



for Professionals

RedBack Lasers CX510 - CX510SS

Multi Line CX510 - Auto Square CX510SS

Instruction Manual

Model: CX510

Model: CX510SS



www.redbacklasers.com.au

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User Safety

- Laser output sign lies near the output apertures.
- 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 2 laser <1mW at 635nm.

Do NOT stare into laser beam or aim at another person.

Follow relevant Australian Standards

Congratulations on purchasing the CX510/CX510SS multi line laser level with plumb up/down, horizontal/vertical alignment and 90 degree square.

The CX510/CX510SS are automatic levelling and features a secure pendulum lock to prevent accidental damage when not in use.

The CX510/CX510SS both feature clear bright horizontal and 4x vertical lines as well as plumb down dot ceiling cross providing plumb up.

The CX510SS in addition features Automatic Site Square technology, this allows a vertical line to automatically find and lock onto the LLR721 receiver that comes with this model. Thus providing the ultimate site layout tool for quick and easy site squaring.

Both models are ideal for all types of indoor installation work whether its electricians transcribing points from floor to ceiling, air conditioning installers, windows and garage doors. In fact this Line laser can just about do anything indoors. Both models are equally useful outdoors with their included electronic receivers.

The CX510/CX510SS come with a Two Year Redback Warranty. (See page 16)

CX510 & CX510SS ACCESSORIES

This instruction manual covers the operation of two models the CX510 and CX510SS. Please note that features outlined within these instructions specific to the CX510SS model will not be valid for the CX510 model. The model of the laser you have purchased can be found on the laser itself or its carry case lid.

CX510 Included Accessories

- CX510 Laser Unit
- LLR705 LCD Laser Receiver
- Protective Carry Case
- Li-ion Battery Pack & Charger
- Holder for "AA" batteries
- Tripod Spacer Adapter & Washer
- Magnetised Target
- Laser Enhancement Glasses
- Instruction Manual



CX510SS Included Accessories

- CX510SS Laser Unit, motorised base
- LLR721 Laser Receiver/Tracker
- Protective Carry Case
- Ni-mh Battery Pack & Charger
- Holder for "AA" batteries
- Tripod Spacer Adapter & Washer
- Magnetised Target
- Laser Enhancement Glasses
- Instruction Manual



CX510 & CX510SS DIAGRAMS

Model: CX510



Model: CX510SS



1. Control Panel/Bulls Eye Vial
2. Vertical Outputs x4
3. Horizontal Line Output
4. Fine Manual Rotation Knob
5. Leg Height Adjustment
6. Motorised Base (CX510SS)
7. Motorised Base Power (CX510SS)
8. Battery Pack / "AA" holder
9. Pendulum Lock & Power On/Off



CX510 & CX510SS OPERATION

Battery Instructions

These models operate on either its rechargeable battery pack (Li-ion-CX510, Ni-mh-CX510SS) or 4 x standard "AA" batteries. The Li-ion/Ni-mh pack can be charged either attached to the laser level or separately by inserting the charger plug into the charging socket in the battery pack. The Battery is fully charged when the light on charger turns from red to green.

To use standard Alkaline "AA" batteries insert the batteries into the "AA" battery holder in the directions indicated, then insert the battery holder into the battery compartment on the laser and tighten the screw.



When the power LED on the control panel flashes, the batteries need recharging (replacing if "AA" size).

The CX510SS has 4 additional "AA" batteries in its motorised base, behind two battery panels.



Note: if you plan not to use the laser level for a while remove "AA" batteries to prevent any possible damage caused by leaking batteries. Important: never mix new and old batteries or batteries of different type e.g. Alkaline and Super heavy duty.

CX510 & CX510SS OPERATION

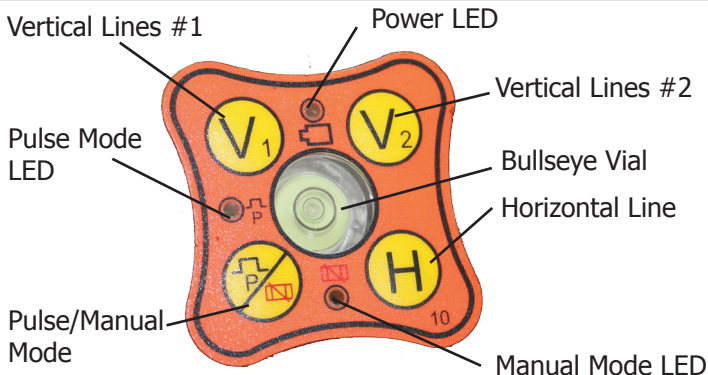
Operation

The CX510/CX510SS are turned on by rotating the pendulum lock knob clockwise to the "ON" position at which point the pendulum will be "Unlocked" and ready to self level. The Power LED on the control panel will light.

If the lasers flash together with a loud beeping sound when the pendulum is unlocked then the CX510/CX510SS is out of self levelling range. The laser housing needs to be set up more level on the ground or tripod until the beeping stops, the laser level has a bubble vial on its top and adjustment on its inbuilt tripod legs to aid in this. To level on a full size tripod, adjust the tripod legs to bring the bubble vial into level. When the flashing and beeping stops the laser will be in self levelling range. NOTE the bubble vial does not need to be perfectly central for the laser to self level, its just a guide, the CX510/CX510SS have 3 degrees of self levelling.



The pendulum lock helps protect the laser level when not in use, always store and transport your CX510/CX510SS with the knob in the "OFF" position.



Once unlocked, pressing the "H" Horizontal Line button will toggle between horizontal line on and off, The "V1" and "V2" Vertical Line buttons, turn on 2 vertical lines at a time.

The CX510/CX510SS models have a manual mode, in other words you can force the unit to project laser lines without first levelling. This is achieved by NOT Unlocking the pendulum (leaving knob in "Off" position") and pressing the Manual Mode button, the Manual Mode LED will flash warning that the laser is not level. Selecting the horizontal and vertical lines as required. Power off by pressing the Manual Mode button 2 times. This mode is handy when you want to produce lines at an angle rather than vertical or horizontal.

The CX510/CX510SS can be manually rotated on its plumb axis by simply rotating the red housing of the laser on its base. To accurately rotate it over a small arc use the Fine Tune Rotation knob, this is exceptionally handy when site squaring using the 90 degree angle between the two vertical lines. See later section for Auto site Squaring with the CX510SS model page 11.

The CX510/CX510SS come with a Tripod Spacer Adaptor with a standard 5/16" Survey tripod thread and large washer. These are handy when using these laser levels on a heavy duty domed or flat topped tripod, the washer goes on first to cover the hole and the spacer next to allow extra clearance for the laser levels in-built feet.



CX510 & CX510SS OPERATION

Using Electronic Line Receiver

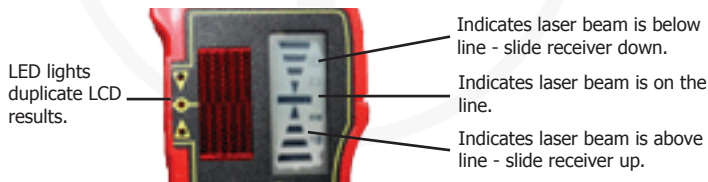
Both models can be used outdoors with the included electronic Line receiver. The CX510 comes with the LLR705 and the CX510SS comes with the LLR721 which is also used for the Auto Site Square feature (page 11). To use a receiver the CX510/CX510SS needs to be switched into Pulse Mode by pressing the "P" pulse button, this makes the lines visible to receivers, the Pulse Mode LED will light. Pressing the pulse button once more will turn pulse off.

Laser Receiver LLR705 (Supplied with the CX510)

The receiver can be used hand held or together with the staff clamp with a staff. The LLR705 has a 1mm level zone for maximum accuracy.

- 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. For picking up horizontal lines hold the receiver as shown below, for picking up vertical lines place on its side.



Laser Receiver LLR721 (Supplied with the CX510SS)

- A press of the Power button  on the receiver will turn on and off the receiver.
- Pressing the Speaker button (long press)  toggles speaker 2 volume settings and off.
- Pressing the Long/Short Range button (short press)  toggles Short under 10m(default) and Long over 10m (green LED on Long).

CX510 & CX510SS OPERATION

Indicates laser beam is above line - slide receiver up.

Indicates laser beam is on the line.

Indicates laser beam is below line - slide receiver down.

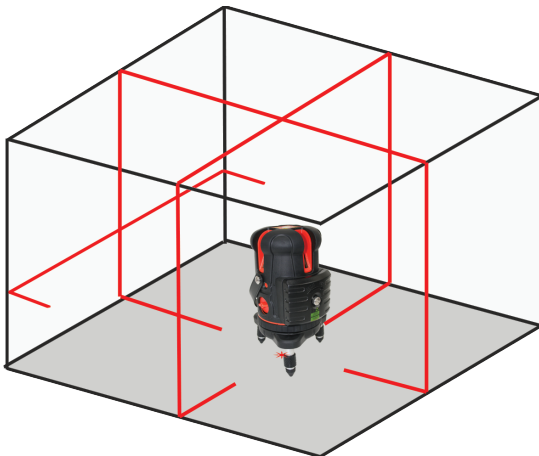
Receiver Control Panel



The LLR721 has 3 LED light displays which indicate laser is above, below and on level. If the receiver is left turned on without a laser being received it will auto power down after 10 minutes. For picking up horizontal lines hold the receiver as shown above, for picking up vertical lines place on its side.

Modes of Operation

The CX510/CX510SS can be used for just about any indoor or outdoor application, weather you need to plumb up or down, level, align or square these lasers can do it all.



CX510 & CX510SS OPERATION

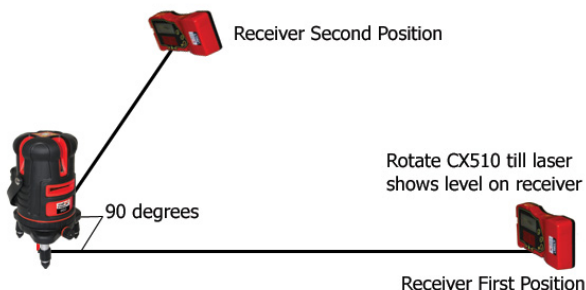
Site Square and layout with the CX510

The CX510 has 4 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 CX510 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, 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. (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.



CX510 & CX510SS OPERATION

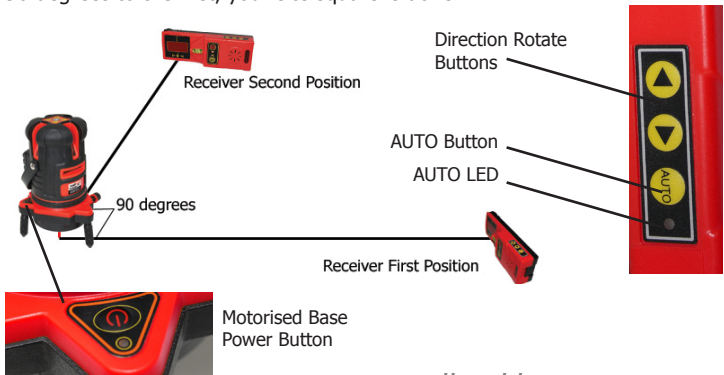
Auto Site Square and layout with the CX510SS

First place the CX510SS over the datum corner for the desired 90 degree square using the plumb down reference point. Unlock, turn on all vertical lines

The CX510SS can auto track/rotate one of its vertical lines to find the receiver. To do this, unlock the CX510SS pendulum, turn on all vertical lines, select pulse mode, turn on the power button for the motorised base. Next place the receiver on it side at the far end of the line to the datum point.

Turn on the receiver, next press the "AUTO" button on the receiver and press either one of the arrow buttons. The motorized base will start to rotate the CX510SS, after a few moment the receiver will detect once of the vertical lines and the receiver will communicate using infra red to the rotating base until this vertical is perfectly aligned with the receiver. The receiver will emit a solid tone, do two beeps and the AUTO LED will go out the laser is now locked onto the receiver. *NOTE: if the CX510SS has done a number of rotations without finding the receiver then while the laser continues to rotate and the receiver is still in AUTO mode press the long range button on the receiver so the green LED lights. The CX510SS should now lock onto the receiver up to the max range of 30m.*

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.



Technical Specifications

CX510

Laser Wavelength	635nm <1mW
Laser Class	2
Range Lines (light depending) Max	20m Radius Indoors
Range (with LLR705 receiver) Max	60m Radius Outdoors/Indoors
Accuracy	±2mm/10m
Self Levelling Range	±3°
Vertical Lines Fan Angle	170°
Horizontal Line Fan Angle	160°
Temperature Range	-10°C - +45°C
IP Dust Water Resistance	IP54
Power	Li-ion / 4 x "AA" Alkaline
Low Power	Power LED Flash

CX510SS

Laser Wavelength	635nm <1mW
Laser Class	2
Range Lines (light depending) Max	20m Radius Indoors
Range (with LLR721 receiver) Max	60m Radius Outdoors/Indoors
Accuracy	±2mm/10m
Range Auto Site Square	30m
Motorised Base Rotation	360°
Self Levelling Range	±3°
Vertical Lines Fan Angle	170°
Horizontal Line Fan Angle	160°
Temperature Range	-10°C - +45°C
IP Dust Water Resistance	IP54
Power Laser	Ni-mh / 4 x "AA" Alkaline
Low Power	Power LED Flash
Motorised Base Power	4 x "AA" Alkaline

Receivers

LLR705

Display Type	1x LCD, 3x LED
Reception Window	35mm
Accuracy	1mm
Power	9V Alkaline

LLR721

Display Type	3x LED
Reception Window	35mm
Accuracy	1mm
Range (Auto Site Square)	30m
Power	3 x "AA" Alkaline

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** 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.

CX510/CX510SS 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. (battery leakage is NOT covered by warranty)
- Do not use the battery charger outdoors.
- The CX510/CX510SS 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

Trouble Shooting - FAQ

- Q. *I hear a continuous beeping when turned on!***
A. *This is the out of level alarm indicating that the CX510/CX510SS is outside of self levelling range, re level the laser housing using rough levelling bullseye vial and try again.*
- Q. *The Laser does not power up!***
A. *Check the pendulum lock has been unlocked, rotated into the "Unlock" position.*
- Q. *The Laser does not power up!***
A. *Check the batteries connected correctly and replace standard "AA" size Alkaline batteries if necessary.*
- Q. *The Receiver does not pick up lines!***
A. *Check that the laser has been put into pulse mode see page 8.*
- Q. *CX510SS motorised base does not rotate after pressing AUTO and direction buttons on LLR721 receiver!***
A. *Check the motorised base has been turned on and LED is solid indicating good batteries, replace base batteries if required.*

Notes

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 18b Tarkin Crt, 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 CX510/CX510SS is 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.

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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