

□ Grid Tied

□ Off Grid

□ Hybrid □ Backup

# Wet/Flooded **Battery Block**

| Customer Name                    |                        |             |                             |               |       |   |                          |                           |   |         |       |
|----------------------------------|------------------------|-------------|-----------------------------|---------------|-------|---|--------------------------|---------------------------|---|---------|-------|
| Customer Address                 |                        |             |                             |               |       |   |                          |                           |   |         |       |
| Phone Number                     |                        |             | Email                       |               |       |   |                          |                           |   |         |       |
| Distributor/Dealer               |                        |             |                             |               |       | Date of Purchase                        |                          |                           |   |         |       |
| Company Address                  |                        |             |                             |               |       |   |                          |                           |   |         |       |
| Phone Number                     |                        |             |                             | Email         |       |   |                          |                           |   |         |       |
|                                  |                        |             |                             |               |       |   |                          |                           |   |         |       |
| Battery Model                    |                        |             |                             |               |       | Installation Date                       |                          |                           |   |         |       |
| Number of Batteries<br>in Series |                        | Num<br>Para | nber of Strings in<br>allel |               |       | System Voltage                          |                          |                           |   |         |       |
|                                  |                        |             |                             |               |       | System Capacity                         | (AH @20H                 | IR)                       |   |         |       |
| Battery Date Code(s)             |                        |             |                             |               |       | Low Voltage Disconnect (LVD)            |                          |                           |   |         |       |
|                                  |                        |             |                             |               |       | Any additions/adj<br>since battery inst |                          | ;                         |   |         |       |
|                                  |                        |             |                             |               |       |   |                          |                           |   |         |       |
| CHARGE SOURCE(S):                | Volts (V)              | Watts       | (W) 0                       | ty            |       | INVERTER/CHARG                          | TER/CHARGER INFORMATION: |                           |   |         |       |
| RENEWABLE                        |                        |             |                             |               |       | CHARGER(S)                              |                          |                           |   |         |       |
| PV Panels                        |                        |             |                             |               |       | Make                                    |                          |                           |   |         |       |
| Wind                             |                        |             |                             |               |       | Model                                   |                          |                           |   |         |       |
| Other                            |                        |             |                             |               |       | Output                                  |                          | Volts DC                  |   | Amps DC |       |
| AC                               |                        |             |                             |               |       | INVERTER(S)                             |                          |                           |   |         |       |
| Generator                        |                        |             |                             |               |       | Make                                    |                          |                           |   |         |       |
| Grid                             |                        |             |                             |               | Model |   |                          |                           |   |         |       |
| Other                            |                        |             |                             |               |       | Input                                   |                          | Volts DC                  |   | Amps DC |       |
|                                  |                        |             |                             |               |       |   |                          |                           |   |         |       |
|                                  | CHARGE CONTROLLER SETT |             |                             | LLER SETTINGS | 1     |   | IN                       | INVERTER/CHARGER SETTINGS |   |         |       |
|                                  | Volts (V)              |             | Amps (A)                    |               | Tim   | ne (HH:MM)                              |                          | Volts (V                  | ) | Time (H | H:MM) |
| Bulk                             |                        |             |                             |               |       |   |                          |                           |   |         |       |
| Absorption                       |                        |             |                             |               |       |   |                          |                           |   |         |       |
| Float                            |                        |             |                             |               |       |   |                          |                           |   |         |       |
| Equalization                     |                        |             |                             |               |       |   |                          |                           |   |         |       |
| TOTAL AVERAGE DAILY PO           | OWER CONSTIMENT        | ON:         |                             |               |       |   |                          |                           |   |         |       |
| O IAL AVENAUE DAILY P            | OVVER COMSUMPTI        | UIN.        |                             |               |       |   | _                        |                           |   |         |       |

Number of Days Between Full Charge Cycle

Details to your system information and user profile is mandatory to properly troubleshoot and ensure appropriate system set up. For assistance in completing non-battery related sections, please contact your system install/service technician and/or equipment manufacturer.







| Service Engineer (Company/Name):<br>Signature: | Customer (Name):<br>Signature: |  |
|--|--------------------------------|--|
|  |                                |  |

# **Commissioning Log**

## HAS A COMMISSIONING CHARGE BEEN PERFORMED? □Y □N AMBIENT TEMPERATURE (°C or °F):

# **Commissioning Date:**

All readings should be taken with the battery stabilized on float charge. All specific gravity readings must be temperature corrected. Do not add water before readings are taken. For charging parameters, please refer to our product user guide. Readings taken from Pos(+) to Neg(-) end of battery string

| VIDILIV   | I IEWIPERATURE ( C 0 | 1 1/.   |           |                      |           | Readi      | ngs taken from Post | +) to Neg(-) end of I | battery s  | tring.           |         |
|-----------|----------------------|---------|-----------|----------------------|-----------|------------|---------------------|-----------------------|------------|------------------|---------|
| Cell#     | Specific Gravity     | Voltage | Cell#     | Specific Gravity     | Voltage   | Cell#      | Specific Gravity    | Voltage               | Cell#      | Specific Gravity | Voltage |
| BATTERY 1 |                      |         | BATTERY 5 |                      | BATTERY 9 |            |                     | BATTERY 13            |            |                  |         |
| 1         |                      |         | 25        |                      |           | 49         |                     |                       | 73         |                  |         |
| 2         |                      |         | 26        |                      |           | 50         |                     |                       | 74         |                  |         |
| 3         |                      |         | 27        |                      |           | 51         |                     |                       | 75         |                  |         |
| 4         |                      |         | 28        |                      |           | 52         |                     |                       | 76         |                  |         |
| 5         |                      |         | 29        |                      |           | 53         |                     |                       | 77         |                  |         |
| 6         |                      |         | 30        |                      |           | 54         |                     |                       | 78         |                  |         |
|           | BATTERY 2            |         |           | BATTERY 6            |           | BATTERY 10 |                     |                       | BATTERY 14 |                  |         |
| 7         |                      |         | 31        |                      |           | 55         |                     |                       | 79         |                  |         |
| 8         |                      |         | 32        |                      |           | 56         |                     |                       | 80         |                  |         |
| 9         |                      |         | 33        |                      |           | 57         |                     |                       | 81         |                  |         |
| 10        |                      |         | 34        |                      |           | 58         |                     |                       | 82         |                  |         |
| 11        |                      |         | 35        |                      |           | 59         |                     |                       | 83         |                  |         |
| 12        |                      |         | 36        |                      |           | 60         |                     |                       | 84         |                  |         |
| BATTERY 3 |                      |         | BATTERY 7 | BATTERY 7 BATTERY 11 |           |            | BATTERY 15          |                       |            |                  |         |
| 13        |                      |         | 37        |                      |           | 61         |                     |                       | 85         |                  |         |
| 14        |                      |         | 38        |                      |           | 62         |                     |                       | 86         |                  |         |
| 15        |                      |         | 39        |                      |           | 63         |                     |                       | 87         |                  |         |
| 16        |                      |         | 40        |                      |           | 64         |                     |                       | 88         |                  |         |
| 17        |                      |         | 41        |                      |           | 65         |                     |                       | 89         |                  |         |
| 18        |                      |         | 42        |                      |           | 66         |                     |                       | 90         |                  |         |
|           | BATTERY 4            |         |           | BATTERY 8            |           |            | BATTERY 12          | !                     |            | BATTERY 16       |         |
| 19        |                      |         | 43        |                      |           | 67         |                     |                       | 91         |                  |         |
| 20        |                      |         | 44        |                      |           | 68         |                     |                       | 92         |                  |         |
| 21        |                      |         | 45        |                      |           | 69         |                     |                       | 93         |                  |         |
| 22        |                      |         | 46        |                      |           | 70         |                     |                       | 94         |                  |         |
| 23        |                      |         | 47        |                      |           | 71         |                     |                       | 95         |                  |         |
| 24        |                      |         | 48        |                      |           | 72         |                     |                       | 96         |                  |         |

## STATE OF CHARGE AS A MEASURE OF SPECIFIC GRAVITY AND OPEN CIRCUIT VOLTAGE:

| Charge % | Specific Gravity | Cell Voltage | 12 Volt |
|----------|------------------|--------------|---------|
| 100%     | 1.255-1.260      | 2.10         | 12.60   |
| 75%      | 1.220-1.225      | 2.08         | 12.48   |
| 50%      | 1.200-1.205      | 2.05         | 12.30   |
| 25%      | 1.175-1.180      | 2.02         | 12.12   |
| 0%       | 1.145-1.150      | 1.98         | 11.88   |

## COMMISSIONING CHARGE

A refresh charge (or "boost charge") is recommended before putting batteries into service. The recommended refresh charge parameters

- Charge current of 10-15A per 100 Ah  $C_{10}$  until 2.40 V/cell is
- reached (3-5 Hrs)
  Charge at 5A per 100 Ah C<sub>10</sub> V/cell for 14 hours (voltage exceeds 2.40 V/cell)
- Charge with 5A per 100 Ah  $C_{10}$  for 4 hours

# INSPECTION CHECKLIST:

| Terminal/Cable Connections                       |  |
|--|--|
| Voltage/Specific Gravity                         |  |
| Electrolyte (Between Min/Max Markers)            |  |
| Battery Container (No Shipping Damage/Leakage)   |  |
| Vent Cap/Float Vents (Good Condition, No Damage) |  |

Repeat steps 3 and 4 (max 5 times) until the following criteria is met,

- All cells/blocks exceed 2.60 V/cell
- Electrolyte density of each cell does not deviate more than ±0.015 kg/l from the average value

Do not allow temperatures to exceed 55°C (131°F), continue operation when below 45°C (113°F).

Top up with demineralized water to upper electrolyte level mark Electrolyte density must not differ more than 0.015 kg/l between

| Additional Notes/Observations: |  |  |  |  |  |  |  |
|--------------------------------|--|--|--|--|--|--|--|
|                                |  |  |  |  |  |  |  |
|                                |  |  |  |  |  |  |  |
|                                |  |  |  |  |  |  |  |
|                                |  |  |  |  |  |  |  |
|                                |  |  |  |  |  |  |  |
|                                |  |  |  |  |  |  |  |
|                                |  |  |  |  |  |  |  |
|                                |  |  |  |  |  |  |  |
|                                |  |  |  |  |  |  |  |