GEVC Boost Solar Charge Controller

with

GANZ Semi Flexible Solar Panel

for 36V & 48V Battery System

CBC (AMERICA) Corp.
Eco-Energy Div.
Standard Approach for 36V/48V Systems

- Electric Inboard Motors, Electric Outboard Motors and Golf Carts require 36V or 48V nominal charging systems.
- Solar panels are an excellent source of energy for the environment.
  **PROBLEM:** Most standard solar panels are nominally 12V.
- Typically input voltage is increased by connecting 3 or 4 panels in series.
  **PROBLEM:** Shading of one solar panel reduces output of all the panels.
  Charging efficiencies are reduced (60-75%)
  Risk of dangerous high voltage.
Approach for 36V/48V Systems

- CBC America’s GEVC Boost Solar Charge Controller is an advanced dual function device. Specifically designed and optimized to charge Electric Motor Systems.

**Function 1:** GANZ GSP 12VDC nominal solar panel is converted to desired higher output voltage 36VDC, 48VDC.

**Advantage:** No series connections required
- High input voltage risks negated
- Shading issues reduced

**Function 2:** MPPT solar charge controller with nominal output voltage 36VDC, 48VDC. Efficiently prevents battery overcharge.

**Advantage:** Superior performance and efficiency (≥96%)
System Advantages with GANZ panels

GANZ GSP solar panel coupled with GEVC Boost Solar Charge Controller is the Perfect combination

• Solar panel is Extremely Light In Weight and Semi-Flexible.
• Solar panel fits perfectly on boats and golf cart tops.
• Non glass design eliminates concerns of flying golf balls, hail and/or any other hard objects breaking the solar panel.
• The GANZ GSP solar panels are double the efficiency compared with existing light weight amorphous panels. Double the power in the same space.
• Ability to produce power under shaded and less than perfect conditions.
• Easy installation on boats golf carts and other electric vehicles.
GEVC 12-36/48 3A

Input: Connect to Solar Panels
Individual #16 AWG 2 pairs wire to connect with multiple solar panels

Output: Connect to Batteries

Output voltage is 48V when two orange signal wire wires are connected together, and voltage is 36V when unconnected.

5A Fuse and Terminal Rings are pre-connected
Do not connect exceed two solar panels per input wire

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>12V Nominal Solar Panel</th>
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<tbody>
<tr>
<td>Max Input Voltage</td>
<td>30 VDC</td>
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<tr>
<td>Max Input Current</td>
<td>10 ADC</td>
</tr>
<tr>
<td>Nominal Battery</td>
<td></td>
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<tr>
<td>36V System</td>
<td>48V System</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>42 VDC</td>
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<tr>
<td>Output Current</td>
<td>4 ADC</td>
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<tr>
<td>Quiescent Current</td>
<td>&lt; 0.1 ma</td>
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<tr>
<td>Enclosure</td>
<td>NEMA 4 (Weatherproof)</td>
</tr>
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<td>Dimensions</td>
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<td>Signal Wire</td>
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Signal Wires
GEVC 12-36/48 6A

Input: Connect to Solar Panels
Individual #16 AWG 4 pairs wire to connect with multiple solar panels

Output: Connect to Batteries

Output voltage is 48V when two orange signal wires are connected together, and voltage is 36V when unconnected.

10A Fuse and Terminal Rings are pre-connected

Do not connect exceed two solar panels per input wire

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### Specifications

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## GEVC Boost Charge Controller Selection Guide

### Short Circuit Current - # Solar Panel vs. Output Voltage

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<tr>
<th>System Voltage</th>
<th>Quantity of <strong>GSP-55</strong> Panels in Parallel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>48V</strong></td>
<td>0.9</td>
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<tr>
<td><strong>36V</strong></td>
<td>1.2</td>
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<td><strong>48V</strong></td>
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</tr>
<tr>
<td><strong>36V</strong></td>
<td>0.8</td>
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GEVC 12-36/48 3A can be connected with 3 GANZ GSP-55 (55W) or 4 GANZ GSP-40 (40W) solar panels, GEVC 12-36/48 6A can be connected with 6 GANZ GSP-55 (55W) or 8 GANZ GSP-40 (40W) solar panels connected in parallel.

Do not connect exceed number of solar panels with GEVC controller in this guide.
**48V System for Electric Inboard drive system – (1)**

- **GANZ GSP-55 (55W) X 4 panels**
- **Parallel Connection** for Series Connection of 4 battery banks
- **Max. Output:** 220W
- **Max. Output Current:** 3.6 Amps

**Batteries:** Series Connection
12V X 4 = 48V system

**House Bank 1**, **House Bank 2**, **House Bank 3**, **House Bank 4**

**Solar Panel:** Parallel Connection

**GEVC 12-36/48 6A**
12V solar panel to 48V batteries

**GEVC Controller**
**48V System for Electric Inboard drive system – (2)**

GANZ GSP-40 (40W) X 6 panels
Parallel Connection
for Series Connection of 4 battery banks

Signal wires connected together

Max. Output: 240W
Max. Output Current: 3.8 Amps

Batteries: Series Connection
12V X 4 = 48V system

Solar Panel: Parallel Connection

GEVC 12-36/48 6A
12V solar panel to 48V batteries

GEVC Controller
**48V System for Electric Inboard drive system – (3)**

GANZ GSP-40 (40W) X 4 panels
Parallel Connection
for Series Connection of 4 battery banks
Signal wires connected together

Max. Output: 160W
Max. Output Current: 2.5 Amps

Batteries: Series Connection
12V X 4 = 48V system

Solar Panel: Parallel Connection

GEVC 12-36/48 3A
12V solar panel to 48V batteries

House Bank 1
House Bank 2
House Bank 3
House Bank 4

GEVC Controller
**48V System for Electric Outboard Motor**

GANZ GSP-55 (55W) X 1 panel for Series Connection of 4 battery banks

Signal wires connected together

Max. Output: 55W
Max. Output Current: 0.9 Amps

Batteries: Series Connection
12V X 4 = 48V system

GEVC 12-36/48 3A
12V solar panel to 48V batteries

Unused wires are left disconnected, Panel can be added at a later time to increase overall power
48V System for Electric Outboard Motor

GANZ GSP-55 (55W) X 2 panel for Series Connection of 4 battery banks

- Signal wires connected together
- GEVC 12-36/48 3A 12V solar panel to 48V batteries
- GEVC Controller
- 5A Fuse
- House Bank 1
- House Bank 2
- House Bank 3
- House Bank 4

Max. Output: 110W
Max. Output Current: 1.8 Amps

Batteries: Series Connection 12V X 4 = 48V system
**48V System for Golf Cart**

GANZ GSP-55 (55W) X 1 panel
for Series Connection of 6V X 8 battery banks

Max. Output: 55W
Max. Output Current: 0.9 Amps

Batteries: Series Connection
6V X 8 = 48V system

Signal wires connected together

Unused wires are left disconnected,
Panel can be added at a later time
to increase overall power

GEVC 12-36/48 3A
12V solar panel to 48V batteries
**36V System for Golf Cart – (1)**

GANZ GSP-55 (55W) X 1 panel for Series Connection of 6V X 6 battery banks

- **Max. Output:** 55W
- **Max. Output Current:** 1.2 Amps

**Signal wires not connected**

**Unused wires are left disconnected,**
Panel can be added at a later time to increase overall power

**GEVC 12-36/48 3A**
12V solar panel to 36V batteries

**Batteries: Series Connection**
6V X 8 = 48V system

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**GEVC Controller**
36V System for Golf Cart – (2)
GANZ GSP-55 (55W) X 2 panels
for Series Connection of 6V X 8 battery banks

Max. Output: 110W
Max. Output Current: 2.4 Amps

Batteries: Series Connection
6V X 8 = 48V system

GEVC 12-36/48 3A
12V solar panel to 36V batteries

Signal wires not connected

Unused wires are left disconnected,
Panel can be added at a later time
to increase overall power