

# Apple

The "Apple" is a unique small PV charge/discharge in Sundaya product range specially designed for very low cost applications based on SMD technology. The Apple is extremely power efficient due to its very low voltage drop over both input and output switching Mosfets, and a buzzer to indicate that user is close to LVD (Low Voltage Disconnect). The Apple also has an electronic master-switch or On/Off-switch, and a clear state of charge indicator that also gives you a good indication during charging.

Frequent cycling of the battery at a very low state of charge causes fast deterioration of the battery due to sulfation and stratification. The Apple does not allow the user to frequently operate the battery at low state of charge.

The Apple is available in 3 standard charge/discharge current capacities; 5, 10 and 15 Amperes. Its clean and round appearance make the product look nice on your wall; with all cable connections nicely covered at the backside of the unit.

## Main Features:

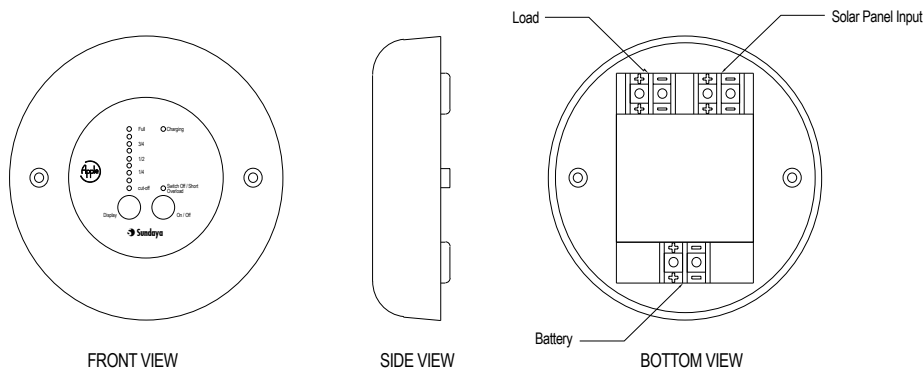
- Strong input and output connectors with clear polarity marking
- Cable connectors not reachable and not visible after mounting on the wall (safety and esthetic reasons)
- Extremely low voltage drop over power mosfets
- Boost Charge mode
- LED Indicator for charging
- LED Indicator for state of charge in 8 steps
- Electronic Overload/Short circuit protection with LED Indicator
- Electronic Master-switch or On/Off-switch to centrally cut off all loads
- Deep discharge cut off with LED Indicator

## Mechanical:

- Enclosure Materials  : ABS
- Color  : Green
- Shape  : Round
- Size  : 120mm x 40mm
- Terminals  : 8mm width Input terminal for battery (bottom side)
- : 8mm width Input terminal for solar panel (top side)
- : 8mm width Output terminal for Load (top side)

## Electrical:

- Nominal operating Voltage  : 12VDC
- Power Consumption  : 4 mA (standby)
- Charge Disconnect Level  : 14.50 +/- 0.01 V (at T=25°C)
- Charge Reconnect Level  : 13.85 +/- 0.10 V
- Battery Temperature Compensation  : -0.02 V / °C
- Low Voltage Disconnect (LVD)  : 11.60 +/- 0.01 V (at I = 0 A )
- Load Reconnect Voltage  : 12.60 +/- 0.10 V
- Low Voltage Buzzer warning level  : 11.80 +/- 0.10 V
- Discharge Current Compensation  : -0.04 V / A
- Boost Charge Level @25°C  : 14.50V (with Temperature compensation -0.02V/ deg c)
- PWM float Charge level  : 14.10V (with Temperature compensation -0.02V/ deg c)
- Ambient temperature allowed  :
  - Operating temperature  : -10°C to +55°C
  - Storage temperature  : -40°C to +85°C
- Enclosure protection class  : IP 44
- Other functionality  :
  - Electronic overload / short circuit protection,
  - Reverse polarity protection
  - Surge protection
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- Level Indicator**
- Power consumption (on/off)  : 0.1 A (max) / 0 A
- Battery low Condition (0%)  : 11.6 +/- 0.05 V
- Battery Full Condition (100%)  : 12.60 V +/- 0.10 V
- Indicator for Battery State of Charge  : (0 - 100%) LED bar (8 steps) with push button switch
- Other indicators  :
  - Indicator for Charging mode condition
  - Indicator for Master Switch Off , Short/Overload condition
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Because of continuous research and development of our products the information and specifications in this data sheet are subject to change without prior notice.