



Product name:	Uninterruptible power supply (USV) 640 mA
Design:	REG (rail-mounted device)
Article-no.:	1079 00
ETS search path:	Gira Giersiepen / system components / power supply / power supply 640mA DRA uninterruptible

Scope of application:

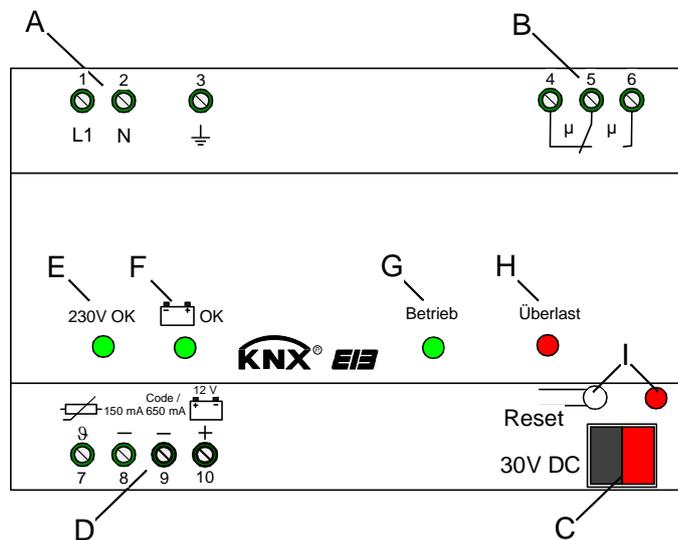
The uninterruptible KNX/EIB power supply 640 mA (USV) generates and monitors the KNX/EIB system voltage. The power supply is designed to ensure the interruption-free supply of max. 64 bus devices (1 line) directly via the integrated choke and is therefore suitable for use especially in KNX/EIB security systems. The device is connected to the system by means of the bus connecting terminal at the front of the device (no data rail required). The bus output is overload- and short-circuit-protected in acc. with the KONNEX specification and offers protection against overvoltage.

The KNX/EIB voltage can be buffered with a 12 V DC gelled lead-acid storage battery which is connected to the device by means of a pre-assembled 4-wire connecting cable. When the mains voltage is on, the storage battery is recharged via the uninterruptible power supply in a temperature-controlled mode. In case of mains voltage failure, the KNX/EIB power supply and with it all connected bus devices are supplied with power from the storage battery. To increase the buffering time during a mains failure, a second storage battery can be connected to the system with a pre-assembled 2-wire connecting cable. Storage batteries and cable sets must be ordered separately as accessories.

A potential-free change-over contact can be employed for fault signalling purposes in the event of mains failures, battery trouble, overvoltage / overloading and short-circuits.

Up to 5 different LEDs on the front of the device inform the user about the different states of operation of the power supply.

Layout:



Controls and indicators:

- A: mains connection (L, N, PE)
- B: connection for potential-free change-over contact (fault signalling contact)
- C: bus connection
- D: connecting terminals for storage battery and external temperature sensor (cf. wiring diagrams)
- E: LED "230 V OK" (green): lit up when mains voltage is OK.
- F: LED "battery OK" (green): lit up when storage battery is connected and OK.
- G: LED "Operation" (green): lit up when bus voltage is on and OK. Goes out in the event of bus voltage failure.
- H: LED "Overload" (red): Lights up in the event of overload (e.g. too many devices on the bus line) and of short-circuit.
 - ➔ Eliminate short-circuit / reduce load.
 - Flashes when overvoltage at bus connection.
 - ➔ Device switches off automatically (reset), Locate cause and rectify
- I: reset button and LED (red): LED lit up during reset state.

Dimensions:

Width: 144 mm (8 modules)
 Height: 90 mm
 Depth: 66 mm



Technical data:

Mains supply	
Voltage:	195 V to 255 V AC, 45 / 65 Hz
Power rating:	max. 50 VA
Power loss:	max. 10 W
Terminals:	screw terminals: 0.2 – 2.5 mm ² stranded wire 0.2 – 4.0 mm ² single-wire
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Bus output	
Number:	1 line (integrated choke)
Voltage:	28 V to 31 V DC SELV
Rated current:	max. 640 mA, withstanding continued short circuit
Sustained short-circuit current:	max. 1.4 A
Connection:	KNX/EIB bus connecting terminal
Max. line lengths:	350 m between power supply and 'last-in-line' bus device 700 m between any two bus devices 1000 m overall bus line
Mains buffering :	with storage battery: depending on total battery capacity: 1 x battery 12 V / 12 Ah: ca. 5.5 hours * 2 x battery 12 V / 12 Ah: ca. 11 hours * *: battery as new and full line loading. no battery connected: 200 ms
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Potential-free change-over contact	
Switched nominal voltage:	230 V AC or 12 / 24 V AC/DC
Max. switched current:	6 A AC or 4 A DC
Min. switched current:	100 mA (at U < 30 V AC/DC)
Terminals:	screw terminals: 0.2 – 2.5 mm ² stranded wire 0.2 – 4.0 mm ² single-wire
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Battery and temperature sensor connection	
Type of storage battery:	gelled lead-acid battery
Number:	max. 2 of the same type in parallel
Rated voltage:	12 V DC
Battery capacity:	preferably 12 Ah (also possible: 1 Ah, 7 Ah, 12 Ah, 17 Ah)
Rated charging current:	650 mA with total battery capacity > 5 Ah (terminals "Code / 650 mA -" and "12 V  +") 150 mA with total battery capacity < 5 Ah (terminals "150 mA -" and "12 V  +")
Temperature control:	temperature-controlled charging voltage regulation by means of external temperature sensor. sensor connection for total battery capacity > 5 Ah (terminals "150 mA -" and "  9") sensor connection for total battery capacity < 5 Ah (terminals "Code / 650 mA -" and "  9")
Terminals:	screw terminals: 0.2 – 2.5 mm ² stranded wire 0.2 – 4.0 mm ² single-wire
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Type of protection:	IP 20
Mark of approval:	KNX / EIB
Operating temperature range:	-5 °C ... +45 °C
Storage / transport temperature:	-25 °C ... +70 °C (storage above +45 °C reduces the lifetime)
Type of fastening:	snap-fastening on DIN rail 35 mm as per DIN EN 50 022 (no data rail required).



Technical data "Gelled lead-acid storage battery 12 Ah"

Rated voltage:	12 V DC
Capacity:	12 Ah
Dimensions:	94 x 151 x 98 (W x H x D [mm])
Weight:	4.2 kg
Service life:	5 years
Operating temperature range:	-20 °C ... +50 °C
Storage / transport temperature:	-20 °C ... +50 °C

Technical data "Basic cable set"

Design:	4-wire connecting cable, pre-assembled, including temperature sensor and fuse
Wire cross-section:	0.75 mm ²
Length of cable:	2 m
Wire coding	
Battery connection:	red: "+ 12 V DC battery" black: "- GND battery"
	Ferrules for connection to the uninterruptible power supply (USV). Faston receptacles and pole tabs for connection to battery. Connections to be made in acc. with the wiring diagram.
Sensor connection:	yellow: "- GND temperature sensor" white: "+ 12 V temperature sensor "
	Ferrules for connection to the uninterruptible power supply (USV). Connections to be made in acc. with the wiring diagram.
Fuse	
Design:	User replaceable fuse in in-line fuse holder with bayonet lock.
Type:	5 x 20 mm, time-delay type "T 6,3 H 250 V" Interrupting capacity 1,500 A

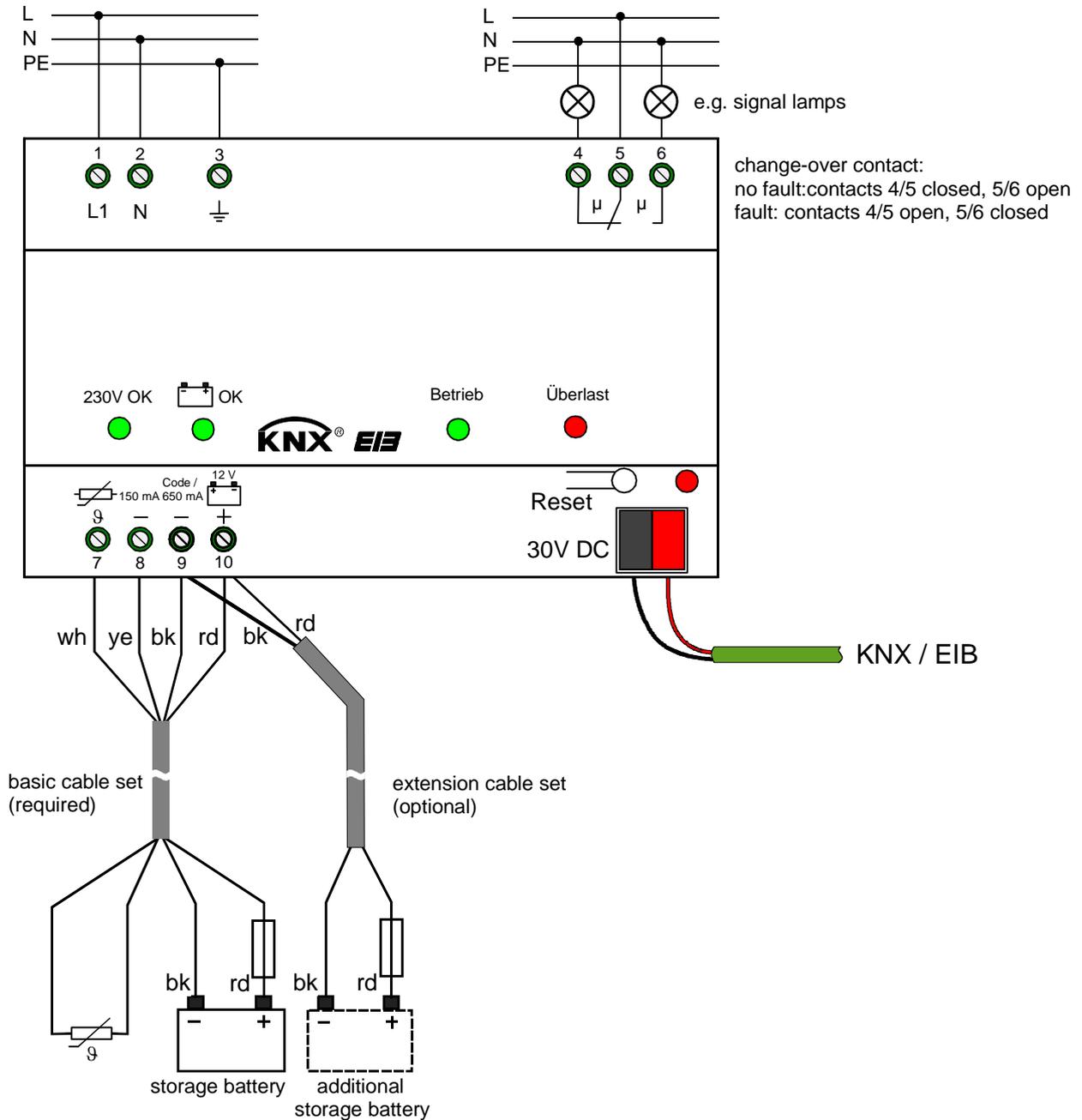
Technical data "Extension cable set"

Design:	2-wire connecting cable, pre-assembled, including fuse
Wire cross-section:	0.75 mm ²
Length of cable:	2 m
Wire coding	
Battery connection:	red: "+ 12 V DC battery" black: "- GND battery "
	Ferrules for connection to the uninterruptible power supply (USV). Faston receptacles and pole tabs for connection to battery. Connections to be made in acc. with the wiring diagram.
Fuse	
Design:	User replaceable fuse in in-line fuse holder with bayonet lock.
Type:	5 x 20 mm, time-delay type "T 6,3 H 250 V" Interrupting capacity 1.500 A



Wiring diagram and assignment of terminals:

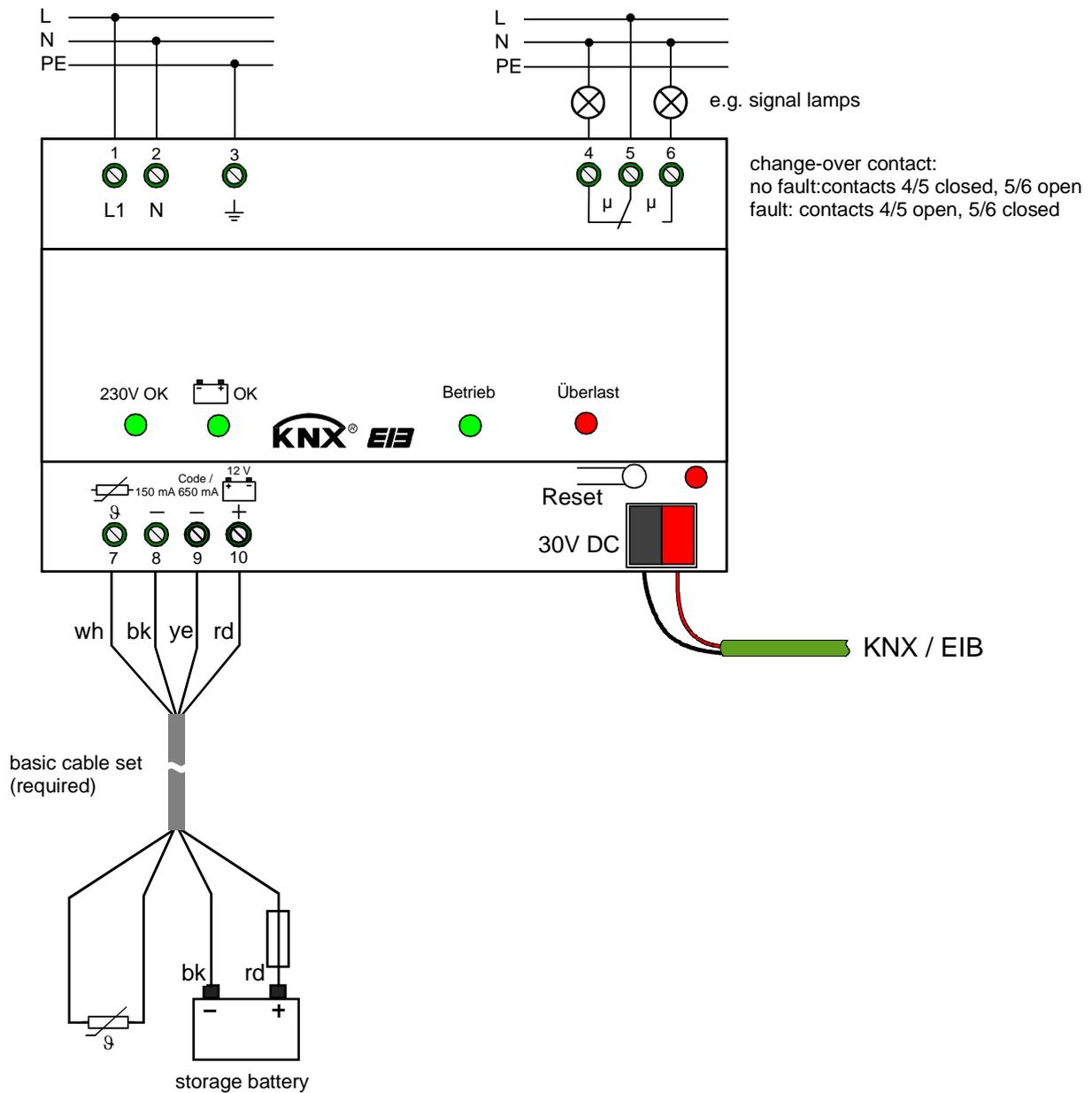
Connection with storage batteries with a capacity of > 5 Ah (recommended)





Wiring diagram and assignment of terminals (continued):

Connection with storage batteries with a capacity of < 5 Ah





Hardware remarks:

- Storage batteries and cable sets:

- The storage batteries used should preferably have a capacity of 12 Ah each. Storage batteries with the following capacities can, however, also be used: 1 Ah, 7 Ah, 17 Ah. Observe the wiring diagrams!
- The total buffering time in case of mains failures depends on the total capacity of the storage batteries connected and on the loading of the KNX/EIB line. For lines operating at full load, the following buffering times can be expected when completely charged and as good as new 12 V DC / 12 Ah storage batteries are used:

1 x battery ca. 5.5 hours

2 x batteries ca. 11 hours

- The gelled lead-acid may only be connected to the uninterruptible power supply with the pre-assembled cable sets! The basic cable set is always necessary when a storage battery is connected to the power supply. If a second storage battery is to be connected to the supply, the extension cable set must be used.
- Not more than 2 storage batteries of the same type in parallel may be connected to the uninterruptible power supply.
- The maximum charging time of the storage batteries (12 V / 12 Ah) connected to the power supplies is

1 x battery ca. 28 hours

2 x batteries ca. 56 hours

After a mains failure (batteries discharged), the storage batteries must be recharged. For this purpose, the mains voltage must remain on for a sufficiently long time as the batteries can otherwise not ensure the supply during the maximum buffering time.

- Because of service life limitations, the storage batteries used should be replaced about every four years in order to ensure the supply during the maximum buffering time in the event of mains failures.
- The uninterruptible power supply performs an automatic battery test every 15 minutes. If a battery fault is detected during the test, the potential change-over contact is switched to the fault position (contact 5/6 closed) and the LED "OK" goes out. The LED flashes in case of reverse polarity connection of the storage battery. After removal of the battery fault, the potential-free change-over contact switches back to normal position and the storage battery LED is illuminated green. The fault message is not stored. A battery test is also performed after a reset so that a test can be performed on demand by pressing the reset button.

Note:

In the worst case, it may take up to 15 minutes after occurrence of the fault until a battery fault is detected and signalled. Likewise, it may take up to 15 minutes after removal of the fault until the change-over contact goes back its normal position.

- The gelled lead-acid batteries should preferably be installed inside suitable universal distributions. The storage batteries can thus also be protected against unauthorized access, if lockable doors are used.
 - When no battery is connected to the power supply, the "OK" LED is permanently off.
- Temperature sensor:
 - If a storage battery is connected to the uninterruptible power supply, it is absolutely necessary to connect the temperature sensor as well. Only the temperature sensor integrated in the basic cable set may be used.
 - The temperature sensor should be in good thermal contact with the battery connected to the cable set. The best solution is to fix the sensor with adhesive tape to the battery housing.



- Fitting:
 - The uninterruptible power supply must be installed exclusively in distribution boxes or in control cabinets on a 35 mm DIN rail. Sufficient ventilation is required to ensure that the admissible operating temperature range is not exceeded.
 - The uninterruptible power supply has no facility at the rear for making contact with a data rail. If data rails are to be supplied with power, additional data rail connectors must be used.
- Commissioning:
 - After correct connection of all lines, the mains voltage can be switched on. As a short function test, all LEDs light up briefly three times. Thereafter, the green LED "230 V OK" is permanently on. If a storage battery is connected to the supply, the green LED "OK" lights up, too. The uninterruptible power supply is now ready for operation.
 - If the storage battery is defective or if it has been connected with reverse polarity, the green LED "OK" flashes and the change-over contact goes to the fault position (contact 5/6 closed). In this case, the storage battery must be replaced altogether or properly reconnected with the correct polarity.
 - Note:**
 - In the worst case, it may take up to 15 minutes after commissioning until a battery fault is detected and signalled. Likewise, it may take up to 15 minutes after removal of the fault cause until the green LED "OK" is on again permanently.
 - The uninterruptible power supply can also be put into operation without mains voltage in the buffering mode on condition that the storage battery is fully charged. After correct connection of the storage battery and the bus line, a battery test can be performed on demand by pressing the reset button. If no fault has been detected in the course of the test, the power supply switches over to battery operation and feeds the bus line.
 - The power supply should not be run for too long on battery power without the mains being connected after commissioning to prevent discharging of the connected storage battery.
- Reset behaviour:
 - A press on the reset button generates a reset pulse on the connected KNX/EIB line. In a reset, the bus line is disconnected from the power supply so that the connected bus devices are set back to their original state. To ensure a 'clean' reset procedure for all devices of the bus, the uninterruptible power supply maintains the reset condition for 20 seconds independent of how long the reset button is being pressed. During the reset, the red reset LED is on.
- Monitoring of the bus line:
 - Overload / short circuit:
 - During an overload of the bus line, the red LED "Overload" is on. If the overload condition causes bus currents of more than 1.2 A (e.g. during a short circuit), the output voltage is automatically reduced and the green LED "Operation" goes out. A short-term overload will generally not cause any problems in the system. If the bus line is, however, overloaded or short-circuited for longer than 10 seconds, the potential-free change-over contact additionally switches to the fault position. The fault message is stored in the relay contact (cf. "Fault message" overleaf).
 - Overvoltage:
 - If overvoltages occur on the bus line, the red LED "Overload" flashes. The potential-free change-over contact switches to the fault position. The uninterruptible power supply performs an automatic bus reset. During the reset, the red reset LED is on. The fault message is stored in the relay contact (cf. "Fault message" overleaf).
 - If overload and overvoltage occur at the same time, the overvoltage message has the higher priority, i.e. the red LED "Overload" flashes and the bus is automatically reset. The fault message is stored in the relay contact (cf. "Fault message" overleaf).



- Fault message:

- The uninterruptible power supply permanently monitors the connected bus line, the mains voltage and the storage battery voltage. In the event of faults, the green LED "Operation" goes out. The cause of the fault is indicated by means of the various LEDs on the front panel of the device and by the fault signalling contact in accordance with the following table:

LED "230 V OK"	LED "OK"	LED "Operation"		LED "Overload"	Fault signalling contact	Reset LED	State / fault cause
green	green	green		off	normal	off	normal operation
green	green	green		off	normal	red	reset is active
green	green	green		flashes red	fault	red	overvoltage, automatic reset is active.
green	green	green		flashes red	fault	off	overvoltage fault stored, fault rectified
off	green	green		off	fault	off	mains failure, battery operation
green	off	green		off	fault	off	no battery, battery fault or battery empty
off	off	off		off	fault	off	mains failure and no battery, battery fault or battery empty
green	green	green	off*	red	fault	off	green
off	green	green	off*	red	fault	off	off
green	off	green	off*	red	fault	off	green
green	green	green	off*	flashes red	fault	off	green
off	green	green	off*	flashes red	fault	off	off
green	off	green	off*	flashes red	fault	off	green
green	green	green		red	fault	off	overload, output voltage OK
off	green	green		red	fault	off	overload, output voltage OK, mains failure, battery operation
green	off	green		red	fault	off	overload, output voltage OK, mains operation, no battery
---	flashes green	---		---	fault	off	battery defective or battery connected with reverse polarity

*: green or off / ---: condition irrelevant.

In the event of overload or overvoltage at the bus output, the fault message is stored. In this case, the potential-free change-over contact and the corresponding LED continue to remain in the fault state even if the cause of the fault message no longer exists and if the bus is again supplied with power. Although the system seems to work properly, the fault cause must be located and rectified by a service technician as the fault may be a recurrent fault. When the fault has been rectified, the stored alarm can be acknowledged and deleted by a single press on the reset button. The potential-free contact switches back to normal position and the LED indicates the normal state of operation. Pressing the reset button a second time will reset the bus. If the fault has not been removed beforehand, a press on the reset button will result in a bus reset all right, but the fault remains stored and the potential-free change-over contact and the LED continue to remain in the fault state



- In the event of a mains failure, the bus line will be supplied from the connected storage battery, i.e. the failure has no effect on the bus voltage. When the mains supply fails, the potential-free change-over contact switches to fault position and the LED "230 V OK" goes out. On return of the mains voltage, the potential-free change-over contact goes back to normal position and the LED is lit up green. The fault message is not stored.
- If the fault messages are to be indicated, it is possible to connect LEDs or signal lamps to the fault signalling contact. A message can also be transmitted automatically to a service technician, if a suitable phone dialler is connected to the fault signalling contact.

instabus KNX / EIB System

System

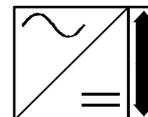


Software description:

ETS search path:

system components / power supply / power supply 640mA DRA uninterruptible

ETS-Symbol:



Applications:

Short description:

Name:

Date:

Page:

Data base

No application !

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