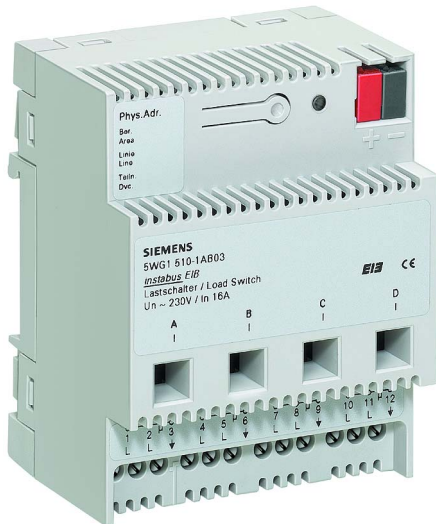


**Load Switch N 510/03**  
**4 x 230 V AC / 16 A**
**5WG1 510-1AB03**

## Product and Applications Description



The load switch N 510/03 is a N-system DIN-rail mounted device. Via its four outputs it can switch four separate groups of electric devices.

The power supply of the load switch N 510/03 is provided by the bus (i.e., it requires no additional power supply).

The outputs may be operated manually via slide switches. These switches also show the actual switching state (when switching manually as well as when switching via the bus).

Each of the outputs (relays) can be assigned various tasks depending on the application program used, i.e. the load switch N 510/03 consists of the device (hardware) and its application programs (software).

Appropriate application programs are available for the different tasks the load switch N 510/03 can handle; e.g. for non-delayed on and off switching.

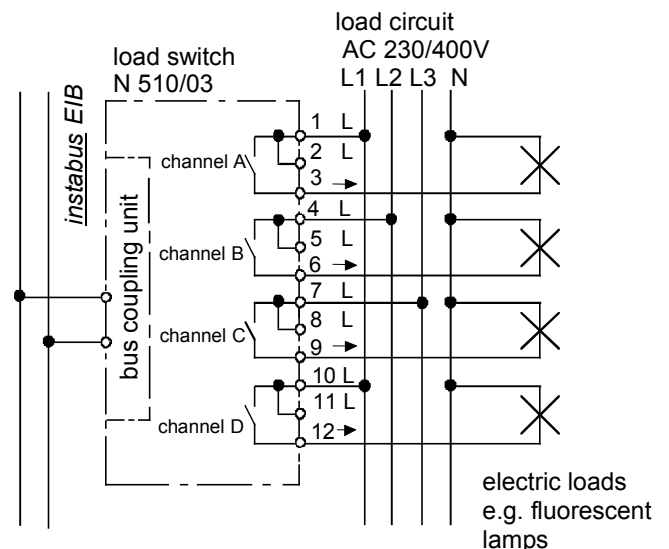
With the ETS (EIB Tool Software) the application program is selected, its parameters and addresses are assigned appropriately, and downloaded to the load switch N 510/03.

## Application Programs

### 20 A4 Binary 906401

- 4 binary outputs
- 1 status request available for each output
- 1 relation can be set
- allows 1 positive drive for each output
- initial value of the relation at bus voltage recurrence
- on/off -delay mode available
- timer function available
- allows switching at bus voltage failure
- allows switching at bus voltage recurrence
- relay operation mode can be set

## Example of Operation



## Installation Instructions

- The device may be used for permanent interior installations in dry locations, within distribution boards, or small casings with DIN rail EN 60715-TH35-7,5.

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## WARNING

- The device must be mounted and commissioned by an authorised electrician.
- A safety disconnection of the device must be possible. Especially if the device is connected to different phases.
- Free DIN rail areas with sticked-in data rail must be covered with covers, order no. 5WG1 192-8AA01.
- The prevailing safety rules must be heeded.
- The device must not be opened.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.

## Technical Specifications

### Power supply

via bus line

Data rail and / or bus connection block

### Outputs

- number: 4 (bistable relays, volt free contacts)
- rated voltage: AC 230 V, 50 ... 60 Hz
- rated current: 16 A resistive load
- switching current at AC 230 V:  
0,01 ... 16 A resistive load
- rated operating current 8A for utilisation categories AC3 in accordance with EN 60947-4-1
- switching characteristic:  
set in parameter list according to application program

### Control elements

- 1 learning button:  
for switching between normal operating mode and addressing mode
- 4 slide switches for manual operation

### Display elements

- 1 red LED:  
for monitoring bus voltage and displaying mode, selected with the learning button
- 4 slide switches providing switching state information

## Connections

- load circuit, physical:  
strip insulation for 8 ... 9 mm  
permissible conductor types/cross sections:
  - 0,5 ... 4 mm<sup>2</sup> single core
  - 0,5 ... 2,5 mm<sup>2</sup> flexible conductor
- load circuit, electrical:
  - plain flexible conductor, min. 1 mm<sup>2</sup>:  
current carrying capacity max. 6 A
  - flexible conductor with terminal pin, crimped on gas tight, min. 1,5 mm<sup>2</sup>:  
current carrying capacity max. 10 A
  - all other conductors, min. 1,5 mm<sup>2</sup>:  
current carrying capacity max. 16 A



## WARNING

When looping through the L-conductor (connection blocks 1 and 2, 4 and 5, 7 and 8, 10 and 11) take care that the maximum connection current of 16 A (as governed by the maximum permissible printed conductor load) is not exceeded!

- bus line
  - pressure contacts on data rail
  - screwless bus connection block  
0,6...0,8 mm Ø single core  
remove approx. 5mm of isolation

## Physical specifications

- housing: plastic
- N-system DIN-rail mounted device,  
width: 4 SUs (1 SU = 18 mm)
- weight: approx. 240 g
- fire load: approx. 3200 kJ ± 10 %
- installation: rapid mounting on  
DIN rail EN 60715-TH35-7,5.

## Electrical safety

- degree of pollution (according to IEC 60664-1): 2
- protection (according to EN 60529): IP 20
- overvoltage class (according to IEC 60664-1): III
- bus: safety extra low voltage SELV DC 24 V
- relay with  $\mu$ -contact
- device complies with:  
EN 50090-2-2 and EN 60669-2-1

## Reliability

- rate of failure: 534 fit at 40 °C

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### Electromagnetic compatibility

complies with  
EN 50081-1, EN 61000-6-2 and EN 50090-2-2

### Environmental specifications

- climatic conditions: EN 50090-2-2
- ambient temperature operating: - 5 ... + 45 °C
- ambient temperature non-op.: - 25 ... + 70 °C
- relative humidity (non-condensing): 5 % to 93 %

### Certification

EIB certificate

### CE norm

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

### Operator Elements

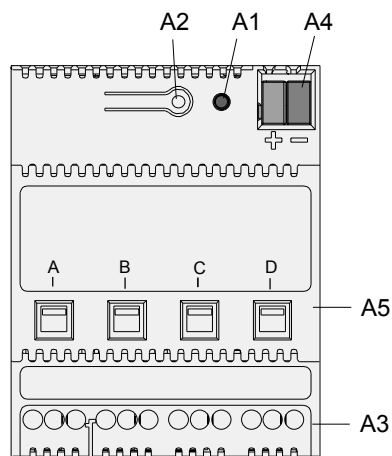


Diagram 1: Location of the display and operator elements

- A1** LED for indicating normal operating mode (LED off) and addressing mode (LED on); upon receiving the physical address the device automatically returns to normal operating mode.
- A2** Learning button for switching between normal operating mode and addressing mode for receiving the physical address.
- A3** Screw blocks for connecting load circuits;
- A4** Screwless bus connection block;
- A5** Slide switch for manual operation and for displaying the switching position.  
Slide in upper position: relay contact closed  
Slide in lower position: relay contact open

### Mounting and Wiring

The N-system DIN-rail device (4 SUs) can be installed to N-system distribution boards, surface or flush mounted, or to any DIN-rail EN 60715-TH35-7,5 available that has a data rail installed.

The connection to the bus line is established by clicking the device onto the DIN-rail (with a data rail installed). Take care that the type plates of all devices on a DIN-rail can be read in the same direction, guaranteeing the devices are polarised correctly.

If the connection is established via bus connection block (data rail not installed) the data rail connection system has to be covered with the enclosed insulation hood after removing the location clip e.g. with a screw driver to guarantee a sufficient insulation from the DIN rail.

If the load switch N 510/03 is installed the conventional adapter is not necessary (also for other DIN-rail devices). The bus voltage is downloaded from the bus connection block to the data rail.

#### Mounting DIN-rail devices (Diagram 2)

- Slide the device (B1) onto the DIN-rail (B2) and
- swivel back the device until the slide clicks into place audibly.

#### Dismounting DIN-rail devices (Diagram 2)

- Remove all connected wires,
- press down the slide (C3) with a screw-driver and
- swivel the device (C1) from the DIN-rail (C2).

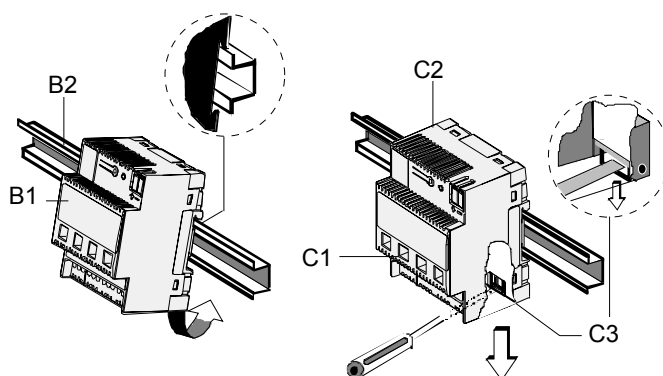


Diagram 2: Mounting and dismounting a DIN-rail device

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Removing the location clip (Diagram 3)

- The location clip (D3) surrounds the contact system (D2) on the back side of the load switch N 510/03 (D1).
- Insert the screw driver between the DIN-rail device (D1) and the location clip (D3) and remove the location clip.

Inserting the insulation top (Diagram 3)

- Put the insulation top (D4) onto the contact system and click it into place by a slight pressure.

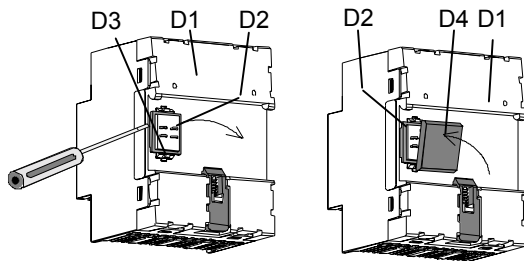


Diagram 3: Covering the contact system

Slipping off bus connection blocks (Diagram 4)

- The bus connection block (E1) is situated on the top of the load switch N 510/03(E2).
- The bus connection block (E1) consists of two components (E1.1 and E1.2) with four terminal contacts each. Take care not to damage the two test sockets (E1.3) by accidentally connecting them to the bus cable or with the screw-driver (e.g. when attempting to unplug the bus connection block).
- Carefully put the screw-driver to the wire-inserting slit of the bus connection block's grey component and pull the bus connection block (E1) from the load switch N 510/03(E2).

**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 (Diagram 4)

- Slip the bus connection block onto the guide slot and
- press the bus connection block (E1) down to the stop.

Connecting bus cables (Diagram 4)

- The bus connection block (E1) can be used with single core conductors  $\varnothing 0,6 \dots 0,8 \text{ mm}$ .
- Remove approx. 5 mm of insulation from the conductor (E1.4) and plug it into the bus connection block (E1) (red = +, black = -).

Disconnecting bus cables (Diagram 4)

Unplug the bus connection block (E1) and remove the bus cable conductor (E1.4) while simultaneously wiggling it.

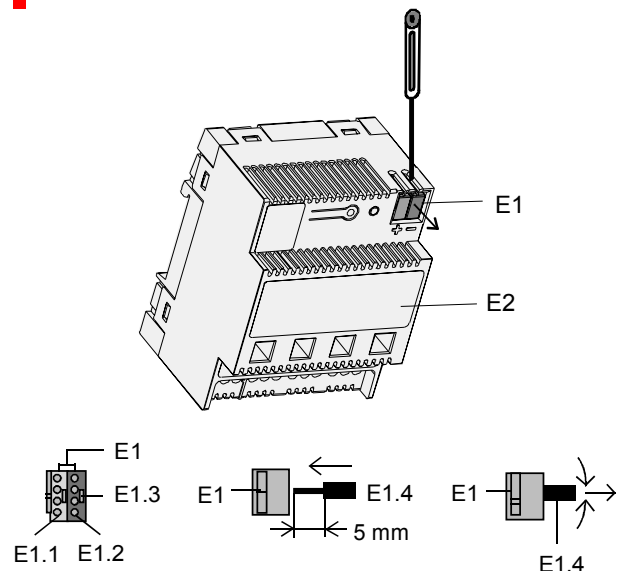


Diagram 4: Connecting and disconnecting bus wires

Connecting load circuits (Diagram 5)

- Remove approx. 8 to 9 mm of insulation from the wire (F1.1) and plug it into the terminal (F1) and tighten the screws (F1.2)

- cross sections  
load circuit, physical:  
strip insulation for 9 ... 10 mm  
permissible conductor types/cross sections:
  - 0,5 ... 4 mm<sup>2</sup> single core
  - 0,5 ... 2,5 mm<sup>2</sup> flexible conductor

Disconnect load circuits (Diagram 5)

- Release the screw (G1.2) and remove the wire (G1.1) from the terminal (G1).

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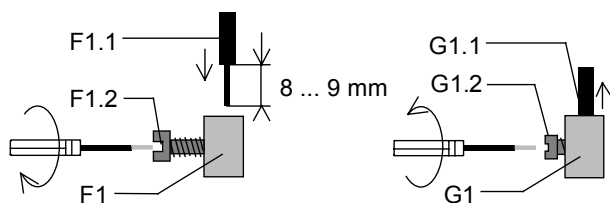


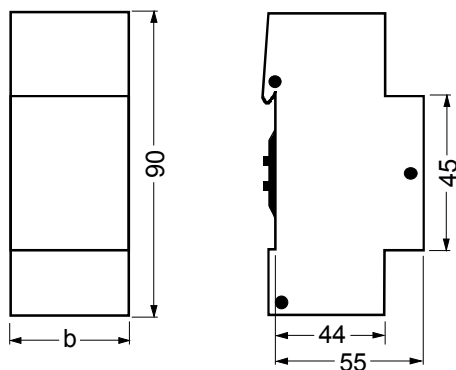
Diagram 5: Connecting and disconnecting load circuits

#### Important hint:

The manual operation of the sliding switches is only designated as an emergency operation. There is no telegram downloaded to the bus and the changed position is not recognised by the bus controller. In case of bus voltage failure/recurrence even the switching conditions of manually controlled relays resume the condition set in parameter list.

#### Dimension Diagram

Dimensions in mm



$b = 4 \text{ TE}$

1 Spacer Unit (SU) = 18mm

#### General Notes

- Any faulty devices should be returned to the local Siemens office.
- If you have further questions about the product, please contact our Technical Support:

☎ +49 (0) 180 50 50-222  
 ☎ +49 (0) 180 50 50-223  
 ✉ [adsupport@siemens.com](mailto:adsupport@siemens.com)

#### Notes