Power distribution systems - accessories

Connections and terminals

**Line terminal X 221 503 01**
suitable for Power-D-Box with sockets pre-wired

**Load output terminal protected against reverse polarity**
X 222 847 01
X 222 625 01
X 222 848 01

suitable for
19BGT-2-X8340-S02
19BGT-2-X8340-SZ4
X8340-S02
X8340-SZ4

**Screw terminal X 211 156 01**
suitable for Module 17plus

---

**Line terminal** (max. 63 A)
max. tightening torque 3.0 Nm
X 221 503 01

**Load output terminal protected against reverse polarity**
(set: 4 moduled sleeves, 8 blade terminals 6.3 x 0.8 mm)
X 222 847 01 for cable cross section 0.7 ...2.0 mm²
X 222 625 01 for cable cross section 2.5 ...4.0 mm²
X 222 848 01 for cable cross section 4.0 ...6.0 mm²

**Screw terminal** for busbar Y 307 016 11
X 211 156 01
non insulated
(max. 35 m²)

Caution: cables must not be connected with terminal plugged in

---

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Labels

Label
marking area 6 x 10 mm / .629 x .394 in.
Y 307 942 61

Label white Y 307 942 61
ordering unit 10 pcs = 1 strip
suitable for Module 17plus

Label
marking area 16 x 13 mm / .629 x .512 in.
Y 308 327 01

Label white Y 308 327 01
ordering unit 24 pcs = 1 plate
suitable for 19BGT-2-X3S2
19BGT-2-X3S4
19BGT-2-X3Z4
19BGT-2-X345

Label
marking area 46 x 13 mm / 1.81 x .512 in.
Y 308 328 01

Label white Y 308 328 01
ordering unit 8 pcs = 1 plate
suitable for 19BGT-2-2210
19BGT-2-3600
19BGT-2-ESS20
19BGT-2-ESX10
19BGT-2-X2210
## Blanking piece

### Blanking piece Y 308 563 01

<table>
<thead>
<tr>
<th>suitable for</th>
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<tbody>
<tr>
<td>19BGT-2-2210</td>
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<tr>
<td>19BGT-2-3600/3900</td>
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### Blanking piece Y 308 563 41

<table>
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<tr>
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<tbody>
<tr>
<td>19BGT-2-ESS20</td>
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<tr>
<td>19BGT-2-ESX10</td>
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### Blanking piece Y 308 563 21

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<tr>
<td>19BGT-2-X8345</td>
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<tr>
<td>19BGT-2-X83S2</td>
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<tr>
<td>19BGT-2-X83S4</td>
</tr>
<tr>
<td>19BGT-2-X83Z4</td>
</tr>
</tbody>
</table>

---

**Blanking piece for Power-D-Box**
- (circuit breaker types 3600/3900, 2210)
- Y 308 563 01

**Blanking piece for Power-D-Box**
- (circuit breaker types ESS20, ESX10)
- Y 308 563 41

**Blanking piece for Power-D-Box**
- (circuit breaker types 8345, X8345-D01)
- Y 308 563 21

---

**Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com**
Retaining clip for electronic circuit breaker ESS20/ESX10
recommended for fitting the devices

Y 307 754 01

Retaining clip for electronic circuit breaker ESS20/ESX10
suitable for
Module 17 plus mit ESS20
Module 17 plus mit ESX10

Retaining clip for circuit breaker 3600/3900/E-1048/E-1079
recommended for fitting the devices

Y 300 581 11

Retaining clip for circuit breaker 3600/3900/E-1048/E-1079
suitable for
socket type 17...
with 3600...
E-1048-6...
E-1048-7...
E-1079-6...

Retaining clip for circuit breaker 2210
recommended for fitting single pole devices

Y 302 974 21

Retaining clip for circuit breaker 2210
suitable for
socket type 17...
with 2210...

Retaining clip for circuit breaker 3600/3900/E-1048/E-1079
recommended for fitting the devices

Y 300 581 03

Retaining clip for circuit breaker 3600/3900/E-1048/E-1079
suitable for
socket type 23...
with 3600
E-1048-6...
E-1048-7...
E-1079-6...

Retaining clip for circuit breaker 3600/3900/E-1048/E-1079
suitable for
socket type 63...
with 3600
E-1048-6...
E-1048-7...
E-1079-6...
Mounting aids

Retaining clip Y 302 974 01

suitable for
socket type 23... socket type 63...
with 2210-S... with 2210-S...

Retaining clip for circuit breaker 2210-S...
recommended for fitting single pole devices
Y 302 974 01

Screw and washer X 223 019 01
1 set with 4 screw and
4 washers
in a plastic bag

suitable for 19BGT-...
Sufficient for mounting one Power-D-Box

Barrier Y 308 139 01

suitable for 19BGT-2-X8345
X8345-D01

Barrier
for isolating the load terminals of the Power-D-Box (High-Power)
Y 308 139 01

End bracket X 222 004 01

suitable for Module 17plus
socket type 17

End bracket
recommended for fixing on symmetrical rails
X 222 004 01

---

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www.e-t-a.com
### Busbars and Jumpers

**Insulated wire bridge**

| X 222 984 01 | packaging quantity: 10 pcs |

**Suitable for**

- SVS.

**Bus bar 32 A**

| X 222 005 01 blue insulated, 500 mm |
| X 222 005 02 red insulated, 500 mm |
| X 222 005 03 grey insulated, 500 mm |

**Suitable for**

- Module 17plus

**Bus bar 50 A**

| Y 307 016 01 non insulated, 500 mm |

**Suitable for**

- Module 17plus

**Bus bar for line entry on the side**

| Y 307 016 11 non insulated, 500 mm |

**Suitable for**

- Module 17plus

**Jumper**

| X 222 066 01 |

**Suitable for**

- Module 17plus
- SVS.
- 19BGT-2-2210
- 19BGT-2-2600/3900
- 19BGT-2-ESS20
- 9BGT-2-ESX10

New version see jumper SB-S11-P1-01-1-1A

---

**Jumper X 222 066 01 old version**

suitable for

- Module 17plus
- SVS.
- 19BGT-2-2210
- 19BGT-2-2600/3900
- 19BGT-2-ESS20
- 9BGT-2-ESX10

New version see jumper SB-S11-P1-01-1-1A
### Power distribution systems - accessories

#### Busbars and jumpers

**Jumper SB-S11-P1-01-1-1A**

- **suitable for** Module 17 plus SVS...
  - 19BGT-2-2210
  - 19BGT-2-3600/390
  - 19BGT-2-ESX10

**Connector bus link -P10**

- X 210 588 01 (brown)
- X 210 588 02 (black)
- X 210 588 03 (red)
- X 210 588 04 (blue)

- **suitable for** Power-D-Box with sockets X 211 530 01

**Bus bar 50 A X 221 760 11**

- **suitable for** Power-D-Box with sockets X 211 530 01

**Bus bar 50 A for socket 63-P10-Si**

- X 210 588 04/ 2.5 mm², blue (up to 20 A max. load)

**Connector bus link -P10**

- X 210 588 01/ 1.5 mm², brown (up to 13 A max. load)
- X 210 588 02/ 2.5 mm², black (up to 20 A max. load)
- X 210 588 03/ 2.5 mm², red (up to 20 A max. load)
- X 210 588 04/ 2.5 mm², blue (up to 20 A max. load)

---

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Power distribution systems - accessories

Tools

Withdrawal tool Y 308 602 01
suitable for
19BGT-2-ESS20
19BGT-2-ESX10

Withdrawal tool X 222 547 02
suitable for
19BGT-2-X345
X345-D01

Withdrawal tool X 211 018 01
suitable for
19BGT-2-X2210
X2210-S06...

Withdrawal tool for ESS20 /ESX10
Y 308 602 01

Withdrawal tool for removing circuit breaker type 8345
X 222 547 02

Withdrawal tool for removing circuit breaker type 2210-S291
X 211 018 01

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
19" 1U Power-D-Box power distribution system (also for ETSI systems) accommodating plug-in thermal-magnetic circuit breakers type 2210-S or similar types, single or double pole, with or without signal contact.

8 single pole (or 4 double pole) circuit breakers are fitted transversely as vertical pairs, line entry is at the rear by means of screw terminals with 16 (25) mm² cable cross section capacity. Redundant design of the system (2 x 4 single pole circuit breakers) is also available.

The load terminals are connected from the front by means of high current sub-D connectors or by means of screw terminals up to 4 mm². Auxiliary contact terminals can be connected form the rear (serial or parallel connection possible).

For replacing or retrofitting circuit breakers part of the front plate can be removed.

Above and below the circuit breakers are two narrow strips for customer-specific marking. Permanent marking is available ex factory for the front plate as an option.

Max. rating per way is 16 A (due to the derating of the circuit breakers mounted closely side-by-side), max. load of the line entry is 63 A at DC 65 V / AC 250 V.

19” 3U racks (also for ETSI systems) for accommodating plug-in type 2210-S or similar, single pole or multipole, with or without auxiliary contacts.

Up to 60 single pole circuit breakers can be fitted (in 2 rows above each other). Standard version of the rack is supplied without wiring, but customer-specific wiring is possible upon request.

Type and size of line entry, wiring of load outputs, signal contact connection as well as fitting with connecting terminals will be to order.

For replacing or retrofitting circuit breakers part of the front plate can be removed. Unused ways can be covered with blanking pieces.

Above and below the circuit breakers customer-specific marking is possible. Permanent marking is available ex factory for the front plate as an option.

Max. rating per way is 16 A (due to the derating of the circuit breakers mounted closely side-by-side), max. load of the line entry is 63 A at DC 65 V / AC 250 V.

Power distribution system for direct mounting to the rear wall of a control cabinet. Featuring type X8345-D01 power distribution rail with a variable number of modules possible.

Plug-in type 8345 circuit breakers are installed allowing load output currents of up to 125 A per module, with a maximum of 160 A for two adjacent positions.

Line entry is on the side, connected directly to internal busbars with up to 300 A at max. DC 110 V / AC 230 V.

Optional auxiliary contacts are also connected from the side by means of 2.8 mm blade terminals, all contacts are connected in parallel.

Reliable main and load terminal connections are by means of M10/M12 hexagonal screws.

The entire power distribution system is protected against brush contact by a slide-on plexi glass cover.

The system is mounted on the rear wall of a control cabinet by means of aluminium brackets. The system is also available with only one line entry (1 x 16 circuit breakers).

Load terminals are connected form the side via high current contacts (optionally from the rear via screw terminals). Auxiliary contact terminals are on the side (serial and parallel wiring), optional LED indication is configurable on the front.

For replacing or retrofitting circuit breakers the front plate can be replaced with power on. Circuit breakers must be switched off but may be replaced with power on.

Customer-specific marking of the front plate is possible.

Max load of one way is 50 A (please observe derating factor), max. load of the line entry is 2 x 450 A at DC 72 V (optionally AC 230 V or AC 115 V).
The Power-D-Box is a 2U 19" power distribution system (also for ETSI systems), accommodating plug-in type double pole thermal-magnetic circuit breakers 2210-S with auxiliary contacts. All cable connections are on the front by means of feed-through terminals, partly pluggable.

Line entry is via two fixed feed-through screw terminals up to 10 mm² with cable feed from below, max. line current 50 A. The load outputs are connected via double pole plug-in type screw terminals or alternatively spring-loaded terminals up to 4 mm². Polarisation is colour-coded. Cable feed is from the front. Max. load current is 16 A. All auxiliary contacts are combined as a group signal (series or parallel connection are possible) and also have plug-in type terminals up to 4 mm². All connectors may optionally be fitted with a strain relief by means of wire wraps.

All terminals and circuit breakers are marked correspondingly.

The version shown above accommodates 8 double pole circuit breakers, variations upon request.

The front plate can be removed for replacing the circuit breakers.

Small compact power distribution system on printed circuit board to accommodate 6 plug-in type thermal overload current circuit breakers type 1180.

Line entry is on the rear via screw terminals up to 10 mm², max. 16 A (back-up fuse required).

Load outputs are connected via a plug-in type screw terminal busbar, cable cross section 2.5 mm², max. 10 A.

Dimensions of the system are 90 x 50 x 96 mm (l x w x d) including the installed circuit breakers.

Numbers of ways, termination as well as mechanical design of the power distribution system can be tailored to customers’ needs.

Max. rated voltage DC 65 V, AC 250 V.

Two Power-D-Boxes, 1U 19" power distribution systems, for use with thermal high-performance circuit breakers type 482.

The power distribution systems feature a redundant design with 2 x 4 ways.

Connection of all cables can be either from the rear or on the front.

Line entry is on the right and left sides by means of screw-type feed-through terminals up to 16 mm² cable cross section, max. 100 A per side.

Load outputs are also via screw-type feed-through terminals up to 10 mm², max. 50 A per way (please observe derating factor of the circuit breakers).

Plug-in design of the circuit breakers allows easy adaptation to changing loads.

The max. installation depth is less than 180 mm including front and rear screw terminals.

Max. rated voltage is DC 72 V or AC 230 V.
Module 17plus is a power distribution system for use with E-T-A circuit breakers type 2210-S... or 3600-.../3900-... or electronic circuit breaker ESS20 or SSRPC E-1048-7... Each module accommodates two single pole plug-in circuit breakers with an individual housing width of only 12.5 mm and fits onto all industry standard mounting rails. The two-way modules can be interconnected to provide as many ways as required with a terminal block fitted at each end for connection of signalling circuits. A distribution busbar can be fitted on the supply side of the modules, but each pole of multipole circuit breakers must be individually connected. Electrical connections are by means of screwless spring loaded terminals. Suitable electro-mechanical circuit breakers have integral make and break auxiliary contacts. Depending on the application these may be used for either single or group signalisation. For group signalisation, the make contacts (which open in the event of a fault) are connected in series to the terminal blocks of the modules. The module is designed to accommodate a probe for series connection continuity tests. When multipole circuit breakers are fitted auxiliary contacts are required for each pole.

Single signalisation is achieved through use of the break contacts (which close in the event of failure) connected in parallel by means of terminals on each module. Both types of signalisation (individual and group signalisation) are available at the same time if the circuit breakers used provide auxiliary contacts (please note when ordering). The signalling circuitry between modules is automatically connected when modules are linked together.

Meets the requirements of UL60950

### Technical data

**Connection**

Spring-loaded terminals for rigid wires and flexible cables with and without wire end ferrules. Please use appropriate screw driver size (SD) for removing the spring loaded terminals.

- **Line feed (1):**
  - Spring-loaded terminals for 1.5 – 10 mm², SD 2 (0.8x4.0)
  - Load output (2):
    - Spring-loaded terminals for 0.25-4 mm², SD 1 (0.6x3.5)
- **Signalisation:**
  - Terminals (11, 13, 14):
    - Spring-loaded terminals for 0.25-2.5 mm², SD 1 (0.6x3.5)
  - Terminal (12):
    - Spring-loaded terminal for 0.25-1.5 mm², SD 0 (0.4x2.5)
- **Test probe for testing the group signal for line interruption:** ≤ 2 mm ø

**Voltage rating**

- **(without circuit breaker):** AC 433 V; DC 65 V

**Current rating**

- **Internal resistances (without circuit breaker):** Line load (1-2) ≤ 5 mΩ
- **Signalisation feed (11):**
  - Parallel (11-12) ≤ 9 mΩ/ per pole
- **Single output (12):** 1 A
- **Group signal (13-14):** 1 A

**Busbar for power distribution**

- Insulated busbar: I_max 32 A
- Non-insulated busbar: I_max 50 A

**Dielectric strength**

- Between main circuits (without busbar): 1,500 V
- Main circuit to auxiliary circuit: 1,500 V
- Auxiliary circuits: 1,500 V

**Mass:** Module 17plus (centre piece) approx. 85 g

### Ordering information

For thermal magnetic circuit breakers types 2210-S, 3600, 3900:
- For electronic circuit breaker type ESS20:
- For solid state remote power controller E-1048-7-..:

**17PLUS-Q02-00** Module 17plus, centre piece, two-way
**17PLUS-QA0-LR** one each left- and right-side terminal block for supply feed from the side by means of screw terminal

**Technical data of:** please see:

- **Circuit Breaker 2210-S, 3600, 3900** product group 2
- **Electronic Circuit Breaker ESS20, ESX10** product group 5
- **Solid State Remote Power Controller E-1048-7-..** product group 6

### Approvals

<table>
<thead>
<tr>
<th>Authority</th>
<th>Voltage ratings</th>
<th>Current ratings</th>
</tr>
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<tbody>
<tr>
<td>UL USA + Canada</td>
<td>AC 250 V; DC 80 V</td>
<td>50 A</td>
</tr>
</tbody>
</table>

*) Caution: When several devices are mounted together, each should carry only max. 80 % (I_N ≤ 16 A) or max. 65 % (I_N > 16 A) of its rating.
**Dimensions**

Slot for busbar

Symmetrical rail EN 50022-35x7.5

G-profile EN 50035-G32

Slot for fitting labels from Phoenix, Weidmüller, Wieland

**Connection diagram**

Example for circuit breaker types 2210, 3600, 3900

**Module 17plus for electronic overcurrent protection**

For technical data, dimensions, mounting examples, schematic diagrams and connection diagrams of

- ESS20-0...
- ESS20-1...
- ESX10
- E-1048-7...

please see product group 5

please see product group 5

please see product group 5

please see product group 6

For connection diagram for electronic circuit breakers and components please see relevant data sheets of types ESS20, ESS21, E-1048-7..
Module 17plus

Accessories

Busbar 32 A
X 222 005 01 blue insulation, 500 mm/19.68 in.
X 222 005 02 red insulation, 500 mm/19.68 in.
X 222 005 03 grey insulation, 500 mm/19.68 in.

Busbar 50 A
Y 307 016 01 non-insulated, 500 mm/19.68 in.

Busbar 50 A
Y 307 016 11 non-insulated, 500 mm/19.68 in.

End bracket
X 222 004 01

Screw terminal for busbar
X 211 156 01 non insulated (up to 35 mm²)

Retaining clip for circuit breaker 3600/3900
recommended for fitting the devices
Y 300 581 11

Retaining clip for circuit breaker 2210
recommended for fitting single pole devices
Y 302 974 21

Jumper X 222 066 01

Labels
marking area 6 x 10 mm
(ordering unit 10 pcs = 1 strip)
Y 307 942 01

This is a metric design and millimeter dimensions take precedence (inch).

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
### Description

The E-T-A power distribution system SVS02 is designed to accommodate the electronic circuit breaker series ESS20-003 or electronic circuit protector ESX10. It distributes the current supplied by a switch mode power supply up to 40 A to 4, 8, 12 or 16 channels. Input connections are via screw terminals. The individual circuit breakers can be plugged in. Loads are connected via spring-loaded screwless terminals. The power distribution includes integral wiring of the signalisation of the individual channels which can be combined to a group signal. The SVS02 can be snapped onto a DIN symmetrical rail.

**Suitable for**
- ESS20-003
- ESX10-103
- 2210-S21.
- 3600

### Ordering Information

**Type**
- SVS02 - Power distribution system for ESS20-003

**Suitable for**
- Short circuit limited DC 24 V applications
- Max. 40 A continuous load

- Two integral circuit breakers (CB1 and CB2):
  - Overcurrent protection of group signalisation of power distribution system, red LED glashes upon trip of CB1
  - 2 insulated wire bridges Y 303 881 08 included

**Version, max. number of circuit breakers ESS20-003**
- 04 channels (F1...F4)
- 08 channels (F1...F8)
- 12 channels (F1...F12)
- 16 channels (F1...F16)

**Technical Data**

- Modular Power distribution system for short-circuit limited DC 24 V applications up to max. 40 A continuous load, max. voltage DC 32 V.
- Three screw terminals (max. 10 mm²/AWG 8) for:
  - DC 24 V (+) = X 21 +
  - DC 24 V (-) = X 21 -
  - FE (functional earth) = X 21 FE
- For connecting the DC 24 V power supply max. 40 A
- Modular design ESS20-positions F1...F4 (..F8, ..F12 or ...F16):
  - SVS02-04 / 4 channels / F1...F4 = Kl. X1...X4
  - SVS02-08 / 8 channels / F1...F8 = Kl. X1...X8
  - SVS02-12 / 12 channels / F1...F12 = Kl. X1...X12
  - SVS02-16 / 16 channels / F1...F16 = Kl. X1...X16
- 5 load outputs per channel complete with CombiCon screwless connectors, wiring 5 x max. 2.5 mm² (AWG 14/0) without connector sleeve max. 8 A:
  - (+) internal +DC 24 V supply for signalisation of terminal (signal contact ESS20):
    - (S0) external supply possible +DC 24 V for signalisation, protected by CB1
    - (SC) external supply possible +DC 24 V for signalisation, protected by CB2
- 5 load outputs per channel complete with CombiCon screwless connectors, wiring 5 x max. 2.5 mm² (AWG 14/0) without connector sleeve max. 8 A:
  - (L+L) load output (+), internally bridged across all channels
  - (-) DC 24 V (-)
  - FE (functional earth)

- Signal terminal (X31) for group signal complete with CombiCon screwless connectors, wiring 5 x max. 2.5 mm² (AWG 14/0) without connector sleeve max. 0.5 A (signal contact ESS20):
  - (+) internal +DC 24 V supply for signalisation of terminal X 21 + via insulated jumper from (+) to (SC), protected by CB2
  - (SC) external supply possible +DC 24 V for signalisation, protected by CB1
  - (S0) signal output group signalisation
  - (-) additional output DC 24 V (-)
  - (FE) additional functional earth

- Selective overcurrent protection CB1 and CB2 for group signalisation of the power distribution system, red LED blinks after CB1 has tripped (see schematic diagram).
- Reset of circuit breakers: momentarily press red actuator button

### Ordering Information

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<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVS02</td>
<td>Power distribution system for ESS20-003</td>
</tr>
<tr>
<td>Type</td>
<td>SVS02</td>
</tr>
</tbody>
</table>

**Screw terminals for power supply DC 24 V**

P310 - 3 loop-through terminals (X 21) max. 10 mm² for DC 24 V (+) / DC 24 V (-) / FE functional earth

<table>
<thead>
<tr>
<th>Load outputs per channel (F1...Fn, n = 04, 08, 12, 16)</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>L50 5 load outputs per channel, max. 8 A each</td>
<td></td>
</tr>
<tr>
<td>(L+L) group output (+) internally bridged over all channels</td>
<td></td>
</tr>
<tr>
<td>(-) DC 24 V (-)</td>
<td></td>
</tr>
<tr>
<td>(+) DC 24 V (+)</td>
<td></td>
</tr>
<tr>
<td>(FE) functional earth</td>
<td></td>
</tr>
</tbody>
</table>

**Signal outputs**

S15 1 signal terminal (X31) for group signal, 5-pole, complete with plug-in terminal, wiring 5 x max. 2.5 mm² / without connector sleeve, max. 0.5 A:

- (+) internal +DC 24 V supply for signalisation via insulated wire bridge from (+) to (SC)
- (SC) external supply possible +DC 24 V for signalisation
- (S0) signal output group signalisation
- (-) additional output DC 24 V (-)
- (FE) additional functional earth

**Control input**

E00 without control input

**Fitting variants**

B10 complete with screwless spring-loaded terminals.

- (max. 2.5 mm², without connector sleeve) (standard)

B20 complete with plug-in screw terminals (max. 2.5 mm², without connector sleeve)
This is a metric design and millimeter dimensions take precedence.

Schematic diagram SVS02-(n) n = 04, 08, 12, 16

*) see application example for insulated wire bridge

LED V1 blinks after CB1 has tripped
CB2: no visual indication

Circuit breakers CB1 and CB2: shown in tripped condition

F1  F2  F3  Fn

Insulated wire bridge, not fitted (2 pcs enclosed)
Rail EN 50022-35x7.5 (not supplied)
red LED blinks after CB1 has tripped
screw terminals
DC 24 V power supply
load outputs
screwless spring-loaded terminals

This is a metric design and millimeter dimensions take precedence.
Dimensions SVS02-04, fitted with ESS20-003

- Insulated wire bridge, not fitted (2 pcs enclosed)
- Rail EN 50022-35x7.5 (not supplied)

This is a metric design and millimeter dimensions take precedence. (mm) (in)

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Issue B  
www.e-t-a.com
Power Distribution System SVS02

Dimensions SVS02-04, fitted with ESX10-103

- Insulated wire bridge
- Screw terminals
- Power supply
- Load outputs
- Screwless spring-loaded terminals
Accessories

Insulated wire bridge
Y 303 881 08

Two insulated wire bridges are supplied with the power distribution system. They may be used for:

- Channel X31: internal +DC 24 V supply for signalisation wire bridge from (+) to (SC)
  Signal circuit (+) to (SC) protected by CB2
  Signal circuit (SC) to (SO) protected by CB1

- Channel X1: Protected load output (L+L) of CBE position F1 takes over protection of (L+S) terminals of all CBEs F2 up to Fn (n= 04, 08, 12, 16)

Application example for jumper to replace ESS20-003

Jumper
X 222 066 01

Application example for insulated wire bridge

Terminal X31 (group signalisation)
wire bridge from (+) to (SC)
internal +DC 24 V feed for signalisation
Thus plus potential of terminal X21+ is connected to (SC)

Terminal X1
Protected load output (L+L) of CBE position F1 takes over protection of (L+S) terminals of all CBEs F2 up to Fn (n= 04, 08, 12, 16)

The signalling pathway of the group signalisation is as follows:
- feed-in of +DC 24 V potential in (SC = terminal 31.2)
- via in-built overcurrent protection CB1
- via all signal contacts of the fitted circuit breakers type ESS20-003
- back to signal output of group signalisation (S0 = terminal 31.3)

In operating condition (i.e. all circuit breakers plugged in and functional) the signalling pathway (SC) to (S0) is closed.

If the distribution rail is not completely fitted with ESS20-003, the open pathway (SC) to (S0) may be closed by means of a jumper type X 222 066 01.

This is a metric design and millimeter dimensions take precedence (mm)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
The SVS04 power distribution system for symmetrical DIN rail mounting is designed to distribute power from a switch-mode power supply to 4 or 8 channels. Selective protection of the load output circuits is provided by the plug-in type circuit breakers installed. With a max. load current of 8A per channel and a max. total current of 40A the SVS04 provides ease of wiring in short circuit current limited DC24V applications. Five protected “L+” load outputs per way and 15 or 30 minus terminals significantly reduce wiring time enormously.

Electronic circuit breaker ESS20-003, electronic circuit protector ESX10-103, thermal-magnetic circuit breakers 2210-S21. and 3600 are all suitable for use with the SVS04, plugging directly into the sockets provided for each of the 4 or 8 outputs.

### Technical data

**DC24 V supply**
- DC 24 V terminals, 2x3 terminals (screwless terminals max. 10 mm²), for current supply
  - DC 24 V (+) = (X21) ++/+/+
  - DC 24 V (-) = (X21) +/-/-
- Integral loop-through, for wiring and additional connection of an external buffer module.

**F positions**
- Number of ways for circuit breakers, suitable for types ESS20-003, ESX10-103, 2210-S21., 3600
- SVS04-04... F1...F4 = terminals X1...X4
- SVS04-08... F1...F8 = terminals X1...X8
- Plug jumper X 222 066 01 into unused ways (please order separately, see accessories)

**Load outputs**
- 5 x L+ protected per position F1...F4 (F1...F8), led through terminals X1...X4 (X1...X8), max. 2.5 mm²
- load current max. 8 A per position

**Signalisation**
- signalisation terminal X31, 5-pole, max. 2.5 mm²
  - +: DC 24 V feed from terminal X21, protected by integral circuit breaker CB1
  - total current max. 0.5 A
- group signalisation:
  - S: line feed DC 24 V, insert insulated wire bridge Y 303 881 08 (bulk shipped) between + and GR
  - AS: output of group signalisation
  - two-group signalisation
  - GR: line feed, insert insulated wire bridge Y 303 881 08 (bulk shipped) between + and GR
  - AS: output group A (X5...X8)
  - B: output group B (X1...X4)

**Minus terminals**
- 3 x 5 terminals (X22, X23, X24) or
- 6 x 5 terminals (X22, X23, X24, X25, X26, X27): version K01

**Termination**
- For signalisation, load outputs and minus terminals:
  - B10: screwless spring-loaded terminals max. 2.5 mm², with integral test socket
  - B20: plug-in type screw terminals max 2.5 mm², with integral test socket
  - C10: pcb terminal/spring-loaded terminal max. 2.5 mm², with integral test socket

**General data**
- protection class to DIN 40050: IP20
- pollution degree 2
- dielectric strength AC 500 V
- temperature range: 0…50 °C (without condensation)
- for symmetrical DIN rail mounting ENS0022 – 35 x 7.5
- dimensions: see dimensional drawings
Power Distribution System SVS04

Wiring example: SVS04-04... with ESS20-003 and group signalisation

Signal path of group signalisation from F1 to F4

X 31  | signalisation terminal
AS    | signal output group signal
+     | +DC 24 V from terminal 21, internally prewired and protected by CB1
S     | line feed group signalisation with insulation bridge*
SC / SO | auxiliary contact ESS20-003, make contact

Wiring example: SVS04-08... with ESS20-003 and group signalisation

Signal path of group signalisation from F1 to F8

X 31  | signalisation terminal
AS    | signal output group signal
+     | +DC 24 V from terminal 21, internally prewired and protected by CB1
S     | line feed group signalisation with insulation bridge*
SC / SO | auxiliary contact ESS20-003, make contact

*Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Wiring example: SVS04-04... with ESS20-003 and two-group signalisation

Signal path of two-group signalisation
from F1 to F2 = group B, from F3 to F4 = group A

X31 signalisation terminal
AS signal output group A (F3 ... F4)
B signal output group B (F1 ... F2)
+ +DC 24 V from terminal 21, internally prewired and protected by CB1
GR line feed two-group signalisation with insulation bridge*
SC/SO auxiliary contact ESS20-003, make contact

Wiring example: SVS04-08... with ESS20-003 and two-group signalisation

Signal path of two-group signalisation
from F1 to F4 = group B, from F5 to F8 = group A

X31 signalisation terminal
AS signal output group A (F5 ... F8)
B signal output group B (F1 ... F4)
+ +DC 24 V from terminal 21, internally prewired and protected by CB1
GR line feed two-group signalisation with insulation bridge*
SC/SO auxiliary contact ESS20-003, make contact
Power Distribution System SVS04

Dimensions SVS04-04-... (with 15 minus terminals)

Schematic diagram SVS04-04-... (fitted with ESS20-003)

DC 24 V / max. 40 A

LED V1 flashes upon trip of CB1

Circuit breaker CB1 shown in tripped condition
Dimensions SVS04-04-..., fitted with ESS20-003

- Terminal power supply, spring-loaded cage clamps
- Load outputs, 5-pole: 2.5 mm² depending on filling version
- Screwless spring-loaded cage clamps
- Plug-in type screw terminals
- Red LED flashes when CB1 trips

Top hat rail EN 50022-35x7.5 (not supplied with product)
Dimensions SVS04-08-... (with 15 minus terminals)

- Wire bridge, fully insulated, 2-pole, not fitted, (1 piece enclosed)
- Bridge, fully insulated, 3-pole
- Terminal power supply spring-loaded cage clamps 45° 10 mm²
- Load outputs, 5-pole 2.5 mm² depending on fitting version screwless spring-loaded cage clamps plug-in type screw terminals PCB cage clamps
- Red LED flashes when CB1 trips
- Top hat rail EN 50022:35x7.5 (not supplied with product)

This is a metric design and millimeter dimensions take precedence (mm)
Dimensions SVS04-08... K01 (with 30 minus terminals)

Schematic diagram SVS04-08... K01 (fitted with ESS20-003)

DC 24 V / max. 40 A

LED V1 flashes upon trip of CB

Circuit breaker CB1 shown in tripped condition
Accessories

**Insulated wire bridge**

Y 303 881 08

2 pcs of the insulated wire bridge are supplied with the power distribution system. The insulated wire bridges may be used for:

- terminal X31: internal DC 24 V feed for group signalisation wire bridge from (+) to (S) signal path protected by CB1

- terminal X31: internal DC 24 V feed for two-group signalisation wire bridge from (+) to (GR) signal path protected by CB1

**Application example for jumper to replace ESS20-003**

The signalling pathway of the group signalisation is as follows:

- feed-in of +DC 24 V potential in X31 (»+« terminal) via in-built overcurrent protection CB1
- via all signal contacts of the fitted circuit breakers type ESS20-003
- back to signal output of group signalisation X31 (»AS«)

In operating condition (i.e. all circuit breakers plugged in and functional) the signalling pathway X31 from »+« to »AS« is closed.

If the distribution rail is not completely fitted with ESS20-003, the open pathway »+« to »AS« may be closed by means of a jumper type X 222 066 01.

**Application example for insulated wire bridge**

Terminal X31 (group signalisation)

wire bridge from (+) to (S)

internal +DC24V feed for signalisation

Thus plus potential of terminal X21+ is connected to (S)

This is a metric design and millimeter dimensions take precedence (mm).
The SVS09 power distribution system with integral signalling module optimises DC 24 V distribution at the machine-oriented field level in automated process control, production plants and power plants. Offering 10-plug-in sockets for electronic and thermal-magnetic circuit breakers and an integrated alarm handling function for single and group signalisation, the SVS09 distribution board can be cascaded on the master-slave principle to meet specific requirements. This cascading allows transducers, actuators, valves, distributed PLCs, intelligent terminals etc. to be clustered into distinct function groups and to be conveniently incorporated into the plant’s overall alarm monitoring scheme. Particularly for applications with a great number of sensors/actuators, the SVS09 offers possibilities for cost- and space-saving in the design of control cabinets.

Each load circuit that is interrupted by an overload or short circuit trip always generates a single alarm. In addition, a group alarm for the entire SVS09 cascade is induced which will be acknowledged by means of a command element (momentary switch, relay, PLC) either locally in the control cabinet or remotely in the control room. Acknowledging the group alarm immediately reactivates the group signalling function of the SVS09 cascade remobilising it for new incoming short-circuit or overload messages.

The power distribution system SVS09 is mounted on a symmetrical rack and accommodates 10 electronic or thermal-magnetic circuit breakers. All terminals (line entry DC +24 V, GND (-) for self-supply, load outputs L(+), signalling and acknowledgement) are spring-loaded terminals.

**Features and benefits**

- integral distribution, protection and signalling functions
- power distribution and selective protection of DC 24 V load circuits forming one source
- single signalling with manual reset on the protective device
- group signalling and acknowledgement by means of momentary switch/signalling (local/remote)
- ease of signalling integration into signal concept of the entire system
- cascading of several SVS09 systems on the master-slave principle
- ease of configuration with wire bridges on the master SVS09

**Ordering information**

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVS09</td>
<td>Power distribution system for ESS20-003, ESX10-103, 2210-S211, 3600-P10, 3900-P10</td>
</tr>
</tbody>
</table>

- for short circuit limited DC 24 V applications
- max. continuous load per SVS09 system: 30 A
- max. continuous load per load output: 4 A

**Technical data (Tamb = 25 °C, U_S = DC 24 V)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>rated voltage</td>
<td>DC 24 V (19...28 V)</td>
</tr>
<tr>
<td>residual ripple 5 % max.</td>
<td></td>
</tr>
<tr>
<td>total current</td>
<td>max. 30 A</td>
</tr>
<tr>
<td>DC 24 V (+)</td>
<td>X 21.1+, X21.2+</td>
</tr>
<tr>
<td>GND (-)</td>
<td>X 22.4-, X22.3-</td>
</tr>
</tbody>
</table>

**Application**

modular power distribution system for short circuit limited DC 24 V applications

**Line entry**

- rated voltage: DC 24 V (19...28 V)
- current: max. 4 A
- number: 1 protected load output L(+) via circuit breaker (Fx)

**Single signalisation**

10 x single signalisation for 10 x F(x) terminal block X23, contacts 30-40, 31-41, 32-42, ... potential-free make contacts (N/O)
- error indication: contact open
- OK indication: contact closed
- Empty way: contact closed
- reset: manually on plugged-in circuit breaker

**Group signalisation**

1 x group signalisation pro SVS09-cascade (1 master + 5 slaves) terminal block master X22, contact 13-23, potential-free contact
- error indication: contact closed
- OK indication: contact open

**Acknowledgment of group signalisation**

1 x acknowledgment instruction per SVS09-cascade (1 master + 5 slaves) acknowledgment only on the master terminal block master X22, contact 10-11, terminal potential-free break contact (N/C) or bridge with bridge: master, acknowledgment locally, momentary switch on SVS09 (module SIGMO) break contact N/C: master, acknowledgment locally and remote (momentary switch, relay, external PLC)

1) When mounted side-by-side or fully fitted with thermal-magnetic circuit breaker types 2210, 3600 or 3900, each breaker should only carry 80 % of its rating or a higher rating should be chosen.

2) For failure signalisation and for cascading functions on the master-slave principle the plug-in type signalisation module SIGMO-09-1xx is required. See accessories.
Power distribution system SVS09

Technical data (T_{amb} = 25 °C, U_S = DC 24 V)

<table>
<thead>
<tr>
<th>Configuration master/slave and group signal</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>configuration of master/slave functions of a SVS09-cascade on the master SVS09 via bridges on terminal block X22</td>
<td></td>
</tr>
<tr>
<td>X22: 20-21 master/slave-marking:</td>
<td>with bridge = master</td>
</tr>
<tr>
<td></td>
<td>without bridge = slave</td>
</tr>
<tr>
<td>X22: 13-23 group signal locally/remote pre-adjustment = only locally, LED on master-SVS09 terminal of external indication element = locally and remote</td>
<td></td>
</tr>
<tr>
<td>X22: 10-11 acknowledgment of group signal locally/remote with bridge = master, acknowledgment locally with break contact = master, acknowledgment locally and remote without bridge = slave, no acknowledgment</td>
<td></td>
</tr>
</tbody>
</table>

Cascading several SVS09 systems

cascading possible with 1 x master M and max. 5 slaves S1...S5 Loop through the following 4 lines:
24 V (+) supply voltage
M-X21:2+ → S1-X21:1+ → S1-X21:2+ → S2-X21:1+...
GND (-) self-supply circuit breaker/signallisation
M-X22:3- → S1-X22:4- → S2-X22:4-...
S (+) group signallisation (+)
M-X22:12 → S1-X22:11 → S1-X22:12 → S2-X22:11...
S (-) group signallisation (-)

Termination

| C10 pcb spring-loaded terminals (standard) line entry DC 24 V on terminal block X21 line (+) terminals 1+ und 2+, connection capability (cable cross section) with and without wire end ferrule 0.25 - 10 mm² stripped length 12 mm configuration, GND (-) (self-supply) and group signal on terminal block X22 5x double level terminal block single signallisation on terminal block X23 10x double level terminal block load outputs on terminal block X24 5x double level terminal block connection capability (cable cross section) with and without wire end ferrule 0.25 - 1.5 mm² stripped length 7 mm plug-in type signallisation module SIGMO-09-1xx 50-pole Card Edge socket board |

| C20 pcb screw terminals (option) |

General data

- Mounting: symmetrical rail to EN 50022 - 35 x 7.5
- Temperature range: 0...50 °C (without condensation)
- Storage temperature: -20...+70 °C
- Housing material: plastic
- Protection class terminals IP20 DIN 40050
- pcb IP00 DIN 40050 (double-lacquered)
- Insulation voltage: DC 250 V (pcb)
- Dimensions: see drawings (tolerances to DIN ISO 286 part 1 IT13)
- Mass: SVS09-10 approx. 380 g

Reference notes:

- The power distribution system must be installed by qualified personnel only.
- Only after expert installation may the assembly be connected to a power supply.
- The assembly is only suitable for use at safety extra-low voltage (DC 24 V).
- Connection to higher or not reliably disconnected voltages may be hazardous or cause damage.
- The max. total current of the SVS09 system must not be exceeded.
- In each load circuit the cable cross sections and the current rating of the protective device must be selected according to the rating of the connected load.
- The technical data of the circuit breakers used must be observed.
- According to "Machinery Directive 98/37/EG and EN 60204-1, Machine Safety" special precautions have to be taken in machinery (e.g. use of a safety PLC) to prevent inadvertent start-up of machinery parts. In the event of a failure (short circuit/overload) the load circuit will be disconnected by the circuit breaker.
- After tripping of the circuit breaker and before reset the cause of tripping (short circuit or overload) must be remedied.
- The international standards (e.g. DIN VDE 0100 for Germany) must be observed with respect to installation and selection of cables.

Mounting position

2) The plug-in type signallisation module SIGMO-09-1xx is required for failure signallisation and for the cascading functions on the master/slave principle. See accessories.

3) The SVS09 power distribution system is supplied without wire bridges and can thus be integrated into existing SVS09 cascade as a slave unit without further configuration. The user inserts wire bridges on terminal block X22 of the master.
Power distribution system with overcurrent protection and integral signalling logic

1 Configuration master / slave
   terminal block X22
   X22 20-21 master / slave marking
   with bridge: master
   without bridge: slave (factory setting)
   X22 10-11 acknowledgment of group signalling
   with bridge: = master, acknowledgment locally break contact N/C
   = slave, acknowledgment locally + remote
   (momentary switch, PLC ...external)
   without bridge: = slave: no acknowledgment on slave (factory setting)

2 Fault signalisation
   single signal: terminal block X23
   terminals 30-40, 31-41, 32-42, 33-43, 34-44, 35-45, 36-46, ...
   potential-free contact
   fault: contact open
   OK: contact closed
   empty way: contact closed
   group signal: terminal block X22
   locally LED on master
   remote terminals 13-23, potential-free contact
   fault: contact closed
   OK: contact open

3 Cascading
   loop-through of 4 lines
   master → slave 1 → ... slave n
   24 V (+) LINE (supply voltage)
   M-X21:2+  →  S2-X21:1+  X21:2+ → S2-X21:1+ X21:2+ → S3...
   S (+) group signalisation (+)
   S (-) group signalisation (-)
   GND (-) self-supply circuit breaker / plug-in type SIGMO module
   M-X22:3- → S1-X22:4+ X22:3- → S2-X22:4+ X22:3- → S3...
Configuration instruction

General information

- Application individually (1 SVS09-10 as master) or as cascade (1 master + max. 5 slaves)
- Any configuration with wire bridges will only be done on the master.
- The minimum configuration with a master and local signalisation and acknowledgment directly on the SVS09 power distribution system requires wiring of two bridges: X22:20-21 for master identification and X22:10-11 for group acknowledgment.
- Configuration of a cascade is always carried out only on the master with cascades consisting of several SVS09 mounted side-by-side. No adjustments are required on the slaves.
- Devices for status indication and acknowledgment for external signalisation must be connected only to the master. Should several external display elements be required (e.g. LED, acoustic signal), these must also be connected only to the corresponding signal outputs of the master.
- Unused slots do not have to be bridged, they have no influence on the signalisation of the installed circuit breakers. Unused slots forward to OK indication to the signalisation outputs.
- The SVS09 power distribution system invariably requires a plugged-in signalisation module SIGMO-09-xxx (on separate order).

Individual application

Minimal configuration: 1 master with local group signalisation and acknowledgment

<table>
<thead>
<tr>
<th>step</th>
<th>configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mounting: mount SVS09 on the symmetrical rail</td>
</tr>
<tr>
<td>2</td>
<td>connect DC +24 V (+) supply: on terminal block DC 24 V, +24 V to terminal 1+</td>
</tr>
<tr>
<td>3</td>
<td>connect GND (-) supply: 1) on terminal block X22, GND (-) to terminal 4-</td>
</tr>
<tr>
<td>4</td>
<td>master identification: bridge terminals 20-21 on terminal block X22</td>
</tr>
<tr>
<td>5</td>
<td>group signal locally: pre-adjustment. In the event of group failure the red LED is always lighted (only) on the master.</td>
</tr>
<tr>
<td>6</td>
<td>group acknowledgment locally: bridge terminals 10-11 on terminal block X22 acknowledgment manually with red momentary switch on SVS09 (module SIGMO)</td>
</tr>
<tr>
<td>7</td>
<td>single signalisation: connect single signalisation for F1 through F10 on terminal block X23, F1: terminals 30-40, F2: terminals 31-41, F3: terminals 32-42 ... F10: terminals 39-49 signal: potential-free contact: fault = contact open, OK = contact closed, empty way: contact closed</td>
</tr>
<tr>
<td>8</td>
<td>loads: on terminal block X24: connect loads to be protected to terminals 50 through 64</td>
</tr>
</tbody>
</table>

1 master with local and external (remote) group signalisation and acknowledgment

<table>
<thead>
<tr>
<th>step</th>
<th>configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mounting: mount SVS09 on the symmetrical rail</td>
</tr>
<tr>
<td>2</td>
<td>DC +24 V (+) supply: on terminal block DC 24 V, connect +24 V to terminal 1+</td>
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<tr>
<td>3</td>
<td>GND (-) supply: 1) on terminal block X22, connect GND (-) to terminal 4-</td>
</tr>
<tr>
<td>4</td>
<td>master identification: bridge terminals 20-21 on terminal block X22</td>
</tr>
<tr>
<td>5</td>
<td>group signal locally and remote: on terminal block X22, connect to external display element to terminals 13-23 (e.g. LED, relay, acoustic signal). In addition the red LED is always lighted on the master with group signal signal: potential-free contact: fault = contact closed, OK = contact open</td>
</tr>
<tr>
<td>6</td>
<td>group acknowledgment locally or remote: on terminal block X22, connect a command element to the terminals 10-11, e.g. momentary switch, relay, PLC signal (potential-free break contact N/C)</td>
</tr>
<tr>
<td>7</td>
<td>single signalisation: on terminal block X23, connect single signalisation for F1 through F1 F1: terminals 30-40, F2: terminals 31-41, F3: terminals 32-42 ... F10: terminals 39-49 signal: potential-free contact: fault = contact open, OK = contact closed, empty way: contact closed</td>
</tr>
<tr>
<td>8</td>
<td>loads: on terminal block X24: connect loads to be protected to terminals 50 through 64</td>
</tr>
</tbody>
</table>

1) GND (-) potential serves for self-supply of SVS09 (circuit breaker and SIGMO-module)
### Power distribution system SVS09

**Cascading: 1 master and several (n) slaves (max. 5)**

<table>
<thead>
<tr>
<th>step</th>
<th>configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mounting: mount all SVS09 onto symmetrical rail</td>
</tr>
</tbody>
</table>
| 2    | DC +24 V (+) supply: terminal block DC 24 V  
- on the master: connect +24 V (+) to terminal 1+ and lead through to terminal 2+ for slave 1  
- on slave 1: connect +24 V (+) of master to terminal 1+ and lead through to terminal 2+ for slave 2  
- on slave n: connect +24 V (+) of slave (n-1) to terminal 1+  
- additional slaves: always lead through +24 V (+) of terminal 2+ for next slave, terminal 1+ |
| 3    | GND (-) supply:  
- on the master: connect GND (-) to terminal 4- and lead through at terminal 3- for slave 1  
- on slave 1: connect GND (-) of master to terminal 4- and lead through at terminal 3- for slave 2  
- on slave n: connect GND (-) of slave (n-1) to terminal 4-  
- additional slaves: always lead through GND (-) of terminal 3- for next slave, terminal 4- |
| 4    | master identification: bridge terminals 20-21 on the SVS09-master, on terminal block X22  
Note: no adjustments on the slaves required! |
| 5    | group signal locally: pre-adjustment. In the event of group fault the red LED is always lighted (only) on the master. |
| 6    | group acknowledgment locally: bridge terminals 10-11 on SVS09-master, terminal block X22  
acknowledgment manually with red momentary switch on SVS09-master (module SIGMO)  
Note: no adjustments on the slaves required! |
| 7    | single signalisation: on terminal block X23, connect single signalisation for F1 through F10  
signal: potential-free contact: fault = contact open, OK = contact closed, empty way: contact closed |
| 8    | loads: on terminal block X24: connect loads to be protected to terminals 50 through 64 |

---

1) **GND (-) potential serves for self-supply of the SVS09** (circuit breaker and SIGMO module)
Schematic diagram

Dimensions SVS09-10-C10
Power distribution system SVS09

Application example: SVS09-10-C10 fitted with ESS20-003

Plug-on module (circuit breaker / signalisation module SIGMO-09-1xx) to be ordered separately

Application example: SVS09 cascade with 1 master and 1 slave

SVS09-10-C10 master fitted with 10 x ESS20-003
SVS09-10-C10 slave fitted with 5 x 2210-S2 and 5 x 3600
Signalisation module SIGMO-09-1xx

Technical data (\(T_{\text{amb}} = 25^\circ\text{C}, U_S = \text{DC 24 V}\))

Voltage supply
- rated voltage: DC 24 V (19...28 V)
- residual ripple 5 % max.

Current load
- normal operation without trip: 0 mA
- max. 150 mA with 10-way fault on SVS09 (all relays loaded)

Contacts
- min. 10 V / 10 mA
- max. 28 V / 200 mA...

Status indication and actuation
- LED red: lighted in the event of group fault
- momentary switch red: for local acknowledgment of group signalisation
- remote acknowledgment: terminal of an external command (momentary switch, relay, PLC signal)
- rupture capacity 28 V / 20 mA
- integral free-wheeling diode in SIGMO module

Reverse polarity protection
- Protected against reverse polarity of potentials DC 24 V (+) and GND (-) on the SVS09. No function if connected reversely

Application
Plug-in type signalisation module for the power distribution system SVS09 for group signalisation and acknowledgment for an isolated SVS09 application or a cascade. The SIGMO module ensures a group fault to be indicated after each trip of a circuit breaker on the SVS09. Fault indication can be – depending on the configuration – locally on the power distribution system (red LED) or locally and externally (remotely), e.g. by means of an acoustic signal in the control room. Acknowledgment of the group signal can also be only locally via a momentary switch on the power distribution system, or locally and remotely, e.g. via a momentary switch in the control room. Acknowledgment of the group signal re-activates the group signalisation, so that it is released again and ready for new error messages. The single signalisation and the tripped circuit breaker will be manually reset by actuating the push button of the circuit after remedy of the failure.

Note: Proper function of the signalisation module SIGMO-09-1xx is ensured only in connection with the power distribution system SVS09-10-Cxx.

1) see power distribution system SVS09, basic schematic diagram and configuration instruction

Ordering information

Type No.
- SIGMO signalisation module for SVS09 power distribution system
  - plug-in type signalisation module
  - DC 24 V-applications
  - supply via SVS09

Version for power distribution system
- 09 SVS09-10 for circuit breakers (F1...F10)
- Pcb version
  - 100 standard: plug-in type signalisation module for circuit breaker (F1...F10)
  - pcb populated, open,
  - 120 option: plug-in type signalisation module for circuit breaker (F1...F10)
  - pcb populated, encapsulated

SIGMO - 09 - 100 ordering example

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
Power-D-Box with sockets

Description

Power-D-Box 19" power distribution system fitted with E-T-A sockets 63-P10-Si to accommodate thermal-magnetic circuit breakers with each terminal block accepting up to 6 circuit breakers. Other rack types upon request.

Typical applications

Circuit breakers that may be accommodated on Power-D-Box 19" racks fitted with E-T-A sockets 63-P10-Si:

- type 2210: see section 2 - thermal-magnetic overcurrent CBs
- type 3600: see section 2 - thermal-magnetic overcurrent CBs
- type 3900: see section 2 - thermal-magnetic overcurrent CBs
- type E-1048-60: see section 6 - SSRPCs

Ordering information

X 211 530 01 for 5 E-T-A terminal blocks 63-P10-Si

Technical data

X 211 530 01 2 U

Material: The Power-D-Box 19" power distribution system and the mounting flanges are made of 2 mm thick steel sheet.

Colour: RAL 7032, grey

Connection

By means of one or two 4-pole female multi-pin connectors for max. 4 mm² cables, which may be connected either on the right or left side of the rack.
### Dimensions

**X 211 530 01**  
19" rack Power-D-Box with 5 E-T-A sockets 63-P10-Si

- e.g. type 3600-P-Si
- or type 3900-P-Si

![Diagram of Power-D-Box with dimensions](image)

**Accessories**

**Connector bus links -P10**

- X 210 588 01/ 1.5 mm² (AWG 16), brown (up to 13 A max. load)
- X 210 588 02/ 2.5 mm² (AWG 14), black (up to 20 A max. load)
- X 210 588 03/ 2.5 mm² (AWG 14), red (up to 20 A max. load)
- X 210 588 04/ 2.5 mm² (AWG 14), blue (up to 20 A max. load)

- 100 quick-connect tabs 6.3 (250)
- DIN 46247 tinned brass, insulated

**Busbar 50 A for socket 63-P10-Si**

- X 221 760 11

- Insulation to VBG4 transparent
- Blade terminal DIN 46244 A6.3x0.8 (QC .250) max. 25 A
- Quick connect tabs 6.3 (250)
- DIN 46247 Mx, max. 25 A

---

This is a metric design and millimeter dimensions take precedence (\textit{mm}) over inches.

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Description

The compact 19" Power-D-Box features aluminium profiled cross members with an anodised front plate. The panel cutout accommodates up to 30 positions numbered 1 to 30. Blanks cover unused positions, with 6, 12, 24 or 30 being "open".

The rack can be fitted with plug-in type circuit breakers 3600/3900 and 2210, electronic circuit breakers ESS20 or electronic circuit protector ESX10 or E-T-A Solid State Remote Power Controllers (SSRPC) E-1048-600/700. Please specify the correct option according to the ordering information shown, as different depths as well as different heights of the front cut-out must be allowed for.

The devices are plugged into sockets 63-P10-Si (6 positions each). These sockets (S1...S5) are provided with 6.3 mm blade terminals on the rear.

Four busbars (X1...X4) with 6 (signalisation) or 15 (feed) positions each (6.3 mm blade terminals) provide easy terminal connection.

Prewired options available ex factory are:
- Parallel connected feed (2.5 mm²) with separate supply for each socket via busbars X1 and X2. Choice of wiring colours: black, red, blue, grey. Outputs are not connected.
- Parallel connected auxiliary contacts (N/C) grouped per socket, 1 mm², via busbars X3 (supply) and X4 (signalisation).
  Choice of wiring colours: black, red, blue, grey.
- Series connected auxiliary contacts (N/O) of all positions with 1 mm², via busbars X3 (feed) and X4 (signalisation).
  Choice of wiring colours: black, red, blue, grey.
- Custom designed connection according to specification.

Other fittings, e.g. back-up fuse, separate circuits or redundancy, multipole circuits, screw terminals, custom designed markings etc., are available to special order (please enquire).

A compact printed circuit board with rear screw terminals is available as an alternative to the standard cable wiring (see pages 7 - 45 to 7 - 51).

Technical data

19" Power-D-Box  length: 84 modules (426.72 mm)
               height: 2 U (88.90 mm)
               depth: 205...295 mm (depending on the selected version)
material: aluminium, anodized

Front cutout for 30 positions, numbered 1 through 30

1 socket = 6 positions (No. 1 - 6)
2 sockets = 12 positions (No. 1 - 12)
3 sockets = 18 positions (No. 1 - 18)
4 sockets = 24 positions (No. 1 - 24)
5 sockets = 30 positions (No. 1 - 30)
blanks cover unused sockets.

Mounting socket polarised E-T-A mounting socket type 63-P10-Si (6 positions)
rear blade terminals 6.3 mm
max. load: 16 A continuous

Busbars Feed (X1, X2)  max. current rating: 63 A
15-way for 6.3 mm blade terminals
Busbars Auxiliary contacts (X3, X4)  max. current rating: 32 A
6-way for 6.3 mm blade terminals
Feed busbar 50 A per socket (= 6 positions)
H07Z-K cables 2.5 mm²
with fully insulated 6.3 mm blade terminals
to VBG 4
one cable per socket
max. current rating: 20 A

Auxiliary contact wiring H07Z-K cables 1 mm²
with fully insulated 6.3 mm blade terminals
to VBG 4
max. current rating: 4 A

Wire colour option black, red, blue or grey
Voltage rating AC 250 V/DC 65 V
Housing ground/earth on the inside via M6 screw
by means of ring cable lug (two with redundant systems)
### Ordering information

**Type No.**

19BGT 19” Power-D-Box with sockets pre-wired

**Height**

1 1 U
2 2 U
3 3 U

**Prepared for circuit breaker types [supplied separately]**

2210 for circuit breaker type 2210
3600 for circuit breaker type 3600/3900
1048 for SSRPC E-1048-600
ESS20 for electronic circuit breaker type ESS20
ESX10 for electronic circuit protector type ESX10

**Number of positions**

<table>
<thead>
<tr>
<th>06</th>
<th>6-poles</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>12-poles</td>
</tr>
<tr>
<td>18</td>
<td>18-poles</td>
</tr>
<tr>
<td>24</td>
<td>24-poles</td>
</tr>
<tr>
<td>30</td>
<td>30-poles</td>
</tr>
<tr>
<td><strong>nn</strong></td>
<td>number of poles (special version)</td>
</tr>
</tbody>
</table>

**Feed prewired**

- **A0** without
- **R0** without, redundant
- **A2** line feed pre-wired (2.5 mm²) 1-pole (or 1 circuit)
- **R2** line feed pre-wired 1-pole redundant
- **A4** line feed pre-wired (2.5 mm²) 2-pole (or 2 circuits)
- **R4** line feed pre-wired 2-pole redundant
- **A6** line feed pre-wired 3-pole (or 3 circuits)
- **R6** line feed pre-wired 3-pole redundant
- **A8** line feed pre-wired 4-pole (or 4 circuits)
- **R8** line feed pre-wired 4-pole redundant

**Wire colour (not with A0 + R0)**

- **1-pole**
  - SW black
  - RT red
  - BL blue
  - GR grey
- **2-pole**
  - RB 1st pole red, 2nd pole blue
  - RS 1st pole red, 2nd pole black
  - SB 1st pole black, 2nd pole blue
- **3-pole**
  - SW 1st pole to 3rd pole black
  - SB 1st pole to 2nd pole black, 3rd pole blue
- **4-pole**
  - SW 1st pole to 4th pole black
  - SB 1st pole to 3rd pole black, 4th pole blue

**Auxiliary contacts prewired (1 mm²)**

- **B0** without
- **B1** auxiliary contacts connected in series (please consider plug-in device)
- **B2** auxiliary contacts connected in parallel (please consider plug-in device)

**Wire colour (not with B0)**

- SW black
- RT red
- BL blue
- GR grey (standard)
- **S...** customer-specific version

---

### Dimensions

**Bottom view**

19BGT-2-ESS20-30A0-B0

**Top view**

19BGT-2-2210-30A0-B0

**Bottom view**

19BGT-2-3600-30A0-B0

This is a metric design and millimeter dimensions take precedence (mm) inch
Internal connection diagrams

2210

line 1 11 23
2 12 24

3 from IN=8 A

E-1048-600

control circuit

fault indication circuit

green

red

3600/3900

line 1 5 7
2 3 4 6

IN+ IN-

rated current I_n

Control and Protection Electronic

E-1048-600

SS

ON / OFF

status indication green / orange

rated current I_n

IN+

ON / OFF

status indication green / orange / red

rated current I_n

GND (-)

LOAD (+)

load output

 LOAD (+)

load output

GND (-)

S1

ON / OFF

status indication green / orange / red

reset input

reset output

signal output
Power-D-Box with sockets pre-wired

**Termination**

19GT-2-2210/3600-30A4-B2
pre-wiring of line feed, 2-pole protected/switched

- **Busbar X1 (max. 63 A)**
- **Busbar X2 (max. 63 A)**
- **Busbar X3 (max. 63 A)**
- **Busbar X4 (max. 63 A)**
- **2.5 mm² busbar 6-way**
- **2.5 mm² socket type 63-P10-Si (6-way)**
- **Pin assignment**
  - Pin 1 (+/-), Pin 3 (+/-), blade terminal 6.3 mm
  - Load terminal**: Load (+)

19GT-2-2210/3600-30A4-B0
pre-wiring of line feed, 1-pole protected

- **Busbar X1 (max. 63 A)**
- **2.5 mm² busbar 6-way**
- **2.5 mm² plug-in busbar 6-way**
- **1 mm² socket type 63-P10-Si (6-way)**
- **Pin assignment**
  - Pin 1 (+/-), Pin 3 (+/-), blade terminal 6.3 mm
  - Load terminal**: Load (+)

19GT-2-2210/3600-30R2-B0
pre-wiring of line feed, 1-pole protected, redundant

- **Busbar X1 (max. 63 A)**
- **2.5 mm² busbar 6-way**
- **2.5 mm² socket type 63-P10-Si (6-way)**
- **Pin assignment**
  - Pin 1 (+/-), Pin 3 (+/-), blade terminal 6.3 mm
  - Load terminal**: Load (+)

19GT-2-2210/3600-30A2-B0
pre-wiring of line feed, return busbar protected

- **Busbar X1 (max. 63 A)**
- **2.5 mm² busbar 6-way**
- **2.5 mm² socket type 63-P10-Si (6-way)**
- **Pin assignment**
  - Pin 1 (+/-), Pin 3 (+/-), blade terminal 6.3 mm
  - Load terminal**: Load (+)

19GT-2-2210/3600-30A0-B1
pre-wiring of signalization, group signalization - series connection

- **Busbar X1 (max. 63 A)**
- **1 mm² busbar X3**
- **1 mm² busbar X4**
- **Socket type 63-P10-Si (6-way)**
- **Pin assignment**
  - Pin 1 (+/-), Pin 3 (+/-), blade terminal 6.3 mm
  - Load terminal**: Load (+)

- **Circuit breaker types**
  - 2210-321X.../3600.../3900...
  - Plug-in type (not included)

- **Load terminal pin 1, blade terminal 6.3 mm**
- **Auxiliary contact terminals**
  - 11-12 make contact, blade terminals 6.3 mm
  - 23-24 break contact, blade terminals 6.3 mm

- **Pin assignment**
  - Load terminal**: Load (+)

* Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
<table>
<thead>
<tr>
<th>Accessories</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blanking piece for Power-D-Box</strong></td>
<td></td>
</tr>
<tr>
<td>(types 3600/3900, 2210)</td>
<td></td>
</tr>
<tr>
<td>Y 308 563 01</td>
<td></td>
</tr>
<tr>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td><strong>Blanking piece for Power-D-Box</strong></td>
<td></td>
</tr>
<tr>
<td>(types ESS20/ESX10)</td>
<td></td>
</tr>
<tr>
<td>Y 308 563 41</td>
<td></td>
</tr>
<tr>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>2.08</td>
<td></td>
</tr>
<tr>
<td>2.08</td>
<td></td>
</tr>
<tr>
<td><strong>Withdrawal tool for ESS20/ESX10</strong></td>
<td></td>
</tr>
<tr>
<td>Y 308 602 01</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td></td>
</tr>
<tr>
<td>2.84</td>
<td></td>
</tr>
<tr>
<td>2.84</td>
<td></td>
</tr>
<tr>
<td><strong>Line Terminal (max. 63 A)</strong></td>
<td></td>
</tr>
<tr>
<td>X 221 503 01</td>
<td></td>
</tr>
<tr>
<td>max. tightening torque 3.0 Nm</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Caution: cables must not be connected with terminal plugged in</td>
<td></td>
</tr>
<tr>
<td><strong>Jumper</strong></td>
<td></td>
</tr>
<tr>
<td>to bypass looped through unused auxiliary contacts (series connection)</td>
<td></td>
</tr>
<tr>
<td>X 222 066 01</td>
<td></td>
</tr>
<tr>
<td>1.97</td>
<td></td>
</tr>
<tr>
<td>1.97</td>
<td></td>
</tr>
<tr>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>Caution: cable must not be connected with terminal plugged in</td>
<td></td>
</tr>
</tbody>
</table>

This is a metric design and millimeter dimensions take precedence. All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
**Description**

The compact 2U 19" Power-D-Box with sockets mounted on a pcb and pre-connected features aluminium profiled cross members with an anodised front plate. The panel cutout accommodates up to 30 positions numbered 1 to 30. It is possible to have 6, 12, 18, 24 or 30 prepared slots or to have a redundant distribution with up to 2 x 15 positions.

The Power-D-Box accommodates plug-in type circuit breakers 3600/3900 and 2210, solid state remote power controller E-1048-700, electronic circuit breaker type ESS20 and electronic circuit protector ESX10. The required device must be specified in the ordering information as both different installation depth and pcb pin assignments must be allowed for.

The devices are plugged into corresponding sockets type 63-P10-Si (6 positions each), soldered onto the pcb and pre-connected.

The system is configured with redundancy as standard (2 x 15 positions), but the two groups may be interconnected so as to provide a non-redundant system if required. Line entry within each group is single pole or double pole.

With single pole line entry all slot numbers per group are combined and connected via an M6 terminal stud by means of a ring cable lug. With double pole line entry, odd and even slot numbers are integrated into separate circuits each of which is connected via 10 mm² screw terminals. This allows use of double pole circuit breakers.

Load outputs are connected by means of screw terminals up to 4 mm² on the rear of the pcb.

The system offers a number of signalisation possibilities and separation for redundancy is also possible:

- series connection of make contacts (group signalisation via closed circuit current)
- parallel connection of break contacts (double sided for group signalisation via closed circuit current)
- parallel connection of break contacts (only one-sided, second side of break contacts will be connected individually with the terminals for single signalisation via closed or open-circuit current)

Termination is on the rear side by means of screw terminals up to 1.5 mm² (group connection) and up to 1 mm² (single signalisation) on the pcb. When using ESS20, ESX10 or E-1048-700, the required Gnd terminals as well as control and reset signals will also be connected via the terminals for group or single signalisation.

Upon request the group distribution (redundancy) can be cancelled by means of jumpers. Additional terminals on the rear side of the rack simplify connection. It is also possible to provide terminals for return lines from the individual loads so as to integrate the necessary external wiring into the rack.

**Technical data**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>19&quot; Power-D-Box</td>
<td>length: 84 modules (426.72 mm) height: 2 U (88.90 mm) depth: depending on the version</td>
</tr>
<tr>
<td>Front cutout for 30 positions, numbered 1 through 30</td>
<td>1 socket = 6 positions (no. 1 - 6) 2 socket = 12 positions (no. 1 - 12) 3 sockets = 18 positions (no. 1 - 18) 4 sockets = 24 positions (no. 1 - 24) 5 sockets = 30 positions (no. 1 - 30)</td>
</tr>
<tr>
<td>Mounting socket</td>
<td>polarised mounting socket type 63-P10-Si (6 positions) soldered onto the pcb from the rear with wiring Contact load: 16 A continuously</td>
</tr>
<tr>
<td>Line entry X0 Single pole</td>
<td>2 groups, single pole each (= 2 separate circuits) 2 x 100 A max. via terminal stud M6 for ring cable lug</td>
</tr>
<tr>
<td>Supply feed X0 Double pole</td>
<td>2 groups, double pole each (= 4 separate circuits) 4 x 40 A max. via screw terminal up to 10 mm² (max. 4 x 50 A at max. 40 °C ambient temperature)</td>
</tr>
<tr>
<td>Load outputs X1</td>
<td>30 channels 16 A max. per pole via screw terminals up to 4 mm²</td>
</tr>
<tr>
<td>Signalisation group signalisation X2</td>
<td>series connection of make contacts / parallel connection of break contacts (double sided) in 2 groups (interconnectable by means of wire bridges) max. 1 A total current via screw terminal up to 1.5 mm² max. 0.5 A single current via screw terminal up to 1 mm²</td>
</tr>
<tr>
<td>Rated voltage</td>
<td>AC 250 V; DC 65 V</td>
</tr>
<tr>
<td>Housing ground/earth</td>
<td>on the inside via M6 screw by means of ring cable lug (two with redundant systems)</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>0...50 °C</td>
</tr>
</tbody>
</table>
Power-D-Box with pcb-mounted sockets

Ordering Information

<table>
<thead>
<tr>
<th>Type number</th>
<th>19BGT</th>
<th>19&quot; Power-D-Box with sockets pre-wired on pcb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>2 U = 88.90 mm</td>
<td></td>
</tr>
<tr>
<td>Device prepared for accommodation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3600</td>
<td>circuit breaker type 3600 or 3900</td>
<td></td>
</tr>
<tr>
<td>2210</td>
<td>circuit breaker type 2210-5</td>
<td></td>
</tr>
<tr>
<td>1048</td>
<td>solid state remote power controller E-1048-700</td>
<td></td>
</tr>
<tr>
<td>ESS20</td>
<td>electronic circuit breaker type ESS20</td>
<td></td>
</tr>
<tr>
<td>ESX10</td>
<td>electronic circuit breaker type ESX10</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>06 6 poles</td>
</tr>
<tr>
<td>12 12 poles</td>
</tr>
<tr>
<td>18 18 poles</td>
</tr>
<tr>
<td>24 24 poles</td>
</tr>
<tr>
<td>30 30 poles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional wiring and terminals for line feed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0 without (only pcb with terminals)</td>
</tr>
<tr>
<td>R0 none (only pcb with terminals, redundant)</td>
</tr>
<tr>
<td>A2 line feed pre-wired 1-pole</td>
</tr>
<tr>
<td>R2 line entry pre-wired single pole redundant</td>
</tr>
<tr>
<td>A3 line feed pre-wired 1-pole</td>
</tr>
<tr>
<td>R3 line feed pre-wired 1-pole + return busbar, redundant</td>
</tr>
<tr>
<td>A4 line feed pre-wired 2-pole connected</td>
</tr>
<tr>
<td>R4 line feed pre-wired 2-pole connected, redundant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Colour for additional wiring, line feed</th>
</tr>
</thead>
<tbody>
<tr>
<td>(not with A0 + R0)</td>
</tr>
<tr>
<td>single pole wiring</td>
</tr>
<tr>
<td>SW black</td>
</tr>
<tr>
<td>RT red</td>
</tr>
<tr>
<td>BL blue</td>
</tr>
<tr>
<td>multipole wiring</td>
</tr>
<tr>
<td>R6 1st pole red, 2nd pole blue</td>
</tr>
<tr>
<td>SB 1st pole black, 2nd blue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Auxiliary contact function</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 auxiliary contacts connected in series</td>
</tr>
<tr>
<td>(group signalisation)</td>
</tr>
<tr>
<td>B2 auxiliary contacts connected in parallel</td>
</tr>
<tr>
<td>(group signalisation)</td>
</tr>
<tr>
<td>B3 auxiliary contacts connected in parallel</td>
</tr>
<tr>
<td>(single signalisation)</td>
</tr>
<tr>
<td>B5 as B1, with additional wiring (1 mm²)</td>
</tr>
<tr>
<td>to terminal (not with A0)</td>
</tr>
<tr>
<td>B6 as B2, with additional wiring (1 mm²)</td>
</tr>
<tr>
<td>to terminal (not with A0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Colour of additional wiring of auxiliary contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>GR grey (only with B5 or B6)</td>
</tr>
<tr>
<td>L with printed circuit board (pcb)</td>
</tr>
<tr>
<td>S... suffix number for customer specific version</td>
</tr>
</tbody>
</table>

19BGT - 2 - 2210 - 24 A2 ... - B1 ... - L S... ordering example
Power-D-Box with pcb-mounted sockets

Schematic diagrams

Bus pcb (single pole version)

- group signalisation (B1, B2, B5, B6)
- jumper to cancel redundancy

Bus pcb (single pole version)

- single signalisation
- jumper to cancel redundancy

Assignment 63-PR-Si 2210 3600/3900 ESS20
- 1 Line
- 2 Load
- 11
- 12
- 13
- 14
- Line (+)
- Load (+)
- Gnd (-)
- SI
- SC
- SO

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### Dimensions

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line entry</td>
<td>max. 100 A ($T_{ark} &lt; 40^\circ$ C)</td>
</tr>
<tr>
<td>Connection data</td>
<td>rigid: 0.14 - 1.5 mm²</td>
</tr>
<tr>
<td>Flexible</td>
<td>0.14 - 1.5 mm²</td>
</tr>
<tr>
<td>Auxiliary contact group</td>
<td>max. 1 A</td>
</tr>
<tr>
<td>Connection data</td>
<td>rigid: 0.14 - 1.5 mm²</td>
</tr>
<tr>
<td>Flexible</td>
<td>0.14 - 1.5 mm²</td>
</tr>
<tr>
<td>Load outputs</td>
<td>max. 16 A each</td>
</tr>
<tr>
<td>Connection data</td>
<td>rigid: 0.2 - 6 mm²</td>
</tr>
<tr>
<td>Flexible</td>
<td>0.2 - 4 mm²</td>
</tr>
</tbody>
</table>

### Pin assignment bus pcb (terminal side)

![Pin assignment bus pcb diagram]

---

**Courtesy of Steven Engineering, Inc.**
- 230 Ryan Way, South San Francisco, CA 94080-6370
- Main Office: (650) 588-9200
- Outside Local Area: (800) 258-9200
- www.stevenengineering.com
Power-D-Box with pcb-mounted sockets

Schematic diagrams

Bus pcb (signalisation B1, B2, B5, B6)

Bus pcb (signalisation B3)
Blanking piece for Power-D-Box
(types 3600/3900, 2210)
Y 308 563 01

Blanking piece for Power-D-Box
(types ESS20/ESX10)
Y 308 563 41

Withdrawal tool for ESS20/ESX10
Y 308 602 01

Jumper
to bypass looped through unused auxiliary contacts
(series connection)
X 222 066 01

This is a metric design and millimeter dimensions take precedence (mm).inch

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
Description

The Power-D-Box is a compact 2U power distribution system made of aluminium.

The 19BGT-2-X is a compact 19” 2 U power distribution rack incorporating E-T-A plug-in circuit breakers type 2210-S291 (for 19BGT-2-X2210-...), 8340-F (for 19BGT-2-X83S2...S4...Z4...) or 8345-01-W0 (for 19BGT-2-X8345-...). These are installed in pre-wired E-T-A power distribution rails type X2210-S, X8340-S02, X8340-S04, X8340-SZ4 or X8345-D01. Options available include separate circuits, redundant circuits and customer-specific marking.

Ordering information

Type No. 19” Modular Power-D-Box

<table>
<thead>
<tr>
<th>Height</th>
<th>2 U = 88.90 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution rails (pre-wired)</td>
<td></td>
</tr>
<tr>
<td>X2210 for X2210-S</td>
<td>Economy, max. 12 poles / 2 x 6 poles</td>
</tr>
<tr>
<td>X83S2 for X8340-S02</td>
<td>Economy, max. 16 poles / 2 x 8 poles</td>
</tr>
<tr>
<td>X83S4 for X8340-S04</td>
<td>Economy, max. 4 x 4 poles</td>
</tr>
<tr>
<td>X83Z4 for X8340-SZ4</td>
<td>Economy, max. 16 poles / 2 x 8 poles</td>
</tr>
<tr>
<td>X8345 for X8345-D01</td>
<td>High-Power, max. 18 poles / 2 x 7 poles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of slots (numbered)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>2 poles</td>
</tr>
<tr>
<td>03</td>
<td>3 poles</td>
</tr>
<tr>
<td>04</td>
<td>4 poles</td>
</tr>
<tr>
<td>05</td>
<td>5 poles</td>
</tr>
<tr>
<td>06</td>
<td>6 poles</td>
</tr>
<tr>
<td>07</td>
<td>7 poles</td>
</tr>
<tr>
<td>08</td>
<td>8 poles</td>
</tr>
<tr>
<td>09</td>
<td>9 poles</td>
</tr>
<tr>
<td>10</td>
<td>10 poles</td>
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<tr>
<td>12</td>
<td>12 poles</td>
</tr>
<tr>
<td>14</td>
<td>14 poles</td>
</tr>
<tr>
<td>16</td>
<td>16 poles</td>
</tr>
<tr>
<td>18</td>
<td>18 poles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre-wired supply-feed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0</td>
</tr>
<tr>
<td>R0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre-wired auxiliary contacts (0.75 mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B0</td>
</tr>
</tbody>
</table>

| 19BGT - 2 - X2210 | 18 | A0 | B0 | S... ordering example |

Technical data

19” Power-D-Box length: 426.72 mm height: 2 U (88.90 mm) material: aluminium

Voltage rating
AC 230 V; DC 110 V; DC 80 V; DC 65 V

Details of power distribution systems:

| X2210-S... | pages 7 - 57 to 7 - 58 |
| X8340-S02 | pages 7 - 65 to 7 - 66 |
| X8340-S04 | pages 7 - 67 to 7 - 68 |
| X8340-SZ4 | pages 7 - 69 to 7 - 71 |
| X8345-D01 | pages 7 - 73 to 7 - 76 |
Modular Power-D-Box

Dimensions 19BGT-2-X8345 (High-Power)

not redundant

Dimensions 19BGT-2-X8345 (High-Power)

redundant

Dimensions 19BGT-2-X2210 (Economy)

Dimensions 19BGT-2-X83S4 / -X83Z4 (Economy)

This is a metric design and millimeter dimensions take precedence (mm) inch

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
### Modular Power-D-Box

#### Schematic diagram X8345-D01 (High Power)

<table>
<thead>
<tr>
<th>Module 1</th>
<th>Module 2</th>
<th>Module 3</th>
<th>Module 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Schematic" /></td>
<td><img src="image" alt="Schematic" /></td>
<td><img src="image" alt="Schematic" /></td>
<td><img src="image" alt="Schematic" /></td>
</tr>
</tbody>
</table>

- **Signaling terminal**
- **Load output terminal protected against reverse polarity**
  - (set: 4 moulded sleeves, 8 blade terminals 6.3 x 0.8 mm)  
  - X 222 847 01 for cable cross section 0.7...2.0 mm²  
  - X 222 625 01 for cable cross section 2.5...4.0 mm²  
  - X 222 848 01 for cable cross section 4.0...6.0 mm²

#### Accessories

- **Blanking piece for Power-D-Box**
  - (circuit breaker types 8340, 8345)
  - Y 308 563 11

- **Blanking piece for Power-D-Box**
  - (circuit breaker types 8340, 8345-D01)
  - Y 308 563 21

---

This is a metric design and millimeter dimensions take precedence over inch. All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness, the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
**Description**

E-T-A rails distribute electrical power in telecommunications, automation, data and control systems. They have been designed to industry standard requirements and are suitable for mounting in ETSI control cabinets. These distribution rails are supplied with mounting bracket, cover, 6 blanks and withdrawal tool.

Live parts in terminal areas are protected against brush contact (VDE 106, part 100).

**Typical applications**

Telecommunications systems using ETSI racks; process control, measuring and control systems.

**Ordering information**

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Module for circuit breaker type 2210-S291-...</th>
</tr>
</thead>
<tbody>
<tr>
<td>X2210</td>
<td></td>
</tr>
</tbody>
</table>

**Version**

<table>
<thead>
<tr>
<th>Identification number</th>
<th>5 positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal block (intermediate element) (fitted)</td>
<td>00 without</td>
</tr>
<tr>
<td>01 1 x</td>
<td></td>
</tr>
<tr>
<td>02 2 x</td>
<td></td>
</tr>
<tr>
<td>03 3 x</td>
<td></td>
</tr>
<tr>
<td>04 4 x</td>
<td></td>
</tr>
<tr>
<td>05 5 x</td>
<td></td>
</tr>
<tr>
<td>06 6 x</td>
<td></td>
</tr>
</tbody>
</table>

**Accessories**

<table>
<thead>
<tr>
<th>Accessories (fitted)</th>
<th>6 without</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td></td>
</tr>
</tbody>
</table>

**Typical volume resistances in main circuit**

- input terminal B + (N) to output terminal + (N) < 1.5x10⁻³ Ω
- input terminal B - (U) to female contact 2 (k) < 1.5x10⁻³ Ω
- input terminal B-Sig to female contact 12 < 2x10⁻³ Ω
- output terminal - (U) to female contact 11 < 2x10⁻³ Ω

**Technical data**

<table>
<thead>
<tr>
<th>Circuit breakers to be fitted</th>
<th>2210-S291-P9M2-410005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage rating</td>
<td>AC 250 V; DC 65 V</td>
</tr>
<tr>
<td>Load</td>
<td>max. 25 A per position</td>
</tr>
<tr>
<td>max. 80 A for complete unit</td>
<td></td>
</tr>
<tr>
<td>Signalisation (N/C contact)</td>
<td>AC 240 V; DC 65 V</td>
</tr>
<tr>
<td>max. 1 A per position</td>
<td></td>
</tr>
<tr>
<td>Insulation co-ordination</td>
<td>Rated impulse withstand voltage 2.5 kV Pollut</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>2</td>
</tr>
<tr>
<td>Flame retardance</td>
<td>self-extinguishing</td>
</tr>
</tbody>
</table>

**Terminal design**

- input clamp-type terminal 2.5 to 25 mm² flexible
- output clamp-type terminal 0.5 to 25 mm² flexible

**Mass**

| Mass X2210-S0606J | 660 g |

**Terminal block**

| X 211 019 01 |

**Withdrawal tool**

| X 211 018 01 |
Distribution rail X2210-S06...

Dimensions

- Phillips screw M8 DIN 7985 (captive)
- Phillips screw M2.5 DIN 41544 T1.5 (captive)
- Terminal bloc X 211 019 01
- Phillips screw M4 DIN 7985
- 25 mm² conductor size cable to be stripped over 15 mm .591 in.
- 2.5 mm² conductor size cable to be stripped over 7.72 .315 mm
- Legend strip

Installation example

- Voltage input
- Terminal bloc X 211 019 01
- Terminal bloc X 211 018 01
- Withdrawal tool X 211 018 01
- Mounting bracket
- Cover

Internal connection diagram

- Distribution rail
- Circuit breaker
- Load input
- Load
- Terminal block

This is a metric design and millimeter dimensions take precedence (mm)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
**Description**

Thermal-magnetic circuit breaker mounted on Euro Card for 19” rack mounting, with one Euro Card accommodating one or two single pole, double pole or three pole circuit breakers. Convenient toggle actuation enables series 2210 additionally to be used as an ON/OFF switch. A red LED is located in the front frame of the Euro Card, indicating the switching status of the circuit breaker (via the auxiliary circuit).

**Typical applications**

Process control, measuring and control systems, telecommunications

**Technical data**

**Circuit breaker**

Main circuit:
- Voltage rating: 3 AC 433 V (50/60 Hz); AC 250 V (50/60 Hz); DC 65 V
- Current rating range: 0.1...16 A
- Standard current ratings: 0.1 0.2 0.3 0.4 0.5 0.6 0.8 A
- 1 1.5 2 2.5 3 4 5 A
- 6 8 10 12 16 A

Auxiliary circuit:
- Voltage rating: AC 240 V; DC 65 V
- Current rating: 1 A

Other data: see type 2210-S2..

**Front plate**

Dimensions
- 1 module = 5.08 mm, 1 U = 44.45 mm
- Width:
  - One single pole circuit breaker: 4 modules
  - One double pole circuit breaker: 6 modules
  - One three pole circuit breaker: 9 modules
  - Two single pole circuit breakers: 4 modules
  - Two double pole circuit breakers: 10 modules
  - Two three pole circuit breakers: 12 modules
- Height: 3 U
- Material: aluminium, anodized

**LED**

Voltage rating: DC 24 V / DC 60 V
### Ordering information

**Type No.**

**E2210**

**Mounting style**

1. 1 x single pole, central mounting (standard)
2. 1 x single pole, top mounting
3. 1 x single pole, bottom mounting
4. 1 x double pole, central mounting (standard)
5. 1 x three pole, central mounting (standard)
6. 2 x single pole, symmetrical mounting (standard)
7. 2 x double pole, symmetrical mounting (standard)
8. 2 x three pole, symmetrical mounting (standard)

**Front plate**

1. aluminium (standard)
2. moulded (Intermas)

**LED**

1. red, DC 24 V (standard)
2. red, DC 60 V
3. green, DC 24 V
4. green, DC 60 V

**Circuit breaker Mounting**

1. panel mounting

**Actuator design**

2. short toggle

**Number of poles**

1. 1-pole protected
2. 2-pole protected
3. 3-pole protected
4. 2-pole, protected on one pole only

**Panel mounting**

1. with M3 thread

**Terminal design (main contacts)**

- P1 blade terminals 6.3-0.8 (standard)

**Characteristic curve**

- 01 F1 fast acting: therm. 1.01-1.4 x I
- 02 M1 standard delay: therm. 1.01-1.4 x I
- 03 T1 delayed: therm. 1.01-1.4 x I
- 04 T2 thermal only: 1.01-1.4 x I

**Standard delay, low resistance:**

- 02 M2: therm. 1.1-1.4 x I
- 03 T2: therm. 1.1-1.4 x I
- 04 T2: thermal only: 1.1-1.4 x I

**Intermediate position**

- H without intermediate position (standard)
- Z with intermediate position

**Auxiliary contacts**

- 1 with auxiliary contacts (only with 1x1-pole, 2x1-pole)
- 5 with auxiliary contact only in the last unit of multipole versions

**Auxiliary contact function**

- 1 N/C, 1 N/O (standard)
- 2 N/O (23/24)
- 3 N/C (11/12)
- 4 N/O contact, closed in the intermediate and ON position (-Z only)

**Auxiliary contact-terminal design**

- same as main terminals

**Current ratings**

- 0.1/0.2 A

**Only with 2x1-pole/2x2-pole/2x3-pole**

---

### One single pole circuit breaker

**Dimensions**

- 174 mm

**Terminal selection**

- 240 mm

**Internal connection diagram**

- View X

### Two single pole circuit breakers

**Dimensions**

- 174 mm

**Terminal selection**

- 240 mm

**Internal connection diagrams for units G I and G II**

- View X

---

*) Clearly add the desired specifications.

**) With mounting styles 6, 7 and 8; both circuit breakers must have the same characteristics.

***) It is possible to fit circuit breakers of mixed current ratings on the Euro Card.

---

This is a metric design and millimeter dimensions take precedence over inch dimensions.
Sockets for Euro Cards

Description

The following sockets may be used with single pole circuit breakers:

0Z041Z000004
24/7-pole mixed socket to DIN 41612 - form M. Connection: 7-pole for 6.3x0.8 mm connectors and 24-pole for 1 mm.

0Z041Z000007
24/7-pole mixed socket to DIN 41612 - form M. Connection: 7-pole for 6.3x0.8 mm connectors and 24-pole for 2.8x0.8 mm connectors.

0Z041Z000005
A 15-pole socket to DIN 41612, form H, for 6.3x0.8 mm connectors is required in addition to the socket mentioned above, if two double pole or two three pole circuit breakers are fitted on one Euro Card.

Dimensions of sockets for Euro Cards

0Z041Z000004

0Z041Z000007

0Z041Z000005

This is a metric design and millimeter dimensions take precedence.

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
**Description**

Thermal-magnetic circuit breaker mounted on Euro Card for 19" rack mounting, with one Euro Card accommodating up to three circuit breakers. Convenient toggle actuation enables series 2215 additionally to be used as an ON/OFF switch. A red LED is located in the front frame of the Euro Card, indicating the switching status of the circuit breaker (via the auxiliary circuit).

**Typical applications**

Process control, measuring and control systems, telecommunications

**Ordering information for circuit breakers only**

<table>
<thead>
<tr>
<th>Type No.</th>
<th>E2215</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3 x 1-pole, mounted symmetrically (standard)</td>
</tr>
<tr>
<td>2</td>
<td>2 x 1-pole, mounted centrally above and below</td>
</tr>
<tr>
<td>3</td>
<td>2 x 1-pole, mounted above and below</td>
</tr>
<tr>
<td>4</td>
<td>2 x 1-pole, mounted below and centrally</td>
</tr>
<tr>
<td>5</td>
<td>1 x 1-pole, mounted above</td>
</tr>
<tr>
<td>6</td>
<td>1 x 1-pole, mounted centrally</td>
</tr>
<tr>
<td>7</td>
<td>1 x 1-pole, mounted below</td>
</tr>
<tr>
<td>Handle</td>
<td>1 aluminium handle (standard)</td>
</tr>
<tr>
<td>LED</td>
<td>1 red LED, DC 24 V (standard)</td>
</tr>
<tr>
<td>Actuator design</td>
<td>L2 moulded toggle</td>
</tr>
<tr>
<td>Number of poles</td>
<td>1 single pole protected</td>
</tr>
<tr>
<td>Accessories</td>
<td></td>
</tr>
<tr>
<td>Terminal design</td>
<td></td>
</tr>
<tr>
<td>P1 blade terminals A6.3-0.8 (standard)</td>
<td></td>
</tr>
<tr>
<td>Characteristic curve</td>
<td></td>
</tr>
<tr>
<td>01 F1 fast acting: therm. 1.01 x I_n; magn. 2-4 x I_n DC (DC only)</td>
<td></td>
</tr>
<tr>
<td>02 M1 standard delay: therm. 1.01-1.4 x I_n; magn. 5-10 x I_n DC; magn. 3.5-8 x I_n DC</td>
<td></td>
</tr>
<tr>
<td>03 T1 delayed: therm. 1.01-1.4 x I_n; magn. 6-13 x I_n AC</td>
<td></td>
</tr>
<tr>
<td>07 T3 delayed: therm. 1.01-1.4 x I_n; magn. 9.5-15.5 x I_n AC</td>
<td></td>
</tr>
<tr>
<td>Auxiliary contacts</td>
<td>S1 with auxiliary contacts (change over)</td>
</tr>
<tr>
<td>Auxiliary contact - terminal design</td>
<td></td>
</tr>
<tr>
<td>1 same as main terminals</td>
<td></td>
</tr>
<tr>
<td>Current ratings</td>
<td>0.05...10 A</td>
</tr>
</tbody>
</table>

**Technical data**

**Circuit Breaker**

| Main circuit: |
| voltage rating: AC 250 V (50/60 Hz); DC 48 V |
| current rating range: 0.05...10 A |
| standard current ratings: |
| 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 A |
| 0.8 | 1.0 | 1.5 | 2.5 | 3.0 |
| 4.0 | 5.0 | 6.0 | 8.0 | 10 A |

**Auxiliary circuit:**

| voltage rating: AC 250 V/DC 28 V |
| current rating: 1 A |

**Other data**

see type 2215

**Front plate**

| Dimensions: |
| width: 4 modules (1 module = 5.08 mm) |
| height: 3 U (1 U = 44.45 mm) |

**Material**

aluminium, anodized

**LED**

| Max. voltage rating: DC 24 V |

Select the circuit breakers to above ordering information. For further information please refer to group 2.

It is possible to fit circuit breakers of mixed current ratings on the Euro Card.

Please add "Circuit breakers to be mounted on Euro Card" to the circuit breaker designation when ordering so that the applicable suffix number for the special version (E2215-...-L2..) can be determined.

19" racks may also be fitted with one or two circuit breakers by the customer, using industry standard components such as base plates, front plates with handle, sockets. Connection by means of blade terminals 6.3x0.8 mm.
Thermal-Magnetic Circuit Breaker E2215

Dimensions

Terminal selection

Internal connection diagrams

This is a metric design and millimeter dimensions take precedence (in mm) inch.

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Distribution rail X8340-S02

Description

Modular distribution rail, each module accommodating 2 magnetic or hydraulic-magnetic circuit breakers type 8340-F.. and associated load terminals. Circuit breaker status indication (group signalisation) is via 2 busbars. Power supply is via right- or left-side terminal block. Live parts in the plug-in and supply feed terminal areas are protected against brush contact. Circuit breakers may be replaced with power on.

Typical applications

Telecommunications and cellular communication systems

Ordering information

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X8340</td>
<td>Distribution rail for circuit breaker type 8340</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Version</th>
<th>Identification number</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>02 modular, for 2 circuit breakers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Modules with power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>L (left-side)</td>
<td>1 module, 2-way</td>
</tr>
<tr>
<td>R (right-side)</td>
<td>2 modules, 2-way each</td>
</tr>
<tr>
<td></td>
<td>3 modules, 2-way each</td>
</tr>
<tr>
<td></td>
<td>4 modules, 2-way each</td>
</tr>
<tr>
<td></td>
<td>5 modules, 2-way each</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

| Signalisation | 0 without signalisation |
|              | 1 group signalisation    |
|              | 2 group signalisation, through-connected for right- or left-side power supply (main current path separated) |
|              | 3 single signalisation   |

| Accessories | 00 without |
|            | 01 cover per module |
|            | 02 ground bridge in first module |
|            | 03 M4 mounting screw per module |
|            | 04 cover per module + mounting screw M4 (bulk shipped) |
|            | 05 cover per module + + ground bridge in first module |
|            | 06 ground bridge in first module + + mounting screw M4 (bulk shipped) |
|            | 07 cover + ground bridge + M4 mounting screw (bulk shipped) |
|            | 08 cover per module + + ground bridge in first module + + mounting screw M4 (bulk shipped) + + ground stud M6 |
|            | 09 mounting screw M4 (bulk shipped) + + ground stud M6 |
|            | 10 cover per module + + mounting screw M4 (bulk shipped) + + ground stud M6 |

| Terminal marking | B + and - reversed |

| X8340 - S 02 L 5 - 1 01 B | ordering example |

Technical data

For circuit breaker type 8340-F.10-P1..-H...
Voltage rating | AC 230 V; DC 80 V |
Load            | 25 A per position (30 A upon request) |
|                | 132 A for complete unit |
Signalisation (N/C) | 6 A, AC 230 V |
|                | 1 A, DC 80 V per position |
Insulation co-ordination (IEC 60664 and 60664A) | Rated impulse withstand voltage 2.5 kV Pollution degree 2 |
Flame retardance (IEC 60695, part 2-2) | self-extinguishing |
Supply terminal design (terminal socket) | recessed screw/pressure plate 6...50 mm², stranded feed-in 6...35 mm² with connector sleeve additional blade terminals 6.3x0.8 load output terminal protected against reverse polarity blade terminals 4.8x0.8 |
Load (module) | 6...50 mm², stranded feed-in 6...35 mm² |
| signalisation (module) | blade terminals 6.3x0.8 |
Mass
| terminal block | 144 g |
| power distribution module | 96 g |
| cover | 12 g |

Internal connection diagrams

Load output terminal protected against reverse polarity (set: 4 moulded sleeves, 8 blade terminals 6.3 x 0.8 mm²)

X 222 847 01 for cable cross section 0.7...2.0 mm²
X 222 625 01 for cable cross section 2.5...4.0 mm²
X 222 848 01 for cable cross section 4.0...6.0 mm²

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Distribution rail X8340-S02

**Dimensions**

Distribution rail, shown with power supply right-side X8340-S02R-...

Distribution rail, ground stud M6 (optional)

Distribution rail, single signalisation

Distribution rail, shown with power supply left-side X8340-S02L-...

**Internal connection diagram**

Group signalisation

Single signalisation

This is a metric design and millimeter dimensions take precedence (mm) inch.

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
Distribution rail X8340-S04

Description

Distribution rail for one or two modules suitable for ETSI control cabinet and similar applications. One module comprises 4 positions for magnetic or hydraulic-magnetic circuit breakers type 8340-F... and associated line and load terminals. Circuit breaker status indication (group signalisation) is via two busbars. The modular design facilitates the operation of a single distribution rail at two different voltages. Live parts in the plug-in and supply feed terminal areas are protected against brush contact. Expansion or circuit breaker replacement is possible with power on.

Typical applications

Telecommunications, measuring and control systems

Ordering information

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Distribution rail for circuit breaker type 8340-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>X8340</td>
<td>Distribution rail for circuit breaker type 8340-F</td>
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Version

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<tr>
<th>Identification number</th>
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<tbody>
<tr>
<td>S rail</td>
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Modules with power supply

<table>
<thead>
<tr>
<th>1</th>
<th>1 module, 4-way</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>2 modules, 4-way each</td>
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Accessories

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<tr>
<th>0</th>
<th>without</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>mounting bracket, 2 modules + mounting screw</td>
</tr>
<tr>
<td>2</td>
<td>mounting bracket, 2 modules + cover + mounting screw</td>
</tr>
<tr>
<td>3</td>
<td>cover</td>
</tr>
<tr>
<td>4</td>
<td>mounting bracket, 1 module + cover + mounting screw</td>
</tr>
<tr>
<td>5</td>
<td>cover + mounting screw</td>
</tr>
<tr>
<td>6</td>
<td>mounting screw</td>
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Signalisation

<table>
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<tbody>
<tr>
<td>1</td>
<td>group signalisation + ground connection</td>
</tr>
<tr>
<td>2</td>
<td>group signalisation</td>
</tr>
</tbody>
</table>

Ordering example

X8340 - S 04 2 1 - 1

Technical data

For circuit breakers

| 8340-F:10-P1,...-H... |

Voltage rating

| AC 230 V; DC 80 V |

Load

| 20 A per position |
| 80 A for module |

Signalisation (N/C)

| 6 A, AC 230 V |
| 1 A, DC 80 V per position |

Insulation co-ordination

| Rated impulse withstand voltage 2.5 kV |
| Pollution degree 2 |

Flame retardance

| self-extinguishing |

Supply terminal design

| recessed screw/pressure plate feed 6...25 mm², stranded or 6...16 mm² with connector sleeve |
| screw-less connectors 0.5...2.5 mm², stranded, with connector sleeve |

Mass

| module 220 g |
| cover 35 g |
| bracket 145 g |

Approvals

<table>
<thead>
<tr>
<th>Authority</th>
<th>Voltage ratings</th>
<th>Current ratings</th>
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</thead>
<tbody>
<tr>
<td>UL 1801</td>
<td>AC 250 V; DC 80 V</td>
<td>80 A</td>
</tr>
</tbody>
</table>

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Distribution rail X8340-S04

**Dimensions**

**X8340-S0422 (right cover not represented)**

- Terminal for group signalisation
- Mounting screw M4 tightening torque max. 1.5 Nm
- Marking strip
- Load terminals
- Distribution rail
- Supply 1
- Supply 2
- Mounting bracket
- Module
- Cover

**View X**

- Recessed screw M5 tightening torque max. 4 Nm
- *E-T-A circuit breaker type 8340-F... (not supplied with product)*

**X8340-S0414**

- *E-T-A circuit breaker type 8340-F... (not supplied with product)*

---

**Internal connection diagram**

Module for 4 circuit breakers

- Supply terminals
- Ground bridge (optional)
- Screw terminal
- No
- Load terminals
- E-T-A circuit breaker type 8340-F...

This is a metric design and millimeter dimensions take precedence (inch).

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
Description

Distribution rail with modules connected in series. One module provides 4 positions for magnetic or magnetic-hydraulic circuit breakers type 8340-F.. and the pertinent line and load terminals on the front and rear side of the rail. Supply feed is either on the right or left side with copper busbars. Trip indication of the circuit breakers (group signalisation) is possible via two signal busbars. Live parts in the plug-in area of the load terminals are protected against brush contact. Circuit breaker replacement is possible with power on.

Typical applications

Telecommunications, measuring and control systems

Ordering information

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Description</th>
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<tbody>
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<td>X8340</td>
<td>Distribution rail for circuit breaker type 8340-F</td>
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<table>
<thead>
<tr>
<th>Version</th>
<th>Description</th>
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<td>rail</td>
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<table>
<thead>
<tr>
<th>Identification number</th>
<th>Description</th>
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<tr>
<td>Z4</td>
<td>module accommodating 4 circuit breakers (smallest unit)</td>
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<table>
<thead>
<tr>
<th>Terminal (supply feed)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>left side</td>
</tr>
<tr>
<td>R</td>
<td>right side</td>
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<table>
<thead>
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<th>Power distribution modules</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<td>3</td>
<td>3 modules</td>
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<tr>
<td>4</td>
<td>4 modules</td>
</tr>
<tr>
<td>5</td>
<td>5 modules</td>
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<table>
<thead>
<tr>
<th>Signalisation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>without</td>
</tr>
<tr>
<td>1</td>
<td>group signalisation</td>
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<table>
<thead>
<tr>
<th>Accessories / variations</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>none</td>
</tr>
<tr>
<td>01</td>
<td>mounting screw M4 / module bulk shipped</td>
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<tr>
<td>AT</td>
<td>terminals twisted by 180°</td>
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<table>
<thead>
<tr>
<th>Additional configuration</th>
<th>Description</th>
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<tr>
<td>01</td>
<td>customer specified marking</td>
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<table>
<thead>
<tr>
<th>Technical data</th>
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<tbody>
<tr>
<td>Plug-in type circuit breakers</td>
</tr>
<tr>
<td>Voltage rating</td>
</tr>
<tr>
<td>Load</td>
</tr>
<tr>
<td>Signalisation (N/C contact)</td>
</tr>
<tr>
<td>Insulation co-ordination (IEC 60664)</td>
</tr>
<tr>
<td>Flame retardance (IEC 60695, part 2-2)</td>
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<table>
<thead>
<tr>
<th>Terminal design supply feed</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>copper busbar 10x3 mm with hole ø 5.3 mm dia. current supply from the rear side (left or right)</td>
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<table>
<thead>
<tr>
<th>loads</th>
<th>Description</th>
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<tbody>
<tr>
<td>blade terminals DIN 46244-A6.3x0.8mm load output terminal protected against reverse polarity on front and rear side</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>signalisation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>blade terminals DIN 46244-A6.3x0.8mm plug-in direction as circuit breakers, opposite to the main terminal side</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Mass</th>
<th>Description</th>
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<tbody>
<tr>
<td>module</td>
<td>200 g every additional module</td>
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Approvals

<table>
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<th>Current ratings</th>
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<tbody>
<tr>
<td>UL 1059</td>
<td>AC 250 V; DC 80 V</td>
<td>150 A</td>
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</table>

X8340 - SZ4 R 3  - 1 00 - 00 ordering example
Distribution rail X8340-SZ4

**Dimensions**

**Distribution rail. Power supply left-side**

Load terminals

Mounting screw M4 tightening torque 1.5 Nm

**View X**

- 80
- 3.15
- 3.15
- 12.9
- 0.9
- 0.35
- 6.94
- 0.273
- 3
- 0.118
- ø5.197
- 2.44
- 7.4
- 2.11
- 20.75
- 3.15
- 3.15

*E-T-A circuit breaker type 8340-F... (not supplied with product)*

**Distribution rail X8340-SZ4L1-0A1**

Load terminals

**Distribution rail. Power supply right-side**

Load terminals

Signallisation

This is a metric design and millimeter dimensions take precedence (mm) inch

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
Load output terminal protected against reverse polarity
(set: 4 moulded sleeves, 8 blade terminals 6.3 x 0.8 mm)
X 222 847 01 for cable cross section 0.7...2.0 mm²
X 222 625 01 for cable cross section 2.5...4.0 mm²
X 222 848 01 for cable cross section 4.0...6.0 mm²

This is a metric design and millimeter dimensions take precedence (mm)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
**Description**

Distribution rail comprising series connected circuit breaker mounting modules. Each module accommodates one magnetic or magnetic-hydraulic circuit breaker type 8345 and the associated line and load terminals on the rear side of the rail. Supply feed is either on the right or left side with copper busbars. Trip indication of the circuit breakers (group signalisation) is possible via two signal busbars. Live parts in the plug-in area of the load terminals are protected against brush contact (IP20). Replacement of circuit breakers (switched off) is possible with power on.

**Typical applications**

Telecommunications, measuring and control systems

---

**Ordering information**

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>X8345</td>
<td>Distribution rail for circuit breaker type 8345</td>
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<table>
<thead>
<tr>
<th>Version</th>
<th>Description</th>
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<tbody>
<tr>
<td>D</td>
<td>rail</td>
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<table>
<thead>
<tr>
<th>Identification number</th>
<th>Description</th>
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<tbody>
<tr>
<td>01</td>
<td>module for 1 circuit breaker</td>
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</table>

<table>
<thead>
<tr>
<th>Terminal (supply feed)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>left side</td>
</tr>
<tr>
<td>R</td>
<td>right side</td>
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<table>
<thead>
<tr>
<th>Power distribution modules</th>
<th>Description</th>
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<tbody>
<tr>
<td>02</td>
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<td>03</td>
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<td>09</td>
<td>9 modules</td>
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<tr>
<td>10</td>
<td>10 modules</td>
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<table>
<thead>
<tr>
<th>Signalisation</th>
<th>Description</th>
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<tbody>
<tr>
<td>0</td>
<td>without</td>
</tr>
<tr>
<td>1</td>
<td>group signalisation parallel connection</td>
</tr>
</tbody>
</table>

**Technical data**

**Plug-in type circuit breakers**

- 8345-.01.-W0...-D...
- and auxiliary contact module X8345-S01KW102-M

**Voltage rating**

- DC 110 V
- other ratings upon request

**Max. load**

- 125 A per position (total 160 A for the two neighbouring positions when a breaker rated > 80 A is used), 600 A per complete module

**Ambient temperature**

- -30...+60 °C

**Signalisation (N/C contact)**

- DC 80 V
- 0.5 A per position

**Insulation co-ordination (IEC 60664)**

- Rated impulse withstand voltage
- Pollution degree
- 2.5 kV
- 2

**Flame retardance (IEC 60695, part 2-2)**

- self-extinguishing

**Terminal design**

**supply feed**

- copper bar 20x25 mm with M10 thread
- current supply from the rear side (left or right) (tightening torque max. 15 Nm)

**load**

- screw terminals M6 (tightening torque max. 7 Nm) on rear side

**signalisation**

- 2 blade terminals DIN 46244-A6.3x0.8mm

**Mass**

- module approx. 320 g

**Accessories**

- 00 without
- 01 19” mounting bar and screws M5, for module and frame, bulk shipped (length = 431.4 mm)
- 02 mounting bar (length = 153.8 mm)

**Marking**

- A standard without marking

**Approvals**

<table>
<thead>
<tr>
<th>Authority</th>
<th>Voltage ratings</th>
<th>Current ratings</th>
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</thead>
<tbody>
<tr>
<td>UL 60950</td>
<td>AC 277 V; DC 110 V</td>
<td>600 A</td>
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</tbody>
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---

X8345 - D 01 L 05 - 1 - 01 -01 A ordering example
**Distribution rail X8345-D01**

**Dimensions**

![Dimensions Diagram]

**Signalisation 1**

- Blade terminals IEC 61210 A6.3 x 0.8 with reverse plug-in protection
- Observe installation distances of circuit breaker
- Only for auxiliary contact version K (symmetrical terminals)
- Type: 8345-S01KW102M

This is a metric design and millimeter dimensions take precedence (mm, inch)

**Internal connection diagrams**

![Internal Connection Diagrams]
Terminal design

Main circuit 01

hexagon head screw DIN EN ISO 4017 - M12x25 - A4 and washer DIN EN ISO 7092 - 12 - 200HV - A4 mounted tightening torque max 15.0 Nm

left-side supply feed
right-side supply feed also available

Main circuit 03

hexagon head screw DIN EN ISO 4017 - M12x25 - A4 and washer DIN EN ISO 7092 - 12 - 200HV - A4 mounted tightening torque max 15.0 Nm

left-side supply feed
right-side supply feed also available

This is a metric design and millimeter dimensions take precedence (mm)
Distribution rail X8345-D01

Terminal design

Circuit breaker module 01
without barrier

Circuit breaker module 07
with barrier

Accessories

Withdrawal tool
X 222 547 02

This is a metric design and millimeter dimensions take precedence (in mm) inch.

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