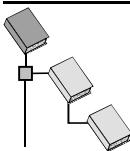


The switch actuator receives telegrams via the EIB and switches groups of electrical equipment with its four potential-free independent relay contacts. Various external conductors can be connected. The application enables switching with feedback (revertive signal), logic operation and timer function. The slide switches can be used to manually activate the 4 relays in parallel with the instabus EIB or to switch them on or off without the instabus EIB.

Database structure:



Gebr. Berker



- ☒ Output
- ☒ Binary output 4gang
- ☒ Switch actuator 4gang

RMD

Application summary:

- Switching RS, LO, TF 206201

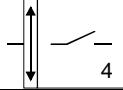
Technical Data

Protection class:	IP 20
Test symbol:	EIB
Operating temperature range:	-5 °C to +45 °C
Fixing method:	Snap onto DIN rail (excl. Data rail)
Measurements:	Width: 4 TE; 72 mm Height: 90 mm Depth: 64 mm
instabus EIB supply	
Voltage:	24 V DC (+6 V / -4 V)
Power consumption:	150 mW typically
Connection:	instabus connection and branch off terminal
External supply	---
Response following voltage failure:	Software dependent
Response following restart:	Software dependent
Output	
Relay manufacturer:	Gruner
Relay type:	707 L: 1A according to DIN VDE 0435
Number:	4
Switch type:	Closer, potential-free relay contacts (μ -contact)
Switch voltage:	230 V AC
Max. switching current:	230 V AC; 400 V AC
16 A / AC-1; 10 A / AC-3	at 230 V AC
10 A / AC-1; 6 A / AC-3	at 400 V AC
Switching capacity:	
Filament bulbs:	2500 W
Fluorescent tubes, uncompensated, $\cos\phi = 0,5$:	2500 W
Fluorescent tubes, parallel compensation, $\cos\phi = 1$:	1300 W / 140 μ F
Fluorescent Duo, $\cos\phi = 1$:	2 x 2500 W
HV Halogen lamps:	2500 W
LV Halogen lamps:	500 VA
Connection:	
Screw-type terminals:	0.2 – 4 mm ²
	2 x 0.2 – 2.5 mm ²
	0.75 – 4 mm ²
sleeve	fine wire without end cap
sleeve	0.5 – 2.5 mm ²
sleeve	fine wire with end cap

Comments on hardware:

- The relays in the device never switch at the same time, but always at staggered intervals. At higher switching frequencies, this time interval always becomes longer.
Example:
 If all the channels are parameterised to the same group address (all the relays are to switch at the same) and if several switching telegrams are received, then the switching interval increases to a max of 0.1 sec. In such a case, the time between two telegrams must not be less than 0.6 sec in order that all the relays react to the status change.
- Various external conductors can be connected. A contact configuration of 230 V AC and a ballast device at the various outputs is not permitted!

Software description

ETS search path:			ETS symbol:
Output / Binary output 4gang / Switch actuator 6gang 16A RMD			
AST Type	11 Hex	17 Dez	Programmable I/O
Applications:			
No.	Brief description:	Name:	Version:
1	Switch with feedback, logic operation and timer function	Switching RS, LO, TF 206201	1

Description of application: 1. Switching RS, LO, TF 206201				
Executable as of mask version:		1.1		
Number of addresses (max):		32	Dynamic table management	
Number of assignments (max):		32	Max. Table length	
Communications objects:				16
Object	Name	Function	Type	Flag
0	Switching	Output 1	1 Bit	C, W
1	Switching	Output 2	1 Bit	C, W
2	Switching	Output 3	1 Bit	C, W
3	Switching	Output 4	1 Bit	C, W
Outputs 1-4 assigned to the additional function "Logic operation":				
8	Logic operation	Output 1*	1 Bit	C, W
9	Logic operation	Output 2*	1 Bit	C, W
10	Logic operation	Output 3*	1 Bit	C, W
11	Logic operation	Output 4*	1 Bit	C, W
Outputs 1-4 assigned to the additional function "Blocking object":				
8	Blocking	Output 1*	1 Bit	C, W
9	Blocking	Output 2*	1 Bit	C, W
10	Blocking	Output 3*	1 Bit	C, W
11	Blocking	Output 4*	1 Bit	C, W
Channels 1-4 assigned to the additional function "positively-driven object":				
8	Forced guidance	Output 1*	2 Bit	C, W
9	Forced guidance	Output 2*	2 Bit	C, W
10	Forced guidance	Output 3*	2 Bit	C, W
11	Forced guidance	Output 4*	2 Bit	C, W
Feedback objects:				
12	Revertive signal	Output 1	1 Bit	C, T
13	Revertive signal	Output 2	1 Bit	C, T
14	Revertive signal	Output 3	1 Bit	C, T

<input checked="" type="checkbox"/>	15	Revertive signal	Output 4	1 Bit	C, T
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*Objects 8 – 11 can be assigned to any output. One should bear in mind that every output can only be assigned to one additional function!

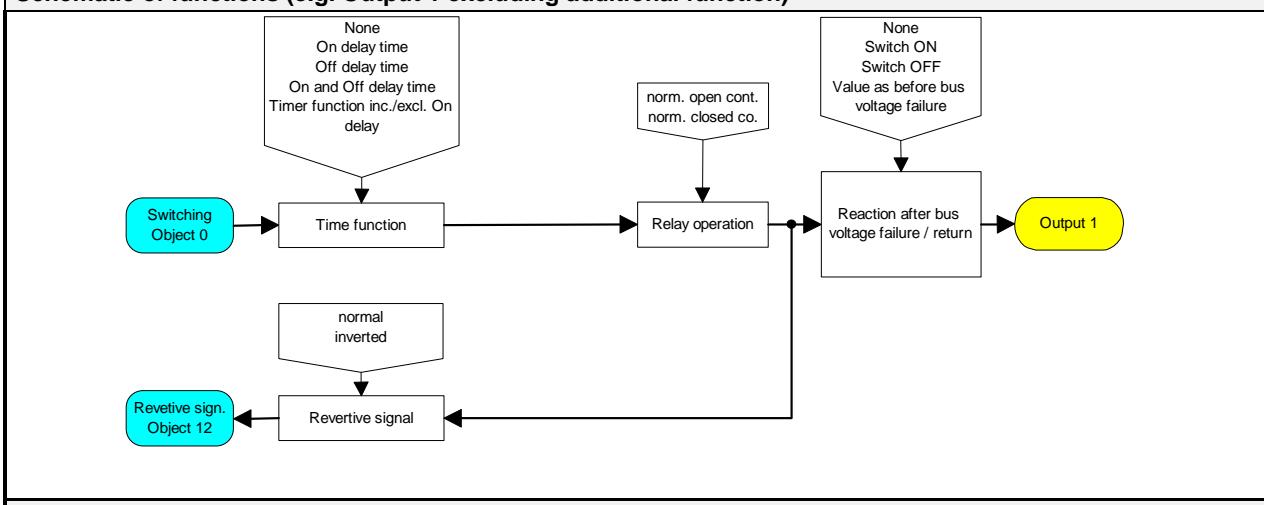
Object description (dynamic object structure)

- Object 0-5 Switching: 1 Bit object to switch a load
- Objects 8-11 Logic operation: 1 Bit object for logical link (e.g. AND / OR)
- Objects 8-11 Blocking: 1 Bit object to block corresponding output
- Objects 8-11 Forced guidance: 2 Bit object to positively set the switching channels (priority)
- Objects 12-17 Revertive signal: 1 Bit object to send out switching status. Adjusting the relays using the slide switch is not recognised!

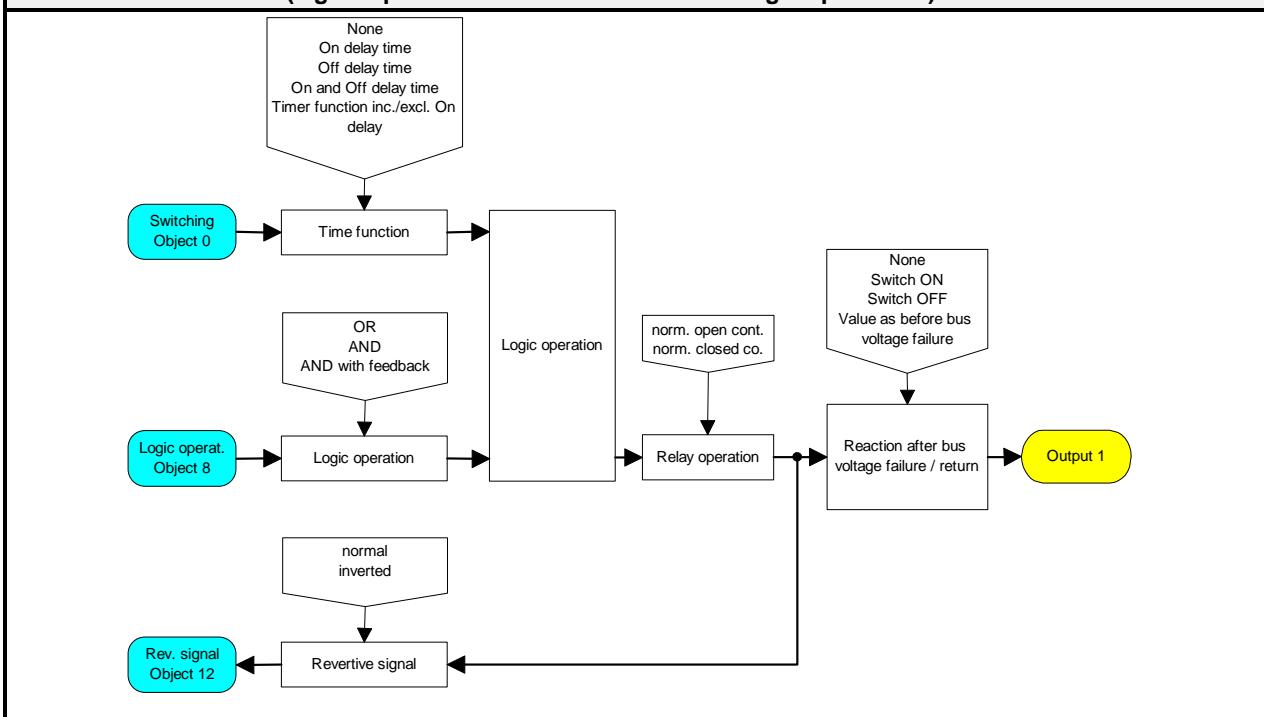
Functional scope

- Independent switching of 4 channels
- Outputs can be parameterised as normally open or normally closed contacts
- Preferred position can be set in case of bus voltage failure or restoration
- 4 adjustable outputs with 3 objects available: switching, revertive signal and additional function
- Additional functions can be set:
 - logic operation function with 3 logical parameters
 - blocking function – relay blocking responses can be set
 - forced guidance function to assign priorities for incoming switching telegrams
- Invertible revertive signal (feedback) object
- On/Off delay or timer functions can be set individually for each channel

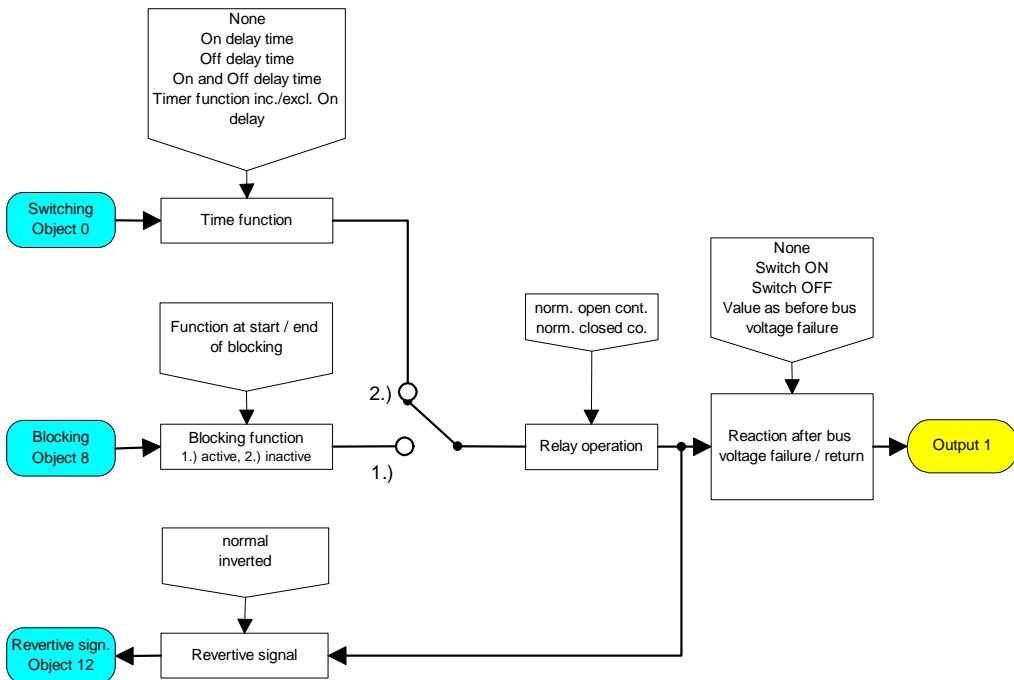
Schematic of functions (e.g. Output 1 excluding additional function)



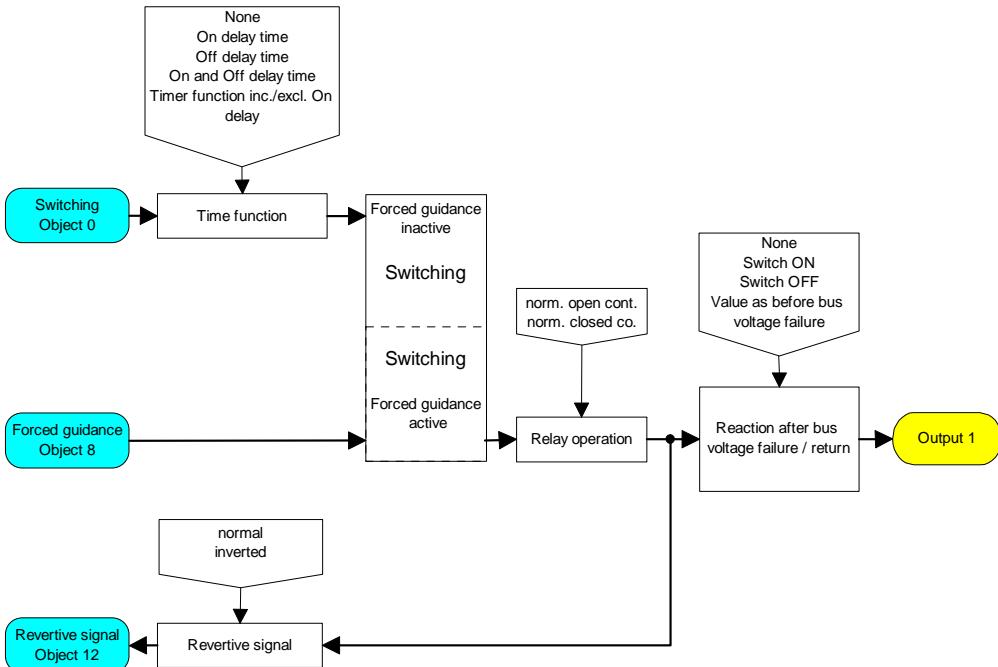
Schematic of functions (e.g. Output 1 with additional function "Logic operation")



Schematic of functions (e.g. Output 1 with additional function "Blocking object")



Schematic of functions (e.g. Output 1 with additional function "forced guidance object")



Parameters		
Description:	Values:	Comments:
 Output 1-4		
Reaction after bus voltage failure	NO Close contact Open contact	Defines the response of the switch actuator following a bus voltage failure.
Reaction after bus voltage return	Value as before bus voltage failure Close contact Open contact	Defines the response of the switch actuator after the bus voltage is restored.
Time function	NO Switch ON delay Switch OFF delay Switch ON and OFF delay Time switch function (without ON delay) Time switch function (with ON delay)	Sets the required time function
Switch ON delay, factor (0..127)	0 to 127, 10	Defines the time factor that applies for the switch ON delay. Time = Base x Factor
Switch ON delay, base	130 ; 260; 520 msec 1.0; 2.1; 4.2; 8.4; 17; 34 sec 1.1; 2.2; 4.5; 9; 18; 36 min 1.2 h	Defines the time basis that applies for the switch ON delay. Time = Base x Factor Preliminary setting: 10 x 130 msec = 1.3 sec
Switch OFF delay, factor (0..127)	0 to 127, 10	Defines the time factor that applies for the switch OFF delay. Time = Basis x Factor
Switch OFF delay, base	130 ; 260; 520 msec 1.0; 2.1; 4.2; 8.4; 17; 34 sec 1.1; 2.2; 4.5; 9; 18; 36 min 1.2 h	Defines the time basis that applies for the switch OFF delay. Time = Base x Factor Preliminary setting: 10 x 130 msec = 1.3 sec
Switch ON and OFF delay, base	130 ; 260; 520 msec 1.0; 2.1; 4.2; 8.4; 17; 34 sec 1.1; 2.2; 4.5; 9; 18; 36 min 1.2 h	Defines the time basis that applies for the switch ON and OFF delay. Time = Base x Factor Preliminary setting: 10 x 130 msec = 1.3 sec
Reaction on OFF telegram	Switch OFF Ignore the switch OFF telegram	Defines the reaction of the switch actuator when receiving an OFF telegram while timer function is set.
Revertive signal	none do not invert invert	Defines whether and how revertive signal (feedback) concerning the feedback object occurs. Defines relay operation.
Relay operation	Normally open contact Normally closed contact	The relay works with a normally open contact. The relay works with a normally closed contact.

Parameters		
Description:	Values:	Comments:
 Allocation of the additional functions		
Additional function 1	OFF ON	Defines whether additional function 1 is switched on or off.
Allocation	Output 1 Output 2 Output 3 Output 4	Defines the assignment of additional function 1 to an output port. Note: Only one additional function can be assigned to an output port!
Additional function 2	OFF ON	Defines whether additional function 2 is switched on or off.
Allocation	Output 1 Output 2 Output 3 Output 4	Defines the assignment of additional function 2 to an output port. Note: Only one additional function can be assigned to an output port!
Additional function 3	OFF ON	Defines whether additional function 3 is switched on or off.
Allocation	Output 1 Output 2 Output 3 Output 4	Defines the assignment of additional function 3 to an output port. Note: Only one additional function can be assigned to an output port!
Additional function 4	OFF ON	Defines whether additional function 4 is switched on or off.
Allocation	Output 1 Output 2 Output 3 Output 4	Defines the assignment of additional function 4 to an output port. Note: Only one additional function can be assigned to an output port!
 Additional functions 1 and 2		
Additional function 1 parameterised as a "Logic operation" (e.g. assigned to Output 1-)		
Logic operation	none OR AND AND with feedback	Defines the logic operation. In case of "AND with feedback" the switching object is reset if linking object = 0.
Additional function 1 parameterised as a "Blocking object" (e.g. assigned to Output 1)		
Function at start of blocking	No change Switch OFF Switch ON	Defines the response of the switch actuator at the beginning of a blocking action via the blocking object.
Function at end of blocking	No change Switch OFF Switch ON	Defines the response of the switch actuator at the end of a blocking action via the blocking object.
Function of the blocking object	released = 0, locked = 1 released = 1, locked = 0	Defines whether blocking will occur after receiving an ON or OFF telegram.

Additional function 1 parameterised as "Forced guidance object" (e.g. assigned to Output 1)																	
No further parameters!																	
Additional function 2, see Additional function 1!																	
 Additional functions 3 and 4																	
See Additional functions 1 and 2																	
Comments on software																	
<ul style="list-style-type: none">• Forced guidance object																	
The switching channel can be forced separately into a switching position irrespective of the switching object by a 2 Bit telegram via the forced guidance object. The "Relay operation" parameter is also effective here. The value of the 2 Bit telegram must be created according to the following syntax:																	
The switching status that is being forced is indicated by the first bit (Bit 0) of the forced guidance object. Forced guidance is enabled with the second bit (Bit 1) for the forced guidance object.	<table border="1"><thead><tr><th>Bit 1</th><th>Bit 0</th><th>Function</th></tr></thead><tbody><tr><td>0</td><td>x</td><td>Inactive priority \Rightarrow 'Switching' object</td></tr><tr><td>0</td><td>x</td><td>Inactive priority \Rightarrow 'Switching' object</td></tr><tr><td>1</td><td>0</td><td>Active priority: switch off</td></tr><tr><td>1</td><td>1</td><td>Active priority: switch on</td></tr></tbody></table>		Bit 1	Bit 0	Function	0	x	Inactive priority \Rightarrow 'Switching' object	0	x	Inactive priority \Rightarrow 'Switching' object	1	0	Active priority: switch off	1	1	Active priority: switch on
Bit 1	Bit 0	Function															
0	x	Inactive priority \Rightarrow 'Switching' object															
0	x	Inactive priority \Rightarrow 'Switching' object															
1	0	Active priority: switch off															
1	1	Active priority: switch on															
During active forced guidance (priority), incoming switching telegrams continue to be evaluated. If forced guidance (priority) is inactive subsequently then the current internal switching status is set in accordance with the switching object value.																	