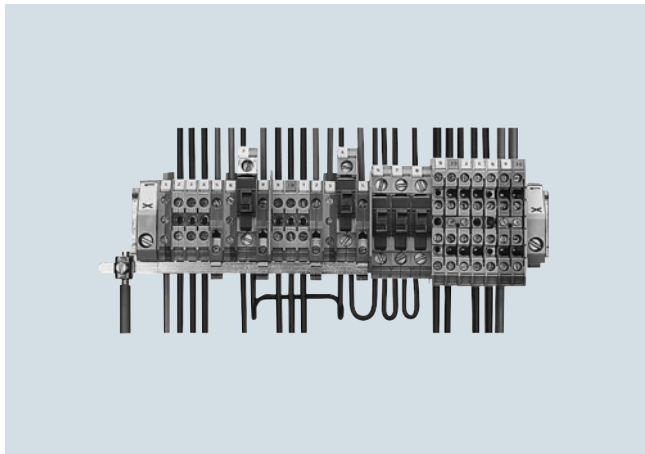


Overview



Terminal strips with different terminal blocks: 8WA1011-1DG11 terminal blocks, 8WA1011-1NG31 N-conductor isolating terminals with feeder terminal for N-busbar 6 × 6 mm, 8WA1011-1PG00 PE terminals, 8WA1011-1SF12 fuse terminals, and various two-tier terminals. The EN 50022-35-compliant standard mounting rail serves as the PE bar.

Terminal blocks are used for the space-saving connection of incoming and outgoing cables in switchboards and distribution boards.

Standards

EN 60664-1,
EN 60999 and
IEC 60947-7-1 or
IEC 60947-7-2

The terminals are finger-safe acc. to IEC 60529 and DIN EN 50274 (except for bare terminals and solder connections). Through-type terminals are resistant to earthquakes according to IEC 60068-2-6.

Rated short-time withstand current

Our screw terminals are able to withstand a rated short-time current corresponding to a current density of 120 A/mm² specific to the nominal cross-section for a duration of one second.

Colored terminal blocks

With colored wiring according to EN 60204-1, the connecting level can also be included in the colored markings:

- Red for control circuits with AC current
- Blue for control circuits with DC current or neutral conductor
- Orange for interlock circuits with AC or DC current which are fed from outside and are live when the main switch is turned off
- Green-yellow through-type terminals for protective conductors (without connection to the support rail)

Design

The terminal blocks are insulated at both ends, with the exception of two-tier, flat and bolt-type terminals, which are insulated on one side only.

The insulating material for terminal sizes up to 70 mm² is made of thermoplast, polyamide 6.6.

The materials used are environment-friendly: For example, they are cadmium-free and contain no halogens or silicone.

The plastics used are flame-retardant and self-extinguishing according to EN 60695-2-2, VDE 0471, Part 2-2 and UL 94 V-2.

Clamping methods

The terminals are designed so that when the terminal screws are tightened, any tensile stress which occurs causes elastic deformation of the terminal bodies. This compensates for any creepage of the clamping conductor. Deformation of the thread part prevents loosening of the clamping screw, even in the event of heavy mechanical and thermal strain (e.g. vibration stress of 10 g or thermal cycles).

The following clamping methods are used:

- Terminal body with pressure plate for terminal sizes 16, 35 and 70 mm²
- Strain-relief clamps for terminal sizes 2.5, 4 and 6 mm²
- Screw with connection disk for fuse terminals and component terminals

Terminal size

The terminal size corresponds to the nominal cross-section. According to EN 60947-7-1, a finely stranded copper conductor of nominal cross-section can be connected to any clamping point with or without end sleeve.

Mounting

The terminals are snapped onto 35 mm support rails according to IEC 60715 TH35 and secured against movement using end retainers.

A lateral mounting tolerance of 0.2 mm must be maintained between the terminals.

Conductor connection

Except for flat and bolt-type versions, all terminal bodies are designed so that solid, stranded and finely stranded conductors with or without end sleeves (according to DIN 46228) can be securely clamped (please observe cross-section).

Damage to the clamped conductors is prevented by pressure plates or strain-relief clamps. For the conductor cross-sections when 1 or 2 conductors are connected, see [Technical specifications](#).

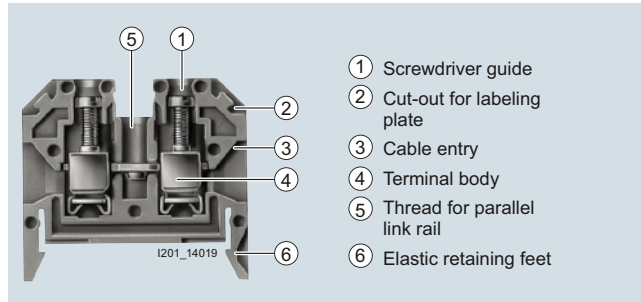
8WA1 Screw Terminals

General data on 8WA

Connection of aluminum conductors

Siemens screw terminals are suitable for connecting aluminum conductors provided there is compliance with the normal processing guidelines, i.e. the brushing and greasing of the conductors before connection.

After a few days, the connection should be tightened again for safety reasons.



8WA1 through-type terminal with screw terminal at both ends, sectional view

PE and PEN terminals

In switchgear and controlgear systems the support rails for the terminal blocks are frequently used as protective ground busbars. The PE terminals establish the connection to the support rail.

The fact that there is no separate PE busbar means the PE terminals, the insulated main conductor terminals and N-conductor isolating terminals can be arranged according to user requirements. This makes the individual circuits clearly manageable.

The bare 8WA1010-1PH01 PE terminals are primarily used for connecting the shields of shielded cables. They are normally mounted on a standard mounting rail, which is supported by an 8WA1857 insulation carrier and which is equipped with only one PE terminal for connection to the PE conductor.

Accessories

Parallel connection bars

The connection bars are screwed into the terminals from above and allow parallel connection of up to 10 terminals up to terminal size 35 mm². The 10-pole connection bars can be shortened as required. On 70 mm² terminals the connection bars are two-pole.

Barriers

Barriers are yellow in color and project beyond the contours of the terminals. They serve the visual separation of groups of terminals, the electrical isolation of adjacent connection bars and the improvement of the rated insulation voltage for soldered and plug-in connections.

Insulation plates

8WA1825 and 8WA1822-7TK00 insulation plates can be used with different terminals for providing electrical insulation between connection bars.

Test sockets and plugs

The 8WA1854 test sockets for Ø 2.3 test plugs and reduction plugs with a Ø 4 mm hole can be screwed into some terminals in place of the connection bars.

Disconnecting links

The 8WA1865 disconnecting links provide a detachable connection between two adjacent terminals sizes 2.5 to 6 mm².

Covers with lightning symbol

The purpose of these covers is to identify the power input terminals. At the same time, they provide additional touch protection.

End retainers and end labeling plates

End retainers are available in thermoplastic or galvanized and chromated steel. The end labeling plate can be fitted in an 8WA1808 end retainer or, in any of three positions, in an 8WA1805 end retainer.

Technical specifications

Continuous load at increased ambient temperatures

The 8WA1 terminal blocks can withstand an uninterrupted current at ambient temperatures of up to +55 °C. At higher ambient temperatures, a current reduction according to the following formula is required:

$$I_{th2'} = I_{th2} \times k$$

I_{th2} = Uninterrupted current according to selection tables, relative to the nominal cross-section

$I_{th2'}$ = Uninterrupted current at increased ambient temperature

k = Derating factor according to table

| Ambient temperature | Derating factor k |
|---------------------|---------------------|
| 60 °C | 0.94 |
| 65 °C | 0.88 |
| 70 °C | 0.82 |
| 75 °C | 0.75 |
| 80 °C | 0.67 |
| 85 °C | 0.58 |
| 90 °C | 0.47 |
| 95 °C | 0.33 |

The highest permissible clamping point overtemperature of 45 K specified in IEC 60947-7-1 is not exceeded at an ambient temperature of up to 100 °C.

Clamping points

| Terminal size | Type ¹⁾ | Thread diameter of terminal screws | Screwdriver blades acc. to DIN 5264 Form B | Tightening torque = test torque acc. to DIN VDE 0609 and DIN VDE 0611 Nm | Tensile forces acc. to IEC 60947-1 at max. conductor connection N | Stripped length mm |
|---------------|---|------------------------------------|--|---|--|-----------------------|
| 1.5 | 8WA1011-.SF. . . 8WA1011-1EE00 | M3.5 | 0.8 × 4 | 0.8 | 40 | 10 |
| 2.5 | 8WA1. . .1, 8WA1011-1BF11, 8WA1011-1EF. . . 8WA1011-. . .F. . . | M2.5 and M3 | 0.5 × 3 | 0.5 | 50 | 11 |
| | | M2.5 | 0.8 × 4 | 0.5 | 50 | 11 |
| 4 | 8WA1011-. . .G. . . 8WA2867 | M3 | 0.8 × 4 | 0.5 | 60 | 11 |
| | | M3.5 | 0.8 × 4 | 0.8 ... 1 | 60 | 11 |
| 6 | 8WA1. . .2, 8WA1011-. . .H. . . | M3.5 | 0.8 × 4 | 0.8 | 80 | 11 |
| | | M4 | 0.8 × 4 | 1.2 | 100 | 13 |
| 16 | 8WA1. . .4, 8WA1011-. . .K. . . | M4 | 0.8 × 4 | 1.2 | 100 | 13 |
| 25 | 8WA2868 | M5 | 1.2 × 6.5 | 2 | 135 | |
| 35 | 8WA1. . .5, 8WA1011-. . .M. . . 8WA2870 | M6 | 1.2 × 6.5 | 2.5 | 190 | 17 |
| | | | | 2.5 ... 3 | | |
| 50 | 8WH1000-0AN00, 8WH1000-0AN01, 8WH1000-0CN07 8WH1070-0AN00 | M6 | 1.2 × 8 | 6 ... 8 | -- | 24 |
| | | M6 | -- | 3 ... 7 | -- | 6 ... 25 |
| 70 | 8WA1. . .6 | M8 | 4 hexagon socket-head | 6 | 285 | 25 |
| 95 | 8WA1010-1PQ00 8WH1000-0AQ00, 8WH1000-0AQ01 8WH1000-0CQ07 8WH1070-0AQ00 8WH1060-0AQ00 | M8 | 6 hexagon socket-head | 15 ... 20 | -- | 30 |
| | | M8 | 6 hexagon socket-head | 15 ... 20 | -- | 33 |
| | | M8 | 6 hexagon socket-head | 15 ... 20 | -- | 30 |
| | | M8 | -- | 6 ... 15 | -- | 16 ... 25 |
| | | M8 | -- | 25 ... 30 | -- | 29 |
| 150 | 8WH1000-0AS0. 8WH1070-0AS00 8WH1060-0AS00 | M10 | 8 hexagon socket-head | 25 ... 30 | -- | 40 |
| | | M10 | -- | 10 ... 18 | -- | 10 ... 18 |
| | | M10 | -- | 25 ... 30 | -- | 34 |
| 240 | 8WH1000-0AU0. 8WH1060-0AU00 | M10 | 10 hexagon socket-head | 30 ... 35 | -- | 40 |
| | | M10 | -- | 30 ... 35 | -- | 34 |

¹⁾ Tightening torque also applicable for accessories (socket, connection bars, etc.).

Standard mounting rails as PEN rails

Only use Cu busbars.

They must have the same current carrying capacity as protective conductor busbars.

PEN busbars must carry only terminals and no devices.

Standard mounting rails as protective conductor busbars

Protective conductors with a larger cross-section than the protective conductor busbar, and with the same conductivity, can be connected to standard mounting rails that are also protective conductor busbars and carry current only under fault conditions.

| Standard mounting rail acc. to EN 50022-35 and IEC 60715 TH35 | Material | Type | Max. permissible cross-section of connected protective conductor mm ² |
|---|-------------------|----------|---|
| 35 × 7.5 | Steel | 5ST1 141 | 16 |
| | Steel, perforated | 5ST1 145 | 16 |
| Similar to 35 × 15 | Steel | 5ST1 142 | 35 |
| | Steel | -- | 50 |
| | Copper | 8WA7551 | 150 ¹⁾ |

¹⁾ With 8WA1010-1PQ00 terminal connection of up to 95 mm² finely stranded or 120 mm² stranded.

8WA1 Screw Terminals

General data on 8WA

® and RA rating

| Terminal size mm ² | Type | CSA rating | | | UR rating | | |
|----------------------------------|---------------------------------------|-----------------|-----------------------------|-----------------------------|------------------|-----------------------------|-----------------------------|
| | | AWG | Rated current I_n A | Rated voltage U_e V | AWG | Rated current I_n A | Rated voltage U_e V |
| 1.5 | 8WA1011-1SF12 | 18 ... 14 | 6.3 | 600 | 18 ... 14 | 6.3 | 600 |
| | 8WA1011-1SF24, -2SF24, -4SF24 | 14 | 1 | -- | 14 ... 12 | 1 | AC240/DC60 |
| | 8WA1011-1SF25, -2SF25, -4SF25 | 14 | 2 | -- | 14 ... 12 | 2 | AC240/DC60 |
| | 8WA1011-1SF26, -2SF26, -4SF26 | 14 | 4 | -- | 14 ... 12 | 4 | AC240/DC60 |
| | 8WA1011-1SF27, -2SF27, -4SF27 | 14 | 6 | -- | 14 ... 12 | 6 | AC240/DC60 |
| 8WA1011-1SF28, -2SF28, -4SF28 | 14 | 10 | -- | 14 ... 12 | 10 | AC240/DC60 | |
| 2.5 | 8WA1011-1BF21, -1BF22, -1BF23, -1PF11 | 18 ... 12 | 25 | 600 | 22 ... 12 | 26 | 600 |
| | 8WA1011-1DF11, -3DF21, -0DF21, -0DF22 | 18 ... 12 | 25 | 600 | 22 ... 12 | 26 | 600 |
| | 8WA1011-1NF01, -1NF02 | 22 ... 12 | 26 | 600 | 22 ... 12 | 26 | 600 |
| | 8WA1011-3JF.. | -- | -- | -- | 22 ... 12 | 26 | 300 |
| | 8WA1011-1PF00, 8WA1011-1PF01 | 22 ... 12 | -- | -- | 22 ... 12 | -- | -- |
| | 8WA1501 | 22 ... 12 | 10 | 300 D | 22 ... 12 | 10 | 300 |
| 4 | 8WA1011-1PG00, 8WA1011-1PG01 | 18 ... 10 | -- | -- | 18 ... 10 | -- | -- |
| | 8WA1011-1BG11, -1BG21, -1BG22 | 18 ... 10 | 40 | 600 | 18 ... 10 | 35 | 600 |
| | 8WA1011-1DG11, -3DG21, -0DG21, -0DG22 | 18 ... 10 | 40 | 600 | 18 ... 10 | 35 | 600 |
| | 8WA1011-1NG31, -1NG32 | 18 ... 10 | 40 | 600 | 18 ... 10 | 35 | 600 |
| | 8WA1011-1PG11 | 18 ... 10 | 40 | 600 | -- | -- | -- |
| | 8WA1011-2BG11, -2DG11 | 18 ... 10 | 40 | 300 | 18 ... 10 | 35 | 600 |
| | 8WA1011-6BG11, -6DG11 | 18 ... 10 | 40 | 300 | 18 ... 10 | 35 | 600 |
| | 8WA1011-6EG.. | -- | -- | -- | 18 ... 10 | 34 | 300 |
| | 8WA9200 | 18 ... 10 | 25 | 300 | 18 ... 10 | 26 | 600 |
| 6 | 8WA1011-1PH00 | -- | -- | -- | 14 ... 8 | -- | -- |
| | 8WA1011-1BH23, -1PH11 | 16 ... 10 | 35 | 600 | 14 ... 8 | 44 | 600 |
| | 8WA1011-1DH11, -3DH21 | 16 ... 8 | 35 | 600 | 14 ... 8 | 44 | 600 |
| | 8WA1011-1NH01, -1NH02 | 14 ... 8 | 44 | 600 | 14 ... 8 | 44 | 600 |
| | 8WA1011-1MH10, -1MH11, -1MH15 | 16 ... 10 | 35/40 | 600/300 C/D | 14 ... 8 | 44 | 600/300 |
| | 8WA1232 | -- | -- | -- | -- ¹⁾ | 24 | 600 |
| 16 | 8WA1011-1BK11 | 14 ... 6 | 70 | 600 | 12 ... 4 | 79 | 600 |
| | 8WA1011-1NK02 | -- | -- | -- | 12 ... 4 | 73 | 300 |
| | 8WA1011-1PK00 | 12 ... 4 | -- | -- | 12 ... 4 | -- | -- |
| | 8WA1012-1DK10 | -- | -- | -- | -- | 79 | 600 |
| | 8WA1204, 8WA1304 | 14 ... 6 | 70 | 600 | 12 ... 4 | 79 | 600 |
| | 8WA1604 | -- | -- | -- | 12 ... 4 | 73 | 300 |
| 25 | 8WH1060-0AL00 | 6 ... 4 | 100 | 600 | 6 ... 4 | 85 | 600 |
| 35 | 8WA1011-1BM11 | 12 ... 2 | 100 | 600 | 10 ... 1 | 120 | 600 |
| | 8WA1011-1PM00 | 10 ... 1 | -- | -- | 10 ... 1 | -- | -- |
| | 8WA1205, 8WA1305 | 12 ... 2 | 100 | 600 | 10 ... 1 | 120 | 600 |
| 50 | 8WH1000-0AN00, 8WH1000-0AN01 | 6 ... 0 | 125 | 600 | 6 ... 0 | 150 | 600 |
| | 8WH1000-0CN07 | -- | -- | -- | 6 ... 1 | -- | -- |
| | 8WH1060-0AN00 | 6 ... 0 | 125 | 600 | 6 ... 0 | 150 | 600 |
| | 8WA1012-1DP14 | 2/0 ... 1 | 170 | 600 | 6 ... 3/0 | -- | 600 |
| 70 | 8WA1206 | 8 ... 1/0 | 150 | 600 | 8 ... 3/0 | 220 | 600 |
| | 8WH1000-0AQ00, 8WH1000-0AQ01 | 1 ... 000 | 220 | 600 | 2 ... 000 | 230 | 600 |
| | 8WH1000-0CQ07 | 2 ... 4 | -- | -- | 2 ... 4 | -- | -- |
| 95 | 8WH1060-0AQ00 | 2 ... 000 | 200 | 600 | 2 ... 000 | 230 | 600 |
| | 8WH1000-0AS0, 8WH1000-0AS01 | 2 ... 300 kcmil | 275 | 600 | 2 ... 300 kcmil | 285 | 600 |
| | 8WH1060-0AS00 | 2 ... 300 kcmil | 275 | 600 | 2 ... 300 kcmil | 285 | 600 |
| 240 | 8WH1000-0AU00, 8WH1000-0AU01 | 0 ... 500 kcmil | 400 | 600 | 0 ... 500 kcmil | 380 | 600 |
| | 8WH1000-0AU00 | 0 ... 500 kcmil | 400 | 600 | 0 ... 500 kcmil | 380 | 600 |

¹⁾ Plug-in connection

