## SC3/15

# Specialty Concepts MARK III / 15 PHOTOVOLTAIC CHARGE CONTROLLER



The Specialty Concepts Mark III/15 (SC3/15) sets the standard for reliability and style in PV battery charge contollers for RV and small residential applications. This attractive flush mount model provides efficient charging while protecting the batteries from damage due to overcharging. The SC3/15 also has metering, fuse protection and a blocking diode for reverse current protection, all in a single, cost effective unit. The SC3/15 is designed for 12 volt systems for up to 15 amps.

#### **FEATURES**

#### **CHARGE REGULATION**

- 15 amp charge current, 12 volt
- Switching shunt, pulse charging
- Remote temperature compensation

#### LOW VOLTAGE LOAD DISCONNECT (option)

- 10 amp LVD Relav
- Contacts for gen. start or alarm

#### **DESIGN FEATURES**

- 100% solid state charge control
- · Designed for rugged mobile use
- Over-current protection battery
- · Reverse leakage protection blocking diode
- · Reverse polarity protection
- Lightning protection
- Input noise suppression
- Low power consumption

#### **MONITORING**

- Colored scale battery voltage meter
- Solar panel current meter
- Charging light

#### **MOUNTING OPTIONS**

- Flush mount
- · Knock out box available for wall mounting (4x7 BOX accessory)



SC3/15

#### **OPERATION**

#### **SWITCHING SHUNT REGULATION**

The SC3/15 will allow maximum array current to flow into the battery through a blocking diode, lighting the "CHARGING" LED, until the battery voltage reaches the charge termination set-point. At this point, a shunt transistor will turn on, shorting out the solar array, turning off the "CHARGING" LED and halting any further battery charging. When the battery voltage drops to the charge resumption set-point, the shunt transistor will turn off and charging will resume.

The result is that when battery capacity is low, charging will be continuous. As the battery charges up, current will pass into the battery for shorter and shorter periods, until at full charge, it will pulse current into the battery to achieve and maintain full charge.

#### OPTIONS DESCRIPTION

#### BLOCKING DIODE BATT + PANEL + 0 (YELLOW) (RED) 0 FUSE CONTROL MOV CHARGE u INDICATOR SHUNT ELEMENT (LED) (TRANSISTOR) PANEL BATT (BLACK) (BLACK) 0 N/C TEMPERATURE SENSOR (OPTIONAL) 0 COM AUX. RELAY (OPTIONAL) N/O $\circ$

Block diagram - SC3/15 Charge Controller

#### A - Temperature Compensation :

Temperature compensation generally recommended for sealed batteries or where batteries are expected to experience temperature variations of more than +10° from 25°C during periods of charging. A small temperature sensor on a 10 foot lead monitors batterv temperature and adjusts charging thresholds according to battery temperature. The rate of compensation is -5mv/°C battery cell from 25°C.

#### E - Low Voltage Disconnect (LVD) / **Generator Start:**

The SC3/15 can be provided with an auxiliary relay. This relay can be used to protect the battery from lowvoltage damage by disconnecting loads or by signaling a standby generator to start or stop battery charging. The relay is rated for 10 amps. This option provides the common, the normally open and the closed voltage contacts of the relay. The relay consumes 30 ma when activated and is activated at 11.5 + .3 volts and deactivated at  $13.0 + .\overline{3}$  volts.

#### **ACCESSORIES:**

4x7 BOX - Knock-out box used for wall mounting

## SPECIALTY CONCEPTS MARK III / 15

PARAMETERS	UNITS	VALUE
Nominal Voltage	(Volts)	12
Short Circuit Current, Continuous	(Amps)	15
Short Circuit Current, Max (60 seconds)	(Amps)	20
Load Current, Continuous (1)(3)	(Amps)	10
Load Current, Max (60 seconds) (1)(3)(5)	(Amps)	13
Array Voltage, Max Voc	(Volts)	26
Operating Voltage @ Battery, Minimum		
Charge Control	(Volts)	0
Load Disconnect (1)	(Volts)	8.5
Quiescent Current	(Milliamps)	10
Current Consumption, Charging, Typ.	(Milliamps)	15
Current Consumption,		
Load Disconnected, Typ. (1)(4)	(Milliamps)	45
Voltage Drop, Array to Battery, Typ.	(Volts)	.40
Voltage Drop, Battery to Load, Typ. (1)	(Volts) @ 10 amps	.06
Charge Termination	(Volts)	14.4 <u>+</u> .2
Charge Resumption	(Volts)	13.0 <u>+</u> .3
Load Disconnect (LVD) (1)	(Volts)	11.5 <u>+</u> .2
Load Reconnect (1)	(Volts)	13.0 <u>+</u> .3
Operating Temp. Range	(°C)	-40 to 50
Storage Temp. Range	(°C)	-55 to 85
Temperature Comp. Coef. (from 25°C) (2)	(Volts/°C)	03

Notes: (1) Low-voltage load disconnect option

- (2) Temperature compensation option
- (3) Non-inductive.
- (4) LVD relay energized, typical value.
- (5) Carry only, Non-switching

#### **PART NUMBERING KEY**

### **DIMENSIONS**

In Inches (cm)



MODEL	NOMINAL VOLTAGE	OPTIONS
SC3/15	12	A - Temperature Compensation E - Low Voltage Disconnect (LVD)/ Generator Start

4x7 BOX (ACCESSORY)

#### **ACCESSORIES**

4x7 BOX

Specifications and product availability subject to change without notice.

Shipping weight: SC3/15 - 1 lbs. (.5 Kg.) 4X7 BOX - 1.25 lbs. (.6 Kgs.)

SC3/15 unit depth: 2.25 (5.7). 4x7 BOX depth: 2.25 (5.7) SC3/15 with 4x7 BOX depth: 2.55 (6.35)

## SPECIALTY CONCEPTS, INC.

