

## SBM21 Input/Output Module

### Application

#### Binary input/output device (address switch 01 to 16)

The SBM21 is an input/output module on the switch cabinet bus with 16 binary inputs and 12 binary outputs. These can be switched individually using the parameters in the basic program.

The SBM21 has 32 LEDs for display purposes. The display function of the LEDs can be configured individually as a solid or flashing light and individual color.

#### Extension message module (address switch > 16)

(software version 3.8 or higher)

There are 24 binary input contacts with permanently assigned LEDs available in this mode.

Eight function macros can be set and used to record and display various system messages.

The inputs and LEDs can only be configured by selecting the function macros. The binary input contacts can be processed and linked using the DDC controller.

In "Extension message module" mode, operation using a higher-level DDC controller and stand-alone operation without a DDC controller are both possible.

Using the backbone terminals, the SBM21 can be functionally connected to the FBM38/FSM3M message management which is common to all devices.



## Contents

## Page

Important Information Regarding Product Safety .....	2
Item .....	3
Technical Data .....	3
Installation Dimensions .....	4
"Extension Message Module" Special Function .....	5
Function Macros .....	6
Address Switch .....	7
Address Switch Bridge K25 .....	8
Connection .....	9
Address switch setting 00 to 16 .....	9
Address switch setting > 16 .....	9

Änderungen vorbehalten - Contents subject to change - Sous réserve de modifications - Reservado el derecho a modificación - Wijzigingen voorbehouden - Con riserva di modifichie - Innehåll som skall ändras - Změny vyhrazeny - Zmiany zastrzeżone - Возможны изменения - A változtatások jogát fenntartjuk - 保留未经通知而改动的权力

## Important Information Regarding Product Safety

### Safety Instructions

This data sheet contains information on installing and commissioning the product "SBM21 Input/Output Module". Each person who carries out work on this product must have read and understood this data sheet. If you have any questions that are not resolved by this data sheet, you can obtain further information from the supplier or manufacturer.

If the product is not used in accordance with this data sheet, the protection provided will be impaired.

Applicable regulations must be observed when installing and using the device. Within the EU, these include regulations regarding occupational safety and accident prevention as well as those from the VDE (Association for Electrical, Electronic & Information Technologies). If the device is used in other countries, it is the responsibility of the system installer or operator to comply with local regulations.

Mounting, installation and commissioning work on the devices may only be carried out by qualified technicians. Qualified technicians are persons who are familiar with the described product and who can assess given tasks and recognize possible dangers due to technical training, knowledge and experience as well as knowledge of the appropriate regulations.

### Meaning of the Symbols



#### WARNING

Indicates a hazard of medium risk which can result in death or severe bodily injury if it is not avoided.



#### CAUTION

Indicates a hazard of low risk which can result in minor or medium bodily injury if it is not avoided.



#### NOTICE

Indicates a hazard of medium risk which can result in material damage or malfunctions if it is not avoided.



#### Note

Indicates additional information that can simplify the work with the product for you.

### Notes on Disposal

For disposal, the product is considered waste from electrical and electronic equipment (electronic waste) and must not be disposed of as household waste. Special treatment for specific components may be legally binding or ecologically sensible. The local and currently applicable legislation must be observed.

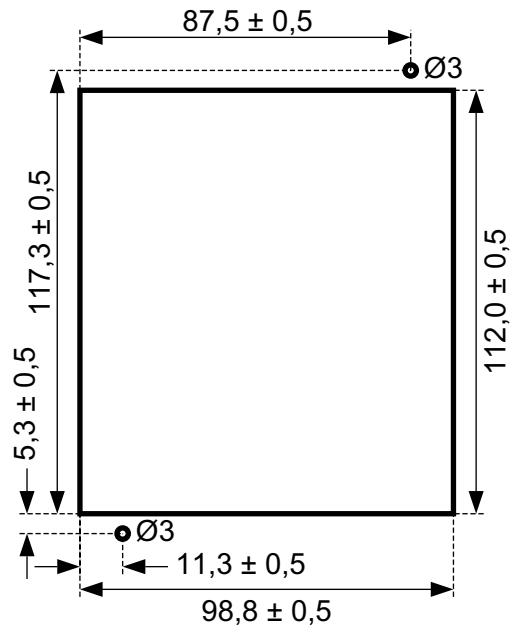
**Product Description****SBM21 Input/Output Module****Item**

SBM21 Input/output module on switch cabinet bus

**Technical Data**

Bus connection	Switch cabinet bus SBM bus	16 SBM; 200 m; 40 kBd; CAN
Inputs and outputs	<b>Address 01 to 16</b>	
	• 16 BI	Potential-free contact 5 mA / DC 24 V (max. 250 Ω)
	• 12 BO or BI, as desired	Transistor output max. 80 mA, DC 24 V
	<b>Address &gt;16</b>	
	• 24 BI	Potential-free contact 5 mA / DC 24 V (max. 250 Ω)
	• 1 BI macro switching	
	• 2 BI backbone	
	• 1 BI/BO backbone	
Nominal voltage	For SBM For inputs and outputs	AC 24 V 10%; 50 to 60 Hz; 2.5 VA DC 24 V 10%; 200 mA; 5 W Terminals 17 and 37, internally connected
Fuse	Electronic	
Address switch	00 to 99 by means of 2 rotary switches behind front panel	
Displays	<b>Address 01 to 16</b>	LED bus, LED error 32 multicolored LEDs, can be parameterized using the DDC controller
	<b>Address &gt;16</b>	LED bus, LED error 32 multicolored LEDs, cannot be parameterized using the DDC controller
Switches / pushbuttons	None	
Degree of protection	IP40	
Ambient temperature	0 to 45 °C	
Ambient humidity	20 to 80% r.h., non-condensing	
Housing	19" plastic short enclosure, double width with a plug-in base W x H x D; 201 mm x 132 mm x 137 mm	
Front cut-out	200.4 mm x 112.0 mm	
Weight	0.4 kg	
Marking	CE	

**Installation Dimensions**



## "Extension Message Module" Special Function

### Backbone connection (connection terminals 33 to 35)

Using the backbone connection (4 lines), the SBM21/SBM41 and FBM38 can be functionally connected to each other. Up to 63 FBM38 and 16 SBM21/SBM41 can be connected to each other using backbone terminals. The L test (LED test), SSM (collective malfunction message) and SSM-Q (collective malfunction message acknowledgement) backbone functions will then carry out message management for all devices and will influence all modules which are connected to each other.

In a similar manner as for FBM38/FSM message management for the direct operating level, messages which are present and active will be displayed as follows:

Active, unconfirmed malfunction messages	Flashing red LEDs
Active, confirmed malfunction messages	Solid red LEDs
Active operating messages	Solid green LEDs

### Backbone function

**L test:** The L test (connection terminal 33) switches on all LEDs for modules which are connected using the backbone connection (maximum switch-on duration 30 s). LEDs 25, 26, 27, 28 of the SBM21 light up in yellow; all other LEDs light up according to their macro function. LEDs 29-32 are not activated.

**SSM:** As well as triggering a visible display (red flashing LED), incoming local malfunction messages trigger a collective malfunction message pulse (approx. 0.5 s) on the SSM backbone connection (terminal 34), which can be used for further evaluations. In the case of the backbone connection to FSM38/FSM3M (macro31), the collective malfunction message pulse automatically generates a central collective malfunction message on FSM3M. Collective malfunction message impulses which arrive at the SSM backbone connection cause the SSM-LED (LED27) to light up on the SBM21 for the duration of the impulse.

**SSM-Q:** Central acknowledgement can be carried out using the SSM-Q connection (terminal 35) for malfunction messages which are active or in self-holding.

### Message memory

The messages defined as malfunction messages according to the function macro have a self-holding function (message memory). This means: if the malfunction message persists after being acknowledged, the flashing light becomes a solid light. If the malfunction message drops off without being acknowledged, the flashing light continues until acknowledged (self-holding function). If this is not desired, the function can be deactivated by bridging between the terminals 35 and 17 or 37.



### Note

The SSM-Q backbone terminal may not be connected with further modules because otherwise this leads to 'permanent acknowledgement' of all malfunction messages.

**Function Macros**

In "Extension message module" mode, the SBM21 can be operated either with or without a DDC controller. The functioning is determined by activating a function macro by setting the address switch situated behind the front panel.

Different address areas are assigned to the eight available function macros. An address area consists of 16 individual addresses, which are mirror addresses for the setting range 01 to 16. The SBM BUS address is recognized and assigned depending on the setting of the address switch.

Macro	Address switch setting	Terminal 32 K25	Example
1	21 to 36 SBM BUS address 01 to 16	Open	21 → SBM BUS address 01
2	41 to 56 SBM BUS address 01 to 16	Open	43 → SBM BUS address 03
3	61 to 76 SBM BUS address 01 to 16	Open	72 → SBM BUS address 12
4	81 to 96 SBM BUS address 01 to 16	Open	96 → SBM BUS address 16
5	21 to 36 SBM BUS address 01 to 16	To ground, terminal 17, 37	25 → SBM BUS address 05
6	41 to 56 SBM BUS address 01 to 16	To ground, terminal 17, 37	47 → SBM BUS address 07
7	61 to 76 SBM BUS address 01 to 16	To ground, terminal 17, 37	73 → SBM BUS address 13
8	81 to 96 SBM BUS address 01 to 16	To ground, terminal 17, 37	95 → SBM BUS address 15

Ensure that every set macro occupies a SBM BUS address. For example, the address switch settings 21 and 41 (= 2xSBM BUS address 01) on the same SBM BUS are not permitted. When an address that is not used (17 to 20, 37 to 40 etc.) is set, the SBM21 generates a running light (green, yellow, red)



**Note**

For addressing >16 (Extension message module), the functions of the inputs/outputs and LEDs are permanently defined and are available to the DDC system

**Address Switch**

00	Module behaves passively on the switch cabinet bus	
01 to 16	Binary input/output device with 16 BI; 12 BO (can also be configured as BI, if desired); LED activation can be parameterized	
	<b>Macro 1</b>	
21 to 36	24 operating messages (K01 to K24) LEDs (cannot be parameterized) Message memory (self-holding) active Influence on SSM backbone terminal	normally open LED 1 to 24 solid green light No No
	<b>Macro 2</b>	
41 to 56	24 malfunction messages (K01 to K24) LEDs (cannot be parameterized) Message memory (self-holding) active Influence on SSM backbone terminal	normally open LED 1 to 24 flashing red K01 to K24 K01 to K24
	<b>Macro 3</b>	
61 to 76	16 operating messages (K01 to K16) 8 malfunction messages (K17 to K24) LEDs (cannot be parameterized)  Message memory (self-holding) active Influence on SSM backbone terminal	normally open normally closed LED 1 to 16 solid green light LED 17 to 24 flashing red K17 to K24 K17 to K24
	<b>Macro 4</b>	
81 to 96	24 operating messages (K01 to K24) LEDs (cannot be parameterized) Message memory (self-holding) active Influence on SSM backbone terminal	normally closed LED 1 to 24 flashing red K01 to K24 K01 to K24

**Address Switch Bridge K25**

<b>Macro 5</b>		
21 to 36	12 operating messages (K01; K03; K05 to K23)	normally open
	12 malfunction messages (K02; K04; K06 to K24)	normally open
	LEDs (cannot be parameterized)	LED 1,3 to 23 solid green light LED 2,4,6 to 24 flashing red
	Message memory (self-holding) active Influence on SSM backbone terminal	K02, K04, K06 to K24 K02, K04, K06 to K24
<b>Macro 6</b>		
41 to 56	16 malfunction messages (K01 to K16)	normally closed
	8 malfunction messages (K17 to K24)	normally open
	LEDs (cannot be parameterized)	LED 01 to 24 flashing red
	Message memory (self-holding) active Influence on SSM backbone terminal	K01 to K24 K01 to K24
<b>Macro 7</b>		
61 to 76	12 operating messages (K01; K03; K05 to K23)	normally open
	12 malfunction messages (K02; K04; K06 to K24)	normally closed
	LEDs (cannot be parameterized)	LED 1,3 to 23 solid green light LED 2,4,6 to 24 flashing red
	Message memory (self-holding) active Influence on SSM backbone terminal	K02, K04, K06 to K24 K02, K04, K06 to K24
<b>Macro 8</b>		
81 to 96	16 malfunction messages (K01 to K16)	normally closed
	8 operating messages (K17 to K24)	normally open
	LEDs (cannot be parameterized)	LED 01 to 16 flashing red LED 17 to 24 solid green light
	Message memory (self-holding) active Influence on SSM backbone terminal	K01 to K16 K01 to K16



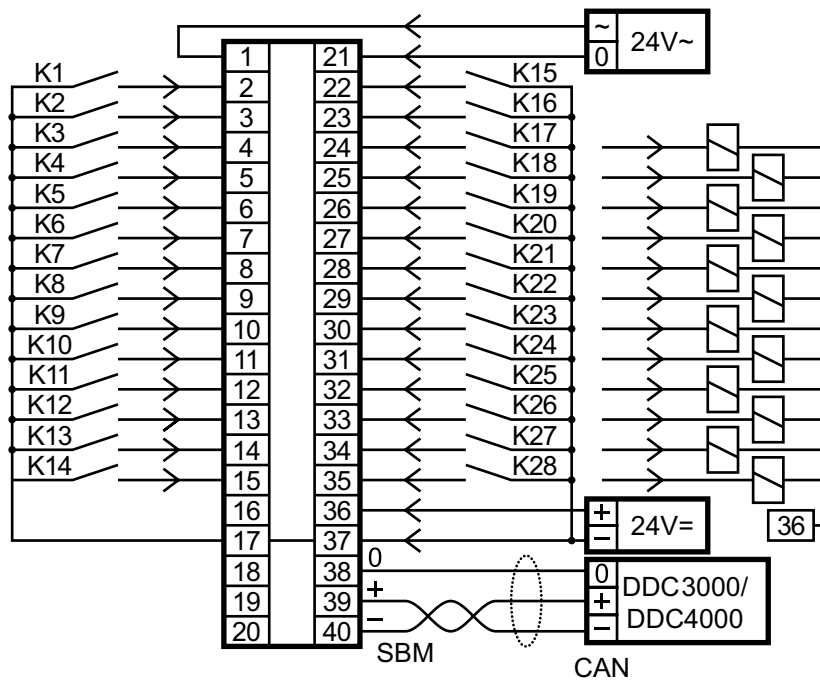
**Note**

Inputs which are not occupied and are defined as inverted malfunction messages (normally closed contacts) must be bridged at terminals 17 or 37 because otherwise permanent malfunction messages will be displayed.

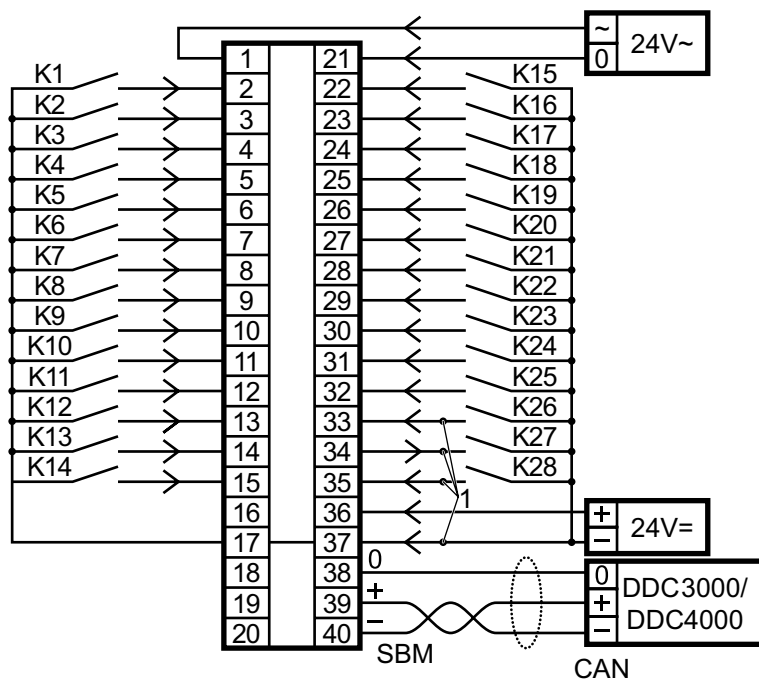


Connection

Address switch setting 00 to 16



Address switch setting > 16



1 Backbone connection

**Backbone connection**

SBM21    SBM21/41    FBM38

