

ROMAN

POWER GRID 120W / 160W / 200W *SOLAR MAT KITS*



User Manual and Product Specifications



Suitable for camping, 4WD driving, caravanning, boating
and other outdoor activities

Introduction

The Roman Solar Mat Kit is a high performance ultra-compact solution for solar charging all types of 12V DC batteries, including Lithium Iron Phosphate (LiFePO₄) & Lithium Titanium Oxide (LTO).

Ideally suited for camping, 4WD driving, caravanning, boating and other outdoor activities to power a range of 12V DC accessories directly from your 12V DC battery, including; portable fridges, lighting, TVs, DVD players, bilge pumps, food warmers and even water pumps for a shower or a hot water system. You can also connect a 240V AC inverter to your battery to power a limited range of 240V AC appliances.

Roman Solar Mat Kits are designed for Australia's tough conditions, using high quality components which provide dependable performance and reliability in an easy to use extremely compact solar kit.

After taking the folding solar mat out of the box, choose a suitably cleared area to unfold and setup the panels facing the sun, select the appropriate battery type on the digital controller, connect the clamps to your battery, and then join the extension leads, you're ready to go.

Utilizing the abundance of free sunlight available, the SunPower® monocrystalline cells convert sunlight into usable DC (direct current) electricity. Due to the cells high efficiency, the electricity produced or voltage output (measured directly at the cell) is too high to be used effectively. To better control the voltage output we have included a digital, 5 stage 15A PWM (pulse width modulation) weatherproof controller to automatically adjust the voltage output no matter what type of battery is being charged.

Simply, select the correct battery type, being either; GEL, AGM, WET (Lead-Acid) Calcium, Lithium Iron Phosphate (LiFePO₄) & Titanium oxide (LTO) connect the supplied battery clamps to the correct battery terminals and the digital controller will automatically decide the amount and rate of charge the battery needs.

Note: The controller supplied with this product is suitable for charging the following types of batteries only: AGM, WET, GEL, Calcium and also Lithium iron Phosphate (LiFePO₄) Lithium Titanium Oxide (LTO)

Warning - Charging any other type of Lithium battery with this device could result fire or explosion or should not be attempted

Part No. PRI20023NC Product Features;

- 36 x 22.5% highly efficient SunPower® monocrystalline C60 cells
- 6 x 20.4W panels
- Extremely compact and lightweight
- PET Cell lamination
- Heavy duty 900D outer material with external storage pockets
- Carry handle with non-slip rubber grip
- 12V DC, 5 stage smart charger, 15A Inline PWM weatherproof controller
- 50A heavy duty Anderson style plugs on extension leads
- 5M extension lead – twin core 3.31mm² with UV stable outer sheath

Part No. PRI20056 Product Features;

- 48 x 22.5% highly efficient SunPower® monocrystalline C60 cells
- 12 x 13.6W panels
- Extremely compact and lightweight
- ETFE Cell lamination
- Heavy duty 900D storage bag with external storage pockets
- 12V DC, 5 stage smart charger, 15A Inline PWM weatherproof controller
- 50A heavy duty Anderson style plugs on extension leads
- 10M extension lead – twin core 4.17mm² with UV stable outer sheath

Part No. PRI20034NC Product Features;

- 60 x 22.5% highly efficient SunPower® monocrystalline C60 cells
- 10 x 20.4W panels
- Extremely compact and lightweight
- PET Cell lamination
- Heavy duty 900D outer material with external storage pockets
- Carry handle with non-slip rubber grip
- 12V DC, 5 stage smart charger, 15A Inline PWM weatherproof controller
- 50A heavy duty Anderson style plugs on extension leads
- 5M extension lead – twin core 3.31mm² with UV stable outer sheath

IMPORTANT: This user manual contains important safety information and operating instructions. Please read this manual carefully to familiarise yourself with the product and accessories before connecting to the battery being charged. Keep this manual in a safe place for future reference.

General Warnings

- Do not connect the solar mat output wire directly to the battery being charged. A controller/regulator must be used inline. Failure to do so, could cause permanent damage to the battery and or personal injury if the battery ruptures
- Follow the assembly instructions within this manual carefully as to not cause harm to yourself or others, particularly when 'connecting' and 'disconnecting' the DC clamps (Direct Current clamps) to or from the battery being charged
- Do not charge 'dry' cell rechargeable batteries with this product. To charge 'dry' cell rechargeable batteries, connect an appropriate sized 240V inverter to the 'wet' cell battery being charged by the solar mat. Then connect the 240V 'dry' cell charger which came with the batteries to the 240V inverter ensuring that the manufactures guidelines are followed
- Do not charge 'dry' cell non-rechargeable batteries
- Do not charge a damaged battery
- Do not charge a frozen battery
- Do not use this solar mat if it is damaged in anyway. Please contact customer service for advice if necessary, details are at the back of this booklet
- Do not disassemble the solar mats or controller
- Ensure that the battery being charged is in a well ventilated area as poisonous gasses may be emitted during the charging process
- Ensure that appropriate personal protective equipment (PPE) is worn while in close proximity to the battery being charged; Safety glasses, Gloves, Protective clothing as a minimum
- Ensure that no metal objects or jewellery contacts the battery terminals. It is recommended to remove rings, bracelets etc when working with lead-acid batteries. A lead-acid battery can produce a short-circuit current high enough to melt metallic materials possibly causing severe burns
- Do not smoke or have the battery in the vicinity of sparks, open flame, fuel or solvents while the battery is being charged. Gasses emitted could be 'EXPLOSIVE'
- Battery acid is highly corrosive. Avoid 'CHEMICAL BURNS' wash effected area immediately with clean running water if contact is made with your skin or eyes. Seek medical advice
- Disconnect power from the solar mat by separating at least one join between either extension lead before 'connecting' or 'disconnecting' the DC clamps to or from the battery
- Ensure correct DC clamp connection '**sequence**' when 'connecting' and 'disconnecting' the DC clamps to or from the battery being charged. A simple way to remember is; The negative '-' DC clamp is '**Last**' on and '**First**' off (the negative '-' battery terminal). This will reduce the dangers of a potential short-circuit and excessive sparking of the battery terminals
- Ensure correct DC clamp connection '**polarity**' when 'connecting' to the battery being charged. Connect the Red coloured DC clamp to the positive '+' battery terminal. Then connect the Black coloured DC clamp to the negative '-' battery terminal
- Immediately cease charging if the battery being charged is found to be excessively hot, leaks or appears to be taking a long time to charge
- This product must not be used by children or by an adult who has reduced physical or mental capabilities. Also, this product is not to be used by an adult who has a lack of knowledge or experience with this type of product, unless they are being supervised by a person who is competent in the safe use of this type of product.
- Caution should be taken when charging an accessory battery when connected to a 'Dual Battery Monitor' or a 'Volt Sensitive Relay' (VSR). It is important that the battery circuit is 'open'
- **NOT for long term permanent installation**

Understanding your Solar Mat

1. Folded solar mat
2. Heavy duty 900D polyester material
3. Carry handle with rubber grip insert
4. Retaining straps with quick release buckles (120W & 200W only)
5. Front and rear storage pockets
6. Output lead with 50A Anderson style plug
7. Extension lead
120W - 5m
160W - 10m
200W - 5m
8. Fused 0.8m battery clamp extension lead
9. PWM digital weatherproof 15A controller
10. Instruction manual
11. Unfolded 120W Solar Mat (PRI20023NC)
12. Unfolded 160W Solar Mat (PRI20056)
13. Unfolded 200W Solar Mat (PRI20034NC)

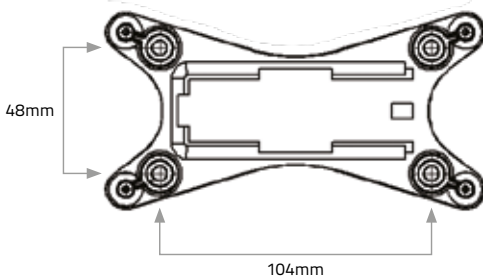


Controller/Regulator Specification and Operation

FEATURES

- Advanced MCU control Pulse Width Modulation (PWM) technology, high efficiency operation
- To be used on GEL, AGM, Conventional lead-acid (WET) Calcium, Lithium iron Phosphate (LiFePO₄) & Lithium Titanium Oxide (LTO) batteries only
- Built in regulator prevents your battery from being over or undercharged. Overcharging occurs when the charge voltage is unregulated and can result in premature battery failure. Undercharging is common with some conventional lead-acid and calcium batteries and your battery will not perform to its capacity
- Automatic equalization feature to revive deeply drained lead-acid and calcium batteries
- Can be connected to the battery permanently to keep the battery fully charged by using a process called 'floating'. This means the controller will stop charging when the battery is full and will automatically start charging the battery as required. This process will also reduce water loss and help prevent the battery from 'drying out'
- Protects your battery from discharge at night. Under low light or no light conditions the solar panel voltage could be less than the battery voltage. The unit contains a special circuit which prevents current flowing back from the battery and into the solar panel
- Coloured LEDs to easily indicate the operational status and battery condition
- Digital LCD to directly display battery voltage, charging current, charging capacity (Amp hour), battery types, full charge and fault codes
- Multi charging protection against reverse polarity, short circuit, over temperature, over voltage, etc
- Multiple mounting options utilizing powerful 'rare earth magnets' built into the back of the controller body or using the supplied fixed wall bracket. The magnets allow the controller to be conveniently located on the supplied fixed wall bracket or simply remove the controller from the wall bracket & locate the controller on any magnetic surface offering true portability.
- Internally housed into each end are heavy duty 50A Anderson style plugs which are also colour coded to easily distinguish the correct input & output connections
- Weatherproof design

Mounting bracket hole position



Multiple mounting options



Operation - LCD (Liquid Crystal Display)

Please check your battery manufacturer's specifications to select correct battery type. There are 6 battery types to select from: GEL, AGM, WET (conventional lead-acid), Calcium, Lithium iron Phosphate (LiFePO4) & Lithium Titanium Oxide (LTO)



Press **BATTERY TYPE** button and hold for 3 seconds to go into the battery type selection mode, the battery type you select will be shown on the LCD, the default battery setting is AGM. The controller will automatically memorize your battery type.

Caution: Incorrect battery type setting may damage your battery.

When the controller powers on, the unit will run a self-test and will automatically show the details on the LCD before going into charging process, for example:

8.8.8 Self-test starts,
digital meter segments test

8.0.5 Software version test

82.0V 85.0A
Rated voltage and current test



Indicates Solar Panel is connected

After going into charging process, the LCD displays the charging status as below: Press **AMP/VOLT** button in sequence, the LCD will display in turn with Battery Voltage, Charging Current, Charged Capacity (Amp-hour) and return to battery voltage

Display in sequence

(82.6V ⇌ 8.6.0A ⇌ 45.0AH)

Display when battery is fully charged

You can also visually monitor your battery charging



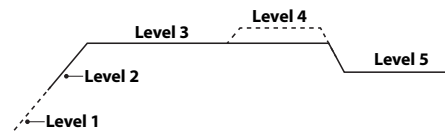
condition. The LCD bar shows the percentage of charge in 25%, 50% 75% & 100% increments.

CHARGING STAGES

The **AMP/VOLT** button can be changed at any time during charging process.







The LCD also can be treated as an independent voltage meter. A voltage less than 11.5V indicates that the battery is discharged and needs recharging.

- 1. Soft Charge:** When a battery has been over-discharged, the controller will softly ramp the battery voltage up to 10V.
- 2. Bulk Charge:** Maximum current charging until the battery rises to absorption level.
- 3. Absorption Charge:** Constant voltage charging until the battery is over 85%.














- 4. Equalization Charge:** Only for WET or Calcium battery types, when the battery is deeply drained below 10V, it will automatically run this stage to bring the internal cells to an equal state in an attempt to restore lost capacity. (GEL AGM LiFePO4 & LTO battery do not run equalization charge. Refer to page 13 for float charge specifications)
- 5. Float Charge:** Battery is fully charged and maintained at a safe level.

Operation - LED Indication

The 6 LEDs indicate the charging status and the battery condition						
	Red	Blue	Green	Green	Yellow	Red
Solar power present - no battery connected	ON	OFF	OFF	OFF	OFF	FLASH
Soft charging	ON	FLASH	OFF	OFF	OFF	ON
Bulk charging	ON	ON	OFF	Subject to battery voltage		
Absorption charging	ON	ON	OFF	ON	OFF	OFF
Equalization charging	ON	ON	OFF	ON	OFF	OFF
Float charging	ON	OFF	ON	ON	OFF	OFF
Solar panel weak	FLASH	OFF	OFF	Subject to battery voltage		
At night no charge	OFF	OFF	OFF	Subject to battery voltage		
Battery voltage below 11.5V (+/-0.2V)	ON	ON	OFF	OFF	OFF	ON
Battery voltage between 11.5V - 12.5V (+/-0.2V)	ON	ON	OFF	OFF	ON	OFF
Battery voltage above 12.5V (+/-0.2V)	ON	ON	OFF	ON	OFF	OFF

Abnormal Operation Mode

Solar mat abnormal mode	LCD display	LED indication	LCD backlight
Solar panel weak		 FLASH	ON
Solar panel reverse connection	801	 FLASH	FLASH
Solar panel over voltage (>26.5V)	802	 FLASH	FLASH

Battery abnormal mode	LCD display	LED indication			LCD backlight
Battery disconnected or less than 3.0V	801	 FLASH	 FLASH	 FLASH	FLASH
Battery reverse connection	802	 FLASH			FLASH
Battery over voltage (>17.5V)	803	 FLASH			FLASH
Battery temperature over 65°C	804	 FLASH	 FLASH	 FLASH	FLASH

Solar controller abnormal mode	LCD display	LED indication	LCD backlight
Controller over temperature protection	888		FLASH

Set Up

STEP 1

Remove the solar mat and accessory leads from the original packaging. Check the solar mat, leads and connectors for any damage before use.

Note: If damage is found on any part, it is highly recommended that they are replaced with genuine parts available from Roman Australia Pty Ltd. Please contact Roman customer service, details are at the back of this booklet if spare parts are required.

Select a suitably cleared area to unfold the solar mat. The position should allow the solar mat to have a clear view of the sun and facing in the direction of 'North' as close as possible.

Warning:

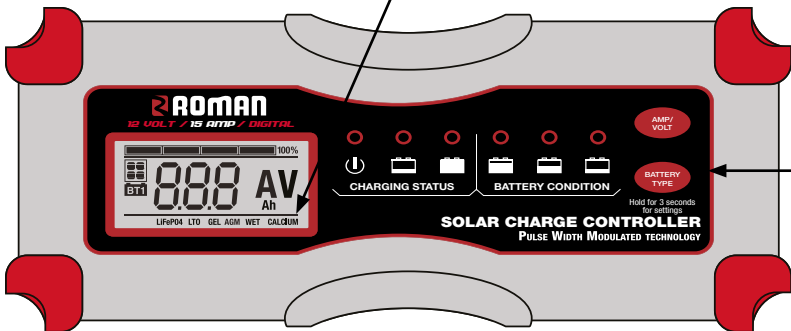
Cells (panels) will start producing electricity as soon as they are exposed to the sun. Care must be taken when connecting the DC clamps to the battery and joining the extension leads. To reduce the possibility of an electric shock or short-circuit, it is recommended to place a blanket or tarp over the panels to block out any sunlight temporarily while all connections are made.

STEP 2

Refer to the specification label on your battery or consult the battery manufacture to establish the type of battery being charged. On the controller front panel, press the battery type button and hold for 3 seconds to go into the battery type selection mode. Press the battery type button again to cycle through the menu to match the battery type being charged. The different battery types are displayed at the bottom of the LCD.

Once selected, the battery type will remain in memory for next time

⌋ LiFePO4 ⇨ LTO ⇨ GEL ⇨ AGM ⇨ WET ⇨ CALCIUM ⌋



PRESS & HOLD FOR 3 SECONDS

STEP 3

FIRST, connect the DC clamp on the 0.8m extension lead to the correct polarity terminals on the battery being charged. Example; **A** 'RED' DC clamp to the positive '+' terminal and the **B** 'BLACK' DC clamp to the negative '-' terminal.

Note: Please refer to "General Warnings" on page 3 of this manual regarding the correct sequence when "connecting" & "disconnecting" the DC clamps from the battery being charged.

C Connect the other end of the 0.8m extension lead (50A plug) to the controller output (50A plug) **Note: These connection plugs are red in colour for ease of identification**

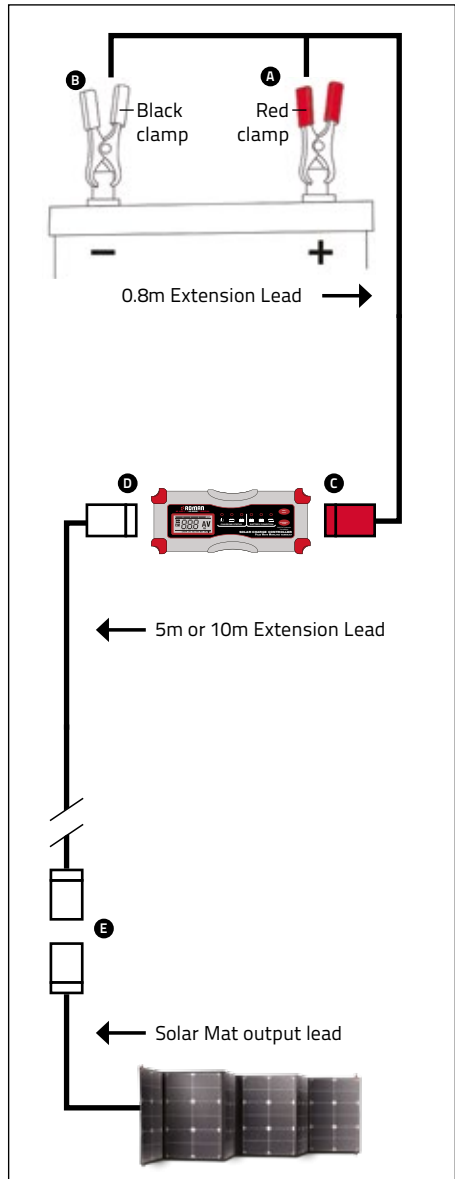
D Connect the controller input (50A plug) to either end of the 5m or 10m extension lead (50A plug) then finally, join the remaining end of the 5m or 10m extension lead to the solar mat output lead.

E Ensure that all connections are firm and that the extension lead is positioned not to cause a tripping danger to people walking by. And that's it, your battery will now be charging.

Monitor the output of the solar mat via the controller display. Also ensure that the solar mat is kept in direct sunlight for optimum efficiency. The solar mat may have to be moved periodically throughout the day to track the sun's path.

For disconnection, simply reverse the sequence above.

Note: It is recommended to establish connections (DC clamps) at the battery being charged first. Then, join the connectors in sequence working back towards the solar mat. This will eliminate the danger of having 'live' battery clamps inadvertently being short-circuited causing equipment damage and possibly fire.



Frequently Asked Questions

Q: How does the solar mat work?

A: The solar mat converts sunlight energy into DC (direct current) electric power to charge rechargeable batteries. The batteries are then used to run your lights, fridge or power an inverter

Q: What type of batteries can be charged with this solar mat kit?

A: The controller is factory set for AGM batteries, however the controller can also be set to charge GEL, WET, Calcium, Lithium iron Phosphate (LiFePO4) and Lithium Titanium Oxide (LTO) Batteries by scrolling through the menu. Do not charge 'dry' cell rechargeable batteries or 'dry' cell non-rechargeable batteries.

Q: Can I bypass the controller to charge my battery?

A: No, the voltage output directly from the solar mat exceeds the optimum voltage recommended to charge the battery. The controller automatically regulates the voltage output to suit the particular battery size and type being charged.

Q: Will the solar mat overcharge my battery?

A: The controller (regulator) ensures that a steady charge is supplied and will not over charge the battery. The controller has up to five levels of charging and will automatically evaluate the battery's condition to establish whether to; Soft Charge, Bulk Charge, Absorption Charge, Equalization Charge (only for WET or Calcium batteries) or Float Charge.

Q: Why is it when it is a clear or slightly overcast day and the solar controller amperage output is a lot less than the rated specification?

A: The solar controller is smart enough to know what the battery actually needs in regard to amperage input. If the battery is almost fully discharged the solar controller will allow maximum amperage to flow through to the battery. If the battery is almost or fully charged the solar controller will automatically reduce the amperage input to the required level.

Amperage output from the solar controller is also affected by shade or intermittent cloud cover.

Q: How many Amps do I get out of my 120w Solar Mat and what can I run?

A: A 120W kit can supply between 5 and 6 Amps in optimal conditions on a sunny day or for most of the sunlight hours of the day. There are many variables, but let's assume that we can achieve 6 to 7 sunlight hours in a day, anymore sunlight hours would be considered a bonus.

Provided it is not too cloudy, the solar mat is moved every now and again to best track the sun's path and the solar mat is kept out of the shade, it is safe to assume that the solar mat can supply between 5 and 6 Amps per charging hour.

So, putting this into perspective, let's assume that the 120W solar mat is charging a 100Ah battery. You wish to run a 40L Fridge which draws on average 1.5A over a 24hr period, and 2 x LED camp lights which draw 1.0A each when running.

You want to have the fridge running (cycling) 24 hours a day, and the camp lights on for 3 hours each night.

Fridge: $1.5A \times 24h = 36Ah$

Lights: $1.0A \times 3h = 3Ah \times 2 \text{ lights} = 6Ah$

Total: 42Ah per day.

Your solar mat can supply:

$5.5A \times 6h = 33Ah$ each day.

Therefore the battery is being discharged by:

$42Ah - 33Ah = 9Ah$ each day.

Although you have a 100Ah battery, it is recommended when calculating run times is to allow yourself a buffer and calculate using only 50% of the battery specification. So, in this case using 50Ah you could run your fridge and lights for: $50Ah / 9Ah = 5.5$ days or just under a week without any other form of charge.

Q: How many Amps do I get out of my 200w Solar Mat and what can I run?

A: A 200W kit can supply between 11 and 12 Amps in optimal conditions on a sunny day or for most of the sunlight hours of the day. There are many variables, but let's assume that we can achieve 6 to 7 sunlight hours in a day, anymore sunlight hours would be considered a bonus.

Provided it is not too cloudy, the solar mat is moved every now and again to best track the sun's path and the solar mat is kept out of the shade, it is safe to assume that the solar mat can supply between 11 and 12 Amps per charging hour.

So, putting this into perspective, let's assume that the 200w solar mat is charging a 2 x 100Ah batteries.

You wish to run a 40L Fridge which draws on average 1.5A over a 24hr period, 2 x LED camp lights which draw 1.0A each when running and a 1000W inverter with a 600W load.

You want to have the fridge running (cycling) 24 hours a day, the camp lights on for 3 hours each night and the inverter under load for a total of 2 hours throughout the day

Fridge: $1.5A \times 24h = 36Ah$

Lights: $1.0A \times 3h = 3Ah \times 2 \text{ lights} = 6Ah$

Inverter: $60.0A \times 2h = 120Ah$

Total: 162Ah per day.

Your solar mat can supply:

$11.5A \times 6h = 69Ah$ each day.

Therefore the battery is being discharged by:

$162Ah - 69Ah = 93Ah$ each day.

Although you have a 2 x 100Ah batteries, 200Ah total, it is recommended when calculating run times is to allow yourself a buffer and calculate using only 50% of the battery specification. So, in this case using 100Ah you could run your fridge, lights and inverter for: $100Ah / 93Ah = 1.07$ days without any other form of charge.

Note: The above calculations are intended for reference & information only and are based on the cell "peak power" of the solar mat. It does not take into consideration any expected power losses due to the PWM controller, leads or atmospheric conditions.

Maintenance

Periodically, clean the panels with warm water and a soft sponge or cloth to remove any built up dust or foreign deposits. Keeping your solar mat clean will ensure optimum performance.

Troubleshooting

The Solar Mat and Controller are both sealed units and cannot be repaired. If a problem does occur, double checking all connections, including correct polarity of the DC battery clamps and or disconnect the DC battery clamps from the battery and wait 30 seconds (this will reset the controller). If after reconnecting the DC battery clamps and the problem persists, please contact Roman customer service (details are at the back of this booklet)

Technical Details - Controller

Charging	
Minimum battery start charging voltage	3VDC
Soft start charging voltage	3-10VDC +/-0.2
Soft start charging current (50% PWM duty)	Up to 7A
Bulk charge voltage	10-14VDC +/-0.2
Absorption charging voltage at 25 °C	
▪ GEL type battery	14.1VDC +/-0.2
▪ AGM type battery (default setting)	14.4VDC +/-0.2
▪ WET type battery	14.7VDC +/-0.2
▪ Calcium type battery	14.9VDC +/-0.2
▪ LTO Battery Type	14.0VDC +/-0.2
▪ LiFePO4 Battery Type	14.4VDC +/-0.2
Absorption transits to Equalizing or Float condition	
▪ Charging current drops to	0.5Amp +/-0.1
▪ Absorption charging timer timed out	4 Hours
Equalization charging active (Only for WET or Calcium battery)	
▪ Battery voltage discharged to less than	10VDC +/-0.2
▪ Automatic equalizing charging periodical	28 Days
▪ Equalization charging voltage at 25 °C	15.5VDC +/-0.2
▪ Equalization charging timer timed out	2 Hours
Float charging voltage at 25 °C	
▪ LTO and LiFePO4 Battery	13.4VDC +/-0.2
▪ GEL, AGM, WET, Calcium Battery	13.6VDC +/-0.2
Voltage control accuracy	+/- 1%
Battery temperature compensation coefficient	-24 mV/ °C
Temperature compensation range	-20 to +50 °C
Protection	
Against reverse polarity or short circuit at solar mat side	Yes
Against reverse polarity or short circuit at battery side	Yes
No reverse current from battery to solar mat at night	Yes
Over temperature protection during charging	65°C
Electrical Parts	
Input output connection	50A Anderson Style

Technical Details - Controller

Physical	
Controller material	Plastic, Standard ABS
Weatherproof design	Yes
Net weight (Including Wall Bracket)	Approx. 500g
Environmental	
Operating temperature	-25 to 50°C
Storage temperature	-40 to 85°C
Operating Humidity range	100% no condensation

Technical Details - Panels

	120W Solar Mat	160W Solar Mat	200W Solar Mat
Part No.:	PRI20023NC	PRI20056	PRI20034NC
Panels;			
Cell make	SunPower® Maxeon C60	SunPower® Maxeon C60	SunPower® Maxeon C60
Cell type	3.4W Monocrystalline silicone	3.4W Monocrystalline silicone	3.4W Monocrystalline silicone
Cell efficiency	22.5%	22.5%	22.5%
Cell qty & panel qty	36 cells & 6 x 20.4W panels	48 cells & 12 x 13.6W panels	60 cells & 10 x 20.4W panels
Maximum power (Pm):	122.4W	163.2W	204W
Current at max power (Imp):	6.19A	9.27A	12.37A
Voltage at max power (Vmp):	19.8V	17.6V	16.5V
Open circuit voltage (Voc):	22.7V	20.8V	19.5V
Short circuit current (Isc):	6.79A	10.2A	13.59A
Output connection:	50A Anderson style	50A Anderson style	50A Anderson style
Cell Encapsulation:	PET lamination	ETFE lamination	PET lamination
Bag material:	Polyester 900D	Polyester 900D	Polyester 900D
Folded dimension L x W x H:	30cm x 41cm x 9cm	31cm x 31cm x 6cm	30cm x 41cm x 12cm
Unfold dimension L x W:	173cm x 40cm	182cm x 61cm	153cm x 83cm
Controller;			
Micro control unit:	Pulse Width Modulation (PWM)	Pulse Width Modulation (PWM)	Pulse Width Modulation (PWM)
Rated solar panel amps:	15A	15A	15A
Digital readout:	LCD	LCD	LCD
Number of battery types that can be charged:	6	6	6
Input and Output connectors:	50A Anderson style	50A Anderson style	50A Anderson style
Dimension L x W x H (including wall bracket):	18.0cm x 7.7cm x 6.0cm	18cm x 7.7cm x 6cm	18cm x 7.7cm x 6cm
Weatherproof:	Yes	Yes	Yes
Net weight (total kit):	3.7KG – Including accessories	6.5KG – Including accessories	5.5KG – Including accessories

Customer Service

For more information call 1300 555 197
 Email: service@companionbrands.com.au

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