RING

Portable Power

POWERING

SmartChargePRO

SmartChargePro7
RSCPR7 - 12v, 7A

SmartChargePro10
RSCPR10 - 12v, 10A

SmartChargePro15
RSCPR15 - 12v, 15A

SmartChargePro25
RSCPR25 - 12v, 2 / 6 / 12 / 25A

SmartChargePro35
RSCPR35 - 12v, 2 / 8 / 16 / 35A

SmartChargePro50
RSCPR50 - 12v, 2 / 6 / 12 / 25 / 50A

SmartChargePro824
RSCPR824 - 24v, 2 / 4 / 6 / 8A

Instructions: Retain these instructions for future reference

12v　　**24v**

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Safety

RISK OF EXPLOSION – Only connect the battery leads when the mains supply is disconnected.

Explosive gasses may escape from the battery during the charging process. Prevent flames and sparks and provide adequate ventilation during charging

Indoor use only

Disconnect the supply before breaking or making the connection to the battery

Not suitable for use with non-rechargeable batteries

In addition to the battery types and capacity detailed in the specifications, the charger is suitable for the following only:

• Charging only a single battery at any one time

• Charging rechargeable lead acid (wet), Gel, AGM and calcium batteries with 6 cells

The Ring SmartChargePro automatically adjusts the charge rate applied as the battery charges. When the battery is fully charged the charging process stops. As the battery naturally discharges further charging is applied until the battery is again fully charged. This is an ongoing process to allow for safe battery charging for an indefinite period.

The supply lead cannot be replaced. If the cord is damaged the SmartChargePro should be replaced.

The SmartChargePro is not suitable for use by any person (including children) with reduced physical, sensory or medical capabilities or lack of experience or knowledge.
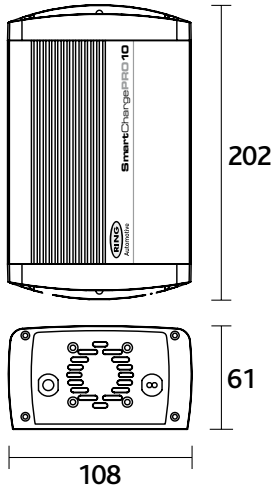
SmartChargePro 7,10 & 15

1. AC Power LED indicator

2. 'Charging' LED indicator

3. 'Fully charged' LED indicator

4. 'Select' switch – selects between:
Power Supply, Gel, AGM, lead acid (wet)
and calcium batteries

5. Power supply

6. 'Gel' battery setting

7. 'AGM' battery setting

8. Lead Acid 'Wet' battery selection

9. 'Calcium' battery setting

RSCPR7

182

61

108

RSCPR10

202

61

108

RSCPR15

222

61
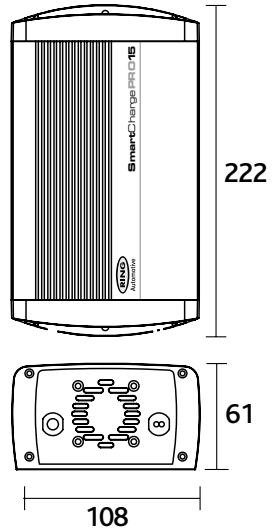
108
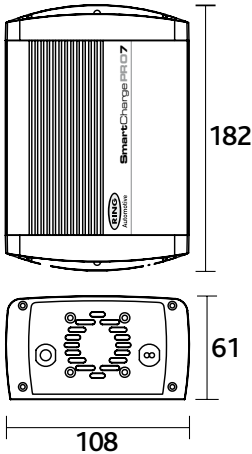
SmartChargePro 25, 35, 50 & 824

1. LCD display
2. Displays either watts or charging rate in amps
3. Charge rate select switch
4. Battery type selection switch
5. Manual recondition function
6. AC Power LED indicator
7. 'Bulk charge' stage LED indicator
8. 'Absorption' stage LED indicator
9. 'Fully Charged' LED indicator
10. ON/OFF switch
11. Protective rubber end caps

RSCPR25
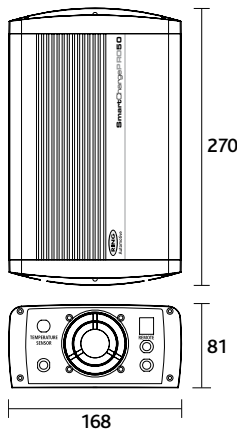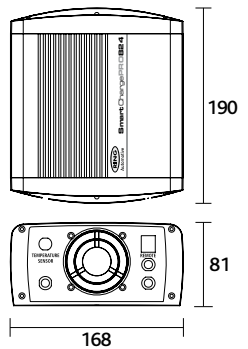
210

81

168

RSCPR35

250

81

168

RSCPR50

270

81

168

RSCPR824

190

81

168
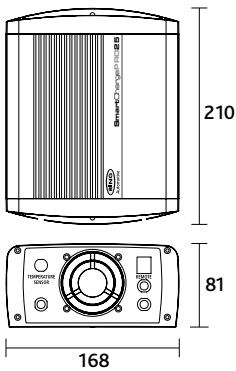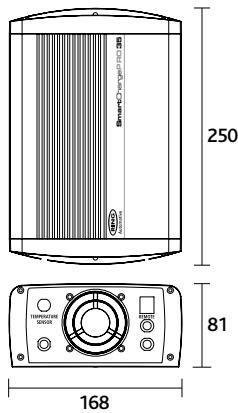
Battery charging – Connection

Charging a battery within a vehicle

1. Ensure the AC power lead is disconnected from the AC mains supply before commencing

2. Charging a negatively grounded (earth) battery
Connect the red (+) battery clip to the red (+) post on the battery

3. Connect the black (-) battery clip to the vehicle chassis, away from the battery and fuel line. As designated in vehicle handbook

Charging a battery removed from a vehicle

1. Ensure the AC power lead is disconnected from the AC mains supply before commencing

2. Connect the red (+) battery clip to the red (+) post on the battery

3. Connect the black (-) battery clip to the black (-) post on the battery

> **Polarity protection**
> If the battery leads are connected the wrong way around the following will display:
> RSCPR7, RSCPR10 and RSCPR15 – 'Power' LED flashes
> RSCPR25, RSCPR35, RSCPR50 and RSCPR824 – 'ERR' will display on LCD display and an audible alarm will sound

Battery charging – Operation

1. Ensure the SmartChargePro is connected safely and correctly to the battery

2. Connect the SmartChargePro AC power lead to the AC power supply

- RSCPR7, RSCPR10 and RSCPR15 the AC power LED indicator lights up

- RSCPR25, RSCPR35, RSCPR50 and RSCPR824 – turn on 'ON/OFF' switch the AC power LED lights up.

3. When charging is complete the 'Fully Charged' LED lights up

4. The SmartChargePro can be left safely connected to a battery for an indefinite period

5. To disconnect remove the AC plug from the AC supply.

- RSCPR25, RSCPR35, RSCPR50 and RSCPR824 – Turn off 'ON/OFF switch

Following this remove the red (+) clip from the battery followed by the black (-) clip.

6. Store the SmartChargePro in a safe dry place

Charging Stages
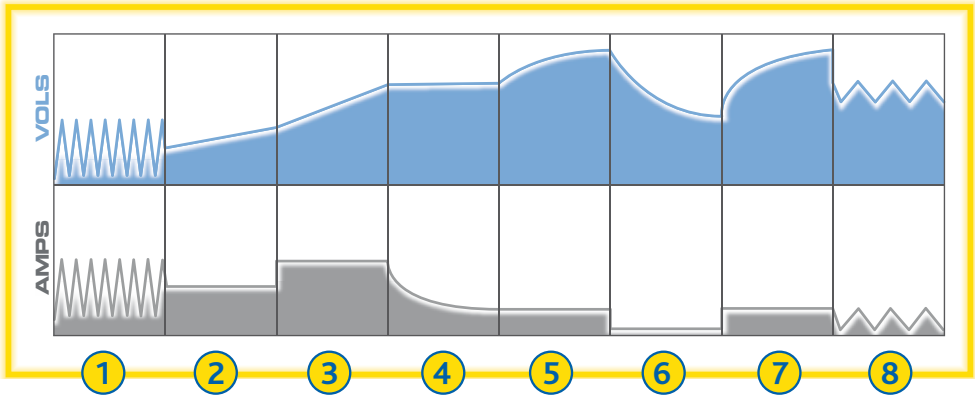
The Ring Automotive SmartChargepro range are all Multi-Stage battery chargers.

1. Desulphation – The automatic desulphation stage pulse charges the battery to breakdown the build up of lead sulphate crystals. These crystals can occur when a battery has been discharged or left unused for a period of time.

2. Soft start – A slow steady build up of the charging process that limits the charging current applied until the battery voltage is above 12v

3. Bulk charge – The main part of the charging process where 80% of the required charge is applied

4. Absorption – Charged up to full capacity with a steady decline in charging current to allow the battery to absorb more power

5. Equalisation – Additional stage for calcium batteries, removes acid stratification

6. Battery test – The SmartCharge conducts an automatic discharge test. If further charging is required the battery recondition function is automatically selected. If fully charged the battery goes into the float stage

7. Recondition – An additional automatic charging stage to recover deeply discharged batteries.

8. Float – The float stage maintains the battery at 100% charge without overcharging or damaging the battery, allowing the charger to be left connected to the battery for an indefinite period. Ideal for batteries used only intermittently, such as seasonally used batteries including motorcycles, caravans, boats and classic cars

Charge Rates

To select the desired charge rates (RSCPR25, RSCPR35, RSCPR50, RSCPR824) press the 'Charge Rate' select button until the desired charge rate is displayed. The SmartChargePro retains the last setting used when first connected

The table below shows the charge rates available and the advised minimum and maximum battery size:

Part Number	Voltage	Charge Rates	Maximum Recommended Battery
RSCPR7	12v	7A	50-140Ah
RSCPR10	12v	10A	70-200Ah
RSCPR15	12v	15A	85-300Ah
RSCPR25	12v	2, 6, 12, 25A	14-500Ah
RSCPR35	12v	2, 8, 16, 35A	14-700Ah
RSCPR50	12v	2, 6, 12, 25, 50A	14-1000Ah
RSCPR824	24v	2, 4, 6, 8A	14-160Ah

The charge rate should be set should be based on battery size (AH) – see table below

Charge Rate	Battery Size (AH)	CCA
2amp	14-40	80-240
4amp	30-80	180-480
6amp	40-120	240-720
7amp	50-140	300-800
8amp	60-160	360-1000
10amp	70-200	450-1000
12amp	80-240	480-1440
15amp	85-300	465-2000
16amp	110-320	660-1900
25amp	170-500	1000-3000
35amp	240-700	1440-4200
50amp	350-1000	2100-6000

RSCPR25, RSCPR35, RSCPR50 and RSCPR824

1. Press the Charge Rate select switch – the LCD screen will flash the previous setting

2. Press the Charge Rate select switch repeatedly until the required charge rate is set

LCD Display (RSCPR25, RSCPR35, RSCPR50 and RSCPR824)

The LCD display on the SmartChargePro can display the following information:

• Battery voltage (V)

• Charging current applied (A)

• Battery type: Gel, AGM, Wet (lead acid) and Calcium.

• Battery charging / Charged icon

• Recondition / equalisation modes

• Power supply mode (battery support unit)

• 'Err' – Short circuit or reverse polarity (reverse connection of clips)

Battery Fault codes

• 'F01' – Bulk charging has timed out. Charging stopped after 22 hours

• The charger has entered recondition mode 3 times and has timed out
  Battery cannot be charged

LED Indicators (RSCPR7, RSCPR10 and RSCPR15)

	Desulphation	Soft Start	Bulk	Absorption / Equalisation	Analyse	Recondition	Float
Power (Red LED)							
Charging (Blue LED)	(Fast Flash)	(Slow Flash)	(Solid)	(Solid)		(Slow Flash)	
Full (Green LED)				(Slow Flash)	(Slow Flash)	(Slow Flash)	(Solid)

CHARGING LED: Blue LED illuminates and flashes during charging process
FULLY CHARGED LED: Green LED illuminates solid when fully charged

LED Indicators (RSCPR25, RSCPR35, RSCPR50 and RSCPR824)

	Desulphation	Soft Start	Bulk	Absorption / Equalisation	Analyse	Recondition	Float
Bulk Charge (Blue LED)	(Fast Flash)	(Slow Flash)	(Solid)			(Slow Flash)	
Absorption (Blue LED)				(Solid)	(Slow Flash)	(Slow Flash)	
Full Charged (Green LED)							(Solid)
Power (Red LED)	**Solid:** Power On **Flashing:** 'Err' or 'F01' fault codes						

Battery Chemistry Selection

The multi chemistry function allows you to set the optimum charging profile to suit each batteries chemistry type: Gel, AGM, Lead Acid (WET) and calcium. This ensures correct and thorough charging and maximises battery performance and battery life

Gel
Designed for Gel batteries and applies a maximum charge of 14.1v (RSCPR824: 28.2v)

AGM
Designed for AGM batteries and applies a maximum charge of 14.4v (RSCPR824: 28.8v)

Lead Acid (Wet)
Bulk and absorption 14.7v (RSCPR824: 29.4v), recondition up to 16v (RSCPR824: 32v)

Calcium
Bulk and absorption 14.7v (RSCPR824: 29.4v), Equalisation and Recondition up to 16v (RSCPR824: 32v)

Set battery chemistry type (RSCPR7, RSCPR10 & RSCPR15)

1. With the SmartChargePro connected to the AC mains supply press the 'Select' button, all LED's will light up, wait for the LED's to turn off

2. Press the 'Mode' button repeatedly until the correct battery type is selected

Set battery chemistry type (RSCPR25, RSCPR35, RSCPR50 & RSCPR824)

1. With the SmartChargePro connected to the AC mains supply and 'ON/OFF' switch ON press the 'Battery type selection switch' (the LCD display will flash the present setting)

2. Press the 'Battery type selection switch' repeatedly until the correct battery type is selected (Previous setting will display if nothing selected)

Manual Reconditioning (RSCPR25, RSCPR35, RSCPR50 and RSCPR824)

Reconditioning can restore a battery from a deeply discharged state by equalising the battery cells to improve battery performance allowing the battery to operate at full capacity. It is advised that periodically a manual Recondition charge should be carried out to optimise a batteries health and performance.

It is advised that for batteries where the electrolyte level needs checking and maintaining the manual reconditioning process takes place with the battery removed from the vehicle.

Press the Manual Recondition button. The SmartChargePro will remain in this mode for 4 hours. During Reconditioning the LCD will display rapid horizontal lines. On completion of the Recondition stage the charger will then start a normal charging cycle.

Temperature Compensation (RSCP25, RSCP35, RSCP50 and RSCP824)

Allows the monitoring of the battery's temperature for safe battery charging. The temperature sensor monitors the battery temperature and adjusts the SmartChargePro's output to prevent over heating.

Insert the temperature sensor into the plug at the rear of the charger. Install the ring terminal on the temperature sensor onto the negative battery post.

Cable length: 1.8m

WARNING: Ensure the cable is secured away from moving parts

Power Supply (Battery support unit)

This sets the SmartChargePro in power supply mode giving a constant of voltage of 13.8v (RSCPR824: 27.6v). Ideal for maintaining a constant battery voltage level when appliances or vehicle diagnostic equipment are connected and drawing battery power.

RSCPR7, RSCPR10 and RSCPR15 – operates with without the battery in vehicle

RSCPR25, RSCPR35, RSCPR50 and RSCPR824 – Requires a battery in vehicle

Remote Control (Sold separately – Part Number: RSCPRC)

Suitable for RSCPR25, RSCPR35, RSCPR50 and RSCPR824

Controls and monitor the SmartChargePro's performance and operation from the remote control. Ideal if your battery is in a permanent or not easy to access location.

1. Bi-colour LED indicator

2. Displays battery voltage (volts) or charging rates (amps)

3. Charge rate select switch

4. Remote control mounting bracket

5. Battery type selection switch

6. LCD display screen

7. Manual Recondition function

The remote control includes a bi-colour LED indicator that illuminates in different ways to indicate different stages of charging:

Status	Bi-colour LED indicator display
Charging	Green (Flashing)
Fully charged	Green (solid)
Power supply mode	Green (solid)
Reverse polarity	Red (Flashing)
Bulk charging has timed out (22 hours)	Red (solid)

To install the remote control Insert the data plug into the data socket on the rear face of the SmartChargePro.

The removable mounting bracket can be fixed to a surface to create a mounting station for the remote control.

Cable length: 2.9m

Mounting Instructions

The end plates of the charger include a 3.5mm mounting hole to allow for permanent fixing.

Positioning: The SmartChargePro must be placed in a dry, well ventilated area. Ensure there is at least 10cm clearance from the end plates to allow adequate ventilation for the cooling fan. Do not cover the charger and keep clean and free of dust.

3.5mm mounting hole

For permanent connection it is advised to connect to the battery terminals with a ring terminal connection. Ensure all sensor wires that run parallel to both positive and negative cables are also connected. Include an in-line fuse on the red (+) cable between the battery and SmartChargePro, ratings below:

Part Number	Fuse
RSCPR7	15amp
RSCPR10	20amp
RSCPR15	30amp
RSCPR25	30amp
RSCPR35	50amp
RSCPR50	100amp
RSCPR824	12amp

Frequently asked questions

How do I know if the battery is charged?

The SmartChargePro's FULLY CHARGED LED will illuminate. If using the optional remote control the bi-colour LED will illuminate green (solid).

The battery does not appear to be charging?

- 'Charging' LED does not light up (RSCPR7, RSCPR15 and RSCPR25)

- 'LCD display displays 0.0v (RSCPR25, RSCPR35, RSCPR50 and RSCPR824)

The battery voltage is less than 2.5v. To increase the battery voltage to over 2.5v connect a set of booster cables between the battery and a donor battery, this will allow the voltage to increase to above 2.5v. When the battery voltage is above 2.5v reconnect the SmartChargePro

Can I use the charger as a power supply or a battery support unit?

By selecting the Power Supply mode you are able to use the charger as a power supply to run an appliance or battery support unit to maintain battery power.

RSCPR7, RSCPR10 and RSCPR15 – works with without the battery in vehicle

RSCPR25, RSCPR35, RSCPR50 and RSCPR824 – Requires a battery in vehicle

What happens if I have an appliance connected to the battery while charging?

Powering an appliance while charging will impact on the SmartChargePro's ability to accurately measure the charge being applied. For optimum charging it is recommended to charge the battery without an appliance connected. Power Supply mode is recommended when an appliance is connected and drawing power

Why does Calcium mode take so long?

The calcium charging mode includes an additional charging stage, EQUALISATION. This consists of a constant current being applied to the battery until 16v (for 12v batteries) or 32v (for 24v batteries) is reached. This rejuvenates the battery cells and can take up to 12 hours.

Why do I need a special calcium mode?

Due to the different chemistry required to make a calcium battery a different charging algorithm is required. Calcium batteries are also affected when deeply discharged or heavily used.
They need to be recharged by a calcium charger to fully recharge the battery and to maximise the batteries life and performance.

Specifications

	RSCPR7	RSCPR10	RSCPR15	RSCPR25	RSCPR35	RSCPR50	RSCPR824
Input	230VAC, 50Hz	230VAC, 50Hz	230VAC, 50Hz	230VAC, 50Hz	230VAC, 50Hz	230VAC, 50Hz	230VAC, 50Hz
Input Power	216w	288w	408w	792w	1080w	1488w	480w
Output Voltage	12v	12v	12v	12v	12v	12v	24v
Charge Rates	7A	10A	15A	2/6/12/25A	2/8/16/35A	2/6/12/25/50A	2/4/6/8A
Minimum Start Voltage	2.5v	2.5v	2.5v	2.5v	2.5v	2.5v	4.5v
Types of battery	Lead acid (wet), Gel, AGM & Calcium	Lead acid (wet), Gel, AGM & Calcium	Lead acid (wet), Gel, AGM & Calcium	Lead acid (wet), Gel, AGM & Calcium	Lead acid (wet), Gel, AGM & Calcium	Lead acid (wet), Gel, AGM & Calcium	Lead acid (wet), Gel, AGM & Calcium
Battery Capacity	50-140Ah	70-200Ah	85-300Ah	14-500Ah	14-700Ah	14-1000Ah	14-160Ah
Dimensions	182L x 108B x 61H	202L x 108B x 61H	252L x 108B x 61H	248L x 176B x 86H	328L x 176B x 86H	328L x 176B x 86H	248L x 176B x 86H
Weight	0.97	1.15	1.5	2.5	3.56	3.56	2.32

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Cat ref No: L384