**FLEXmax 100**

**Included in Package**
- FLEXmax 100 Charge Controller
- 2 x Mounting Bracket
- Silicone Grease Package
- Cooling Fan (outdoor-rated)
- MicroSD Card (already installed)

**Dimensions**
- Height: 18.6" (47.2 cm); with fan 22.06" (56.0 cm)
- Width: 8.8" (22.4 cm)
- Depth to Wall: 6.0" (15.2 cm)

**Mounting**
- The FLEXmax 100 must be mounted upright at least 36" (91.4 cm) above the ground or floor. Shade is recommended when installing outdoors.
- Conduit hubs must be connected to the conduit before connecting to the FLEXmax 100.
- Conduit should be 1" size (1 3/8” actual diameter).
- Clearance requirements are a minimum of 6" (15.2 cm) above and below the controller.
- The unit can be mounted using either brackets (see steps 1 through 4 in A) or keyhole slots (see B) on a secure mounting surface. Follow the numbered steps.
- The cooling fan must be installed prior to operation. It should be installed after mounting the controller.

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**NOTES:**
- Unit output is derated above 25°C (77°F)

**LED Indicators and FLEXmax 100 Symbols**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Indicator</th>
<th>Pattern</th>
<th>Controller Status</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charging</td>
<td>Off</td>
<td>less than 10 W PV available</td>
<td>Battery rest</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bulk, Equalize, or GT Mode</td>
<td>Float</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>Bulk or Absorption</td>
<td>≥ 1.91 Vpc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Float</td>
<td>GT Mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Battery Discharge</td>
<td>&lt; 1.91 Vpc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Critical Battery Discharge</td>
<td>&lt; 1.75 Vpc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equalize</td>
<td>EQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary</td>
<td>AUX Active</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fault</td>
<td>Ground Fault Shutdown or other fault</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TERMS & CONDITIONS:**
- Not intended for use with life support equipment.
- This guide is intended for use by anyone required to install and operate this equipment. Be sure to review this guide carefully to identify any potential safety issues before proceeding. Failure to install or use this equipment as instructed can result in damage to the equipment or injury to the installer. This product is only serviceable by qualified personnel. Additional information on programming and advanced functions is available in the FLEXmax 100 Owner’s Manual.

**Additional Information**

**Environmental / Safety Specifications**

<table>
<thead>
<tr>
<th>Environmental Category</th>
<th>Outdoor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Type</td>
<td>Type 3R</td>
</tr>
<tr>
<td>Suitable for wet locations</td>
<td>Yes</td>
</tr>
<tr>
<td>Pollution degree classification</td>
<td>PS1</td>
</tr>
<tr>
<td>IP rating</td>
<td>IP54</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>–40°C to 40°C (–40°F to 104°F)</td>
</tr>
<tr>
<td>Relative humidity rating</td>
<td>4% to 100% Condensing</td>
</tr>
<tr>
<td>Maximum altitude rating</td>
<td>10,000 feet</td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>PV: OV Cat I; Batt: OV Cat II</td>
</tr>
</tbody>
</table>

**NOTES:**
- Unit output is derated above 25°C (77°F)
Tighten all wire lugs and ground terminals to 4 Nm (35 in-lb) torque.

Use copper wiring only (rated 90°C or higher). Refer to the NEC and other electrical codes for PV array cable sizing, length, and ampacity.

Use #4 AWG (25 mm²) wire (minimum) for the controller output terminals to the batteries. They can accept up to #2 AWG (35 mm²).

Use #6 AWG (16 mm²) wire (maximum) for the ground terminals.

Negative-ground installation is depicted here. (The bond is shown in D.) Positive grounding is also permitted, but special arrangements are required.

External disconnect and overcurrent protective devices must be sized and provided by the installer. For input circuit breakers, OutBack offers 40 Adc to 80 Adc devices. For the output, OutBack offers either 100 Adc or 125 Adc devices.

This product supports the following nominal battery systems:
- 24 volts
- 36 volts
- 48 volts

Important: Before powering up the controller
The rapid shutdown terminals are left disconnected at the factory. The FLEXmax 100 will not power up until terminals 1 and 3 in C are connected together. See the back page for more information.

Important: Example only
Actual wiring may vary from the system depicted here. All configurations must comply with local and national electrical codes. Consult the local electrical authority to ensure compliance.

CAUTION: Equipment Damage
When installing multiple controllers or the OutBack GFDI, follow all instructions shown in the Owner’s Manual. Install only one bonding jumper for all controllers. The GFDI makes a negative-ground bond.

CAUTION: Equipment Damage
Do not use a power shutoff or other power means to tighten wire terminals. This can damage them.

WARNING: Burn Hazard
The heat sink can become hot when the charge controller is operating. Use caution when touching it during operation.

NOTE: See the FLEXmax 100 Owner’s Manual for more notes on all topics above. This also includes installation of rapid shutdown devices, multiple controllers, and ground fault operation (GFDI).

Ports
The active ports are the RTS port and the HUB port. The HUB port is used to network the controller to a HUB Communications Manager product or one of several OutBack system display products as shown here. (See the FLEXmax 100 Owner’s Manual for more information.)

See below for more information on the RTS function.

NOTE: The ports shown here as Device and LAN are not currently active. These ports can be activated in the future using firmware updates.

Battery Sense Terminals
These terminals (C) monitor battery voltage more accurately than the main cables. (If not connected, the controller will revert to using its own readings, which may not be as accurate.) A twisted-pair cable is recommended. The connections are made directly on the battery terminals.

A fuse or other protection must be applied to the sense conductors. Recommended protection is:
- Fast-acting device
- 80 Vdc or greater
- Cold resistance 10 ohms or less
- 1 Adc or smaller

MicroSD Card

MATE3s System Display and Controller

PV Disconnect (external)

PV Combiner

Charge Controller

LED Indicators (see back page)

BONING JUMPER (NEGATIVE-GROUND)

Battery Disconnect (external)

Equalize Button

Ground Bus

Negative Bus

PV Disconnect (external)

Remote Temperature Sensor (RTS)

HUB Port

RTC

RS-485

RS-232

NOTE: See the FLEXmax 100 Owner’s Manual for more notes on all topics above. This also includes installation of rapid shutdown devices, multiple controllers, and ground fault operation (GFDI).