**Systellar MPPT Solar Charge Controller**

**CC-FOR-IOT-20Wp**

**User's Manual**

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|---|---|---|
| **1** | Make | Systellar Innovations |
| **2** | Model | CC_FOR_IOT_20Wp |
| **3** | Application | For powering up outdoor IOT |
| | | |
| **4** | **Solar Panel Input** | |
| | Max rated power | 20Wp |
| | Max V_oc | 22V |
| | Suggested solar panel orientation (For year round operation) | Facing south at an inclination of 10 deg more than the Latitude of the place of installation. For example, Latitude of Delhi is 28.38 deg N. So the solar panel should have an inclination of about 38 deg |
| | Expected max.chg current | 1.12Amp (At 75% yield on a bright sunny day) |
| | | |
| **5** | **Battery Specifications** | |
| | Battery Chemistry | LiFePo4 |
| | Nominal Voltage | 12.8V 6 AH |
| | | |
| **6** | **Load** | |
| | Load Voltage | Same as Battery voltage |
| | Load Max Current | 2A |
| | Suggested maximum continuous IOT power for round the clock operation | 1.5 W |
| | Minimum Solar panel yield for continuous operation | 41% |
| | Operation without Sun on fully charged battery | More than 2 days |
| | Overload cutoff | Above 2 Amp Load cutoff after 2 seconds. |
| | | At/Above 3 Amp Load cutoff within 100 us. |
| | Overload reconnect | After 30 seconds |
| | Low batt load Cutoff Voltage | 12.0V (+/- 0.2V) |
| | Low batt load reconnect Voltage | 12.8V (+/-0.2V) |
| | Load Supply Efficiency | > 98% |
| | | |
| **7** | **Green LED Indications** | |
| | LED_G blinks once every 2 seconds | Battery connected, Not charging |
| | LED_G blinks twice every 2 seconds | Battery I_chg <= 0.25Amp current |
| | LED_G blinks thrice every 2 seconds | Battery I_chg > 0.25Amp current |
| | LED_G solid on | Battery is fully charged |
| | LED_G off | Battery disconnected / Fully discharged at night |
| | | |
| **8** | **Yellow LED indications** | |
| | LED_Y blinks once every 2 seconds | Low Battery (Load cutoff) |

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| **9** | **RED LED indications** | |
| | LED_R blinks twice every 2 seconds | Load overload shutoff |
| | LED_R solid on | Battery high voltage cut (When battery voltage reaches > 14.45V (+/-0.2V), as soon as battery voltage reaches < 13.8V (+/- 0.2V), LED_R turns OFF |
| | | |
| **10** | **Charging Methodology** | |
| | Conversion technology | MPPT (Maximum Power point tracking)* |
| | | Synchronous buck switch |
| | Charging Mode | CCCV |
| | | CC Mode: (During battery charging)<br>Charges the battery with the maximum current available from the solar panel till battery voltage < 13.80V, I_chg tapers off to 0A as V_batt rises to 14.2V |
| | | CV Mode: (Once battery gets fully charged)<br>Charges the battery with the required current to maintain it to 14.2V |
| | MPPT Efficiency | > 98% |
| | Conversion Efficiency | > 90% |
| | | |
| **11** | **Protections:** | |
| | Solar Panel Reverse protection | |
| | Battery Reverse protection | |
| | Battery Overcharging protection | |
| | Battery Deep discharge protection | |
| | Surge Protection | |
| | Load overload & short circuit protection | |
| * | Charge controller dynamically adjusts its operating point to extract the maximum possible power available from the solar panel under all weather conditions. | |

Note: For product enhancement, product specifications may changed at any time without notice

Other Available CC_FOR_IOT Models:

- CC_FOR_IOT_75Wp
- CC_FOR_IOT_120Wp

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