Cat. No.
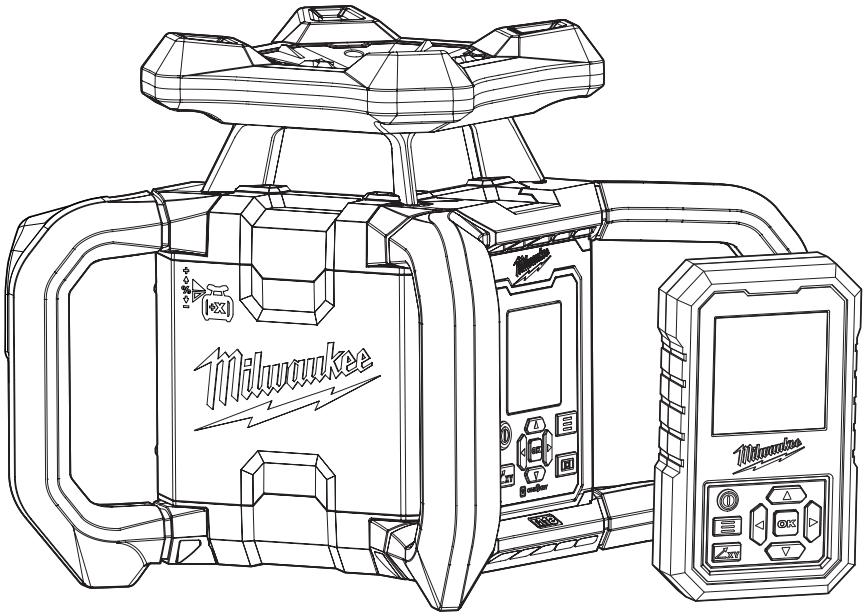**M18 RL1220**

M18™ DUAL GRADE ROTARY LASER 1,220M (4000') RED

⚠ **WARNING**

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

GENERAL POWER TOOL SAFETY WARNINGS

⚠WARNING **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

⚠WARNING **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.
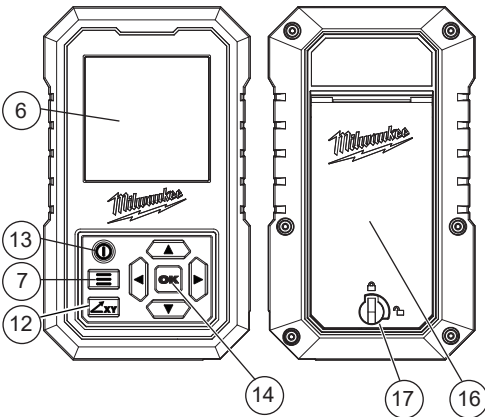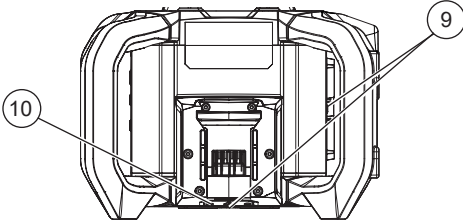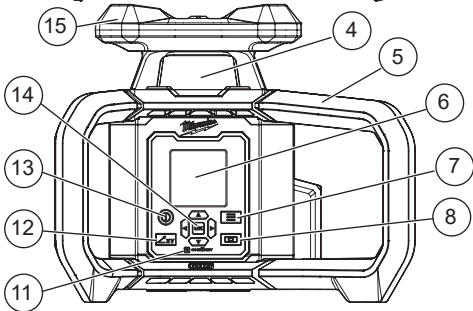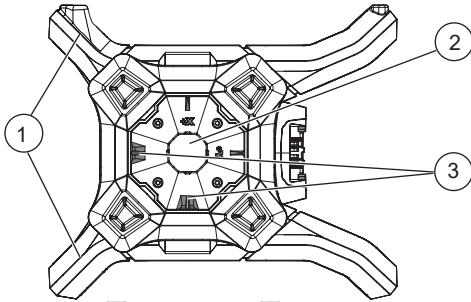
ADDITIONAL BATTERY SAFETY RULES

⚠WARNING 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.
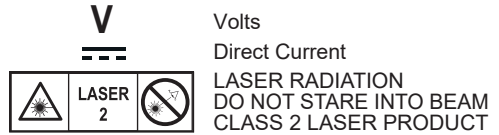
⚠WARNING Do not charge non-rechargeable batteries.

FUNCTIONAL DESCRIPTION

1. Short lanyard attachment handles
2. Plumb dot aperture window
3. X/Y iron sights
4. Laser aperture window
5. Protective foam handles
6. LCD screen
7. Menu button
8. Leveling mode button
9. 5/8"-11 mounting insert (2)
10. ONE-KEY™ coin cell compartment
11. ONE-KEY™ indicator LED
12. Grade button
13. ON/OFF button
14. D-pad
15. Protective foam top bumper
16. Battery door
17. Battery door turn lock

SYMBOLOGY

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

Y-Axis 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 RL1220**
Recommended Compatible	
Detector Cat. No.	**RD1200**
Volts..	18 V DC
Battery Type ....M18™	
Charger Type...M18™	
Coin Cell Battery Type...............................	CR2032
Laser..Class 2	
Max Power..	$P_{AVG} ≤ 1$ mW
Wavelength...	620-690 nm
Beam Divergence...................................	<1.5 mrad
Rotational Speed	600, 900, 1,200 RPM
Sweep Angles.................................	0°, 10°, 45°, 90°
Typical Dual Axis Slope Range	±3.5° (min)
Leveling Range.........................	12° in X and Y Axis
Working Range (With RD1200).......	1,220m (4000')
	(Diameter)
Horizontal Plane Accuracy...	±1.6 mm at 30 m (0° tilt)
Vertical Plane Accuracy.....	±3.2 mm at 30 m (0° tilt)
Plumb Point Accuracy........	±3.2 mm at 30 m (0° tilt)
Altitude...< 2,000 m	
Leveled Startup Time.......................	≤12 (Seconds)
Typical Leveling Time at 8°..............	≤45 (Seconds)
Mounting Insert..	5/8"-11
Drop	1.5 m
Tip Rating	2 m
Bare Tool Weight	3.63 kg
Remote Cat. No.	**14200432**
Battery Type	2 x AA LR6/15A
Volts..	3 V DC
Remote Range	100 m
Drop Rating...	2 m
Bare Tool Weight	0.23 kg
Auto Shut-off..	15 min
(No buttons pressed or laser detection)	
Run Time...	25 hrs
Altitude..	< 2,000 m
Pollution Degree...	2
Maximum Relative Humidity (RH).....................	80%
	for up to 31°C
Decreasing Linearly Relative Humidity (RH)......	50%
	at 40°C
Recommended Ambient	
Storage Temperature......................	-25°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.
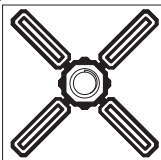
⚠WARNING **Only use accessories specifically recommended for this tool. Others may be hazardous.**

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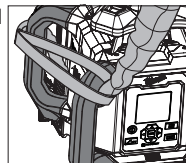
⚠WARNING To reduce the risk of serious injury or death, use only lanyards rated for the weight of the tool.

Laser Orientation

The rotary laser can operate in horizontal and vertical plane orientations. When in Auto-Leveling Mode, the laser will adjust to create a level or plumb plane, respectively. When placed in vertical orientation, the laser will default to a Plumb Point Mode for setup. To project a vertical line, select a Rotational Speed from the Menu.

NOTE: The laser will only work in one specific vertical orientation, with the keypad facing up and parallel to the working surface. Other orientations will result in a leveling error.

Horizontal Orientation   Vertical Orientation
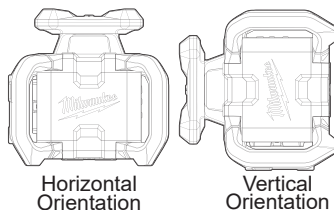
ONE-KEY™

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.

Icons

| Grade | Grade match | RPM | Alignment |

| Mask | Sweep | Centre lock | Channel link |

| Sleep | Pair | Units | Bump setting |

| Language | Information | Calibration |

Turning the Remote ON/OFF
• To turn the remote control **ON**, press the ON/OFF button. Once the button is pressed, the backlight will turn on.
• If the remote has connection, a screen is displayed and will default to grade mode.
• If the remote has no connection, a screen first displays "no connection" warning for 3 seconds. The warning will clear after 3 seconds, or press OK or "menu" buttons to clear the warning.
• To turn the remote **OFF**, press and hold the ON/OFF button until the remote turns off.

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. The laser will attempt to re-pair with its last paired remote and detector.
• To turn the laser **OFF**, press and hold the ON/OFF button. The laser diode will turn off, the head will stop rotating, and the LCD screen will turn off.

Pairing the Rotary Laser with the Remote
It is recommended that the laser is paired with the remote and detector to use the laser to its full potential.
• To **initiate pairing** on the remote or laser, select the pairing icon 🔁 from the device's main menu. Use the up/down arrow buttons to select "add device", then press the OK button to confirm.
• To **pair** devices, first initiate pairing from the remote or detector, then from the laser. Once the connection is successful, an audible tone will sound. Note that a laser can be paired to 1 remote and 2 detectors at a given time. Attempting to pair an additional device may result in disconnecting a different device.
• To **unpair** devices, select the pairing icon from the laser or remote main menu. Use the up/down arrow buttons to select the device you wish to unpair. Press the OK button to confirm, then press the OK button again to unpair the device.
• To **unpair** all devices from a laser, select the pairing icon from the laser main menu, and use the up/down arrow buttons to select "unpair all". Press the OK button, then press the OK button again to confirm.

NOTE: "Unpair all" is only available from the laser main menu, not the remote.

Selecting Languages

On initial startup, use the up or down arrows keys to select the desired language, then press the OK button to confirm. To change to a different language, go to the language icon ⚙ located in the main menu, and press the OK button. Select the desired language and press the OK button again.

Using the Information Screen

The information screen is useful for tracking operating hours, drop events detected, and temperature events detected.

1. Select the information icon 📄from the main menu.
2. Press the OK button to continue.
3. Event log can be reset for tracking purposes by pressing the left and right arrow buttons simultaneously when in the information menu.

Centre Lock

Centre lock is only compatible with certain RPM's and accuracy settings and is not compatible with channel link. Some settings may automatically change when this function is being used. Press the OK button to clear any setting change notification on the remote or laser.

1. Using the laser or remote, select the centre lock icon 🔒 from the main menu.
2. If multiple detectors are paired, use the up/down arrow buttons to select which detector will be used for this operation. When selected, the detector will give an audible and visual indication to help you identify which detector is which.
3. Once the detector is selected, now select the axis, and press the OK button. The laser will begin self-leveling sequence.
4. Once self-leveling sequence is complete, the laser will start searching for detectors.
   NOTE: Detector must be aligned within sloping range in the selected axis for this to be successful.
5. Once the centre is locked, the laser will continue to adjust it's slope to remain on the centre of the detector. If the detector is ever blocked or moved such that the laser beam is no longer on the sensor, this operation will fail and a "not found" warning will be displayed.
   NOTE: If centre lock is not found, the detector will display "not found". Press the OK button, and the detector will go to the main menu, and the laser will start the self-leveling sequence. Select the centre lock icon from the menu, and try steps 1-3 again until centre lock is found.
6. To unlock, select the centre lock icon from the main menu, and press the OK button. Hold the left arrow and right arrow buttons simultaneously, the centre lock function will be aborted and the laser will begin the auto-level sequence.

Grade

Grading angles can be manually set in this mode from the laser or from a paired remote. The laser can be adjusted ±12 percent or degree units in a single axis. If performing dual-slope operation, the max range in the secondary axis may be restricted.

1. Press the grade button or select the grade icon 𝗑𝘆 from the main menu on the laser or remote.
2. Press the grade button to toggle between the X and Y axis.
3. Use the left/right arrow buttons to select the digits to update. Use the up/down arrow buttons to select the grade percentage, and press the OK button to confirm the selection.

Grade Match

Grade match is only compatible with certain RPM's and accuracy settings and is not compatible with channel link. Some settings may automatically change when this function is being used. Press the OK button to clear any setting change notification on the remote or laser.

1. Select the grade match icon ⊕ from the main menu and press the OK button.
2. If multiple detectors are paired, use the up/down arrow buttons to select which detector will be used for this operation. When selected, the detector will give an audible and visual indication to help you identify which detector is which.
3. Once the detector is selected, now select the axis, and press the OK button. The laser will begin self-leveling sequence.
4. Once self-leveling sequence is complete, the laser will start searching for detectors.
   NOTE: Detector must be aligned within sloping range in the selected axis for this to be successful.
5. Once the centre is found, the home screen will show current X and Y values.

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 bump alarm icon 💨 in the status bar will begin to flash. During this time disturbances will not trigger an alarm but will restart the initialisation timer. After 30 seconds with no adjustments or inputs the bump alarm icon will become solid, indicating the that 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 laser will play an audible alarm and a screen will appear with a warning, press the OK button to clear the alarm.

NOTE: The laser will default to the high sensitivity setting. 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 changed via remote or laser. Select the bump setting icon from the main menu. Use the up/down arrows to select high or low setting.

Clearing the Bump Alarm (Option 1):
Press the leveling mode button, and the laser will begin the auto-leveling sequence. Additional setup may be needed if the laser was moved from its previous position.

Clearing the Bump Alarm (Option 2):
If the user suspects the laser has not been significantly disturbed, inspect the laser plane to determine if it has been moved to determine if re-set up is needed by pressing the ok or menu button to clear alarm and restart laser in current position and leveling mode.
NOTE: The laser will recall previous settings that were applied.

Alignment Mode

Alignment mode can be used with the laser in horizontal orientation (to slope), or vertical mode (to align).

1. When in horizonal mode, press the up/down arrow keys to select the axis you desire to slope (X or Y) then use the up/down arrow keys to slope the laser.
2. When in vertical orientation, press the left or right arrow buttons to align.
   NOTE: Single press moves the line one step. Press and hold more than 0.5 sec will move multiple steps at a fast rate.
3. Press the OK button to confirm the current selection.
4. Once applied, the home screen will display. The unlevel icon ▱ will appear next to sloped axis.

Auto-Leveling Mode

When the laser initially turns on, the laser will automatically start to self-level.

- During the leveling process, the Bump Alarm will not be active. When the laser is leveled, the laser head will start to rotate. Once the laser head is up to the selected RPM speed, the laser will be ready for use.
- If the leveling process fails either by the one-minute timer or out of leveling range, the laser head turns off, stops rotating, and an audible tone will sound.

NOTE: If the laser fails to level, ensure the laser is on a stable surface. This error occurs when the working surface causes the laser to be outside the leveling range. Pressing the Leveling Mode button or power cycling the laser to trigger a re-level can solve the problem. If the problem persists, please contact an authorised *MILWAUKEE*® service centre for support.

Using Channel Link

Channel link can be used to eliminate interruptions from other lasers on a busy jobsite, by distinguishing and detecting the preferred laser. Ensure that only one laser is striking the detector sensor at a time.

1. Select the channel link icon ⌦ from the main menu and press the OK button.
2. Use the up/down arrows to select the desired channel, then press the OK button to confirm. Selecting a channel on the laser or paired remote will also change the channel on any paired detectors.
3. The new channel will update in the current status bar above and will update on the channel link icon within the main menu.

Mask

The mask function can be used to turn off the laser in certain quadrants to prevent interference with other devices on the jobsite.

1. Select the mask icon ⊕ from the main menu and press the OK button. Four quadrants will appear on the screen.
2. Press the up, down, left, or right arrow buttons to select the desired quadrants to be masked. Masks will be applied in real time to the laser.
3. To unselect a mask, press the arrow button in the direction needed to unmask.

4. Press the OK button when mask selection is complete.

NOTE: Up to 3 adjacent quadrants can be selected at a time. If a fourth or non-adjacent quadrant is masked, the selected quadrant will become masked. All other previously masked sections will become unmasked to resolve the conflict.

Operating Modes

Rotational Mode

For best performance when using the detector, use 600 RPM. Different RPMs can be selected by selecting the rotational speed icon⌫in the laser or remote menu (600, 900 or 1,200).

Sweep Mode

When using sweep mode, the laser beam oscillates within a limited range. The visibility of the laser beam is enhanced compared to rotational mode. Different sweep angles can be selected by selecting the sweep icon ▽ in the laser or remote menu (dot, 10°, 45°, or 90°).

Plumb Point Mode

The laser will default to plumb point mode when placed in the vertical orientation. Use the plumb dot projected on the working surface to orient and set up the laser before entering the rotational or sweep mode.

Changing RPMs

To change the rotational speed of the laser head, select the rotational speed icon ⌫ from the menu either on the laser or on the remote and press the OK button. Once the menu appears on the screen, use the up/down arrows to select the desired speed, then press the OK button. The laser head will slowly adjust to the desired speed selected.

Sweep

1. Select the sweep icon ▽ in the main menu.
2. Press the up arrow button to select which degree of sweep is needed; dot, 10°, 45°, or 90°. Use the left and right arrow buttons to rotate the laser beam anticlockwise or clockwise if needed. Single press the arrow button to move 1 step or press and hold the arrow button to move at a faster rate.
3. Use the down arrow button to snap the sweep direction to the next quadrant. Press again to proceed to next quadrant. And so on.
4. Press the OK button to confirm the selection. The laser or remote screen will return to the main menu.

Temperature Alarm

The laser monitors temperatures when the tool is active or in sleep mode. If the minimum or maximum operating temperature limits are exceeded, the laser diode will turn off, the head will stop rotating, and the temperature warning will appear on the laser and remote screen. The laser will automatically turn off after 5 minutes in this mode.

Clearing the Temperature Alarm:

- Wait for the temperature to return to the normal operating range stated in the "Specifications" section.
- When the tool reaches normal operating temperature, the tool will start the self-leveling process.

NOTE: The internal temperature of the tool may be several degrees warmer than the ambient temperature. Allow 2 hours for the tool to re-acclimate to the new temperature before restarting.

Sleep Mode

Sleep mode can be used to conserve the rotary laser battery without disturbing laser setup.
1. To enter sleep mode, select the sleep icon 🔁 from the main menu.
2. Press the OK button, this will send the laser to "sleep". In this mode, the laser diode will turn off and the laser head will stop rotating. The laser will retain its current position and settings and will resume when sleep mode is exited. If the laser is asleep for more than 4 hours, the laser will automatically shut off.
3. To exit sleep mode, press the OK button on the remote or laser. The laser will "wake", and resume functions with the same settings. If the remote or detector is powered off, it will re-pair to the laser when powered on, and the sleep menu will re-open with the option to "wake" with the press of the OK button.

Laser Calibration

User calibration of the laser can be conducted with the use of a paired laser and detector, but it's recommended that the remote is used during this operation. At any time during calibration, press the menu button or power off the laser to abort the calibration and exit without saving the settings.
1. Select the calibration icon 📖 from the main menu and press the OK button.
2. Place the laser on a stable surface (such as a *MILWAUKEE*® Rotary Laser Tripod) in the horizontal position. After pressing the OK button, the calibration record, including the laser field calibration, laser service calibration, and next suggested calibration is displayed. *MILWAUKEE*® suggests that the tool should be professionally calibrated once per year or after any serious drop event. Between professional servicing, field calibration can be completed for minor adjustments in performance. Press the OK button to begin the field calibration procedure.
3. Enter the current date of the recalibration using the up and down arrows and press the OK button.
4. Select the detector to be used and press the OK button to confirm the selection. The paired detector will flash the green LED and beep when selected to help the user distinguish between multiple paired devices. Next, select the X/Y or Z axis for calibration and press the OK button.

Recalibrating the Horizontal (X/Y) Axis:

1. Select the desired calibration accuracy. Longer distances are required for more precise calibration. The screen will change to show "-X" as the first axis of calibration. Press the OK button to continue. Separate the laser and detector in the "-X" axis by the distance indicated on the screen.
2. Ensure the laser is projecting on the sensor. Once the OK button becomes active, press the OK button to continue. Ensure the detector is secure on a stable and level surface.
3. Return to the laser. Using the iron sights, adjust the laser so that it's aimed perfectly at the detector sensor in the "-X" axis. Allow the detector time to take a reading. Once complete, the detector and laser will beep to indicate completion and prompt to move to the next axis.
4. Rotate the laser clockwise 90° and use the iron sights to align the "+Y" axis with the sensor. Wait for the audible beep sound.

5. Repeat for the "+X", then the "-Y". After the "-Y" is completed, the "complete" screen will appear on the laser and remote. Press the OK button, the settings will be saved, and the laser will power off.

Recalibrating the Vertical (Z) Axis:

1. Hang a plumb bob line at least 10 m (30') in length from the ceiling. Press the OK button to continue. Ensure that the laser is aligned with the reference line and is at least 2 m (6') from the plumb bob line. Press the OK button to continue.
2. Allow a few seconds for the laser to enter calibration mode. When ready, the laser will begin to rotate and the left or right and OK button on the LCD screen will become selectable. Use the arrow buttons to slowly adjust the laser plane so that it's parallel with the reference plumb bob line. Once aligned, press and hold the OK button to complete calibration.
3. When calibration is complete, the screen will say "complete"; press the OK button. The settings will be saved and the laser will be powered off. Perform "Accuracy Field Check" to ensure calibration was done correctly.

NOTE: If calibration fails, the screen on the laser and remote will prompt users to restart the calibration process. If calibration fails multiple times, contact an authorised *MILWAUKEE*® service centre. Press the main menu button to abort the procedure.

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 laser displayed "cal. error" warning immediately after powering on the tool, this is an indication of a system error, return the tool to an authorised *MILWAUKEE*® service centre.
•**Leveling Error** – The leveling error screen appears, and the alarm will sound. Ensure that the laser is on a level surface and the job site is clear of obstacles. If setting up in the vertical orientation, ensure the laser is in the correct orientation. The laser will only work in one orientation, with the keypad facing up and parallel to the ground. Try the auto-leveling process again, or power cycling the laser to clear the setting. If this fails, return the laser to an authorised *MILWAUKEE*® service centre.
•**Slope Error** – A slope error will occur if the combination of the adjusted grade and the laser incline is set up to exceed the laser core's leveling limitations. Pressing the Grade, or OK button will clear the warning and start the self-leveling sequence. Once Level, the laser or remote will display the home/grade screen with values set to 0. The laser is now in auto mode. Ensure the laser is on a level surface and check that the desired slope is within manufacturing specifications before attempting to slope the laser again.
•**General Alarm** – "See manual" will flash on the screen and an alarm tone will play. Return the tool 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. Clear the bump alarm by using one of the options from "Clearing the Bump Alarm" section. If this fails, return the laser to an authorised *MILWAUKEE*® service centre.

- **Temperature Alarm** – If the temperature screen appears, ensure the laser is within the operating temperature range. Note that the internal temperature of the tool may be 5 - 10° warmer than the ambient temperature. If stored in excessive heat or cold, allow at least 2 hours to acclimate to ambient temperature before turning on the tool.
- **ONE-KEY™ Lock Out** – The laser will turn on briefly but shut down after around 15 seconds. The ONE-KEY™ indication LED will be flashing red. This is an indication that the laser is locked out. Use the ONE-KEY™ app to connect and unlock the tool.

Pairing Failure:
- Ensure the detector is powered on, within the distance range and in pairing mode.
- Avoid artificial overhead lighting reaching the detector sensor.
- Avoid the laser projecting a beam onto the detector sensor during pairing.
- Avoid other transmitting devices.
- Place the laser on a stable surface during pairing to prevent interruption from bump alarms. For best results, pair in the horizontal orientation.

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 problem persists, please contact 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.
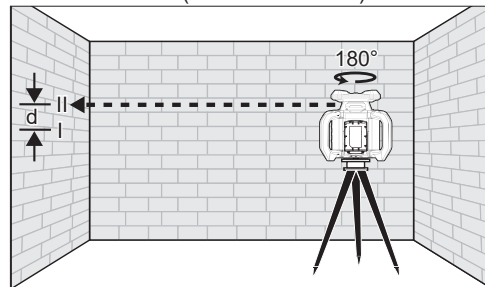
Leveling Accuracy for Horizontal Orientation

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.

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.

30 m
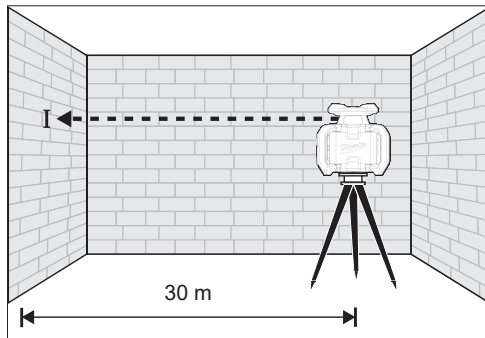
4. Rotate the laser 180°, without changing height, and wait for self-leveling to finish. Mark the centre of the beam on the wall (Point II). Ensure point II is as vertical as possible above or below point I.
5. Measure the vertical distance, (d) between Point "I" and Point "II". This is the actual height deviation of the laser in the axis checked over 60 m. The maximum deviation allowed should be 3.2 mm at 60 m (or 1.6 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.

Leveling Accuracy for Vertical Orientation

Ensure the area is clear of obstructions before doing this operation. Attach a Plumb Bob to the ceiling near a wall. The Plumb Bob should be a minimum of 9 m in length.

1. Ensure the work area is on a flat, clean surface.
2. Place the laser in the correct vertical orientation with the keypad facing up and parallel to the ground. If possible, elevate off the ground. Be sure the setup is stable before proceeding to the next step.
3. Turn **ON** the laser by pressing the ON/OFF button, and wait for the self-leveling sequence to finish. The leveling animation will complete, and will enter plumb dot mode.
4. Enter RPM mode by selecting the desired speed from the RPM menu and press the OK button to start the laser head rotation. Manually turn the tool to align the laser, so it crosses the plumb bob line at least 9 m above the ground.

5. Measure the distance between the Plumb Bob string and the laser at the base of the wall. This distance represents the laser's actual deviation from plumb. The maximum deviation allowed should be 1.2 mm over 9 m (or 3.2 mm at 30 m).
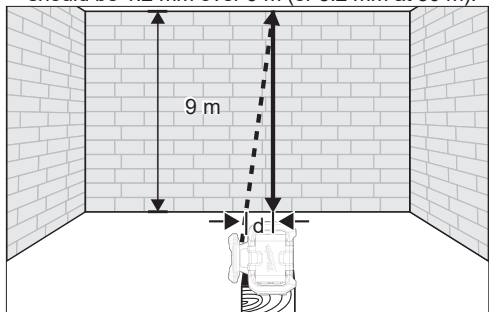

Plumb Dot Accuracy

A free measuring distance of approximately 4.5 m between the floor and ceiling on a firm surface is required. It's suggested to elevate the tool off the ground for this operation.

1. Place the tool within 300 mm of the floor.
2. Turn **ON** the tool by pressing the ON/OFF button, and allow the laser to self-level.
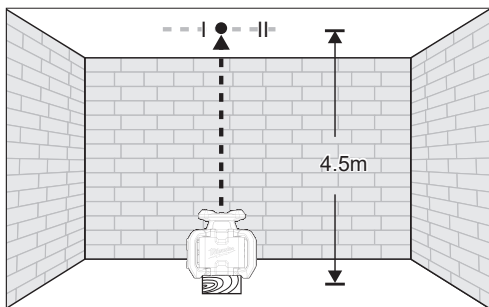
3. Mark the centre of the plumb point on the ceiling (Point I).
4. Rotate the tool 180° being as careful as possible to keep the centre of the laser in the exact same location.
5. Mark the centre of the top plumb point on the ceiling (Point II).
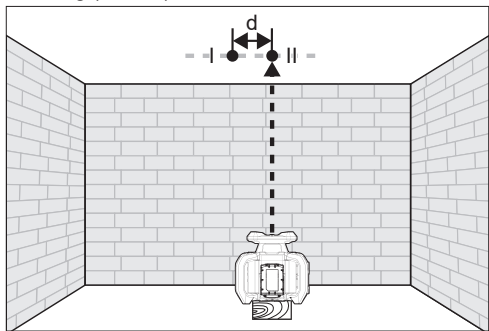
6. The distance between (Point "I" and Point "II") on the ceiling is the deviation (d) of the tool. This distance should not exceed 1.2 mm (max.) at 9 m.

For the measuring distance of 2 x 4.5 m = 9 m, the maximum allowable deviation (d) is:

9 m x ±1.2 mm ÷ 9 m = ±1.2 mm.

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 Rotary Laser

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 accesso-**
ries. Others may be hazardous.

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

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.