SIEMENS

instabus Technical Manual

USA

Decentralized Power Supply JB 125C23, 80mA

5WG1125-4CB23

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Product and Application Description

The decentralized power supply unit JB 125/23 provides the system power necessary for the *instabus* KNX. The device is installed in a 4 x 4 inch junction box. The bus is connected via a bus terminal block.
The integrated choke prevents the data telegrams from short-circuiting on the bus line.
For each bus line, at least one decentralized power supply unit JB 125/23 is needed. A second unit is not required unless the supply voltage at a bus device is less than 21 V. Up to eight decentralized power supply units JB 125/23 may be attached in parallel to a single bus line.
Note: If two or more power supply units are operated in parallel on one bus line and if the overload LED is lit on one or several power supplies, then the bus configuration has to be changed until the overload display disappears on all units.
A minimum cable length is not required between the decentralized power supplies JB 125/23. Operation of a power supply unit N125/x2 in parallel to the decentralized power supplies is permitted on the same bus line as long as the sum of all short circuit currents of all power supplies does not exceed 3A.
When several bus devices are installed in short bus cable distance (e.g. 10 m), e.g. in distribution boards, or in a room control box AP 641, the power supply units shall be arranged near these bus devices. The distance along the bus wire between any bus device and the closest power supply unit must not exceed 350 m. If only the decentralized power supply JB 125/23 is used, then the maximum KNX cable length in a bus line is 350m for one, 700m for two, and 1000m for 3 or more decentralized power supplies JB 125/23.
The decentralized power supply unit JB 125/23 has a voltage and current regulation and is therefore short-circuit proof. Short power failures can be bridged with a backup interval of at least 100 ms.

To ensure an uninterrupted power supply a separate circuit with safety separation should be used for the mains power supply circuit of all power supply units.

The decentralized power supply units JB 125C23 are powered by AC 120V.

Application Program

No application program required

Technical Specifications

Input voltage
• rated voltage: AC 120V, 50...60Hz

Rated power consumption
approx. 10 W

Output voltage
• rated voltage: DC 29 V (class 2)
• safety extra low voltage (SELV)
• permissible range: DC 28 ... 30 V

Output current
• rated current 80 mA
• short-circuit current: limited to 0.2 A

Backup interval
on input voltage failure: ≥ 100 ms at rated current

Display elements
• 1 red LED: for indicating
- a shorted-out bus line or device over-load

Connections
- Bus line : Bus connection pins for connection of the screwless bus terminal block (red-black) 0.6...0.8 mm Ø single core, strip insulation 5mm
- mains power:
see Location and Function of Interface Elements

Physical specifications
- housing: plastic
- dimensions (L x W x D):
length : 70 mm (2.76 inch)
width: 90 mm (3.54 inch)
depth: 44.6 mm (1.76 inch)
- weight: approx. 171 g
- fire load: approx. 5 MJ
- Installation: in a junction box (min. dimensions (L-W-D))
Length: 4 inch (101.6 mm)
Width: 4 inch (101.6 mm)
Depth: 2 inch (50.8 mm)

Electrical safety
- Degree of pollution (according to IEC 60664-1): 2
- Type of protection (according to EN 60529): IP 20
- Overvoltage category (according to IEC 60664-1): III
- Bus: safety extra low voltage SELV DC 24 V
- Device complies with: EN 50428

Electromagnetic compatibility
complies with EN 50428

Environmental specifications
- Ambient operating temperature:
- 5 ... + 45 °C (+ 23 ... + 113 °F)
- Storage temperature:
- 25 ... + 70 °C (- 13 ... + 158 °F)
- Relative humidity (not condensing): 5 % ... 93 %

Reliability
- Failure rate: 109 fit at 40°C

Markings
EIB, KNX, UL

Listings and Certifications

CE mark
complies with the EMC regulations (residential and functional buildings) and low voltage regulations

UL listed (E464611)
UL 916, Open Energy Management Equipment

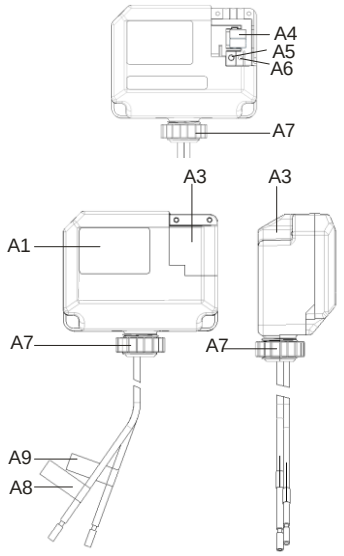
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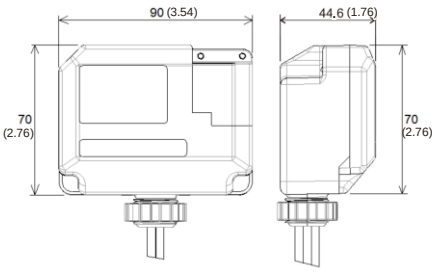
Location and Function of the Interface Elements

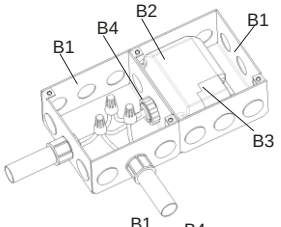


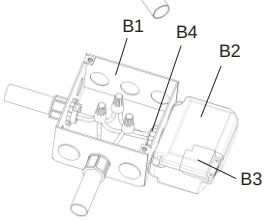
A1 Type label
A3 Protective lid over bus connection
A4 Bus connection terminal block for single core conductors with 0.6...0.8 mm Ø
A5 LED for indicating
- normal operating mode (LED off),
- a shorted-out bus line or device over-load (LED on)
A6 *button has no function*
A7 1/2 inch screw nut
A8 Wire (black) Line (Hot) (AWG #14)
A9 Wire (white) Neutral (AWG #14)

Dimension Diagram

Dimensions in mm (inch)







WARNING

Hazardous voltage.
Can cause death, or serious injury or property damage.

The device must not be opened.
A faulty device should be returned to the local Siemens sales office or distributor.

The device must be mounted and commissioned by a factory trained person.
The prevailing safety rules must be observed!
Mount in dry locations only!

B1 4" x 4" Junction Box
B2 Device
B3 Bus connection pins of the module for connection of the bus terminal block for single core conductors with 0.6...0.8 mm Ø
B4 1/2 inch screw nut

Mounting and Dismounting

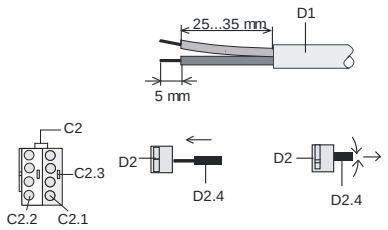
- Mounting of a JB module:

Option 1 (mounting inside a J-Box)
- Insert the thread of the JB module (B2) into the 1/2 inch knockout between two adjacent J-Boxes (B1)
- Fasten the JB module (B2) with the 1/2 inch thread nut (B4)
- Remove the protective lid (B3) and connect the bus wire to the bus terminal block (A4)
- Connect the wires from the device to the field wires using wire nuts (not provided in package)

Option 2 (mounting outside of a J-Box)
- Insert the thread of the JB module (B2) into the 1/2 inch knockout of the J-Box (B1)
- Fasten the JB module (B2) with the 1/2 inch thread nut (B4) to the J-Box (B1)
- Connect the bus wire to the bus terminal block under the protective cover (B3)
- Connect the wires from the device to the field wires using wire nuts (not provided in package)

- Install the protective lid (B3) and fasten with screws (provided in package)

- Dismounting a JB module:
- Disconnect power to the module
- Remove the wire nuts and bus connection
- Unfasten the 1/2 inch thread nut (B4) connecting the JB module (B2) to the J-Box (B1)
- Remove the JB module (B2) from the J-Box (B1)



Wiring

Slipping off/on bus connection blocks
The bus connection block consists of two components (C2.1 and C2.2) with four terminal contacts each. Take care not to damage the two test sockets (C2.3) by accidentally connecting them to the bus cable or with the screw driver (e.g. when attempting to unplug the bus connection block).

Slipping off bus connection blocks
- Carefully put the screw driver to the wire insertion slit of the bus connection block's grey component (C2.2) and
- pull the bus connection block (C2) from the module.

Note

Don't try to remove the bus connection block from the bottom side. There is a risk of shorting-out the device!

Slipping on bus connection blocks
- Slip the bus connection block (C2) onto the guide slot of the module and
- press the bus connection block (C2) down to the stop.

Connecting and Disconnecting bus cables

Connecting bus cables
- The bus connection block (D1) can be used with single core conductors Ø 0.6...0.8 mm.
- Remove approx. 5 mm of insulation from the conductor (D2) and plug it into the bus connection block (D1) (red = +, grey = -)

Disconnecting bus cables
- Unplug the bus connection block (D1) and remove the bus cable conductor (D2) while simultaneously wiggling it.

Connecting mains:

Connect wires
- Connect wire leads using wire nuts.

Electromagnetic compatibility

USA:
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC rules. Changes or modifications not expressly approved by Siemens Schweiz AG could void the user's authority to operate the equipment.

United States representative:
https://new.siemens.com/us/en/products/buildingtechnologies/home.html

Canada:
CAN ICES-3(B)/NMB-3(B)