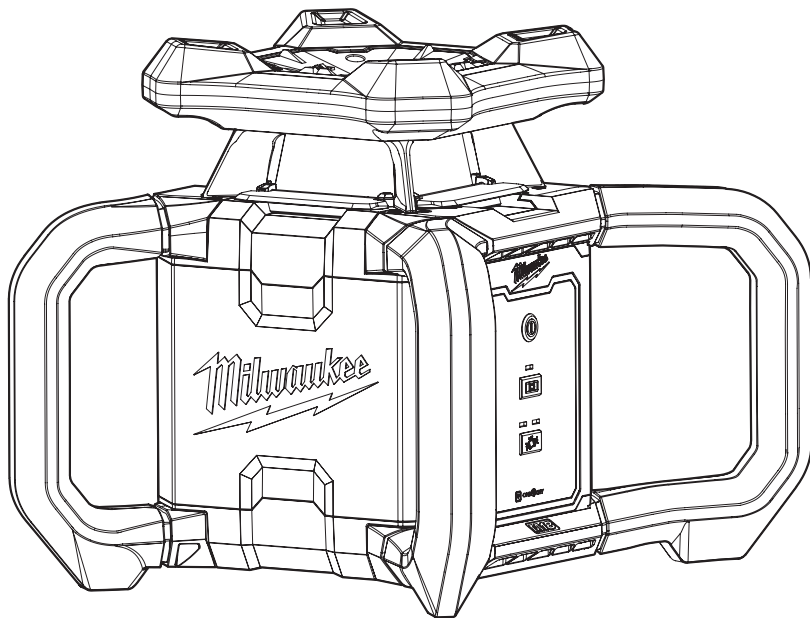





OPERATOR'S MANUAL



Cat. No.
M18 RL610

M18™ HORIZONTAL ROTARY LASER 610M (2000') RED

 **WARNING**

 To reduce the risk of injury, user must read and understand operator's manual.

GENERAL POWER TOOL SAFETY WARNINGS

AWARNING Read and understand all instructions. Failure to follow all instructions listed below, may result in electric shock, fire and/or serious personal injury. **Save all warnings and instructions for future reference.**

• **Save these instructions** - This operator's manual contains important safety and operating instructions.

LASER SAFETY

AWARNING The device produces visible laser beams, which are emitted from the tool.

• This device complies with AS/NZS IEC 60825.1, Class 2 Laser.

• **Laser light** - Do not stare into beam or view directly with optical instruments. Do not point laser light at others. Laser light can cause eye damage.

WORK AREA SAFETY

• Ensure adequate safeguards at the work site (e.g. surveying site when measuring on roads, construction sites, etc.).

• Avoid dangerous environments. Avoid extended exposure to rain, snow, damp or wet locations. Do not use in the presence of explosive atmospheres (gaseous fumes, dust or flammable materials).

PERSONAL SAFETY

• Do not allow persons unfamiliar with the tool, these safety instructions, and the tool's operator's manual to operate the tool. This tool can be dangerous in the hands of untrained users.

• Do not overreach. Keep proper footing and balance at all times. This enables better control of the tool in unexpected situations.

BATTERY TOOL USE AND CARE

• Recharge only with the charger specified by the manufacturer. A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.

• Use power tools only with specifically designated battery packs. Use of any other battery packs may create a risk of injury and fire.

• When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another. Shorting the battery terminals together may cause burns or a fire.

• Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.

• Do not use a battery pack or tool that is damaged or modified. Damaged or modified batteries may exhibit unpredictable behaviour resulting in fire, explosion or risk of injury.

• Do not expose a battery pack or tool to fire or excessive temperature. Exposure to fire or temperature above 130°C (265°F) may cause explosion.

• Follow all charging instructions and do not charge the battery pack or tool outside the temperature range specified in the instructions. Charging improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.

• Store your battery and tool in a cool, dry place. Do not store battery where temperatures may exceed 50°C (120°F) such as in direct sunlight, a vehicle or metal building during the summer.

SPECIFIC SAFETY RULES FOR ROTARY LASER LEVELS

CAUTION Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

• Be sure to power off instrument after use. When instrument will not be used for a long period, place it in storage after removing batteries.

• Watch out for erroneous results if the tool is defective or if it has been dropped, misused or modified.

• Do not dispose of tool or batteries together with household waste material! Tool and batteries that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

• Chemical Burn Hazard. Keep coin cell battery away from children.

• If using with a lanyard, do not exceed maximum capacity marked on the lanyard label. Always determine the weight of the product, with all accessories, when selecting the appropriate lanyard system. Exceeding maximum capacity may result in serious injury. See specifications for tool and battery weight.

• For best results, use only with energy absorbing lanyards. Ropes, straps or chains may break and cause failure. Do not use with lanyards at full tension.

• To reduce the risk of injury, when working in dusty situations, wear appropriate respiratory protection or use a suitable dust extraction solution.

• Always use common sense and be cautious when using tools. It is not possible to anticipate every situation that could result in a dangerous outcome. Do not use this tool if you do not understand these operating instructions or you feel the work is beyond your capability; contact MILWAUKEE® Tool or a trained professional for additional information or training.

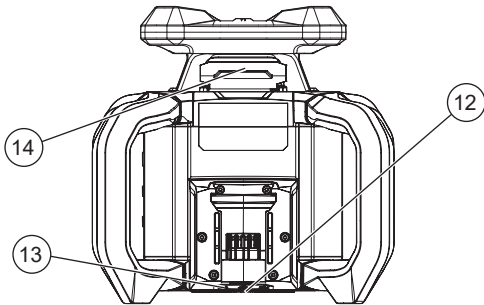
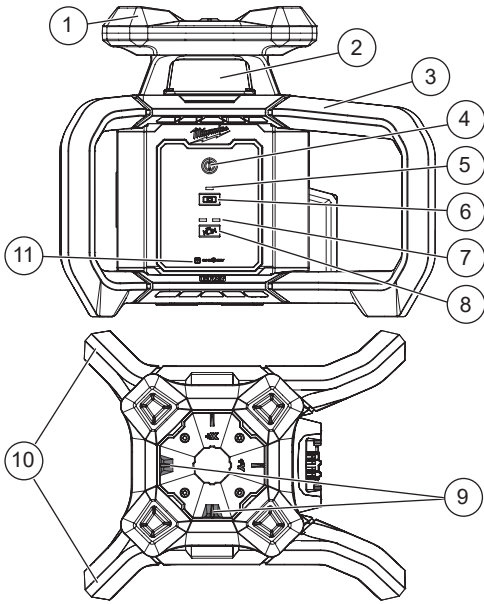
• Maintain labels and nameplates. These carry important information. If unreadable or missing, contact a MILWAUKEE® service facility for a replacement.

ADDITIONAL BATTERY SAFETY RULES

AWARNING To reduce the risk of fire, personal injury, and product damage due to a short circuit, never immerse your tool, battery pack or charger in fluid or allow a fluid to flow inside them. Corrosive or conductive fluids, such as seawater, certain industrial chemicals, and bleach or bleach-containing products, etc., can cause a short circuit.

AWARNING Do not charge non-rechargeable batteries.



FUNCTIONAL DESCRIPTION





1. Protective foam top bumper
2. Laser aperture window
3. Protective foam handles
4. ON/OFF button
5. Leveling mode indicator LED
6. Leveling mode button
7. Bump alarm indicator LEDs
8. Bump alarm button
9. X/Y iron sights
10. Short lanyard attachment handles
11. ONE-KEY™ indicator LED
12. 5/8"-11 mounting insert
13. ONE-KEY™ coin cell compartment
14. Masking flaps (4)


SYMBOLOLOGY


V Volts
—|— Direct Current

 **LASER 2** 
LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT

 Read Operator's Manual

 Coin Cell Polarity Indicator

 Regulatory Compliance Mark (RCM). This product meets applicable regulatory requirements.

 Do not dispose of electric tools together with household waste material. Electric tools and electronic equipment that have reached the end of their life must be collected separately and returned to an environmentally compatible recycling facility.

SPECIFICATIONS

Cat. No.	M18 RL610
Recommended Compatible	
Detector Cat. No.	RD600
Volts.....	18 V DC
Battery Type	M18™
Charger Type.....	M18™
Coin Cell Battery Type.....	CR2032
Laser.....	Class 2
Max Power.....	$P_{AVG} \leq 3.3 \text{ mW}$
Pulse Frequency.....	10 Hz
Pulse Duration.....	$T_p \leq 1.5 \text{ ms}$
Wavelength.....	620 - 690 nm
Beam Divergence	<1.5 mrad
Rotational Speed.....	600 RPM
Leveling Range.....	Total 10° in X or Y Axis
Working Range (With RD600).....	610 m (2000') (Diameter)
Horizontal Plane Accuracy....	$\pm 2.4 \text{ mm}$ at 30 m (0° tilt)
Altitude.....	< 2,000 m
Pollution Degree.....	2°
Typical Leveling Time	<10 (Seconds)
Mounting Insert.....	5/8"-11
Drop Rating	1.5 m
Tip Rating	2 m
Bare Tool Weight	3.2 kg
Maximum Relative Humidity (RH).....	80% for up to 31°C
Decreasing Linearly Relative Humidity (RH).....	50% at 40°C
Recommended Ambient	
Storage Temperature.....	-20°C to 60°C
Operating Temperature	-18°C to 50°C

NOTE: Accuracies and leveling times are measured on a level surface at ambient temperatures. Use of the tool in extreme conditions may negatively impact these specifications.

ASSEMBLY

⚠WARNING Recharge only with the charger specified for the battery. For specific charging instructions, read the operator's manual supplied with your charger and battery.

Inserting/Removing the Battery

To insert the battery, slide the pack into the body of the tool. Make sure it latches securely into place.

⚠WARNING Only use accessories specifically recommended for this tool. Others may be hazardous.

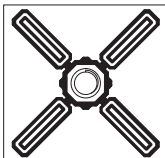
To remove the battery, push in the release buttons and pull the battery pack away from the tool.

⚠WARNING Always remove the battery pack any time the tool is not in use.

Mounting the Rotary Laser

The rotary laser can be mounted to a tripod or Rotary Laser Wall Mount:

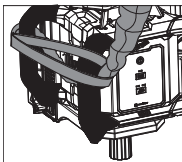
- If working overhead, ensure the laser is secure before operating and attached to a **MILWAUKEE**® 15 kg (min) rated energy absorbing lanyard.
- Ensure the laser and accessories are on a stable surface.
- Use the 5/8"-11 threaded insert to mount the laser on a tripod or Rotary Laser Wall Mount.



Lanyard Attachments

⚠CAUTION Use **MILWAUKEE**® Energy Absorbing Lanyards to help reduce the risks associated with dropped tools.

1. Follow instructions provided with tool lanyard.
2. When using the lanyard, user must attach both short handles together properly, as shown above, before operation.



⚠WARNING To reduce the risk of serious injury or death, use only lanyards rated for the weight of the tool.

ONE-KEY™

To learn more about the ONE-KEY™ functionality for this tool, go to www.milwaukeetool.com.au/innovation/one-key/. To download the ONE-KEY™ app, visit the App Store® or Google Play™ from your smart device.

ONE-KEY™ Indicator

Solid Blue	Wireless mode is active and ready to be configured via the ONE-KEY™ app.
Blinking Blue	Tool is actively communicating with the ONE-KEY™ app.
Blinking Red	Tool is in security lockout and can be unlocked by the owner via the ONE-KEY™ app.

OPERATION

⚠WARNING To reduce the risk of injury or temporary effects on vision, do not look directly into the laser when it is on.

⚠CAUTION Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

NOTICE Perform the Accuracy Field Check procedure immediately upon unboxing of each new laser and before exposure to jobsite conditions. See "Accuracy Field Check" for information. Should any deviation from listed product accuracy be found, please contact an authorised **MILWAUKEE**® service centre. Failure to do so could result in rejection of warranty claim.

Turning the Rotary Laser ON/OFF

- To turn the laser **ON**, insert battery and press the ON/OFF button. Once the button is pressed, an audible tone will sound.
- When powered on, the laser will begin the leveling sequence. Once level and ready to use, the Leveling Mode Indicator LED will become solid green.
- To turn the laser **OFF**, press the ON/OFF button. The laser diode will turn off, the head will stop rotating, and all LEDs will turn off.
- Remove battery if laser is to be stored.

Rotational Mode

When the laser initially turns on, the laser will automatically start to self-level. The laser head will rotate at 600 RPM, and the laser beam will become visible.

Auto-Leveling Mode

When the laser initially turns on, the laser will automatically start to self-level. The Leveling Mode Indicator LED will begin flashing green.

- During the leveling process, the Bump Alarm will not be active. When the laser is leveled, the Leveling Mode Indicator LED will be solid green, and the laser head will start to rotate. The laser will be ready for use.
- If the leveling process fails by the one-minute timer or is out of the leveling range, the Leveling Mode Indicator LED flashes red, the laser diode turns off and stops rotating, and an audible tone will sound.

NOTE: If the laser fails to level, ensure the laser is on a stable and flat surface. This error occurs when the working surface causes the laser to be outside the leveling range. Once laser is placed on a stable and level surface, try pressing the Leveling Mode button or power cycling the laser to trigger a relevel. If the problem persists, please contact an authorised **MILWAUKEE**® service centre for support.

Complete Manual Mode

The laser will default to Auto-Leveling Mode. Ensure the laser completes self-leveling successfully before entering this mode. Complete Manual Mode can be used to deactivate Auto-Leveling and allow the user to manually position the laser plane. Ensure the laser has self-leveled and the Level Mode Indicator LED is solid green.

1. To turn **ON** Complete Manual Mode, press the Leveling Mode button.

- The Leveling Mode Indicator LED will turn solid red and remains on (the laser will no longer attempt to self-level).

NOTE: The Bump Alarm Indicator LEDs will turn off. The Bump Alarm is not available in Complete Manual Mode.

- To turn **OFF** Complete Manual Mode, press the Leveling Mode button again. The laser will begin the self-leveling sequence and the Leveling Mode Indicator LED will go back to solid green if leveled properly. Entering/exiting Complete Manual Mode will reinitialise the Bump Alarm to allow for further setup.

Bump Alarm

Due to the laser's high leveling accuracy, the laser is very sensitive to knocks, vibrations, and changes in position. The Bump Alarm will be triggered if the laser is moved from its initial location.

- The Bump Alarm will only be off while the laser establishes a new position.
- Once the laser has self-leveled and the Leveling Mode Indicator LEDs becomes solid green, the Bump Alarm Indicator LEDs will begin to flash white indicating the Bump Alarm is initialising. During this time, disturbances will not trigger an alarm but will restart the initialisation timer. If the laser has not been touched or moved for 30 seconds, the Bump Alarm Indicator LEDs will become solid white. This indicates that the Bump Alarm is active. Any bumps above the sensitivity limits will trigger the alarm. The laser diode will turn off, the head will stop rotating, the Bump Alarm Indicator LEDs will flash white, and the Leveling Mode Indicator LEDs will flash red, and an audible alarm will sound.

NOTE: The laser will default to High Sensitivity. Set up the laser on a flat and stable surface to avoid interruptions in operation. If the Bump Alarm becomes overly sensitive for environmental conditions, the setting can be viewed and changed using a paired detector.

Clearing the Bump Alarm:

In the event of a Bump Alarm, press either the Leveling Mode button or the Bump Alarm button. The alarm will clear, and the laser will begin the auto-leveling sequence and re-initiate the Bump Alarm. The laser can be power cycled to clear the Bump Alarm if needed.

NOTE: Check the position of the laser plane to determine if it has moved. Additional setup may be needed to re-align the laser with previous benchmarks.

Changing the Bump Alarm Sensitivity:

The Bump Alarm sensitivity default is set to "high" from the factory, and both Bump Alarm Indicator LEDs will be illuminated. Set up the laser on a flat and stable surface to avoid interruptions in operation. If the Bump Alarm is overly sensitive to the current environmental conditions, the setting can be changed to 'low' by pressing the Bump Alarm button. Only the left Bump Alarm Indicator LED will illuminate, indicating the lower sensitivity selected. The Bump Alarm will re-initiate when the sensitivity is changed. Once complete, the LEDs will then turn solid white to show that the Bump Alarm is armed. To switch back, press the Bump Alarm button again.

Manual Masking

To avoid interference with other users on the jobsite, manual masking flaps can be used to block any of the 4 individual quadrants of the rotating laser plane.

- To **MASK**, use finger to flip up the mask in the desired quadrant to block the laser beam exiting that window.
- To **UNMASK**, simply use finger to flip the mask back down.

Troubleshooting

- Ensure the battery is installed correctly. The fuel gauge of the battery should indicate the remaining charge when correctly installed.
- Ensure the battery is charged.
- Startup Failure** - If the Leveling Mode Indicator LED is flashing amber immediately after the laser is turned on, this is a result of a system error. Return the tool to an authorised **MILWAUKEE®** service centre.
- Leveling Error** - The Leveling Mode Indicator LED will flash red, and the alarm will sound. Ensure that the laser is on a level surface and the job site is clear of obstacles, any pressing of the buttons on the rotary laser may trigger the Bump Alarm or releveling may occur and that the tool is in the proper horizontal orientation. Try pressing the Leveling Mode button to initiate auto-leveling. Try power cycling the tool to clear the setting. If this fails, return the laser to an authorised **MILWAUKEE®** service centre.
- Bump Alarm too Sensitive** - Ensure the laser is on a level and stable surface. Try changing to a less sensitive setting using the Bump Alarm button on the laser keypad. Clear the Bump Alarm by using one of the options from the "Clearing the Bump Alarm" section. If this fails, return the laser to an authorised **MILWAUKEE®** service centre.
- ONE-KEY™ Lock Out** - The laser will turn on briefly but shut down after ~15 seconds. The ONE-KEY™ Indicator LED will be flashing red. This is an indicator that the laser is locked out. Use the ONE-KEY™ app to connect and unlock the tool.
- NOTE:** If all the recommended troubleshooting fails, power cycle the laser with the ON/OFF button. Try removing/re-inserting the battery to restart the tool. If the problem persists, return the laser to an authorised **MILWAUKEE®** service centre.

ACCURACY FIELD CHECK

NOTICE Perform the Accuracy Field Check procedure immediately upon unboxing of each new laser and before exposure to jobsite conditions. Should any deviation from listed product accuracy be found, please contact an authorised MILWAUKEE® service centre. Failure to do so could result in rejection of warranty claim.

Influences on Accuracy

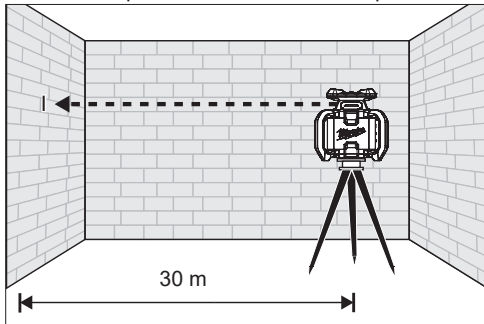
Ambient temperature changes can impact laser accuracies. For accurate and repeatable results, the following procedure should be conducted with the laser elevated off the ground and placed in the centre of the working area. Abusive treatment of the laser, such as excessive impacts from drops, can also lead to deviations in product accuracy. Therefore, it's recommended to conduct the field check procedure after any impacts or before completing any critical jobs.

NOTE: Accuracies and leveling times are measured at ambient temperatures (20°C). Use of the tool at extreme temperatures (even within the operating temperature range) may negatively impact these specifications.

Leveling Accuracy for Horizontal Orientation

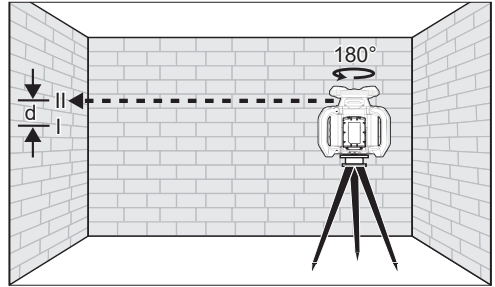
A tripod for this operation is suggested. Use a distance of 30 m between the centre of the laser and a wall. Ensure the area is clear of objects before doing this operation. This procedure must be performed twice to check the plane accuracy for both the X and Y axes.

1. Mount the laser on a tripod.
2. Turn the laser **ON** by pressing the ON/OFF button, and wait for the self-leveling sequence to finish. The Leveling Mode Indicator LED will be solid green when achieved.
3. Mark the centre of the beam on the wall (Point I). If the laser is not visible, use a compatible detector to find the plane and mark the centre point.



4. Rotate the laser 180°, without changing height, and wait for self-leveling to finish. Mark the centre of the beam on the wall (Point II). Ensure Point II is as vertical as possible above or below Point I.

5. Measure the vertical distance, (d) between Point "I" and Point "II". This is the actual height deviation of the laser in the axis checked over 60 m. The maximum deviation allowed should be 4.8 mm at 60 m (or 2.4 mm at 30 m).



6. Repeat the steps above for the other axis.

NOTE: If any of the above accuracies are out of spec, return to an authorised MILWAUKEE® service centre for recalibration.

MAINTENANCE

⚠WARNING To reduce the risk of injury, always unplug the charger and remove the battery pack from the charger or tool before performing any maintenance. Never disassemble the battery pack, charger, or tool, except as provided in these instructions. Contact a MILWAUKEE® service centre for ALL repairs.

Maintain Laser Level

Maintain tools. If damaged, have the tool repaired at an authorised MILWAUKEE® service centre before use. Accidents may be caused by poorly maintained tools.

ONE-KEY™

⚠WARNING Chemical Burn Hazard.

This device contains a lithium button/coin cell battery. A new or used battery can cause severe internal burns and lead to death in as little as 2 hours if swallowed or enters the body. Always secure the battery cover. If it does not close securely, stop using the device, remove the batteries, and keep it away from children. If you think batteries may have been swallowed or entered the body, seek immediate medical attention.



Internal Coin Cell Battery

An internal coin cell battery is used to facilitate full ONE-KEY™ functionality.

To replace the coin cell battery:

1. Remove tool's battery to avoid starting the tool.
2. Loosen the screw(s) and open the coin cell battery door.
3. Remove the old coin cell battery, keep it away from children, and dispose of it properly.
4. Insert the new coin cell battery (3V CR2032), follow the indicators on the battery door.
5. Close the battery door and tighten the screw(s) securely.

Cleaning

Clean dust and debris from vents. Keep handles clean, dry and free of oil or grease. Use only mild soap and a damp cloth to clean, since certain cleaning agents and solvents are harmful to plastics and other insulated parts. Some of these include petrol, turpentine, lacquer thinner, paint thinner, chlorinated cleaning solvents, ammonia and household detergents containing ammonia. Never use flammable or combustible solvents around tools.

Cleaning the Aperture Windows

Blow off any loose particles with clean compressed air. Carefully wipe the surface with a cotton swab moistened with water.

Calibration and Repairs

For Calibration or Repair, return the tool, battery pack, and charger to nearest authorised **MILWAUKEE®** service centre.

ACCESSORIES

⚠WARNING Use only recommended accessories. Others may be hazardous.

For a complete listing of accessories, go online to milwaukeeetool.com.au / milwaukeeetool.co.nz or contact a distributor.

WARRANTY - AUSTRALIA and NEW ZEALAND

Please refer to Australian and New Zealand warranty supplied with tool. This warranty applies only to product sold by authorised dealers in Australia and New Zealand.

SERVICE - AUSTRALIA and NEW ZEALAND

MILWAUKEE® prides itself in producing a premium quality product that is Nothing But Heavy Duty™. Your satisfaction with our products is very important to us! If you encounter any problems with the operation of this tool, please contact your authorised **MILWAUKEE®** dealer.

For a list of **MILWAUKEE®** dealers, guarantee or service agents please contact **MILWAUKEE®** Customer Service or visit our website.

(Australia Toll Free Telephone Number 1300 645 928)

(New Zealand Toll Free Telephone Number 0800 645 928)

or visit milwaukeetool.com.au/milwaukeetool.co.nz.

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