

# AKKUTEC 4810

AC/DC DC UPS 48V 10A



## Short Description

The battery backed up DC power supply in the **AKKUTEC** range uses the standby-parallel principle of operation and, in conjunction with a lead accumulator, ensures that the DC power supply is reliably maintained in the case of a mains power failure.

The power supply has the following features:

- Switched primary, switched power supply with I/V charging characteristic
- Active power factor correction (PFC)
- Microcontroller-based battery management
- Temperature compensation for charging voltage by means of external sensor module (optional module)
- Display and control panel for switch cupboard door installation or surface mounting (option)

## 1 Norms and Regulations

|  |   |
|--|---|
| Safety of power transformers, power supply units and similar<br>Particular requirements for transformers for switch mode power<br>supplies | EN61558 2-17 (VDE 0570 2-17)  |
| Optocouplers for protective separation against electric shock, re-<br>quirements - tests   | VDE 0884  |
| EMC  | EN55011../..1998../..Class A Group 1<br>EN 61000-3-2 and EN61000-3-3 / Class A<br>EN50082-2/03.95 |
| This power supply is only accredited for industrial class A!   |   |
| Environmental testing  | EN 60068-2-6  |
| Overall unit   | EN 50178  |

## 2 Technical Data

|   |   |
|---|---|
| Nominal input voltage   | 230 V AC -15% +10%  |
| Nominal frequency   | 47 – 63, Hz   |
| System voltage  | 48V DC  |
| <b>Output voltage</b><br>(depends on the state of charge of the battery)  |   |
| Voltage range   |   |
| - with temperature tracking   | 39.6...52.8V DC   |
| - without temperature tracking  | 39.6.. 57.2V DC   |
| Nominal output current  | 10 A DC   |
|   | Current limitation at 1,05 - 1,1 x I Nom  |
| Protective system   | IP 20   |
| Safe separation (safe separation between input and output)                | According to EN61558-2-17 (VDE 0570 2-17)   |
| Operational temperature   | 0 - 40 °C<br>optimum storage temperature for battery 25°C.<br>Charge batteries each 6 months during storage.  |
| Short circuit protection  | electronic, short-circuit proof output  |
| Battery   | External  |
| Battery type  | Pb-Akku, maintenance-free<br>Pb- Akku maintenance-free (optionally with changed characteristics)  |
| Battery fuse  | External  |
| Back-up time  | Depending on battery and load   |
| Charging characteristics  | I/U DIN 41773 part 1<br>Opt. Temperaturnachführung  |
| <b>Final charging voltageLadeschlussspannung</b><br>without temp.- sensor | 52,8 V DC ± 0,4%  |
| Charging current at 100% load   |   |
| Charging current at 0% load   | 11 A  |
| LED Display   |   |
| 'Netzbetrieb' (Mains Operation)   | Green LED,<br>LED illuminates on:<br>•Mains operation, i.e.<br>( $U_E > U_{Emin}$ and $T_{Int} < T_{Intmax}$ )  |
| $\overline{U}$  | Green LED<br>(Battery voltage within the monitoring window, i.e.<br>$43.2 < U_{Batt} < 54V$ DC)   |
| $\frac{\uparrow}{U}$  | Green LED<br>(Battery voltage above the monitoring window, i.e.<br>$U_{Batt} = 54V$ DC)   |
| 'Fehler' (Fault)  | Red LED<br>LED illuminates on:<br>•Battery operation ('Netzbetrieb' (Mains Operation)<br>LED goes out in this case)<br>•UA fault<br>•Battery circuit open or high resistance (test interval<br>60s)<br>•Battery weak<br>•Battery poles reversed |

|                                    |   |
|------------------------------------|---|
| Signal inputs and outputs          | Battery over temperature (only in conjunction with temperature compensation)  |
| ‘Netzbetrieb’ (Mains Operation) 1) | Floating relay contact, normally open, max. contact load 30V DC/ 0.5A   |
| ‘Fehler’ (Fault) 1)                | Floating relay contact, changeover, max. contact load 30V DC/ 0.5A  |
| $\overline{U}$ 1)                  | Floating relay contact, normally open, max. contact load 30 V DC/ 0.5A  |
| $\frac{\uparrow}{U}$ 1)            | Floating relay contact, normally open, max. contact load 30 V DC/ 0.5A  |
| Shut-Down                          | Shut down of the UPS mode<br>Switched input referenced to earth, switching level: 48V DC (16-80V DC)  |
| ‘Starkladung’ (Boost Charging)     | Activation of boost charging (boost charging voltage 57.2V DC)<br>Switched input referenced to earth, switching level: 48V DC (16-80V DC)   |
| Battery management                 | Battery management with internal Micro controller   |
| Battery circuit monitoring         | Monitoring battery circuit/battery fuse each 60sec  |
| Real battery power measurement     | Battery endurance testing during mains operation (stress of the battery with simultaneous voltage measurement.  |
| EMC-Regulation                     | EN 55011/03/91<br>EN 50082-1/1.92<br>EN 61000-4-2,3,4,5,6,11<br>EN 50178 EN 60950   |
| Type of construction               | Module  |
| Connection                         | Spring terminals  |
| dimensions                         | 100,5 x 240,5 x 244 mm (W x H x D)  |
| weight                             | 2,4 kg  |
| 2.1 Options                        | TECControl  |
| 2.2 Shutdown Software              |   |
| Temperature tracking               | Lead batteries have a temperature coefficient of approx. -4mV per °C and cell. The <b>AKKUTEC</b> final charging voltage is selected such that battery charging is provided over a temperature range of 15-40°C.<br>In applications with frequent and large temperature variations, the charging voltage should be appropriately compensated to achieve optimal battery life. Also, particularly in the case of very low ambient temperatures ( $T_u < 15^\circ\text{C}$ ), compensation should be performed to ensure adequate battery charging.<br>By connecting the external temperature sensor module (option) to terminal strip ‘IO-1’ connection 1 and 2 (note poles!), temperature compensation is automatically activated. For an ambient temperature variation of 0-40°C, the final charging voltage (and thus also the output voltage) varies over a range of 54.6 - 52.4 V DC<br>Battery temperatures above 45°C are indicated by the simultaneous illumination of the ‘Fehler’ (Fault) and ‘Netzbetrieb’ (Mains Operation) LEDs |