Elektro-Automatik

User instruction manual

Cabinet

9 x PSI 8600-70
600V
630A
135kW

PSI Rack 42U: 09 114 600

Technical specifications

Type: Rittal TS8 42U

Dimensions (WxHxD): 600mm x 2000mm x 800mm

Weight without PSUs: approx. 150kg

Weight with PSUs: approx. 440kg

Version: no front door, no rear panel

Input type: three-phase (L1+L2+L3+N+PE)

Input voltage: 340...460V AC

Main features:

- Prepared for up to 9 units of 3U
- Share bus prewired in parallel for all units
- Three-phase circuit breaker for each unit
- DC output copper bars premounted
- Redundancy function

Important instructions

- Do not modify the wiring!
- Series connection of the unit not allowed!
- Grid connection has to be fused externally for each phase

Installation of cabinet

It is required to leave at least 20-30cm space behind the cabinet for ventilation purposes. Before equipping the cabinet with PSUs, make sure it is correctly positioned upright and secured against tilting over. Grid connection is done on the screw terminals inside the cabinets. See the figure 3 below.

Installation of units

Equipment

Before equipping the cabinet with units, the cabinet should disconnected from the grid or at least all circuit breakers must be switched off. Insert the units directly beneath each other, from top to bottom. **Do not fix the units on the front until all the input and output connections on the rear side are done!**

Sequence

Multiple units in a cabinet, wired in share bus operation, do not work as a master-slave system. Share bus means, the unit with the highest output voltage determines the overall output voltage of the cabinet. Thus it is recommended to select a quasi master, preferably the topmost unit 1. This unit, if externally controlled via digital interface, will lead the voltage of the parallel connection. The sequence within the cabinet is defined from 1 to 9 and top to bottom. Also see figure 3.

Wiring the AC input

See „Input connection“.

Wiring the DC output

See „DC output connection“.

Input connection

Details

- Recommended cross section per phase: 50mm²
- Input current per unit: 3 x 16A
- External circuit breakers per phase (9 units): 160A

Input wiring of single units

The input wiring is preconfigured:

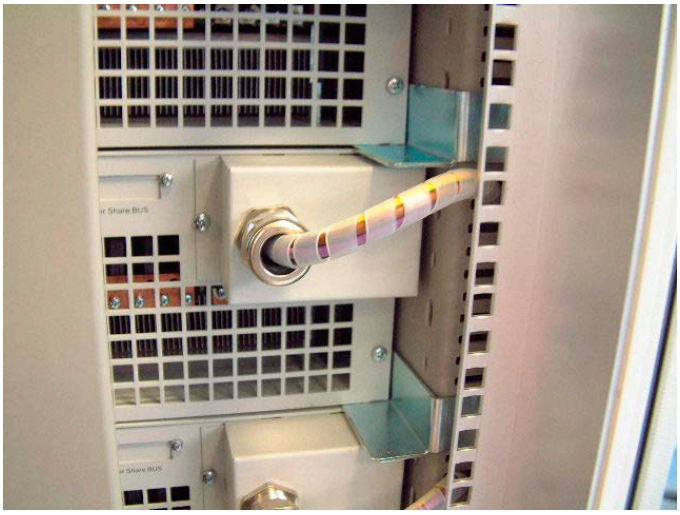


Figure 1: Unit AC input with cover

For wiring of the AC input connection also refer to the user instruction manual of the power supplies. Just reconnect the cables as shown in figure 2 and reinstall the cover.

Note: in order to ensure symmetric current distribution on the three input phases, it is strongly recommended to keep the wire colour scheme the same for every unit. The cables have three colours: black, purple, brown. If you, for example, use brown for L1 (R), purple for L2 (S) and black for L3(T) for one unit, then do it the same way for every other unit.

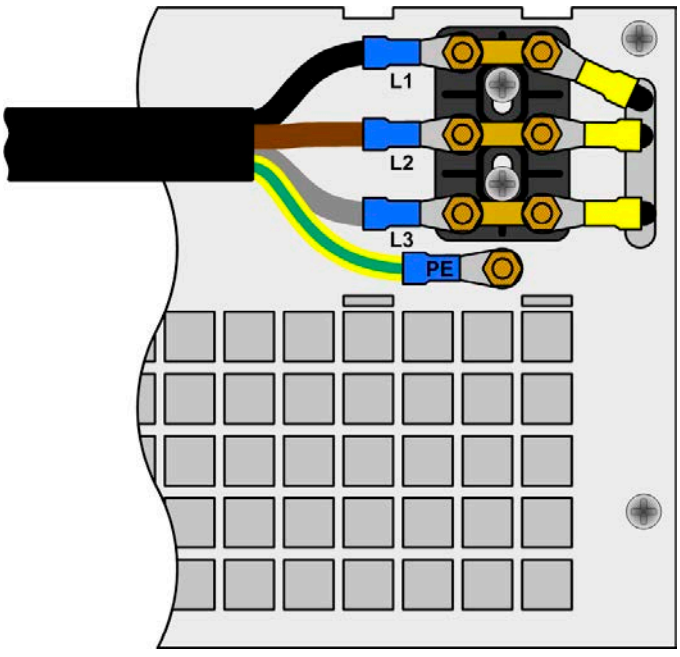


Figure 2: AC input terminal

Input wiring of the cabinet

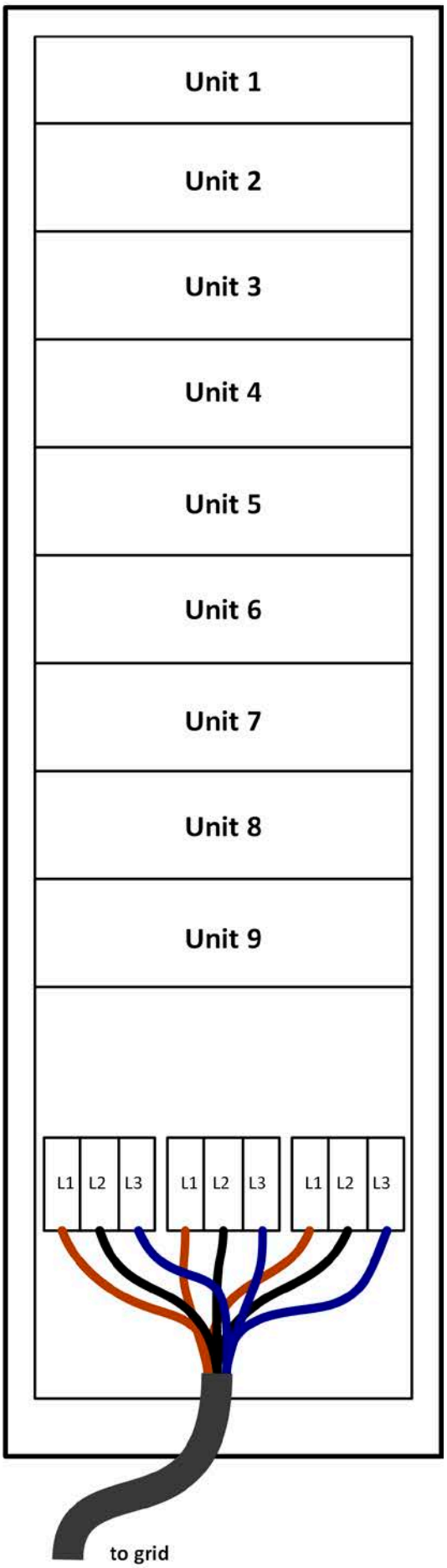
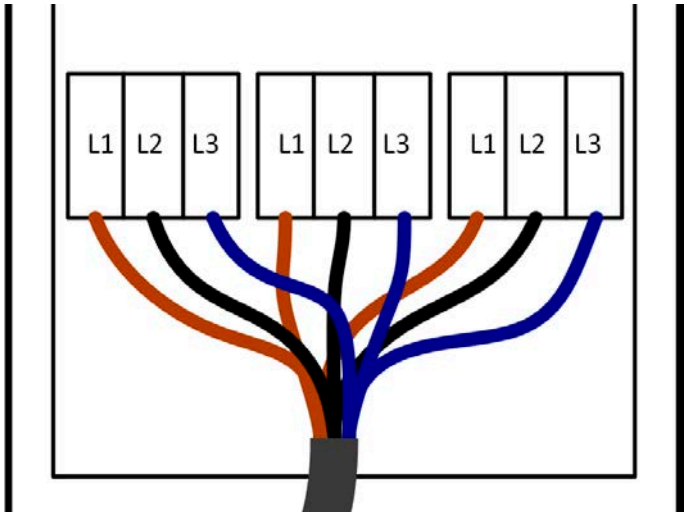


Figure 3: AC input of cabinet

Figure 3 depicts an example for the grid connection. The cabinet distribution is done for 3 x 3 units, so you need to connect the three phases L1(R), L2(S) and L3(T) to all three input blocks:



DC output connection

Before taking the cabinet system into operation, the DC output connection has to be wired to the target application. **Take care for correct cross section!** We recommend to use for **630A 2 x 150mm²** flexible wire at least per **output pole**.

The cables to the load are mounted to the M8 screw terminals on the bottom end of the copper bars:

Figure 4: DC output terminals

Remove the plastic covers only for installation purposes! They are mounted for safety reasons! Dangerous voltage here! Danger of life!

Mount again after installation or maintenance is done.

The units are connected to each other via the copper bars which are installed in the cabinet. Every unit is connected to the copper bars by a pair of short, flexible wires of 25mm² cross section. By default, the units are delivered with the cables tied to the output, so the distant ends just need to be mounted to the copper bars.

Figure 5: Single unit DC output

Share bus wiring

For every unit that is going to be used in the parallel connection, just plug the pre-wired Share bus plug. The units are then automatically controlled from the system. The system‘s output voltage is determined by the unit with the highest output voltage. The load current is distributed symmetrically to all participating units.

Considerations

1. Always mind the typical share bus characteristics.

2. Select one unit to be the quasi master and, if required, control this unit via remote.

3. In parallel connection, the settings for all units regarding output current and power should be the same, else load distribution is asymmetric.

4. Do not operate the system with ambient temperatures higher than 30°C, because overtemperature shutdown will be imminent.

5. The system features redundancy. It means, it will keep on putting out voltage if a unit fails for any reason. Also, if only operation of, for example, three units is required the other units can be left switched off in order to save energy.

Views

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