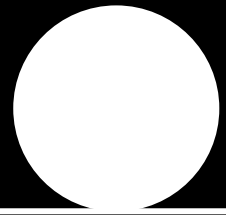


SC1

Specialty Concepts Charger Model 1 PHOTOVOLTAIC CHARGE CONTROLLER



The Specialty Concepts Charger Model 1 (SC1) is a versatile controller for the efficient use of photovoltaic energy and the protection of expensive batteries. It is available for 12, 24, 36, and 48 volt negative ground systems. It is ideal for small to medium sized applications. Models are available for 30 amps of charge current with 50 amps optional on 12 and 24 volt units.

The SC1 consists of a series-relay battery charge regulator with low-voltage load disconnect, a load circuit breaker and status lights. The lights indicate "CHARGE MODE" and "LOAD DISCONNECT" conditions, providing system status information at a glance. The SC1 is housed in an anodized aluminum chassis, suitable for indoor wall mounting, with a terminal block for up to 10 gauge wire or a spade connector, providing simple installation.

FEATURES

CHARGE REGULATION

- 30 amp charge current, 12, 24, 36 or 48 volt
- 50 amp charge current (optional), 12 or 24 volt
- Two-step, series charging, 12,24 v
- Single step, series charging, 36,48 v
- Adjustable charging set-points (option)
- Temperature compensation (option)

LOW-VOLTAGE LOAD DISCONNECT (LVD)

- 30 amp LVD, 12 volt
- 20 amp LVD, 24 volt
- 15 amp LVD, 36 and 48 volt
- Adjustable disconnect set-points
- Manual override switch

DESIGN FEATURES

- Maximum array usage
- Over-current protection - load circuit breaker
- Reverse polarity protection
- Reverse leakage protection
- Lightning protection
- Input noise suppression
- Remote battery voltage sense

MONITORING and MOUNTING

- Charging light
- Load disconnected light
- Analog volt/amp meters (option)
- Indoor wall mount
- Outdoor enclosure (accessory)



SC1 - Specialty Concepts Model 1

OPERATION (12,24 volt units)

Note: The operation of the 36 or 48 volt unit is identical with the exception that no float circuit is included.

CHARGE REGULATION -

The SC1 features two charging steps to effectively charge the batteries and protect them from overcharge damage. The SC1 monitors the battery and array voltage, using a relay to control the charging.

STEP 1-FULL CHARGE: At sunrise, the rising array voltage will energize the charging relay and initiate a full charge mode, as indicated by the "CHARGE MODE" light. All available current from the array will pass through to the batteries and raise the battery voltage until the battery reaches the full charge termination threshold.

STEP 2-FLOAT CHARGE: When the battery reaches the full charge termination threshold, the full charge mode ends and the "CHARGE MODE" light goes out. The SC1 resumes charging at a reduced charging rate. As the battery approaches the float voltage, the current will taper off, eventually reaching the battery's maintenance current.

LOW-VOLTAGE DISCONNECT -

The low-voltage disconnect (LVD) of the SC1 prevents damage from deep-discharge of the batteries by automatically disconnecting the loads. The

disconnect threshold is load current compensated, and has a time delay to prevent false disconnects. When disconnect occurs, the load relay is energized and opens, and the "LOAD DISCONNECT" light will indicate that the loads have been disconnected. Normal battery charging will continue. At the reconnect threshold the loads will automatically be reconnected and the light will go off. The LVD function has a reset/disable switch and user adjustable set-points.

DESIGN FEATURES -

The SC1 has many superior design features that contribute to the controller's efficiency and reliability. This controller provides maximum use of the array during hours of charging by reconnecting the array for direct charging as soon as the battery drops below a full charge set-point. Over-current protection is provided in the form of a load circuit breaker. A timing circuit will disconnect the array at night, so no reverse current leakage will occur. The control circuit is protected from reverse polarity connection on all inputs, and has MOV lightning protection. Input noise suppression filters out most of the spikes and interference to reduce false switching, and remote battery sense terminals allow accurate monitoring of battery voltage.

SPECIALTY CONCEPTS CHARGER MODEL 1

PARAMETERS	UNITS	NOMINAL VOLTAGES			
		12 v	24 v	36 v	48 v
Charge Current, Continuous (1)	(Amps)	30	30	30	30
Charge Current, Max (60 seconds) (2)	(Amps)	39	39	39	39
Load Current, Continuous (3)	(Amps)	30	20	15	15
Load Current, Max (60 seconds) (2)	(Amps)	39	26	20	20
Array Voltage, Max Voc	(Volts)	22	44	66	88
Operating Voltage @ Battery, Minimum	(Volts)	8.5	17.0	25.5	34.0
Quiescent Current (4)	(Milliamps)	10	10	10	10
Current Consumption, Charging (5)	(Milliamps)	160	160	80	80
Current Consumption, Load Disconnected (6)	(Milliamps)	140	100	70	70
Current Consumption, Metering, Typ. (9)	(Milliamps)	.5	.5	.5	.5
Voltage Drop, Typ. (Array to Battery)	(Volts @ Max rating)	.15	.15	.15	.15
Voltage Drop, Typ. (Battery to Load)	(Volts @ Max rating)	.40	.40	.40	.40
Full Charge Termination (7)	(Volts)	14.8 ± .2	29.6 ± .4	44.4 ± .6	59.2 ± .8
Full Charge Resumption	(Volts)	12.8 ± .2	25.6 ± .4	38.4 ± .6	51.2 ± .8
Load Disconnect (8)	(Volts)	11.5 ± .2	23.0 ± .4	34.5 ± .6	46.0 ± .8
Load Disconnect Adjustment Range	(Volts)	11.0 to 12.0	22.0 to 24.0	33.0 to 36.0	44.0 to 48.0
Load Reconnect	(Volts)	13.0 ± .3	26.0 ± .6	39.0 ± .9	52.0 ± 1.2
Float Voltage	(Volts)	14.1 ± .2	28.2 ± .4	NA	NA
Float Current, Max	(Amps)	3	1	NA	NA
Temp. Compensation coef. (from 25°C) (10)	(Volts/°C)	-.03	-.06	-.09	-.12
Operating Temp. Range	(°C)	0 to 50	0 to 50	0 to 50	0 to 50
Storage Temp. Range	(°C)	-55 to 85	-55 to 85	-55 to 85	-55 to 85

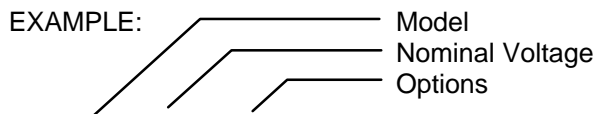
Notes:

- (1) 50 amp option available.
- (2) Carry only, Non-switching
- (3) Non-inductive.
- (4) Both relays unenergized, red L.E.D.s off, typical value.
- (5) Charge relay energized, red L.E.D. on, typical value.
- (6) LVD relay energized, red L.E.D. on, typical value.
- (7) Adjustable set-point is available. Refer to table.
- (8) Decreases by 10 mv for every amp of load current
- (9) Metering option
- (10) Temperature compensation option

FULL CHARGE TERMINATION SET-POINTS (OPTION)

Control Voltage	SWITCH POSITIONS			
	A	B	C	D
12	15.3	14.8	14.3	13.8
24	30.6	29.6	28.6	27.6
36	45.9	44.4	42.9	41.4
48	61.2	59.2	57.2	55.2

PART NUMBERING KEY



SC1 - 12 - AF

MODEL	NOMINAL VOLTAGE	OPTIONS
SC1	12	A - Remote Temperature Compensation
	24	F - Volt Meter / Amp Meter
	36	P - 50 Amp charge current (12 & 24 volt)
	48	T - Adjustable Full Charge Termination Set-point

ACCESSORIES

- INDOOR ENCLOSURE (NEMA 13)
- OUTDOOR ENCLOSURE (NEMA 4X)

NOTE: Refer to option description sheet for details.
Specifications and product availability subject to change without notice.

Shipping weight: 3 lbs. (1.5 Kgs.)

SPECIALTY CONCEPTS, INC.

8954 MASON AVE., CHATSWORTH, CA 91311 USA

PH: (818) 998-5238, FAX: (818) 998-5253