



Installation Guide

Cabinet



Technical specifications

Type: Rittal TS8 42U

Dim (WxHxD): 600mm x approx. 2000mm x 800mm

Model: no doors, on wheels

AC input connection: L+N+PE

AC input voltage: 115/230V AC

Feature overview

- Wheels (4 wheels of which 2 can be locked)
- Equipped with 4x EL 9750-75 HP à 9U
- Ethernet interface pre-installed in every unit
- Master-Slave wiring

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The AC input connection is done using clamp terminals which are accessible on the rear side in the bottom right corner and labeled L1, N, PE. The input is fused with a 16A circuit breaker, so the cross section of the AC supply cables has to be selected accordingly.

For additional safety, every unit has a fusible, which is accessible on the rear of the units in a fuse holder and labeled with the fuse value (see sticker).

DC input

The DC input should be connected as well when installing the cabinet.

The four units are connected in parallel with copper bars for DC plus and DC minus and covered for protection against contact.

The DC input copper bars for voltage/current source connection are down below on the rear and are horizontally mounted.



Attention!

Always connect sources with correct polarity!

The electronic loads do not have protection against false polarity and can even be damaged in switched-off state.

Digital interface

By default, every unit in the cabinet is equipped with an Ethernet interface. When connecting all four units to a network, it is recommended to install an Ethernet switch inside the cabinet.

The network connection can be used to control and monitor single or all units in the cabinet.



Note

Slave units 1-3 can not be controlled via Ethernet as long as the master-slave is connected. In this situation, only monitoring is possible.

Analog interface

The analog interface of all units in the cabinet is configured and wired for current driven master-slave system. The topmost unit is defined as master unit. All units are labeled on the front side.

The slave units are in permanent remote control („External mode“) as long as the master-slave wiring on the analog interface is plugged. In case you need to access a unit separately or take over remote control via digital interface, it is sufficient to remove the plug from the analog interface

When re-configuring the cabinet or in case of removing an unit for repair, the setup of master and slave units should be kept and the master-slave wiring re-connected as before.

Operation

Handling of the electronic loads

See separate manual of EL 9000 HP 7200W.

General

For general information about remote control of the electronic loads via analog or digital interface refer to various available documentation (device manual, interface manual, programming guide).

Remote control



Note

It is generally possible to remotely control all units at once or just single units.

With the given situation, remote control is only intended for the master unit, because it controls the slave units. These can only be monitored via digital interface, unless master-slave is disconnected.

The software Easyload Lite, as supplied from the manufacturer of the electronic loads, is designed to control only one unit. This should be the master unit. In case all four units of a cabinet are networked, the software will detect four identical units and the particular master can only be distinguished from the slaves by its IP or the serial number. Thus Easyload Lite is only of limited use.

In order to control the whole cabinet as one big system, it requires to create a custom software, which either controls only the master unit and translates all values accordingly before sending it to the device. Because of the analog master-slave wiring, there is no digital communication between the units and so the master unit has to be considered as single device concerning values to send/receive.

Alternatively and at least when monitoring the units regarding set values, the single units could be read and totalled, so the resulting actuals are more accurate than just reading the master and multiplying current and power by the number of units.

When operating multiple cabinets in parallel, it is possible to control the master units of all cabinets with broadcast messages, so they receive commands with set values or status at the same time. But due to internal delays, the command execution is not necessarily synchronous.

If the slaves are also networked and receiving broadcast messages with set/status commands, they will return error messages for every new command. Thus it is recommended to refrain from networking the slaves and only use the master unit(s).

Master-slave (MS)

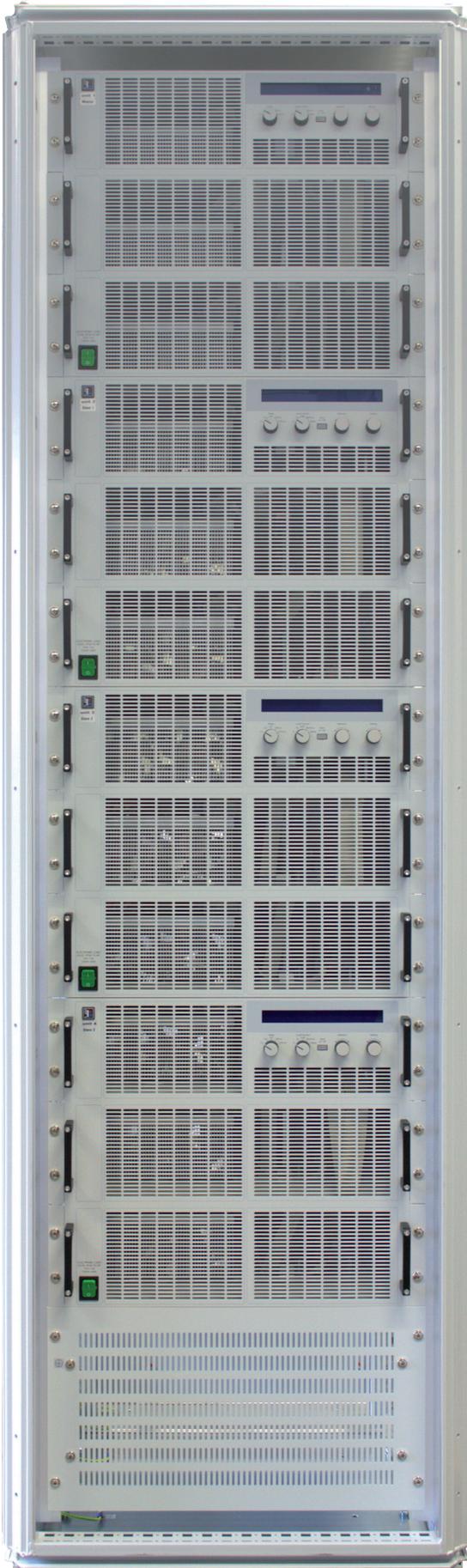
The cabinet is wired for MS operation by default.

The MS wiring is done on the analog interface of all units that shall be included. For the master it doesn't matter if there is only 1 slave or 3.

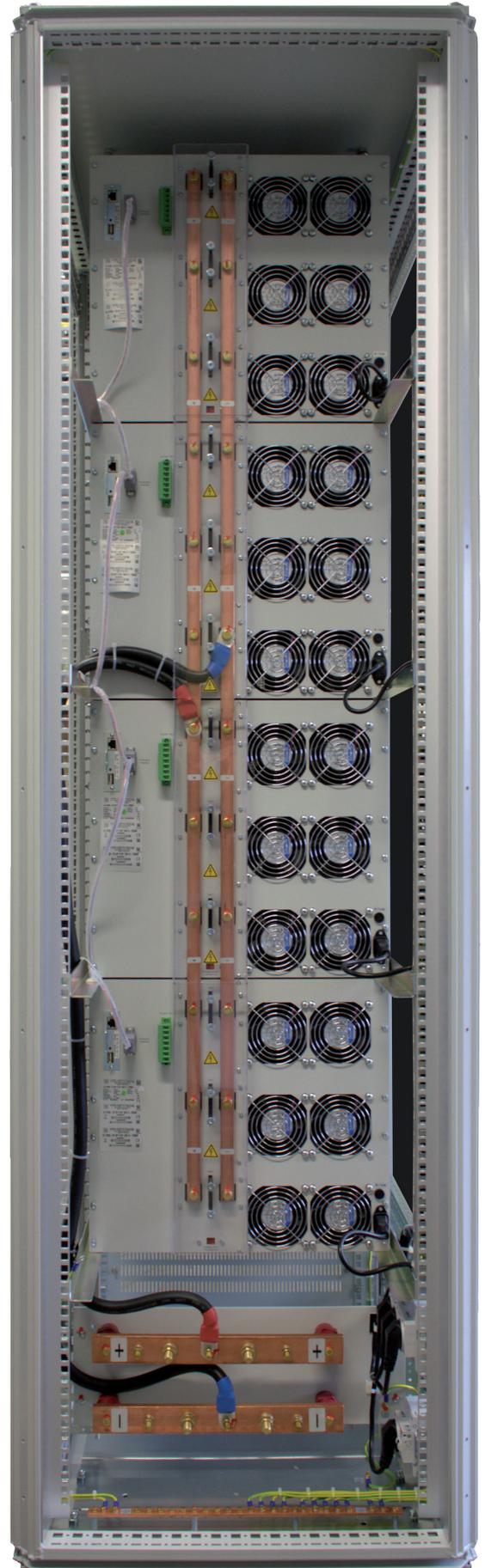
The MS here is defined as current-driven. It means, that the slave units all work in external remote control, i.e. by analog interface, and the set values of voltage and power are set to fixed levels and only the current is controlled by the master units. The master unit is completely controllable on the control panel or via digital interface.

When switching the DC input of the master on, all units start drawing current from the source, so the units act as one big system. However, the master only show set values and actuals of itself, so the total current or power intake has to be translated everytime. For example, if you use all four units in the MS and you want to set 100A, the master has to be set to $100A \div \text{number of units} = 25A$, in order to make the whole system draw 100A and given that all units are operating.

Views



Front



Rear



Elektro-Automatik

EA-Elektro-Automatik GmbH & Co. KG

Entwicklung - Produktion - Vertrieb

Helmholtzstraße 31-33

41747 Viersen

Germany

Telefon: 02162 / 37 85-0

Telefax: 02162 / 16 230

ea1974@elektroautomatik.de

www.elektroautomatik.de