation

This documentation is valid for the **PSSu H S PN** 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.

1.2 Overview of documentation

1 Introduction

The introduction is designed to familiarise you with the contents, structure and specific order of this manual.

2 Overview

This chapter provides information on the module's most important features.

3 Safety

This chapter must be read as it contains important information on safety and intended use.

4 Function Description

This chapter describes the module's individual components.

5 Installation

This chapter explains how to install the module.

6 Interfaces

This chapter describes the module's interfaces.

7 Operation

This chapter explains the display elements and advises on what to do if a fault occurs.

8 Technical Details

This chapter contains the product's technical details and order reference.

1.3 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 unit(s) 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.

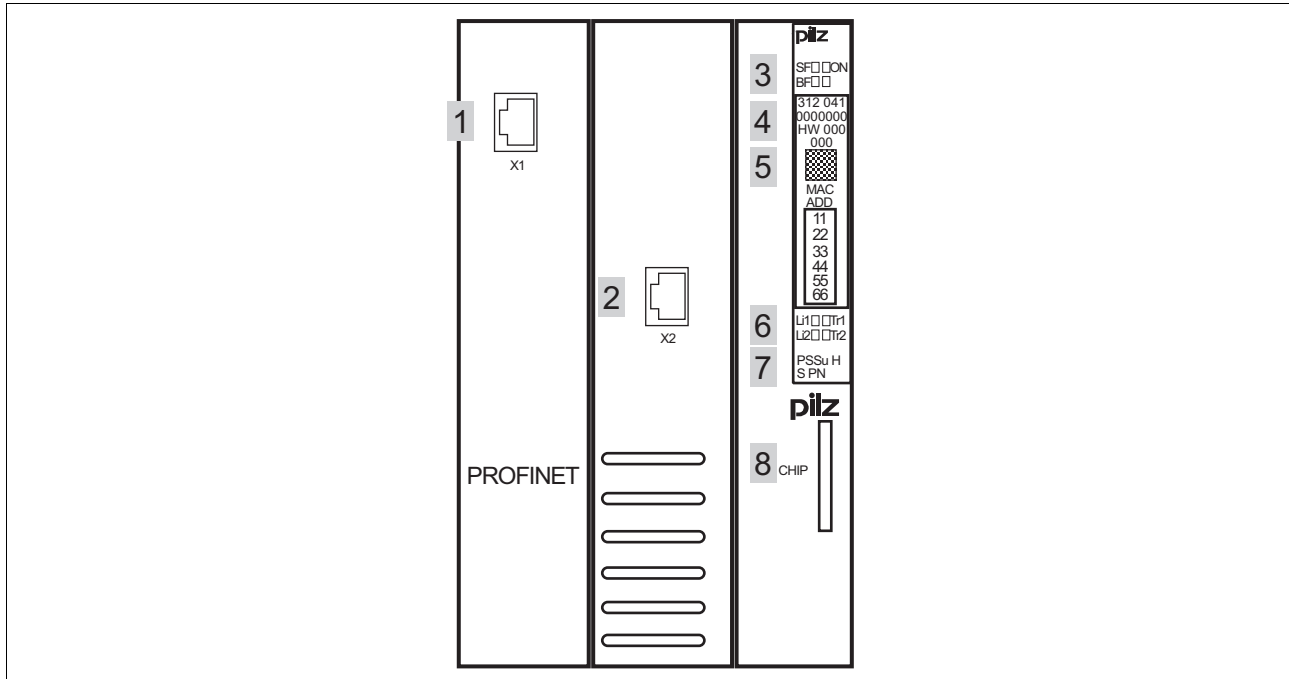
1 Introduction

2.1 Module features

The product has the following features:

- ▶ **PROFINET** interface
- ▶ LEDs for:
 - System status
 - **PROFINET** status
- ▶ Electronic modules that can be used for input/output:
 - All standard modules
(PSSu E S...)

2.2 Front view



Key:

- ▶ 1: PROFINET interface X1
- ▶ 2: PROFINET interface X2
- ▶ 3 LEDs for PROFINET diagnostics
- ▶ 4: Labelling strip with:
 - Order number
 - Serial number
 - Hardware version number
- ▶ 5: Field for 2D code
- ▶ 6: LEDs for diagnostics on the PROFINET connection
- ▶ 7: Description of head module
- ▶ 8: Chip card slot

3.1 Intended use

The module is designed for use in:

- ▶ Non-safety-related applications with
 - **PROFINET IO**

Intended use includes making the electrical installation EMC-compliant. Please refer to the guidelines stated in the "PSSuniversal Installation Manual". The module is designed for use in an industrial environment. It is not suitable for use in a domestic environment, as this can lead to interference.

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 manual
- ▶ Use of the module outside the technical details (see chapter entitled "Technical Details")



INFORMATION

The module is supported by the PSSuniversal Configurator and PSSuniversal Assistant from Version 1.6.1. We recommend that you always use the latest version (download from www.pilz.de).

Please also refer to the PROFINET guidelines issued by the "PROFIBUS User Group".

The module's firmware can be updated to a later version using the Firmware Manager on the PSSuniversal Assistant. For the reason, the module's actual firmware version may not always match the firmware version printed on the front of the unit. Updating the firmware can also expand the module's functionality.



INFORMATION

The module's actual firmware version can only be established using the Firmware Manager on the PSSuniversal Assistant.

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 competent persons.

A competent person is someone who, because of their training, experience and current professional activity, has the specialist knowledge required to test, assess and operate the work equipment, devices, systems, plant and machinery in accordance with the general standards and guidelines for safety technology.

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 safety guidelines given in this description
- ▶ 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).

4.1 Module features

4.1.1 Integrated protection mechanisms

The module has the following protection mechanisms:

- ▶ Potentially isolated **PROFINET IO** interface
- ▶ When the PSSu E F PS1(-T) is used to supply the system, the module supply is buffered for 20 ms if the supply voltage is interrupted.

4.1.2 Supply voltage

Module supply

- ▶ The module supply provides the module with voltage.

4.1.3 Projects

To configure the head module you will need the STEP 7 software from Siemens and the PSSUniversal Configurator. The PSSUniversal Configurator can be called up directly from STEP 7.

There are two options for downloading a project to the head module:

- ▶ Using the PSSUniversal Configurator
 - Connect the head module to the programming device.
 - If the head module contains a chip card, the current project will always be written to the chip card as a PROFINET project chip card. A chip card is not required in order to save the project in the head module.
- ▶ Using the PROFINET project chip card
 - If the head module already contains a project, you will need to delete this project first (see below).
 - Create a PROFINET project chip card using the PSSUniversal Configurator.
 - Insert the PROFINET project chip card into the chip card slot on the head module and start up the head module.

4.1 Module features

You will need a PROFINET reset chip card in order to delete a project on the head module.

- ▶ Create a PROFINET reset chip card using the PSSUniversal Configurator.
- ▶ Insert the PROFINET reset chip card into the head module and start up the head module.
- ▶ The PROFINET reset chip card deletes the existing project on the head module.
 - The PROFINET reset chip card does not download a project to the head module.

Further information on this procedure is available in the PSSUniversal Configurator's online help.

4.2 PROFINET

4.2.1 Connection to PROFINET

Decentralised input/output

- ▶ The head module enables the PSSuniversal to be used as a modular, decentralised input/output module.
- ▶ The head module receives signals from a higher level control system; it processes these signals and passes them on to the connected input/output modules.
- ▶ The head module receives signals from the connected input/output modules; it processes these signals and passes them on to a higher level control system.

Interfaces

- ▶ The PROFINET interface enables standard data to be exchanged with a higher level control system.

All the project data is stored in the head module. The project data can also be stored on a chip card.

4 Function description

5.1 General installation guidelines

Please also refer to the PSSuniversal Installation Manual.

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

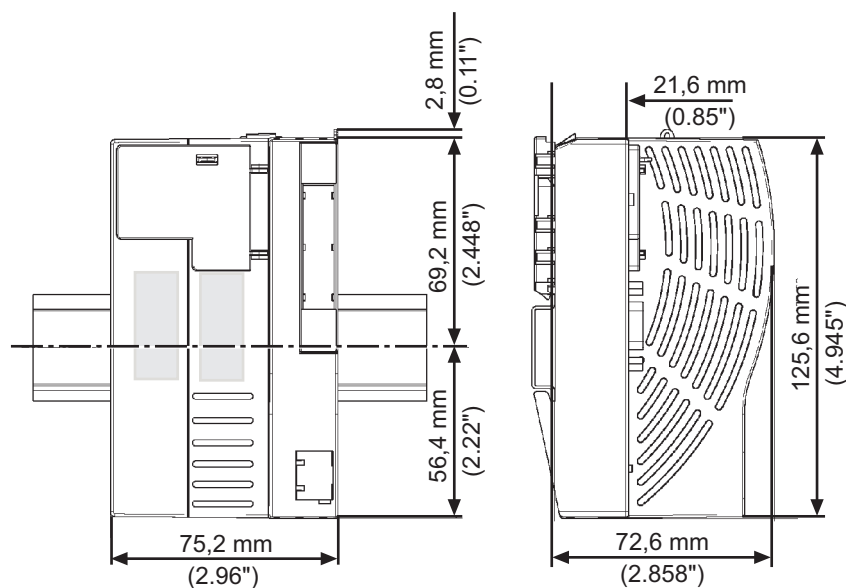


CAUTION!

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 arm-band.

5.1.1 Dimensions



5.2 Installing the head module

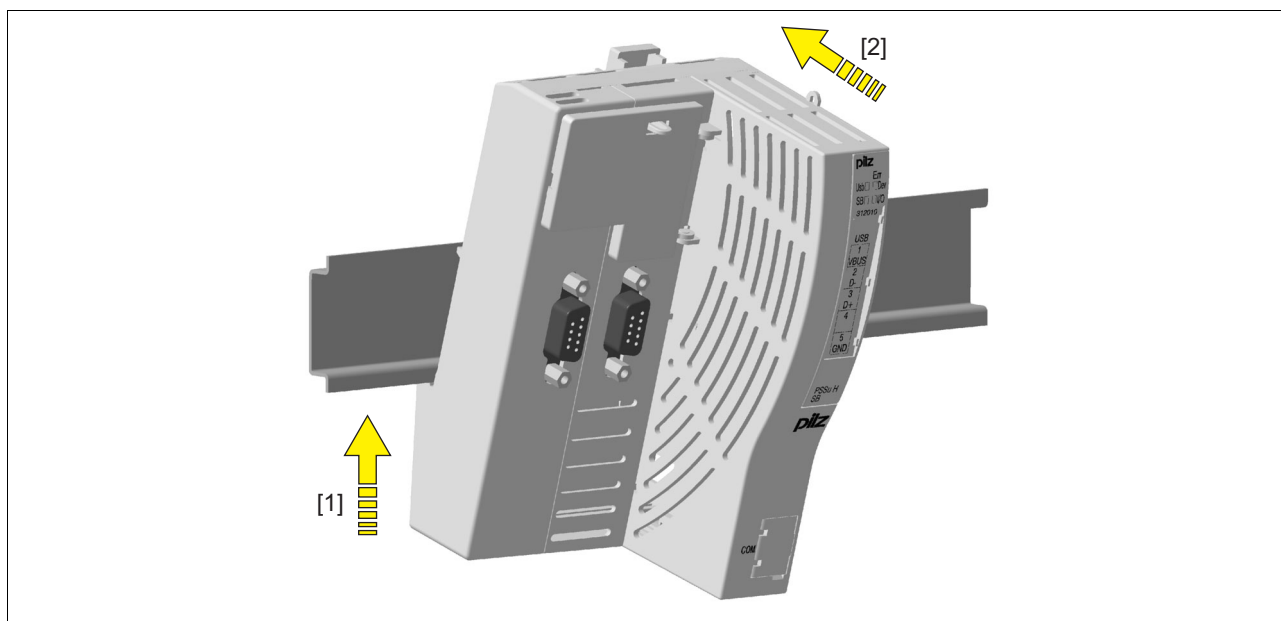
Prerequisite:

- ▶ 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:



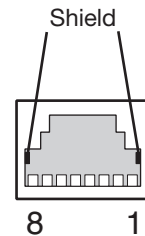
6.1 Interface configuration

6.1.1 Connection to PROFINET

X1

Female RJ45 connector in accordance with the guidelines of the PROFINET User Group (PNO)

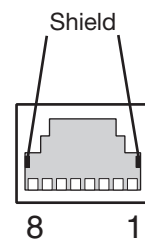
8-core CAT-5 Ethernet patch cable



X2

Female RJ45 connector in accordance with the guidelines of the PROFINET User Group (PNO)

8-core CAT-5 Ethernet patch cable



INFORMATION

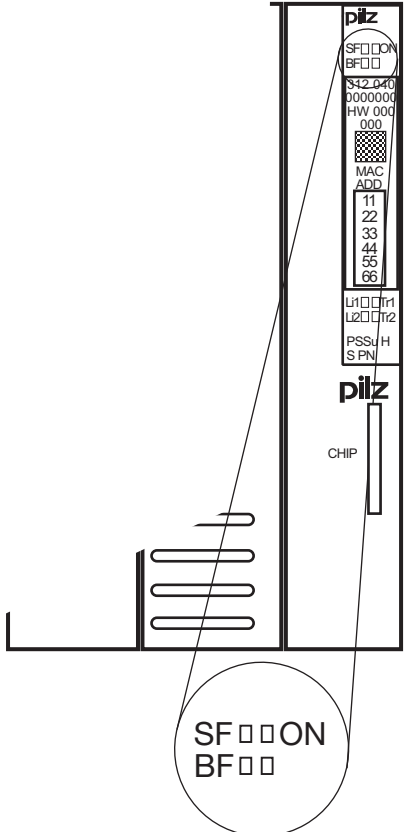
With the plug in connection please note that the data cable and connector have a limited mechanical load capacity. Appropriate design measures should be used to ensure that the plug-in connection is insensitive to increased mechanical stress (e.g. through shock, vibration). Such measures include fixed routing and strain relief, for example. We also recommend the use of an angled RJ45 connector.

7.1 Display elements

Legend:

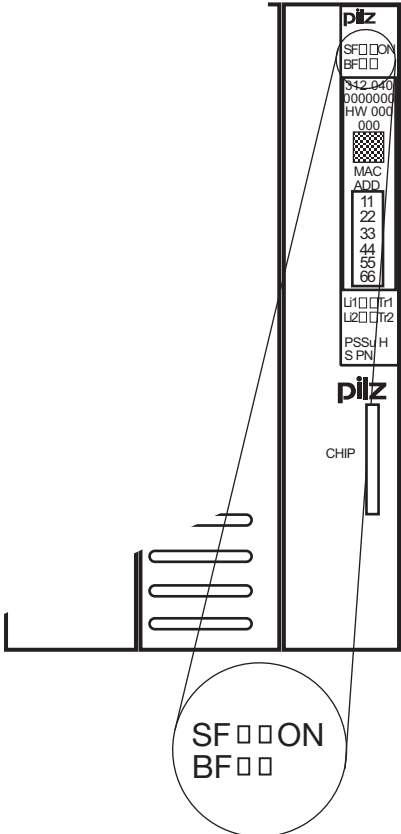
	LED on
	LED flashes
	LED off

The module has two LEDs to display the PROFINET status ("BF" and "SF" LEDs).

	LED for PROFINET diagnostics		Key
	"SF" status (red)	"BF" status (red)	
			No supply voltage or fault-free operation
			No Ethernet connection
			No PROFINET connection
			Diagnostic entry present

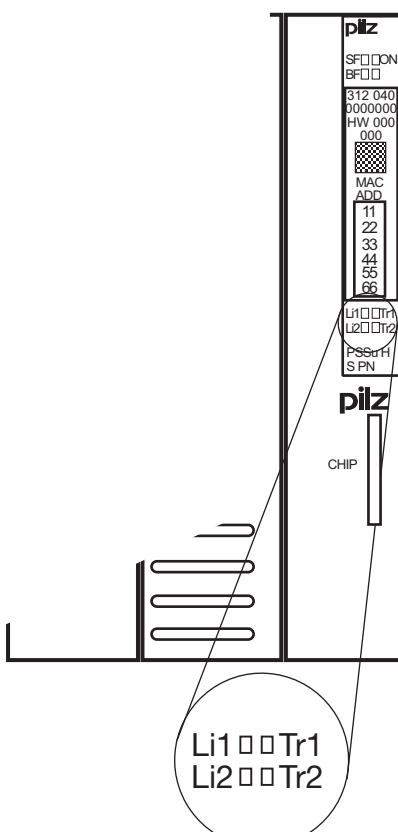
7.1 Display elements

The module has an LED to display the device status ("ON" LED).

	LED to display the device status			Key
	Description	Status	Colour	
	ON	●	---	No supply voltage
		☀	Green	Supply voltage present
		☀	Red	Error in the configuration or hardware registry
		☀	Orange	Forcing

7.1 Display elements

The module has four LEDs to display the transmission status ("Li 1", "Li 2", "Tr 1", "Tr 2" LEDs).

	LED to display the transmission status		Key
	Description	Colour	
	Li 1	Green	Connection X1
	Li 2	Green	Connection X2
	Tr 1	Yellow	Data transfer X1
	Tr 2	Yellow	Data transfer X2

8.1 Technical details

Technical details	
Application range	Standard
Module's device code	0206h
Electrical data	
Internal supply voltage	
Supply voltage range of module supply	4.9 - 5.1 V
Current and power consumption from module supply	
Module's current consumption	500 mA
Module's power consumption	2.50 W
Max. power dissipation of the module	2.50 W
PROFINET IO	
Application range	Standard applications
Device type	Slave
Maximum data length of the fieldbus interface: Input	64 Byte
Maximum data length of the fieldbus interface: Output	64 Byte
Transmission rates	100 MBit/s
Set via	automatic
Connection	RJ45
Certification	PNO
Manufacturer's ID	092Fh
Environmental data	
Climatic suitability	EN 60068-2-14, EN 60068-2-1, EN 60068-2-2, EN 60068-2-30, EN 60068-2-78
Ambient temperature	0 - 60 °C
Storage temperature	-25 - 70 °C
Climatic suitability in accordance with EN 60068-2-78	93 % r. h. at 40 °C
Condensation	no
EMC	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-6-2, EN 61000-6-4
Vibration to EN 60068-2-6	
Frequency	10 - 150 Hz
Max. acceleration	1g
Shock stress	
EN 60068-2-27	15g 11 ms
EN 60068-2-29	25g 6 ms
Protection type	
Mounting (e.g. cabinet)	IP54
Housing	IP20
Airgap creepage in accordance with EN 60664-1	
Overvoltage category	II
Pollution degree	2
Mechanical data	
Housing material	
Front	PC
Bottom	PC

8.1 Technical details

Mechanical data

Dimensions

Height	128.4 mm
Width	75.2 mm
Depth	79.4 mm
Weight	170 g

8.2 Order reference

Order reference	
Description	Order no.
PSSu H S PN (Head module with PROFINET interface)	312 041



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