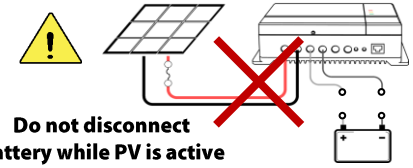
SCCM20-100

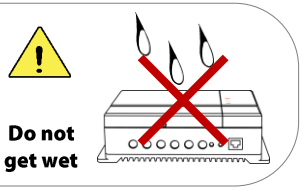
MPPT Charge Controller/Load Manager

Owner's Manual

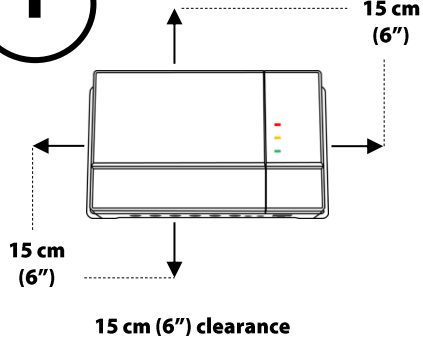
NOTE:

- Follow instructions in order.
- Charge batteries at least once a week.
- Use reducers to connect larger wires to terminals.

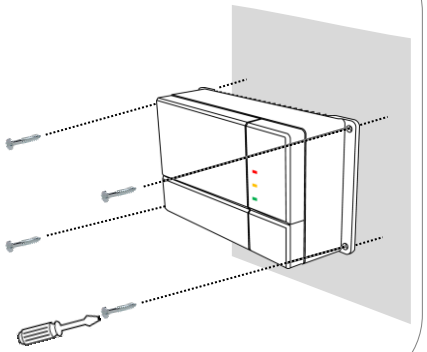




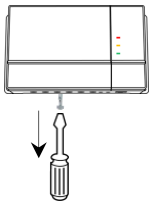
1 Clearance and orientation



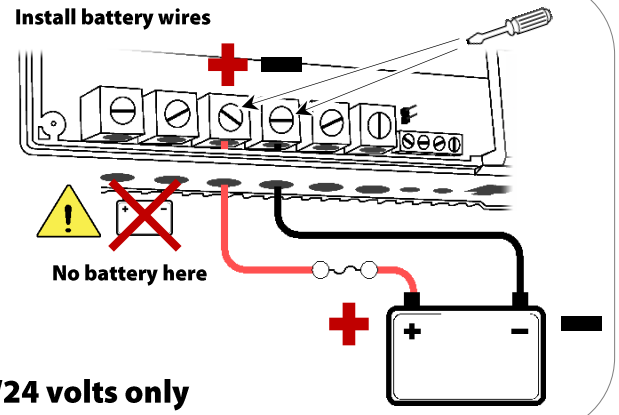
Mount on wall with 4 screws



2 Remove wiring cover

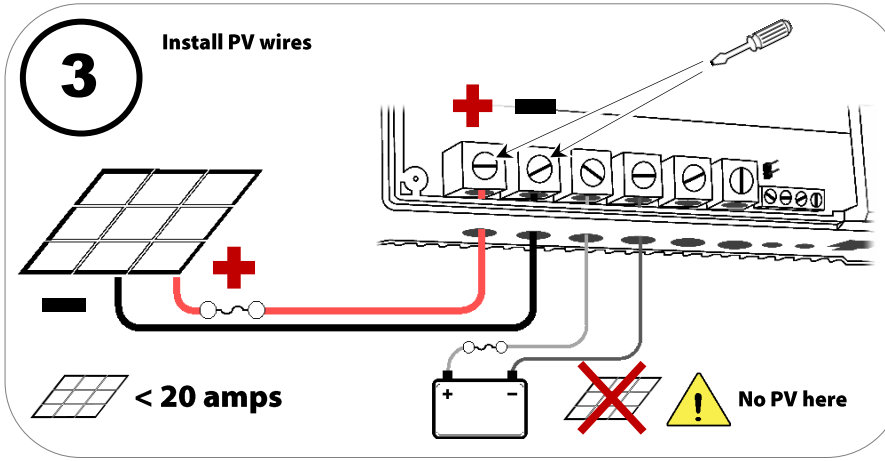


Install battery wires

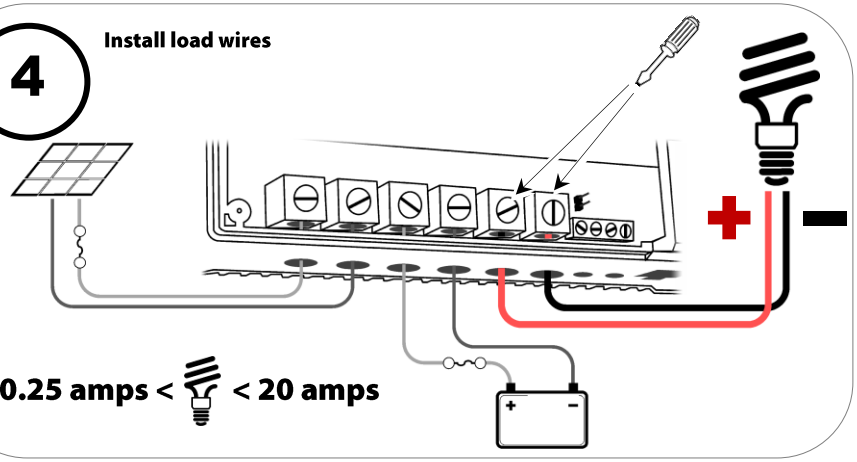


= 12/24 volts only

3 Install PV wires

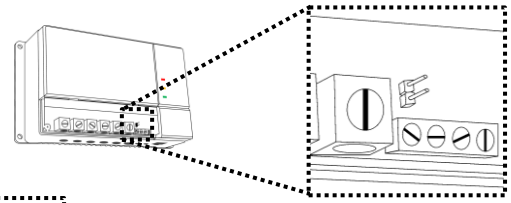


4 Install load wires

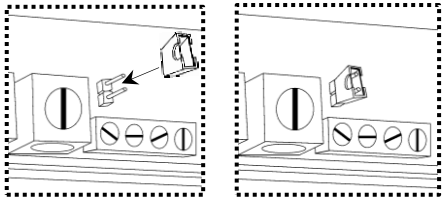


5

Battery Selection Jumper



Jumper inserted at factory



Jumper Removed: Flooded Battery Charging

Jumper Inserted: VRLA Battery Charging

6

Thermistor (Battery Temperature Sensor)

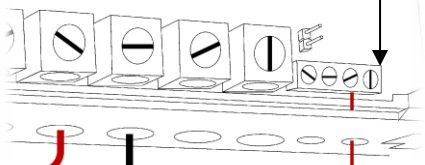
Connect thermistor to any of the battery terminals

Connect thermistor wires

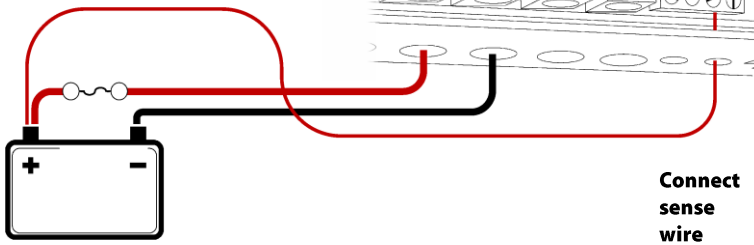
7

Battery Voltage Sense Wire

Dummy



Connect sense wire to positive (+) battery terminal

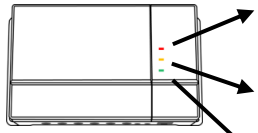


Connect sense wire

NOTE: First connector opening from right is a dummy. Do not feed wire through it.

LED Indicators

NOTE: LEDs glow only when the charge controller is awake.



OFF			
RED (Warning)	R	(on)	(blink or flash)
YELLOW (Battery)	Y	(on)	(blink or flash)
GREEN (PV)	G	(on)	(blink or flash)

RED	R		Disconnect
	R R	< 20%	Battery Critical
		OK	No Error

YELLOW	Y		Battery > 90% SoC
	Y Y		Battery > 50%
	Y Y Y		Battery < 50%
		< 20%	Battery Critical

GREEN	G		PV Present
	G G		Charging
			No PV

NOTE: SoC percentages are approximate and are based on battery voltages.

Symbols

Caution: Equipment Damage

Caution: Risk of Electric Shock

Caution: Hot Surface

When disposing, keep this product separate from household waste; recycle this product

Double or reinforced insulation; Grounding is unnecessary

Refer to operating instructions

Features

1 LED Indicators R Y G

2 Compartment Cover Screw

3 PV Input

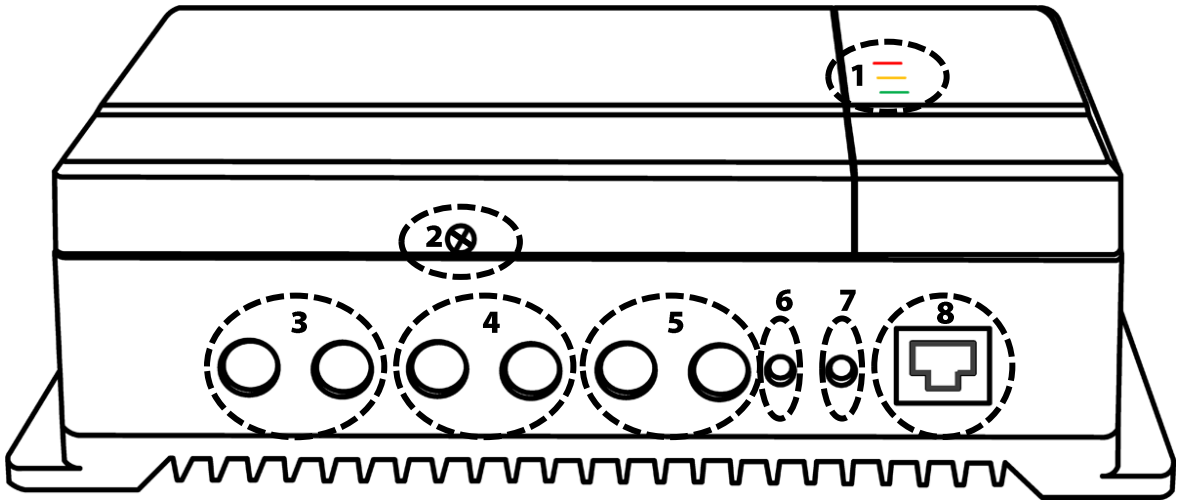
4 Battery Input

5 Load Output

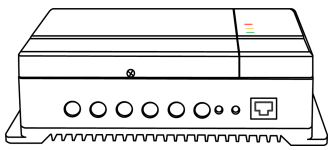
6 Thermistor (Battery Temperature)

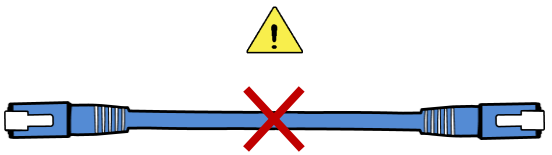
7 Battery Voltage Sensing

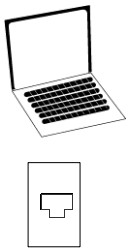
8 Data Communications



CAUTION: Hazard to Equipment
Proprietary adapter is required.
Do not connect directly to computer or Ethernet.







NOTES:

3, **4**, and **5**: Use flat screwdriver with tip width <6 mm and blade length >50 mm

6 and **7**: Use flat screwdriver with tip width <3 mm and blade length >50 mm

Specifications

Section	Name		12 Vdc		24 Vdc	
PV	Controller Type		MPPT			
	Wattage (maximum)		300 W		600 W	
	V_{oc} (range) **NOTE**: Will not operate above 85 Vdc		25 to 100 Vdc		40 to 100 Vdc	
	V_{mp} (range)		15 to 70 Vdc		27 to 70 Vdc	
	Short Circuit Current (maximum)		20 Adc			
Battery	Battery Type (jumper-selectable)		Flooded or VRLA			
	Nominal Voltage		12 or 24 Vdc; automatically detected			
	Battery Input (range)		10 to 16 Vdc		18 to 32 Vdc	
	Self-consumption		3 mAdc to 14 mAdc (sleep) and 80 mAdc (awake)			
	Efficiency (maximum)		97%			
Charger	Bulk and Absorption Voltages (maximum) for Battery Types		Flooded	VRLA	Flooded	VRLA
		Bulk	14.8 Vdc*	14.6 Vdc*	29.6 Vdc*	29.2 Vdc*
		Absorb	14.8 Vdc*	14.4 Vdc*	29.6 Vdc*	28.8 Vdc*
	Absorb Time		2 hours*			
	Float Voltage		13.2 Vdc*	13.5 Vdc*	26.4 Vdc*	27.0 Vdc*
	Charging Current (maximum)		20 Adc* (derated to 18 Adc at 60°C)			
	Temperature Compensation (range)		-25 mV / 5°C / cell			
	Thermistor		10 K NTC			
Equalize	**NOTE**: Enabled by removing battery jumper; loads turned off while equalizing **NOTE**: Occurs every 60 days, or following a low battery load disconnect					
	Equalization Voltage (maximum)		15.5 Vdc	–	31.0 Vdc	–
	Equalization Time		1 hour			

*Number shown is factory default setting. Consult the battery manufacturer for specific charger settings. Item is settable with communications interface.

NOTE: Battery voltage measurement accuracy is ± 5%.

Section	Name		12 Vdc	24 Vdc
Loads	Minimum Load Current		0.25 Adc	
	Maximum Output Current		20 Adc	
	Overload Time		5 min for Load > 100%, 0.1 sec for Load > 125%	
	Load Type		Normal, Factory Default	
	Dusk to Dawn selection or night light timer configurable through PC-RMS			
Internal Protections	Internal Protection		Battery Reversal, PV Reversal	
	Load Disconnect (Automatic Reset)		Low Battery, High Battery, Overload, Equalization	
	Load Disconnect (Manual Reset)		Overload (after 3 automatic resets)	
	Low Battery Load Disconnect		11.4 Vdc*	22.8 Vdc*
	Low Battery Load Reconnect		12.4 Vdc*	24.8 Vdc*
	High Battery Load Disconnect		15.3 Vdc	30.3 Vdc
Dimensions	Size		197 mm (7.8") x 110 mm (4.3") x 57 mm (2.2")	
	Weight		~ 1 kg (2.2 lbs)	
Cabling	Terminal Size (PV and battery)		≤ 32 mm^2 (#4 AWG)	
	Cable Size (minimum)	Battery	16 mm^2 (#6 AWG)	
		PV	6 mm^2 (#10 AWG)	
	NOTE: Larger cables must be used if battery cables exceed 3 m length **NOTE**: Battery cables must be twisted together during installation			
	Battery Sense Required Size		0.33 to 0.08 mm^2 (#22 to 28 AWG)	
	Terminal Torque Value		5.0 Nm (50 in-lb)	
Grounding			Not required	
External Protection (recommended) Follow all local codes to select overcurrent protection.			Battery	≤ 40 Adc, ≥ 100 Vdc
			PV	≤ 20 Adc, ≥ 100 Vdc
Environment	Operating Temperature		-40°C to 60°C (derated to 18A output from 50 to 60°C)	
	Humidity		0 to 95% RH non-condensing	
	Ingress Protection		IP20	
Battery Bank	Minimum 100 Ah at C/5 discharge rate			
Certifications	CE, EN 61000-6-1, EN 61000-6-3, IEC/EN 62109-1			
Warranty	2 years			

Troubleshooting

Problem	Possible Remedies (perform in order shown)
Battery not charging	1) Check battery connections 2) Check PV voltage and connections 3) Allow charger to cool
No LED indicators with PV power available	1) Check battery voltage ***at controller terminals*** 2) Check panel voltage ***at controller terminals***
Red LED on	1) Disconnect PV 2) Disconnect battery 3) Disconnect load 4) Reconnect battery 5) Reconnect PV 6) Reconnect load
Red LED flashing	1) Disconnect loads 2) Charge battery
Yellow LED not on	Charge battery
Charging to wrong voltage	1) Check position of battery selection jumper 2) Check installation of thermistor
CCU restarting repeatedly	1) Check minimum load current 2) Increase load.