Application

The mains adapter 23VG23 is an AC/DC converter in combination with an external back up battery for the use as an uninterruptible power system (UPS). It contains a switch-mode power supply of 92 V AC to 265 V AC without switch over the input voltage. The mains adapter supplies an output voltage of 24 V DC with an output current of min. 0.2 A and max. 2 A.

It can supply the boards of an RTU560 subrack with a power output of 48 W.

Characteristics

In the mains adapter there is integrated:
– a battery charging device
– a switch-over device and
– a exhaustive discharge protection.

The mains adapter contains contacts for monitoring of mains failure and of low battery. Double output terminals are available for simplified wiring.

The mains connection is on the front of the adapter.

The mains adapter 23VG23 offers high operational reliability and resistance to disturbances.

Abb. 1: Block diagram of mains adapter 23VG23

Fig. 2: Dimension of 23VG23
Technical Data

In addition to the RTU560 general technical data, the following applies:

**Input**

- **Nominal voltage:** 115 / 230 V AC
  - without switch over
- **Operating range:** 1.2 A typical at 115 V AC
  - 0.7 A typical at 230 V AC
- **Tolerance:** 92 V AC to 265 V AC
- **Frequency:** 47 to 63 Hz
- **Input fuse:** F1 = 4 A (slow)
  - (inaccessible fuse)

**Back up battery (external)**

- There are special data of manufacturer for back up battery
- **Battery voltage:** 24 V DC nominal
  - Series dryfit A500, 12 V
  - 2 batteries connected in series
  - Supplier: Sonnenschein GmbH
- **Charge voltage:** 26.4 V to 29.4 V
  - depending on sensor temperature
- **Charge current:** I\textsubscript{b,max} = 0.35 A
  - Current limiting: 0.4 A (typ.)
  - continued short circuit-proof

<table>
<thead>
<tr>
<th>Function</th>
<th>Battery with</th>
<th>3.5 Ah</th>
<th>6.5 Ah</th>
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<tbody>
<tr>
<td>Operation at full load and 20 °C</td>
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<tr>
<td>Loadtime until 90 % loading</td>
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<tr>
<td>Signalling before switching-off the undervoltage of the battery at contact LB1, LB2</td>
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<tr>
<td><strong>Time of battery</strong></td>
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**Output**

- **Nominal voltage:** 24 V DC
- **Output current:**
  - max. 2 A
  - min. 0.2 A
  - (with battery operation)
- **Ripple:** max. 80 mVss
- **Current limiting:** 2.5 A typical
- **Efficiency:** 82 % typical
- **Tolerance:** max. ± 3 %
- **Back up Battery:** min. ~20 %
- **Rated power:** 48 W
- **Fuse:** F2 = 2.5 A (F)

**Temperature sensor:** only necessary with battery operation connection to Ut1 and Ut2

- **type:** K164 / 10 k / 5 % bead-type
  - (B57164-K103-J) (Siemens)
- **or type:** M703 / 10 k/G
  - with fixing eye
  - (B57703-M103-G) (Siemens)
- **or type:** K45 / 10 k / 10 %
  - with screw-type
  - (B57045-K103-K) (Siemens)

**Connection length:** max. 10 m, twisted

\[ R_{\text{supply lead}} < 10 \text{ Ohm} \]

**Abb. 3:** Current limiting characteristic

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**Output voltage**

- 24 V DC

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Signal Outputs

- **Power failure signal:** Contact K1 - K2 (60 V / 2 A)
- **Undervoltage Battery:** Contact LB1 - LB2 (60 V / 2 A)

Protection equipment

- **Overvoltage** with protection: Suppressor diode 27 V
- **Current limiting:**
  - without battery: Continued short-circuit-proof
  - with battery: Fuse F2 trips with short-circuit of Ua
- **Stable at no load:** Yes, both outputs
- **Mains buffering time:** > 50 ms of 230 V AC
- **Reverse voltage protection Ub:** up to 30 V battery voltage

Electromagnetic Compatibility (CE – conformity)

- **Electrostatic discharge ESD:** 8 kV contact discharge
- **Electromagnetic fields:** 10 V / m
- **Fast transiente disturbances:** Input 4 kV
- **Surge immunity:** 4 kV asymmetrical
- **Impulse voltage withstand test:** 5 kV pulses 1.2/50 μs asymmetrical

Test Voltage

- **Primary** – **Secondary:** 1.5 kV DC
- **Primary** – **Protective conductor:** 1.5 kV DC
- **Secondary** – **Protective conductor:** 0.5 kV DC

Environmental Conditions

- **Temperature:** 0 ... 55 _°C
- **Relative humidity:** 5 ... 95 % (non condensing)
- **Storage temperature:** -25 _°C ... +85 _°C
- **Mechanical influence:** Oscillation low frequency
  - IEC870-2; Cl. VL3/VS1/VT1
  - Oscillation higher frequency
  - IEC870-2; Cl. VH3/VS1/VT1
  - Shock resistance
  - IEC870-2; Cl. SH4/SF3/5R1

Mechanical Layout

- **Construction:** Closed housing
- **Dimensions:** 105x86x165 mm (HxBxT)
- **Fixing:** Mounting rails acc to DIN EN 50022-35
- **Weight:** Approx. 0.8 kg
- **Cooling:** Natural convection
- **Type of protection:** IP 20
- **Protection class:** I
- **Connections:** Plug-in terminal strips
- **Primary plug:** e.g. Phönix - Combicon Art. No. 1767012
- **Secondary plug:** e.g. Phönix - Combicon Series MSTB

<table>
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<th>Secondary terminal assignment</th>
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<tr>
<td><strong>Low battery</strong></td>
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<tr>
<td><strong>Temperature sensor</strong></td>
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<tr>
<td><strong>Battery</strong></td>
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<td><strong>Output terminals 1</strong></td>
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<tr>
<td><strong>Output terminals 2</strong></td>
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Ordering Information

23VG23R0001 1KGT 0055000 R0001