▶ PSSu E S ABS SSI(-T)

PILZ
THE SPIRIT OF SAFETY

This document is the original document.

Where unavoidable, for reasons of readability, the masculine form has been selected when formulating this document. We do assure you that all persons are regarded without discrimination and on an equal basis.

 SD means Secure Digital

Contents

1 Introduction

1.1 Validity of documentation

This documentation is valid for the products PSSu E S ABS SSI and PSSu E S ABS SSI-T. It is valid until new documentation is published.

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 structure

A module consists of

▸ Electronic module and

▸ Base module with

– Screw terminals or

– Cage clamp terminals

The base modules are the carrier units for the electronic modules and are used to connect the field wiring. The electronic modules are inserted on to the base modules and determine the module's function.

Details of the base modules that can be used are available in the chapter entitled "Intended Use".

2.2 Module features

The product has the following features:

▸ Counter input (data)

– Input data length up to max. 32 Bit

– Differential input

▸ Test pulse output (clock) for requesting data

– Differential output

▸ Transmission rate up to max. 1.5 MHz

▸ LED-Anzeigen für:

– Data transfer

– Module error

▸ For standard applications in system environment A and B

▸ T-type:

PSSu E S ABS SSI-T: for increased environmental requirements

2.3 Front view
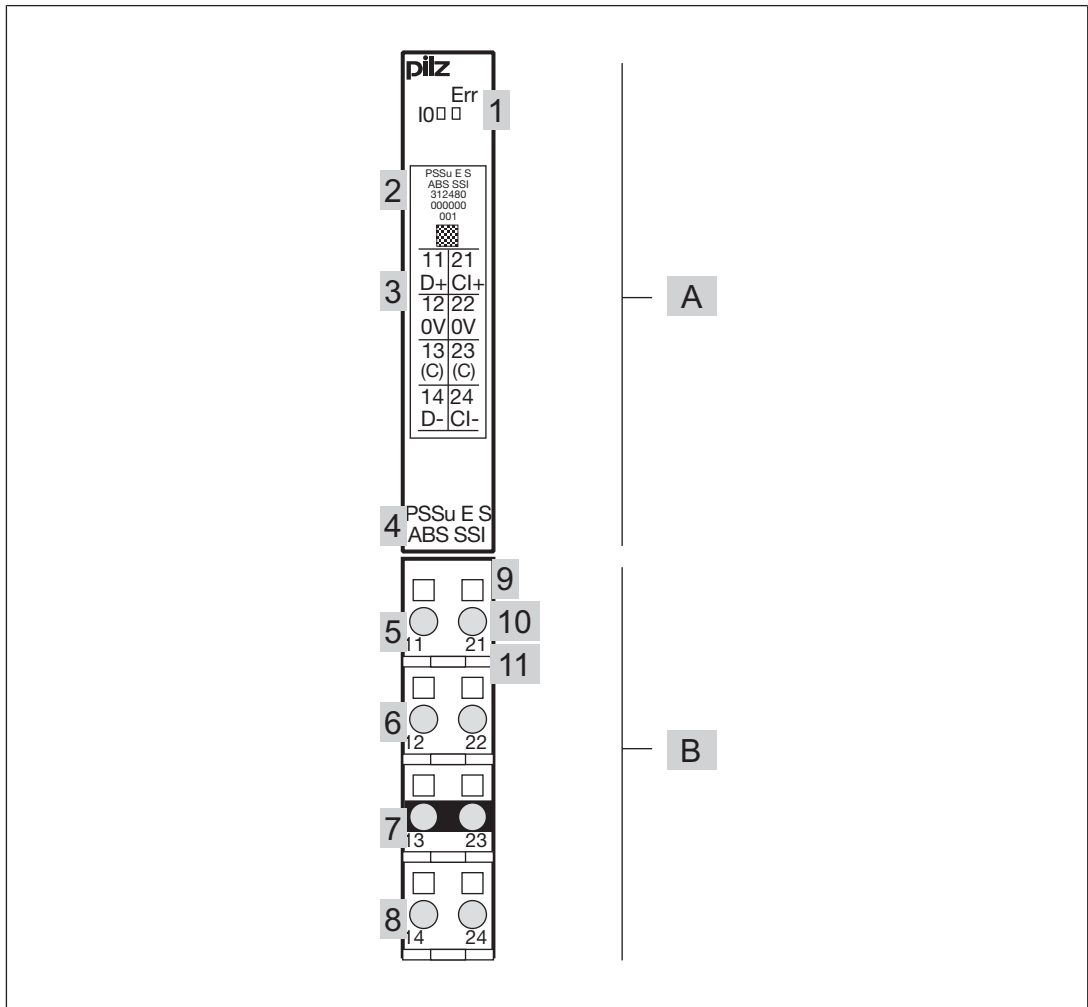
Legend:

▸ A: Electronic module

▸ B: Base module

▸ 1: LEDs for

– Module diagnostics

– Status of the data transfer

▸ 2: Labelling strip with:

– Name of electronic module

– Order number

– Serial number

– Hardware version number

– 2D code

▸ 3: Labelling strip for the terminal configuration on the base module

▸ 4: Name of electronic module

▸ 5: Connection level 1 (terminals 11, 21)

▸ 6: Connection level 2 (terminals 12, 22)

▸ 7: Connection level 3 (terminals 13, 23)

▸ 8: Connection level 4 (terminals 14, 24)

▸ 9: Square mounting holes (connection levels 1, 2, 3 and 4)

– With screw to loosen/tighten the screw terminal on base modules with screw terminals

– With mechanism to operate the cage clamp on base modules with cage clamp terminals

▸ 10: Round connection holes (connection levels 1, 2, 3 and 4) for connecting the signal lines

▸ 11: Mounting slot for colour marker to label the connection level (connection levels 1, 2, 3 and 4)

3 Safety

3.1 Intended use

The module may be used for standard applications in system environment A and B.

This module can be used to connect SSI absolute encoders (synchronous serial interface) for standard functions.

The module PSSu E S ABS SSI-T is suitable for use where there are increased environmental requirements (see Technical details [🕮 29]).

With reference to the standard IEC 61131-2 the values stated in the technical details for ambient temperature are reduced at heights >2000 m operating height above sea level (see Supplementary data [🕮 32]).

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

▸ Any use of the module that is not in accordance with the technical details.

> **INFORMATION**
>
> The module is supported by
>
> ▸ PSSuniversal Configurator and PSSuniversal Assistant from Version 1.4.0
>
> ▸ PAS4000 from Version 1.0.0
>
>   – We recommend that you always use the latest version (download from www.pilz.com).

The PSSu E S ABS SSI module may be used in conjunction with the following base modules:

▸ PSSu BP 1/8 S

▸ PSSu BP 1/8 C

▸ PSSu BP-C 1/8 S

▸ PSSu BP-C 1/8 C

▸ PSSu BP 1/12 S

▸ PSSu BP 1/12 C

▸ PSSu BP-C1 1/12 S

▸ PSSu BP-C1 1/12 C

The module PSSu E S ABS SSI-T may be used in conjunction with the following base modules:

▸ PSSu BP 1/8 S-T

▸ PSSu BP 1/8 C-T

▸ PSSu BP-C 1/8 S-T

▸ PSSu BP-C 1/8 C-T

▸ PSSu BP 1/12 S-T

▸ PSSu BP 1/12 C-T

▸ PSSu BP-C1 1/12 S-T

▸ PSSu BP-C1 1/12 C-T

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. To be able to inspect, assess and operate devices, systems and machines, the person has to be informed of 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
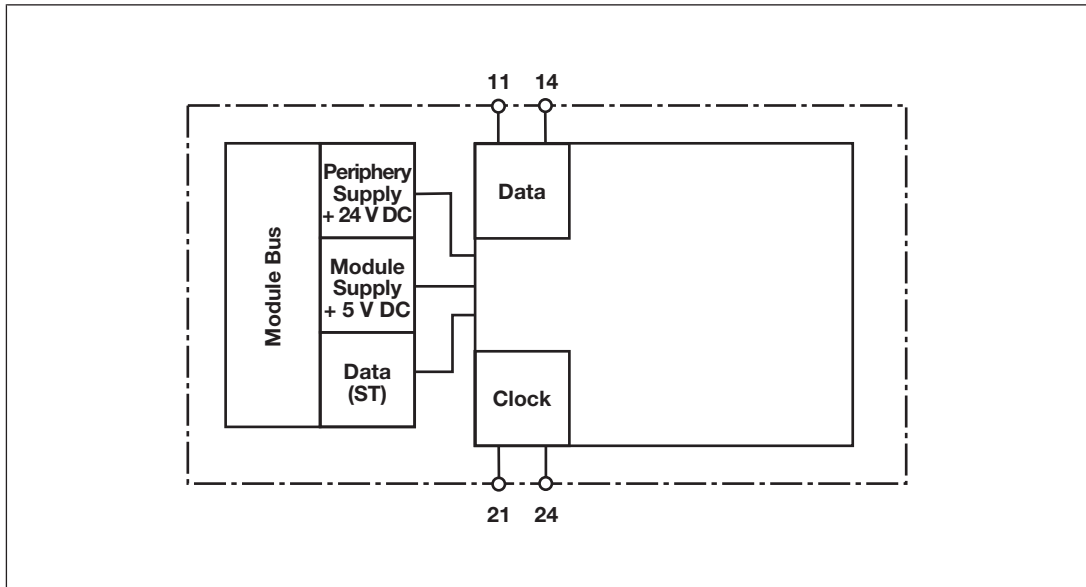
4.2 Module features

4.2.1 Functions

Module supply

▸ The module supply provides the module with voltage.

Periphery supply

▸ The supply for the test pulse output is generated from the periphery supply. It is galvanically isolated from the periphery supply.

As part of each cycle the module sends a pulse sequence at the test pulse output (CI) to the SSI absolute encoder. In turn the encoder transmits its position data. The position data is read in at the module's input (D) (see timing diagram: SSI data transfer).

With the system software the user can set the following values to adapt the module to the encoder or higher level control system:

▸ Transmission rate
The frequency of the pulses at the test pulse output (CI) determines the transmission rate. The user can adapt the frequency to the encoder in a range from 62.5 kHz up to 1.5 MHz (see Technical Details).

▸ Input data length:
The module's input data length must be adjusted to the data length of the absolute encoder.
The module can process up to 32 Bits. The default is 24 Bits.

▶ Data format:
The data format in which the module transmits the position data of the connected absolute encoder to the head module.

– Gray code (default)

– Binary code

The position data is transmitted to the head module via the ST module bus with 4 Bytes, irrespective of the configured input data length. The module sends additional status information.

Timing diagram: Example of SSI data transfer:
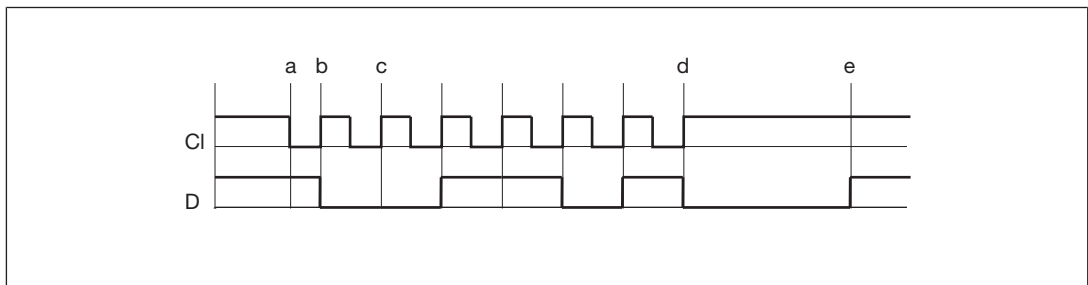
Legend:

The bit width in the example is 6. The position of the encoder is 001101 in gray code, i.e. 9_D.

▶ a: Data transfer begins with a falling edge at the CI signal.

▶ b: The first bit is transmitted with the first rising edge from the CI signal.

▶ c: The time up to the second rising edge is the period length T. 1/T is the signal frequency.

▶ d: The last rising edge from the CI signal ends the transfer. The encoder acknowledges the end of the transfer with a 0 signal.

▶ e: The encoder can transfer data again as soon as there is a 1 signal at input D.

4.2.2 Integrated protection mechanisms

When the PSSu E F PS1(-T) or PSSu E F PS2(-T)(-R) is used to supply the system, the module supply is buffered for 20 ms if the supply voltage is interrupted.

The module detects the following errors:

▶ Start-up error

▶ Configuration error

▶ ST communication error

▶ Bus termination error

4.3 Configuration

4.3.1 Parameter

The module has the following configuration options:

Configuration	Default value	Meaning
Transmission rate	250 kHz	62.5 kHz 100 kHz 125 kHz 250 kHz 500 kHz 1 MHz 1.5 MHz
Gray code format	On	On: Gray code is activated. Off: Binary code is activated.
Fault detection within the data frame[1]	On	On: Errors within the data frame are identified. Off: Errors within the data frame are ignored.
Input data length	24	2 ... 32 Bit

[1] An error within the data frame means that the absolute encoder does not terminate the serial data transfer with a zero.

4.3.2 Input/output data

4.3.2.1 PSSu assignment in system environment A

In the PII the module occupies

▸ 32 bits with position data

▸ 8 bits with the status byte

Description	ST-PII bit assignment LSB … MSB	Notes
Status byte	0 … 7	See "Status byte assignment" table
Position data	8 … 39	Measured value

Status byte assignment:

Meaning	Bit	Assignment
Data frame	0	0: No error within the data frame 1: Data frame faulty[1]
SSI input	1	0: Counter input active 1: Counter input passive
Reserved	2	-
Reserved	3	-
Reserved	4	-
Reserved	5	-
Module	6	0: No error within the module 1: Module is faulty
Reserved	7	-

[1] "Data frame faulty" indicates that the module is receiving faulty values or no values from the absolute encoder.

▸ Possible cause for faulty receipt of data:

– max. input data length of 32 bit exceeded

▸ Possible cause for not receiving data:

– Open circuit

– Absolute encoder is not connected.

4.3.2.2 PSSu assignment in system environment B

Data access is via pre-defined I/O data types:

I/O data name	I/O data type	I/O data element	Meaning
InputData	ST_I_ABS_SSI	Data: DWORD	Current position data
		InputError: BOOL	FALSE: Counter input active TRUE: Counter input passive
		DataFrameError: BOOL	FALSE: No error within the data frame TRUE: Data frame faulty[1]
		ModuleError: BOOL	FALSE: No error within the module TRUE: Module is faulty

[1] "Data frame faulty" indicates that the module is receiving faulty values or no values from the absolute encoder.

▸ Possible cause for faulty receipt of data:

– max. input data length of 32 bit exceeded

▸ Possible cause for not receiving data:

– Open circuit

– Absolute encoder is not connected.

5 Installation

5.1 General installation guidelines

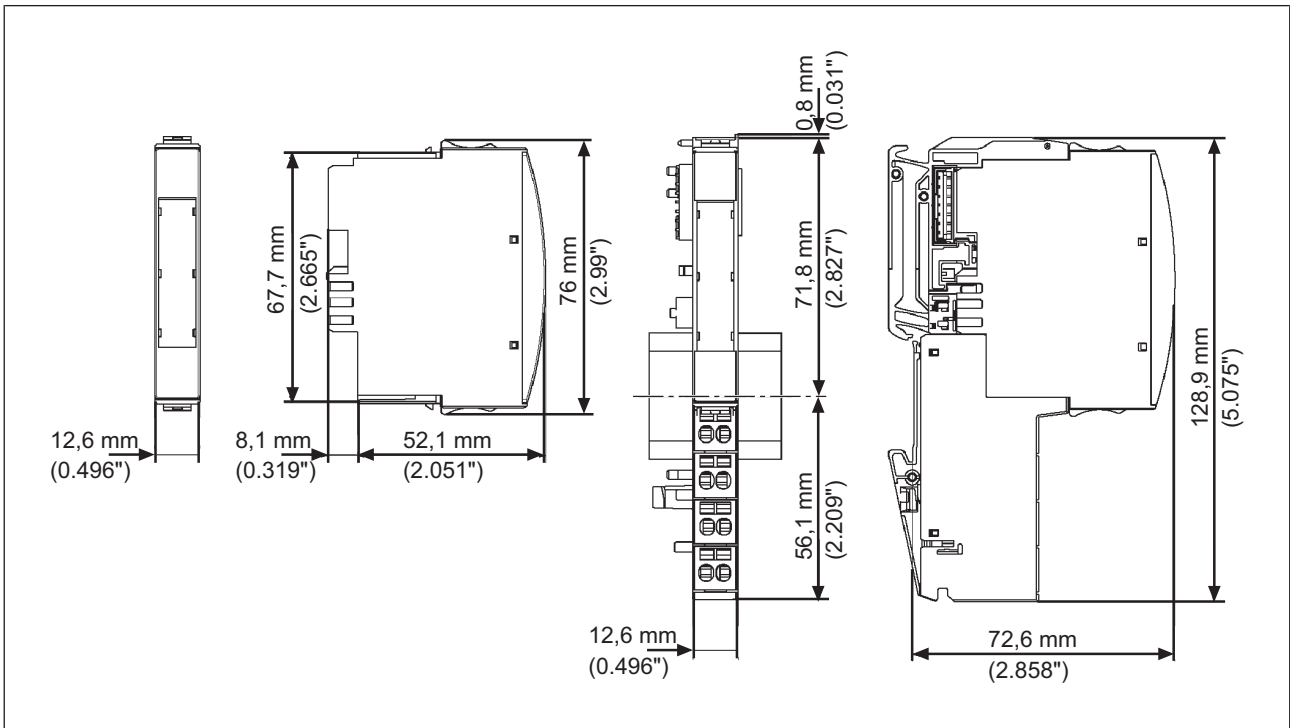Please also refer to the PSSuniversal Installation Manual.

> **!** **NOTICE**
>
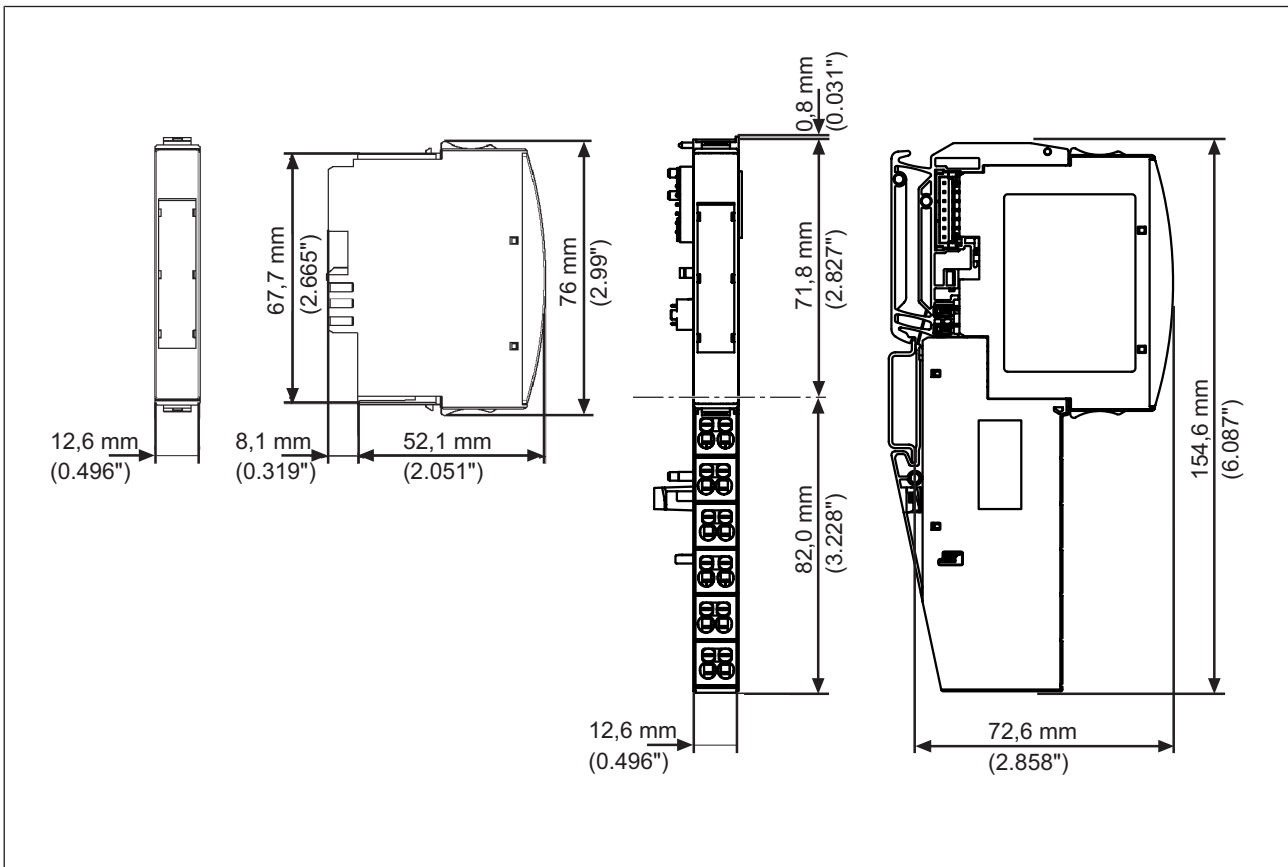> Damage due to electrostatic discharge!
>
> Electrostatic discharge can damage components. Ensure against discharge before touching the product, e.g. by touching an earthed, conductive surface or by wearing an earthed armband.

5.1.1 Dimensions

Base modules with four connection levels:

Base modules with six connection levels:

5.2 Installing the base module

Prerequisite:

‣ The head module must be installed.

‣ If the head module does not have an integrated power supply, a supply voltage module must be installed to the right of the head module.
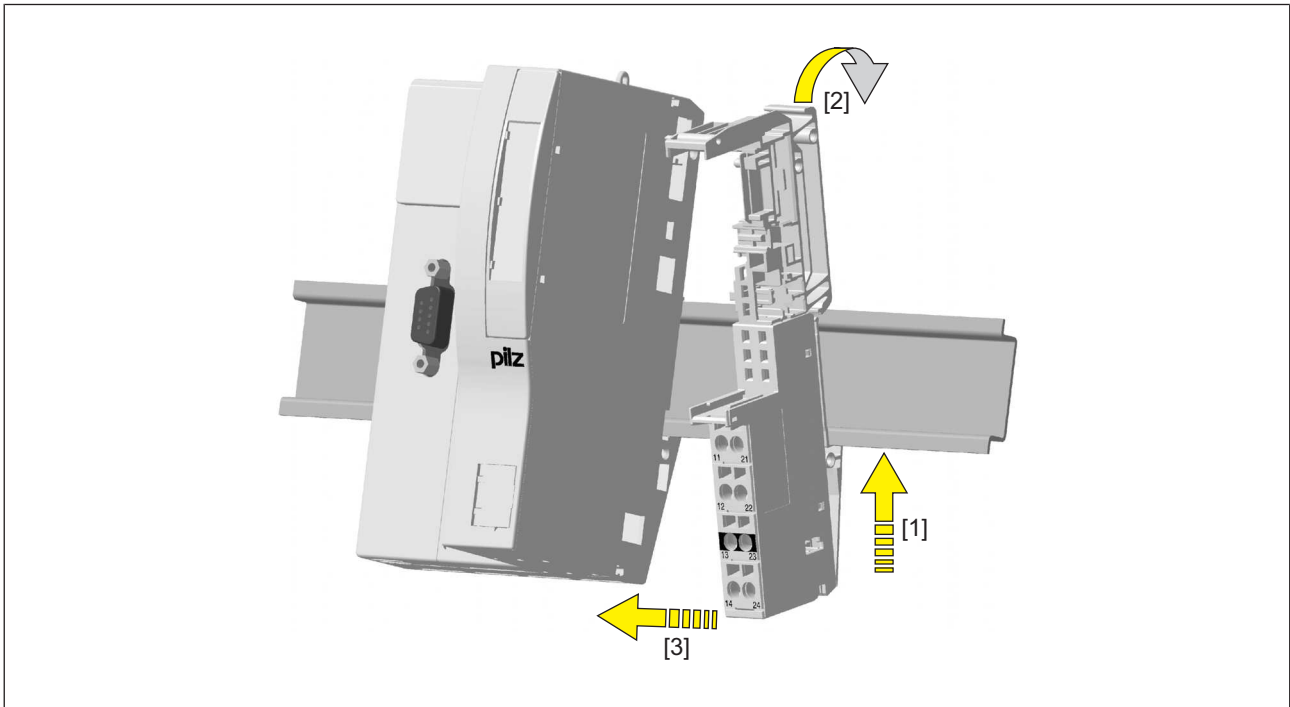
Please note:

‣ For mechanical reasons it is not possible to mix base modules with screw terminals and base modules with cage clamp terminals.

‣ All contacts should be protected from contamination.

‣ The mechanics of the base modules are designed for 50 plug in/out cycles.

Procedure:

‣ We recommend that you wire up the base modules before inserting the electronic modules.

‣ Slot the groove on the base module on to the mounting rail from below [1].

‣ Push the base module back [2] until you hear it lock into position.

‣ On the mounting rail, slide the base module to the left until you hear the two lateral mounting hooks on the adjacent module lock into position [3].

Schematic representation:

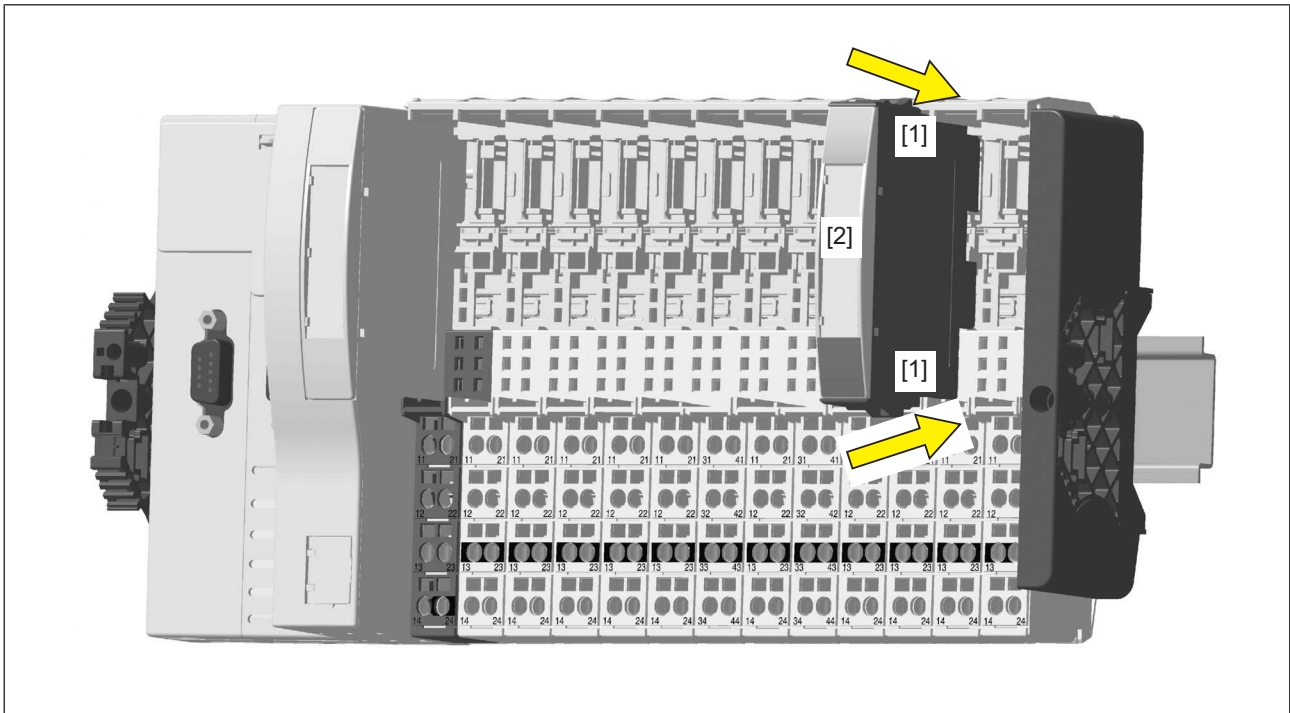## 5.3 Inserting and removing an electronic module

Please note:

▸ Only insert on to base modules that are already installed.

▸ Preferably these base modules should be ready wired.

▸ Electronic modules with outputs may only be inserted and removed when the load is switched off. Unforeseeable error reactions may be triggered if modules are inserted and removed under load.

▸ When an electronic module is plugged into a base module for the first time, one part of the coding element remains on the electronic module, while its counterpart is fixed on to the base module. This is how the base module is coded.

▸ The mechanics of the electronic modules are designed for 50 plug in/out cycles.

5.3.1 Inserting an electronic module

Procedure:

▸ The electronic module must audibly lock into position [1].

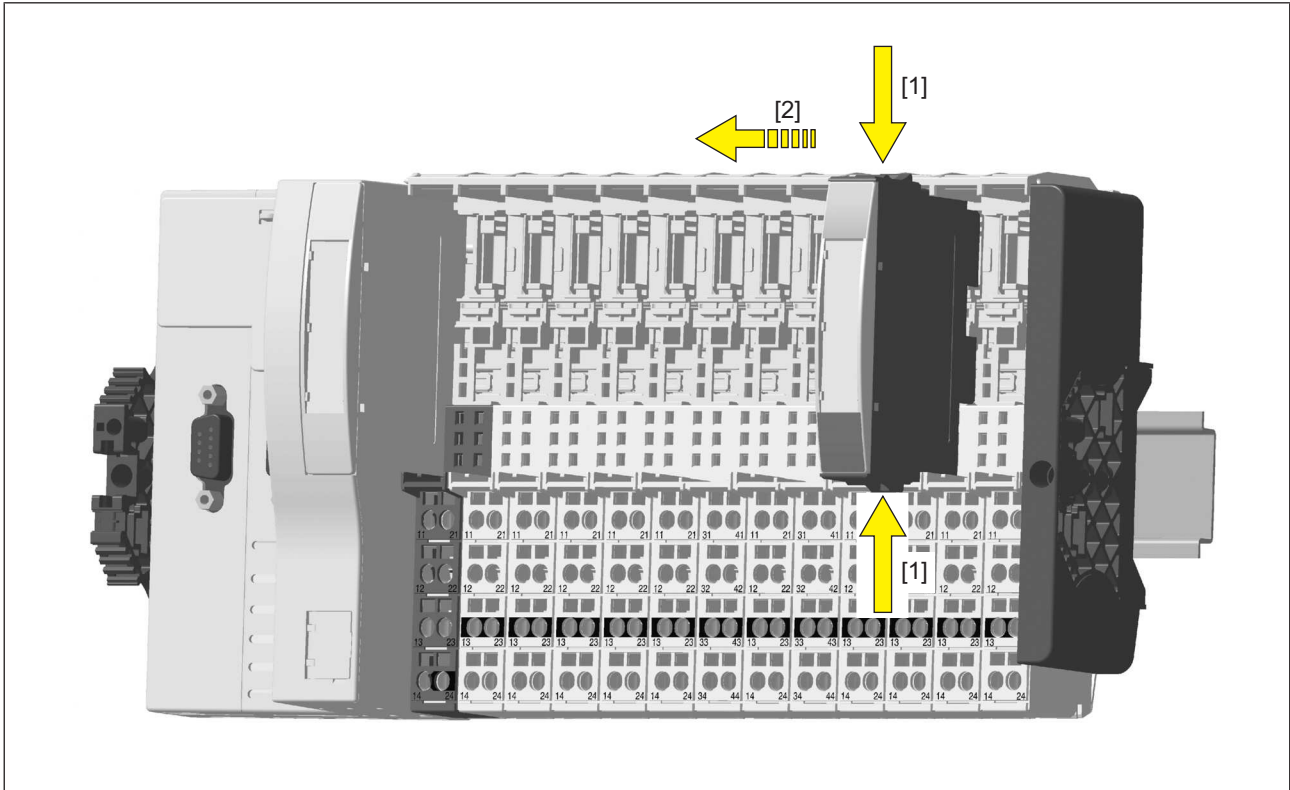▸ Mark the electronic module using the labelling strips [2].

Schematic representation:

5.3.2 Removing an electronic module

Procedure:

▸ Press the locking mechanisms [1] together simultaneously.

▸ Pull out the electronic module [2].

Schematic representation:

5.3.3 Changing an electronic module during operation

It is possible to change an electronic module during operation. The configuration data is retained when a module is changed.

Effects:

▸ System environment A:

– In the event of a potential FS communication error, the FS section of the PSSu system and all relevant I/O-Groups (SafetyBUS p) switch to a STOP condition.

▸ System environment B:

– All FS hardware outputs on the PSSu system switch to a safe condition.

– The substitute values are used for the modules' FS outputs, with Valid Bits = FALSE.

⚠ **CAUTION!**

Sparking can cause interference and errors!

Only change the module when the load is switched off!

6 Wiring

6.1 General wiring guidelines

Please note:

▸ Use twisted pair cables to carry the differential signals (D+/D- and Cl+/Cl-). This will increase the noise immunity.

▸ Use shielded signal cables with metallic plugs.

▸ On base modules with C-rail:

– Connect the shield to the terminals on the C-rail.

– Connect the C-rail with low impedance to the functional earth.

▸ On base modules without C-rail:

– Connect the shield as shown in the terminal configuration section.
The module connects the shield to the mounting rail.

– Connect the mounting rail to the functional earth via an earthing terminal.

▸ The supply voltages must meet the regulations for extra low voltages with safe electrical separation (SELV, PELV).

▸ Use copper wiring.

▸ The terminal configuration as stated on the front plate applies for base modules with C-rail. The terminal configuration as stated in the technical documentation applies for all other base modules.

### 6.1.1 Mechanical connection of the base modules

Procedure:

▸ Use a flat blade screwdriver (DIN 5264-A)!

DIN 5264-A
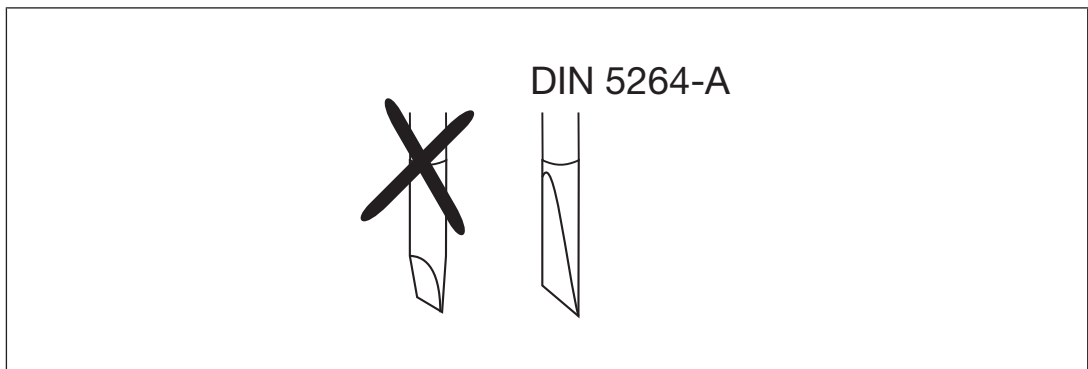
▸ Strip the wire back 8 mm.

▸ If necessary, label the connection level with a colour marker [3].

▸ Base module with screw terminals:

    – Use a screwdriver to loosen the screw on the screw terminal [1]

    – Insert the stripped cable into the round fixing hole [2], as far as it will go.

    – Tighten up the screw on the screw terminal.

    – Check that the cable is firmly seated.

▸ Base module with cage clamp terminals:

    – Insert the screwdriver [4] into the square hole [1].

    – Insert the stripped cable into the round fixing hole [2], as far as it will go [5].

    – Pull out the screwdriver [6].

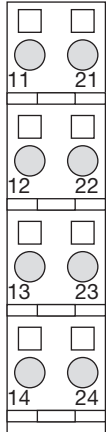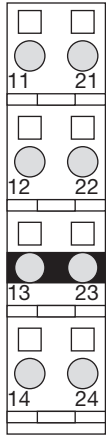   – Check that the cable is firmly seated.
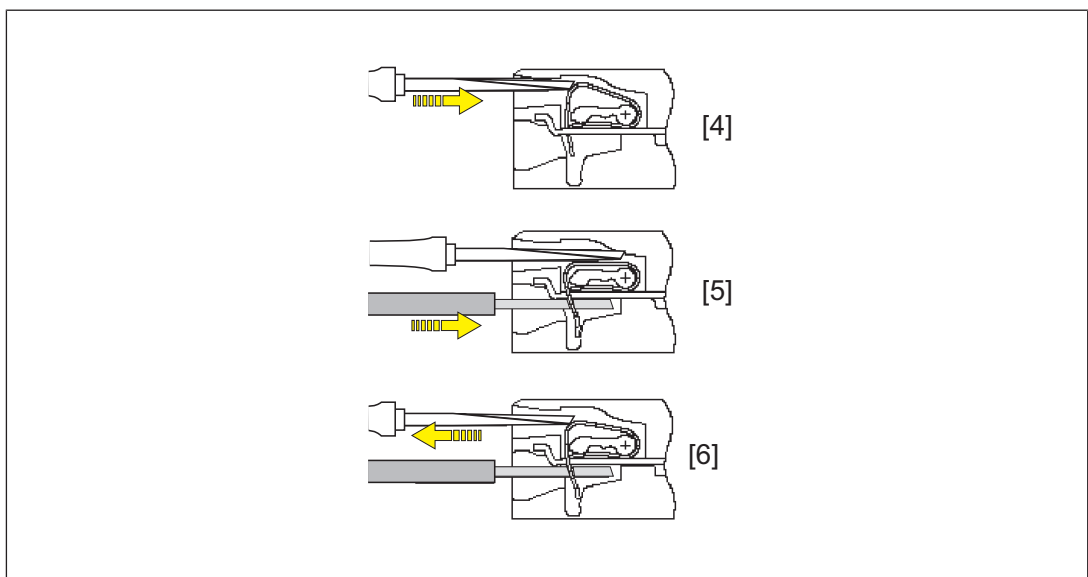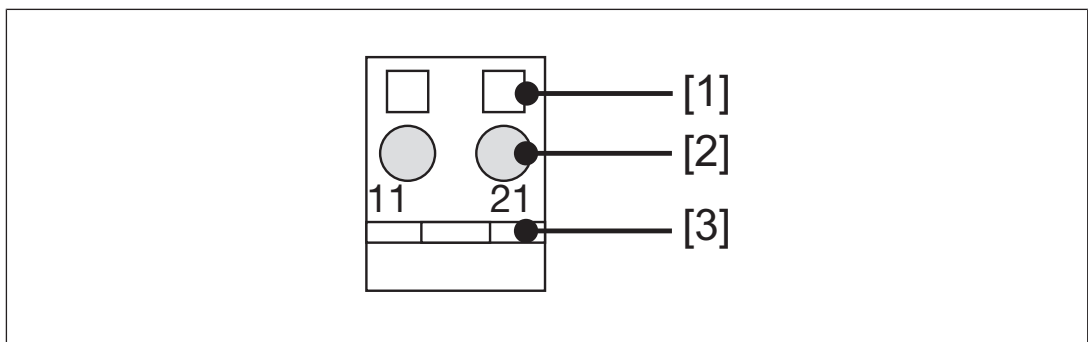
Please note:

▸ The minimum cable cross section for field connection terminals on the base modules is 0.14 mm^2 (AWG26).
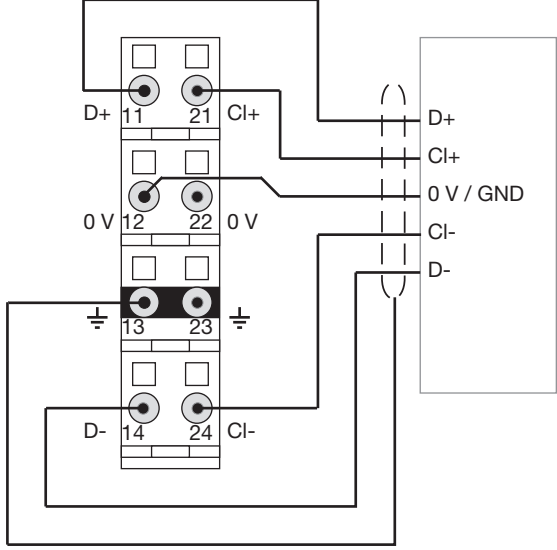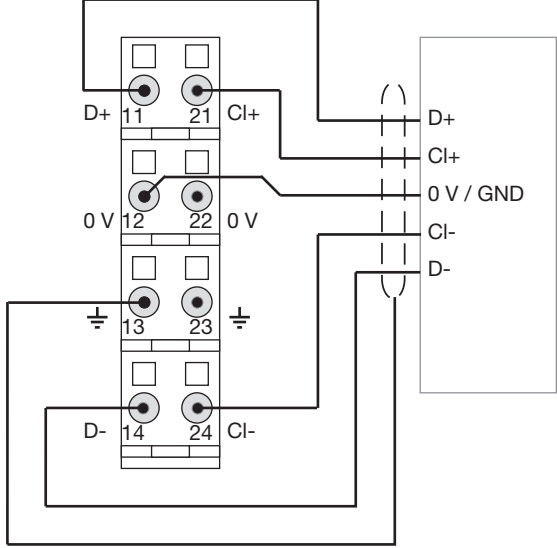
▸ The maximum cable cross section for field connection terminals is:

    – Digital inputs: 1.5 mm^2 (AWG16)

    – Digital outputs: 2.0 mm^2 (AWG14)

    – Inputs/outputs on the counter modules: 1.5 mm^2 (AWG16)

    – Analogue inputs/outputs: 1.5 mm^2 (AWG16)

    – Communication cables: 1.5 mm^2 (AWG16)

    – Test pulse outputs: 1.5 mm^2 (AWG16)

    – Power supply: 2.5 mm^2 (AWG12)

    – Functional earth: 2.5 mm^2 (AWG12)

▸ On base modules with screw terminals:

    – If you use a multi-strand cable to connect the I/Os, it is recommended that you use ferrules conforming to Parts 1 and 2 of DIN 46228, 0.14 ... 1.5 mm^2, Form A or C, although this is not essential. To crimp the ferrules you can use crimp pliers (crimp form A or C) conforming to EN 60947-1, such as the PZ 1.5 or PZ 6.5 from Weidmüller, for example.

    – Maximum torque setting: 0.8 Nm

▸ Use copper wiring.

6.2 Terminal configuration

Base module	Terminal configuration	
Screw terminals: PSSu BP 1/8 S PSSu BP 1/8 S-T Cage clamp terminals: PSSu BP 1/8 C PSSu BP 1/8 C-T	Without C-rail: 11: Input D+ (Data +) 21: Output Cl+ (Clock +) 12-22: 0 V counter (12-22 linked within the base module) 13-23: Shield connection (13-23 linked within the base module) 14: Input D- (Data -) 24: Output Cl- (Clock -)	

Base module	Terminal configuration	
Screw terminals: PSSu BP-C 1/8 S PSSu BP-C 1/8 S-T Cage clamp terminals: PSSu BP-C 1/8 C PSSu BP-C 1/8 C-T	With C-rail: 11: Input D+ (Data +) 21: Output Cl+ (Clock +) 12-22: 0 V counter (12-22 linked within the base module) 13-23: C-rail supply, shield connection (13-23 linked within the base module) 14: Input D- (Data -) 24: Output Cl- (Clock -)	

6.3   Connecting the module

Input and output circuit	
Connecting an SSI encoder (master mode) With C-rail Encoder supply via the PSSu E PD module 0 V connection is not absolutely essential.	
Connecting an SSI encoder (master mode) Without C-rail Encoder supply via the PSSu E PD module 0 V connection is not absolutely essential.	

7 Operation

7.1 Messages

A module error is displayed via the "Err" LED (see section entitled "Display elements"). It is signalled to the head module and then entered in the

▸ Error stack, with PSSu in system environment A

▸ Diagnostic log, with PSSu in system environment B.

of the head module.

The module can detect the following errors:

Module error	Declaration	Remedy
Start-up error	Error as the PSSu system starts up	Change faulty module.
Configuration error	Incorrect module type configured.	The configured hardware registry does not match the actual hardware registry.
ST communication error	Error during ST communication	Change faulty module.
Bus termination error	There is no terminating plate or there is a bad contact with the module bus.	Install a terminating plate with integrated end bracket or insert the base modules together correctly.
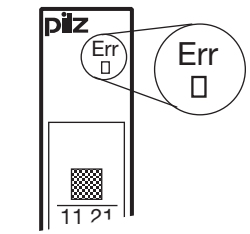
7.2 Display elements

Legend

☀ LED on

● LED off
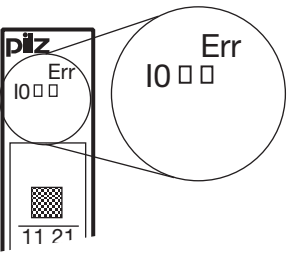
7.2.1 Display elements for module diagnostics

The module has an LED for displaying module errors ("Err" LED).

LED			Meaning
Name	Colour	Status	
Err	- - -	●	No error
	Red	☀	Module error

7.2.2 Display elements for counter status

The module has an LED, which displays the status of data transfer ("I0" LED).

LED			Meaning
Designa-tion	Colour	Status	Signal
I0	- - -	●	Data transfer error
	green	☀	Data transfer running without error.

7.3 Status information

The way in which status information is assigned to the status byte and I/O data is described in the chapter entitled "Function Description", under "Input/output data".

8 Technical details

General	312480	314480
Certifications	CE, UKCA, cULus Listed	CE, UKCA, cULus Listed
Application range	Standard	Standard
Module's device code	0320h	0320h
Number of ST input bits	32	32
Number of ST status bits	8	8
Application in system environment A		
from ST firmware version, other head modules	11	11
from ST firmware version PSSu H S PN	2	2
from ST firmware version PSSu WR S IDN	4	4
Application in system environment B		
from ST firmware version, head modules	1.0.0	1.0.0
Electrical data	**312480**	**314480**
Internal supply voltage (module supply)		
Module's power consumption	0,51 W	0,51 W
Periphery's supply voltage (periphery supply)		
Voltage range	16,8 - 30 V	16,8 - 30 V
Module's current consumption with no load	10 mA	10 mA
Module's power consumption with no load	0,24 W	0,24 W
Max. power dissipation of module	0,75 W	0,75 W
Absolute encoder input	**312480**	**314480**
Number of counter inputs	1	1
Type of counter inputs	SSI encoder	SSI encoder
Output signal (clock)	Differential signal (RS-422/TTL)	Differential signal (RS-422/TTL)
Max. number of bits on the counter input	32 Bit	32 Bit
Transmission rate	62,5 kHz, 100 kHz, 125 kHz, 250 kHz, 500 kHz, 1.000 kHz, 1.500 kHz	62,5 kHz, 100 kHz, 125 kHz, 250 kHz, 500 kHz, 1.000 kHz, 1.500 kHz
Coding of the input signal	Binary, Gray	Binary, Gray
Signal at the data input	Differential signal (RS-422/TTL)	Differential signal (RS-422/TTL)
Potential isolation between input/output and periphery supply	Yes	Yes
Potential isolation between input/output and voltage for the internal module bus	Yes	Yes

Absolute encoder input	312480	314480
Typ. processing time	0,1 ms	0,1 ms
Environmental data	**312480**	**314480**
Climatic suitability	EN 60068-2-1, EN 60068-2-14, EN 60068-2-2, EN 60068-2-30, EN 60068-2-78	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	EN 60068-2-14
Temperature range	0 - 60 °C	-40 - 70 °C
Storage temperature		
in accordance with the standard	EN 60068-2-1/-2	EN 60068-2-1/-2
Temperature range	-25 - 70 °C	-40 - 70 °C
Climatic suitability		
in accordance with the standard	EN 60068-2-30, EN 60068-2-78	EN 60068-2-30, EN 60068-2-78
Humidity	93 % r. h. at 40 °C	93 % r. h. at 40 °C
Condensation during operation	Not permitted	Short-term
Max. operating height above SL	2000 m	5000 m
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	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		
in accordance with the standard	EN 60068-2-6	EN 60068-2-6
Frequency	10 - 150 Hz	10 - 1000 Hz
Amplitude	0,35 mm	0,35 mm
Acceleration	1g	5g
Broadband noise		
in accordance with the standard	–	EN 60068-2-64
Frequency	–	5 - 500 Hz
Acceleration	–	1,9grms
Shock stress		
in accordance with the standard	EN 60068-2-27	EN 60068-2-27
Number of shocks	6	6
Acceleration	15g	15g
Duration	11 ms	11 ms
in accordance with the standard	EN 60068-2-27	EN 60068-2-27
Number of shocks	1000	1000
Acceleration	10g	25g
Duration	16 ms	6 ms
Airgap creepage		
in accordance with the standard	EN 60664-1	EN 60664-1
Overvoltage category	II	II
Pollution degree	2	2

Environmental data	312480	314480
Protection type		
in accordance with the standard	**EN 60529**	**EN 60529**
Housing	**IP20**	**IP20**
Terminals	**IP20**	**IP20**
Mounting area (e.g. control cabinet)	**IP54**	**IP54**
Mechanical data	**312480**	**314480**
Material		
Bottom	**PC**	**PC**
Front	**PC**	**PC**
Coding	**PA**	**PA**
Mounting type	**plug-in**	**plug-in**
Dimensions		
Height	**76 mm**	**76 mm**
Width	**12,6 mm**	**12,6 mm**
Depth	**60,2 mm**	**60,2 mm**
Weight	**35 g**	**37 g**
Mechanical coding		
Type	**F**	**F**
Colour	**Dark grey**	**Dark grey**

Where standards are undated, the 2005-04 latest editions shall apply.

9 Supplementary data

9.1 Permitted operating height

The values stated in the technical details apply to the use of the device in operating heights up to max. 2000 m above SL. When used at higher levels, restrictions of the ambient temperature (standard IEC 61131-2) must be taken into account.

Operating height above SL [m]	Multiplication factors for the devices' ambient temperature
0 … 2000	1.0
3000	0.9
4000	0.8
5000	0.7

10 Order reference

10.1 Product

Product type	Features	Order no.
PSSu E S ABS SSI	Electronic module	312480
PSSu E S ABS SSI-T	Electronic module, T-type	314480

10.2 Accessories

Base modules

Product type	Features	Order no.
PSSu BP 1/8 S	Base module without C-rail with screw terminals	312600
PSSu BP 1/8 S-T	Base module without C-rail with screw terminals, T-type	314600
PSSu BP 1/8 C	Base module without C-rail with cage clamp terminals	312601
PSSu BP 1/8 C-T	Base module without C-rail with cage clamp terminals, T-type	314601
PSSu BP-C 1/8 S	Base module with C-rail and screw terminals	312610
PSSu BP-C 1/8 S-T	Base module with C-rail and screw terminals, T-type	314610
PSSu BP-C 1/8 C	Base module with C-rail and cage clamp terminals	312611
PSSu BP-C 1/8 C-T	Base module with C-rail and cage clamp terminals, T-type	314611
PSSu BP 1/12 S	Base module without C-rail with screw terminals	312618
PSSu BP 1/12 S-T	Base module without C-rail with screw terminals, T-type	314618
PSSu BP 1/12 C	Base module without C-rail with cage clamp terminals	312619
PSSu BP 1/12 C-T	Base module without C-rail with cage clamp terminals, T-type	314619
PSSu BP-C1 1/12 S	Base module with C-rail and screw terminals	312622
PSSu BP-C1 1/12 S-T	Base module with C-rail and screw terminals, T-type	314622
PSSu BP-C1 1/12 C	Base module with C-rail and cage clamp terminals	312623
PSSu BP-C1 1/12 C-T	Base module with C-rail and cage clamp terminals, T-type	314623

▶ Support

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