



Vehicle Conversion Catalogue



**ON
BOARD
WITH
YOU**

ringautomotive.com

Vehicle Conversion

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About Ring

Through our knowledge of vehicle electronics and lighting Ring has developed a diverse product portfolio to transform vehicles into mobile work centres. Ring is the leading European brand in vehicle lighting, auto electrics and car accessory products exporting to over 70 countries worldwide. For 40 years Ring has been developing and pushing the boundaries of vehicle lighting.

Our range of 24V products for commercial vehicles includes the leading OE quality TruckMaster bulbs accompanied by an extensive range of LED work, warning and upgrade lighting.

Today Ring continues to invest in LED technology to provide the next generation of lighting products for automotive applications.

Ring though is more than just vehicle lighting. Through our knowledge of vehicle electronics Ring has developed a range of products that utilise and enhance a vehicle's power. In October 2016 Ring acquired Carnation Designs, the market leading supplier of power management and equipment control systems for the special purpose vehicle market to further cement our commitment to providing a complete product and service package to the vehicle conversion market.

Whether it be maintenance vans, emergency vehicles or industrial vehicles Ring has products that make mobile work possible and safe.

Ring supplies a range of products to provide solutions to three main areas for vehicle conversion.

Powering and Charging

When working remotely having a source of mains power is vital to ensure tools and other equipment on the vehicle can be operated.

Carnation Designs' genisys™ system manages the numerous applications in the vehicle to ensure power is maintained evenly and used appropriately around the vehicle.

Rear Working Area

The essence of converting a vehicle is to make it suitable as a mobile work station. It is often the rear of the vehicle that is converted to make the mobile operating platform possible. While racking and storage is important Ring have a range of lighting to make working off-site easier.

Safe Working

When the office is your vehicle, safety is paramount. Being visible at all times day and night requires the vehicle's existing lighting to be adapted and enhanced. Good scene lighting is important for illuminating the area of work, but warning lights are as important so other road users can see you more clearly while working.



After Sales Support

Ring understand that vehicle converters can work on a wide range of different conversion projects, each with their own specific requirements. As well as top quality product we offer after sales support and knowledge. Once products have been selected, our specialist engineers can work with fleet managers to ensure all products are installed correctly and that there is after sales support. Ring offers three levels of technical support. The first stage is to produce bespoke fitting and installation guides. This is complete with wiring guides and CAD drawing that customers can save and file.

Once the drawings have been agreed, our engineers will provide training and complete a fitting check sign off with the installers. Once the vehicles are on the road, coverage is maintained with a nationwide post product installation program. If any of our products in customer vehicles, require servicing or repairing, our network of engineers will be dispatched. Getting the vehicle back on the road into service will always be our priority.

Commitment to Quality

With over 40 years experience in the manufacture and distribution of automotive products, Ring's commitment to quality is second to none. Through major investments in test equipment and fully qualified engineers, Ring has created a Quality Assurance Department that is at the forefront of automotive lighting and power technology. Ring recognises quality is of the utmost importance in helping to ensure customer satisfaction and with this in mind Ring's Quality Assurance Department carries out stringent quality control procedures on a continuous basis.

Load Testing

Power products undergo a series of electrical soak tests using programmable AC and DC loads and equipment, such as inverters, are subjected to appliance testing, ensuring compatibility in the end application.

Data Logging

To validate performance of multi-stage chargers, data loggers allow charging curves to be analysed and checked against the requirements of different automotive battery types.

Output waveforms from inverters are measured and approved using oscilloscopes or spectrum analysers to ensure they conform to the required standard.

Environmental Testing

To ensure products perform in all relevant environments, temperature testing is carried out in both hot and cold thermal chambers. Products are subject to impact, vibration, chemical and water resistance tests to ensure of performance in a working environment.

Life Testing

Products are not only tested to conform to specification, but also to conform to appropriate standards of life time use.

Lighting Laboratory

Designed and developed by Ring, it's lighting laboratory is a unique installation that allows it to carry out product testing and performance verification beyond that laid down by international standards.

The state-of-the-art laboratory is equipped with the latest ProMetric CCD light imaging photometer. Not only does this equipment allow the overall measurement of light output but it also helps define true operating times of useable light levels for inspection lamps.

POWER AND POWER MANAGEMENT

Introduction to Power Inverters	5	DC-DC Smart Battery Charger	12
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Modified Sine Wave Inverters	10	genisys™ Compact	15

Converting the rear of a van or vehicle is all about utilising the space effectively and generating a safe working and storage environment for the operators and technicians.

For operators and technicians the rear of the vehicle is their workplace and so requires specialist products to make sure they can operate effectively. Ring has a wide range of work area products designed to support the operator or technician, so they can perform their work remotely and efficiently.

POWER INVERTERS

Mains power from your vehicle

When working remotely having a source of mains power is vital to ensure tools and equipment can be operated. It is imperative to select the correct power source to meet the needs of the work required. Section contains:

- Guide to selecting the correct inverter for your needs
- Step by step guide to best practice installations
- Comprehensive range of Pure and Modified sine wave inverters.



PowerSourcePro

Providing power from 1000 watt to 4000watts, the PowerSourcePro range of modified sine wave inverters is suitable for powering the majority of equipment such as mains power tools, microwaves, fridges and compressors.

They are well suited to more demanding applications and can provide power for up to 12 hours continuously. They are provided with heavy duty input cables and clamps for direct connection to batteries and feature rugged extruded casings.



PowerSourcePure

The PowerSourcePure inverters provide an extremely pure sine wave output which replicates the normal domestic mains supply, as such they are ideal for powering more sensitive electronic equipment. Harmonic Frequency distortion is 4-5%.

They are particularly suitable for powering products not compatible with modified sine wave inverters, such as certain power tool rechargers, coffee machines, laser printers and sensitive audio/video equipment.

Some models offer integral earth leakage protection to simplify installations and provide additional safety. The hard wired outputs on these models also allow a more integrated solution for service vehicle and similar installations. If you need to power a wide variety of mains appliances in remote locations then a pure sine wave inverter is the most suitable choice.

Special Features

Earth Leakage Protection

The integral RCD option (Residual Current Device) can replace the need for an external RCD and will switch off the inverter in the event a fault is detected between live and earth. This will protect the user against electric shock from faulty appliances or from touching live parts.



Hard Wired Mains Outputs

Some models of inverter can be provided with hard wired outputs in place of the 13A sockets. This allows mains outlets to be wired directly to the inverter via glands providing a more integrated solution.



Remote Control Panel

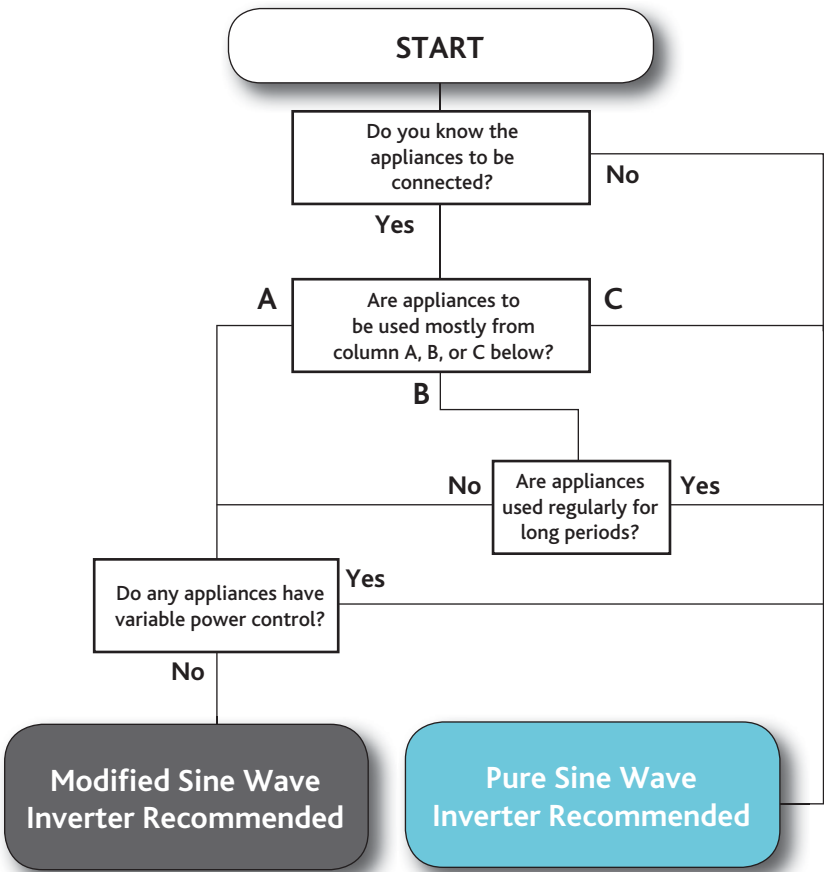
An optional control panel provides more convenient control and display of the inverter status for permanent installations.



CE Approved All Ring Professional Inverters are tested and certified to the relevant EMC & LVD Directives.

Selecting the Right Inverter

Selecting Inverter Type



Selecting Inverter Size

Rated Power
Find the power rating for all appliances that could be used at the same time. If only the operating current is shown then use the following formula to calculate the power: Power (Watts) = Current x 240

Examples

Laptop	150 Watts
Angle grinder	500 Watts
Work light	300 Watts
TOTAL	950 Watts

In this instance a Ring inverter with at least 1000 Watts output would be recommended.

Surge Power
Check the inverter can handle the startup or surge power required by the equipment. For example a microwave with a cooking power of 800 Watts can require up to 2400 Watts surge power during startup, therefore an inverter with this surge capability will be needed.



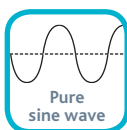
Compatibility Chart

The following chart shows which appliances are recommended for each type of inverter, including those which are only suitable for pure sine wave inverters.

	A	B	C
Continuous Rating	Products which are generally compatible with all inverter types	Products which may be incompatible or not run effectively with modified sine (MSW) inverters	Products which may cause damage to modified sine (MSW) inverters
10W - 50W	Phone charger / Desk fan	Digital clock / Rechargeable shaver(C)	HID worklights(C) / Night lights(C)
50W - 100W	Portable stereo / DVD player	Fluorescent lamps(C)	Transformerless power tool chargers (C)
100W - 150W	Small LCD TV	Laptop computer	Instant start fluorescent lights
150W - 200W	Inkjet printer		
200W - 300W	Desktop PC	Large Stereo	
300W - 500W	Small electric drill(I) / Small fridge	Variable speed drill(I) / Oxygen concentrator	Laser printers
500W - 750W	Small angle grinder(I)	Microwave oven(I) / Bread maker	
750W - 1000W	Industrial water pump(I)	Coffee machine	
1000W - 1500W	Large angle grinder(I)		
1500W - 2000W	Circular saw(I) / Hot air gun / Vacuum cleaner(I)		
2000W +	Electric chainsaw(I) / Fan heater		

(I) - Inductive loads which may require startup power 2-5 times the continuous power (C) - Capacitive loads which may create high current spikes on MSW inverters

Pure Sine Wave Inverters



RINVP3000



RINVP2000

- Power outputs from 600 watts to 3000 watts
- Pure sine wave output ensures best possible appliance compatibility
- Provides power for up to 12 hours of continuous use
- LED display showing operating mode & fault conditions



Continuous Power



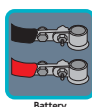
Peak Power



AC output



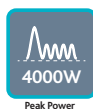
Pure sine wave output



Battery connectors



Continuous Power



Peak Power



AC output



Pure sine wave output



Battery connectors



- Fully protected against overload, over temperature & low/high voltages
- Heavy duty extruded casing suitable for professional use
- Optional wired remote control (RINVWRC)

Specifications

Part number	RINVP3000	RINVP2000
Voltage	12V	12V*
Continuous power rating (up to 12hrs)	3000 watts	2000 watts
Surge power rating (up to 1sec)	6000 watts	4000 watts
Output Voltage	230V AC±10%	230V AC±10%
Output Frequency	50Hz	50Hz
Output Waveform	Pure Sine Wave	Pure Sine Wave
Input Voltage Range	10V - 16V	10V - 16V
Efficiency	> 85%	> 85%
No Load Current Draw	< 1.5amp	< 1.5amp
Low Battery Alarm	10.5 ± 1 volt	10.5 ± 1 volt
Low Battery Shutdown	10.0 ± 1 volt	10.0 ± 1 volt
Thermal protection	60± 10°C	60± 10°C
USB Port	No	No
Remote control port	Yes	Yes
Dimension (L x W x H)	520 x 286 x 96	385 x 290 x 96
Weight	10.8kg	7.7kg
Pack qty	2 x 1	2 x 1
Barcode	5055175234120	5055175234083

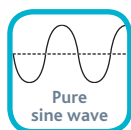
Accessories

RINVWRC Remote Control Panel

*24V Inverters available. Contact your Ring Sales Manager for further information.

Vehicle Conversion

Pure Sine Wave Inverters



RINVP1000



RINVP600

- Power outputs from 600 watts to 3000 watts
- Pure sine wave output ensures best possible appliance compatibility
- Provides power for up to 12 hours of continuous use
- LED display showing operating mode & fault conditions



Continuous Power



Peak Power



AC output



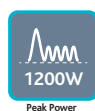
Pure sine wave output



Battery connectors



Continuous Power



Peak Power



AC output



Pure sine wave output



Battery connectors



- Fully protected against overload, over temperature & low/high voltages
- Heavy duty extruded casing suitable for professional use
- Optional wired remote control (RINVWRC)

Specifications

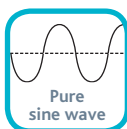
Part number	RINVP1000	RINVP600
Voltage	12V*	12V
Continuous power rating (up to 12hrs)	1000 watts	600 watts
Surge power rating (up to 1sec)	2000 watts	1200 watts
Output Voltage	230V AC $\pm$ 10%	230V AC $\pm$ 10%
Output Frequency	50Hz	50Hz
Output Waveform	Pure Sine Wave	Pure Sine Wave
Input Voltage Range	10V - 16V	10V - 16V
Efficiency	> 85%	> 85%
No Load Current Draw	< 1.3amp	< 0.6amp
Low Battery Alarm	10.5 $\pm$ 1 volt	10.5 $\pm$ 1 volt
Low Battery Shutdown	10.0 $\pm$ 1 volt	10.0 $\pm$ 1 volt
Thermal protection	60 $\pm$ 10°C	60 $\pm$ 10°C
USB Port	2amp (max)	2amp (max)
Remote control port	Yes	No
Dimension (L x W x H)	394 x 224 x 96	255 x 225 x 91
Weight	6.3kg	3.5kg
Pack qty	2 x 1	6 x 1
Barcode	5055175234045	5055175234038

Accessories

RINVWRC Remote Control Panel

*24V Inverters available. Contact your Ring Sales Manager for further information.

Pure Sine Wave Inverters with RCD



RINVPR2000

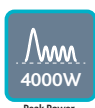


RINVPR1000

- Integrated Earth leakage protection (RCD)
- Direct wired ac outputs provides a more integrated solution
- Pure sine wave output ensures best possible appliance compatibility
- Provides power for up to 12 hours of continuous use
- LED display showing operating mode & fault conditions



Continuous Power



Peak Power



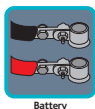
RCD Protected



Pure sine wave output



Direct wired AC outputs



Battery connectors

Direct wired AC outputs



Continuous Power



Peak Power



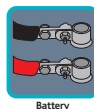
RCD Protected



Pure sine wave output



Direct wired AC outputs



Battery connectors



Direct wired AC outputs



Specifications

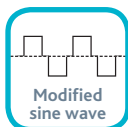
Part number	RINVPR2000	RINVPR1000
Voltage	12V*	12V*
Continuous power rating (up to 12hrs)	2000 watts	1000 watts
Surge power rating (up to 1sec)	4000 watts	2000 watts
Output Voltage	230V AC $\pm$ 10%	230V AC $\pm$ 10%
Output Frequency	50Hz	50Hz
Output Waveform	Pure Sine Wave	Pure Sine Wave
Input Voltage Range	10V - 16V	10V - 16V
Efficiency	> 85%	> 85%
No Load Current Draw	<1.5amp	<1.3amp
RCD trip current	30mA	30mA
Low Battery Alarm	10.5 $\pm$ 1 volt	10.5 $\pm$ 1 volt
Low Battery Shutdown	10.0 $\pm$ 1 volt	10.0 $\pm$ 1 volt
Thermal protection	60 $\pm$ 10°C	60 $\pm$ 10°C
USB Port	No	2amp (max)
Remote control port	Yes	Yes
Dimension (L x W x H)	385 x 290 x 96	394 x 224 x 96
Weight	7.7kg	6.3kg
Pack qty	2 x 1	2 x 1
Barcode	5055175234106	5055175234069

Accessories

RINVWRC Remote Control Panel

*24V Inverters available. Contact your Ring Sales Manager for further information.

Modified Sine Wave Inverters

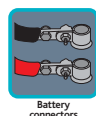
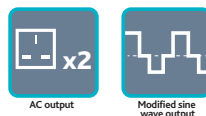
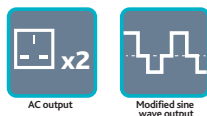


RINVM4000



RINVM3000

- Power outputs from 1000 watts to 4000 watts
- Provides power for up to 12 hours of continuous use
- LED display showing operating mode & fault conditions



- Fully protected against overload, over temperature & low/high voltages
- Heavy duty extruded casing suitable for professional use
- Optional wired remote control (RINVWRC)

Specifications

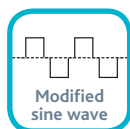
Part number	RINVM4000	RINVM3000
Voltage	12V*	12V*
Continuous power rating (up to 12hrs)	4000 watts	3000 watts
Surge power rating (up to 1sec)	8000 watts	6000 watts
Output Voltage	230V AC±10%	230V AC±10%
Output Frequency	50Hz	50Hz
Output Waveform	Modified Sine Wave	Modified Sine Wave
Input Voltage Range	10V - 16V	10V - 16V
Efficiency	> 85%	> 85%
No Load Current Draw	< 0.9amp	< 0.9amp
Low Battery Alarm	10.5 ± 1 volt	10.5 ± 1 volt
Low Battery Shutdown	10.0 ± 1 volt	10.0 ± 1 volt
Thermal protection	60± 10°C	60± 10°C
USB Port	No	No
Remote control port	Yes	Yes
Dimension (L x W x H)	543 x 178 x 154	404 x 135 x 153
Weight	12kg	6kg
Pack qty	2 x 1	2 x 1
Barcode	5055175233970	5055175233963

Accessories

RINVWRC Remote Control Panel

*24V Inverters available. Contact your Ring Sales Manager for further information.

Modified Sine Wave Inverters

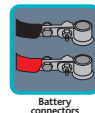
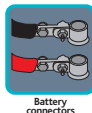
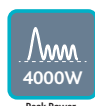


RINVM2000



RINVM1000

- Power outputs from 1000 watts to 4000 watts
- Provides power for up to 12 hours of continuous use
- LED display showing operating mode & fault conditions



- Fully protected against overload, over temperature & low/high voltages
- Heavy duty extruded casing suitable for professional use
- Optional wired remote control (RINVWRC)

Specifications

Part number	RINVM2000	RINVM1000
Voltage	12V*	12V*
Continuous power rating (up to 12hrs)	2000 watts	1000 watts
Surge power rating (up to 1sec)	4000 watts	2000 watts
Output Voltage	230V AC±10%	230V AC±10%
Output Frequency	50Hz	50Hz
Output Waveform	Modified Sine Wave	Modified Sine Wave
Input Voltage Range	10V - 16V	10V - 16V
Efficiency	> 85%	> 85%
No Load Current Draw	< 2.2amp	< 1.0amp
Low Battery Alarm	10.5 ± 1 volt	10.5 ± 1 volt
Low Battery Shutdown	10.0 ± 1 volt	10.0 ± 1 volt
Thermal protection	60± 10°C	60± 10°C
USB Port	No	2amp (max)
Remote control port	Yes	No
Dimension (L x W x H)	432 x 224 x 90	269 x 204 x 78
Weight	7kg	3.6kg
Pack qty	2 x 1	4 x 1
Barcode	5055175233949	5055175233925

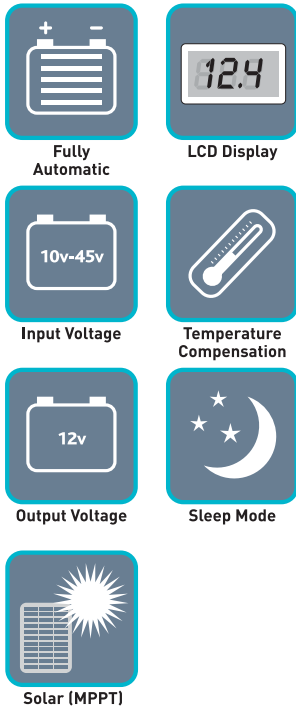
Accessories

RINVWRC Remote Control Panel

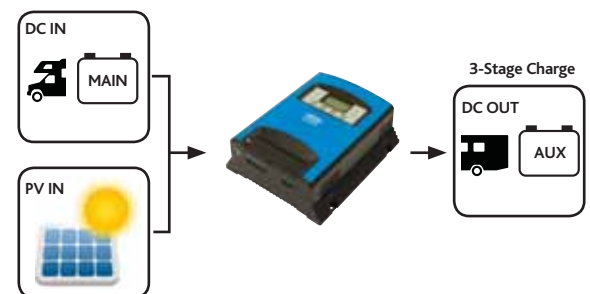
*24V Inverters available. Contact your Ring Sales Manager for further information.

DC-DC Smart Battery Charger

A DC-DC Smart Charger is able to take energy from DC sources such as a vehicle alternator or solar panel then convert it to a multi-stage output for charging an auxiliary battery. The unit is particularly suited to utility vehicles, caravans, motorhomes and boats where power may be required away from a mains electrical supply. As an alternative to split charge relay systems, the unit can provide a faster, more intelligent charging solution to ensure batteries are kept in good condition with power always available. It also has a programmable input voltage range to allow compatibility with smart alternators.



Example Connection



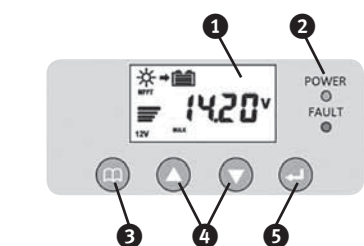
The unit can also act as a solar regulator, providing a controlled supply from solar panel banks up to 360 watts. Charging efficiency is maximised by using MPPT technology (Maximum Power Point Tracking) which ensures the maximum possible energy is extracted from the solar panel.

- Maximises charge into auxiliary battery
- Programmable for most battery types
- 3-Stage smart charge output
- Low battery shutoff protection
- Solar panel input with MPPT feature
- Sleep mode to reduce battery drain

Specifications

Part number	RSCDC30
Input voltage	PV: 10-50V DC: 12.6-50V
Max output voltage	14.8v
Max output current	30A
Sleep mode current	20mA
MPPT	Yes
Temperature compensation	25°C ±20mV°C
Operating temperature	-10°C to 45°C
Dimension (LxWxH)	236x203x87
Weight	1.8Kg
Pack qty	1 x 1
Barcode	5055175235974

LCD Display



- 1 - Voltage/Current Display
- 2 - Power & Fault Indicators
- 3 - Menu
- 4 - Increase/Decrease
- 5 - Enter

30 Amp and 60 Amp Regulators



RSR60

AVAILABLE
SEPT 2017

- Up to 60A PWM charging
- Suitable for smart alternators
- Low battery shutoff protection
- Optional control panel



RSR30

AVAILABLE
SEPT 2017

- Up to 30A PWM charging
- Suitable for smart alternators
- Low battery shutoff protection

Specifications

Part number	RSR60	RSR30
Voltage	12V - 24V (Auto detection)	12V - 24V (Auto detection)
Max Input Voltage	30V	30V
Output Current	60A (max)	30A (max)
Output Voltage	12V - 24V (Auto detection)	12V - 24V (Auto detection)
No Load Current	<25mA (12V) / <35mA (24V)	<12mA (12V) / <15mA (24V)
Charging Method	PWM	PWM
Operating Temperature	-20°C to 60°C	-20°C to 60°C
Solar Input	No	No
Power Saving Mode	No	No
Cut-Off Voltage Range	11.0V - 12.5V (12V) 22.0V - 25.0V (24V)	11.0V - 12.5V (12V) 22.0V - 25.0V (24V)
Cut-In Voltage Range	11.5V - 13.0V (12V) 23.0V - 26.0V (24V)	11.5V - 13.0V (12V) 23.0V - 26.0V (24V)
Over Voltage Protection	18.8V (12V) / 32.0V	18.0V (12V) / 32.0V
Dimension (L x W x H)	150 x 186 x 64mm	110 x 129 x 61mm
Weight	1.0Kg	0.5Kg
Pack qty	12 x 1	24 x 1
Barcode	5055175240732	5055175240725
Options	Standard LED Display - RSCR	-

Carnation Designs



Carnation Designs

A trading brand of Ring since 2016, Carnation Designs have serviced the emergency and specialist vehicle sectors with intelligent switching and power management systems for over 20 years.

Any 12V/24V conversion with a reasonable level of auxiliary electrical equipment can benefit from Carnation's power management technologies, which improve vehicle functionality, preserve battery power, potentially reduce electrical installation time, and which can be integrated with third party systems such as telemetry, data loggers and mobile PCs.

Carnation Designs' flagship product, genisys™, is already an integral part of many different specialist vehicles. The core strength of genisys™ is its complete configurability to any vehicle's power demands. The product's flexibility – coupled to the modular design benefits vehicle converters and fleet managers in both the blue light and specialized commercial vehicle market.

Carnation Designs products are both engineered and manufactured from their production site Leeds. This gives the capability to produce bespoke systems/assemblies to meet customers' requirements. For example, Carnation can provide not just individual ECU/input/output modules, but complete pre-and post –battery vehicle electronics assembled in 'plug & play' boxes for rapid connection to vehicle converters' wiring looms, which can in turn greatly reduces electrical install time.



What are benefits of genisys™ to fleet managers and operators?

With improved vehicle functionality and an intelligent system that preserves battery power, fleet managers and end users can also benefit from genisys™. For vehicle fleet managers genisys™ can ensure minimal vehicle downtime and reduce total cost of ownership.

To vehicle operators it offers an enhanced vehicle experience with optimal safety and ease of use.

genisys™ monitors and manages vehicles' auxiliary electrical functions and power consumption. Taking action from a bespoke program configured for each and every vehicle fitted with genisys™ technology.

genisys™ has the ability to make vehicles perform to the exacting preferences of their owner whilst working to ensure power is always available for critical functions and vehicle starting. The prioritised 'load-shedding' functionality directs power to where it is needed most to ensure the driver is never stranded, unable to start the vehicle and without essential power.

genisys™ Compact

With twenty-eight outputs genisys™ Compact is a single box solution genuinely capable of controlling sophisticated vehicle auxiliary electronics without need for additional expansion modules and relays.



Features

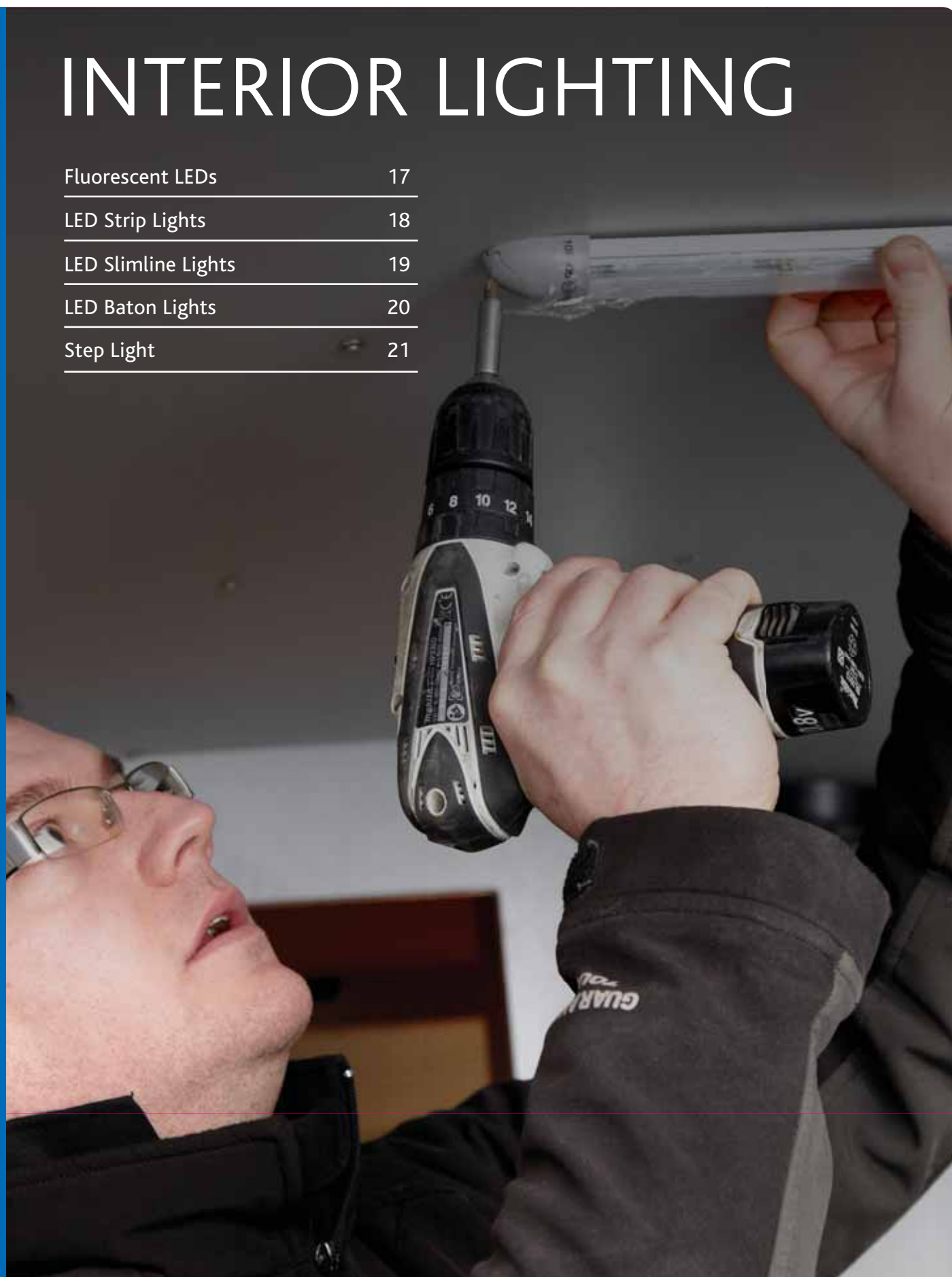
- 28 medium and high current outputs (2 x negative)
- 24 digital inputs
- 4 analogue inputs
- Fully configurable for bespoke installations using genisys™ programming software
- Proven genisys™ power management & control capability
- Load shedding and split-charge functionality
- Voice alert channel
- Integration with MDT and telemetry available via the genisys™ Protocol Converter module
- EMC compatibility: E-marked

Specifications

Max Supply Voltage	18V (30V available if required)
Total Output Current	150A
No. of Outputs	14 Positive (High Current) 12 Positive (Medium Current) 2 Negative (Medium Current)
Current Rating (per Output)	2 x 30A 12 x 15A 12 x 3A 2 x 5A (negative)
Digital Inputs	24 (16 Positive and 8 Negative)
Analogue Inputs	4 Configurable
CAN Data Input	Available as separate module
Audio Warnings	Single Audio Channel Included
Single Audio Channel Included	3.5mm socket
Dimensions (mm)	234W x 50H x 175D
Module Compatibility	Retains full module compatibility as per present system
Configuration	Maintains Genisys128 software usage
Power consumption unit only:	
In Operation	<200mA
Sleep Mode	<30mA
Branding / Customer configuration	Pre-printed labels
General automotive CE	72/245/EEC (2009/19/EC)
FCC Complies with FCC regulations	Complies with FCC regulations
e-Mark	VCA approvals
Operating/Storage Temperature	-20 to 50°C ambient
Ingress Protection	IP20

INTERIOR LIGHTING

Fluorescent LEDs	17
LED Strip Lights	18
LED Slimline Lights	19
LED Baton Lights	20
Step Light	21



Fluorescent LEDs

Unlike other LED lights no dots or point source appears in the light.



Approval



Long life



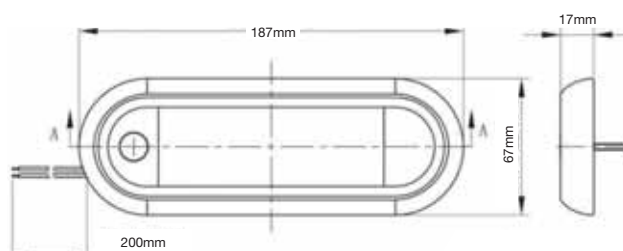
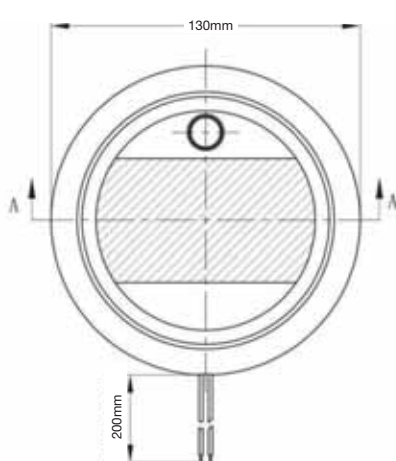
Low-power



Dual Voltage



IP Rating



Part Number	Function	Watts	Current draw	Light source	Lumens	Colour temperature	Cable length
RC5021	Circular LED lamp no switch	10w	0.8A	24 x LED	600	4500K	200mm
RC5022	Circular LED lamp touch switch	10w	0.8A	24 x LED	600	4500K	200mm
RC5024	Oval LED lamp no switch	7.2w	0.6A	18 x LED	425	4500K	200mm
RC5025	Oval LED lamp touch switch	7.2w	0.6A	18 x LED	425	4500K	200mm

LED Strip Light



Long life



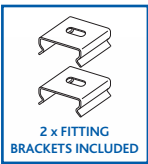
Low-power



12V
Voltage



Reg 10
Approval



2 x FITTING
BRACKETS INCLUDED



170°
LIGHT SPREAD



Part Number	Function	Watts	Current draw	Light source	Lumens	Light spread	Colour temperature
RC3010	500mm Interior Lighting	4.8w	0.4A	21 x LED	470	170°	6200K

- Link up to 6 units together



Long life



Low-power



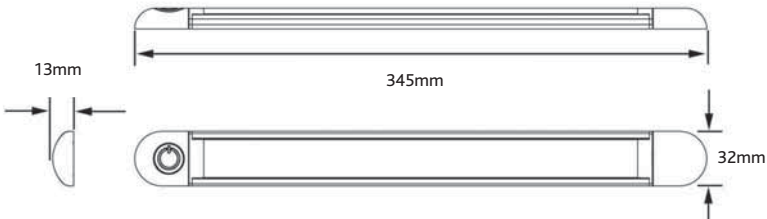
12V
Voltage



IP53
IP Rating



120°
LIGHT SPREAD

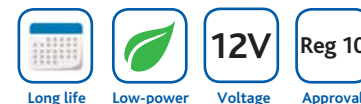


Part Number	Function	Watts	Current draw	Light source	Lumens
RC3002	Interior Lighting	6w	0.5A	16 x LED	280

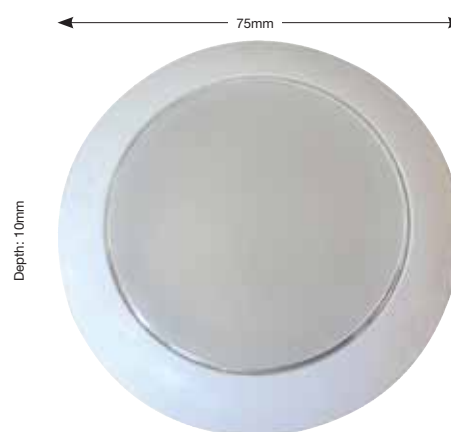
- Aluminium housing and Polycarbonate lens
- Cable length 200mm

LED Slimline Lights

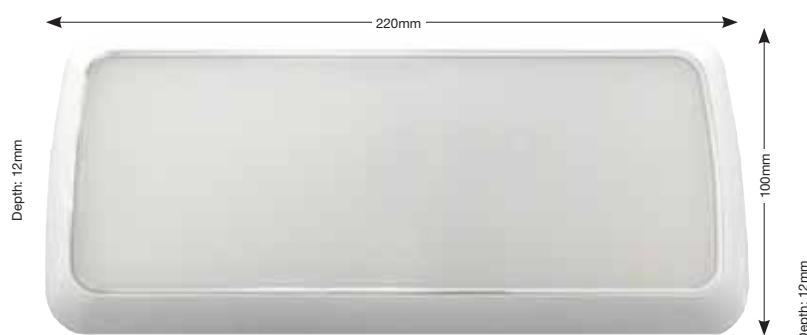
As the name suggests this range of light units are perfect for where space is a premium. Their compact design allows them to be fitted in a low level roof linings or discreetly within the cab of a vehicle for additional light.



RC5009B



RC5008B



RC5011B



RC5010B

Part Number	Function	Watts	Current draw	Light source	Lumens
RC5008B	75mm diameter round LED light unswitched	1W	0.1A	16 X LED	70
RC5009B	130mm diameter LED light unswitched	3W	0.3A	42 X LED	180
RC5010B	185 x 150mm rectangular LED light unswitched	3.6W	0.3A	63 X LED	200
RC5011B	220 x 100mm rectangular LED light unswitched	3.2W	0.3A	60 X LED	200

• ABS lens

LED Baton Lights

LED baton lights are ideal for illuminating a large interior area. Equivalent to fluorescent tubes in an office, but being LED will draw a much lower wattage. Positioned centrally will provide a wide spread of light.



Approval



Long life



Low-power



Dual Voltage



RCV5012

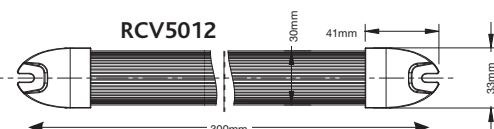


RCV5013

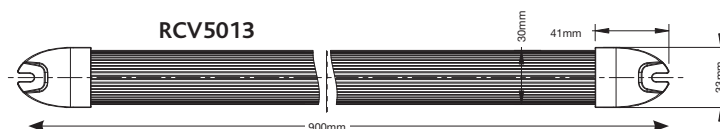


RCV5014

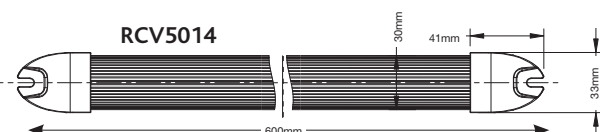
Units are available as fixed wired, switched or PIR



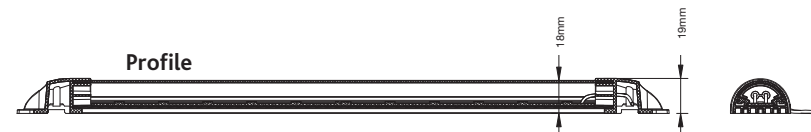
RCV5012



RCV5013



RCV5014

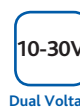


Profile

Part Number	Function	Watts	Current draw*	Light source	Lumens
RCV5012	300mm baton	6w	0.5A	12 x LED	400
RCV5013	600mm baton	12w	1A	24 x LED	800
RCV5014	900mm baton	18w	1.5A	36 x LED	1250
RCV5015	300mm PIR baton	6w	0.5A	12 x LED	400
RCV5016	600mm PIR baton	12w	1A	24 x LED	800
RCV5017	900mm PIR baton	18w	1.5A	36 x LED	1250
RCV5018	300mm Switched baton	6w	0.5A	12 x LED	400
RCV5019	600mm Switched baton	12w	1A	24 x LED	800
RCV5020	900mm Switched baton	18w	1.5A	36 x LED	1250

- Aluminium housing and Polycarbonate lens
- Cable length 200mm

Step Lamp



Part Number	Function	Watts	Current draw	Light source	Lumens	Colour temperature	Cable length
RCV5101	Slimline LED Step Lamp	1w	0.8A	2 x LED	100	6000K	200mm

Interior Lighting

Increasingly, LED alternatives are becoming available as replacements for traditional lighting sources. LED worklamps replacing halogen, LED beacons replacing xenon and LED signalling replacing incandescent light units highlight some of the upgrades available.

But why upgrade to LED?

The benefits of upgrading to LED from these technologies are universal and relevant to all LED products. Ranging from safety improvements, improved light output and light up times, to long term financial benefits as a result of longer life, low power consumption and reduced vehicle down time.

Long Life – LED products are designed to offer optimum life with low maintenance. With LEDs having up to 50,000 hours life they are designed into the units as a non replaceable light source making bulb changes a thing of the past.

Low Power – Reduced power consumption enables the user to benefit from a longer light up time without running a vehicle engine to preserve battery life. Alternatively more lamps can be installed for an increased light output without exceeding previous power requirements from halogen lamps.

Typical power requirements

Halogen Worklamp (RCV9598)	LED Worklamp (RCV9594)
55 Watts	12 Watts
24 Volts = 2.3 Amps	24 Volts = 0.5 Amps (1.8 Amp saving)

Multi voltage

10-30V – With LED products covering both 12 and 24V applications, only 1 part number is required.

WORK AND WARNING LIGHTING

LED Work Lamps	23	LED Light Bars	32
Halogen Work Lamps	27	LED Beacons	34
Rechargeable Work Lamp	29	Halogen Beacons	35
LED Strobes	30		

Safety at work is paramount to us all, even more so when your work space is mobile. At the curb side or on work sites, dangerous operating positions may be unavoidable, especially as third parties might also be involved.

Be Seen - Be Safe.

8 LED Oval Work Lamp



Approval



Long life



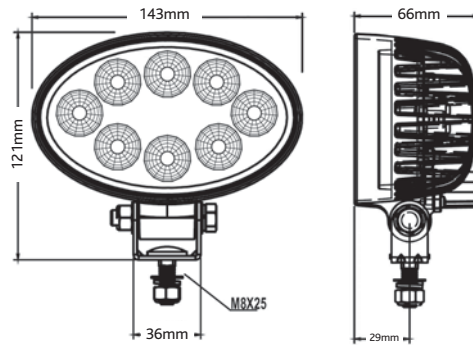
Low-power



Dual Voltage



IP Rating



Part Number	Function	Lens	Watts	Current draw*	Light source	Light output	Housing material	Lens material	Cable length
RCV9603	Medium Flood	Clear	24w	2A	8 x 3w LED	2000 Lumens	Diecast aluminium	Polycarbonate	500mm

6 LED Cube Work Lamps



Approval



Long life



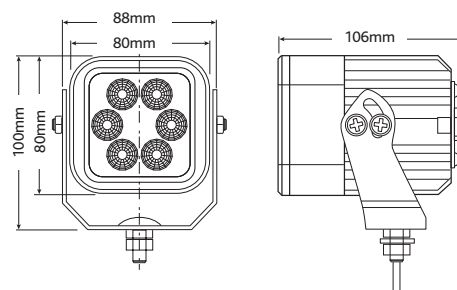
Low-power



Dual Voltage



IP Rating



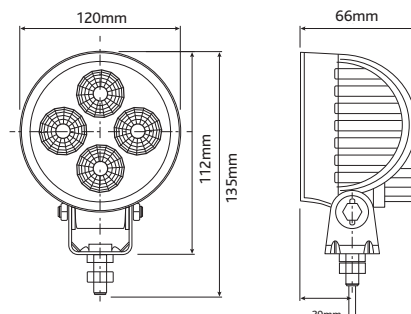
RCV9601



RCV9600

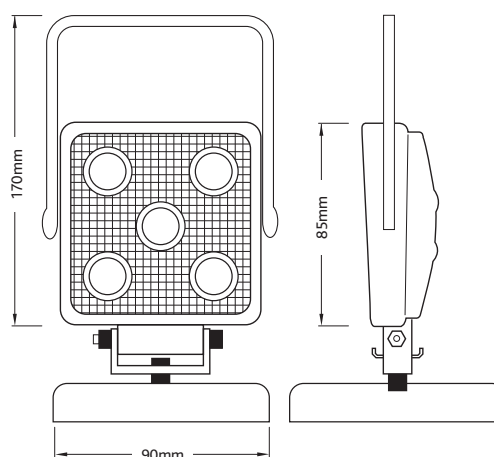
Part Number	Function	Lens	Watts	Current draw*	Light source	Light output	Housing material	Lens material	Cable length
RCV9601	Spot	Clear	18w	1.5A	6 x 3w LED	1500 Lumens	Diecast aluminium	Polycarbonate	480mm
RCV9600	Flood	Clear	18w	1.5A	6 x 3w LED	1500 Lumens	Diecast aluminium	Polycarbonate	480mm

4 LED Work Lamp



Part Number	Function	Lens	Watts	Current draw*	Light source	Light output	Housing material	Lens material	Cable length
RCV9594	Flood	Clear	12w	1A	4 x 3w LED	700 Lumens	Diecast aluminium	Polycarbonate	500mm

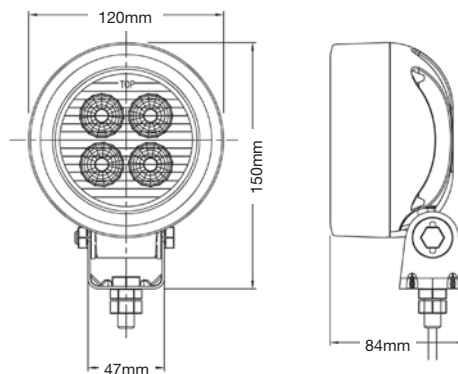
5 LED Mag-mount Work Lamp



Part Number	Function	Lens	Watts	Current draw*	Light source	Light output	Housing material	Lens material	Cable length
RCV9597	LED Mag-mount Work lamp	Clear	10w	0.8A	5 x 2w LED	700 Lumens	Diecast aluminium	Polycarbonate	3000mm

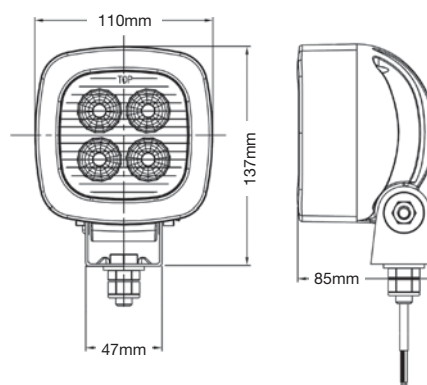
*At 12V

4 LED Work Lamp



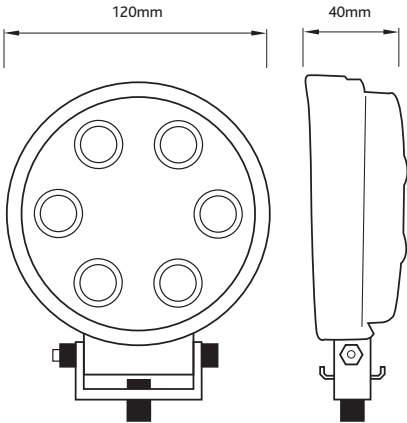
Part Number	Function	Lens	Watts	Current draw*	Light source	Light output	Housing material	Lens material	Cable length
RCV9590	Round flood	Clear	12w	1A	4 x 3w LED	800 Lumens	Diecast aluminium	Polycarbonate	2000mm

4 LED Work Lamp



Part Number	Function	Lens	Watts	Current draw*	Light source	Light output	Housing material	Lens material	Cable length
RCV9591	Square flood	Clear	12w	1A	4 x 3w LED	800 Lumens	Diecast aluminium	Polycarbonate	2000mm

Ring 6 LED Work Lamp



Long life



Low-power



9-32V

Dual Voltage



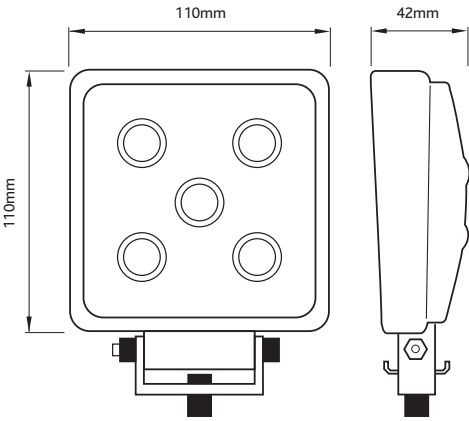
IP67

IP Rating



Part Number	Function	Lens	Watts	Current draw*	Light source	Light output	Housing material	Lens material	Cable length
RCV9595	Round flood	Clear	18w	1.5A	6 x 3w LED	900 Lumens	Diecast aluminium	Polycarbonate	500mm

Ring 5 LED Work Lamp



Long life



Low-power



9-32V

Dual Voltage



IP67

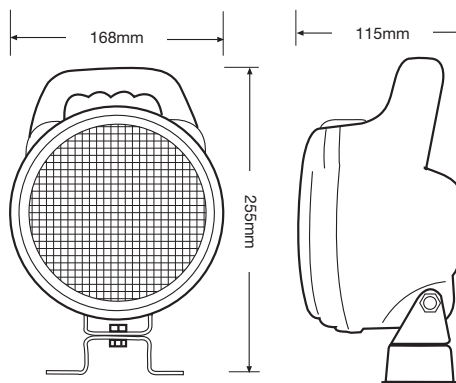
IP Rating



Part Number	Function	Lens	Watts	Current draw*	Light source	Light output	Housing material	Lens material	Cable length
RCV9596	Square flood	Clear	15w	1.3A	5 x 3w LED	700 Lumens	Diecast aluminium	Polycarbonate	500mm

*At 12V

Halogen Work Lamp



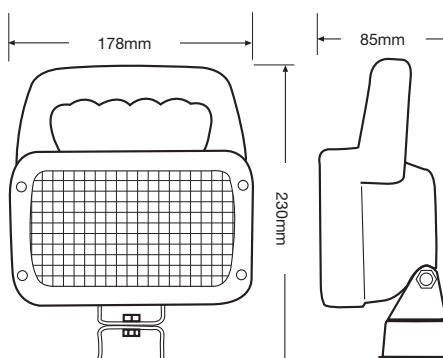
12V
or
24V
Voltage

H3
Bulb
required



Part Number	Function	Lens	Watts	Current draw	Light source	Light output	Housing material	Lens material	Cable length
RCV9540	Flood	Clear	55w @ 12V 70w @ 24V	4.6A @ 12V 2.9A @ 24V	R453 R460	680 Lumens	Polypropylene	Polycarbonate	290mm

Halogen Work Lamp



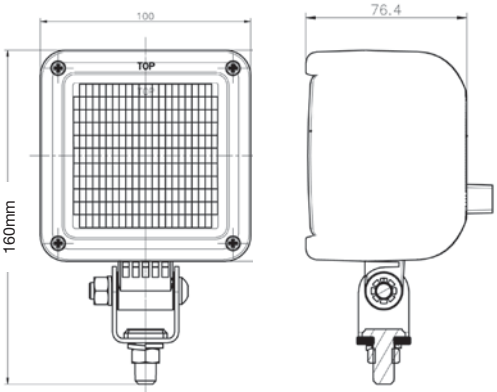
12V
or
24V
Voltage

H3
Bulb
required



Part Number	Function	Lens	Watts	Current draw	Light source	Light output	Housing material	Lens material	Cable length
RCV9550	Flood	Clear	55w @ 12V 70w @ 24V	4.6A @ 12V 2.9A @ 24V	R453 R460	620 Lumens	Polypropylene	Polycarbonate	290mm

Halogen Work Lamp



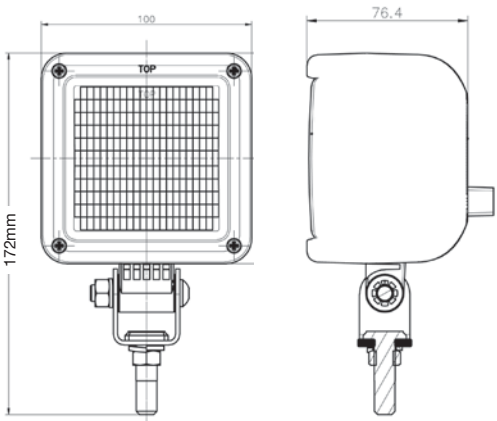
12V
or
24V
Voltage

H3
Bulb
required



Part Number	Function	Lens	Watts	Current draw	Light source	Light output	Housing material	Lens material	Cable length
RCV9586	Flood	Clear	55w @ 12V 70w @ 24V	4.6A @ 12V 2.9A @ 24V	R453 R460	860 Lumens	Polypropylene	Polycarbonate	n/a

Halogen Work Lamp



12V
or
24V
Voltage

IP66
IP Rating

H3
Bulb
required

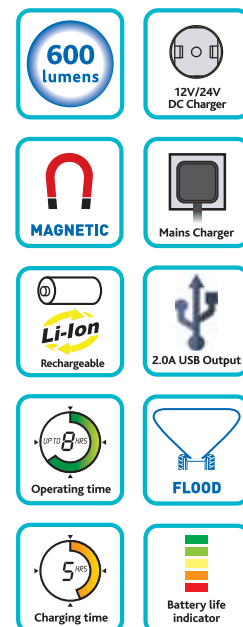


Part Number	Function	Lens	Watts	Current draw	Light source	Light output	Housing material	Lens material	Cable length
RCV9598	Flood	Clear	55w @ 12V 70w @ 24V	4.6A @ 12V 2.9A @ 24V	R453 R460	780 Lumens	Polypropylene	Polycarbonate	n/a

*At 12V

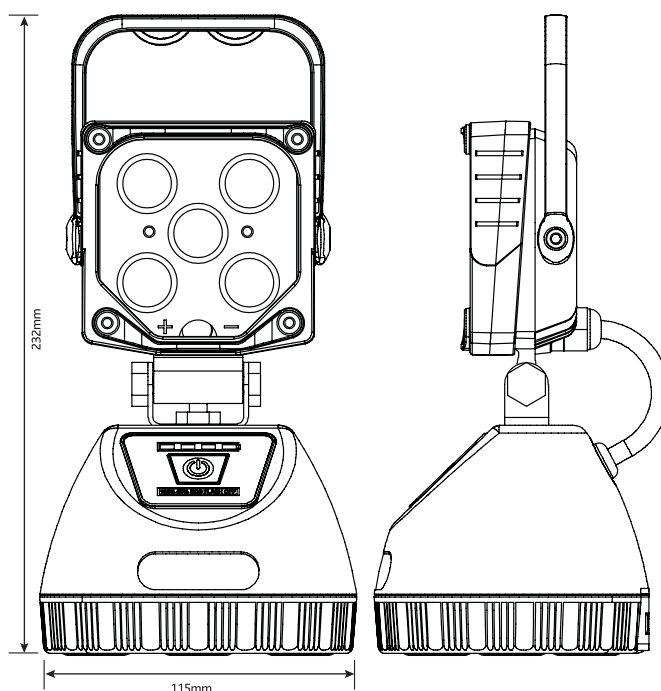
Rechargeable Magnetic Mount LED Worklamp

- 5 x 3W LEDs provide 600 lumens light output
- Long operating time allows full working day usage
- 4 levels of light output: High, low, SOS, flash
- 6100K colour temperature for bright white light
- 180° adjustable head to shine light exactly where it is required
- 60° wide angle illumination
- Sturdy polycarbonate, ABS and Aluminium construction designed for everyday use
- Rechargeable 7.4V 4400mAh Li-ion battery
- Adjustable carry handle
- Illuminated battery status indicator
- Includes AC mains adaptor:
UK 3-pin adaptor (RCV9605)
EU 2-pin adaptor (RCV9606)



Specifications

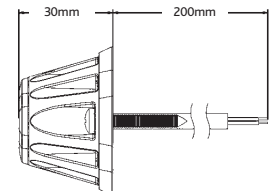
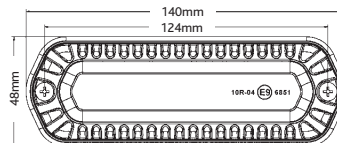
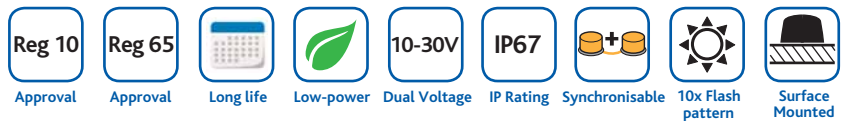
Part number	RCV9605 (UK) RCV9606 (EU)
Light output	600 Lumens (high) 300 Lumens (low)
Operating time	Up to 5 hours* (high) Up to 8 hours* (low)
Battery	7.4V 4400mA Li-ion battery
Output current	USB1: 2.0A
Mains adaptor	Input: 230V AC 50/60Hz Output: 5V DC 2000mA
Dimensions	H232 x W115 x D97mm
Weight	0.74kg
Pack quantity	10 x 1
Barcode	5055175239934 (RCV9605) 5055175239941 (RCV9606)



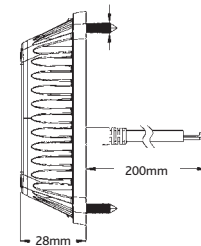
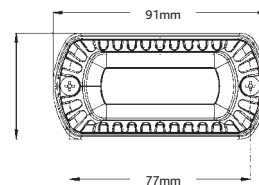
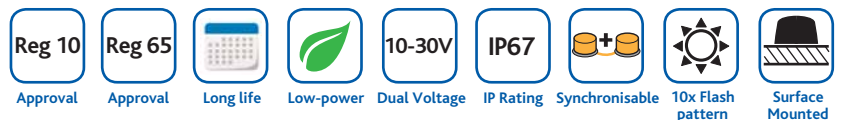
Vehicle Conversion

LED Strobes

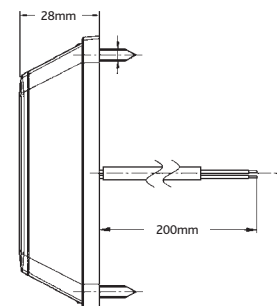
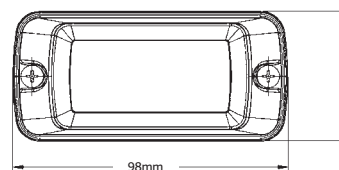
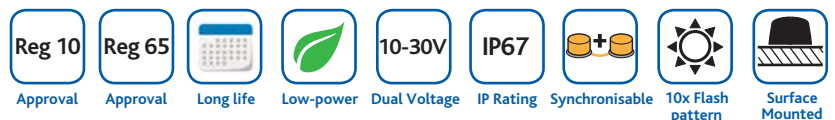
All Ring strobes are constructed from durable die cast aluminium and poly carbonate



Part Number	Function	Watts	Current draw*	Light source	Housing material	Lens material	Cable length
RCV2210	6 LED Amber strobe	18w	1.5A	6 x 3w LED	Diecast aluminium	Polycarbonate	200mm

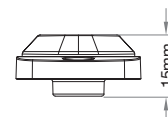
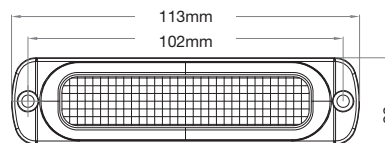
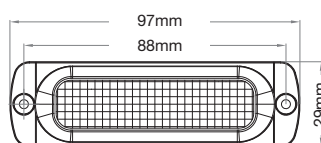
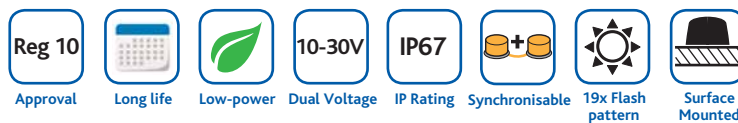


Part Number	Function	Watts	Current draw*	Light source	Housing material	Lens material	Cable length
RCV2212	3 LED Amber strobe	9w	0.75A	3 x 3w LED	Diecast aluminium	Polycarbonate	200mm

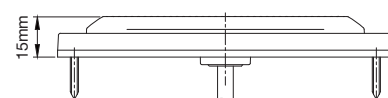
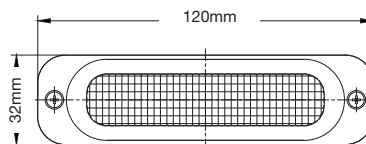
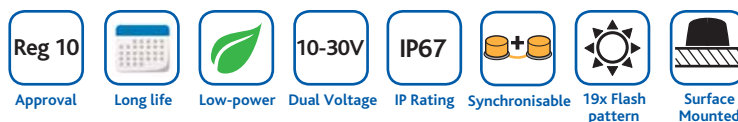


Part Number	Function	Watts	Current draw*	Light source	Housing material	Lens material	Cable length
RCV2213	8 LED Amber strobe	24w	2.0A	8 x 3w LED	Diecast aluminium	Polycarbonate	200mm

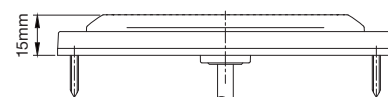
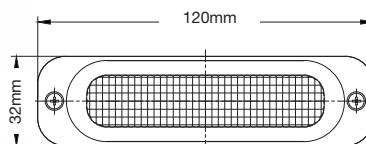
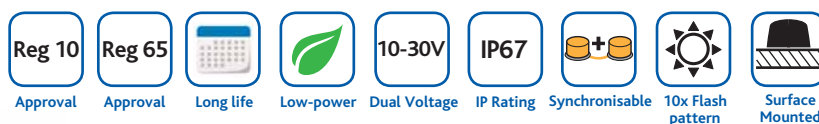
LED Strobes



Part Number	Function	Watts	Current draw*	Light source	Housing material	Lens material	Flash patterns	Cable length
RCV2214	4 LED Slimline Amber strobe	2w	0.17A	4 x 0.5w LED	Diecast aluminium	Polycarbonate	19	200mm

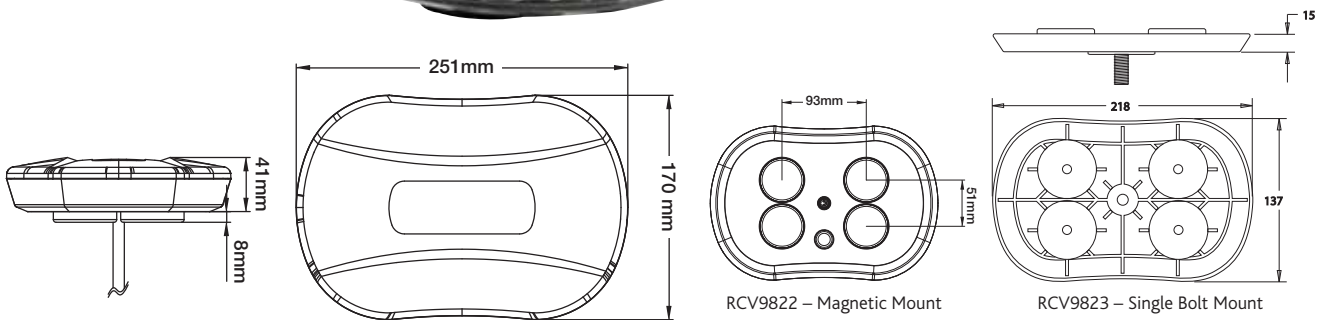


Part Number	Function	Watts	Current draw*	Light source	Housing material	Lens material	Flash patterns	Cable length
RCV2215	6 LED Slimline Amber strobe	3w	0.25A	6 x 0.5w LED	Diecast aluminium	Polycarbonate	19	200mm



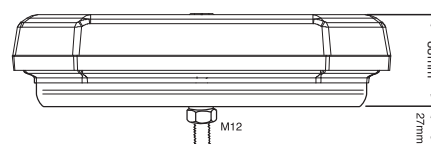
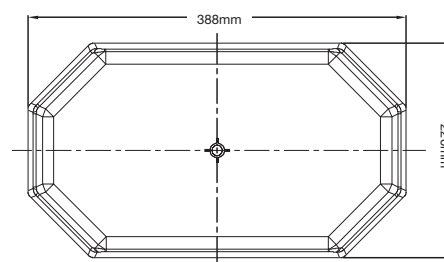
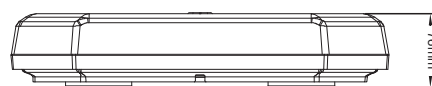
Part Number	Function	Watts	Current draw*	Light source	Housing material	Lens material	Flash patterns	Cable length
RCV2216	6 LED Slimline Amber strobe R65	18w	1.5A	6 x 3w LED	Diecast aluminium	Polycarbonate	10	200mm

LED Mini Bar



Part Number	Function	Watts	Current draw*	Light source	Cable length	
RCV9822	Amber Mini Bar Magnetic Mount	40W	1.7A	40 x 0.5w LED	2500mm	
RCV9823	Amber Mini Bar Single Bolt Mount	40W	1.7A	40 x 0.5w LED	250mm	

LED E Approved Light Bars



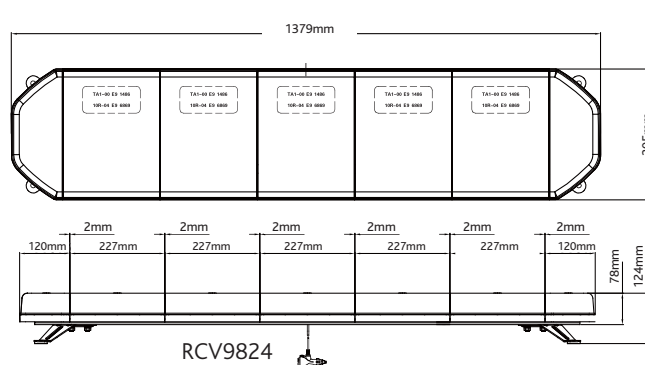
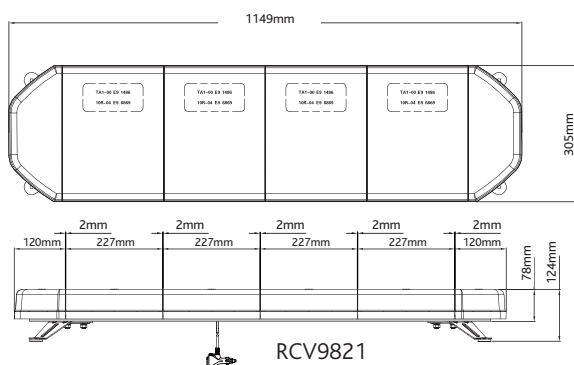
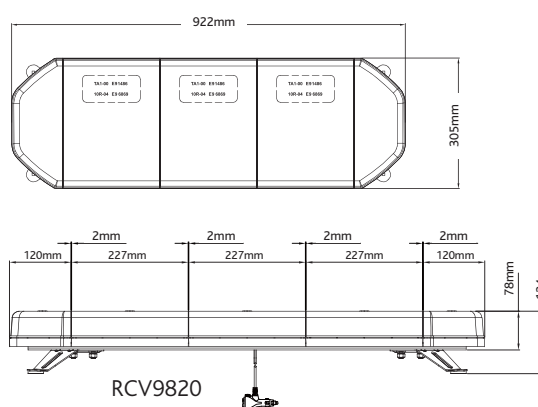
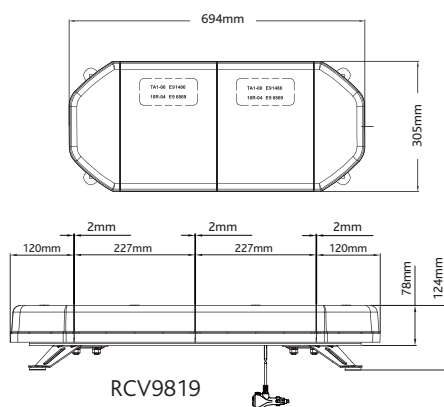
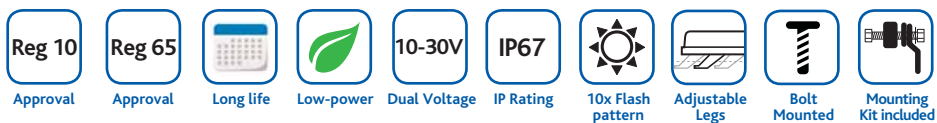
RCV9812 – Magnetic Mount

RCV9813 – Single Bolt Mount

Part Number	Function	Watts	Current draw*	Light source	Cable length	
RCV9812	Amber light bar Magnetic mount	39w	3.3A	56 x 0.5w LED	2300mm	
RCV9813	Amber light bar Single or 4 Bolt mount	39w	3.3A	56 x 0.5w LED	250mm	

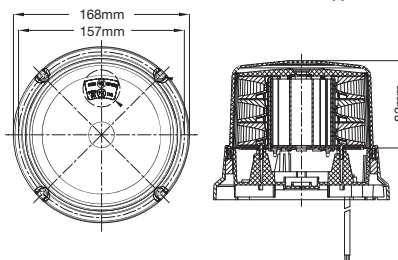
*At 12V

LED E Approved Light Bars



Part Number	Function	Watts	Current draw*	Light source	Cable length
RCV9819	LED Amber light bar	79w	6.6A	100 x 0.5w LED	500mm
RCV9820	LED Amber light bar	109w	9.1A	132 x 0.5w LED	500mm
RCV9821	LED Amber light bar	127w	10.6A	164 x 0.5w LED	500mm
RCV9824	LED Amber light bar	140w	11.7A	196 x 0.5w LED	500mm

LED E Approved Beacons



Reg 10

Approval

Reg 65

Approval



Long life



Low-power

10-30V

Dual Voltage

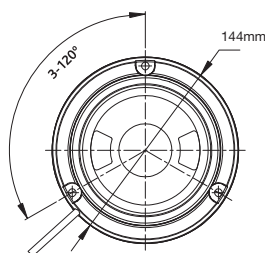
IP67

IP Rating



Part Number	Function	Lens	Watts	Current draw*	Light source	Housing material	Lens material	Cable length
RCV9815	Amber beacon Magnetic mounting	Clear	18w	1.5A	36 x 0.5w LED	ABS	Polycarbonate	2400mm 
RCV9816	Amber beacon 4 bolt fixing	Clear	18w	1.5A	36 x 0.5w LED	ABS	Polycarbonate	400mm

Compact LED Beacons



Reg 10

Approval



Long life



Low-power

10-30V

Dual Voltage

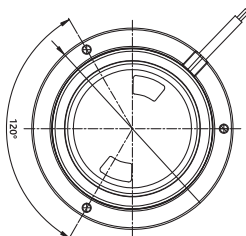
IP67

IP Rating



Part Number	Function	Lens	Watts	Current draw*	Light source	Housing material	Lens material	Cable length
RCV9807	Compact amber beacon Single bolt mount	Amber	18w	1.5A	24 x 0.2w LED	ABS	Polycarbonate	200mm
RCV9808	Compact amber beacon Din pole fixing	Amber	18w	1.5A	24 x 0.2w LED	ABS	Polycarbonate	n/a
RCV9809	Compact amber beacon Magnetic mount	Amber	18w	1.5A	24 x 0.2w LED	ABS	Polycarbonate	2300mm 
RCV9810	Compact amber beacon 3 bolt fixing	Amber	18w	1.5A	24 x 0.2w LED	ABS	Polycarbonate	200mm

Slimline LED Beacon



Approval



Long life



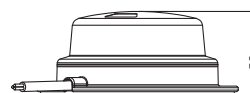
Low-power



Dual Voltage



IP Rating



Part Number	Function	Lens	Watts	Current draw*	Light source	Housing material	Lens material	Cable length
RCV9811	Slim line amber	Amber	10w	0.7A	20 x 0.2w LED	ABS	Polycarbonate	200mm

Halogen Beacons



CE Approved



Approval



Voltage



IP Rating



Bulb required



RCV9910



RCV9920



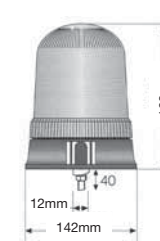
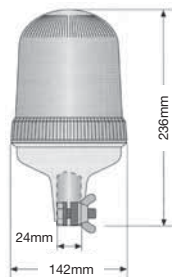
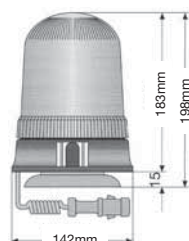
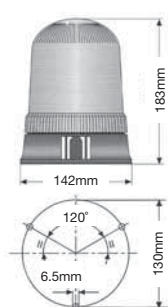
RCV9930



RCV9940



RCV9950



Part Number	Function	Lens	Watts	Current draw	Required light source	Housing material	Lens material	Cable length
RCV9910	Dual voltage beacon 3 bolt fixing	Amber	55w @ 12V 70w @ 24V	4.6A @ 12V 2.9A @ 24V	R448 R466	Polypropylene	Polycarbonate	200mm
RCV9920	Dual voltage beacon Magnetic mounting	Amber	55w @ 12V 70w @ 24V	4.6A @ 12V 2.9A @ 24V	R448 R466	Polypropylene	Polycarbonate	3000mm (extended)
RCV9930	Dual voltage beacon Din pole fixing	Amber	55w @ 12V 70w @ 24V	4.6A @ 12V 2.9A @ 24V	R448 R466	Polypropylene	Polycarbonate	n/a
RCV9940	Dual voltage beacon Flexible din pole fixing	Amber	55w @ 12V 70w @ 24V	4.6A @ 12V 2.9A @ 24V	R448 R466	Polypropylene	Polycarbonate	n/a
RCV9950	Dual voltage beacon Single bolt fixing	Amber	55w @ 12V 70w @ 24V	4.6A @ 12V 2.9A @ 24V	R448 R466	Polypropylene	Polycarbonate	200mm

SAFETY SYSTEMS

Reversing Camera Systems	37
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With larger bodied vehicles producing more and more driver blind spots when reversing and manoeuvring, increased vision is now becoming paramount.

Whatever the hazard, pedestrians, equipment, buildings or other vehicles, Ring BackGuard Reversing Systems can put the driver more in control. With the reduction in repair costs and the subsequent vehicle downtime, Ring BackGuard Reversing Systems are a sound investment whatever the size of the business.

RBGW4070 Quad Channel Wireless Reversing Camera System



RBGMW7	Monitor	RBGWRE	Antenna	RBGBWH2	Power & video harness
RBGWC1	Wireless camera	RBGIR1	Remote control	RBGBWH3	Camera cable



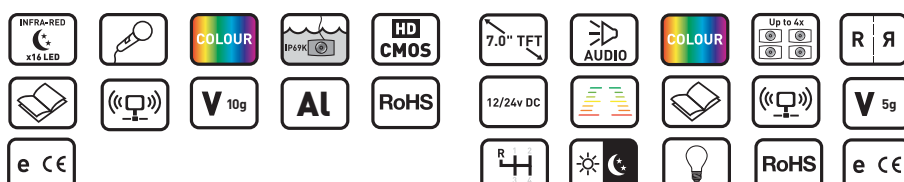
- Wireless digital video up to 100 metres
- Connect up to 4 x wireless cameras
- High definition IP69K camera
- Adjustable parking guidelines

Wireless Rear Camera (HD CMOS)

Part No	RBGWC1
Image sensor	1/3" CMOS
Horiz resolution	700 TV lines
Aperture	f2.8mm
Viewing angle	120°
Night vision	16 x IR LEDs
Infra-red distance	10 Metres
Ingress rating	IP69K
Frequency	2.4GHz
TX Distance	Up to 100 metres (open space)
Audio	Microphone
Voltage	12V-24V DC

7.0" 4CH Wireless Monitor

Part No	RBGMW7
Screen size	7" TFT (16:9)
Screen type	Digital
Pixels	800 x 480
Brightness	450 cd/m²
Channels	4 x Wireless inputs
Frequency	2.4GHz
Audio	Built-in speaker
Voltage	12-24V DC
Operating Temp	-20°C to +70°C
Operating Temp	-30°C to +80°C



RBGR4070 Quad Channel Reversing Camera System with SD Recording



RBGMR7	Monitor	RBGCB7	Front camera	RBGB020	20m extension
RBGCB3	Rear camera	RBGB005	5m extension	RBGIR2	Remote control
RBGCB5	Side camera (x2)	RBGB010	10m extension (x2)	RBGBWH4	Power & video harness



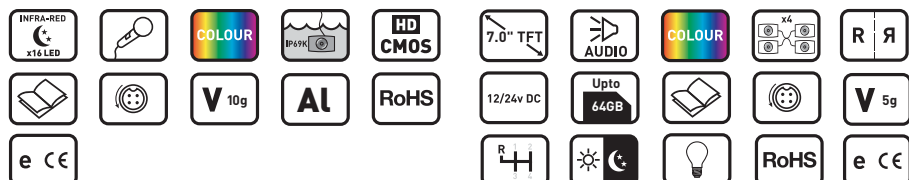
- Records direct to SD card (included)
- Selectable views with auto switching
- High Definition IP69K cameras
- Rugged monitor with touch keys

Rear / Side / Front Camera (HD CMOS)

Part No	RBGCB3	RBGCB5	RBGCB7
Image sensor	1/3" CMOS	1/3" CMOS	1/3" CMOS
Horiz resolution	700 TV lines	700 TV lines	700 TV lines
Aperture	f2.8mm	f2.8mm	f2.8mm
Viewing angle	120°	120°	120°
Video output	1.0Vp-p, 75Ω	1.0Vp-p, 75Ω	1.0Vp-p, 75Ω
Night vision	16 x IR LEDs	9 x IR LEDs	9 x IR LEDs
Infra-red distance	10 Metres	7 Metres	7 Metres
Ingress rating	IP69K	IP69K	IP69K
Audio	Microphone	-	-
Voltage	-	12V DC	-

7.0" 4CH Monitor with Recording

Part No	RBGMR7
Screen size	7" TFT (16:9)
Screen type	Digital
Pixels	800 x 480
Brightness	450 cd/m²
Channels	4 x AV inputs
Storage	SD card* (up to 64GB)
Recording Resolution (max)	1280 x 720 (HD)
Audio	Built-in speaker
Voltage	12-24V DC
Operating Temp	-20°C to +70°C
Operating Temp	-30°C to +80°C



* 32GB Class10 card included



RBGB2070 Dual Channel Reversing Camera System



RBGMS7 Monitor
RBGCB3 Rear Camera (x1)

RBGB020 20m extension
RBGBWH1 Power & video harness



- Rugged monitor with touch keys
- High Definition IP69K camera
- Adjustable parking guidelines

Rear Camera (HD CMOS)

Part No	RBGCB3
Image sensor	1/3" CMOS
Horiz resolution	700 TV lines
Aperture	f2.8mm
Viewing angle	120°
Video output	1.0Vp-p, 75Ω
Night vision	16 x IR LEDs
Infra-red distance	10 Metres
Ingress rating	IP69K
Audio	Microphone
Voltage	12V DC

7.0" 2CH Monitor

Part No	RBGMS7
Screen size	7" TFT (16:9)
Screen type	Digital
Pixels	800 x 480
Brightness	450 cd/m²
Channels	2 x AV inputs
Audio	Built-in speaker
Voltage	12-24V DC
Operating Temp	-20°C to +70°C
Operating Temp	-30°C to +80°C



RBGB1070 Reversing Camera System



- RBGCB1

Rear view camera (CMOS)
- RBGB020

20m 4 core cable
- RBGBWH

Wiring harness with 2 camera input
- RBGMB7

7.0" Monitor with integral control box



Rear View Camera (CMOS)

Part Number	RBGCB1
Image sensor	1/4" Colour CMOS
Pixels	500 x 582 (PAL)
Horiz Resolution	420 TV lines
Lens	f2.8mm
Viewing Angle	120°
Video Output	1.0Vp-p, 75Ω
Night vision	18 x infra-red LEDs
Infra-red distance	10 Metres
Voltage	12V DC (via monitor)



7.0" Monitor with integral control box

Part Number	RBGMB7
Screen size	7" TFT (16:9)
Pixels	480 x 234
Brightness	200 cd/m²
Channels	2 x video inputs
OSD Menu	Contrast, Brightness, Colour, Volume, Mirror/Normal, Input selection, Language
Voltage	12-24V DC
Operating Temp	-20°C to +70°C
Storage Temp	-30°C to +80°C



Options

RBGCB2

Side View Camera (CMOS)

RBGB020

20 Metre Camera Extension Cable

RBGBSC

Truck & Trailer Connection System (Aviation connector)

A: Monitor Cable - 5.0m
B: Coiled Suzi - 3.0m
C: Camera Cable - 0.3m

High Level Brake Cameras

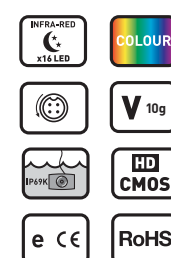
These reversing cameras replace the existing manufacturer fitted high level brake light to retain the OEM look. They provide a wide angle, high level view to aid safe reversing of LCV vehicles. Options are available to create a complete twin channel reversing kit with dashboard or rear view mirror mounting monitors.



RBGCBMS



RBGCBFT



All cameras are E-Marked to ECE Reg7 & Reg10



RBGCBRT



RBGCBFD



RBGCBGV



RBGCBTC



RBGCBID

Part Number	RBGCBMS/FT/FD/RT/GV/TC/TL	RBGCBRM/ID
Camera type	Adjustable eyeball	Fixed angle
Image Sensor	1/3" CMOS	1/3" CMOS
Horiz. resolution	700 TV Lines	700 TV Lines
Apeture	f2.8mm	f2.8mm
Viewing Angle	120°	120°
Video output	1.0Vp-p, 75Ω	1.0Vp-p, 75Ω
Night vision	9 x IR LED	n/a
Infra-red distance	7 metres	n/a
Ingress rating	IP69K	IP69K
Voltage	12V DC	12V DC

High Level Brake Camera Accessories

RBGMB7

2CH 7.0" Dashboard Monitor



RBGBWH

2CH Power Harness for 7.0" Monitor



RBGMBS

Roof bracket for 7.0" Monitor



RBGMM43

2CH 4.3" Mirror Monitor



RBGB005 – 5m Extension

RBGB010 – 10m Extension

RBGB020 – 20m Extension



Camera Kits

Complete camera kits are available to suit the most popular light commercial vehicles, which include all parts required to install a high level brake light camera system. Monitors are available for dashboard or rear view mirror mounting positions.

Kit Code	Vehicle Model(s)	Year	RBGMB7	RBGMM43	RBGMBS	RBGBWH	RBGB010	Brake Light camera
Dash Mount Kits								
SPRKIT1	Mercedes Sprinter, VW Crafter	2006 - Present	✓	-	✓	✓	✓	RBGCBMS
DUCKIT1	Fiat Ducatto, Citroen Relay, Peugeot Boxer	2006 - Present	✓	-	✓	✓	✓	RBGCBFD
MASKIT1	Renault Master, Vauxhall Vivaro	2010 - Present	✓	-	✓	✓	✓	RBGCBRM
TRAKIT1	Ford Transit	2005 - Present	✓	-	✓	✓	✓	RBGCBFT
TCBKIT2	Ford Transit Custom (Bulb version)	2013 - Present	✓	-	✓	✓	✓	RBGCBTC
TCLKIT2	Ford Transit Custom (LED version)	2013 - Present	✓	-	✓	✓	✓	RBGCBTL
DAIKIT2	Iveco Daily	2014 - Present	✓	-	✓	✓	✓	RBGCBID
VIVKIT1	Renault Trafic, Vauxhall/Opel Vivaro	2004 - Present	✓	-	✓	✓	✓	RBGCBRT
UNIKIT1	Universal	Any	✓	-	✓	✓	✓	RBGCBGV
Mirror Mount Kits								
SPRKIT2	Mercedes Sprinter, VW Crafter	2006 - Present	-	✓	-	-	✓	RBGCBMS
DUCKIT2	Fiat Ducatto, Citroen Relay, Peugeot Boxer	2006 - Present	-	✓	-	-	✓	RBGCBFD
MASKIT2	Renault Master, Vauxhall Vivaro	2010 - Present	-	✓	-	-	✓	RBGCBRM
TRAKIT2	Ford Transit	2005 - Present	-	✓	-	-	✓	RBGCBFT
TCBKIT2	Ford Transit Custom (Bulb version)	2013 - Present	-	✓	-	-	✓	RBGCBTC
TCLKIT2	Ford Transit Custom (LED version)	2013 - Present	-	✓	-	-	✓	RBGCBTL
DAIKIT2	Iveco Daily	2014 - Present	-	✓	-	-	✓	RBGCBID
VIVKIT2	Renault Trafic, Vauxhall/Opel Vivaro	2004 - Present	-	✓	-	-	✓	RBGCBRT
UNIKIT2	Universal	Any	-	✓	-	-	✓	RBGCBGV

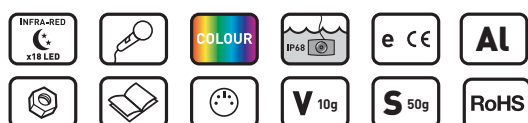
RBG8100 Reversing Camera System



RBGC8 Colour audio camera with infra red night vision
RBG020 20m 4 core cable

Colour Audio Camera

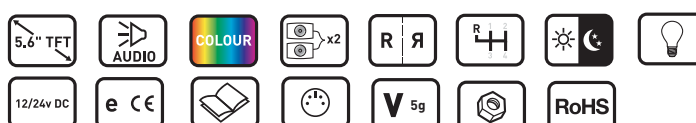
Part Number	RBGC8
Image type	1/4" Colour Sony CCD
Pixels	500(H) x 582(V)
Horizontal resolution	420 TV lines
Lens	2.6mm F2.0
Lens view angle	110° diagonal
Infra red distance	10-12m
LED	18 LEDs
Operating voltage	12V DC



RBGWH3 Wiring harness with 2 camera input
RBGM81 5.6" Colour audio TFT monitor with integral control box
RBGM64 6 Pin male to 4 Pin female adaptor

5.6" TFT-LCD Monitor with integral control box

Part Number:	RBGM81
Display	5.6" TFT-LCD (4:3)
Controls via menu	Colour, Brightness, Mirror image/normal, Input selection, On/off, Volume
Viewing angles	45/65/65/65° (U/D/L/R)
Brightness	cd/m²:300
Operating voltage	12-24V DC
Power consumption	7w
Operating temperature	-15°C to +65°C
Storage temperature	-25°C to +85°C



Reversing Alarms



RRA100
Heavy Duty Reversing Alarm

Features:

- Night Silent Function
- Fully sealed & waterproof
- Over Voltage Protection
- Reverse polarity protection



RRA20
Compact Multi Voltage Reversing Alarm

Features:

- Fully sealed & waterproof
- Over Voltage Protection
- Reverse polarity protection



RRA30
Self Adjusting Volume, Compact Multi Voltage Reversing Alarm

Features:

- Fully sealed & waterproof
- Over Voltage Protection
- Reverse polarity protection

The RRA30 features self adjusting volume and will increase or decrease the alarm volume depending on the ambient back ground noise.

Part Number	Description	Voltage	Volume @ 1m	Fixing	Barcode	Approval
RRA100	Heavy Duty Reversing Alarm	12 - 24V	96dB	Single bolt	5011274210038	E Approved
RRA20	Compact Multi Voltage Reversing Alarm	12 - 80v	97-112dB	2 bolt	5055175215167	E Approved
RRA30	Self Adjusting Volume Compact Multi Voltage Reversing Alarm	12 - 80v	112dB	2 bolt	5055175215150	E Approved

Vehicle Conversion

RBGDC200 Full HD GPS 2.0" Display Dash Camera



This GPS model adds global position recording, which allows playback on Google® Maps using the software provided. It also features a wider angle display, smoother Full HD video and superior low light performance.

Software Included



Part Number	RBGDC200
Video resolution (max)	1920x1080 @ 30fps
Camera resolution (max)	14 Mega Pixels
Display size	2.0"
Lens type	6 Element glass
Viewing angle	140°
Aperture	F/2.0
Battery	110mA Li-Po
Storage card (not included)	Up to 32GB
Audio recording	✓
Shock sensor	✓
Loop recording	✓
Auto Start/Stop	✓
Night vision LEDs	-
Number plate stamp	-
GPS tracking	✓
Playback software	✓
USB port	✓
HDMI port	✓
Weight	95.9g
Dimensions (mm) (L x W x H)	99x40x23

FULL HD
1080P

GPS

+

CAMERA

LOOP

RECORDING

2.0"

DISPLAY

SHOCK
[[[G]]]

SENSOR

AUTO
A

START/STOP

Lithium

BATTERY

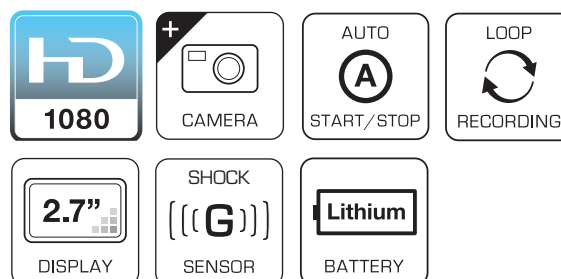


RBGDC50 HD 2.7" Display Dash Camera



This compact model has all the features of the RBGDC15 but adds a larger wide screen display for easy setup and playback. Also included is number plate entry for recording vehicle details into each video.

Part Number	RBGDC50
Video resolution (max)	1920x1080 @ 25fps
Camera resolution (max)	12 Mega Pixels
Display size	2.7"
Lens type	4 Element glass
Viewing angle	120°
Aperture	F/2.4
Battery	200mA Li-Po
Storage card (not included)	Up to 32GB
Audio recording	✓
Shock sensor	✓
Loop recording	✓
Auto Start/Stop	✓
Night vision LEDs	✓
Number plate stamp	✓
GPS tracking	-
Playback software	-
USB port	✓
HDMI port	✓
Weight	56g
Dimensions (mm) (L x W x H)	87x54x44



RBGDC15 HD1.5" Display Dash Camera



With recording resolutions up to 1080 pixels and a 120° four element glass lens, fine details are recorded. The loop recording and auto start/stop features ensure video is never missed. A built-in shock sensor and file locking helps protect vital video evidence.

Part Number	RBGDC15
Video resolution (max)	1920x1080 @ 25fps
Camera resolution (max)	12 Mega Pixels
Display size	1.5"
Lens type	4 Element glass
Viewing angle	120°
Aperture	F/2.5
Battery	200mA Li-Po
Storage card (not included)	Up to 32GB
Audio recording	✓
Shock sensor	✓
Loop recording	✓
Auto Start/Stop	✓
Night vision LEDs	✓
Number plate stamp	-
GPS tracking	-
Playback software	-
USB port	✓
HDMI port	-
Weight	42g
Dimensions (mm) (L x W x H)	65x42x39



1080



CAMERA



AUTO
START/STOP



LOOP
RECORDING



1.5"
DISPLAY



SHOCK
[[[G]]]
SENSOR



Lithium
BATTERY



ANCILLIARY EQUIPMENT

Towing	48
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Our range of ancillary equipment is designed to fine tune and customise your van conversion to make your mobile work space complete.

A comprehensive range of products that complete the installation of ancillary equipment and complement the daily activities of the vehicle operator. All selected products meet relevant industry regulations where required and are tough enough for everyday operator use.



Towing

It is important the vehicle you use to pull your trailer is adequate for the job, to avoid damage to the vehicle, trailer or to be hazard on the road.

- Check the vehicle manufacturer's hand book for towing limits - this will advise if the engine capacity is large enough to tow the trailer.
- Check the trailer gross weight does not exceed the towing capacity.
- Check the brakes are powerful enough to stop the vehicle and trailer safely. This should include the trailers braking ability. All trailers over 750 kgs need to have an overrun braking system.
- Check the recommended nose weight for your vehicle. This is likely to be between 50 and 100kgs. Only in the case of very light trailers should you have less than 50 kgs nose weight.



Part Number	Description	Length	Pack dimensions	Pack Qty	Barcode
RCT765	M16 Mounting Bolts (x2)	55mm	H150 x W125 x D30mm	10 x 1	5011274976514
RCT764	M16 Mounting Bolts (x2)	75mm	H150 x W125 x D30mm	10 x 1	5011274976415
RCT763	M16 Mounting Bolts (x2)	90mm	H150 x W125 x D30mm	10 x 1	5011274007638
Part Number	Description	Material	Pack dimensions	Pack Qty	Barcode
RCT600	Single Mounting Plate	Black Coated Steel	H250 x W125 x D5mm	10 x 1	5011274960018
RCT742	2" Drop Plate	Zinc Plated Steel	Bulk	10 x 1	5011274007423
RCT743	3" Drop Plate	Zinc Plated Steel	Bulk	10 x 1	5011274007430
RCT744	4" Drop Plate	Zinc Plated Steel	Bulk	10 x 1	5011274007447



Part Number	Description	Material	Pack dimensions	Pack Qty	Barcode	Approval
BCT715	50mm Towball (92/20 approved)	Forged Steel	Bulk	10 x 1	5011274007157	E approved
BCT718	Extended Neck Towball	Forged Steel	Bulk	10 x 1	5055175213736	E approved
RCT725	Ball and Pin Coupling	Forged Steel	Bulk	1 x 1	5055175219820	E approved

Towing Connectors

A0008 12N 7 Pin Socket



A0012 12N 7 Pin Socket with fog cut out



A0032 12N 13 Pin Socket



A0035 Socket Adapter

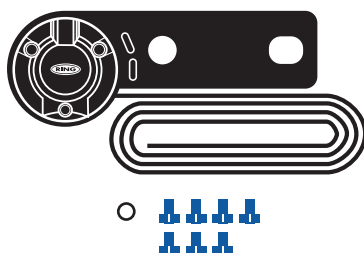


A0036 Plug Adapter

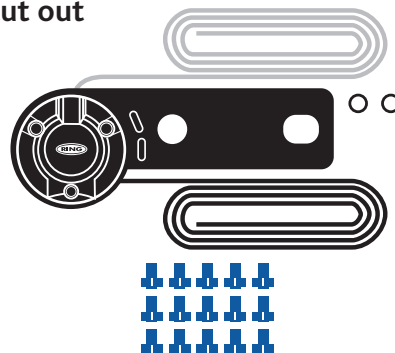


Part Number	Description	Material	Pack dimensions	Pack Qty	Barcode
A0008	7 Pin Socket	Plastic	H150 x W125 x D60mm	10 x 1	5011274900823
A0012	7 Pin Socket with fog cut out	Plastic	H150 x W125 x D60mm	10 x 1	5011274901219
A0032	13 Pin Socket inc. seal	Plastic	H150 x W125 x D60mm	10 x 1	5011274903213
A0035	13 Pin Socket/Plug 7 Pin Adapter	Plastic	H150 x W125 x D60mm	10 x 1	5011274903510
A0036	7 Pin Socket/13 Pin Plug Adapter	Plastic	H150 x W125 x D60mm	10 x 1	5055175215693

RSA175 12N Socket Assembly



RSA500 13 Pin Socket Assembly with fog cut out



Part Number	Description	Pack dimensions	Pack Qty	Barcode
RSA175	12N Socket Assembly	H250 x W125 x D90mm	5 x 1	5011274917517
RSA500	13 Pin Socket Assembly with fog cut out	H250 x W125 x D90mm	5 x 1	5055175213613

Vehicle Conversion

Canbus Relays

Modern vehicle electrics operate using a canbus wiring system. To operate the trailer lighting and not place additional loading on the vehicle electrics requires a canbus relay. Without such a relay the trailers electrics will be incompatible, generating a fault warning within the vehicle.

RCT485 12N Smart Logic Relay



Part Number	Description	Pack dimensions	Pack Qty	Barcode
RCT485	12N Smart Logic Relay	H150 x W125 x D30mm	10 x 1	5055175224657

Personal Safety

Fire extinguishers are an essential piece of safety equipment to keep your work space safe.

Ideal size to store neatly away in the front cabin or rear work space.

All are CE marked to Current European legislation

All are ABC rated for solid, liquid, gas and electrical fires

All comes complete with strong, secure mounting bracket.

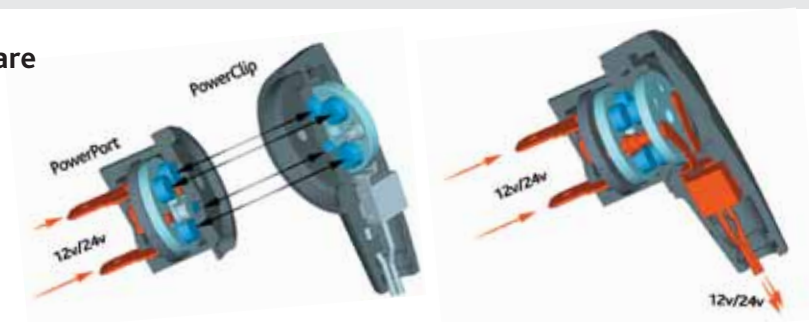


Part Number	Description	CE Marked	Warranty	Fixing	Barcode
RCT1740	1KG dry powder fire extinguisher	✓	2 years	Strong secure mounting bracket	5055175223452
RCT1750	1KG dry powder fire extinguisher with gauge	✓	2 years	Strong secure mounting bracket	5055175223469
RCT1760	2KG dry powder fire extinguisher with gauge	✓	2 years	Strong secure mounting bracket	5055175229348

Magcode DC Power Connectors

Only live when port and clip are connected.

Suitable for internal and external applications.



IP42
Weatherproof



12V
Battery Type



25 Amp
Maximum Load



Polarity
Protection



PowerPort Pro



PowerClip Pro



IP42
Weatherproof



12/24V
Battery Type



15 Amp
Maximum Load



Polarity
Protection



PowerPort



PowerClip

Auto Magnetic and Mechanical Twist Lock Mechanism for Professional Applications

- Available in 12V
- 25amp max current
- Duty cycles under load - 5000 cycles
- Magnetic twist lock connection
- Only live when the clip and port are connected
- Suitable for interior and exterior applications
- IP42 rated when connected
- Minimum installation depth
- Magnetic coding prevents 12 or 24V incorrect connection and polarity protection

Auto Magnetic Connection Mechanism

- 12 and 24V variants available
- 15amp max current
- Duty cycles under load - 4000 cycles
- Magnetic quick connection

Part Number	Description	Voltage	Product dimensions	Pack Qty	Approval
RMGCPRO12B	Powerclip Pro	12V	Ø38 x D22mm	1 x 1	CE
RMGPRO12B	Powerport Pro	12V	Ø38 x D18mm	1 x 1	CE
RMGC12B	Powerclip	12V	Ø38 x D22mm	1 x 1	CE
RMGP12B	Powerport	12V	Ø38 x D18mm	1 x 1	CE
RMGC24B	Powerclip	24V	Ø38 x D22mm	1 x 1	CE
RMGP24B	Powerport	24V	Ø38 x D18mm	1 x 1	CE

Vehicle Conversion

Warning Light Legislation

Which vehicles are affected?



L - Motor vehicles with less than four wheels.



M - Motor vehicles with at least four wheels and used for the carriage of passengers.



N - Power driven vehicles having at least four wheels and used for the carriage of goods.



O - Trailers.



T - Agricultural, forestry and mobile machinery.

(For full category definition visit www.unece.org)



Legislation applicable to beacons, roof bars and strobes used on the highway

Traffic signs manual - Chapter 8 Traffic Safety Measures and Signs for Road Works & Temporary Situations

What is it? - Within the regulations, Chapter 8 specifies the requirement of beacons used 'on high speed roads'. The vehicles included are any that stop on the highway for works purposes or inspections. These shall be equipped with either a roof-mounted flashing amber warning light bar (comprising at least 2 independent light sources) or 2 independent roof mounted flashing amber warning beacons visible through 360°

To comply with the requirements, warning lamps must:

- Be UN ECE Reg 65 approved for Special Warning Lamps
- Be fitted in the correct position i.e, if a roof mounted beacon is likely to be obscured at the rear by other roof mounted equipment, additional beacons should be fitted.

What it affects - Roof mounted beacons shall be in use when entering, leaving or moving within the site and when travelling in traffic at less than the general traffic speed and when stationary on the hard shoulder. Vehicles engaged on snow clearing, gritting operations or similar work shall display a flashing amber warning at all times when operating.

See: *Department for Transport / Highways agency, Department for Regional Development (Northern Ireland), Transport Scotland and Welsh Assembly Government.*

ECE Regulation 65 - Uniform provisions concerning the approval of special warning lamps for power-driven vehicles and their trailers.

What is it? - Reg 65 details the specification of Special Warning Lamps (Beacons, Roof Bars & Strobes) which are used on the highway. The regulation ensures the light output, colour, flash frequency and construction of the lamps meet the required standards. The markings on the lamps confirm the lamps approval to Reg 65.

What it affects - Vehicles in categories L, M, N, O & T

Vehicle Upgrade Legislation

Although this regulation has not been adopted in the UK any beacon carrying the ECE Reg 65 approval mark must meet the standard.

Look for this symbol on Ring products to be assured of ECE Reg 65 compliance.

TA1-02  xxxx

See: *UNECE United Nations Economic Commission for Europe*

ECE Regulation 10 - Uniform provisions concerning the approval of vehicles with regard to electromagnetic compatibility (EMC)

What is it? - Electromagnetic compatibility is the ability of a product to function in an electromagnetic environment without affecting other components or the vehicle. This applies to original equipment and aftermarket fitted products including warning lighting such as beacons.

What it affects - Vehicles in categories L, M, N & O.

Look for this symbol on Ring products to be assured of Reg10 compliance.

10R-04  xxxx

See: *UNECE United Nations Economic Commission for Europe*

Type Approval - Legislation relevant to vehicle builders and converters

EC Directive 2007/46/EC – European Community Whole Vehicle Type Approval

What is it? – Certification granted to a product that meets a minimum set of regulatory, technical and safety requirements. A type approved product requires approval certifications, drawings & photographs. These are available from Ring upon request.

Do I need it? – As part of European Community Whole Vehicle Type Approval (ECWVTA) set out in 2007/46/EC, all categories of vehicles need to meet the requirements of Directive 72/245/EEC.

Products requiring E approval – Only those components that are defined as being 'immunity-related' require Automotive Type Approval.

'Immunity-related' is defined within the Directive, but the term applies to the following:

- Related to the direct control of the vehicle
- Related to driver, passenger and other road-user protection
- Related to causing confusion to the driver and other road users by optical and audible disturbances
- Related to vehicle data bus functionality
- Related to vehicle statutory data.

If your product falls within any of these areas, you will need full Type Approval for components (e-marking)

Source; www.dft.gov.uk/vca

Those products defined as being 'non-immunity related' require compliance with the generic EMC Directive 2004/108/EC or the RTTE Directive 1999/5/EC and CE-marking, along with a 2004/104/EC 'Annex IIIC attestation' from a Technical Service.

Who it affects – Anyone who builds on, converts, modifies, or adds to a type approved vehicle.

See: VCA (Vehicle Certification Agency) the designated UK Approval Authority and Technical Service for type approval to all automotive European Community (EC) Directives and the equivalent United Nations Economic Community for Europe (ECE) Regulations.

Vehicle Conversion

Technical Guide

Best practice for connecting/installing your inverter

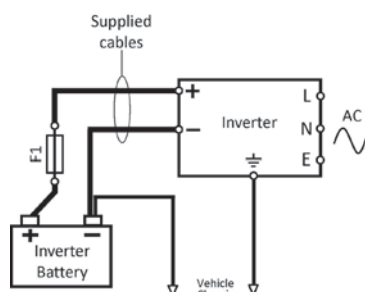
Making the Connections

Connect the inverter to the battery using the supplied battery cables and terminals.

1. Ensure that the inverter power on/off switch is in the OFF (O) position.
2. Attach the black (-) cable to the black (-) terminal on the rear face of the inverter and to the black (-) terminal on the battery
3. Attach the red (+) cable to the red (+) terminal on the rear face of the inverter and to the red (+) terminal on the battery
4. To help protect against short circuit, it is recommended an in-line fuse (F1) be fitted near the positive battery post.

Single Battery System

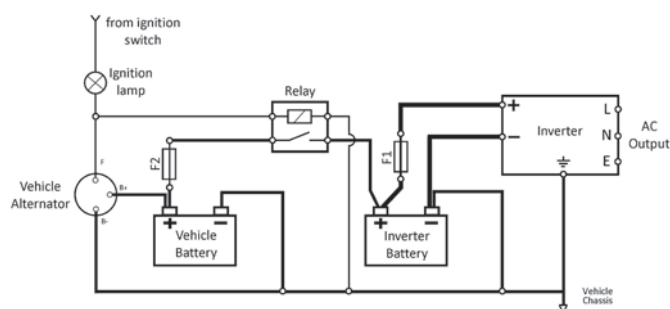
Fig1 – Example single battery system



Dual Battery System

For heavy duty applications a secondary battery can be fitted to increase the inverter running time. An additional relay may also be fitted to allow this battery to be charged from the vehicle alternator when the vehicle engine is running. Alternatively the ring DC-DC charger can be fitted in place of the relay to provide a faster 'smart charge' to the inverter battery.

Fig2 – Example dual battery system



RSDC30
DC-DC Smart Battery Charger

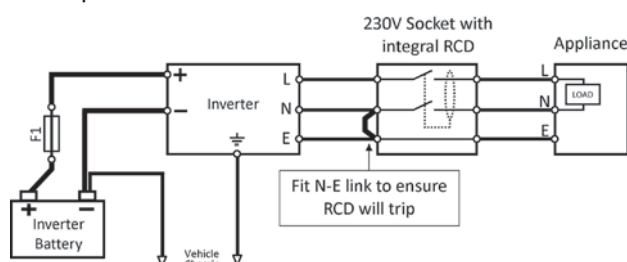
Earth Connection

Ensure the inverter is earthed by connecting a cable from the inverter earthing bolt (2) to a suitable earth within the installation (normally the vehicle chassis).

Earth Leakage Protection

When the inverter is used to power 230V socket outlets, which are a permanent part of the installation, a Residual Current Device (RCD) should be fitted to provide protection in the event of a fault. Note:- In order for an RCD device to trip effectively when used in a vehicle, the neutral output from the inverter should be linked to the earthing system of the installation, see Fig3 for an example installation.

Fig3 – Example 230V protection



Caution: It is recommended the inverter is wired and tested by a qualified electrician

Notes



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FM 504682

