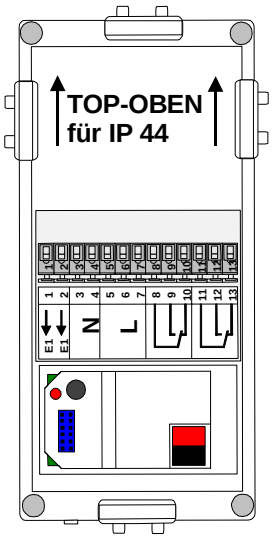
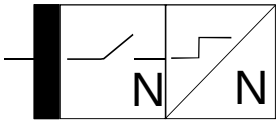
Shutter 1gang/switch actuator 2gang with extension
75690001, 75630003

Technical Documentation



The 1 port shutter / 2 port switch actuator with extension input receives telegrams to control operating equipment. The type of operating equipment is defined based on the circuitry and the application software.
The extension function allows internal and external control over conventional sensor elements. IP44 protection is achieved in surface-mounted installations that comply with the installation requirements.

Shutter 1gang/switch actuator 2gang with extension unit



Order No.:
75690001
75630003

Database search path

Product family:	Output
Product type:	binary output, combination

General Technical Data

EIB supply:	24V; (+6V/-4V)
Power consumption:	max. 150 mW
External supply:	230 V (AC)
Power consumption:	approx. 1.5 VA
Connection:	simple plug-in connectors to 2,5 mm²

Inputs

Signal voltage:	0 bit signal: 0 - 50 V (AC); t>50 ms
	1 bit signal: 161 - 264 V (AC)
Signal current:	approx. 5 mA, to 100 mA trip coil
Power consumption:	approx. 750 mW per channel
Contact open/closed:	47-kOhm min./ 1000-Ohm max.
Length of incoming cable:	max. 300 m (max. 30 nF)

Outputs

Contact type:	Change-over switch
Output nominal load:	2300 W ohmic load, AGL
	2000 W high voltage halogen
	500VA inductive low voltage halogen.
	1500 W low voltage halogen, Tronic
	Mercury vapour lamp
	Halogen metal vapour lamp
	900 W fluorescent lamp, uncompensated
	1500 W fluorescent lamp, parallel comp, dual circuit
Protection type:	IP 44 as per installation requirements
	Exposed void for condensate

Shutter	**800C01**
Switching TF	**800D01**

Application Overview:

Shutter 1gang/switch actuator 2gang with extension unit

Shutter 800C01

Assignments, Group addresses and objects

Parameter window

Description of application

The application is used to control the rotational direction of motor-driven drive units. Limiting switches are needed to break the contact in the final position.
It is possible to activate or set a timer for short-term operations to adjust the shutters. A positive pause can be set to change the rotational direction. The receiving and function properties of the locking object can be set.
You can choose between the functions **No action** and **Travel into final position** in the case of a bus voltage failure.
The inputs are used for controlling the connected motors and for sending telegrams to the bus.

Number of assignments: max. 5
Number of group addresses: max. 5

Number of objects: 1 Short-term object (1 Bit, send, receive)
1 Long-term operation (1 Bit, send, receive)
1 lock (1 Bit, receive)

Actuator: Operating mode	
Mode at step operation	**Time = 0 ms;** time = variable
Actuator: Output	
Step operation, base	**8 ms;** 130 ms; 2.1 s
Step operation, factor	2...**64...**255
Move operation	unlimited
Actuator: Change of direction	
Changeover time	50, **200 ms**, 400, 600, 800 ms, 1s, 1.2 s
Actuator: Locking	
Safety function at object value	00 (alarm released = 01) **01 (alarm released = 00)**
Safety reaction	**Move up** Move down
Actuator: Motor connection	
Motor connection (conn. of terminal 12 and 13)	**terminal 12 down, terminal 13 up** terminal 12 up, terminal 13 down
Actuator: Bus voltage failure	
Reaction on bus voltage failure; connect terminal 9 or 10 to terminal 11	Move into end position (terminal 10 + 11) **No function (terminal 9 + 11)**
Sensor: General	
Number of steps before moving	**1**...10
Time between step and move operation, base	**8 ms;** 130 ms; 2,1 s
Time between step and move operation, factor	2... **46...**255

Description of parameters

Shutter 800C01

The product is configured to include the shutter actuator application when it is delivered. The parameters set at the factory are effective according to the parameter window (bold); accordingly, if the **wiring is accurate (bridge 9 – 11), there is bus voltage failure and the circuit switches on at 230V, the controller will take the motors to the highest limit position.**
After switching on the bus voltage, the directly connected operating equipment will shut down. The use of the connected extension inputs is possible immediately irrespective of what state the commissioning is at! This property is especially advantageous in objects where commissioning has not yet been completed.

Operating characteristics following initial installation

Actuator-Function

The overall function of the shutter controls differentiates between a short-term command (Step) and a continuous command (Move).
The step operation with corresponding group address will control the brief switching of the contact in the target object in the actuator.
Step operation is used to adjust blinds or fine-tune shutters used in sunshade equipment.
The setting ***Time = 0s*** deactivates the step operation; in the setting ***time = variable,*** parameters are used to define the time basis / time factor or the contact.

Step and move operation

Time base / Time factor

If the rotational directional in the drives is reversed, then the suspension components can be exposed to forces as well as a mechanical strain.
The effect of the developed force is reduced by a positive pause (switchover time).

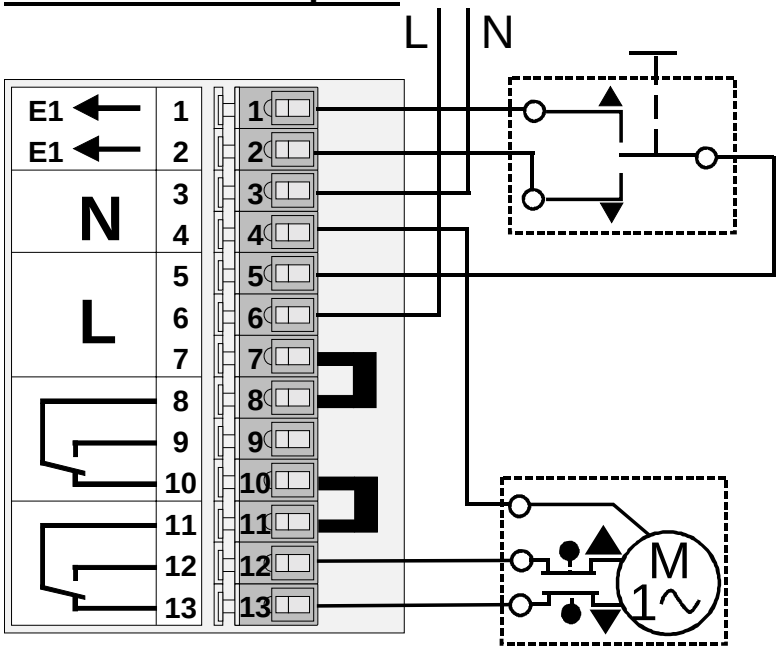
Change in direction

To protect the shutters or sunshade equipment against mechanical damages as a result of the affects of storms, it is possible to block the manual controls on the actuators and to move these into predefined limit positions. The value of object 2 ***Activating and deactivating locks*** can be set and can therefore be adapted to the existing contact situation for the sensors (e.g. wind meter with break contact element). In order to avoid unnecessary bus overloading, the ***Cyclic monitoring*** operation has not been taken into consideration. Receiving locking information containing the message **Unlock** during operation will cause the motors to stop.

Locking

Cycle messages!

Parameter description



Shutter 800C01

Actuator function

This setting allows the connectors to be configured.

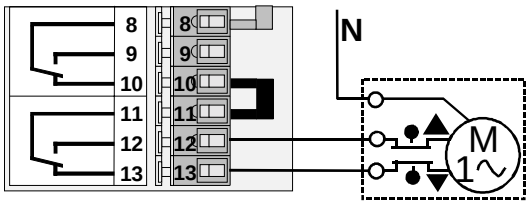
Motor connection

This setting defines the function of the output during a bus voltage failure: the drive traverses into one of the end positions for the duration of the failure and is deactivated by an end position switch.
The actuator contacts are released when the bus voltage is reactivated.
The selection option only functions in connection with the hardware setting shown above (bridge between the terminals)!

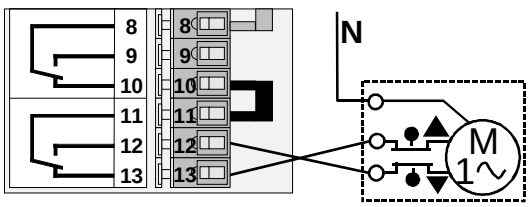
Bus voltage failure: traverses into final position

The end position that is assumed is determined by the ***Motor connection*** parameter setting as well as the terminal configuration for the motor connections:

Choice of end position

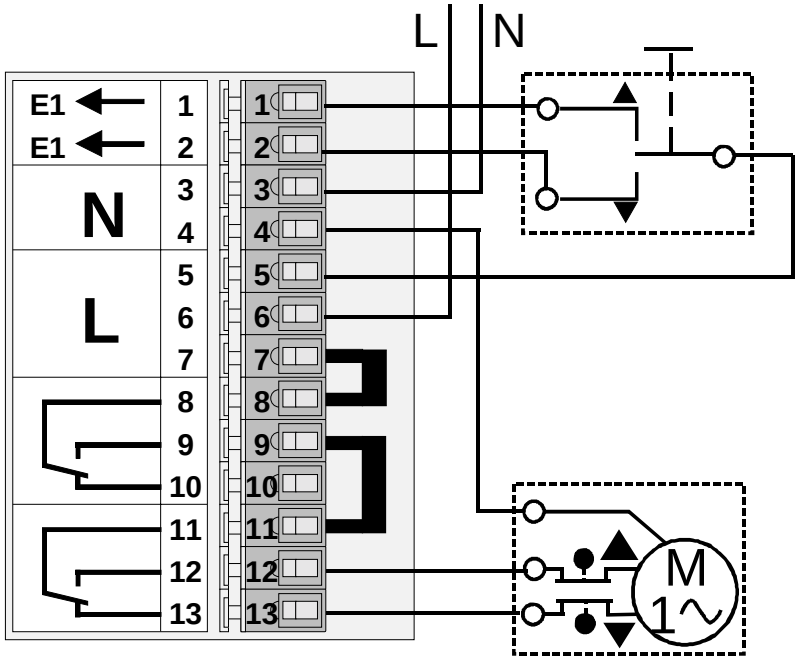


LOWER End position
Motor connection parameter:
Terminal 12 UP, Terminal 13 DOWN
Motor connection contacts (illustrated):
Terminal 12 UP
Terminal 13 DOWN



UPPER End position
Motor connection parameter:
Term. 12 DOWN, Term. 12 UP
Motor connection contacts (illustrated):
Terminal 12 DOWN
Terminal 13 UP

Match parameter setting with configuration of terminals!



Bridge between contacts 9 and 11:
No function in case of a bus voltage failure!

All motors running at the time of the failure will be switched off.
Once the bus voltage is restored, a control command will be necessary to restart the motors.

The selected option only function in connection with the hardware setting illustrated above (bridge between the terminals)!

All Berker shutter switches with mechanical or electric locks and neutral centre settings are suitable to be connected to the extension inputs.

The disconnection of the operating equipment from the mains voltage occurs only when the end position in the circuit opens when it is reached.

Shutter 800C01

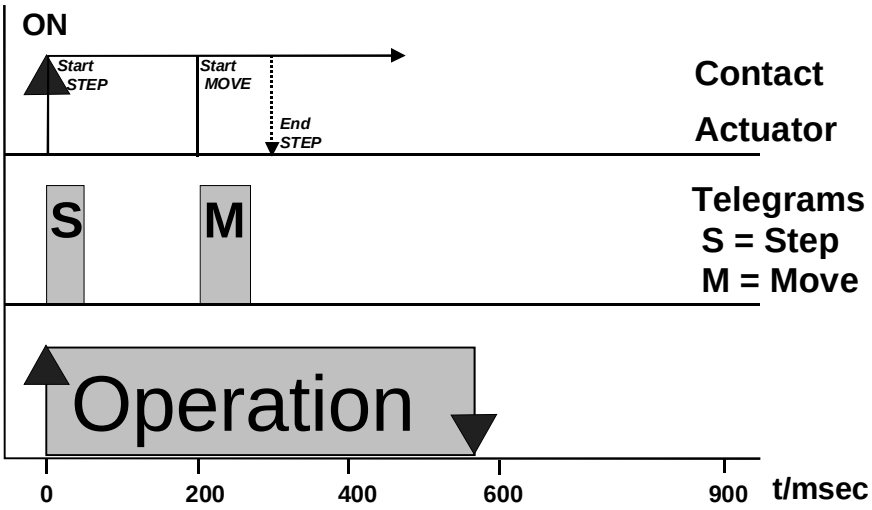
Actuator function

Bus voltage failure: No function

Match parameter setting with configuration of terminals!

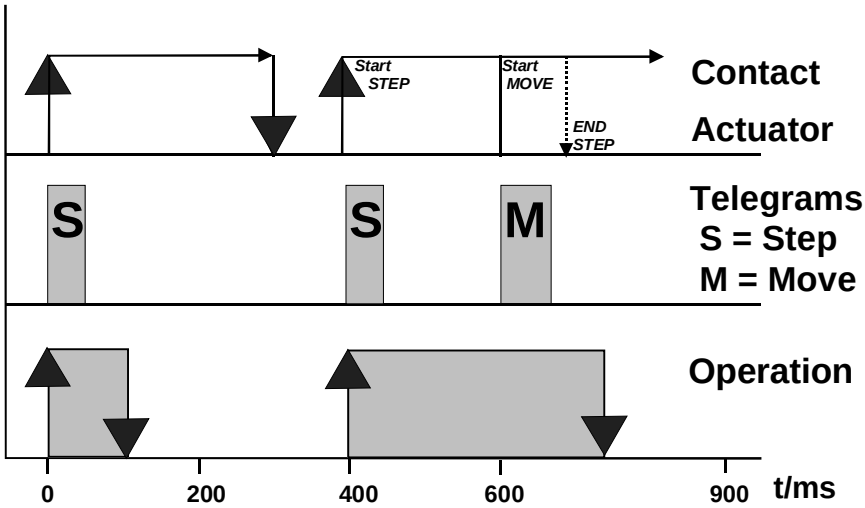
Extension unit

End position switch



Functional sequence of the **shutter controller** with parameter settings:
Number of stepped commands: 1
Time between two commands: 200 ms
Step operation actuator: 300 ms

The overall function of the shutter controls differs from a step command (Step = Touch operation) and continuous command (Move = lock operation). Both 1 bit switching telegrams are triggered separately depending on the activation time (time between step and move or time between touch and lock operating).



Shutter 800C01

Sensor function

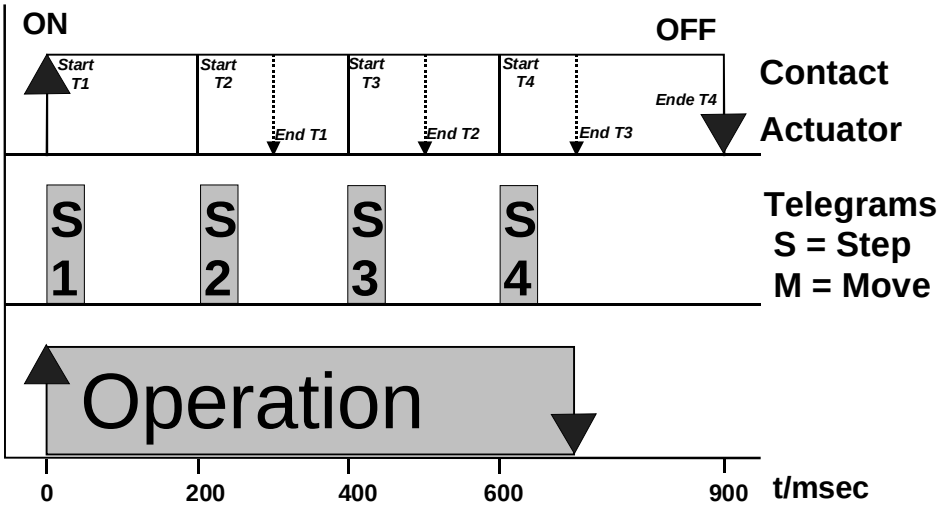
Diagram:

Brief activation in touch mode

Long activation in lock mode

Description of parameters

Shutter 800C01



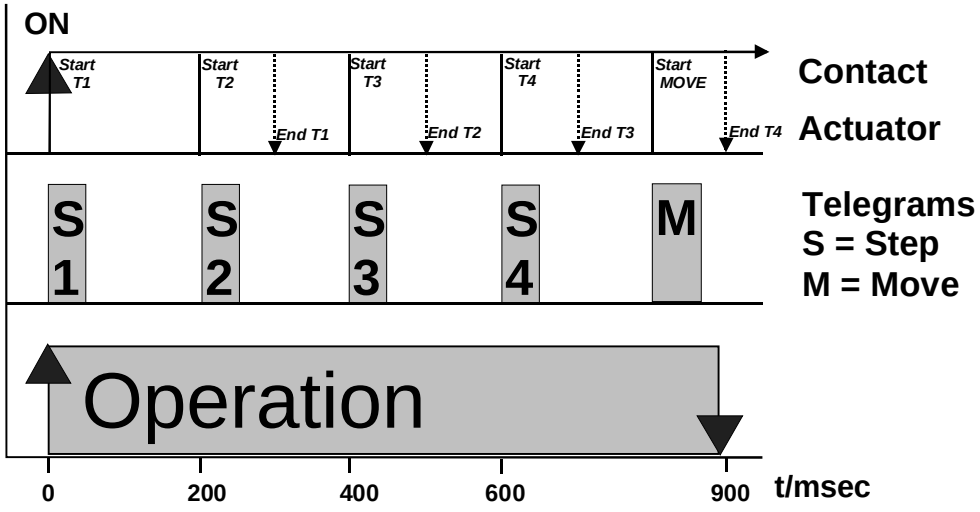
Functional sequence of the **shutter controller** with parameter settings:
Number of steps before moving: 4
Time between two commands: 200 ms
Step operation actuator: 300 ms

Several step commands can be triggered one after the other to extend the overall length of the step operation depending on the activation duration (application: e.g. sunshade devices).
The beginning of every activation will always trigger a stepped command first, which in turn starts the step operation of the actuators. A further step command resets this timing function so that the whole actuator step function only works for the respective last step command. This process should be taken into consideration when defining a step operation.

Number of steps before moving

Time between step and move operation

Time between two telegrams



If the activation stops after transmitting all the stepped commands, then a continuous command (Move) will be transmitted to the bus controlling the actuator in lock mode according to the time in the parameters (factor x basis).

Description of parameters

Shutter 800C01

To achieve a non-jerking transition from step to move operation, it is necessary to set the time limits in the sensors to slightly **lower** than the brief-term controls for the (step) actuators!

Jar-free operation

Move operation is interrupted by activating **any key**. **The prerequisite for this is that the step operation object has been assigned.**

Stopping move operation

Combined light switch and shutter controls

In comparison to light switches, the sending of a telegram with a value of 1 as a descending movement has been defined. Actuators in the lighting controls can basically be connected to the shutter controls (1 bit objects). Effect: e.g.: **Light off, shutters raised**. When both step and move commands are used to control switching actuators, then depending on the time parameters between two commands, this results in a cascading switch.

Telegram rate limitation

The inputs are deactivated for a period of 17 sec following initialisation (restarting the voltage supply, programming). Controlling any operational equipment connected to the actuator for this time span is possible, however no telegrams will be transmitted to the bus.

In order to protect the end position switch and the motors from being destroyed, cut-off relays (multiple control relays) must be used between the actuator output and the motors. These disconnect any occurring return voltages from the condenser motors (tube motors), in case the two end position switches do not open at the same time.
Rademmacher products are used in the flush box; Design Standard and Cliptec covers can be used with the flush boxes (Please enquire about this!).
Siral products are embedded in a flush box and are covered with normal outlet cover-plates.

Parallel switching of several motors

Description of application

The application allows the receiving of telegrams and the evaluation of the extension inputs for switching two independent load outputs. Timer functions can be set individually for each channel. A status send function for both channels can be activated in this regard.
The type of contact in the two switch outputs can be defined separately in the parameters in connection with the terminal configuration.
Two extension inputs enable the addressing of connected operating equipment as well as the ending of telegrams to the system. Increasing and falling edges can be assessed separately.

Number of assignments: max. 7
Number of group addresses: max. 5

Number of objects: 2 switching objects (1 Bit, send, receive)

Shutter 1gang/ switch actuator 2gang with extension unit

Switching TF 800D01

Assignments, group addresses and objects

Parameter window

Actuator: General	
Transmission of a status telegram? (only in case of timer function)	**NO**, YES
Actuator: Output N	
Time function	**None,** On delay time, Off delay time, On and Off delay time
ON delay time, base	**130 ms**..520 ms, 1s....18 min., 36 min.,1.2 h
ON delay time, factor	**0**...127
OFF delay time, base	**130 ms**..520 ms, 1s....18 min., 36 min., 1.2 h
OFF delay time, factor	**0**...127
Position of relay at object value = 1	**Channel 1:** **Connection between terminal 8-9** Connection between terminal 8-10 Channel 2: **Connection between terminal 11-12** Connection between terminal 11-13
Extension unit: Channel N	
Evaluation of the edge	rising = ON, falling = ON rising = ON, falling = OFF rising = ON, falling = --- rising = OFF, falling = ON rising = OFF, falling = OFF rising = OFF, falling = --- rising = TOGGLE, falling = TOGGLE rising = TOGGLE, falling = --- rising = ---, falling = ON rising = ---, falling = OFF rising = ---, falling = TOGGLE rising = ---, falling = ---
Complete parameter list Below user level	high

Description of parameters

Switching TF 800D01

Actuator function

Transmission of a status telegram ? (only for timer function)

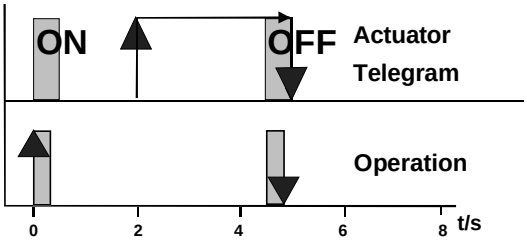
A requirement for this function is the use of the actuator as a timer switch.
A defined OFF telegram is transmitted after **expiry** of the relevant time (OFF delay parameter). In general, the first group address assigned to the object is valid (sending). The function allows the lighting condition for the group to be displayed on such presentation components such as LEDs, displays, indicator boards and controlled using sensors for the TOGGLE function. These sensors are informed about switching off (value 0) and can transmit the value 1 at the next change in status.

Time function

Actuators control the operational equipment. As a result, even the timing functions that affect the operational equipment are all controlled by the actuator applications.

ON delay time, factor / base

Once an ON telegram is received, the time function commences, and the corresponding output is switched on after completion of the preset delay time.

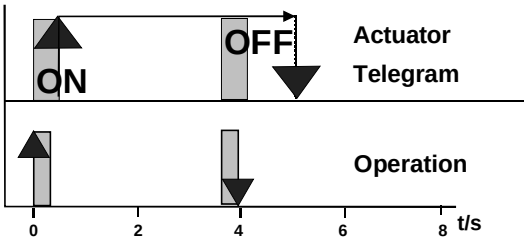


Example:
ON delay
Time basis: 130 ms
Time factor: 15

Delay time approx. 2 seconds

OFF delay time, factor / base

The timing function starts once the Off telegram is received. The corresponding channel switches off once the preset delay time has expired.

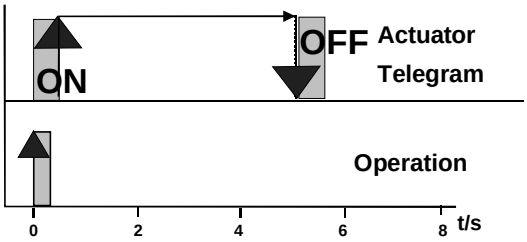


Example:
OFF delay
Time basis: 130 ms
Time factor: 8

Delay time approx. 1 second

Timer function

If the function is activated by “YES“, then the corresponding output will be switched on after receipt of the ON telegram and it will shut off based on the delayed off time without any the need of another telegram (function principle for staircase switches).



Example:
Timer function
Time basis: 130 ms
Time factor: 38
Switches off approx. 5 seconds while simultaneously transmitting a status telegram (S)

Description of parameters

General information

A combined ON delay and timer switch is possible.
The integration of other bus participants without timer functions is possible through the option ***Transmit status*** after a preset time has expired. These are collected together in the appropriate function group (transmitting group address for the switching object) and therefore receive the status telegram with the value of 0.

Timer switch with ON delay time

An interruption in the ongoing timer function due to an OFF telegram for any address is possible.
Sending the status only takes place for internal object value changes (after time expires).

Interrupting timer functions

The repeated receipt of a telegram while the timer function is in use resets the internal time controls to the original status. The entire time period becomes active again.

Re-triggering the timer function

Description of parameters

Various switching concepts are possible as a result of various options in the *Make contact (changeover) and object value* group of functions by connecting the operating equipment to the terminals.
The relationship between the functions is analysed in these four examples:

Actuator function

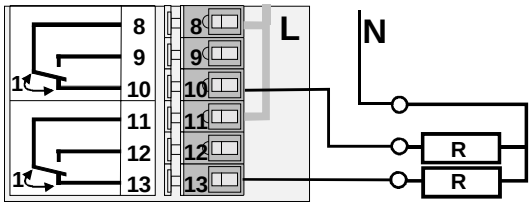
Relay status when Object value =1

Example 1:

Relationship between terminal 8-10 and terminal 11-13

Operational equipment on terminal 10 and 13

During normal operation, the break 10 or 13 (break contact) is used to make contact when the object is described as having a value of 1.
In the event of a bus voltage failure, the object value assumes a state that is not defined. The break in the relay becomes active and the operational equipment at terminal 10 or 13 is switched on.
After restoring the bus voltage, the object assumes the value of 9 and lighting switches itself off.



Configuration:
Connection value 1: Terminals 8-10, 11-13
Connected load: Terminals 10, 13
Load response:
Bus voltage failure: Load ON
Restored bus voltage: Load OFF
Controller response:
normal (1 = ON, 0 = OFF)

Switching TF 800D01

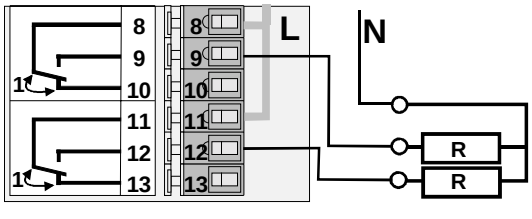
Description of parameters

During normal operation, the break 10 or 13 (break contact) is used to make contact when the object is described as having a value of 1.
In the event of a bus voltage failure, the object value assumes a state that is not defined. The break in the relay becomes active and the operational equipment at terminal 9 or 12 is switched off or remains off.
After restoring the bus voltage, the object assumes the value of 0 and the consumer units are switched on.

Example 2

Relationship between terminal 8-10 and terminal 11-13

Operational equipment on terminal 9 and 12

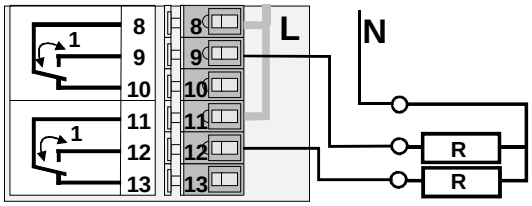


Configuration:
Connection value 1: Terminals 8-10, 11-13
Connected load: terminals 9, 12
Load response:
Bus voltage failure: Load OFF
Restored bus voltage: Load ON
Controller response:
inverted (1 = OFF, 0 = ON)

Example 3

Relationship between terminal 8-9 and terminal 11-12
Operational equipment connected to terminals 9 and 12

In normal operation, the contact 9 or 12 (make contact) closes when the object is described to have a value of 1.
In the case of a bus voltage failure, the object value assumes an undefined status. The effect of the relay breaker contact (19 or 13) becomes active and the operational equipment connected to terminal 9 or 12 is switched off or stays switched off. After restoring the bus voltage, the object assumes the value of 0 and the consumer units remain switched off.

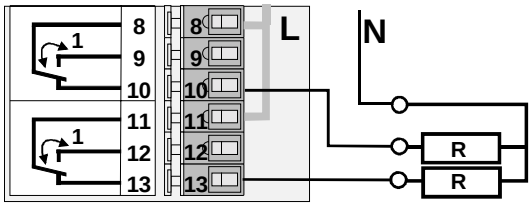


Configuration:
Connection value 1: terminals 8-10, 11-13
Connected load: terminals 9, 12
Load response:
Bus voltage failure: Load OFF
Restored bus voltage: Load ON
Controller response:
normal (1 = ON, 0 = OFF)

Example 4
Relationship between terminals 8-9 and terminals 11-12

Operational equipment connected to terminals 10 a. 13

In normal operation, the contact 9 or 12 (make contact) closes when the object is described to have a value of 1.
In the case of a bus voltage failure, the object value assumes an undefined status. The effect of the relay breaker contact (19 or 13) becomes active and the operational equipment connected to terminal 9 or 12 is switched off or stays switched off. After restoring the bus voltage, the object assumes the value of 0 and the consumer units remain switched on.



Configuration:
Connection value 1: terminals 8-9, 11-12
Connected load: terminals 10, 13
Load response:
Bus voltage failure: Load ON
Restored bus voltage: Load ON
Controller response:
inverted (1 = OFF, 0 = ON)

Description of parameters

Sensor function

General information

Transmitting telegrams

Switching devices connected to two extension inputs (switches or push-buttons, make contact or break contact elements) are used to directly control the operational equipment **as well as for the transmitting of switching telegrams.**
The target addresses are the group addresses of the transmitting objects 0/1. The de-bouncing time to protect the system is set at 60 ms. The telegram rate restriction lets a maximum of 124 telegrams be transmitted in 17 seconds.
The sending of telegrams is blocked for a period of 17 seconds following re-initialising as a result of the restoration of the bus voltage or programming. However, direct control of the connected operational equipment is possible.

Initialisation properties

Extension Channel N

230 V switching devices (please observe the specified technical data) can be used to operate extension inputs.
The parameters for every input must be adapted individually, depending on the function and the type of switching device used.
(See appendix for information on controlling edge steepness)

Evaluation of the edge (rising and falling edge)