“DC-UPS” uninterruptible power supply solutions
Make Your system better over its Life Time

DC-Ups

micromax
technology

ADELSYSTEM
Integrated Electronic Solutions
The new communication platform for ADELSYSTEM devices allows the connection of all components in a simple but very powerful way. A single communication protocol based on MODbus-RTU or CANbus technology. You can select any of the two buses depending on the application. It allows to communicate with all the accessories provided by ADELSYSTEM and to develop an independent system for electrical continuity. At the same time, it allows monitoring and control all parameters in the system, even from the other side of the world, by means of application tools on the cloud.

ADELSYSTEM allows you to implement very simple but sophisticated monitoring and control for your energy system and opens your mind to new ways to approach your applications.

Everything and more!

• More efficiency of the battery thanks to continuous control over time
• More monitoring in main connection nodes: input, output load, battery.
• Event logging: number of battery charging cycles, charge cycles completed, aborted charge cycles, Ah charged, charging time, total number of transitions stand-by /back-up etc...
• Event Management: checking the load output, shutdown management of PCs (UPS function), RESET management of a generic equipment.
• Flexibility of use: customization of the entire charging curve of the battery, battery type setting, setting of the various time-out algorithms of charge, setting boost voltage, absorption, float, etc... configuration as DC-UPS or batteries charger, enabling power supply function.

1 Power View App
System Monitoring Software APP for Tablet
“Power View App”, is an application for tablet, available in free download. With this App it is possible to connect to ADELSYSTEM cloud and visualize in real time data stored in your own account on the cloud. Data upload is possible through “Power Bus”, an ADELSYSTEM MODBUS/Ethernet interface which connects the DC-UPS MODBUS output to the cloud. Uploaded data can be battery voltage, charge current, discharge current, level of charge, charging mode, alarms, diagnostic signals and more. This allows monitoring of DC-UPS and battery status from any location. It just requires wireless internet connection via tablet.

2 Power View System
Monitoring Software
“Power View System” is a PC-based software developed to monitor in real time every important parameter of the DC-UPS/battery system. A simple and intuitive user’s interface allows monitoring of battery parameters, load output, temperature sensor, mains presence and all alarm and diagnostic flags. All feature are displayed in a single screen.

3 Power View Graphic
Multifunction Graphic Display
“Power View Graphic” is a Multifunction Graphic Display that can be connected by a single data/power cables to the MODBUS interface of a DC-UPS. It allows to display all parameters of the DC-UPS/battery system that can be accessed by moving through the various screens with a push button user’s interface. The screen is back-lit and features a screen saver function for energy saving and longer life.

4 Power View Bar Graph
“Power View Bar Graph” is a circular LED display device for panel mount. Simple and sturdy, it displays the current charge mode, state of charge and system diagnostics at a glance.

5 Power Bus
Interface Module MODBUS 485 - Ethernet and Cloud
ADELSYSTEM provides a set of dedicated MODBUS interfaces that allow remote access to DC-UPS/battery data. Both Ethernet and Cloud communication is therefore made feasible.

6 Power Storage Devices
No matter how large or small the capacity of the battery storage needed in the system, ADELSYSTEM DC-UPS devices allow simple and effective integration. ADELSYSTEM has been a pioneer in the development of automatic charging and monitoring DC-UPS. Thanks to Adel Battery Care technology every battery will be taken care of and will last longer. Continuous system monitoring and life test checking allows preventive replacement and therefore increased system reliability. For a compact and optimized integration, ADELSYSTEM supplies Batt VRLA battery modules.
7 Temperature Compensated Charging
By installing the battery temperature probe “RJ Temp”, the charge voltage is automatically adapted to battery temperatures. When the battery temperature is low, the charge voltage increases. Conversely, when battery temperature is high, charge voltage is decreased. Over charge and gassing are thus prevented. This will extend battery life, the specific goal of Adel Battery Care Philosophy.

8 Load
The DC-UPS unit mission is to always keep the load supplied. The Load Output is the source of power for the whole electric system and has been designed to perform this duty under the most critical conditions, no matter if during stand-by or back-up modes.

9 Inverter
Among the loads there are sometime devices which requires AC power. In this case an inverter must be installed. ADELSYSTEM DC-UPSs allow connection of inverters up to 1500W.

10 Power View Config
System Configuration Software
“Power View Config” is a PC-based software with simple and effective user interface that allows application engineer to configure the system, customize battery charging curve, set alarm thresholds, configure the parameters available for communication on the MODBUS output. Output Voltage: 12, 24, 48 Vdc.
Power continuity

**DC-UPS = Power Supply + Battery Charger + Back Up module**

Double Output, Optimized Power Management. Thanks to the DC-UPS units, it will be possible to smart-manage available power. It will be automatically allocated between load and battery. Supplying power to the load is the first priority of the unit; thus it is not necessary to double the power, and also the power available for the battery will go to the load if the load requires so.

**Smart battery management**
Load output will not be affected by battery conditions. The DC-UPS insures continuous power supply to the load even in conditions of completely discharged batteries. The automatic multi-stage operation optimizes and adapts to the battery status. DC-UPS can recharge deeply discharged batteries even when their voltage is close to zero, thus allowing recharge and complete recovery of flat batteries.

**Start from battery without main**
If you want to restart the system while the mains is off, a battery restart function is available, via RTCONN cable connections, or via pushbutton in the front panel.

**Avoid deep battery discharge**
In case of mains failure, the battery will supply the load until battery voltage reaches 1.5 Vpc (Volt per cell). Below this level the device automatically switches off to prevent deep discharge and battery damage.

**Wide input voltage range**
Flexibility is given also by the wide range input voltage. The range of the devices accept input voltage 120 - 230 - 277 - 400 - 500 Vac.

**One device for output 12 or 24 Vdc**
You can select the voltage between 12 or 24 Vdc just before installing the device in your panel (available on some products in the Adelsystem range).

**Adjustable maximum battery charging current**
The maximum battery charging current can be set from 10% to 100% of the device rated value.

**Output Load:**
12, 24, 48

**Power Boost:**
- In x 2 Continuous
- In x 3 max 4 sec.

**Avoid deep battery discharge**
In Power Boost mode the maximum current on the load output is the 2 times the rated current (2 x In) in continuous operation and 3 times the rated current (3 x In) for max. 4 seconds.

**Time buffering**
Time buffering is enabled when in back-up mode. Buffering time setting is possible by operating the rotary switch on the front panel.

**Input flexibility**

110 Vac
230 Vac
277 Vac
500 Vac
400 Vac
24 Vdc
Connection & monitoring

Monitor signals
Clear definition of each system operation, via LED indications and Relay contact:

**Contact Port signals, galvanic insulation**
- Main or back-up signaling relay with voltage-free. NO-NC output terminals.
- Battery faulty signaling relay, relay with voltage-free. NO-NC output terminals.
- Flat battery signaling relay, relay with voltage-free. NO-NC output terminals.

**Display Signals by LED**
- Input Main On Off
- Battery Fault
- Low battery (capacity less than 30%)
- Type of Battery charge mode
- Help through “blinking code” the diagnosis of the system

Accessories
All DC-UPS units can be made available with the following options by Rj45 or Rj11 connector:

- Temperature sensor Probe, for ambient temperature compensation charging.
- Voltage drop cable compensation.
- Battery Start UP cable.

**Auxiliary output “Aux 2 and “Aux 3”**
MODBUS and CANBUS connection for Multimedia management, for connection to external displays and perform customized data monitoring. Connection to: Power View App, Power View System, Power Bus, Power View Graphic, Power View Bar Graph, Power View Config.

Driver Contact
Remote link for selection of trickle/boost charging
Via RTCONN remote connections cable it is possible to drive the devices from Boost - Bulk to Trickle - Float charge. It is also possible to permanently put a jumper for Boost - Bulk Charging.
Battery care

These devices are completely automatic and can charge any kind of battery using factory pre-set charging curves suitable to the most common accumulator technologies: open lead acid, sealed lead acid, lead gel, Ni-Cd and Ni-MH. These devices are very flexible and can be customized to meet the needs of the user and the requirements of the application. After the installation, it is possible to carry out functional software updates just using any laptop computer. Doing so, your system can always be updated to changing requirements.

The Battery Care concept is based on algorithms that implement rapid and automatic charging, battery charge optimization during time, flat batteries recovery and real-time diagnostic during installation and operation. Battery faults such as battery sulfated, elements in short circuit, accidental reverse polarity connection can easily be detected, identified and removed. The All in one Series meet the highest standards of quality and insure high reliability, with MTBF values up to 300.000 hours.

One device for all battery types

All devices are suitable to charge most batteries types thank to user selectable charging curves. They can charge open lead acid, sealed lead acid, Gel, Ni-Cd, Ni-MH, Li Ion batteries. It is possible to change or add other charging curves connecting the device to a portable PC. Charging mode is then completely automatic.

- **Open Lead Acid (factory preset):**
  - Trickle: 2.23 V
  - Boost: 2.40 V

- **Sealed Lead Acid (1):**
  - Trickle: 2.25 V
  - Boost: 2.40 V

- **AGM Sealed Lead Acid (2):**
  - Trickle: 2.27 V
  - Boost: 2.40 V

- **Gel:**
  - Trickle: 2.30 V
  - Boost: 2.40 V

**Optional:** Ni/Cd, Li-Ion

Multi-Stage charging - Four charging modes

Automatic multi-stage operation and real-time diagnostic allows fast recharge and recovery of deeply discharged batteries, adding value and reliability to the system hosting the DC-UPS device. The type of charging is Voltages stabilized and Current stabilized IUoU. CBI battery chargers feature four charging modes, identified by a flashing code on a LED:

- **Recovery** (5 Blinks / sec) able to recharge batteries even when their voltage is close to zero.
- **Boost** - Bulk (2 Blinks / sec).
- **Absorption** (1 Blink / sec).
- **Trickle** - Float (1 Blink / 2 sec).

Diagnosis of battery and device

All CBI devices support the user during installation and operation. A LED flashing sequence code allows to discriminate among various possible faults.

**Error conditions, LED Fault ON and LED Diagnosis flashing with sequence of:**

- 1 flash = Reverse polarity, wrong battery voltage
- 2 flashes = Disconnected battery
- 3 flashes = Battery element in short circuit
- 4 flashes = Overload
- 5 flashes = Battery to be replaced (Internal impedance Bad or Bad battery wire connection)

Start or flat charge

Battery type configuration jumper

Boost or float charge.
Diagnostic checks

Check for accidental disconnection of the battery cables.
DC-UPS detects accidental disconnection and immediately switches off output power.

Battery not connected
If the battery is not connected the battery output is disabled.

Test of wire connection impedance
During trickle charge the resistance on the battery connection is checked every 20 sec. This to detect if the cable connection has been properly made.

Battery in open circuit or sulphated
Every four hours DC-UPS tests of internal impedance, while in trickle charging mode.

Reverse polarity check
If the battery it is connected with inverted polarity, DC-UPS is automatically protected.

Test of battery voltage connections
Appropriate voltage check, to prevent connection of wrong battery types.

End of charge check
When the battery it is completely full, the device automatically switches to trickle charging mode.

Check for battery cells in short circuit
Thanks to specific testing algorithms, the DC-UPS recognize batteries with cells in internal short circuit.

Max. safety and protection
The DC-UPS series is designed to provide safe operation and long power supply and battery life. The following protections are standard features:
- Outputs protected against short circuit and overload
- Outputs in conformity to SELV and PELV conditions
- High isolation between primary and secondary
- Protection against deep battery discharge
- Protection against reverse polarity connection
- Detection of batteries with wrong rated voltage
All protections have automatic reset. No thermal fuse to be replaced.

Robust construction and easy installation
All the units in the range have aluminium casing, DIN rail fastening clip and are light and compact. IP20 protection degree.

Technology
The new DC-UPS range is based on two strategic know-how elements.

Switching technology
Adelsystem has a 25 year experience in design of advanced stabilized switching technology power supplies. A power supply/battery charger unit based on this technology is much more efficient.

Back UP Module and Battery Care
Unlike most other state-of-the-art battery chargers, the DC-UPS series is equipped with complex algorithms which controls the charging process and enable several monitoring functions. The firmware implements the extended Adel battery care know-how, result of many years of experience in this field.

Norms
In Conformity to:
- IEC/EN 60335-2-29 Battery chargers;
- EN60950 / UL1950;
- Electrical safety EN54-4 Fire Detection and fire alarm systems;
- EMC Directive;
- DIN 41773 (Charging cycle).
## DC UPS

### 12 Vdc

#### 110 - 230 Vac

<table>
<thead>
<tr>
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<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>CBI123A</td>
<td>12Vdc - 3A - 36W</td>
<td>47 - 63 Hz ±6%</td>
<td>90 - 305 Vac</td>
<td>≥ 90%</td>
<td></td>
<td></td>
<td></td>
<td>14.4Vdc</td>
<td>18A max</td>
<td>70A max</td>
<td>105A max</td>
<td>105A max</td>
<td></td>
</tr>
<tr>
<td>CBI126A</td>
<td>12Vdc - 6A - 72W</td>
<td>47 - 63 Hz ±6%</td>
<td>90 - 305 Vac</td>
<td>≥ 90%</td>
<td></td>
<td></td>
<td></td>
<td>14.4Vdc</td>
<td>30A max</td>
<td>105A max</td>
<td>105A max</td>
<td>105A max</td>
<td></td>
</tr>
<tr>
<td>CBI1210A</td>
<td>12Vdc - 10A - 120W</td>
<td>47 - 63 Hz ±6%</td>
<td>90 - 305 Vac</td>
<td>≥ 90%</td>
<td></td>
<td></td>
<td></td>
<td>14.4Vdc</td>
<td>70A max</td>
<td>205A max</td>
<td>205A max</td>
<td>205A max</td>
<td></td>
</tr>
<tr>
<td>CBI1235A</td>
<td>12Vdc - 35A - 420W</td>
<td>47 - 63 Hz ±6%</td>
<td>90 - 305 Vac</td>
<td>&gt; 91%</td>
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<td></td>
<td></td>
<td>14.4Vdc</td>
<td>70A max</td>
<td>205A max</td>
<td>205A max</td>
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<td></td>
</tr>
</tbody>
</table>

#### Battery Charger Output

- Boost/Bulk charge (Typ. at IN): 14.4Vdc
- Max. current (main input): 10A
- Max. current (output load): 30A

#### Load Output

- Output voltage: 12Vdc - 3A - 36W
- Efficiency: ≥ 90%

### General Data

- Nominal voltage (IN / OUT): 180 - 305 Vac
- Isolation voltage (IN / PE): 1605Vac
- Isolation voltage (OUT / PE): 500Vac
- Protection class (EN/IEC 60529): IP 20
- Reliability (MTBF IEC 61709): > 300 000 h
- Dimension: 65x115x135
- Safety standard approval: CE /C-UL Recognized 60950

### Optional

- Bar graph control panel
- Graphic multifunction control panel
- System monitoring software
- Interface module modbus 485 - Ethernet
- Interface module cloude all in one - Ethernet
- Battery temp. compensation Probe RU Tempo
### 24 Vdc

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Voltage Range</th>
<th>Current Output max: (4sec.)</th>
<th>Current Output max: (main input)</th>
<th>Current Output max: (with battery)</th>
<th>Current Output max: (continuous)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBI2410A/S</td>
<td>180 - 305 Vac</td>
<td>20A</td>
<td>30A max</td>
<td>20A</td>
<td>10A</td>
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<tr>
<td>CBI2430A/S</td>
<td>180 - 305 Vac</td>
<td>10A</td>
<td>15A max</td>
<td>10A</td>
<td>5A</td>
</tr>
<tr>
<td>CBI2410A/S</td>
<td>90 - 135 Vac</td>
<td>5A</td>
<td>10A max</td>
<td>5A</td>
<td>3A</td>
</tr>
</tbody>
</table>

### 48 Vdc

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Voltage Range</th>
<th>Current Output max: (4sec.)</th>
<th>Current Output max: (main input)</th>
<th>Current Output max: (with battery)</th>
<th>Current Output max: (continuous)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBI4810A/S</td>
<td>180 - 305 Vac</td>
<td>40A</td>
<td>60A max</td>
<td>40A</td>
<td>20A</td>
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<tr>
<td>CBI4830A/S</td>
<td>180 - 305 Vac</td>
<td>20A</td>
<td>30A max</td>
<td>20A</td>
<td>10A</td>
</tr>
<tr>
<td>CBI4810A/S</td>
<td>90 - 135 Vac</td>
<td>10A</td>
<td>15A max</td>
<td>10A</td>
<td>5A</td>
</tr>
</tbody>
</table>

### Specifications

- **Battery temp. compensation**: Probe RJTemp
- **Battery charging**: Probe by ext.
- **Main or backup power**: Probe by ext.
- **Charging current limiting**: 20 ÷ 100 % / Ibatt
- **Trickle charge**: 13.8Vdc
- **Boost charge**: 28.8Vdc
- **Frequency**: 47 - 63 Hz ±6%
- **Input voltage range**: 90 - 305 Vac
- **Cooling**: Auto Convection
- **Humidity**: 95% to 25°C
- **Ambient temperature**: -40 ÷ +85°C
- **Protection class**: IP 20
- **Reliability (MTBF)**: > 300 000 h
- **Efficiency**: ≥ 83% 
- **Output voltage**: 24Vdc - 3A, 24Vdc - 5A
- **Current**: 3A, 6A, 9A max
- **Charge current limiting**: 20 ÷ 100 % / Ibatt
- **Charge voltage**: 27.6Vdc, 55.2Vdc
- **Charge duration**: 1min.
- **Charge time**: 15h
- **Battery charging**: 1min.
- **Battery voltage**: 24Vdc, 48Vdc
- **CE / C-UL Recognized**: 60950 CE

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### Table

<table>
<thead>
<tr>
<th>Model</th>
<th>24Vdc</th>
<th>48Vdc</th>
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</thead>
<tbody>
<tr>
<td>CBI243A</td>
<td>3A</td>
<td>1A</td>
</tr>
<tr>
<td>CBI2410A/S</td>
<td>10A</td>
<td>15A</td>
</tr>
<tr>
<td>CBI4810A</td>
<td>5A</td>
<td>10A</td>
</tr>
<tr>
<td>CBI4810A</td>
<td>5A</td>
<td>10A</td>
</tr>
</tbody>
</table>

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### Additional Information

- **System configuration software**: ■ ■ ■ ■ ■ ■
- **System monitoring software**: ■ ■ ■ ■ ■ ■
- **Graphic multifunction control panel**: ■ ■ ■ ■ ■ ■
- **Remote input control**: ■ ■ ■ ■ ■ ■
- **Modbus - CAN Bus - UPS active**: ■ ■ ■ ■ ■ ■
- **Cad data (Relay)**: ■ ■ ■ ■ ■ ■
- **Battery temp. compensation**: ■ ■ ■ ■ ■ ■
- **Battery charging**: ■ ■ ■ ■ ■ ■
- **Max current output load**: 6A max, 12A max, 20A max, 70A max
- **Continuous current (without battery)**: 3A, 6A, 10A, 35A
- **Liquid level sensor**: ■ ■ ■ ■ ■ ■
- **Low battery and fault battery**: ■ ■ ■ ■ ■ ■

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### More Details

- **Input output**: ■ ■ ■ ■ ■ ■
- **Charging current limiting**: 20 ÷ 100 % / Ibatt
- **Trickle charge**: 13.8Vdc
- **Boost charge**: 28.8Vdc
- **Frequency**: 47 - 63 Hz ±6%
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- **Battery charging**: 1min.
- **Battery voltage**: 24Vdc, 48Vdc
- **CE / C-UL Recognized**: 60950 CE
## DC UPS

### Models

<table>
<thead>
<tr>
<th>Model</th>
<th>CBI2803648A</th>
<th>CBI2801224A</th>
<th>CBI2801224B</th>
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<tbody>
<tr>
<td>Output 36/48Vdc</td>
<td>270W</td>
<td>270W</td>
<td>270W</td>
</tr>
<tr>
<td>12/24Vdc</td>
<td>270W</td>
<td>270W</td>
<td>270W</td>
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</table>

### Input Data

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>36/48Vdc</th>
<th>12/24Vdc</th>
<th>12/24Vdc</th>
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</thead>
<tbody>
<tr>
<td>Vac</td>
<td>110-230</td>
<td>110-230</td>
<td>230-400-500</td>
</tr>
<tr>
<td>Vdc</td>
<td>36/48</td>
<td>12/24</td>
<td>12/24</td>
</tr>
<tr>
<td>Amp</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
</tr>
</tbody>
</table>

### Output Data

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>36/48Vdc</th>
<th>12/24Vdc</th>
<th>12/24Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vac</td>
<td>110-230</td>
<td>110-230</td>
<td>230-400-500</td>
</tr>
<tr>
<td>Vdc</td>
<td>36/48</td>
<td>12/24</td>
<td>12/24</td>
</tr>
<tr>
<td>Amp</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
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</table>

### Load Data

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>36/48Vdc</th>
<th>12/24Vdc</th>
<th>12/24Vdc</th>
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</thead>
<tbody>
<tr>
<td>Vac</td>
<td>110-230</td>
<td>110-230</td>
<td>230-400-500</td>
</tr>
<tr>
<td>Vdc</td>
<td>36/48</td>
<td>12/24</td>
<td>12/24</td>
</tr>
<tr>
<td>Amp</td>
<td>0.8</td>
<td>0.8</td>
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</tbody>
</table>

### Battery Charger Data

<table>
<thead>
<tr>
<th>Type</th>
<th>Boost-Bulk</th>
<th>Max. time boost-bulk</th>
<th>Min. time boost-bulk</th>
<th>Trickle-Floate</th>
<th>Max. time trickle</th>
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<tbody>
<tr>
<td>Voltage Range</td>
<td>43.2Vdc</td>
<td>15h</td>
<td>15h</td>
<td>13.8Vdc</td>
<td>10h</td>
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<tr>
<td>Vdc</td>
<td>57.6Vdc</td>
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<td>27.6Vdc</td>
<td></td>
</tr>
<tr>
<td>Amp</td>
<td>14.4Vdc</td>
<td></td>
<td></td>
<td>13.8Vdc</td>
<td></td>
</tr>
</tbody>
</table>

### Climates Data

| Temperature     | -25°C to +70°C | -25°C to +70°C | -25°C to +70°C |
| Humidity        | 95% to 25°C    | 95% to 25°C    | 95% to 25°C    |
| Cooling         | Auto Convection | Auto Convection | Auto Convection |

### General Data

| Voltage Range   | 3000Vac  | 3000Vac  | 3000Vac  |
| Isolation voltage (IN / OUT) |            |          |          |
| Isolation voltage (IN / PE) | 1605Vac  | 1605Vac  | 1605Vac  |
| Isolation voltage (OUT / PE) | 500Vac  | 500Vac  | 500Vac  |
| Protection class (EN/IEC 60529) | IP 20  | IP 20  | IP 20  |
| Reliability (MTBF IEC 61709) | > 300 000 h | > 300 000 h | > 300 000 h |
| Dimension (w-h-d) | 115x115x135 | 115x115x135 | 115x115x135 |
| Safety standard approval | CE | CE | CE |

### Optional Data

- Bar graph control panel
- Graphic multifunction control panel
- System monitoring software
- System configuration software
- Interface module modbus 485 - Ethernet
- Interface module cloud all in one - Ethernet
- Battery temp. compensation Probe RJTemp
VRLA

They are traditional and Rugged Battery Module for DC UPS range. They are composed maintenance-free lead-acid VRLA batteries with serial fuse. Simple connection with screws. Size: 1.2 Ah, 3 Ah, 7.2 Ah and 12 Ah. Battery Modules: 2 x 12 Vdc.

<table>
<thead>
<tr>
<th>Model</th>
<th>Output</th>
<th>12 Vdc</th>
<th>24 Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATT 123</td>
<td>BATT 127</td>
<td>BATT 1.2 Ah</td>
<td>BATT 3 Ah</td>
</tr>
<tr>
<td>12 Vdc</td>
<td>12 Vdc</td>
<td>12 V</td>
<td>24 V</td>
</tr>
<tr>
<td>1.2 Ah</td>
<td>7.2 Ah</td>
<td>1.2 Ah</td>
<td>3 Ah</td>
</tr>
</tbody>
</table>

**FEATURE**
- End-of-charge voltage (trickle charge) 27.5 Vdc (20°C); 27 Vdc (30°C); 26.5 Vdc (40°C)
- Max. permissible charging current 0.80 A 1.70 A 0.80 A 1.70 A 3 A
- Short-circuit protection ■ ■ ■ ■ ■ ■
- Ambient temperature (operation) +5 °C to +40 °C +5 °C to +40 °C +5 °C to +40 °C +5 °C to +40 °C +5 °C to +40 °C +5 °C to +40 °C
- Ambient temperature (storage) -20 °C to +50 °C -20 °C to +50 °C -20 °C to +50 °C -20 °C to +50 °C -20 °C to +50 °C -20 °C to +50 °C
- Self-discharge rate 20 °C 15% per month

**GENERIC DATA**
- Dimension (w-h-d) 105 x 175 x 90 105 x 175 x 120 170 x 100 x 80 170 x 140 x 90 170 x 155 x 120 235 x 155 x 120
- Weight 0.7 Kg approx 1.1 Kg approx 1.55 Kg approx 3 Kg approx 5.5 Kg approx 9 Kg
- Protection class IP20 IP20 IP20 IP20 IP20 IP20
- Assembly using 4 holes For hanging onto M4 screws

Small VRLA

Compact and fully enclosed improve safety and maintenance, transmit information on the temperature and type of batteries. They save space and improve the efficiency of the DC UPS “All In One”. Size for 24 Vdc: 1.2 Ah, 3 Ah, 7.2 Ah and 12 Ah.

<table>
<thead>
<tr>
<th>Model</th>
<th>Output</th>
<th>24 Vdc</th>
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</thead>
<tbody>
<tr>
<td>BAT1.2 VRLA</td>
<td>BAT3.4 VRLA</td>
<td>BAT7.2 VRLA</td>
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<tr>
<td>24 Vdc</td>
<td>24 V</td>
<td>24 V</td>
</tr>
<tr>
<td>1.2 Ah</td>
<td>3.2 Ah</td>
<td>7.2 Ah</td>
</tr>
</tbody>
</table>

**INPUT DATA**
- End-of-charge voltage (trickle charge) 27.5 Vdc (20°C); 27 Vdc (30°C); 26.5 Vdc (40°C)
- Max. permissible charging current 0.30 A 0.80 A 1.70 A 3 A
- Short-circuit protection ■ ■ ■ ■ ■ ■
- Protection fuse 25 A 25 A 25 A 25 A
- Ambient temperature (operation) 0 °C to +40 °C 0 °C to +40 °C 0 °C to +40 °C 0 °C to +40 °C
- Ambient temperature (storage) -20 °C to +50 °C -20 °C to +50 °C -20 °C to +50 °C -20 °C to +50 °C
- Self-discharge rate 20 °C 15% per month

**GENERIC DATA**
- Dimension (w-h-d) 62 x 175 x 120 82 x 200 x 160 145 x 210 x 130 210 x 210 x 210
- Weight 1.5 Kg approx 3 Kg approx 5.5 Kg approx. 9 Kg
- Protection class IP20 IP20 IP20 IP20
- Assembly using 4 holes for hanging onto M4 screws

<table>
<thead>
<tr>
<th>Battery type</th>
<th>1.2 Ah</th>
<th>3.2 Ah</th>
<th>7.2 Ah</th>
<th>12 Ah</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load 1.5 A</td>
<td>20</td>
<td>60</td>
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<td>Load 3 A</td>
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<td>240</td>
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<tr>
<td>Load 5 A</td>
<td>3</td>
<td>15</td>
<td>55</td>
<td>100</td>
</tr>
<tr>
<td>Load 7.5 A</td>
<td>2</td>
<td>10</td>
<td>30</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Battery type</th>
<th>1.2 Ah</th>
<th>3.2 Ah</th>
<th>7.2 Ah</th>
<th>12 Ah</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load 10 A</td>
<td>-</td>
<td>7</td>
<td>20</td>
<td>45</td>
</tr>
<tr>
<td>Load 12 A</td>
<td>-</td>
<td>3</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>Load 15 A</td>
<td>-</td>
<td>-</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Load 20 A</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>13</td>
</tr>
</tbody>
</table>
**Product range**

**DC UPS “All In One”**
DC Power Back Up units. Multi-function devices: power supply, battery charger and back-up module in the same casing together with Adel Battery Care software.

**Flex**
DIN rail Switching Power Supplies. Very compact in size, 150% power boost, wide input voltage range 110 - 230 - 400 - 500 Vac. Selectable output protection mode.

**D-Flex**
High efficiency Power Supplies in DIN type modules. For all kinds of small power. Requirements in installation, building automation and industrial applications.

**CB**
The best generation of Battery Chargers with 4 charging levels, equipped with Adel Battery Care software. One product for all batteries types.

**Power supply low input voltage**
Switching power supply for direct connection to secondary transformer In 24 Vac Out 12-24-48 Vdc Watt: 25-460.

**Dc/Dc converter**
Dc / Dc Converter, step Up and Step down. Input - Output isolated, low voltage. With or without DIN Rail.

**Interfaces**
Wide range of passive interfaces units for Input and Output connections, for PLC and CNC machine.

**BM**
Battery Modules and Battery holders for connection to DC-UPS or battery charger units. Battery sizes: 1.2; 3; 7.2; 12 Ah at 12Vdc and 24 Vdc.

**Auxiliary module**
Decoupling Modules for redundancy applications. Electronic Fuses for Over Load output control, up to 4 cannels.

**SFP Safety Power**
Power continuity solutions for alarm systems and fire alarms. Available as a fully enclosed device conforming with EN54.4 or as a component to be integrated in other instrumentation.

**Innovation and multimediality**
Adelsystem continues to expand its offering of innovative and functional products for DC power back-up and battery charging in DIN mounting configuration. The already wide range of products available is now integrated by the DC-UPS Series, the last generation of Uninterruptible Power Supply with low output voltage. Yet another innovative solution developed by Adelsystem R&D team for the expert designer and the user who need problem-free operation. These units are top-level, state-of-art devices for both battery charging and back-up power switching on the load. They fulfill the electric continuity requirements emerging from the ever increasing use of batteries in computer and PLC supervised systems. CBI devices improve battery reliability and its life span, paying special attention to a proper supervision. This in order to give complete and trouble-free tools to system engineers, for a wide range of application, in conformity with the highest standards and in the most cost-effective way. The DC-UPS Series meets the highest standards of quality and insures high reliability, with MTBF values up to 300,000 hours.