



# SmartCharge<sup>+</sup>

## Maintenance 12v SmartCharge+

RSC500 / RESC500

0.8A

## Maintenance 6v / 12v SmartCharge+

RSC501 / RESC501

0.8A

## SmartCharge+4

RSC504 / RESC504

2/4A

## SmartCharge+8

RSC508 / RESC508

2/4/6/8A

## SmartCharge+12

RSC512 / RESC512

2/4/8/12A

## SmartCharge+16

RSC516 / RESC516

2/4/8/16A

## Instructions

Retain these instructions for future reference



[www.ringautomotive.co.uk](http://www.ringautomotive.co.uk)

Ensure area is well ventilated



<b>F</b> 11 - 20	<b>E</b> 41 - 50	<b>DK</b> 71 - 80	<b>PL</b> 101 - 110
<b>D</b> 21 - 30	<b>I</b> 51 - 60	<b>NO</b> 81 - 90	<b>P</b> 111 - 120
<b>NL</b> 31 - 40	<b>S</b> 61 - 70	<b>FI</b> 91 - 100	

## Safety

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

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

Indoor use only (except Maintenance SmartChargers and SmartCharge4)

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, Gel, AGM or calcium batteries with 6 cells

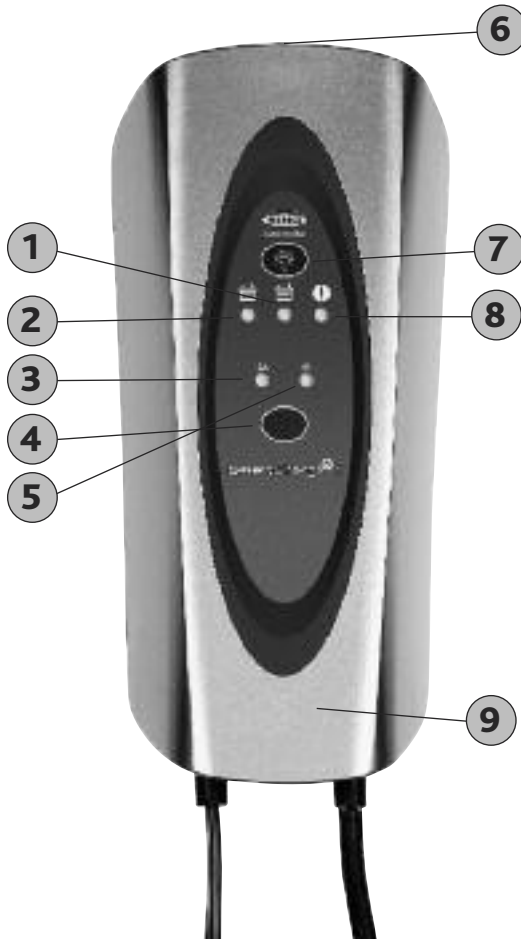
The Ring SmartCharger automatically adjusts the charge rate applied as the battery charges. With the battery fully charged the charging process stops, as the battery naturally discharges further charge is applied until the battery is again fully charged. This is an ongoing process to ensure a safe connection for an indefinite period.

The supply cord cannot be replaced. If the cord is damaged the Smart charger should be scrapped.

The Smart charger is not for use by any person (including children) with reduced physical, sensory or medical capabilities or lack of experience or knowledge.

## Features - Maintenance SmartChargers and SmartCharge<sup>+</sup>4

1. 'Charging' indicator
  2. 'Fully Charged' LED indicator
  3. 2A charge / 6v battery voltage setting \*
  4. Charge voltage / charge rate switch \*\*
  5. 4A charge / 12v battery voltage setting \*\*\*
  6. LED Light
  7. LED Light switch
  8. Polarity 'Check'
  9. IP65 Weatherproof casing
- \* RSC501/RESC501 – 6v voltage setting  
RSC504/RESC504 – 2A charge rate setting
- \*\* RSC501/RESC501 – voltage setting switch  
RSC504/RESC504 – Charge rate setting switch
- \*\*\* RSC501/RESC501 – 12v voltage setting  
RSC504/RESC504 – 4A charge rate setting
- RSC500/RESC500 does not include items 3, 4 and 8



## Features - SmartCharge+8 and SmartCharge+12

1. LED Light switch
2. 'Charging' LED indicator
3. Charge rate display select
4. Voltage display select
5. Charge rate select switch
6. LED light
7. Recondition LED indicator
8. Polarity 'Check' indicator
9. LED display
10. Remote Battery status
11. LED display switch
12. Charge rate options
13. USB charging socket \*

\* RSC512/RESC512 only



## Features - SmartCharge<sup>+</sup>16

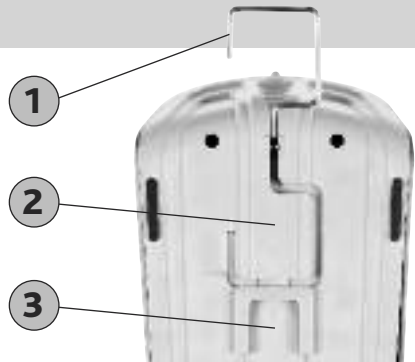
1. LED Light
2. LED light switch/manual desulphation switch
3. 'Charging' LED indicator
4. LED display
5. Charge stage indicator
6. Voltage display select
7. LED display switch
8. Charge rate select switch
9. USB charging socket
10. Recondition LED indicator
11. Polarity 'Check' indicator
12. Charge rate display select
13. Remote Battery status
14. Charge rate options



## Features - SmartCharge<sup>+</sup> - Rear View

1. Hook
2. Battery compartment (LED light)
3. Charge station hanging bracket (Charge station part number RSCS500\*)

\* Sold separately



## Battery Charging - Connection

### Charging a battery within the vehicle

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

### Charging a negatively grounded battery

2. 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

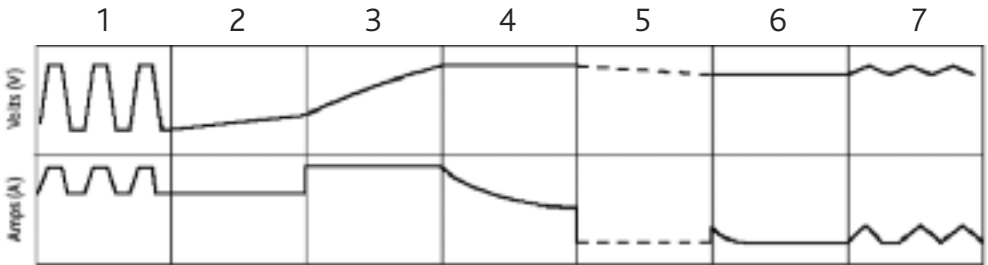
### Charging the battery removed from the vehicle

1. Ensure the AC power lead is disconnected from the AC mains supply
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
4. If the red polarity check indicator lights up check the cables are connected correctly

## Battery Charging - Operation

1. Ensure the SmartCharge is connected safely and correctly to the battery
2. Connect the SmartCharge AC power lead to the AC power supply
3. RSC501/ RESC501 – ensure the correct charging voltage is set. To select the correct voltage press the voltage setting switch, 6v or 12v setting available
4. Normal charging will be shown by the green 'Charging' LED indicator being lit
5. When charging is completed the amber 'Charged' LED illuminates
6. The SmartCharge can be left safely connected to the battery for an indefinite period.
7. To disconnect remove the AC plug from the AC supply. Following this, remove red (+) clip from battery followed by the black (-) clip

## Charging Stages



The Ring Automotive SmartCharger range are all Multi-Stage battery chargers:

Maintenance SmartCharge and SmartCharge4 models are 3 stage chargers: Stages 3, 4 and 7

SmartCharge8/12/16 are full 7 stage chargers

1. **Desulphation** – The automatic desulphation stage pulse charges the battery to breakdown the build up of lead sulphate crystals. These crystals 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. **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
6. **Recondition** – An additional automatic charging stage to recover deeply discharged batteries.
7. **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 rate press the 'charge rate select switch'. The charge rate selected is then displayed on the LED display (SmartCharge 8/12/16 only). The SmartCharge4 charge rate selected is displayed by the charge rate LED illuminating. If not pressed the default charge applies.

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

Part Number	Voltage	Default Charge Rate	Available Charge Rates	Maximum Recommended Battery
RSC500 / RESC500	12v	0.8A	-	1 – 35Ah
RSC501 / RESC501	6v / 12v	0.8A	-	1 – 35Ah
RSC504 / RESC504	12v	2A	2/4A	1 – 130Ah
RSC508 / RESC508	12v	2A	2/4/6/8A	12 – 220Ah
RSC512 / RESC512	12v	2A	2/4/8/12A	25 – 300Ah
RSC516 / RESC516	12v	2A	2/4/8/16A	25 – 380Ah

## LED Digital Display (RSC8, RESC8, RSC12, RESC12, RSC16 and RESC16 only)

The LED display on the SmartCharge can display the following information:

- Battery voltage
- Charge rate applied
- Remote Battery Status (for further details see below – Remote Battery Status)

1. Press the 'LED display switch' to toggle between 3 options available
2. The LED indicator's above the 'LED Display Switch' illuminate to indicate which of the 3 options has been selected.

## Remote Battery Status (RSC8, RESC8, RSC12, RESC12, RSC16 and RESC16 only)

The remote battery status function displays the battery charge status as a % of its capacity without the need for mains power.

1. No AC power required
2. Connect the red (+) battery clip to the red (+) battery terminal
3. Connect the black (-) battery clip to the black (-) battery terminal
4. Press the 'LED display switch' on the front face of the charger until the 'Remote battery status' LED illuminates

5. The LED display then shows the battery status
  - 0%: <12.2v
  - 20%: >=12.2v
  - 60%: >=12.4v
  - 100%: >12.6v

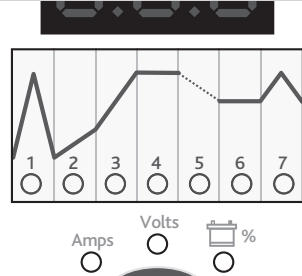
The remote battery status also functions when connected to the AC supply to show the user the charge status during the charging process:

- LO: <13.5v
- 60%: >13.5v
- 70%: >13.8v
- 80%: >14.0v
- 90%: >=14.2V
- FULL: Float stage



## Charge Stage Indicator (RSC516 / RESC516 Only)

The 'Charge stage indicator' displays the status of the charging process by indicating the specific stage of the charge cycle – An LED illuminates at the relevant charge stage.



## LED Light

All the SmartCharge range include an LED light. The light is activated by pressing the LED light switch.

No mains power is required to operate the LED light

### LED Battery replacement

The battery compartment is on the rear face of the charger above the Charge station bracket – see Rear view feature on page 5.

### LED Battery specification

3.6v/200mAh Nickel-hydrogen non-rechargeable button battery.

## USB Charging Socket (RSC12, RESC12, RSC16 and RESC16 only)

The USB charging socket located on the front face of the SmartCharge allows the recharging of small electronic appliances including MP3 players and mobile phones.

1. Connect the SmartCharge AC mains power lead to the AC mains power supply
2. Connect the USB charging lead of the electronic appliance requiring charging to the USB charging socket on the SmartCharge
3. When the appliance is fully charged disconnect the USB charging lead from the USB charging socket

The USB charging socket can also be operated when the SmartCharge is charging a vehicle battery.

## Specifications

	RSC500/ RESC500	RSC501/ RESC501	RSC504/ RESC504	RSC508/ RESC508	RSC512/ RESC512	RSC516/ RESC516
Input Voltage	220-230VAC	220-230VAC	220-230VAC	220-230VAC	220-230VAC	220-230VAC
Nominal Voltage	12v	6v / 12v	12v	12v	12v	12v
Charging Voltage	14.4v	7.2v / 14.4v	14.4v	14.4v	14.4v	14.4v
Charging Current	0.8A	0.8A	2/4A	2/4/6/8A	2/4/8/12A	2/4/8/16A
Types of Battery	Lead acid, Gel, AGM & Calcium	Lead acid, Gel, AGM & Calcium	Lead acid, Gel, AGM & Calcium	Lead acid, Gel, AGM & Calcium	Lead acid, Gel, AGM & Calcium	Lead acid, Gel, AGM & Calcium
Battery Capacity	1-35Ah	1-35Ah	1-130Ah	12-220Ah	25-300Ah	25-380Ah
Dimensions	202 x 95 x 48	202 x 95 x 48	202 x 95 x 48	260 x 135 x 73	260 x 135 x 73	336 x 164 x 92
Weight	0.89Kg	0.89Kg	0.89Kg	1.18Kg	1.18Kg	2.17Kg
Protection	IP65	IP65	IP65			

No serviceable parts. Do not use if leads are damaged, danger of shock.



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