



for Professionals

RedBack Lasers  
509

Rotating Laser - 509KIT, ARL509

# Instruction Manual



[www.redbacklasers.com.au](http://www.redbacklasers.com.au)

# CONTENTS

User Safety	2
Introduction and Accessories	3
Diagrams	4
Operating Instructions	6
Batteries	6
Power and Rotation Speed	7
Laser Receiver LR710	8
Calibration Self Check & Technical Specifications	9
Care & Maintenance, Trouble Shooting	10
Warranty	12

## User Safety

- Laser output sign lies near the output aperture.
- Do not stare directly into laser beam.
- Do not disassemble the instrument or attempt to perform any internal servicing. Repairs and service should be performed only authorised service centres of Redback Lasers.
- This instrument complies with the safety Classification standards of laser radiation.

### 509KIT (Red)



CAUTION: Class II laser <1mW at 635nm.  
Do NOT stare into laser beam or aim at another person.

Follow relevant Australian Standards

### GREEN509KIT (Green)



CAUTION: Class 3R laser <5mW at 522-542nm.  
Do NOT stare into laser beam or aim at another person.

Follow relevant Australian Standards

# INTRODUCTION

Congratulations on purchasing the 509KIT or GREEN509KIT. A self levelling (horizontal) builders rotating laser level.

These models are ideal for general site levelling and landscaping, simply set it up on a tripod, unlock the pendulum, it self levels and the laser starts rotating. Then using the supplied LR710 (509KIT) or LR710G (GREEN509KIT) receiver you can set up your levels.

The laser level is manual levelling when set up on its side mount for vertical alignment.

It features variable rotation speeds to help with visibility indoors.

Other features of the 509KIT include Elevating Tripod and 2.4m 5 Section Staff all in a hard carry case. Warranty of the laser is Two Years. (See page 12)

The 509 comes with a standard Survey Thread Tripod mount so can be used with the HDF94 tripod as an optional extra if desired. There are also optional rechargeable batteries and charger that can be purchased off the web site. <https://www.redbacklasers.com.au/product/bat509charger-upgrade-pack-ni-mh-batteries-charger-pack-redback-509kit/>

## 509KIT (GREEN509KIT) Included Accessories

- ARL509 Laser Unit (ARL509G)
- Protective Carry Case
- Laser Receiver LR710 (LR710G)
- Receiver Staff Clamp
- Elevating Tripod
- 2.4m 5 Section Mini Staff
- Instruction Manual



# ARL509™ DIAGRAMS

## ARL509™ Laser Unit

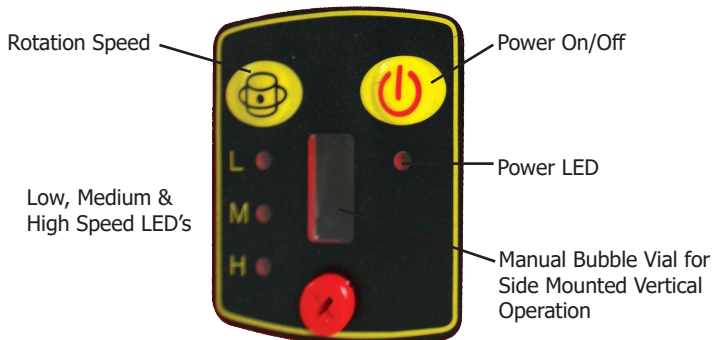


1. Rubberised Casing
2. Laser Output Window
3. Side/Wall Mounting Plate
4. Battery Compartment
5. Levelling Knob Side Mounted
6. Charging Socket/LED

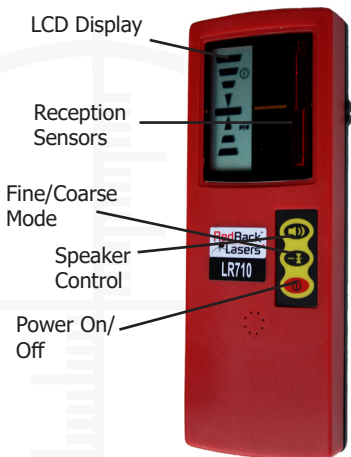


- 7
- 8

## Keypad



## Receiver - LR710 or LR710G

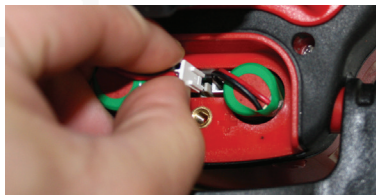


# OPERATING INSTRUCTIONS

## Battery Instructions

The laser has two battery options either 4 x standard "AA" size Alkaline or the OPTIONAL Ni-Mh rechargeable packs. For standard 4 x "AA" alkaline operation simply insert into standard battery holder in the direction indicated and tighten the locking screw.

To use the OPTIONAL rechargeable battery pack first remove standard batteries if inserted and replace them with the two rechargeable batteries plugging in cables as shown in picture.



To charge these battery packs simply insert the OPTIONAL charger plug into the charging socket. The LED on the charger is illuminated red during the charging process and will turn green once the batteries are fully charged. Only the special rechargeable packs can be charged, if normal batteries are installed when the charger is plugged in nothing will be charged.


When the power LED on the keypad flashes, the rechargeable battery packs need recharging or standard batteries need replacing. Note the charger will only charge the supplied rechargeable battery pack.

NOTE: the 509KIT/GREEN509KIT does not include the rechargeable battery pack and charger



## Turning Laser On (Horizontal Operation)

Before the ARL509™ can be powered up for normal horizontal rotation the pendulum locking knob first needs to be rotated to the "ON" position, this disengages the protective pendulum lock.

Now when the power button  is pressed the laser will be powered up and the head of laser begins to rotate and after a couple of seconds the magnetically dampened pendulum will be self levelled.




If the laser emits a loud beeping sound then the laser housing is setup outside self levelling range, re-setup and try again.

## Turning Laser On (Vertical Operation)

The ARL509™ can be used on its side for vertical rotation and alignments in this orientation the Pendulum lock must remain in the "OFF" locked position, levelling of the laser is manual and is achieved by levelling off the bubble vial built into the keypad using the "Levelling Knob" see page 4.



## Rotation Speed Settings

- A short press of the Rotating Speed Button  will switch the rotating speed between 3 different rotational speeds, "High" (default), "Medium" and "Low". Rotation speed will effect receiver performance at different distances and also help visibility of the laser beam when used indoors.

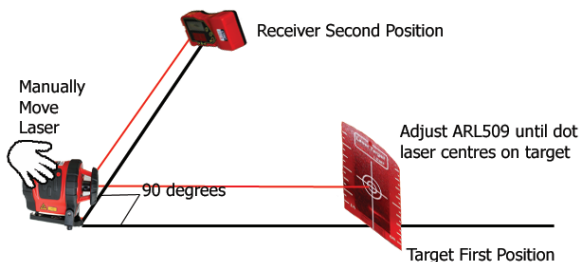
# OPERATING INSTRUCTIONS

## Vertical Rotation Operation for Site Layout

The ARL509™ can be used on its side for vertical alignment or together with the dot laser out of the front to produce a 90 degree square for site layout. The ARL509™ can be placed on its side with the datum marker over the correct point and the laser levelled with the bubble vial and manual levelling knob.

For site layout squaring;

- Place datum marker over the datum point marking the conjunction of the 90 degree lines.
- Align laser housing so dot is striking target point along the one line of the 90 degrees, adjust the housing of the laser left and right to achieve this.
- Once the dot is on the target use the receiver to pick up the rotating line on the second line of the 90 degree. Your square is now set.



## Using the ARL509™ with the built in Wall Mount

The ARL509™ side mount plate can be used either on the ground or on a tripod using the 5/8" – 11tpi screw thread or it can be used as a basic wall mounting bracket. Simply by using the screw hanging location hole.










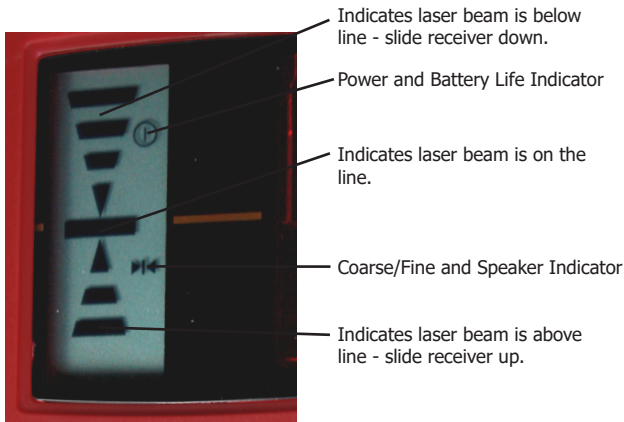
# LR710/G RECEIVER INSTRUCTIONS

## Laser Receiver LR710/G (refer to diagram page 5)

The LR710 is a single sided display rotating laser receiver, it can be either hand held or with the staff bracket clamped onto a staff.

- A press of the power button  toggles the receiver on and off.
- The Speaker button  turns on and off the speaker (default is off).
- Pressing the Coarse/Fine Mode button  toggles through fine mode indicated by  on the LCD the accuracy of level is at its highest with 1mm tolerance movement by the receiver before showing it off level. The default coarse mode  allows 2mm before showing off level.

The LR710 & LR710G has a large LCD displays with progressive bars indicating when the laser gets closer to the level mark. Move the receiver up and down (side to side vertical rotation) slowly and watch the display change when the solid tone is heard (sound turned on) and the centre line is shown then the receiver is at the height of the laser beam plane. The receiver will auto power down after 10 minutes when not receiving laser pulses. The receiver is powered by the included 9V battery.



# TECHNICAL SPECIFICATIONS

## 509KIT

Laser Wavelength	635nm <1mW
Laser Class	II
Range with Receiver	240m Diam Rotating
Horizontal Accuracy	±3mm/20m
Rotation Speeds	High, Medium, Low
Self Levelling Range	±3.5°
Temperature Range	-10°C - +45°C
IP Dust Water Resistance	IP55
Power	4 x "AA" Alkaline or Ni-Mh pack
Low Power	Power LED Flash
Size	126x170x168mm
Weight	1.5Kg

## GREEN509KIT

Laser Wavelength	520nm <5mW
Laser Class	3r
Range with Receiver	300m Diam Rotating
Horizontal Accuracy	±3mm/20m
Rotation Speeds	High, Medium, Low
Self Levelling Range	±3.5°
Temperature Range	-10°C - +45°C
IP Dust Water Resistance	IP55
Power	4 x "AA" Alkaline or Ni-Mh pack
Low Power	Power LED Flash
Size	126x170x168mm
Weight	1.5Kg

# CARE & TROUBLE SHOOTING

All Redback Lasers have been checked for calibration and certified by one of our technicians here in Australia prior to despatch and should under normal conditions not go out of calibration. A calibration certified sticker with the date and name of technician is located on the laser itself. It is worth checking calibration from time to time particularly after any known knocks or drops. An easy way to continually check calibration is to always double check you work with the laser located in a different position or use an alternate vertical line. Various other methods for checking calibration can be found at [www.redbacklasers.com.au/downloads](http://www.redbacklasers.com.au/downloads) or the laser can be returned to our service department for checking and re-calibration. We at Redback Lasers provide a once off free calibration and check within the duration of the warranty period see page 16 for details.

- Keep laser and accessories stored in protective case.
- Make sure laser is stored dry, dry out before storage to prevent damage.
- Remove batteries when not used for an extended period of time to prevent leakage.
- The ARL509™ is a precision instrument and should not be subjected to excessive knocks, drops or vibrations.
- Self check calibration from time to time. See page 9
- For service contact Redback Lasers. [www.redbacklasers.com.au](http://www.redbacklasers.com.au)

**Q. *I hear a continuous beeping in side (Vertical rotation) mode!***

**A.** *Check the pendulum lock is in the "OFF" Locked position when used in vertical rotation mode on its side mount.*

**Q. *The Laser does not power up in normal Horizontal mode!***

**A.** *Check the pendulum lock has been unlocked "ON" position for horizontal rotation operation.*

**Q. *The Laser does not power up!***

**A.** *Check the rechargeable batteries are charged and connected correctly and or replace standard "AA" size Alkaline batteries and check they are inserted correctly.*

**Q. *Using the receiver I get multiple heights showing as level!***

**A.** *This is a common problem with all laser levels and is usually due to the laser being reflected off a window or other reflective surface. So the original laser beam plus the reflection are both hitting the receiver at slightly different heights. To prevent this, set the laser unit up so that you cannot see a reflective surface from where you are holding the receiver i.e. Any glass behind receiver not the laser.*

# REDBACK LASERS WARRANTY

Duration of warranty is fixed and automatic, when we advertise 2 years on a particular model, its two years. No drop down to a lesser time if you forget to register, registration is NOT required just proof of purchase showing date.

Although the duration of our warranties are for a particular period it does not mean we will charge you for a genuine warranty failure a month or two outside that warranty period, we believe in a fair go.

Even though a product shows signs of accidental damage, scratches and the like, we will not automatically fail the warranty claim, if the fault is NOT caused by a drop or misuse and is a genuine warranty failure then we will cover it.

Calibration is not covered by warranty much the same as the wheel balance on your car is not covered by warranty, we do however offer a one off free re-calibration service during the period of warranty, conditions and details below.

CMI Industries Pty Ltd provides consumers with a warranty to our products, this is in addition to requirements of any relevant legislation such as the Competition and Consumer Act 2010. Definitions:

"CMI", "We" or "Our" refers to CMI Industries Pty Ltd (ABN 29 102 713 922) of Unit2 381-383 Thompson Rd, Bell Park, Victoria 3215 ph 1800 769 858

"You" or "Consumer" refers to the initial purchaser of the product.

"Product" refers to goods manufactured by or for CMI Industries Pty Ltd under the brands of RedBack Lasers, Level1Laser and CMI Lasers.

"Material" refers to material or component used in the construction and manufacture of the product.

"Workmanship" refers to handling, assembly and manufacturing processes done by or for CMI Industries Pty Ltd in order to manufacture the products.

"Warranty Period" For the 509KIT & GREEN509KIT Two Years. Warranty period is from original purchase date, no extension is made in the event of warranty replacement products supplied or time spent being repaired.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage.

You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. Ni-Mh Battery & Charger if supplied have 1 Year Warranty.

CMI warrants that our products will be free from defects in material and workmanship for the warranty period.

CMI promises to repair or replace, free of charge, the product or part of product if found to be faulty due to defective workmanship or materials within the duration of the warranty as long as the following terms and conditions are met;

- Product must not have been misused or abused, must not have incurred accidental damage or had un-authorised repair or tampering that has caused or contributed to its fault or failure.
- You must contact CMI by phone, mail or email immediately when a fault or defect has become apparent and within the warranty period.
- Product must be returned to store of purchase or directly to CMI, we will cover cost of postage only when sent by our reply paid Australia Post service (Australian Main land and Tasmania only) details will be provided upon phone, post or email communications with us.
- CMI will cover cost of freight back of repaired or replaced product to original purchase store or you directly (depending on how it was sent Australian Main Land and Tasmania only).
- CMI will determine whether to repair or replace the product or part of product on a case by case basis.
- Further exclusions in this warranty include damage or defect caused by use of non-original accessories or parts, damage in transportation, normal wear and tear, damage through moisture, damage due to electric surge, failure due to neglect or damaged caused by adjustments not outlined in CMI's instructions.

Subject to the requirements of all applicable Australian Acts or legislation and to the extent permitted by law, CMI accepts no liability (whether expressed or implied) of any nature whatsoever for any loss of earnings, hiring of replacement equipment, inaccurate work carried out by the consumer or agent, damage or injury arising as a result of any fault in the product. It is the consumers responsibility to maintain good working practices and regularly test their tools for accuracy and serviceability.

Calibration of the product is not covered by warranty subject to the requirement of all applicable Australian Acts or legislation and to the extent permitted by law, CMI does however offer a free re-calibration service (once within the period of the warranty) you are liable for the cost to send the product to us then we will recalibrate and return the product to you free of charge. Note this offer is invalid if the product shows signs of misuse or accidental damage that has caused it to go out of calibration.

A CMI product returned that fails to fall within the terms and conditions of this warranty will be quoted for repair.

RedBack Lasers™ distributed by CMI Industries Pty Ltd  
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