

**2.25 kW Solar PV Array**  
 (9) of 250W modules (type 60 cell)  
 3 parallel strings of 3 modules in series  
**EACH MODULE**  
 $V_{mp} = 30V, I_{mp}=8.2A$   
 $V_{max}=40V, I_{max}=8.6A$   
**For the ARRAY**  
 $V_{mp} = 90V, I_{mp}=24.6A$   
 $V_{max}=120V, I_{max}=32.3A$

Note: Alternatively a type 72 cell module could be used.

**Inverter Options**  
 -Magnum MS4448  
 -Outback VFX3648  
 -COTEK SD 3500-248  
 -Victron Phoenix 48/5000

**Charge Controller Options**  
 -Outback Flexmax 60  
 -Schneider XW MPPT 60  
 -Morningstar TS-MPPT-45  
 -MidNite Solar Classic 150

**Off-Grid Inverter**  
 3500 W continuous  
 6000 W peak  
 48Vdc, 230Vac, 50Hz

4mm<sup>2</sup>  
Outdoor wire

String Combiner Box

**MMPT Charge Controller**  
 150V in, 48V out  
 45A out max

**Charge Controller**  
 (+)(-) (G) (-)(+)

**DC Breaker**  
 40A, 100+V

**DC Breaker**  
 100A, 100+V

**Inverter**

DC (+)(-) (G)

Gen (N)(L)

Loads (G)(N)(L)

**AC Breaker**  
 20A, 230V

**Breaker Box**

Wires to building loads  
 1.5 mm<sup>2</sup> house wire

6mm<sup>2</sup>  
Outdoor wire

10mm<sup>2</sup>  
wire

35mm<sup>2</sup>  
wire


35mm<sup>2</sup>  
wire

2.5mm<sup>2</sup> house wire

**AC Breaker**  
 20A, 230V

Optional Generator Connections

**Battery Bank**  
 48V, 19.2 kWh  
 2 strings of 4 batteries in series  
**EACH BATTERY**  
 12V, 200Ah @20hr

|   |   |         |        |        |
|---|---|---------|--------|--------|
|  Rial Baai Project | Off Grid Systems  |         |        |        |
|   | <b>Sheet Title:</b><br><b>4 kW, 48Vdc Output Electrical Drawing</b> |         |        |        |
| Project No:   | SIZE  | FSCM NO | DWG NO | REV    |
| Revisions: CCB 31-Oct-14  | SCALE   | NTS     | SHEET  | 4 OF 6 |