Setup and Programming

Quick Start Guide

Configuration Wizard

The MATE3 Configuration Wizard allows quick setup of parameters that apply to all systems. The Configuration Wizard is reached from the MATE3 Main Menu as shown below.

**CAUTION: Equipment Damage**

These procedures should be done by a qualified installer who is trained on programming inverter power systems. Failure to set accurate parameters for the system could potentially cause equipment damage. Damage caused by inaccurate programming is not covered by the limited warranty for the system.

**IMPORTANT**

Check the firmware revision of all OutBack devices before use. The MATE3 system display must be revision 003.002.xxx or higher. If the revision is lower, the MATE3 and inverter may not communicate or operate correctly.

The firmware revision of all devices can be confirmed by navigating from the MATE3 Main Menu as shown below. Updates to the firmware revision can be downloaded from the OutBack website www.outbackpower.com.

**Firmware Revision**

- **Grid Tied**
  - System Type: Grid Tied
  - System Voltage: 48 VDC
  - Array Wattage: 1000
  - Battery Type: FLA
  - Capacity: 500 Ah

- **Backup**
  - System Type: Backup
  - System Voltage: 48 VDC
  - Array Wattage: 1000
  - Battery Type: FLA
  - Capacity: 500 Ah

- **Off Grid**
  - System Type: Off Grid
  - System Voltage: 24 VDC
  - Array Wattage: 500 W
  - Battery Type: FLA
  - Capacity: 200 Ah

- **AC Generator**
  - Installed: Yes
  - Type: AC
  - Size: 5.0 kW

- **AC Source**
  - Utility Grid: Yes
  - Generator: Yes

**Major Components**

- **FLEXpower System Products**
  - Inverter/Charger
  - AC Conduit Box (with Bypass Assembly)
  - DC Conduit Box (with Inverter Disconnect)
  - System Display and Controller
  - PV Charge Controller
  - Communications Manager
  - FLEXnet DC Monitor (FN-DC)
  - Remote Temperature Sensor (RTS)
  - Surge Protector
  - Customer-Supplied Components
  - Main Electrical Panel (or overcurrent device for AC source)
  - Electrical Distribution Subpanel (Load Panel)
  - Battery Bank

**Firmwares**

- **MATE3**
  - Firmware Revision: 003.002.005

**Systems**

- **FW250-AC-120V-NA**
  - Surge Protector (Inside)
  - Battery Status and Inverter Status LED Indicators

**Optics RE™**

Supports the OPTICS RE™ online tool for a cloud-based remote monitoring and control application. Please refer to the OPTICS RE setup instructions, or visit www.outbackpower.com to download.

Contact Technical Support:
- Telephone: +1.800.618.4363
- Email: Support@outbackpower.com
- Website: www.outbackpower.com
**AC Wire Sizes and Torque Values**

<table>
<thead>
<tr>
<th>Wire Size (AWG)</th>
<th>Maximum Torque (in-lb)</th>
<th>Maximum Torque (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#14 - 10</td>
<td>25 - 6</td>
<td>20 - 2.3</td>
</tr>
<tr>
<td>#8</td>
<td>10</td>
<td>25 - 2.8</td>
</tr>
<tr>
<td>#6 - 4</td>
<td>10 - 20</td>
<td>35 - 4.0</td>
</tr>
<tr>
<td>#8</td>
<td>35</td>
<td>35 - 4.0</td>
</tr>
<tr>
<td>#10</td>
<td>35</td>
<td>40 - 4.5</td>
</tr>
<tr>
<td>#12</td>
<td>50</td>
<td>50 - 5.6</td>
</tr>
<tr>
<td>#14</td>
<td>50</td>
<td>50 - 5.6</td>
</tr>
</tbody>
</table>

OutBack recommends that conductors be #8 AWG THHN copper, or larger, rated to 75°C (minimum) unless local code requires otherwise.

**WARNING:** Fire/Explosion Hazard

Do not place combustible or flammable materials within 12 feet (3.7 m) of the equipment. This unit employs mechanical relays and is not ignition-protected. Flames or spills from flammable materials could be ignited by sparks.

**WARNING:** Personal Injury

Use safe lifting techniques and standard safety equipment when working with this equipment.

**IMPORTANT:**

Clearance and access requirements may vary by location. Maintaining a 36" (91.4 cm) clear space in front of the system for access is recommended.

Consult local electric code to confirm clearance and access requirements for the specific location.

**CAUTION:** Equipment Damage

When connecting cables from the inverter to the battery terminals, ensure the proper polarity is observed. Connecting the cables incorrectly can damage or destroy the equipment and void the product warranty.

**FP1 Dimensions:**

33.5" (85 cm) tall X 19.75" (50 cm) wide

**To install the mounting bracket:**

1. Place the mounting bracket at the desired height for the panel.
2. Secure the mounting bracket to the wall studs 16" apart. Use all six mounting slots provided on the bracket.

**To mount the FP1 panel on the bracket:**

3. Lift the mounting plate above the wall bracket.
4. Slip the top of the mounting plate over the angled lip of the wall bracket.
5. Secure the lower back flange of the mounting plate to the wall (with appropriate hardware).
6. Insert all three 1-inch nylon hole plugs into the rear slot access holes.

**Mounting the bracket to the wall studs 24" apart:**

1. Place the mounting bracket at the desired height for the panel.
2. Secure the mounting bracket to the wall studs 24" apart. Use all six mounting slots provided on the bracket.

**Torque requirements for the conductor lugs:**

<table>
<thead>
<tr>
<th>Circuit Breaker Stud</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8</td>
<td>20 (2.3)</td>
</tr>
<tr>
<td>5/16 - 18</td>
<td>35 (4.0)</td>
</tr>
<tr>
<td>3/8 - 18</td>
<td>50 (5.6)</td>
</tr>
<tr>
<td>5/16 - 18</td>
<td>225 (25.4)</td>
</tr>
</tbody>
</table>

**Minimum DC Cable based on the DC Circuit Breaker Torque:**

<table>
<thead>
<tr>
<th>Cable Size</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/0 (70 mm²)</td>
<td>50 (5.6)</td>
</tr>
<tr>
<td>2/0 (50 mm²)</td>
<td>225 (25.4)</td>
</tr>
</tbody>
</table>

**Battery Cable Connections with the FN-DC:**

- Bolt M8 x 1.25
- Lock Washer
- Charge Controller Battery (+) Lug
- Flat Washer
- Inverter Battery (+) Lug
- Inverter Battery (-) Lug
- Mounting Surface
- Bolt M8 x 1.25
- Nut
- Inverter Battery (-) Lug
- Lock Washer
- Nut
- Charge Controller Battery (-) Lug
- Flat Washer
- Lock Washer
- GFCI Outlet
- Surge Protection
- Battery Lug
- Lock Washer
- Inverter Battery (+) Lug
- Inverter Battery (-) Lug
- Terminal Pad

**Control Wiring Terminal Block:**

The inverter ON/OFF terminals are used for connecting an external ON/OFF switch. To use this feature, the jumper must be removed. See installation manual for details.
De-energize/Shutdown Procedures

3. Disconnect all AC loads at the backup (or critical) load panel.
4. Disconnect the AC input feed to the FLEXpower ONE at the source.
5. Place the mechanical interlock in the normal (non-bypass) position.

WARNING: Lethal Voltage

Review the system configuration to identify all possible sources of energy. Ensure ALL sources of power are disconnected before performing any installation or maintenance on this equipment. Confirm that the terminals are de-energized using a validated voltmeter (rated for a minimum 1000 Vac and 1000 Vdc) to verify the de-energized condition.

WARNING: Burn Hazard

Internal parts can become hot during operation. Do not remove the cover during operation or touch any internal parts. Be sure to allow them sufficient time to cool down before attempting to perform any maintenance.

To de-energize or shut down the OutBack devices:
1. Turn off (open) the AC circuit breakers.
2. Turn off (open) the DC circuit breaker for the battery.
3. Turn off (open) the PV circuit breaker.
4. Turn off (open) the GFDI circuit breaker.
5. Turn off (open) the FN-DC circuit breaker.
6. *Verify 0 Vdc on the DC input terminals of the inverter by placing the voltmeter leads on 31 and 32.
7. *Verify 0 Vdc on the PV terminal by placing the voltmeter leads on 24 and 25.
8. *Verify 0 Vac on the AC output circuit breakers by placing the voltmeter leads in the slots of the AC outlet. This can also be tested by placing the leads on 24 and 25.

*See the Functional Test Points key that is included with the Startup Procedures.