

EDS-500

500W DC OUTPUT UPS

GENERAL FEATURES:

Battery cut off when battery low 3 state battery charging Configurable maximum current charging level Step mains to battery without voltage dips Battery not included Battery temperature sensor input (Optional sensor) Battery low alarm Battery test Mains failure alarm UPS failure alarm Advanced configuration via RS232 Ethernet or CAN Bus connection (optional) Redundance ORing diode (optional)





| MODELS | Input voltage range | Nominal output voltage | Maximum output power | Maximum output current | Maximum Output peak current from battery |
|---------------|------------------------|---------------------------|-------------------------|---------------------------|---|
| EDS-500-5243 | 110 230Vac | 12V | 500W | 36.7A | 50A 30s |
| EDS-500-5247 | | 24V | | 18.4A | 30A 30s |
| EDS-500-5249 | | 48V | | 9.19A | 15A 30s |
| EDS-500-5251* | | 110V | | 4.02A | 5A 30s |

*References subject to special MOQs and lead times



| INPUT | |
|---|--|
| Input voltage range | 110 230Vac |
| Mains frequency range | 47 63Hz |
| Inrush current | <30A |
| Power factor | 0.98 at full load |
| Efficiency | See table |
| OUTPUT | |
| Output voltage range | -0, +20%Von |
| Line regulation | <0,2% |
| Maximum ripple | See table |
| Maximum load capacitance | See table |
| BATTERY | |
| Battery charging method | Bulk / absorption / float |
| Maximum charging current | Configurable range depends on model (see table on page 1) |
| Maximum charging current tolerance | 10% |
| Battery temperature compensation | 2.5mV/K/cell |
| Battery test | By capacity measurement discharging over the load |
| ENVIRONMENTAL | |
| Storage temperature | -25 80% |
| | $-25 = 55^{\circ}$ (Po = nom) |
| Operating temperature | $-25 \dots 70^{\circ}$ C (Po = 62.5% nom) |
| Maximum Relative humidity | 95% with no condensation |
| Cooling | Natural convection |
| MTBF | 350.000h @ 40°C according to IEC61709 |
| EMC | |
| Emission | EN61000-6-4 |
| Immunity | EN61000-6-2 |
| SAFETY | |
| SAFLIT | |
| Salecty | 1EC62368-1 |
| Dielectric strength Input / Output, Signals | |
| Dielectric strength Earth / Input | |
| | |
| MECHANICAL | |
| Size | 186.5 x 87 x 124.4 mm |
| Weight | 1490 gr. |
| CONTROL | |
| Battery reconnection button | For starting up without mains presence |
| LEDs | Power on (Green) Charging (Ambar) Battery Failure (Red): • Led on: Battery test failed • Slow blink: Battery not present • Fast blink: Battery temperature sensor not present AC or charger failure (Red): • Led on: Vout out of range • Slow blink: AC input out of range |
| Mains failure alarm | Mains out of range. Closed contact when alarm |
| Battery low alarm | Battery discharged. Closed contact when alarm |
| Urgent failure alarm | Maintenance required. Closed contact when alarm. Alarm cases: Battery not present Battery test failed Charger malfunction Charger temperature out of range |
| UPS failure alarm | Vout out of range. Closed contact when alarm. |
| Alarms spec: | |
| Туре | Solid state relay |
| Maximum switching voltage | 60 V |
| Maximum switching current | 0.2A |
| | |



| PROTECTIONS | |
|--|---------------------------|
| Against overloads and short-circuits | Current limiting |
| Battery protection against deep discharges | Battery cut off |
| Battery protection against overloads | Current limiting and fuse |
| Against Input over-currents | Fuse |

ORDERING CODES

| | | | Out | put / Ba | ttery | | Maximum Output current | | | | Maximum charging current selection | | |
|--------------|------|-------|---------------|----------|---------------|------------|---------------------------|-------|---------------------|-------|---------------------------------------|-------|-----|
| Part Number | Nom | Float | Const Volt | Cut off | Max Ripple | Max Cap | Cont. | 1 min | From Battery | Effic | Min | Nom | Max |
| | [V] | [V] * | [V] * | [V] * | [mV] | [mF] | [A] | [A] | [A] | [%] | [A] | [A] * | [A] |
| EDS-500-5243 | 12 | 13.6 | 14.5 | 10.5 | 100 | 15 | 36.7 | 36.7 | 50 (30s) | 90 | 2.5 | 16 | 20 |
| EDS-500-5247 | 24V | 27.1 | 29.0 | 21 | 100 | 15 | 18.4 | 20 | 30 (30s) 32 (1s) | 92 | 1.25 | 8.0 | 10 |
| EDS-500-5249 | 48V | 54.2 | 58.0 | 42 | 150 | 15 | 9.19 | 10 | 15 (30s) 16 (1s) | 93 | 0.63 | 4.0 | 5.0 |
| EDS-500-5251 | 110V | 124.2 | 132.9 | 96.2 | 300 | 2.7 | 4.02 | 4.5 | 5 (30s) 7 (1s) | 93 | 0.3 | 1.75 | 2.2 |

* Default factory settings

⁽¹⁾ References subject to special MOQs and lead times



Accessories must be ordered in a separated order line

BLOCK DIAGRAM



CONNECTIONS





| J1-1 | Mains Line | | |
|--------------------|------------------|------------------------|--|
| J1-2 | Mains Neutral | | |
| J1-3 | Protective EARTH | | |
| J2-1, 2 | + Vout | 0.75 6 mm ² | |
| J2-3, 4 | - Vout | 0,75 0 11111- | |
| J3-1, 2 | -VBat | | |
| J3-3, 4 | + VBat | | |
| J4-1 | Temp sensor +5V | Tomporatura concor | |
| J4-2 | Temp sensor | not included | |
| J4-3 | Temp sensor GND | not included | |
| J5-1 | Com alarms | Mating compository | |
| J5-2 | Mains alarm | Mating connector: | |
| J 5 -3 | UPS alarm | | |
| J5-4 Low Bat.alarm | | (not included) | |
| J5-5 | Urgent failure | (not included) | |

POWER DERATING vs TEMPERATURE



DESCRIPTION

This series consists of three models of a power supplycharger which, in the presence of mains voltage, supplies regulated voltage, while at the same time charging the battery in a controlled way. The range is ideal for charging lead-acid batteries of 12V, 24V, and 48V with capacities of up to 96Ah, 48Ah, and 24Ah respectively.

The device comprises a switched-mode power supply and a three steps battery charger circuitry. It also incorporates an alarm circuitry which acts independently, when a mains, UPS or battery condition occurs. The alarm outputs are the switched, potential-free contacts of relays.

Mains operation

When the mains supply is on, the output current is obtained directly from the power supply. The maximum battery charging current can be selected by the user through RS-232 connection. The maximum battery charging current will be equal to the set current or equal to the rated current less the output current; the floating voltage will be equal to the output voltage.

The system allows the temporary supply of an output current higher than the rated current. The average of this additional current, which is obtained from the battery, should not exceed the charging current as, otherwise, the battery would finally discharge.

If the power supply has no output, due to a mains voltage outage or to a failure in the power supply, the supply failure alarm will be triggered.

Operation without mains supply

When there is no mains supply, the battery comes, uninterruptedly, into operation and the output current is obtained from the battery. The output voltage will then depend on the battery discharge curve.

If the battery runs flat, the low battery alarm will be triggered. It will be disconnected from the output by way of a relay to prevent a deep discharge of the battery. When the mains supply returns, the UPS may take several minutes to supply the established battery charging current. During this time, the battery is charged with a small current until the low battery status is overcome. At that moment, the low battery alarm is reset, the relay closes, and the battery starts to charge normally.

Battery temperature sensor

An optional temperature sensor attached to the battery can be connected to the equipment. If it is used, charging and floating battery voltages are compensated according to battery temperature.

INSTALLATION

Make the connections according to the table figure

If the battery charging current required is different from the factory set, this can be changed through RS-232 connection **For safety reasons it is required:**

To incorporate an easily accessible means of disconnecting from the mains supply.

Upon replacing the mains fuse, make sure one of the same rating is used and with the power supply disconnected from the mains.

To provide the equipment with a protective enclosure, in compliance with the Electrical Safety Regulations and Directives in the country where it is installed.

To use a mains connection cable with a cross section of at least 0.75mm².

ORing FEATURE



The optional ORing feature enables the parallel connection of several power supply-chargers. In this manner, the load current is shared among the units and redundancy is introduced in the power system for high reliability.

The implemented ORing is an active one, based on FET transistor, and thus minimizing power loss in this circuit.

CHARGING CHARACTERISTIC





CANopen Communication Protocol

The optional CAN Module enables CANopen application protocol.

CAN Data Frame

Can protocol uses frames to send and receive data between the device and other nodes on the CAN Bus. The structure of the CAN frame is the following one:

| SoF | COB-ID | RTR | Control Field | Data | CRC | АСК | EoF |
|-------|---------|-------|------------------|-----------|---------|--------|--------|
| 1 bit | 11 bits | 1 bit | 6 bits | 0-8 bytes | 16 bits | 2 bits | 7 bits |

LSS Service

Layer Setting Service. It offers the possibility to inquire and change the settings of certain parameters of the local layers on a CANopen module via CAN Network. The parameters that can be read and/or written by using LSS service are:

- Node-ID of the CANopen Slave.
- Bit timing parameters of the physical layer (baud rate).
- LSS address.

By default, CANopen devices start without CANopen Node-ID (0xFF) and baudrate of 250 kbit. Node ID must be set in order to communicate with the device.

NMT Service

The Network Management is used to control the Nodes inside the network and its behaviour. This service uses a master/slave relationship where the master controls the states of the slaves.

SDO Service

Service Data Object is used to have access to all the data defined in the Object Dictionary. SDO service allows the transmition and reception of objects of any size using a client/server communication. If SDO is not able to send all the data in one frame, it will segment it and send the data using multiframe format.

Object Dictionary

The Object dictionary shows all the accesible data and the application and communication parameters inside the device. The dictionary sorts the data using and indexes and subindexes, which will be used by the CANopen protocol to map all the data.

Use cases:

LSS Service: Change Node ID

| Tx/ Rx | CAN Id | DLC | Message | Notes |
|-----------|-----------|-----|----------------------------|---------------------------------|
| Тх | 7E5 | 8 | 04 01 00 00 00 00 00 00 | Set nodes to configuration mode |
| Тx | 7E5 | 8 | 11 XX 00 00 00 00 00 00 | Set node ID to XX |
| Rx | 7E4 | 8 | 11 00 00 00 00 00 00 00 | If==00, node changed correctly |
| Тх | 7E5 | 8 | 04 01 00 00 00 00 00 00 00 | Set nodes to operation mode |

SDO Service: (Node ID = 0x01)

| Tx/ Rx | CAN Id | DLC | Message | Notes |
|-----------|-----------|-----|----------------------------|--|
| Тx | 601 | 8 | 40 04 60 01 00 00 00 00 | Read Index 6004, subindex 01 |
| Rx | 581 | 8 | 43 04 60 01 0F D4 00 00 | Return value 00 00 D4 0F = 54287 mV |
| Тx | 601 | 8 | 2F 03 60 00 04 00 00 00 | Write index 6003 subindex 00 to 4 |
| Rx | 581 | 8 | 60 03 60 00 00 00 00 00 00 | Write OK |

Object Dictionary:

| Act Display The Output Power 6001 00 INT32 ro Output Power 6003 00 UINT3 rw Output Type 6004 01 UINT32 rw Mainmum Output voltage in mV 6004 02 UINT32 rw Maximum Output voltage in mV 6005 01 UINT32 rw Maximum battery temperature in m°C. 6005 02 INT32 rw Maximum battery temperature in m°C. 6006 00 UINT32 rw Output voltage in floating state in mV 6007 00 UINT32 rw Output voltage in quick charge state in mV 6008 00 UINT32 rw Disconnection voltage upper bound in mV 6008 00 UINT16 rw Maximum number of power up retries inmutes 6000 01 UINT16 rw Time between power up retries inmutes 6001 00 UINT16 rw Time in minutes for disconnection of babattery 6002 <th>Idx</th> <th>Sub</th> <th>Type</th> <th>RW</th> <th>Notes</th> | Idx | Sub | Type | RW | Notes |
|--|------|-----|---------|------|---|
| Book Design of the second | 6001 | 00 | INT32 | ro | Output Power |
| 6003 001 UINTB rw Output Type 6004 01 UINT32 rw Maximum Output voltage in mV 6004 02 UINT32 rw Moninal output voltage in mV 6004 03 UINT32 rw Moninal output voltage in mV 6005 02 INT32 rw Maximum battery temperature in m°C. 6005 00 UINT32 rw Output voltage in floating state in mV 6006 00 UINT32 rw Output voltage in floating state in mV 6007 00 UINT32 rw Output voltage in quick charge state in hows 6008 00 UINT32 rw Output voltage in quick charge state in hours 6008 00 UINT16 rw Maximum charging current in mA 6000 00 UINT16 rw Time between power up retries in minutes 6001 00 UINT16 rw Time in minutes for disconnection of the statery when above maximum output voltage 6010 00 UINT16 rw Time in minutes | 6002 | 00 | INT32 | ro | Main Forward Power |
| Society Society The Maximum Output voltage in mV 6004 0.1 UINT32 rw Maximum Output voltage in mV 6004 0.3 UINT32 rw Maximum Dutput voltage in mV 6005 0.1 INT32 rw Maximum battery temperature in m°C. 6005 0.2 INT32 rw Maximum battery temperature in m°C. 6006 0.0 UINT32 rw Output voltage in quick charge state in mV 6007 0.0 UINT32 rw Output voltage in quick charge state in mV 6008 0.0 UINT32 rw Disconnection voltage lower bound in mV 6009 0.1 UINT32 rw Maximum number of power up retries in minutes 6000 0.0 UINT16 rw Maximum output voltage 6001 0.0 UINT16 rw Time in insconds to disconnect the battery when above the maximum output voltage 6010 0.0 UINT16 rw Time in sconds to disconnect the battery when above the maximum output voltage 6011 0.0 UINT16 r | 6003 | 00 | LIINTS | rw | |
| Socie Output Name The Minimum Output voltage in mV 6004 0.2 UINT32 rw Nominal output voltage in mV 6005 0.2 INT32 rw Nominal output voltage in mV 6005 0.2 INT32 rw Maximum battery temperature in m°C. 6006 0.0 UINT32 rw Output voltage in quick charge state in mV 6007 0.0 UINT32 rw Output voltage in quick charge state in mV 6009 0.1 UINT32 rw Output voltage in quick charge state in hours 6009 0.0 UINT32 rw Output voltage in quick charge state in hours 6008 0.0 UINT16 rw Maximum charging current in mA 6000 0.0 UINT16 rw Time in minutes for discomection of the battery 6000 0.0 UINT16 rw Time in minutes for discomection the battery when above the maximum output voltage 6010 0.0 UINT16 rw Time in seconds to discomect the battery when above the maximum output voltage 6011 0.0 | 6004 | 01 | LIINT32 | rw | Maximum Output voltage in mV |
| Source Call Difference 6004 0.3 UINT32 rw Mominal output voltage in mW 6005 0.1 INT32 rw Maximum battery temperature in m°C. 6005 0.0 UINT32 rw Minimum battery temperature in m°C. 6006 0.0 UINT32 rw Output voltage in floating state in mV 6006 0.0 UINT32 rw Output voltage in floating state in mV 6007 0.0 UINT32 rw Output voltage in floating state in mV 6009 0.2 UINT32 rw Output voltage in floating state in mV 6009 0.0 UINT16 rw Maximum charging current in mA 6000 0.0 UINT16 rw Maximum number of power up retries 6000 0.0 UINT16 rw Number of times a battery can be abore 6001 0.0 UINT16 rw Number of times a battery ore roltage 6010 0.0 UINT16 rw Battery core Caba abattery core 6011 </td <td>6004</td> <td>02</td> <td>LIINT32</td> <td>rw</td> <td></td> | 6004 | 02 | LIINT32 | rw | |
| Good Good Good Instruct of the second se | 6004 | 02 | LIINT32 | rw | |
| Good O.2 INT32 TW Minimum battery temperature in MPC. 6005 O.2 INT32 TW Minimum battery temperature in MPC. 6006 O UINT32 TW Output voltage in floating state in mV 6007 O UINT32 TW Output voltage in mA 6009 O1 UINT32 TW Output voltage in ma 6009 O2 UINT32 TW Disconnection voltage upper bound in mV 6008 O0 UINT16 TW Maximum number of power up retries 6000 O0 UINT16 TW Maximum output voltage 6000 O0 UINT16 TW Maximum output voltage 6000 O0 UINT16 TW Time in seconds to disconnection of the battery when above the maximum output voltage 6011 O0 UINT16 TW Time in seconds to clear a battery overvoltage alarm 6012 O UINT16 TW Time in seconds to clear a battery test failed in mV 6014 O UINT16 TW Time in sec | 6005 | 01 | INT32 | rw | Maximum battery temperature in m ⁰ C |
| Good Good <td< td=""><td>6005</td><td>02</td><td>INT32</td><td>rw</td><td>Minimum battery temperature in m9C</td></td<> | 6005 | 02 | INT32 | rw | Minimum battery temperature in m9C |
| 6006 00 UINT16 rw quick charge in mA 6007 00 UINT32 rw Output voltage in glick charge state in mV 6008 00 UINT32 rw Disconnection voltage in guick charge state in mV 6009 01 UINT32 rw Disconnection voltage upper bound in mV 6009 02 UINT32 rw Maximum time of guick charge state in hours 6008 00 UINT16 rw Maximum number of power up retries 6000 00 UINT16 rw Time in seconds to disconnection of the battery 6000 00 UINT16 rw Time in seconds to disconnect the battery when 6011 00 UINT16 rw Time in seconds to disconnect the battery when 6012 00 UINT16 rw Time in seconds for the end of autonomy alarm 6012 00 UINT16 rw Time in seconds for the end of autonomy alarm 6013 00 UINT18 rw Battery presence 6014 00 UINT16 rw | 0005 | 02 | INTJZ | 1 VV | Battery current for transition to floating from |
| 6007 00 UINT32 rw Output voltage in floating state in mV 6009 01 UINT32 rw Disconnection voltage lower bound in mV 6009 02 UINT32 rw Disconnection voltage upper bound in mV 6009 02 UINT16 rw Maximum time of quick charge state in hours 6000 00 UINT16 rw Maximum number of power up retries 6000 00 UINT16 rw Maximum output voltage 6000 00 UINT16 rw Time in seconds to disconnection of the battery when Acis to at valiable 6001 00 UINT16 rw Time in seconds to clear a battery overvoltage alarm 6012 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6013 00 UINT16 rw Eastery presence 6014 00 UINT16 rw Maximum time of an attempt of battery test failed in mA 6014 00 UINT16 rw Maximum time of an attempt of battery test failed in mA 6014 00 </td <td>6006</td> <td>00</td> <td>UINT16</td> <td>rw</td> <td>quick charge in mA</td> | 6006 | 00 | UINT16 | rw | quick charge in mA |
| 6008 00 UINT32 rw Output voltage in quick charge state in mV 6009 01 UINT32 rw Disconnection voltage lower bound in mV 6009 02 UINT16 rw Maximum time of quick charge state in hours 6008 00 UINT16 rw Maximum charging current in mA 6000 00 UINT16 rw Maximum charging current in mA 6000 00 UINT16 rw Time in minutes for disconnection of the battery when at is not available 6000 00 UINT16 rw Time in seconds to disconnect the battery when above the maximum output voltage 6010 00 UINT16 rw Time in seconds to disconnect the battery when above the maximum output voltage 6011 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger. 6012 00 UINT32 rw Limit voltage to consider a battery test failed in mA 6013 00 UINT32 rw Limit voltage to consider a battery test failed in mA 6014 00 UINT32 rw Hawimu | 6007 | 00 | UINT32 | rw | Output voltage in floating state in mV |
| 6009 0.1 UINT32 rw Disconnection voltage lower bound in mV 6004 00 UINT16 rw Maximum time of quick charge state in hours 6008 00 UINT16 rw Maximum number of power up retries 6000 00 UINT16 rw Maximum number of power up retries 6000 00 UINT16 rw Time in minutes for disconnection of the battery 6000 00 UINT16 rw Time in seconds to disconnect the battery when above maximum output voltage 6010 00 UINT16 rw Time in seconds to disconnect the battery vervoltage alarm 6011 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6012 00 UINT18 rw Battery presence 6013 00 UINT13 rw Battery trist or sonds in a battery test failed in mW 6014 00 UINT13 rw Capacity discharged in a battery test failed in mW 6016 00 UINT16 rw Residuating thours 6018 | 6008 | 00 | UINT32 | rw | Output voltage in quick charge state in mV |
| 6009 02 UINT32 rw Disconnection voltage upper bound in mV 6008 00 UINT16 rw Maximum time of quick charge state in hours 6008 00 UINT16 rw Maximum number of power up retries 6000 00 UINT16 rw Maximum number of gover up retries in minutes 6000 00 UINT16 rw Time in minutes for disconnection of the battery 6000 00 UINT16 rw Time in seconds to disconnect the battery when above the maximum output voltage 6011 00 UINT16 rw Time in seconds to clear a battery corvoltage alarm 6012 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6013 00 UINT32 rw Time in seconds for the end of autonomy alarm to regardly discharged in a battery test failed in mV 6014 00 UINT32 rw Capacity discharged in a battery test failed in mA 6013 00 UINT16 rw Period of the battery test in weeks 6014 00 UINT16 rw Maxim | 6009 | 01 | UINT32 | rw | Disconnection voltage lower bound in mV |
| 600A 00 UINT16 rw Maximum time of quick charge state in hours 600B 00 INT16 rw Maximum number of power up retries 600D 00 UINT16 rw Time in minutes for disconnection of the battery when AC is not available 600F 00 UINT16 rw Time in minutes for disconnection of the battery when AC is not available 6010 00 UINT16 rw Time in seconds to disconnect the battery when above the maximum output voltage 6011 00 UINT16 rw Time in seconds to disconnect the number of times a battery is over maximum voltage 6013 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6014 00 UINT3 rw Battery presence 6015 00 UINT3 rw Capacity discharged in a battery test failed in mV 6016 00 UINT16 rw Period of the battery test in weeks 6018 00 UINT16 rw Maximum time of anitemp to battery test 6018 00 UINT16 rw Maximu | 6009 | 02 | UINT32 | rw | Disconnection voltage upper bound in mV |
| 600B 00 INT16 rw Maximum charging current in mA 600C 00 UINT16 rw Maximum number of power up retries in minutes 600E 00 UINT16 rw Time in minutes for disconnection of the battery 600F 00 UINT16 rw Number of times a battery can be above 6010 00 UINT16 rw Number of times a battery can be above 6011 00 UINT16 rw Time in seconds to clear a battery overvoltage 6012 00 UINT16 rw Time in seconds for the end of autonomy alarm 6014 00 UINT3 rw Battery presence 6015 00 UINT3 rw Capacity discharged in a battery test failed in mA 6016 00 UINT16 rw Asimum time of an attempt to battery test 6018 00 UINT16 rw Number of retries of battery test 6010 00 UINT16 rw Number of retries of battery test 6011 00 UINT16 rw N | 600A | 00 | UINT16 | rw | Maximum time of quick charge state in hours |
| 600C 00 UINT16 rw Maximum number of power up retries 600D 00 UINT16 rw Time between power up retries in minutes 600F 00 UINT16 rw Time in minutes for disconnection of the battery 600F 00 UINT16 rw Number of times a battery can be above maximum output voltage 6010 00 UINT16 rw Time in seconds to disconnect the battery when above the maximum output voltage 6011 00 UINT16 rw Time in seconds to clear a battery overvoltage 6012 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6013 00 UINT32 rw Time in seconds for the end of autonomy alarm to trigge 6014 00 UINT32 rw Capacity discharged in a battery test failed in m/V 6016 00 UINT16 rw Capacity discharged in a battery test to finish it in mAh 6017 00 UINT16 rw Maximum time of an attempt of battery test 6018 00 UINT16 rw Maximum time in | 600B | 00 | INT16 | rw | Maximum charging current in mA |
| 600D 00 UINT16 rw Time between power up retries in minutes 600E 00 UINT16 rw Time in minutes for disconnection of the battery when AC is not available 600F 00 UINT16 rw Number of times a battery can be above maximum output voltage 6010 00 UINT16 rw Time in seconds to disconnect the battery when above the maximum output voltage 6011 00 UINT16 rw Time in seconds to clear a battery overvoltage alarm 6012 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6014 00 UINT36 rw Battery presence 6015 00 UINT32 rw Capacity discharged in a battery test failed in mV 6016 00 UINT16 rw Period of the battery test in weeks 6018 00 UINT16 rw Maximum time of anitempt of battery test 6018 00 UINT16 rw Maximum time in minutes in recovering battery state 6010 00 UINT16 rw Maximum time in minutes in reco | 600C | 00 | UINT16 | rw | Maximum number of power up retries |
| 600E 00 UINT16 rw Time in minutes for disconnection of the battery when AC is not available 600F 00 UINT16 rw Number of times a battery can be above maximum output voltage 6011 00 UINT16 rw Time in seconds to disconnect the battery when above the maximum output voltage 6012 00 UINT16 rw Time in seconds to clear a battery overvoltage alarm 6013 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6014 00 UINT3 rw Battery presence 6015 00 UINT22 rw Capacity discharged in a battery test failed in mW 6016 00 UINT16 rw Period of the battery test in weeks 6018 00 UINT16 rw Maximum time of an attempt of battery test 6018 00 UINT16 rw Maximum time in minutes in recovering battery failed 6011 00 UINT16 rw Maximum time in minutes in recovering battery failed 6012 00 UINT16 rw Maximum time in m | 600D | 00 | UINT16 | rw | Time between power up retries in minutes |
| 600F 00 UINT16 rw Number of times a battery can be above maximum output voltage 6010 00 UINT16 rw Time in seconds to disconnect the battery when above the maximum output voltage 6011 00 UINT16 rw Time in seconds to clear a battery overvoltage alarm 6012 00 UINT16 rw Timeout in minutes to clear the number of times a battery is over maximum voltage 6013 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6014 00 UINT3 rw Battery presence 6015 00 UINT32 rw Capacity discharged in a battery test to finish it in mAh 6016 00 UINT16 rw Period of the battery test in weeks 6018 00 UINT16 rw Maximum time of an attempt of battery test 6011 00 UINT16 rw Maximum time in minutes in recovering battery 6012 00 UINT16 rw Maximum time of apply temperature 60119 00 UINT16 rw Maximum temperature to appl | 600E | 00 | UINT16 | rw | Time in minutes for disconnection of the battery when AC is not available |
| 6010 00 UINT16 rw lime in seconds to disconnect the battery when above the maximum output voltage 6011 00 UINT16 rw Time in seconds to clear a battery overvoltage alarm 6012 00 UINT16 rw Time in seconds to clear the number of times a battery is over maximum voltage 6013 00 UINT16 rw Time in seconds to clear the number of times a battery is over maximum voltage 6014 00 UINT3 rw Battery presence 6015 00 UINT32 rw Limit voltage to consider a battery test failed in mV 6016 00 UINT32 rw Capacity discharged in a battery test to finish it in mAh 6017 00 UINT16 rw Period of the battery test in weeks 6018 00 UINT16 rw Maximum time of an attempt of battery test 6018 00 UINT16 rw Retry time of a failed battery test in minutes 6011 00 UINT16 rw Maximum time in minutes in recovering battery state 6012 00 UINT16 rw <t< td=""><td>600F</td><td>00</td><td>UINT16</td><td>rw</td><td>Number of times a battery can be above maximum output voltage</td></t<> | 600F | 00 | UINT16 | rw | Number of times a battery can be above maximum output voltage |
| 6011 00 UINT16 rw alarm 6012 00 UINT16 rw Timeout in minutes to clear the number of times a battery is over maximum voltage 6013 00 UINT16 rw Timeout in minutes to clear the number of times a battery is over maximum voltage 6014 00 UINT3 rw Battery presence 6015 00 UINT32 rw Capacity discharged in a battery test to finish it in mAh 6016 00 UINT16 rw Period of the battery test in weeks 6018 00 UINT16 rw Maximum time of an attempt of battery test 6019 00 UINT16 rw Number of retries of battery test 6014 00 UINT16 rw Number of retries of battery test 6019 00 UINT16 rw Maximum time in minutes in recovering battery 6011 00 UINT16 rw Maximum time to consider battery charged from floating state in hours 6012 00 UINT16 rw Maximum temperature to apply temperature compensation in d°C | 6010 | 00 | UINT16 | rw | Time in seconds to disconnect the battery when above the maximum output voltage |
| 6012 00 UINT16 rw Timeout in minutes to clear the number of times a battery is over maximum voltage 6013 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6014 00 UINT8 rw Battery presence 6015 00 UINT32 rw Limit voltage to consider a battery test failed in mV 6016 00 UINT32 rw Capacity discharged in a battery test to finish it in mAh 6017 00 UINT16 rw Period of the battery test in weeks 6018 00 UINT16 rw Maximum time of an attempt of battery test 6018 00 UINT16 rw Number of retries of battery test in minutes 6010 00 UINT16 rw Maximum time in minutes in recovering battery state 6011 00 UINT16 rw Maximum time to consider battery charged from floating state in hours 6012 00 UINT16 rw Enable compensation in d ^o C 6011 00 UINT16 rw Enaperature compensation in floating state in mV/ ^o C | 6011 | 00 | UINT16 | rw | Time in seconds to clear a battery overvoltage alarm |
| 6013 00 UINT16 rw Time in seconds for the end of autonomy alarm to trigger 6014 00 UINT8 rw Battery presence 6015 00 UINT32 rw Limit voltage to consider a battery test failed in mV 6016 00 UINT32 rw Capacity discharged in a battery test to finish it in mAh 6017 00 UINT16 rw Period of the battery test in weeks 6018 00 UINT16 rw Period of the battery test in weeks 6019 00 UINT16 rw Number of retries of battery test that voltage must be below v_fin to consider the attempt failed 6010 00 UINT16 rw Retry time of a failed battery test in minutes 6011 00 UINT16 rw Maximum time in minutes in recovering battery state 6011 00 UINT16 rw Minimum time perature to apply temperature compensation in doc 6011 00 INT16 rw Minimum temperature to apply temperature 6011 00 INT16 rw Minimum temperature to apply temperature 6012 00 INT16 rw < | 6012 | 00 | UINT16 | rw | Timeout in minutes to clear the number of times a battery is over maximum voltage |
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| 602E 00 INT32 ro Current sensed discharging the battery in mA | 602D | 00 | INT32 | ro | Overall battery current in mA. Positive values correspond to charging and negatives to discharging |
| 602E 00 LIINT8 ro Current internal batten: charger state | 602E | 00 | INT32 | ro | Current sensed discharging the battery in mA |
| Sozi os otinto no current internal battery charger state | 602F | 00 | UINT8 | ro | Current internal battery charger state |



RS-232

The equipment can be locally configured through RS-232 connection. The configuration for the RS232 communication channel is the following:

- Baud rate: 115200
- Parity: None
- Bits: 8
- Stop bits: 1
- Flow control: none

Available commands:

Generic commands:

| Command | Туре | Description |
|---------|--------|----------------------------------|
| id | String | Get the ID of the product family |
| version | String | Get the version of the firmware |

Measurement commands:

| Command | Туре | Description |
|-----------------|--------------------|--|
| i_converter | Float | Current out of the AC/DC converter in mA |
| i_bat_charge | Float | Current sensed charging the battery in mA |
| v_out | Float | Output voltage in mV |
| temp_int | Float | Internal temperature in m ^o C |
| temp_bat | Float or String | Temperature sensed in the battery current probe in m ^o C. If not present, it will return "NOT CONNECTED" |
| v_bat | Float | Battery voltage in mV |
| i_bat_discharge | Float | Current sensed discharging the battery in mA. |
| i_bat | Float | Overall battery current in mA. Positive values correspond to charging and negatives to discharging. |

Configurable parameters:

The device has configurable parameters whose value can be read or written. To read a value, prepend "get " at the beginning; to write a value, prepend "set " at the beginning and append the desired value at the end.

| Command | Description |
|------------|--|
| v_flot | Output voltage in floating state in mV. |
| v_carga | Output voltage in quick charge state in mV. |
| v_fin | Limit voltage to consider a battery test failed in mV. |
| cap_desc | Capacity discharged in a battery test to finish it in mAh. |
| desc_v_max | Disconnection voltage upper bound in mV. |
| desc_v_min | Disconnection voltage lower bound in mV. |
| desc_inm | Immediate disconnection voltage in mV. |
| vout_nom | Nominal output voltage in mV. |
| vout_max | Maximum output voltage in mV. |
| vout_min | Minimum output voltage in mV. |

Configurable parameters (continues):

| Command | Description |
|-------------------------------------|---|
| ilim | Maximum charging current in mA. |
| comp_flot | Temperature compensation in floating state in mV/°C |
| comp_carga | Temperature compensation in quick charge state in mV/°C |
| i_flot | Battery current for transition to floating from quick charge in mA. |
| comp_t_max | Maximum temperature to apply temperature compensation in d°C |
| comp_t_min | Minimum temperature to apply temperature compensation in d ^o C |
| t_min_flot | Minimum time to consider battery charged from floating state in hours. |
| t_lim_carga | Maximum time of quick charge state in hours. |
| periodo | Period of the battery test in weeks. |
| tlim_prueba | Maximum time of an attempt of battery test. |
| rein | Number of retries of battery test. |
| t_rein | Retry time of a failed battery test in minutes. |
| tbat_alta | Maximum battery temperature in m°C. |
| tbat_baja | Minimum battery temperature in m°C. |
| hab_comp | Enable compensation. |
| bat_presence | Battery presence. |
| time_between _overload_retries | Time between test to overcome overload state in seconds. |
| RCVcte_TempPasoFlot | Time in ms that conditions have to be met constantly to change from quick charge to floating state. |
| PrbBat_TTensLim | Time in seconds in a battery test that voltage must be below v_fin to consider the attempt failed. |
| TFinAutDesc | Time in minutes for disconnection of the battery when AC is not available. |
| TempAlarmFinAut | Time in seconds for the end of autonomy alarm to trigger. |
| PowerUP_TempReint | Time between power up retries in minutes. |
| PowerUP_NumReint | Maximum number of power up retries. |
| TAlarmOnBatTensMax | Time in seconds to disconnect the battery when above the maximum output voltage. |
| TAlarmOffBatTensMax | Time in seconds to clear a battery overvoltage alarm. |
| NumReint _BatTensMax | Number of times a battery can be above maximum output voltage. |
| TempEspFin _BatTensMax | Timeout in minutes to clear the number of times a battery is over maximum voltage. |
| number_of _overload_retries | Number of overloads allowed. |
| maximum_recovering _battery_time | Maximum time in minutes in recovering battery state. |



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ACCESSORIES

| Descritpion | CODE |
|-------------------------------|---------|
| DIN rail clip set | NP-9441 |
| Mounting brackets set | NP-9442 |
| Temperature sensor (cable 2m) | NP-9433 |



NP-9441



NP-9433

The sensor may increase the battery life, specially when it suffers relevant periodes of time with ambient temperatures >35°C or <15°C

The sensor must be installed in the battery housing It has a mounting hole of diameter 5mm

$\mathbf{C} \in \mathbf{C} \mathbf{C} \mathbf{A}$ EU, UKCA DECLARATION OF CONFORMITY

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The undersigned, representing the following:

Manufacturer:PREMIUM, S. A.,Address:C/ DolorsAleu 19-21, 08908 L'Hospitalet de Llobregat, SPAIN

herewith declares that the product:

| Туре: | DC UPS | |
|---------|--------------|------|
| Models: | EDS-500-5243 | 5249 |

is in conformity with the provisions of the following EU directive(s):

| 2014/35/EU SI 2016 No 1101 | Low voltage / The electrical equipment (safety) regulations |
|--|--|
| 2014/30/EU SI 2016 No 1091 | EMC / Electromagnetic compatibility regulations |
| 2011/65/EU Annex II and its amendment 2015/863/EU SI 2012 No. 3032 | RoHS / Restriction of the use of certain hazardous substances in electrical and electronic equipment |

and that standards and/or technical specifications referenced overleaf have been applied:

| EN 60950-1: 2005 | Safety. Information technology equipment |
|--------------------|--|
| EN 62368-1: 2014 | Safety. Audio/video information and communication technology equipment |
| EN 61000-6-4: 2019 | Generic emission standard |
| EN 61000-6-2: 2019 | Generic immunity standard |

CE marking year: 2020; UKCA marking year: 2021

Notes:

For the fulfilment of this declaration the product must be used only for the aim that has been conceived, considering the limitations established in the instructions manual or datasheet.

L'Hospitalet de Llobregat, 31-05-2021

Miguel Angel Fernandez Chief Research & Development Officer

PREMIUM S.A. is an ISO9001and ISO14001 certified company by **Bureau Veritas**