

## Description

The **Power-D-Box**<sup>®</sup> with printed circuit board is a compact power distribution system, designed as a 2U 19" rack, made of aluminium profiles with anodised front plate. It accommodates the following circuit breaker types: thermal magnetic types 3600 / 3900 or 2210 (1-pole or 2-pole) and electronic circuit breakers type ESS20 or ESX10. 30 single pole ways (15 x 2-pole ways) are available as a redundant or non-redundant system. The integral group signalling is optionally working as series connection of the make contacts or parallel connection of the break contacts. The entire internal circuitry is on printed circuit board.

## Ordering Information

### Type number

**PDB-P-L** 19" **Power-D-Box**<sup>®</sup> with printed circuit board, positive pole protected

#### Suitable plug-in circuit breaker types

**2210** circuit breaker type 2210  
**3600** circuit breaker type 3600 or 3900  
**ESS20** electronic circuit breaker ESS20  
**ESX10** electronic circuit protector ESX10

#### Number of protected poles

1-pole protected (standard)  
**2P** 2-pole protected (only with 2210)

#### Supply and load terminals on pcb

**30A0** 1 x 30 breakers (1-pole), not redundant  
**30R0** 2 x 15 breakers (1-pole), redundant  
**28R0** 2 x 7 breakers (2-pole), redundant

#### Supply and load terminals on symmetrical rail

**30A3SW** 1 x 30 breakers (1-pole), not redundant  
**30R3SW** 2 x 15 breakers (1-pole), redundant  
**28R4SW** 2 x 7 breakers (2-pole), redundant

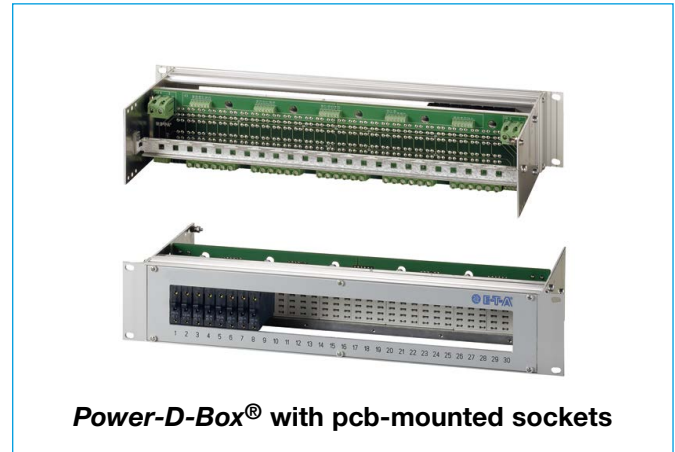
#### Signalling, terminals on pcb

**B1** make contact connected in series  
**B4** make contact connected in series and break contact connected in parallel

#### Signalling, terminals on symmetrical rail

**B1GR** make contact connected in series  
**B4GR** make contact connected in series and break contact connected in parallel

**PDB-P-L- 2210- 2p- 28R4SW - B4GR** ordering example



**Power-D-Box**<sup>®</sup> with pcb-mounted sockets

## Preferred types

circuit breaker 3600 / 3900	
PDB-P-L-3600-30A0-B4	terminals on pcb
PDB-P-L-3600-30A3SW-B4GR	terminals on symmetrical rail
circuit breaker 2210 1-pole	
PDB-P-L-2210-30A0-B4	terminals on pcb
PDB-P-L-2210-30R0-B4	terminals on pcb, redundant
PDB-P-L-2210-30A3SW-B4GR	terminals on symmetrical rail
PDB-P-L-2210-30R3SW-B4GR	terminals on symmetrical rail, redundant
circuit breaker 2210 2-pole	
PDB-P-L-2210-2P-28R4SW-B4GR	terminals on symmetrical rail, redundant
circuit breaker ESS20	
PDB-P-L-ESS20-30A0-B1	terminals on pcb
PDB-P-L-ESS20-30A3SW-B1GR	terminals on symmetrical rail

## Benefits

- Less wiring time through pcb design
- Small installation depth of 205 mm or 250 mm for use where space is at a premium
- Removable front plate with captive screws and imprinted marking
- 30 slots for thermal-magnetic or electronic circuit breakers in a **Power-D-Box**<sup>®</sup>
- Redundancy possible with 2 x 15 ways 1-pole or 2 x 7 ways 2-pole
- Circuit breaker can be plugged in later (even with the system on – hot-swap capability)
- Screw terminals directly on the pcb (only positive pole), optional additional terminal on rear-side symmetrical rail with additional negative pole patching
- Supply for cables up to 35 mm<sup>2</sup> (16 mm<sup>2</sup> when redundant)
- Supply up to 2 x 100 A (redundant)
- Load terminals for cables up to 2.5 mm<sup>2</sup>
- Load terminals up to 16 A (10 A with electronic protection)
- Group signalling by integral potential-free aux. contacts optional – make contact connected in series – break contact connected in parallel
- Signalling separately available per group for redundant design
- Integral cable grip rail behind the terminals
- Cover of live parts by means of perforated metal plate on top
- Blanking pieces for free slots included (30 pcs)
- Other versions are available upon request, e.g. with back-up fuses, decoupling diodes, separate circuits, AC and/or DC, customer-specific marking etc.

## Technical Data

19" <b>Power-D-Box</b> <sup>®</sup>	length: 84 modules (426.72 mm) height: 2U (88.90 mm) depth: 205 mm (version A0 / R0) 250 mm (version A3 / R3 / R4) material: aluminium, partly anodised
Voltage rating:	AC 50 V; DC 65 V
Supply:	studs M6 for ring cable lug (version A0 / R0) screw terminal 35 mm <sup>2</sup> (version A3) screw terminal 16 mm <sup>2</sup> (version R3 / R4) max. 100 A per group (except version 2210-2P)
Version 2210-2P	screw terminal 10 mm <sup>2</sup> max. 50 A per group (at ambient temperature $T_{amb} < 40\text{ °C}$ ), otherwise 40 A
Load terminals:	30 ways 1-pole protected (version A0 / A3) 2 x 15 ways 1-pole protected (version R0 / R3) 2 x 7 ways 2-pole protected (version 2210-2P) screw terminals 2.5 mm <sup>2</sup> max. 16 A (depending on breaker rating)
Group signalling:	make contact connected in series (all versions) and break contact connected in parallel (not ESS20) per group screw terminal 1.5 mm <sup>2</sup> (version A0 / R0) screw terminal 2.5 mm <sup>2</sup> (version A3 / R3 / R4) max. 0.5 A
Housing ground/earth:	via M6 terminal studs on the inside, duplicated when redundant (R0 / R3 / R4)
Ambient temperature range:	0 ... 50 °C

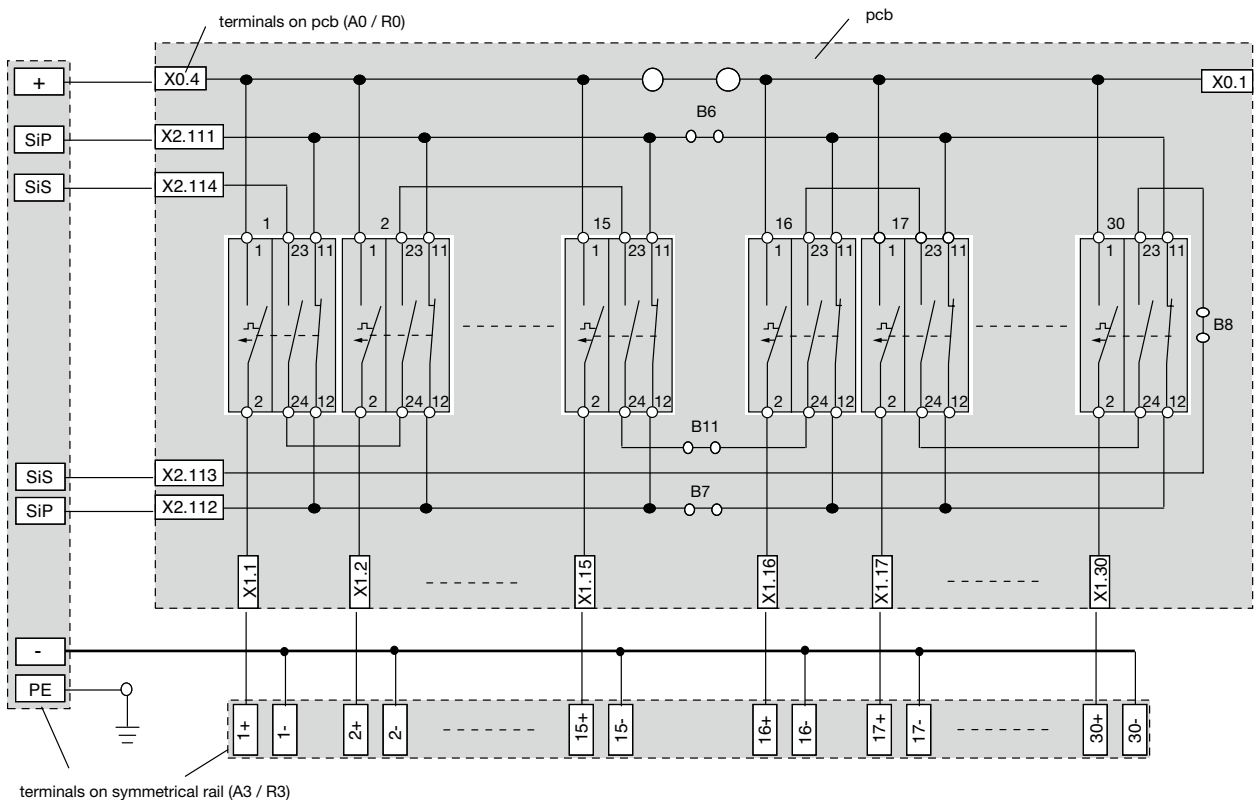
Available terminal designs

Version for	terminals on	supply terminals		load terminals		signalling	
		size	torque	size	torque	size	torque
<b>circuit breaker 3600 / 3900</b>							
PDB-P-L-3600-30A0-B4	pcb	M6	3.7 - 4.3 Nm	4 mm <sup>2</sup>	0.5 - 0.6 Nm	1.5 mm <sup>2</sup>	0.5 - 0.6 Nm
PDB-P-L-3600-30R0-B4	pcb	M6	3.7 - 4.3 Nm	4 mm <sup>2</sup>	0.5 - 0.6 Nm	1.5 mm <sup>2</sup>	0.5 - 0.6 Nm
PDB-P-L-3600-30A3SW-B4GR	rail	35 mm <sup>2</sup>	3.2 - 3.7 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm
PDB-P-L-3600-30R3SW-B4GR	rail	16 mm <sup>2</sup>	2.5 - 3.0 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm
<b>circuit breaker 2210 1-pole</b>							
PDB-P-L-2210-30A0-B4	pcb	M6	3.7 - 4.3 Nm	4 mm <sup>2</sup>	0.5 - 0.6 Nm	1.5 mm <sup>2</sup>	0.5 - 0.6 Nm
PDB-P-L-2210-30R0-B4	pcb	M6	3.7 - 4.3 Nm	4 mm <sup>2</sup>	0.5 - 0.6 Nm	1.5 mm <sup>2</sup>	0.5 - 0.6 Nm
PDB-P-L-2210-30A3SW-B4GR	rail	35 mm <sup>2</sup>	3.2 - 3.7 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm
PDB-P-L-2210-30R3SW-B4GR	rail	16 mm <sup>2</sup>	2.5 - 3.0 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm
<b>circuit breaker 2210 2-pole</b>							
PDB-P-L-2210-2P-28R0-B4	pcb	10 mm <sup>2</sup>	1.2 - 1.5 Nm	4 mm <sup>2</sup>	0.5 - 0.6 Nm	1.5 mm <sup>2</sup>	0.5 - 0.6 Nm
PDB-P-L-2210-2P-28R4SW-B4GR	rail	16 mm <sup>2</sup>	2.5 - 3.0 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm
<b>circuit breaker ESS20</b>							
PDB-P-L-ESS20-30A0-B1	pcb	M6	3.7 - 4.3 Nm	4 mm <sup>2</sup>	0.5 - 0.6 Nm	1.5 mm <sup>2</sup>	0.5 - 0.6 Nm
PDB-P-L-ESS20-30R0-B1	pcb	M6	3.7 - 4.3 Nm	4 mm <sup>2</sup>	0.5 - 0.6 Nm	1.5 mm <sup>2</sup>	0.5 - 0.6 Nm
PDB-P-L-ESS20-30A3SW-B1GR	rail	35 mm <sup>2</sup>	3.2 - 3.7 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm
PDB-P-L-ESS20-30R3SW-B1GR	rail	16 mm <sup>2</sup>	2.5 - 3.0 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm	2.5 mm <sup>2</sup>	0.6 - 0.8 Nm

Ground terminals (studs) M6 3.7 - 4.3 Nm

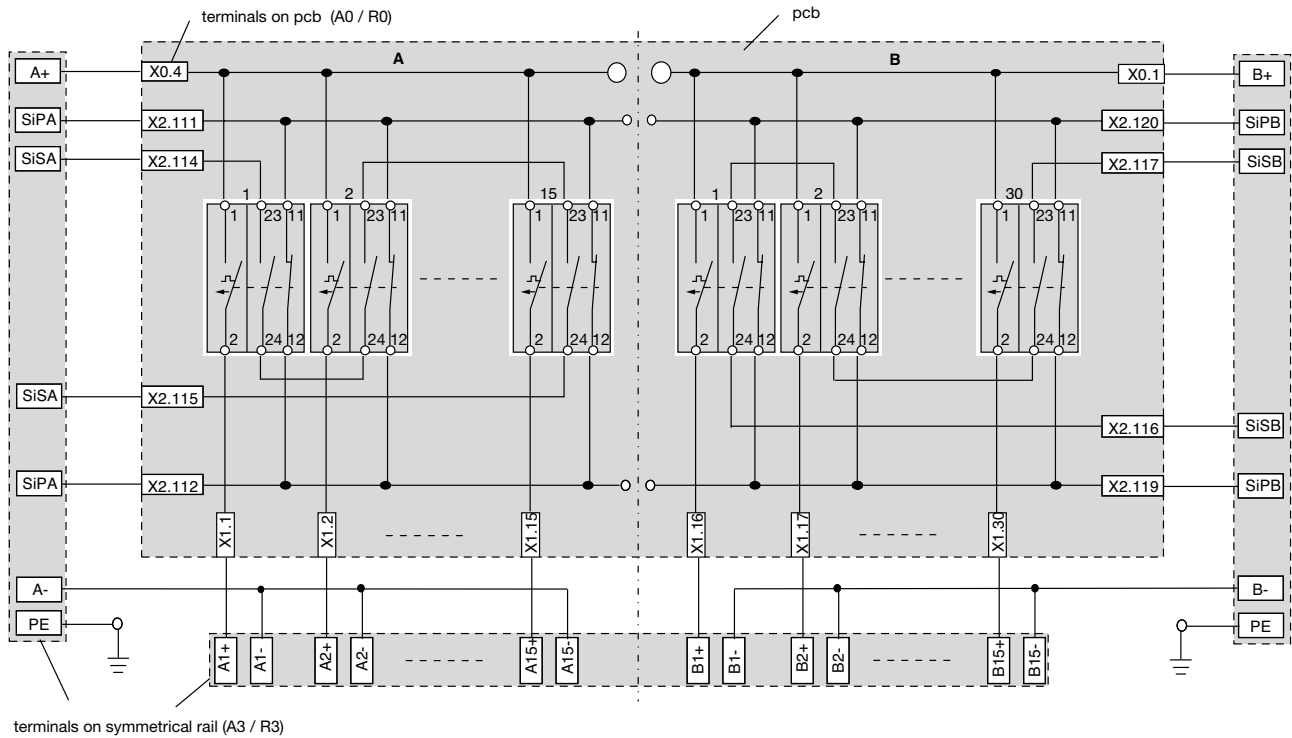
Schematic diagram for 1-pole versions

Schematic diagrams: for 2210 / 3600 / 3900, not redundant



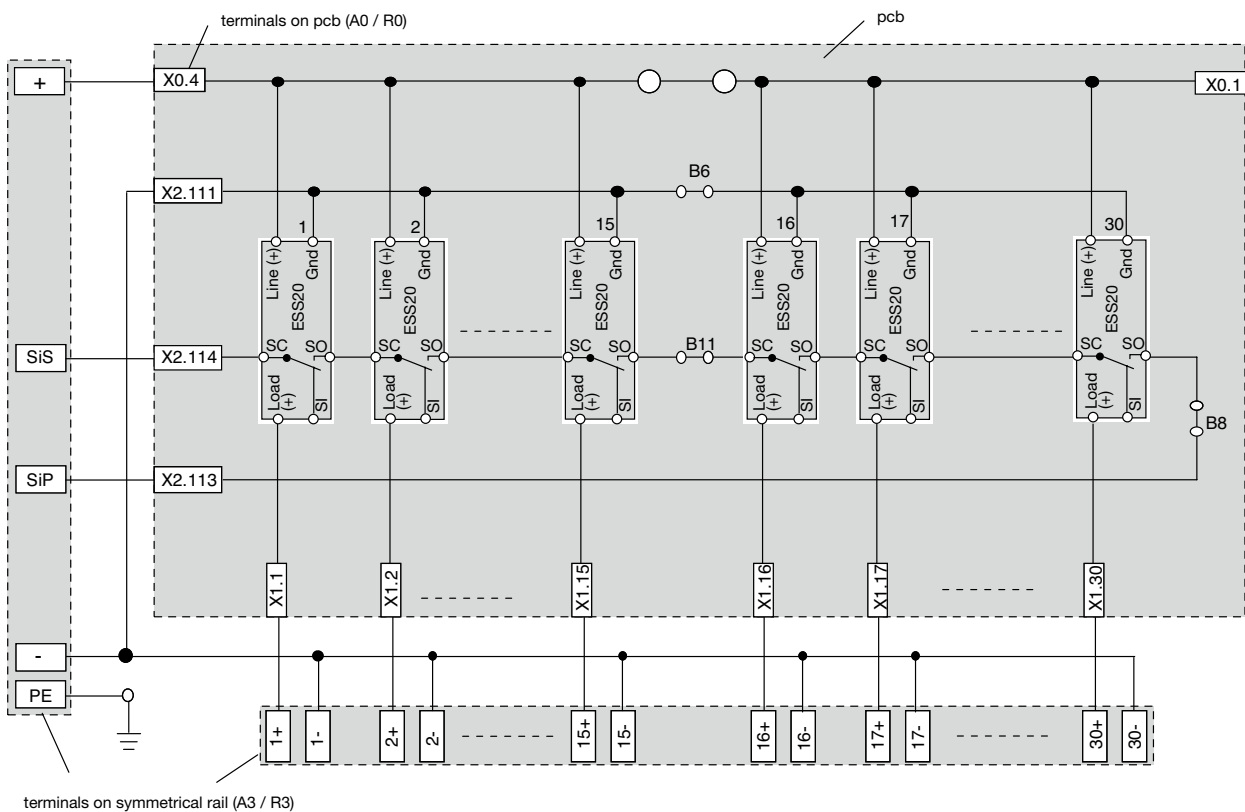
Schematic diagram for 1-pole versions

Schematic diagrams: for 2210 / 3600 / 3900, redundant



Schematic diagram for 1-pole versions, ESS20

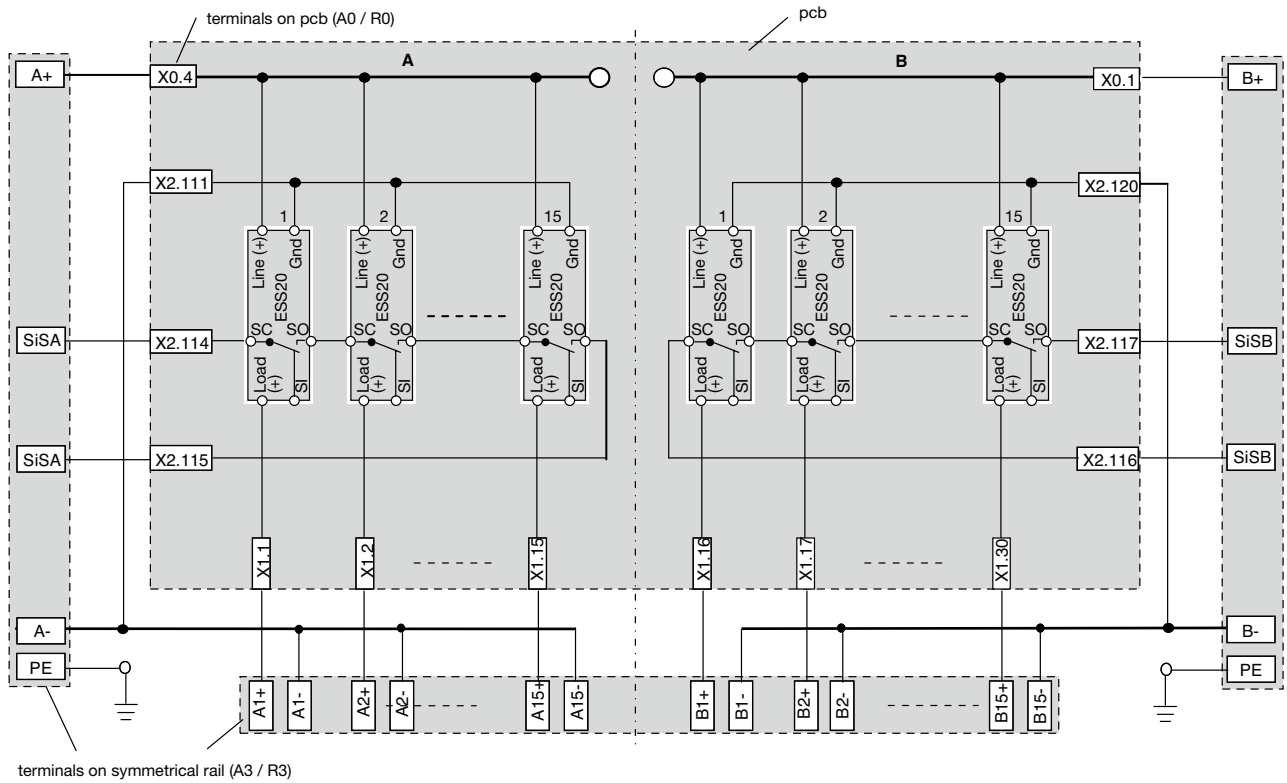
Schematic diagrams: for ESS20, not redundant



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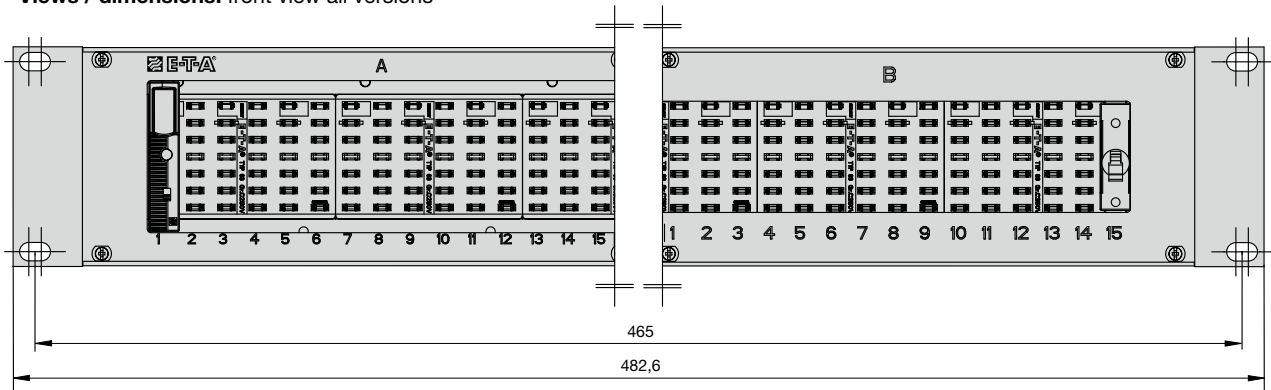
Schematic diagram for 1-pole versions, ESS20

Schematic diagrams: for ESS20, redundant



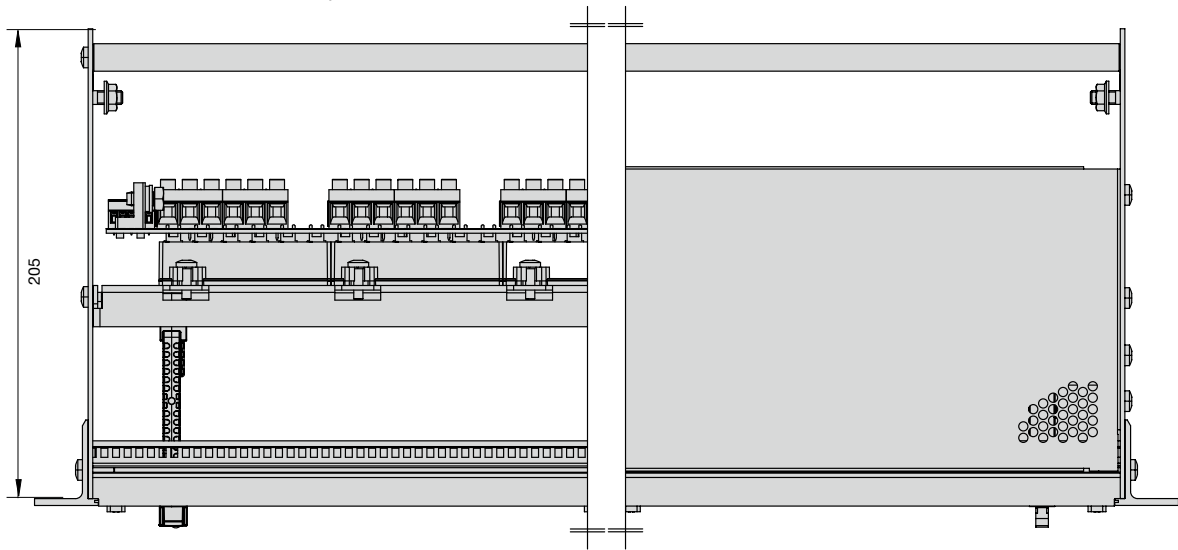
Dimensions

Views / dimensions: front view all versions

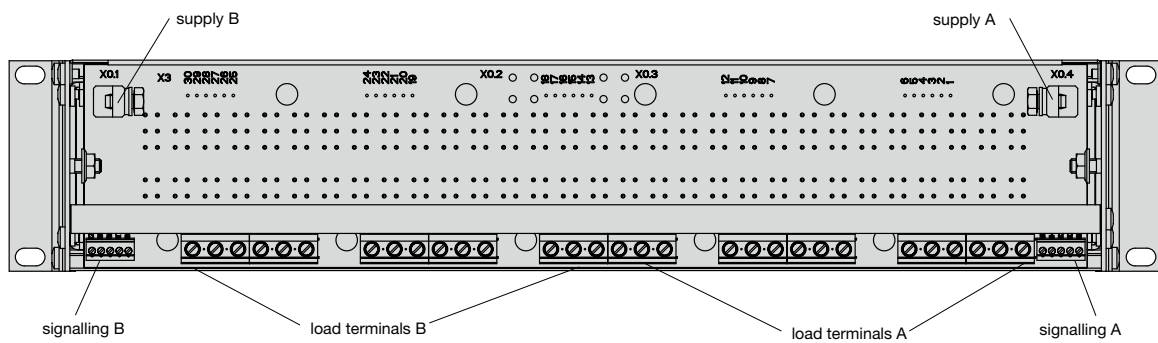


Dimensions pcb

Top view / dimensions: terminals on pcb

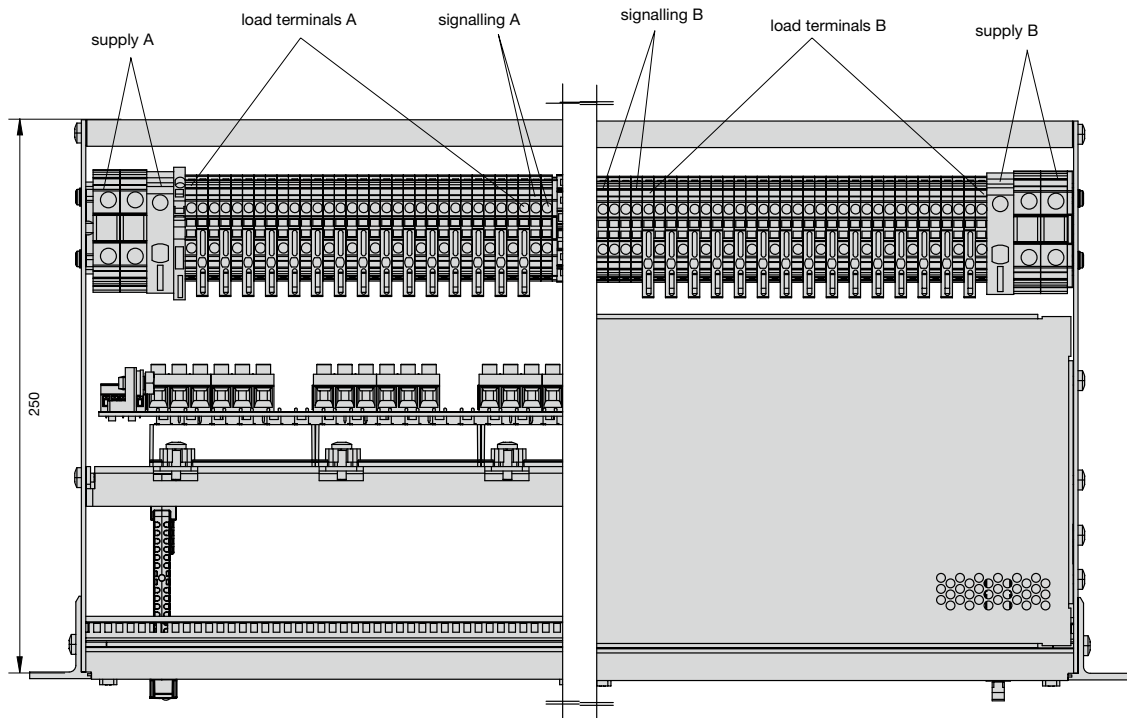


Rear view: terminals on pcb, redundant

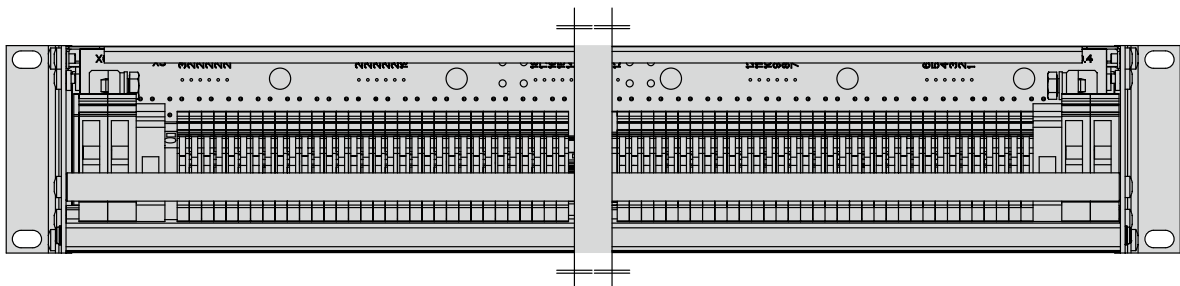


Dimensions symmetrical rail

**Top view / dimensions:** terminals on symmetrical rail, not redundant

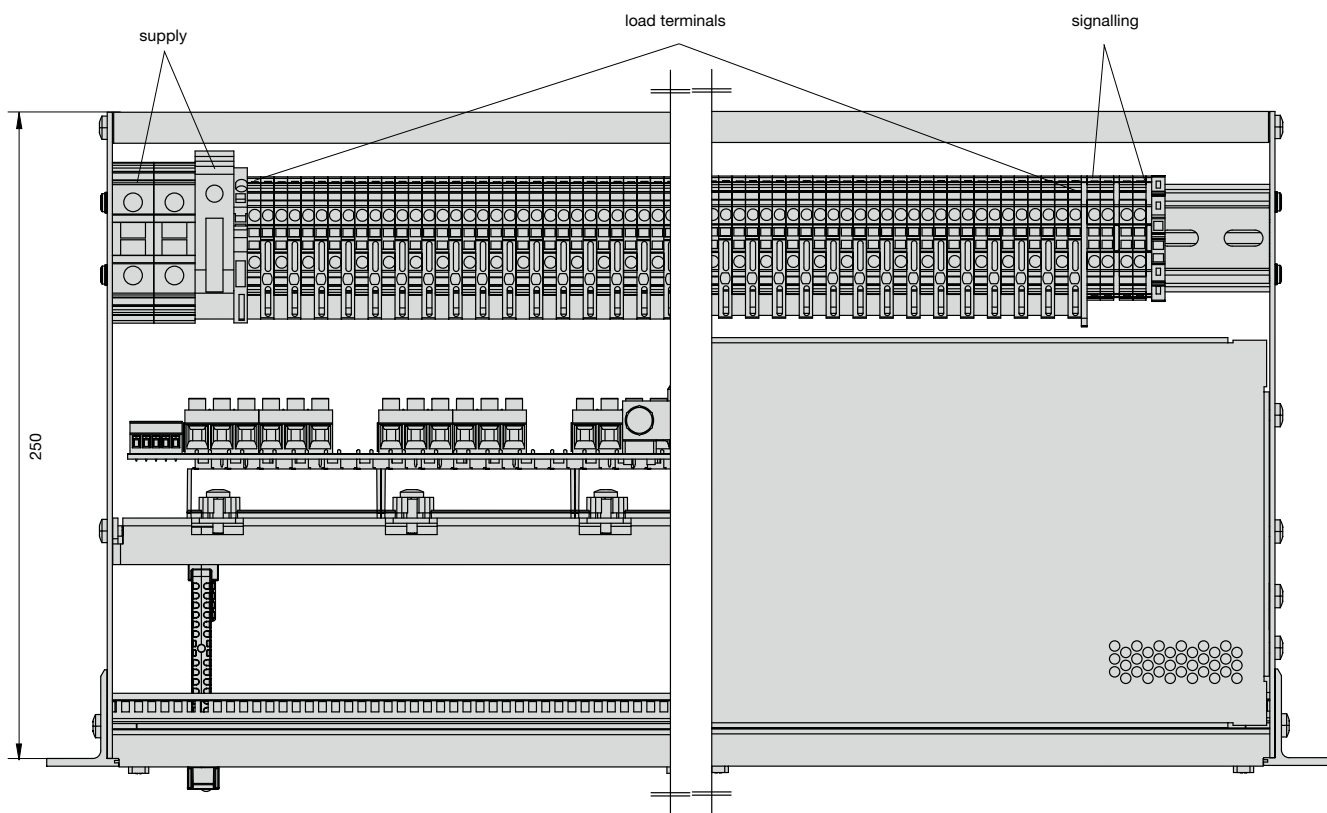


**Rear view:** terminals on symmetrical rail, not redundant

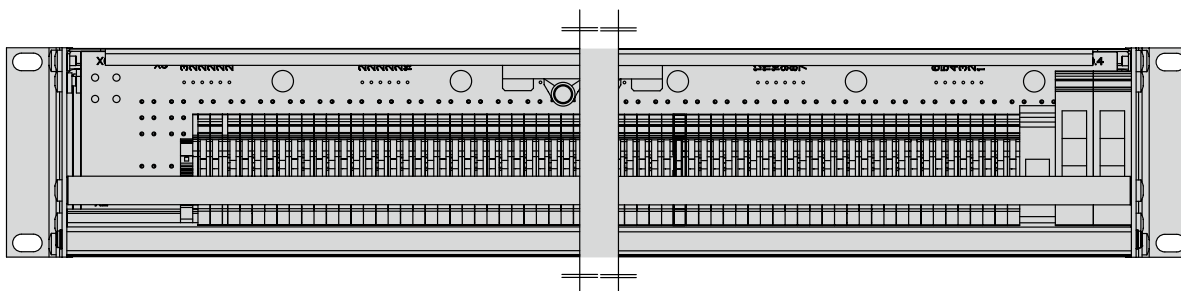


Dimensions symmetrical rail

Top view / dimensions: terminals on symmetrical rail, not redundant



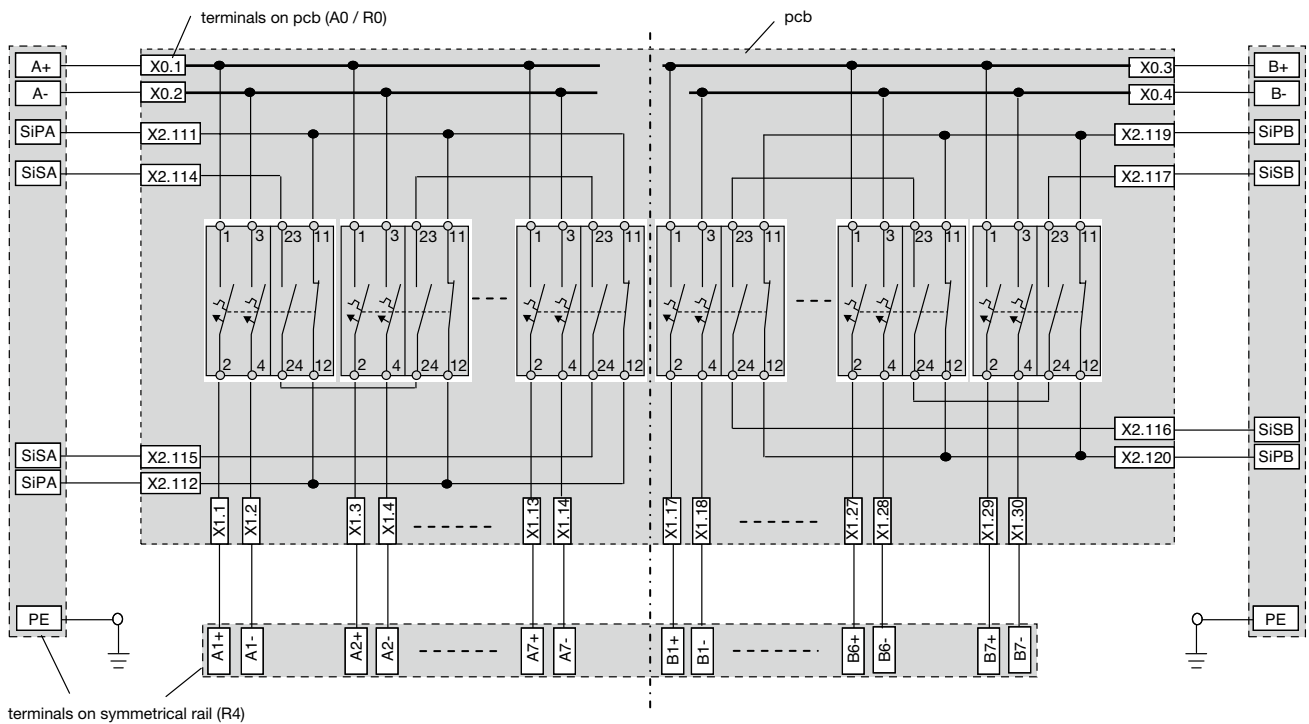
Rear view: terminals on symmetrical rail, not redundant





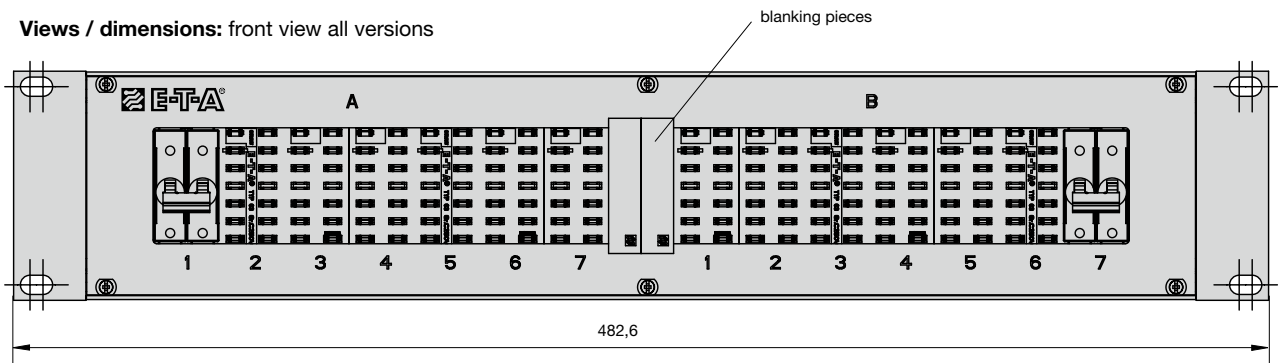
Schematic diagram for 2-pole versions, redundant

Schematic diagrams: for 2210, redundant



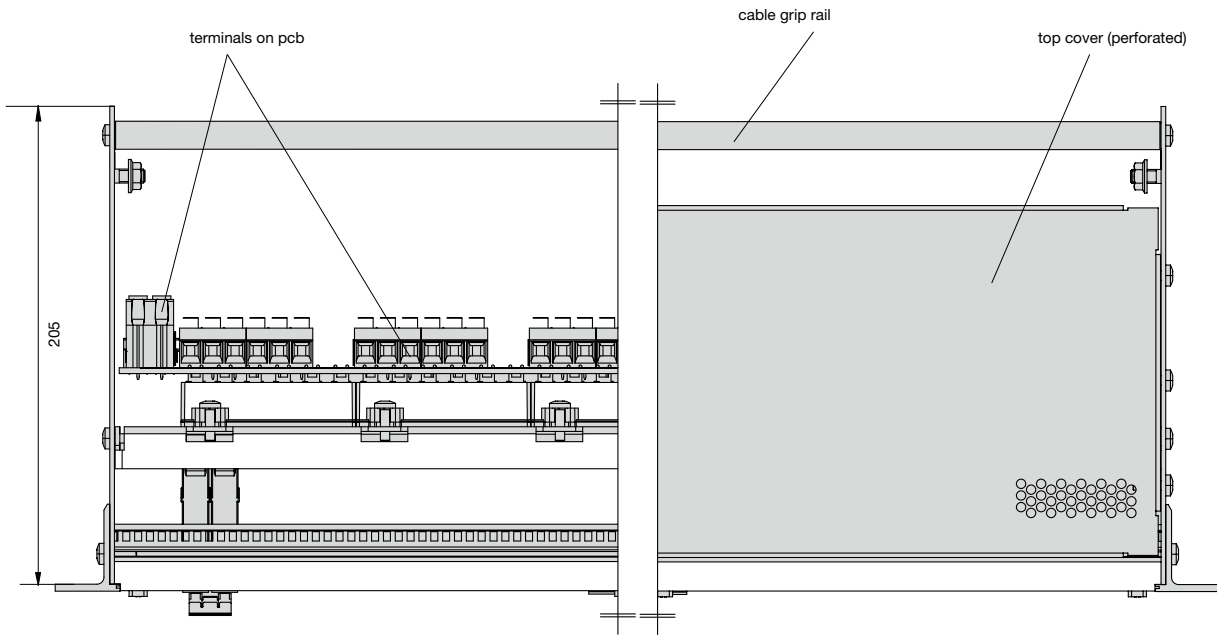
Dimensions

Views / dimensions: front view all versions

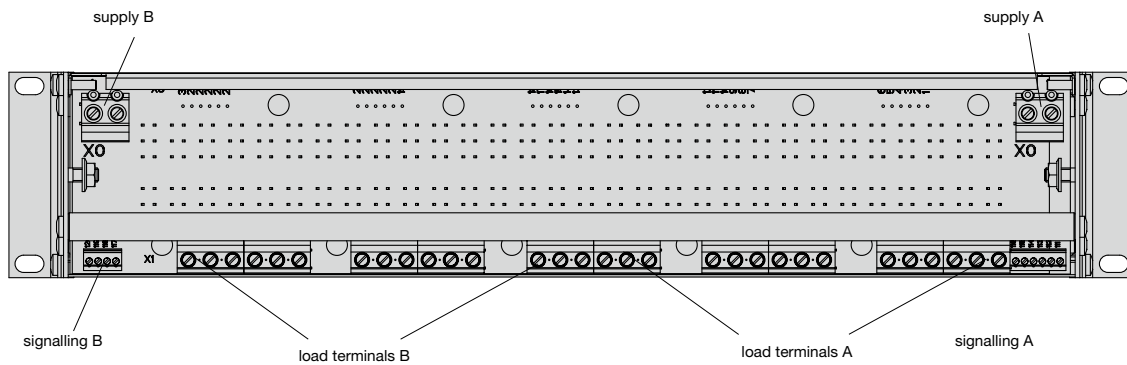


Dimensions

**Top view/dimensions: terminals on pcb, redundant**



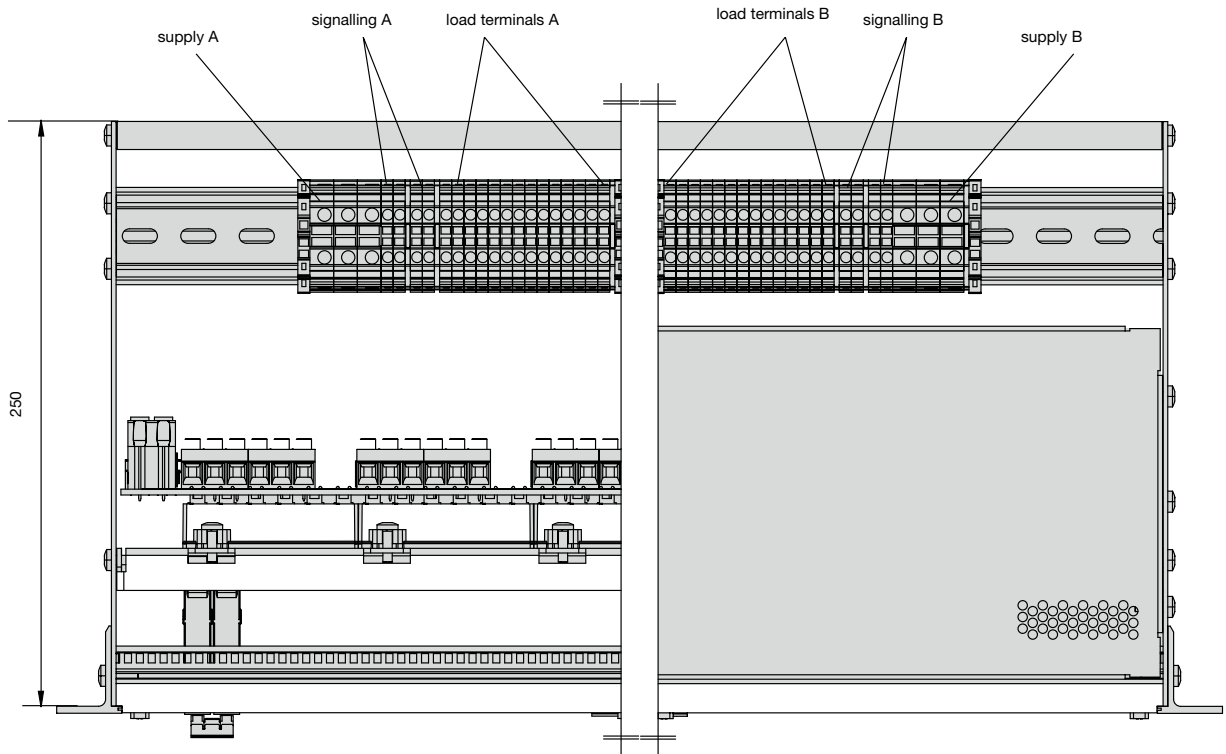
**Rear view: terminals on pcb, redundant**



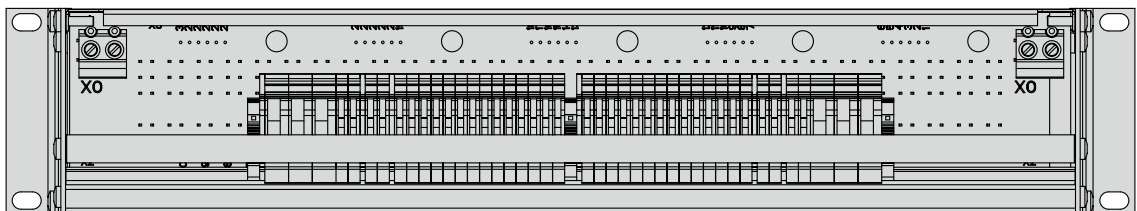
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Dimensions

**Top view/dimensions:** terminals on symmetrical rail, redundant

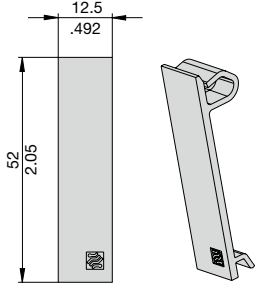


**Rear view:** terminals on symmetrical rail, redundant

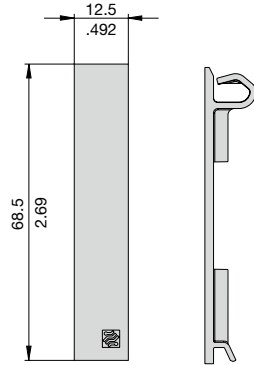


Accessories

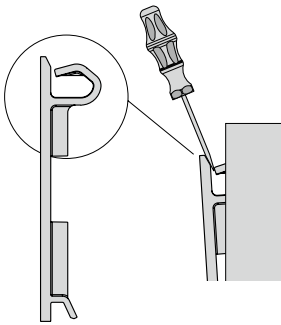
**Blanking piece for Power-D-Box**  
(types 3600/3900, 2210)  
**Y 308 563 01**



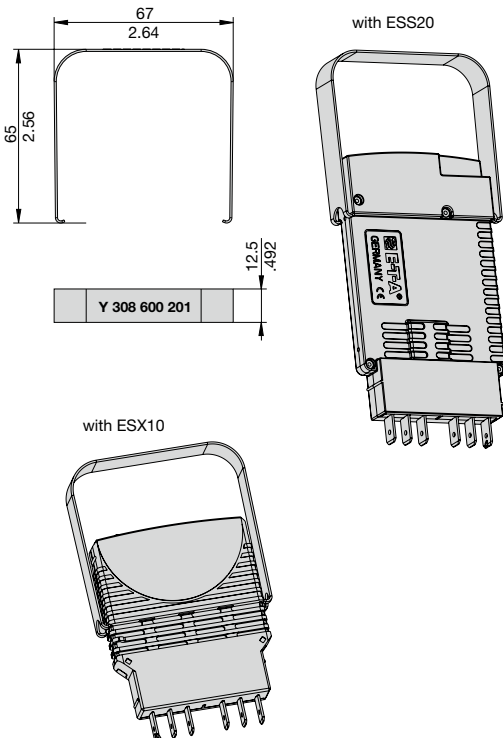
**Blanking piece for Power-D-Box**  
(types ESS20/ESX10)  
**Y 308 563 41**



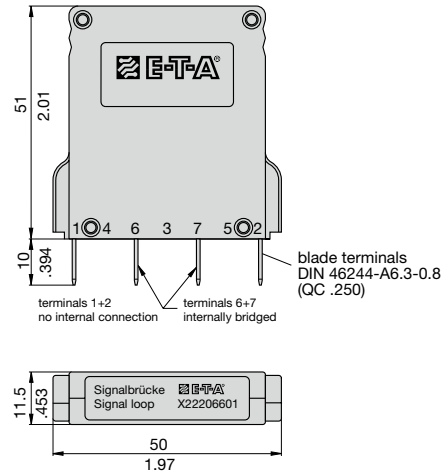
**For removing the blanking piece:**  
push in the screwdriver as shown below



**Withdrawal tool for ESS20/ESX10**  
**Y 308 602 01**



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



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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.