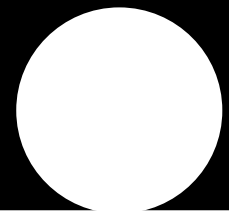


ASC-Plus

SPECIALTY CONCEPTS, INC.
PHOTOVOLTAIC CHARGE CONTROLLER



DESCRIPTION

The ASC-Plus is a rugged PV battery charge controller with low-voltage load disconnect and battery condition monitoring that is completely sealed against harsh environments. The ASC-Plus is available for 12 volt systems with charging current up to 16 amps, and minimizes damage to expensive batteries due to over-charging or deep discharge. The ASC-Plus has a simple, low component count design that uses solid state components for charge regulation, and relies on a rugged relay to handle the unpredictable spikes and surges often encountered from loads. A battery fuse, lightning protection and a blocking diode are all included.

FEATURES

CHARGE REGULATION

- 16 amp charge current, 12 volt
- Switching shunt, pulse charging
- Remote temperature compensation (option)

LOW VOLTAGE LOAD DISCONNECT

- 10 amp LVD Relay

DESIGN FEATURES

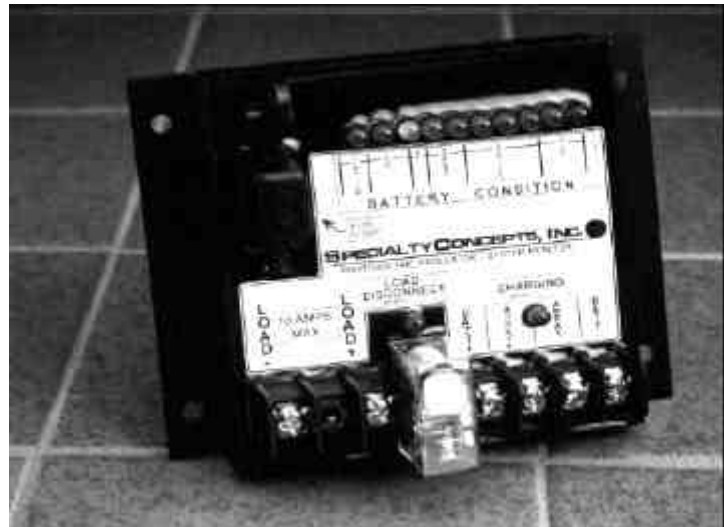
- Encapsulated for protection
- Simple, rugged circuitry
- 100% solid state charge control
- Over-current protection - battery fuse
- Reverse leakage protection - blocking diode
- Reverse polarity protection
- Lightning protection
- Input noise suppression
- Low power consumption

MONITORING

- Bar graph of battery voltage
- Charging light
- LVD activated light

MOUNTING

- Surface mount
- Suitable for outdoor mounting



ASC-Plus

OPERATION

SWITCHING SHUNT REGULATION -

The ASC-Plus will allow maximum array current to flow into the battery through a blocking diode, lighting the "CHARGING" light (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.

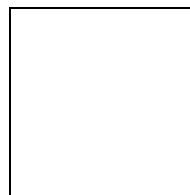
LOW-VOLTAGE DISCONNECT -

The ASC-Plus can protect the battery from low-voltage damage by disconnecting loads when the battery voltage drops. The unit uses a relay to disconnect loads at $11.5 \pm .2$ volts, and automatically reconnects at $13.0 \pm .3$ volts.

OPTION DESCRIPTIONS

A - Temperature Compensation :

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



Block diagram - ASC-Plus

ASC-Plus

PARAMETERS	UNITS	VALUE
Nominal Voltage	(Volts)	12
Short Circuit Current, Continuous	(Amps)	16
Short Circuit Current, Max (60 seconds)	(Amps)	20
Load Current, Continuous (2)	(Amps)	10
Load Current, Max (60 seconds) (2)(4)	(Amps)	13
Array Voltage, Max Voc	(Volts)	26
Operating Voltage @ Battery, Minimum		
Charge Control	(Volts)	0
Load Disconnect	(Volts)	8.5
Quiescent Current	(Milliamps)	15
Current Consumption, Charging, Typ.	(Milliamps)	20
Current Consumption,		
Load Disconnected, Typ. (3)	(Milliamps)	40
Voltage Drop, Array to Battery, Typ.	(Volts)	.40
Voltage Drop, Battery to Load, Typ.	(Volts) @ 10 amps	.06
Charge Termination	(Volts)	14.3 ± .2
Charge Resumption	(Volts)	13.5 ± .3
Load Disconnect (LVD)	(Volts)	11.5 ± .2
Load Reconnect	(Volts)	13.0 ± .3
Operating Temp. Range	(°C)	0 to 50
Storage Temp. Range	(°C)	-55 to 85
Temperature Comp. Coef. (from 25°C) (1)	(Volts/°C)	-.03

Notes: (1) Temperature compensation option
 (2) Non-inductive.
 (3) LVD relay energized, red L.E.D. on, typical value.
 (4) Carry only, Non-switching

PART NUMBERING KEY

EXAMPLE:

ASC-Plus - A

MODEL	OPTIONS
ASC-Plus	A - Temperature Compensation

DIMENSIONS

In Inches (cm)

DEPTH: 1.65 (4.19)
SHIPPING WT: 16 OZ (450 gm)

Specifications and product availability subject to change without notice.