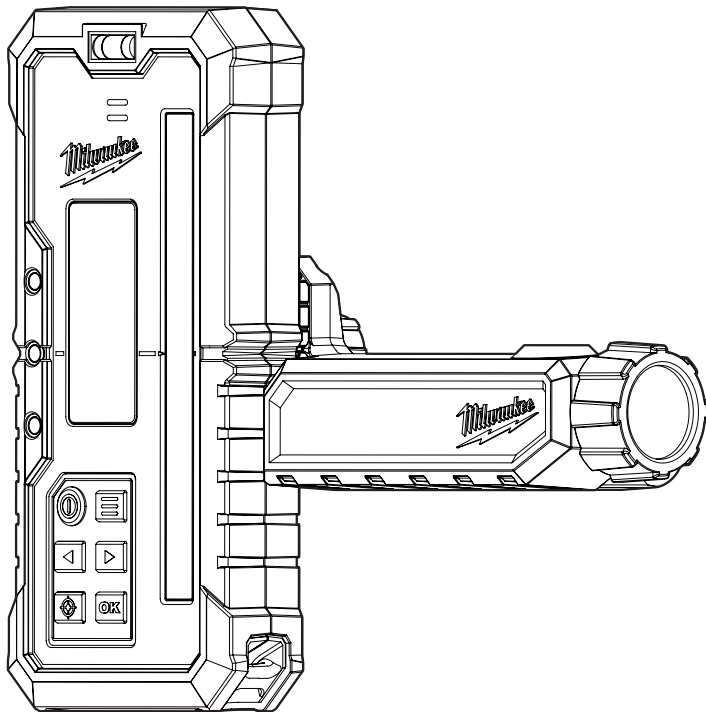





# OPERATOR'S MANUAL



Cat. No.  
RD1200

## ROTARY DETECTOR 1,220M

 **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.

### 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

- **This tool is designed to be powered by two AA batteries properly inserted into the tool.** Do not attempt to use with any other voltage or power supply.
- **Do not leave batteries within the reach of children.**
- **Do not mix new and used batteries. Do not mix brands (or types within brands) of batteries.**
- **Do not mix rechargeable and non-rechargeable batteries.**
- **Install batteries according to polarity (+/-) diagrams.**
- **Properly dispose of used batteries immediately.**
- **Do not incinerate or dismantle batteries.**
- **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.

## SPECIFIC SAFETY RULES FOR ROTARY LASER DETECTORS

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

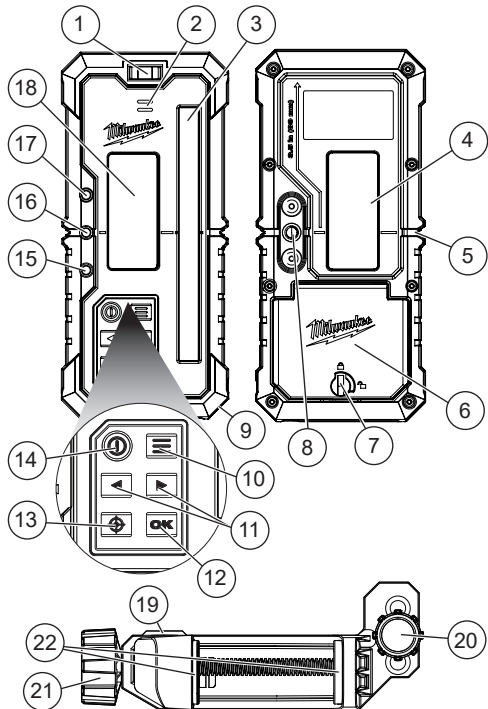
- **Be sure to power off instrument after use.** When instrument will not be used for a long period, place it in storage after removing batteries.
- **Watch out for erroneous results if the tool is defective or if it has been dropped, misused or modified.**
- **Do not dispose of tool or batteries together 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.
- **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. Bubble Level             | 13. Grade match button    |
| 2. Speaker                  | 14. ON/OFF button         |
| 3. Sensor                   | 15. High indicator LED    |
| 4. Back LCD screen          | 16. Centre indicator LED  |
| 5. Centre line              | 17. Low indicator LED     |
| 6. Battery door             | 18. Front LCD screen      |
| 7. Battery door turn lock   | 19. Surface vial          |
| 8. Clamp connection feature | 20. Clamp attachment knob |
| 9. Wrist strap attachment   | 21. Clamping knob         |
| 10. Menu button             | 22. Clamp jaws            |
| 11. Arrow buttons           |                           |
| 12. OK button               |                           |

## SYMBOLGY



Safety alert



Volts



Direct Current



Read Operator's Manual



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

## SPECIFICATIONS

Cat. No. .... RD1200

Recommended Compatible

Laser Cat. No. .... M18 RL1220

Volts..... 3 V DC (2xAA) LR6/15A

Reception Angle ..... 70°

Wavelength Compatibility ..... 620-690 nm

Detection Range..... 9 m (30') up to  
1,220m (4000') (Diameter)

Receiving Area ..... ± 60 mm

Volume..... ≥ 95 dBA

Altitude..... < 2,000 m

Pollution Degree..... 2

Drop Rating ..... 2 m

Centre Indication (From Top)..... 89 mm (3-1/2")

Auto Shut-off..... 15 min  
(No buttons pressed or laser detection)

Run Time ..... 40 hrs

Clamp Weight ..... 0.18 kg

Clamp Width ..... 63.5 mm (2-1/2")

Maximum Relative Humidity (RH) ..... 80%

Decreasing Linearly Relative Humidity (RH) ... 50%

at 40°C

Recommended Ambient

Storage Temperature ..... -25°C to 60°C

Operating Temperature ..... -20°C to 50°C

**NOTE:** Distance, laser power, and other

environmental factors such as temperature,

precipitation, or ambient light conditions may

negatively impact product accuracy and range.

## ASSEMBLY

### Attaching the Clamp

The clamp is an optional piece that can be attached to the detector. The clamp can be used with materials up to 63.5 mm (2-1/2") thick.

1. To **attach** the clamp to the detector, align the attachment posts on the clamp with the clamp connection feature on the back of the detector.
2. Align the screw on the back, and turn the knob clockwise to tighten into place.
3. Attach the clamp to the workpiece by turning the clamping knob counterclockwise to open the clamping jaws. To tighten the clamp to the workpiece, turn the clamping knob clockwise. Ensure the clamp is snug before operation.
4. To **remove** the clamp from the workpiece, turn the clamping knob anticlockwise until the clamp jaws release from the workpiece. To remove the clamp from the detector, turn the clamping attachment knob anticlockwise and remove the clamp from the back of the detector.

### Changing the Batteries

Only use alkaline batteries. **Do not use zinc-carbon batteries.** If the detector will not be used for a long time, remove the batteries to protect against corrosion. Change batteries when the fuel gauge shows low batteries.

To **change** the batteries:

1. To open the battery door, turn the latch clockwise to the unlocked position and then open the door.
2. Remove the old AA batteries, and dispose of them properly.
3. Insert two AA batteries according to the +/- polarity marked in the compartment.
4. To close the battery door, close the door and then turn the latch counterclockwise to the locked position.

### Fuel Gauge

To determine the amount of charge left in the batteries, turn the tool ON. The display will show the battery charge: Full, 3/4, 1/2 and low battery warning. Battery life may vary by brand/age. Replace the batteries as soon as possible.



## 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 detector 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 Detector ON/OFF

1. To turn **ON**, press the ON/OFF button until the laser detector beeps. The icons and LED will

flash for 1 second, then return to the home screen.

**NOTE:** On initial startup, use the up/down arrows to select the desired language, then press the OK button to confirm. The backlight will illuminate after any button press or when a laser beam is detected on the sensor. The backlight will stay on for 15 seconds. The timer will reset every time a button is pressed or when a laser is sensed for the first time (i.e. it won't stay on if a laser stays on the sensor, but if a laser moves off then back on, the timer will reset).

2. To turn **OFF**, long press the ON/OFF button for more than 1 second. Auto shut-off will occur after 15 minutes if there are no buttons pressed or if no lasers are detected.

**NOTE:** The laser and detector are independent of one another. Pressing the ON/OFF button on the detector will power off the detector, and the laser will remain on.

### Pairing the Detector with the Rotary Laser

The detector will attempt to re-pair with the last paired laser when first powered on. Kitted detectors will come pre-paired with their laser. If successful, the pairing icon will stop flashing and become solid. Green indicator LED will flash. If not successful, the not paired icon will be on and the red indicator LED will flash.

To manually **pair** your device:

1. Press the menu button until the pairing icon on the display flashes and "on" appears on the screen.
2. Press the OK button to confirm selection, and the pairing icon setting will update on the display. While pairing, ensure the laser is pairable. The 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 manually **unpair** your device:

1. Press the menu button until the pairing icon in flashes and "on" appears on the screen.
2. Choose "off" using the arrow buttons.
3. Press the OK button to confirm selection, and the pairing icon setting will update on the display. The receiver will be disconnected and unpaired from previously paired device and the unpaired icon will show on the display.

### Adjusting the Volume

The volume is set to high as the factory default. Once setting is changed, when the detector is turned off and back on again, the detector will recall the last saved setting.

1. Press the menu button until the volume screen appears.
2. Use the left or right arrow buttons to toggle between high ( $\geq 95$  dBA), low (72-90 dBA), and off. When toggling, a sample tone will play to demonstrate the currently selected setting. Press OK to confirm selection. The icon on the status bar will update to show the current selection.

### Setting the Units of Measure

1. Press the menu button until the units screen appears.
2. Choose from the measurement options by using the left or right arrow buttons; millimetres, inches (decimal), inches (fractions), and tenths of feet (decimal) using the arrow buttons.
3. Press the OK button, and the measurement setting will update in the direct read out.

## Setting Accuracy

1. Press the menu button until the accuracy screen appears.
2. Choose from the accuracy settings below of: ultra fine, fine, medium, coarse and ultra coarse.
3. Press the OK button to confirm selection, and the accuracy setting will update in the direct read out.

Detector Accuracy				
mm	in. (Dec.)	in. (Frac.)	ft.	Levels
0.5	0.02	1/32	0.001	Level 1
1	0.04	1/16	0.003	Level 2
2	0.08	1/8	0.006	Level 3
3	0.12	1/4	0.010	Level 4
5	0.2	1/2	0.016	Level 5

Accuracy Levels  
(1 = Ultra-Fine - 5 = Ultra-Coarse)

## Centre Lock

Centre lock feature 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.

1. Place the paired detector in the desired location.  
**NOTE:** The detector must be aligned with the X or Y axis of the rotary laser. For best results, use the iron sight on top of the laser to align directly with the detector sensor.
2. Press the grade match button on the detector. Select the centre lock (crosshair with lock icon) using the left or right arrow buttons and press the OK button to continue.
3. Use the arrow keys to select the desired axis.  
**NOTE:** Ensure the laser is aligned and in range of the detector being used.
4. The laser will begin to search for the detector.
5. Once the centre is found the laser beam will move with the detector. Up or down indicators and number readout will appear while the laser adjusts in real-time.

**NOTE:** Ensure to not move the detector too fast or out of range, this may create an error, and the process will have to be repeated. If not found, the red LED will show on the detector and "not found" error will appear on the laser/remote. Press the OK button, and the laser and remote will go to the main menu, and the laser will start the self-leveling procedure. After the laser is leveled, press the grade match button on the detector and try steps 1-4 again until the centre is found.

## Grade Match

Grade match is for checking the rise or fall of the ground between two elevations without complex calculations needed. Grade match feature 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.

1. Place the paired detector in the desired location.  
**NOTE:** The detector must be aligned with the X or Y axis of the rotary laser. For best results, use

- the iron sight on top of the laser to align directly with the detector sensor.
2. Press the grade match button on the detector, and press the OK button to continue.
3. Use the arrow keys to select the desired axis.  
**NOTE:** Ensure the laser is aligned and in range of the detector being used.
4. Press the OK button to confirm the selection and begin the grade match function. The laser will begin to search for the detector. Once the laser is detected on the centre of the detector, the direct readout and arrow segments and green indicator LED will flash green to indicate success. The measured grade will be displayed on the laser and remote. If failed, all 3 LEDs (BLUE/GREEN/RED) will flash, not only red LED. Repeat steps above to try again.

## 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. Be sure that only one laser is striking the detector sensor at a time. A detector in "CH--" will detect lasers in any channel. While the detector is in CH 1,2,3 it will only detect lasers in matching channels.

1. Select a unique channel to distinguish the laser from others on the jobsite or select "CH--" to detect any red rotary MILWAUKEE® laser on the same jobsite.
2. Press menu button until channel link menu appears on detector. Use the arrows buttons to toggle between channel -- / 1 / 2 / 3.
3. Press OK to confirm selection and exit the menu.  
**NOTE:** Changing the channel on a detector will not update the channel of paired lasers. To align laser and detector, select the same channel on the laser as on the detector.

**NOTE:** Channel link is only compatible with certain RPM's and functions. Some settings may automatically change when this function is used.

## Direct Read-Out and Arrow Indicator

If a laser is sensed, the direct read-out, arrow indicators, and indicator LEDs will illuminate to guide the user in moving the detector to align the laser with the centre. If no laser is detected, the LEDs, and arrow indicator will remain off, and the direct read-out will show no value and display "--".

- High LED indicator (blue) - Move the detector location up until on centre.
- On centre LED indicator (green) - The line being detected from the laser is on centre.
- Low LED indicator (red) - Move the detector location down until on centre.

**NOTE:** If the laser leaves the sensor, the up or down arrow segments will begin to cycle, indicating the direction that the laser was last detected.

## Other Detector Modes

- Sleep Icon** – Indicates that the laser is asleep and must be woken up before grade match or centre lock can be initiated.
- CAL Icon** – Will appear on the detector when laser is using it for calibration.

## Troubleshooting

- Ensure batteries are inserted correctly according to the +/- polarity marked in the compartment.
- Replace batteries that may be at the end of life.

- Ensure the tool's internal temperature is within specified operating ranges. If stored in excessive heat or cold, allow at least 2 hours to acclimate to ambient temperature before turning on the tool.
- If the detector screen pauses for a long period of time, press and hold the power button for 15 seconds or remove the batteries to reset.
- If attempting grade match and both centre lock and grade match icons flash at the same time, this is an indication that the function cannot be completed. Check pairing status and review laser for any warnings that must be cleared before proceeding.

#### Pairing Failure:

- Ensure the detector is powered on, within the distance range and in pairing mode.
- Avoid artificial overhead lighting on 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.
- The no connection error may appear on laser if your devices are not paired. Try repeating the pairing steps in the "Pairing the detector with the Rotary Laser" section.

If problem persists, please contact an authorised **MILWAUKEE®** service support.

### ACCURACY FIELD CHECK

**NOTICE** Perform the Accuracy Field Check procedure immediately upon unboxing 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

Sunlight or other extreme lighting conditions can adversely impact accuracy. For best results, use indoors or avoid direct sunlight. Abusive treatment of the laser level detector, such as excessive impacts from drops, can lead to deviations in product accuracy.

Therefore, it is recommended to conduct the Field Check procedure after any impact or before completing any critical jobs.

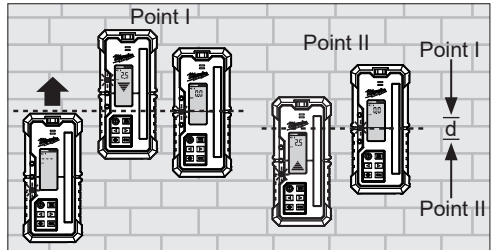
For best results, use with **MILWAUKEE®** Lasers.

#### Detector Accuracy Check Procedure

1. Set up compatible laser about 9 m from a flat wall.
2. Ensure the laser source is self-leveled and perpendicular to the wall.
3. Place detector flat on a wall directly in front of the laser source and slightly below the projected laser line.
4. Keeping the bottom of the detector parallel with the ground, raise the receiver past the centre mark until the down arrow appears on the LCD screen.
5. Lower the detector until the centre line appears.
6. Mark a line on the wall (Point I).
7. Continue to lower detector until the up arrow appears.
8. Raise the detector until the centre line appears.
9. Mark a line on the wall (Point II).

10. Measure the distance between Point "I" and Point "II" – divide by 2. When complete, compare this to the Detector Accuracy table in the "Setting Accuracy" section.

**NOTE:** If the measured accuracy is out-of-spec according to this table, contact an authorised **MILWAUKEE®** service centre.



### 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 Detector

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

#### 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 Sensor Window

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 and repairs, return the tool to an authorised service centre.



## **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](http://milwaukeetool.com.au/milwaukeetool.co.nz).

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