

CX440 - Outdoor Line Laser  
Builders Mate Laser Level



CX440

# Instruction Manual



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

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## 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.



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

Follow relevant Australian Standards



# CX440™ INTRODUCTION

Congratulations on purchasing the CX440™ Indoor and Outdoor Line Laser, "Builders Mate".

The CX440™ is ideal for general site levelling, simply set it up on a tripod, turn on, it self levels. Select the horizontal line and switch into pulse mode, then using the supplied LLR705 receiver you can set up your levels.

The CX440™ is also ideal for site layout or squaring with the 3 outdoor vertical lines all at 90° simply align over your datum and using your included Receiver in line mode you can quickly and accurately set up your site.

The CX440™ is also ideal for all types of internal fit out such as windows, plaster, electrical and much, much more, using either the vertical or horizontal lines .

Other features of the CX440™ include plumb up and down, rechargeable Ni-Mh and Std "AA" Size battery operation and Two Year Redback Warranty. (See page 16)

## CX440™ Included Accessories

- CX440™ Laser Unit
- Protective Carry Case
- Rechargeable Ni-Mh Battery
- Charger
- Laser Receiver LLR705
- Receiver Staff Clamp
- Magnetised Target
- Tripod Base
- Glasses to Assist Viewing of Laser
- Instruction Manual



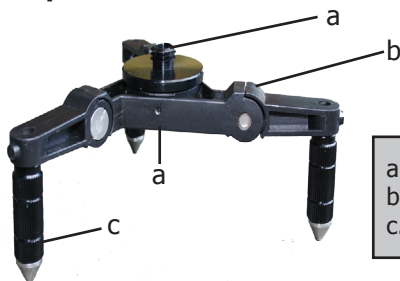
# CX440™ DIAGRAMS

## CX440™ Laser Unit



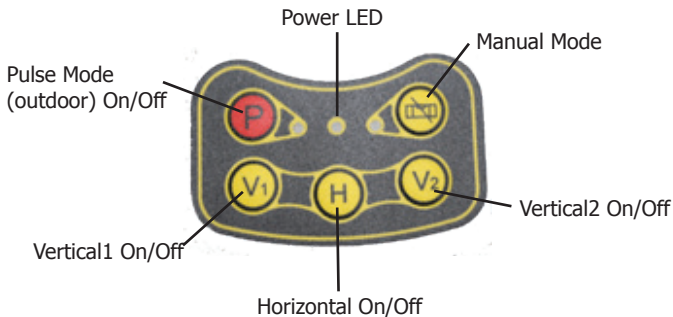
1. Laser Output Vertical
2. Laser Output Horizontal
3. Pendulum Locking Knob
4. Fine Adjust Rotation Knob
5. Tripod Base
6. Rough Level Bubble Vial
7. Keypad

## Tripod Base



- a. 5/8" – 11tpi Screw Threads
- b. Fold Out Legs
- c. Adjustment Feet

## Keypad



## Receiver LLR705



# CX440™ OPERATING INSTRUCTIONS

## Battery & Charging Instructions

The CX440 has two battery options either 4 x standard "AA" size Alkaline or the Ni-Mh rechargeable pack.

For standard 4 x "AA" alkaline operation simply insert batteries into the standard battery compartment in the direction indicated and secure onto the back of the laser. Note a good quality Alkaline battery is recommended anything less will provide only limited running time.

To use the rechargeable battery insert the rechargeable battery compartment onto the back of the laser level and tighten up the locking screw.



To charge the battery, simply insert the charger plug into the charging socket located below the locking screw. The charger's LED is illuminated red during the charging process and will turn green once the batteries are fully charged.

When the power LED on the keypad flashes, the battery needs recharging. It is recommended to run the battery until the power LED is flashing; this helps to extend the life of the battery. Note the charger will only charge the supplied rechargeable battery packs.

### Handy Hints

- *Prior to initial use, charge the rechargeable battery for at least 8 hours. (batteries are not charged when shipped)*
- *Running rechargeable batteries completely flat will increase battery life.*
- *The CX440™ can operate off mains by plugging the charger (for indoor use only) into the unit.*
- *Remember the CX440™ can operate using standard batteries when rechargeable ones are out of charge.*

## Turning the Laser On


The CX440™ is a pendulum based auto levelling laser and the pendulum is locked when not in use. Rotate the "Pendulum Locking Knob" this will both unlock the pendulum but will also allow power to be turned on, the central power LED will be illuminated as will the bubble vial on the top of the laser.

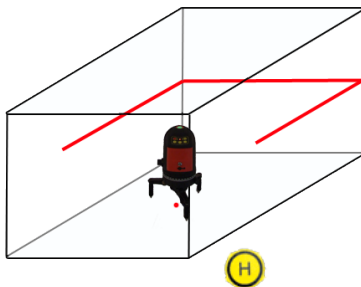
To turn on the laser beams either the vertical or horizontal laser beam buttons need to be pressed, note that the plumb down dot automatically illuminates together with any of the lines.

The bulls eye vial on the top of the laser housing is a rough levelling vial only and is designed to get the housing of the laser into self levelling range only and so has no effect on the accuracy of the laser level. When the laser level housing is outside self levelling range and the pendulum is unlocked all laser beams will flash and a warning tone will be emitted. The bulls eye vial will indicate the direction the laser housing will need to be levelled to be able to self level, use the adjustment feet on the tripod base to level the housing.

If the laser operates without the "Out of Level" alarm sounding no adjustment is required.



## Horizontal Lines

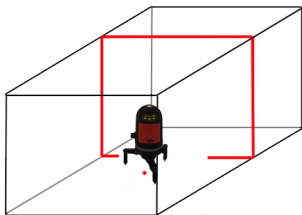
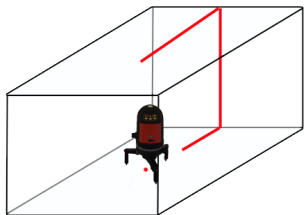
The CX440™ has two horizontal laser lines that join together to make a seamless 250 degree fan angle, both of these lines are toggled on and off at the same time when the "Horizontal button"  is pressed.



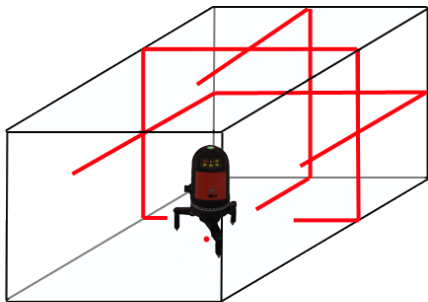
# CX440™ OPERATING INSTRUCTIONS cont.

## Vertical Lines


The CX440™ has three vertical laser lines all at 90 degrees to each other. Pressing the first vertical line button V1  will toggle on and off the one front vertical line. Pressing the second vertical line button V2  toggles the other two vertical lines.



The CX440™ can illuminate any combination of vertical and horizontal lines depending on which buttons have been pressed.



## Pulse Mode (Outdoor use with Receiver)

The Lines when turned on are in visible indoor mode and cannot be received by the LLR705 electronic receiver, to allow the receiver to pick up these lines the CX440™ needs to be switched into "Pulse Mode" this is done by pressing the Pulse button P . The lines are still visible indoors but slightly less bright due to the fact that they are being pulsed very quickly. To deactivate pulse press the "P" button once again and the adjacent pulse LED will go out.

For outdoor use it is recommended using the CX440™ in pulse mode with the LLR705 receiver.




Laser receiver LLR705 is used to pick up the lines as all line lasers are difficult to visually see when used outdoors. Picture shows a graphical representation of laser lines

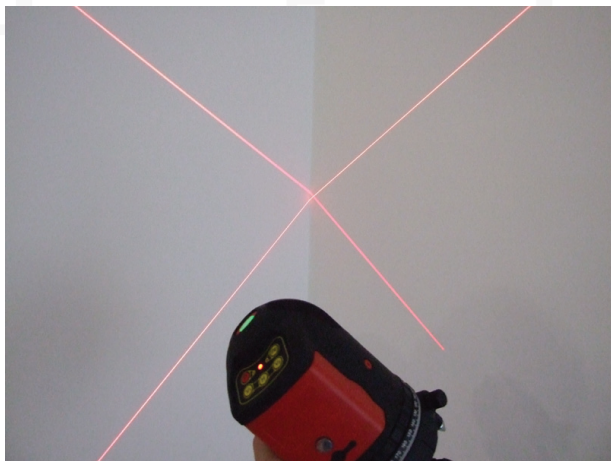
# CX440™ OPERATING INSTRUCTIONS cont.

## Manual Level Mode

The CX440™ can be used in a manual levelling mode, this is useful if you want to have a vertical or horizontal line projected which is not perfectly horizontal or vertical such as balustrades.

Manual mode is basically a way of forcing the laser level to operate without first unlocking the pendulum and is achieved by pressing the "Manual level" button  WITHOUT UNLOCKING THE PENDULUM.



In manual mode all lines can be activated in the same manner as previously described and the head of the laser manoeuvred to produce the angle of lines required. When in manual mode the adjacent LED will continually flash to indicate that the laser is NOT self levelling, to return laser in self levelling mode simply rotate the pendulum lock to the unlocked position.



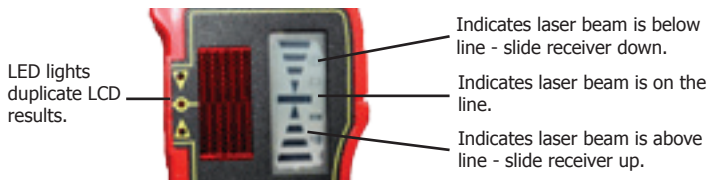
# LLR705™ RECEIVER INSTRUCTIONS

## Laser Receiver LLR705 (refer to diagram page 5)

The line receiver picks up pulsed laser lines and has multiple displays and sound options. The receiver can be used hand held or together with the staff clamp with a staff.

- A press of the Power button  on the receiver will turn on and off the receiver.
- Pressing the Speaker button  toggles speaker on and off.

The LLR705 has 3 LED light displays which indicate laser is above, below and on level and a large LCD display which has a progressive display indicating when the laser gets closer to the level mark. If the receiver is left turned on without a laser being received it will auto power down after 10 minutes.



## Tripod Base (refer to diagram page 4)

The CX440™ can be operated with or without the Tripod base. The base is ideal when the laser is used indoors or when used directly on the ground. The tripod base can be removed when the laser is used on a tripod. The feet on the tripod base can be rotated in order to level up the body of the laser level as indicated by the bubble vial on the top of the housing.

# SITE SQUARES & LAYOUTS

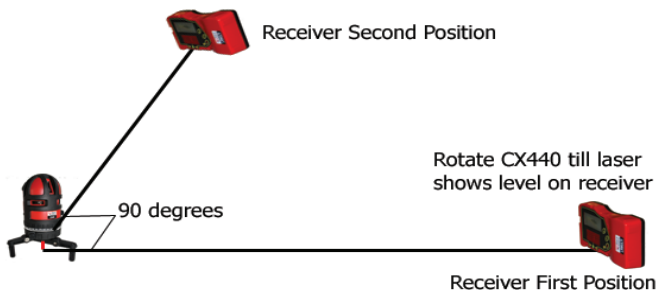
## Setting a Site Square and layout

The CX440™ has 3 vertical lines all at 90 degrees to each other, this makes this laser ideal for setting Site Squares and general outdoor and indoor layout without the need to do a 3-4-5 calculation.

First place the CX440™ over the datum corner for the desired 90 degree square using the plumb down reference point. Next align one of the vertical lines with one of the lengths of the required square by placing the receiver on it side at the far end of the line to the datum point.

Turn on all vertical lines, select pulse mode (outdoor mode), rotate the body of the laser at first manually then with the fine rotation knob until the receiver picks up the laser and the solid tone indicating level is heard. (sometimes its hard to get the laser beam exactly on the level solid tone due to the extreme accuracy of the receiver if you get within a millimetre or so that will be accurate enough for most jobs)

Take the receiver over to the 90 degree line move the receiver side to side slowly until you pick up the line and again get the solid tone. The point from the receiver to the datum point is the second length of the square and is at 90 degrees to the first, your site square is done.



# CX440™ TECHNICAL SPECIFICATIONS

## Technical Specifications

Laser Wavelength	635nm <1mW
Laser Class	II
Range with Receiver	60m Radius Line (Pulse)
Accuracy	±2mm/10m
Horizontal Fan Angle	250°
Vertical Fan Angle	120°
Self Levelling Range	±3°
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	120x126x180mm
Weight	1.8Kg

## Calibration & Self Check

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 back cover for details.

# CX440™ TROUBLE SHOOTING

## Care & Maintenance

- 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 CX440™ is a precision instrument and should not be subjected to excessive knocks, drops or vibrations.
- Self check calibration from time to time. see page 13
- For service contact Redback Lasers. [www.redbacklasers.com.au](http://www.redbacklasers.com.au)

## Trouble Shooting - FAQ

**Q.** *I cannot get the receiver to pick up the lines!*

**A.** *Check the lines are set into Pulse Mode.*

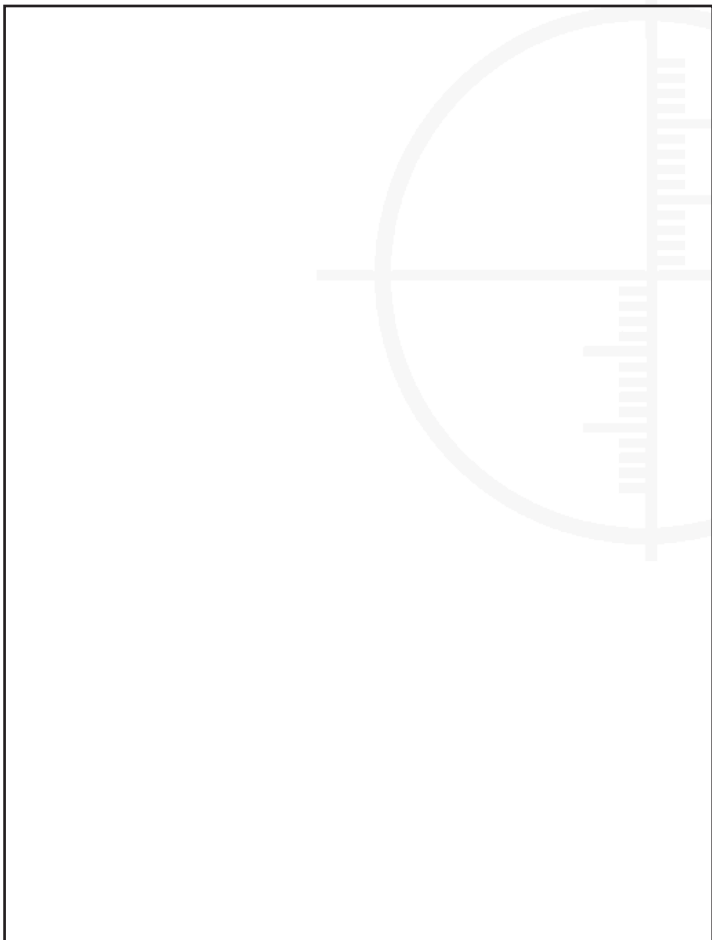
**Q.** *The Laser does not power up!*

**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.*

## Notes



A large empty rectangular box for taking notes. On the right side of the box, there is a faint watermark consisting of a circular diagram with a horizontal line through its center and a vertical ruler-like scale on the right edge.

# 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 8 Autumn St, Geelong West, Victoria 3218 ph (03) 5228 0777

"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 CX440 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.

Your 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 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-authorized 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  
P.O. Box 7324 - Geelong West - Victoria - 3218 - Australia  
Ph: (03) 5228 0796 email: admin@redbacklasers.com.au