



Power Supply Systems

KNX PS640+ and KNX PS640+USB

with bus functions

Item Numbers 70141, 70144



Installation and Adjustment



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KNX PS640+ und KNX PS640+USB from software version 1.01, ETS programme version 1.1
Version: 23.02.2016. Errors excepted. Subject to technical changes.

Product description

The Power Supply Systems KNX PS640+ and KNX PS640+USB deliver a 29 V bus voltage for the KNX system and 24 V DC supply voltage for 24 V devices. Special operating conditions such as short circuit, electrical surge, overcharge or excess temperature are recorded and may be read off on the display. The present power discharge is displayed as well. It is possible to reset the connected bus devices directly by means of the key pad.

In addition all functions can be realised via the bus, too, e. g. the transfer of malfunction messages and operating data and a time/period reset. Malfunction messages are stored by the KNX PS640+(USB).

Functions:

- Delivers a **29 V KNX bus voltage** (reduced), output current max. 640 mA, short-circuit proof
- Delivers **24 V DC** (not reduced), output current max. 150 mA
- **Reset** of a line directly on the device
- Record of operating hours, overload, external overvoltage, internal overvoltage, short circuit and excess temperature
- Display of operating data bus voltage, bus current and temperature of the device
- The display may be shown in German, English, Spanish or Dutch
- **Bus connection** for data transfer (e. g. malfunction messages, operating data)
- Possibility for reset and diagnostics via the bus
- Only KNX PS640+USB: USB interface for bus access via PC

The **programme file** for KNX software ETS (format VD2) is ready for download on the Elsner Elektronik website at **www.elsner-elektronik.de** in the "Service" menu.

Technical data

Housing	Plastic material
Colour	White
Mounting	Snap-on fitting on mounting rails
Protection category	IP 20
Dimensions	approx. 123 x 89 x 61 (W x H x D, mm), 7 width units
Weight	approx. 370 g
Ambient temperature	Operation -5...+45 °C, storage -25...+70°C
Ambient air humidity	max. 95% RH, avoid bedewing
Operating voltage	230 V AC , 50 Hz
Power consumption Standby	approx. 2.3 W
Outputs	<ul style="list-style-type: none">• KNX bus voltage 29 V (reduced), Output current max. 640 mA, short-circuit proof• 24 V DC (not reduced), Output current max. 150 mA• KNX data
Data output	KNX +/- bus terminal plug

BCU type	Own micro controller
PEI type	0
Group addresses	max. 200
Allocations	max. 200
Communication objects	27

The product conforms with the provisions of EU guidelines.

Installation and Commissioning

Installation notes

Installation, testing, operational start-up and troubleshooting should only be performed by an electrician.

DANGER! Risk to life from live voltage (mains voltage)!

There are unprotected live components inside the device.

- VDE and national regulations are to be followed.
- Ensure that all lines to be assembled are free of voltage and take precautions against accidental switching on.
- Do not use the device if it is damaged.
- Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.



The device is only to be used for its intended purpose. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for possible mechanical damage. If it has been damaged in transport, inform the supplier immediately.

The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

Installation

Observe the correct installation. Incorrect installation may destroy the power supply system or connected electronic devices.

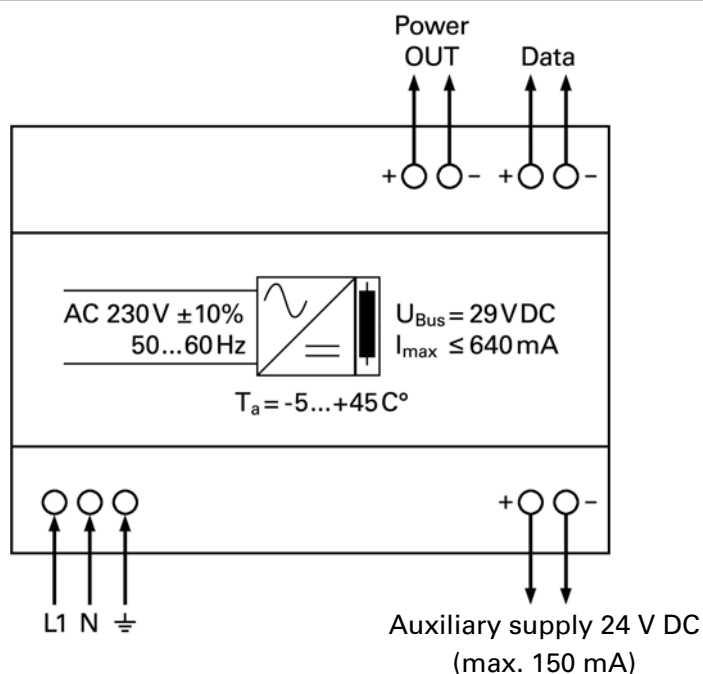
After the auxiliary voltage is applied the device will enter an initialisation phase lasting 5 seconds. During this phase no information can be received via the bus.

Housing

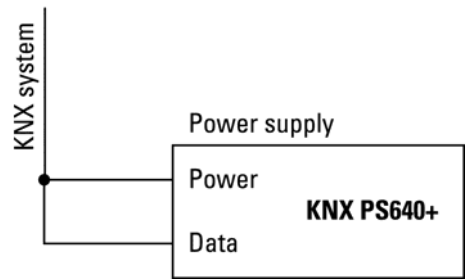


- 1 Bus voltage power OUT (KNX terminal + / -)
 - 2 Programming LED and programming pushbutton
 - 3 Bus data (KNX terminal + / -), connection for line or main line or sector
 - 4 Input operating voltage 230 V AC, L / N / PE
 - 5 USB interface (only KNX PS640+USB)
 - 6 Output direct current voltage 24 V DC, + / -
- Connections 4 and 6 are suitable for solid conductors up to 1.5 mm² or conductors with fine wires.

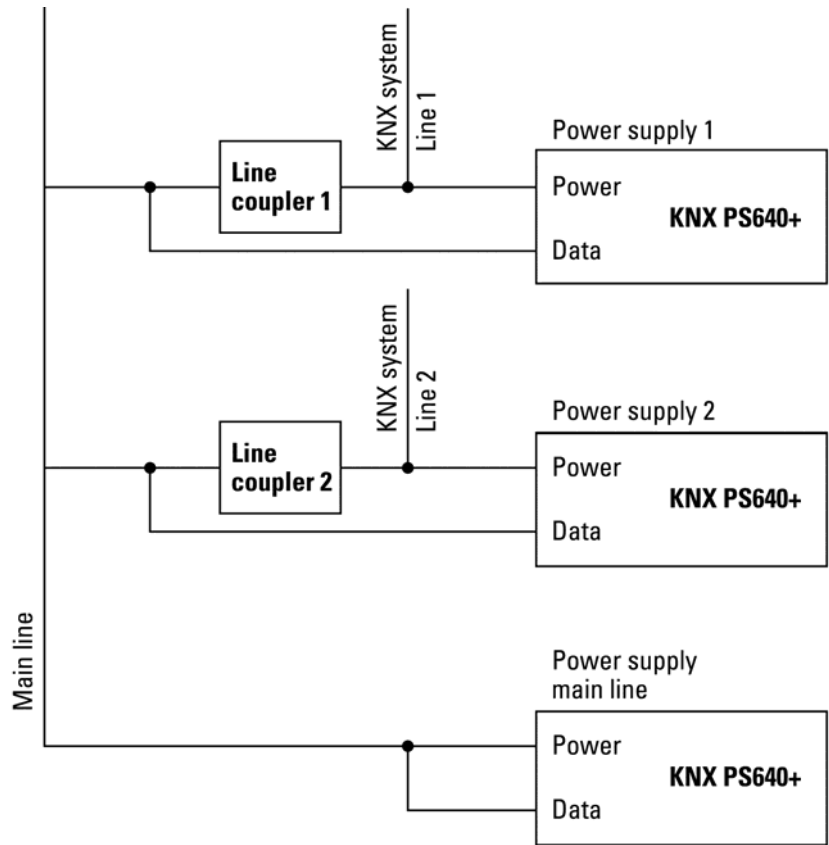
Scheme



Connection example for a KNX system without line coupler

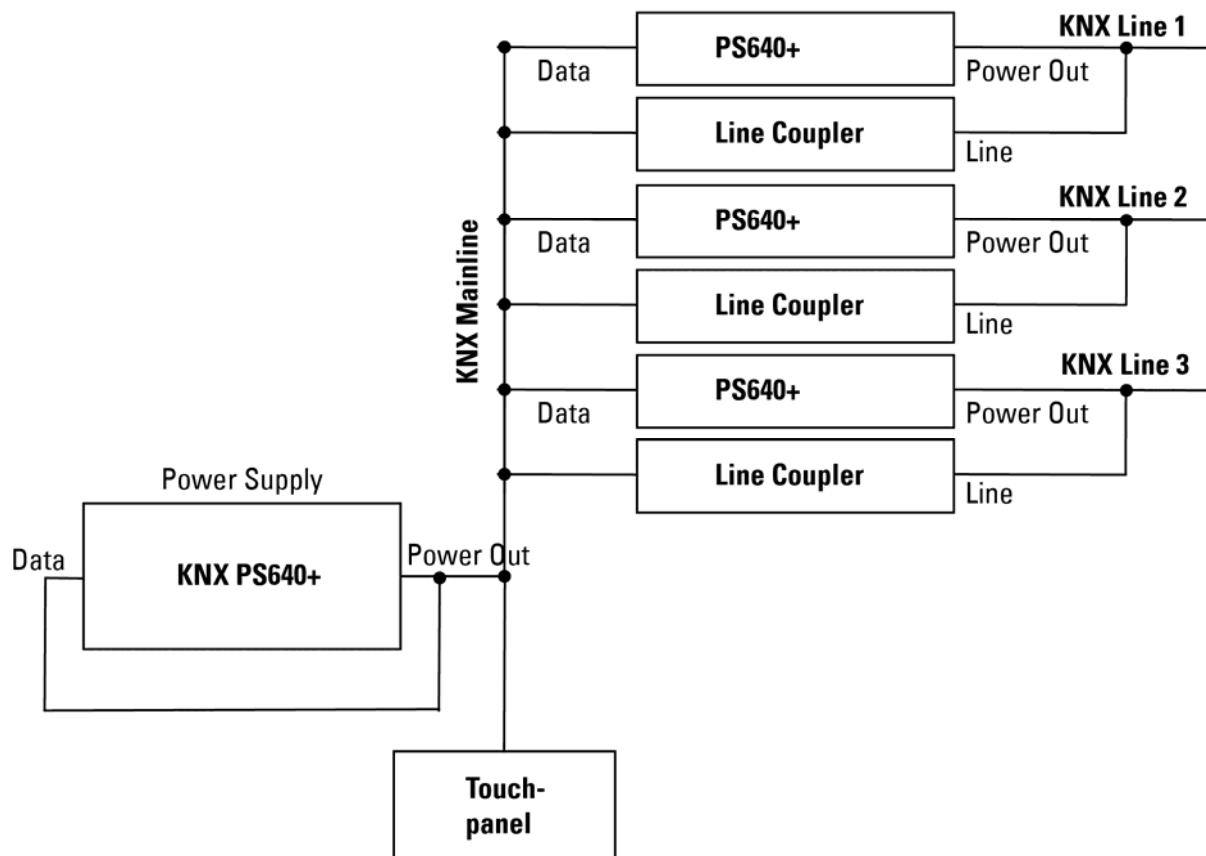


Connection example for a KNX system with line coupler



Power Supply

Housing example with central operating unit



Settings of the device

Starting position

```
elsner elektronik
KNX Power Supply
Normal Operation
Diagnostics >
```

The following may be read off and set on the display of the Power Supply System KNX PS640+:

- Reset of a line
- Recall of the data memory with operating hours, overcharge, external electrical surge, internal electrical surge, short circuit and excess temperature
- Recall of the operating data bus voltage, bus current and temperature
- Language of display

The display is dimmed after 60 seconds if during this period no key is pressed.

Line reset

```
elsner elektronik
KNX Power Supply
Normal Operation
Diagnostics >
```

In starting position, press key ▷ once.

```

Line Reset      > █
Data Memory >
Operating Data  >
Language

```

Press key ▸ once more in order to get into the sector "Line reset".

```

Reset: Yes      █
      No
      30 seconds
Reset not active!

```

Move the cursor (flashing rectangle at right edge) to the desired setting with the keys ▾ or ▴ and confirm with key **ok**.

- Yes:** Reset is activated. The line is switched to neutral and shorted. The basic setting displays: "Reset is active!"
- No:** Reset not activated. The power supply system works in normal operation.
- 30 seconds:** A reset of 30 seconds is started. Afterwards, the line is supplied with voltage as usual. During the reset state, which lasts 30 seconds, the basic setting displays: "Reset active: XX sec" (countdown).

With key ◀, you return to the previous menu level.

Data memory

```

elsner elektronik
KNX Power Supply
Normal Operation
Diagnostics >

```

In starting position, press key ▸ once.

```

Line Reset      >
Data Memory     > █
Operating Data  >
Language        >

```

Move the cursor (flashing rectangle at right edge) to the "Data memory" menu with the keys ▾ and ▴ and confirm with key ▸.

```

Hours ofOperation> █
Overload         >
Ext. Overvoltage >
Int. Overvoltage >

```

```

Short circuit    >
Excess Temperat. >

```

Move the cursor to the desired menu with the up and down keys and press key ▸.

Operating Hours

```

Run time: 0 years
          0 day 0 hrs.

< = Back

```

The operating hours of the power supply system are displayed in years, days and hours.

With key ◀ you return to the previous menu level.

Overload

```
Overload detected
  0 times. Duration:
  0 day. 0 hrs. 0 min
< = Back
```

The number of overload incidents and the total time in days, hours and minutes are displayed.

With key ◀ you return to the previous menu level.

External Overvoltage

```
External Overvoltage
was detected
  0 times.
< = Back
```

The number of external overvoltage incidents is displayed.

With key ◀ you return to the previous menu level.

Internal Overvoltage

```
Internal Overvoltage
was detected
  0 times.
< = Back
```

The number of internal overvoltage incidents is displayed.

With key ◀ you return to the previous menu level.

Short Circuit

```
A short at the bus
was detected
  0 times.
< = Back
```

The number of short circuit incidents at the bus is displayed.

With key ◀ you return to the previous menu level.

Excess Temperature

```
Excess Temperature
on the board
was detected
  0 times!
```

The number of excess temperature incidents on the circuit board of the device is displayed.

With key ◀ you return to the previous menu level.

Operating data

```
elsner elektronik
KNX Power Supply
Normal Operation
Diagnostics >
```

In starting position, press key ▶ once.

```
Line Reset      >
Data Memory     >
Operating Data  > ■
Language        >
```

Move the cursor (flashing rectangle at right edge) to the "Operating Data" menu with the keys ▾ and ▴ and confirm with key ▶.

```
Bus Voltage      29.4 V
Bus Current      320 mA
Temperature      42.1°C
```

The current values of

- Bus voltage
- Bus current
- Temperature on the circuit board of the device
- are displayed.

With key ◀ you return to the previous menu level.

Language

```
elsner elektronik
KNX Power Supply
Normal Operation
Diagnostics >
```

In starting position, press key ▶ once.

```
Line Reset      >
Data Memory     >
Operating Data  >
Language        > █
```

Move the cursor (flashing rectangle at right edge) to the "Language" menu with the keys ▽ and △ and confirm with the key ▶.

```
Sprache  : Deutsch █
Language : English
Idioma   : Espanol
Taal     : Hollands
```

Move the cursor to the desired language with the up and down keys and press the key ok. The display automatically jumps to the previous menu in the desired language.

With key ◀ you get back by one menu level to the basic setting.

Transmission protocol

Abbreviations

Flags:

C	Communication
R	Read
W	Write
T	Transmit
U	Update

Listing of all communication objects

No.	Name	Function	EIS type	Flags
0	Bus voltage [V]	Output	14.030	C R T
1	Bus current [mA]	Output	9.021	C R T
2	Permanent reset (1 = active 0 = inactive)	Input	1.003	C R W
3	Time reset (1 = 30 seconds active 0 = inactive)	Input	1.003	C R W
4	Reset status of the line (1 = active 0 = inactive)	Output	1.002	C R T

5	Overload (0 = normal 1 = overload)	Output	1.002	C R T
6	external overvoltage (0 = normal 1 = overvoltage)	Output	1.002	C R T
7	internal overvoltage (0 = normal 1 = overvoltage)	Output	1.002	C R T
8	Short circuit (0 = normal 1 = short circuit)	Output	1.002	C R T
9	Overtemperature (0 = normal 1 = overtemperature)	Output	1.002	C R T
10	System defect (0 = normal 1 = defect)	Output	1.002	C R T
11	1 bit malfunction collection (operation = 0 fault = 1)	Output	1.002	C R T
12	8 bit status collection	Output	5.010	C R T
13	Date	Input	11.001	C R W
14	Time	Input	10.001	C R W
15	Recall error information (1 = No.+1 0 = No.-1)	Input	1.008	C R W
16	Message part 1	Output	16.000	C R T
17	Message part 2	Output	16.000	C R T
18	Message part 3	Output	16.000	C R T
19	Message part 4	Output	16.000	C R T
20	Threshold value: 16 bit value [mA]	Input / Output	9.021	C R W T U
21	Threshold value: 1 = Increment 0 = Decrement	Input	1.008	C R W
22	Threshold value: Increment	Input	1.017	C R W
23	Threshold value: Decrement	Input	1.017	C R W
24	Threshold value: Switching output	Output	1.002	C R T
25	Threshold value: Switching output block	Input	1.003	C R W
26	Software version	readable	217.001	C R

Setting of parameters (Software ETS)

General settings

General settings

General settings
Messages
Current threshold value

Measured values:
.....

Transmission behaviour object "bus voltage" send cyclically

Sending cycle 5 sec

Transmission behaviour object "bus current" send cyclically

Sending cycle 5 sec

Reset of the line:
.....

What shall be used for the reset?

display and keyboard Yes

object "permanent reset" No
1 = reset | 0 = no reset

OK Cancel Default Info Help

Measured values:

.....

Transmission behaviour object "bus voltage"	<ul style="list-style-type: none">• do not send• send cyclically• send in case of change• send in case of change and cyclically
Sending cycle (only if sending "cyclically")	5 sec • 10 sec • 30 sec • 1 min • ... • 2 h
Change in % (only if sending "in case of change")	1 ... 50

Transmission behaviour object "bus current"	<ul style="list-style-type: none">• do not send• send cyclically• send in case of change• send in case of change and cyclically
Sending cycle (only if sending "cyclically")	5 sec • 10 sec • 30 sec • 1 min • ... • 2 h
Change in % (only if sending "in case of change")	1 ... 100

Reset of the linie:

.....

What shall be used for the reset?	
display and keyboard	Yes
object "permanent reset" 1 = reset 0 = no reset	No • Yes
object "time reset" 1 = 30 seconds reset 0 = no reset	No • Yes
Use object "reset status of the line"	No • Yes

Other:

.....

Maximum telegram quota	1 • 2 • 3 • 5 • 10 • 20 Telegrams per second
General sending delay after power up and programming	5 sec • 10 sec • 30 sec • 1 min • ... • 2 h

Messages

General settings
Messages
Current threshold value

Messages

1 bit malfunction objects

Object "overload" do not send

Object "external overvoltage" do not send

Object "internal overvoltage" do not send

Object "short circuit" do not send

Object "overtemperature" do not send

Object "system defect" do not send

OK Cancel Default Info Help

1 bit malfunction objects:

.....

Object "overload"	<ul style="list-style-type: none">• do not send• send in case of change• send in case of change to 1• send in case of change to 0• send in case of change and cyclically• send in case of change to 1 and cyclically• send in case of change to 0 and cyclically
-------------------	--

Sending cycle (only if sending "cyclically")	5 sec • 10 sec • 30 sec • 1 min • ... • 2 h
Object "external overvoltage"	[The setting options are similar to object "overload"]
Object "internal overvoltage"	[The setting options are similar to object "overload"]
Object "short circuit"	[The setting options are similar to object "overload"]
Object "overtemperature"	[The setting options are similar to object "overload"]
Object "system defect"	[The setting options are similar to object "overload"]

1 bit malfunction collection:

.....

Object "1 bit malfunction collection"	<ul style="list-style-type: none"> • do not send • send in case of change • send in case of change to 1 • send in case of change to 0 • send in case of change and cyclically • send in case of change to 1 and cyclically • send in case of change to 0 and cyclically
This object results in a disjunction of the 1 bit malfunction objects	
Sending cycle (only if sending "cyclically")	5 sec • 10 sec • 30 sec • 1 min • ... • 2 h

8 bit status collection:

.....

Object "8 bit status collection"	<ul style="list-style-type: none"> • do not send • send in case of change • send in case of change and cyclically
Sending cycle (only if sending "cyclically")	5 sec • 10 sec • 30 sec • 1 min • ... • 2 h
Bit 0 = reset status of the line Bit 1 = overload	= value 1 = value 2
Bit 2 = external overvoltage Bit 3 = internal overvoltage	= value 4 = value 8
Bit 4 = short circuit Bit 5 = overtemperature	= value 16 = value 32
Bit 6 = current threshold value exceeded Bit 7 = system defect	= value 64 = value 128

A combination of error messages is possible. If e.g. value 34 is transferred, then Bit 1 = Overload and Bit 5 = Overtemperature are set.

The value set in the menu "current threshold value" (see next chapter) is used as **current threshold value**. The additional settings for hysteresis etc. are *not* taken into account for the status collection. Bit 6 "current threshold status exceeded" is set, if the

threshold value has been exceeded for 1 minute. The bit is immediately deleted again, if the threshold value is underrun.

Error log:

.....

Use error log	No • Yes
If the error log is used:	
Object "message part 1" sends signal: Error no. (1 = latest error)	
Object "message part 2" sends signal: Error type	
Object "message part 3" sends signal: Date of error start	
Object "message part 4" sends signal: Time of error start	

Current threshold value

Use threshold value	No • Yes
---------------------	----------

If the threshold value is used:

General settings

Messages

Current threshold value

Current threshold value

Use threshold value
.....
Threshold value is set by
Threshold value in mA
Hysteresis of the threshold value in %

Switching output:
.....
Output is at
(TV = threshold value)
Switching delay from 0 to 1
Switching delay from 1 to 0
Switching output sends

Yes

Parameter

500

20

TV above = 1 | TV - hyst. below = 0

none

none

send in case of change

OK

Cancel

Default

Info

Help

Threshold value:

.....

If the threshold value is set by parameter:

Threshold value is set by	Parameter
---------------------------	-----------

Threshold value in mA	0 ... 640
Hysteresis of the threshold value in %	0 ... 50

If the threshold value is set by communication object:

Threshold value is set by	Communication object
The value communicated last shall be maintained	<ul style="list-style-type: none"> • not • after restoration of voltage • after restoration of voltage and programming (Do not use for first commissioning)
Start threshold value in mA valid until 1. communication (only if the value communicated last is "not" maintained or "after restoration of voltage")	0 ... 640
Type of threshold change	<ul style="list-style-type: none"> • Absolute value with a 16 bit com.object • Increment/decrement with one comm. object • Increment/decrement with two comm. objects
Step size in mA (only with "increment/decrement")	1 • 2 • 5 • 10 • 20 • 50 • 100
Hysteresis of the threshold value in %	0 ... 50

Switching output:

Output is at (TV = Threshold value)	<ul style="list-style-type: none"> • TV above = 1 TV – hyst. below = 0 • TV above = 0 TV – hyst. below = 1 • TV below = 1 TV + hyst. above = 0 • TV below = 0 TV + hyst. above = 1
Switching delay from 0 to 1	none • 1 s • 2 s • 5 s • 10 s v ... • 2 h
Switching delay from 1 to 0	none • 1 s • 2 s • 5 s • 10 s v ... • 2 h
Switching output sends	<ul style="list-style-type: none"> • send in case of change • send in case of change to 1 • send in case of change to 0 • send in case of change and cyclically • send in case of change to 1 and cyclically • send in case of change to 0 and cyclically
Send switching output in a cycle of (only if sending "cyclically")	5 sec • 10 sec • 30 sec • 1 min • ... • 2 h

Blocking:

Use block of the switching output	No • Yes
-----------------------------------	----------

If the block of the switching output is used:

Use block of the switching output	Yes
-----------------------------------	------------

Evaluation of the blocking object	<ul style="list-style-type: none"> • if value 1: block if value 0: release • if value 0: block if value 1: release
Value of the blocking object before 1. communication	0 • 1

Behaviour of switching output	
with blocking	<ul style="list-style-type: none"> • do not send telegram • send 0 • send 1

The behaviour with release of the switching output depends on the value of the parameter "Switching output sends ..." (see "Switching output")

<i>Value of parameter "Switching output sends":</i>	<i>Setting options "Behaviour of the switching output with release":</i>
in case of change	<ul style="list-style-type: none"> • do not send telegram • send status of the switching output
in case of change to 1	<ul style="list-style-type: none"> • do not send telegram • if switching output = 1 → send 1
in case of change to 0	<ul style="list-style-type: none"> • do not send telegram • if switching output = 0 → send 0
in case of change and cyclically	send status of the switching output (no selection)
in case of change to 1 and cyclically	if switching output = 1 → send 1 (no selection)
in case of change to 0 and cyclically	if switching output = 0 → send 0 (no selection)