



Programmable Safety Systems PSS-Range

ST SB-IBS-S
Software Manual
Item No. 20 735



The spirit of safety.

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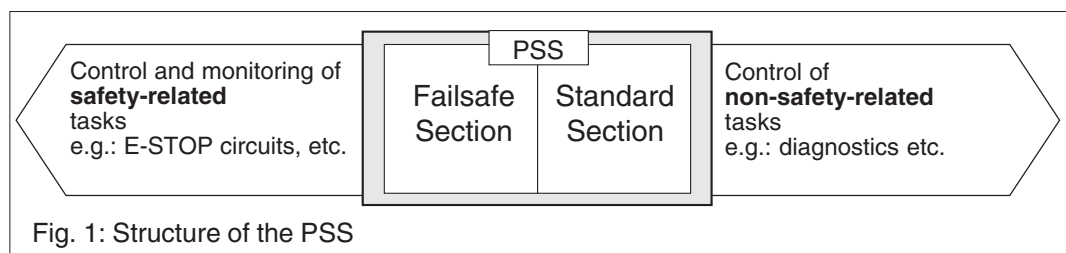
Content

Overview	2
Intended use	3
Transferring process data with SB 202 (IBS:SL_2)	4
Function	4
Block header	5
Input parameters	5
Output parameters	6
Blocks required	7
Temporary flags	7
Reserved flags	7
Operating system flags	8
Error messages	8
Programming guidelines	8
Program example	8

ST SB-IBS-S

Overview

Pilz programmable safety controllers (PSS) have been designed for use in plant and machinery safety circuits. They consist of a failsafe (FS) section and a standard (ST) section.



This manual contains all the information required for the proper application of standard function blocks (SB) within the standard section of a PSS. Knowledge of the safety regulations for the particular area of application is assumed.

To fully understand this manual you will need to be conversant with the information found in the general documentation for the Pilz range of safety controllers (System Description, Installation Manual, Programming Device and Programming Manual).

Definition of symbols

Information in this manual which is of particular importance can be identified as follows:



NOTICE

This describes a situation in which the unit(s) could be damaged and also provides information on preventive measures which can be taken.



INFORMATION

This gives advice on applications and provides information on special features, as well as highlighting areas within the text which are of particular importance.

Intended use

Standard function block SB 202 (IBS:SL_2) is available for communication between the CPU of the PSS SB 3006 IBS-S and the Interbus-S slave.

This block can also be used on the PSS 3000/3100 series for communication between the CPU and an Interbus module.

Standard function block SB 202 (IBS:SLAV) for the P9/P10 has the same number and the same input/output parameters, but has reduced functionality (it does not test the data consistency, etc.).



NOTICE

Only SB 202 (IBS:SL_2) can be used on the PSS SB 3006 IBS-S.

ST SB-IBS-S

Transferring process data with SB 202 (IBS:SL_2)

Function

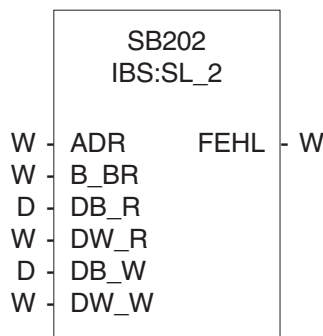
- Transfers process data between the Dual-Port RAM of the Interbus-S slave and the CPU of the PSS SB 3006 IBS-S programmable safety system, or between an Interbus module and the CPU of programmable safety systems in the PSS 3000/3100 series
- Establishes the data blocks containing receive and send data
- Checks the process data width
- States the start address
 - PSS SB 3006 IBS-S*: the PSS Interbus-S slave must have the start address "0"; it requires 256 words (XW 0 ... XW 255)
 - PSS(1) IBS-S PCP*: the Interbus-S slave for these modules requires a total of 256 words of free address space. This address space must not be assigned twice!
 - PSS(1) IBS-S*: the Interbus-S slave for these modules requires a total of 128 words of free address space. This address space must not be assigned twice!
- Checks the data consistency



INFORMATION

This block does not support the transfer of parameter data.

Block header



Input parameters

- **ADR:** Offset for the module's free address, permitted range: 0 ... 32.640 ("0" must be entered on the PSS SB 3006 IBS-S), Input base: 256 on the *PSS SB 3006 IBS-S/ PSS(1) IBS-S PCP* and 128 on the *PSS(1) IBS-S*
- **B_BR:** Process data length of the Interbus-S, permitted range: 1... 32
The entry must match the setting on the rotary switch and the value stated in XW 66.
- **DB_R:** Data block for storing data that is to be sent from the Interbus-S slave to the Interbus-S master; permitted setting: DB 10 ... 255
- **DW_R:** Data word from which data to be sent to the Interbus-S master is to be stored in *DB_R*; permitted settings: 1 ... 1023
The number of data words required will correspond to the process data length. The declared length of the block (read/write) must therefore be at least *DW_R* plus the process data length. DW 0 from *DB_R* is reserved and not available for use.
- **DB_W:** Data block for storing data that the Interbus-S slave is to receive from the Interbus-S master; permitted setting: DB 10 ... 255
- **DW_W:** Data word from which data received from the Interbus-S master is to be stored in *DB_W*; permitted settings: 1 ... 1023
The number of data words required will correspond to the process data length. The declared length of the block (read/write) must therefore be at least *DW_W* plus the process data length.

ST SB-IBS-S

Output parameters

- *Fehl*: Error messages are displayed in the high byte and low byte of output parameter *Fehl*. Please refer to the table below.

<i>Fehl</i> Low byte	Key
00000000	No error
Bit 3 2 1 00001110	Interbus-S is inactive, no data is transferred. Remedy: The Interbus-S slave reactivates automatically.
Bit 3 2 1 0 00001111	Interbus-S cable connection is defective or the Interbus-S master is in reset. Remedy: The Interbus-S slave reactivates automatically.
Bit 4 3 00011000 Bit 4 3 0 00011001 Bit 4 3 1 00011010 Bit 4 3 1 0 00011011	Initialisation error, RAM may be defective. Remedy: Reset the Interbus-S slave. If the RAM is defective, please contact Pilz.
Bit 5 00100000	Too high a data length entered in XW 66 when the process data length was amended via the user program. Remedy: Correct the setting on the rotary switch and reset the Interbus-S slave or amend the process data length in the user program.
Bit 5 1 00100001	Invalid data length entered in XW 66 when the process data length was amended via the user program. Remedy: Correct the setting on the rotary switch and reset the Interbus-S slave or amend the process data length in the user program.
Bit 5 1 00100010	XW 66 contains an invalid process data length. Remedy: Correct the setting on the rotary switch and reset the Interbus-S slave or amend the process data length in the user program.

<i>Fehl</i> High byte	Key
00000000	No error
Bit 1 00000010	Invalid value for <i>DW_R</i> Remedy: Correct and reset the Interbus-S slave
Bit 2 00000100	Invalid value for <i>DW_W</i> Remedy: Correct and reset the Interbus-S slave
Bit 3 00001000	Invalid value for start address Remedy: Correct and reset the Interbus-S slave
Bit 4 00010000	Interbus wiring: fatal error Remedy: Reset the Interbus-S slave
Bit 5 00100000	Waiting for initialisation to finish
Bit 6 01000000 process <i>B_BR</i>.	Data width in <i>XW 66</i> is different from <i>B_BR</i> Remedy: Correct the setting on the rotary switch and reset the Interbus-S slave, amend the data length in the user program or amend
Bit 7 10000000	Interbus-S is not operating.

Blocks required

None

Temporary flags

MW 61.00
MW 61.16
MW 62.00
MW 62.16
MW 63.00
MW 63.16

Reserved flags

None

Operating system flags

MW 114.00
MW 114.16

Error messages

See output parameter FEHL

Programming guidelines

- We recommend that the data words of the data blocks named in *DB_R* and *DB_W* are pre-assigned the value 0.
- One data block can be used simultaneously as *DB_R* and *DB_W*.
- SB 202 must be called up as part of each cycle.



INFORMATION

Data word DW 0 from data block *DB_R* is reserved and must not be used.

Program example

The program extract given below explains how to set parameters for SB 202 (IBS:SL_2).

The process data length is 3 words. The data to be sent to the Interbus-S master is to be stored in DB 011, from DW 001 onwards, and the data to be received from the Interbus-S master is to be stored in DB 011, from DW 041 onwards.

```

:CAL SB 202

KF 000000
KF 000003
DB 011
KF 000001
DB 011
KF 000011
    
```

SB 202 IBS:SL_2	
- W -	ADR FEHL
- W -	B_BR
- D -	DB_R
- W -	DW_R
- D -	DB_W
- W -	DW_W

```

W-MW 001.00
    
```

A	Pilz Ges.m.b.H. Modecenterstraße 14 1030 Wien Austria Telephone (01) 7 98 62 63-0 Telefax (01) 7 98 62 64 E-Mail: pilz@pilz.at	F	Pilz France Electronic 1, rue Jacob Mayer BP 12 67037 Strasbourg Cedex France Telephone 03 88 10 40 00 Telefax 03 88 10 80 00 E-Mail: siege@pilz-france.fr	NL	Pilz Nederland Postbus 186 4130 ED Vianen Netherlands Telephone (03 47) 32 04 77 Telefax (03 47) 32 04 85 E-Mail: info@pilz.nl
AUS	Pilz Australia Industrial Automation LP 9/475 Blackburn Road Mt. Waverley, Melbourne VIC 3149 Australia Telephone (03) 95 44 63 00 Telefax (03) 95 44 63 11 E-Mail: safety@pilz.com.au	FIN	Pilz Skandinavien KS Pakilantie 61 00660 Helsinki Finland Telephone (09) 27 09 37 00 Telefax (09) 27 09 37 09 E-Mail: pilz.sk@kolumbus.fi	P	Pilz Industrieelektronik S.L. Apartado 2028 2706-909 Colares Portugal Telephone (21) 9 28 91 09 Telefax (21) 9 28 91 13 E-Mail: pilz@esoterica.pt
B	Pilz Belgium BC Building Industriezone III Industrielaan 4 9320 Erembodegem Belgium Telephone (0 53) 83 66 70 Telefax (0 53) 83 89 58 E-Mail: info@pilz.be	GB	Pilz Automation Technology Willow House, Medicott Close Oakley Hay Business Park Corby Northants NN18 9NF United Kingdom Telephone (0 15 36) 46 07 66 Telefax (0 15 36) 46 08 66 E-Mail: sales@pilz.co.uk	PRC	Pilz China Representative Office Flat F9/F Huijing Building 134 Siyou Xin Malu Dongshan District Guangzhou 510600 China Telephone (0 20) 87 37 16 18 Telefax (0 20) 87 37 35 55 E-Mail: pilzchn@public.guangzhou.gd.cn
L		I	Pilz Italia Srl Via Meda 2/A 22060 Novedrate (CO) Italy Telephone (0 31) 78 95 11 Telefax (0 31) 78 95 55 E-Mail: info@pilz.it	ROK	Pilz Korea Liaison Office 102-1402 Ilsung apt 767, Kyomun-Dong, Kuri-Si Kyungki-Do 417-715 Korea Telephone (31) 5 54 12 80 Telefax (31) 5 54 12 80 E-Mail: pilzkr@hotmail.com
BR	Pilz do Brasil Sistemas Eletrônicos Industriais Ltda. Rua Ártico, 123 - Jd. do Mar 09726-300 São Bernardo do Campo - SP Brazil Telephone (11) 43 37-12 41 Telefax (11) 43 37-12 42 E-Mail: pilz@pilzbr.com.br	IRL	Pilz Ireland Industrial Automation Cork Business and Technology Park Model Farm Road Cork Ireland Telephone (0 21) 4 34 65 35 Telefax (0 21) 4 80 49 94 E-Mail: sales@pilz.ie	S	Pilz Skandinavien KS Energigatan 10 B 43437 Kungsbacka Sweden Telephone (03 00) 1 39 90 Telefax (03 00) 3 07 40 E-Mail: pilz@tripnet.se
CH	Pilz Industrieelektronik GmbH Gewerbepark Hintermättli Postfach 6 5506 Mägenwil Switzerland Telephone (0 62) 8 89 79 30 Telefax (0 62) 8 89 79 40 E-Mail: pilz@pilz.ch	J	Pilz Japan Co., Ltd. Three One Building 701 3-20-5 Shin-Yokohama Kohoku-ku Yokohama 222-0033 Japan Telephone (0 45) 4 71-22 81 Telefax (0 45) 4 71-22 83 E-Mail: pilz@pilz.co.jp	SGP	Pilz Industrial Automation Pte Ltd. 61, Kaki Bukit Ave 1, #05-01 Shun Li Industrial Park Singapore 417943 Singapore Telephone 8 44 44 40 Telefax 8 44 44 41 E-Mail: sales@pilz.com.sg
D	Headquarters: Pilz GmbH & Co. Felix-Wankel-Straße 2 73760 Ostfildern Germany Telephone (07 11) 34 09-0 Telefax (07 11) 34 09-1 33 E-Mail: pilz.gmbh@pilz.de	MEX	Pilz de Mexico S. de R.L. de C.V. Av. San Ignacio 1079 Col. Jardines de San Ignacio C.P. 45000 Guadalajara, Jalisco Mexico Telephone (0 13) 1 22 16 81 Telefax (0 13) 6 47 81 85 E-Mail: pilz_msolis@infosel.net.mx	USA	Pilz LP 7150 Commerce Boulevard Canton Michigan 48187 USA Telephone (7 34) 3 54-02 72 Telefax (7 34) 3 54-33 55 E-Mail: info@pilzusa.com
DK	Pilz Skandinavien KS Ellegaardvej 25 L 6400 Sønderborg Denmark Telephone 74 43 63 32 Telefax 74 43 63 42 E-Mail: pilz@pilz.dk	...	In many countries we are represented by sales partners. Please refer to our Homepage for further details or contact our headquarters.		
E	Pilz Industrieelektronik S.L. Edificio Tilma Avda. Sant Julià 1 08400 Granollers Spain Telephone (93) 8 49 74 33 Telefax (93) 8 49 75 44 E-Mail: central@pilzspain.com	www	www.pilz.com		
			Internet enquiries and orders: www.pilz.com		