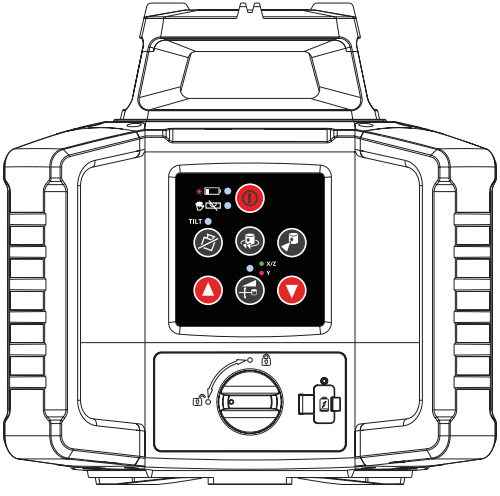
OPERATING MANUAL

TUF-208R (Red Beam)
TUF-208G (Green Beam)



IMPORTANT! READ BEFORE USING

CONTENTS

General Safety ..... Page 3
Feature Chart ..... Page 5
Product Overview ..... Page 6
Keypad and LED ..... Page 7
Battery and Power ..... Page 8
Set Up ..... Page 9
Operation ..... Page 10
Accuracy Check ..... Page 13
Specifications ..... Page 16

GENERAL SAFETY

⚠ WARNING Carefully read the safety instructions and product manual before using this product. The person responsible for the instrument must ensure that all users understand and adhere to these instructions.

⚠ ATTENTION While the laser tool is in operation, ensure not to expose your eyes to the emitting laser beam. Exposure to a laser beam for an extended time may be hazardous to your eyes.

⚠ ATTENTION Glasses are supplied in some of the laser kits. These are NOT certified safety glasses. These glasses are ONLY used to enhance the visibility of the beam in brighter environments or greater distance from laser transmitter.

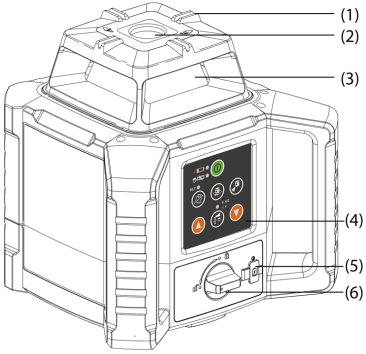
⚠ WARNING The following labels are placed on the laser tool to inform you of the laser class for your convenience and safety.

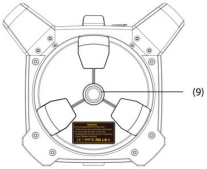
- Do not operate the laser in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. This tool may create sparks which may ignite the dust or fumes.
- Store an idle laser out of reach of children and other untrained persons. Laser are dangerous in the hands of untrained users.
- Tool service MUST be performed by qualified repair personnel, service or maintenance performed by unqualified personnel may result in injury.
- Do not use optical tools such as telescope or transit to view the laser beam. Serious eye injury could result.
- Do not place the laser in a position which cause anyone to intentionally or unintentionally stare into the laser beam. Serious eye injury could result.
- Turn the laser off when it is not in use.
- Do not operate the laser around children or allow children to operate the laser. Serious eye injury may result.
- Do not use the laser when you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating the laser may result in serious personal injury.
- Use personal protective equipment, always wear eye protection.

FEATURE COMPARISON CHART

	TUF-208R	TUF-208G
H Auto-leveling	✓	✓
Tilt Warning	✓	✓
Manual Mode	✓	✓
Calibratin Mode	✓	✓
V Auto-levelling	✓	✓
Manual Slope Mode	✓	✓
Speed Select	✓	✓
Spot Mode	✓	✓
Scan Mode	✓	✓
Vertical Up Beam	✓	✓
Sensor for Remote	✓	✓

PRODUCT OVERVIEW





(1) Alignment Sight

(2) Vertical Up Beam Window

(3) Glasses Enclosed

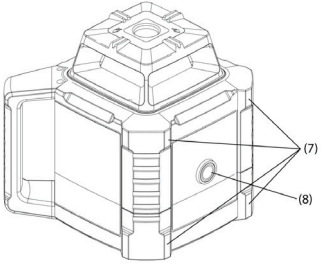
(4) Keypad

(5) Charging Plug

(6) Battery knob

(7) Vertical Support Dot

(8,9)5/8“ insert for tripod mount.



KEYPAD AND LEDS

Keypad:

- Power ON/OFF key
- Tilt Warning ON/OFF key
- Rotation Speed key
- Scan Mode key
- Manual Slope Mode key
- Slope adjust key

Power LED

Solid GREEN
- Fully charged/Normal Voltage
- Charging complete
- Auto-levelling complete

Blinking GREEN
- Laser Tool is Auto-Levelling
- In Calibration

Blinking RED
- Low battery

Solid RED
- Battery needs recharging, power supply required
- Laser can be operated by adapter power

Manual LED

Blinking RED
- Manual Mode ON (Auto-Levelling OFF)

Power and Manual LED
- Out of levelling Compensation Range

Tilt Warning LED

Solid RED
- Tilt Warning ON

Blinking RED
- Out of level

X/Y Selected LED

Solid GREEN
- X Axis Adjust Slop Mode

Solid RED
- Y Axis Adjust Slop Mode

Blinking GREEN
- X Axis at Maximum Allowed Slope
- X Axis adjust Calibration Mode

Blinking RED
- Y Axis at Maximum Allowed Slope
- Y Axis adjust Calibration Mode

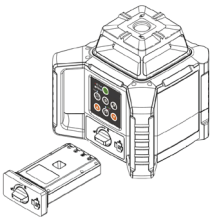
BATTERY AND POWER

⚠ WARNING **Batteries can explode, or leak, and can cause injury or fire, to reduce this risk:**

- Carefully follow all instructions and warnings on the battery label and package.
- Do not dispose of batteries in fire.
- Keep batteries out of reach of children.
- Do not short battery terminals
- Do not charge disposable batteries.
- Remove dead batteries immediately and dispose of per local codes.

Battery pack removal / return:

- Press battery compartment cover and slide out
- Securely close and lock battery compartment cover



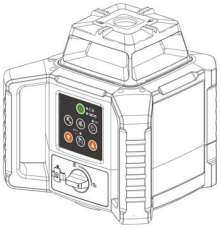
Charging Battery

- Plug charging/power adapter plug into charging jack of laser tool.
- The LED on the charging/power adapter will light RED during charge.
- The LED on the charging/power adapter will light GREEN when charge is complete.
- When battery is fully charged unplug the charging/power adapter from laser tool and power outlet.

Operating with Charging/Power Adapter

- Laser tool can operate while plugged int charging/power adapter.
- Functions and controls of laser tool are same as when not plugged into charging into charging/power adapter.

SET UP



Horizontal position

- Place the laser tool down on its base and be sure surface is near level
- Press ⏻ to power on.

Vertical position

- Place the laser tool down on its side. be sure surface is near level
- Press ⏻ to power on.

OPERATION

- Before operating the laser tool always be sure to check the laser tool for accuracy.
- In Manual Mode, Auto-Levelling is OFF, the accuracy of the beam is not guaranteed to be level.
- Laser tool will indicate when it is out of compensation range. If so, reposition laser tool to closer level.
- Laser tool is Auto-Levelling by default.
- Tilt Warning is ON by default when laser tool leaves the manufacturer.
- Tilt Warning is only available in Auto-Levelling modes. Tilt Warning is not available while in Manual Mode.

Power

- Press ⏻ to turn laser tool ON/OFF.
- When powered ON, Tilt Warning is ON by default.
- When powered ON, Laser Tool begins Auto-Levelling.
- When Auto-Levelling has completed, laser will rotate at default RPM speed setting.

Tilt Warning (not available in Manual Mode)

- When powered ON, Tilt Warning is ON by default.
- When powered ON, press  to turn Tilt Warning ON/OFF.
- When Tilt Warning ON, laser tool will indicate with blinking Tilt Warning LED and blinking laser beam when the laser tool has sensed any moment.
- If an alarm has been triggered, press  to reset.
- When reset, the laser tool begins Auto-Levelling, Check alignment with original target.

Manual Mode

- When powered ON, press and hold for ≧3s to turn ON/OFF Manual Mode.
- Auto-Levelling is OFF in Manual Mode.
- Laser tool can be manually positioned at any angle or slope.
- When Manual Mode is turned OFF, laser tool begins Auto-Levelling as done when initially powered ON.

Manual Slope Mode

- When powered ON, press once, Manual Mode turns ON, Auto-Levelling OFF. Tilt lock is disengaged.
- Press to adjust the x-axis up, press to adjust the x-axis down.
- Press again to set the X axis to the Y axis adjust.
- A Solid red slope LED indicated y-axis adjust.
- Press to adjust the y-axis up, press to adjust the y-axis down.
- LED will indicate when at maximum slope angel, the axis will not move any further in that direction
- Press again to set the Y axis to use of laser tool in Manual Slope Mode.
- X and Y axis are now set at manually adjusted slopes
- To turn Manual Slope Mode OFF, press and hold for ≧3s
- When Manual Mode is turned OFF, laser tool begins Auto-Levelling as done when initially powered ON.

Manual Mode

- Press to toggle through the available speed, setting as 300rpm-->600rpm-->150rpm-->0rpm-->300rpm…(repeat)

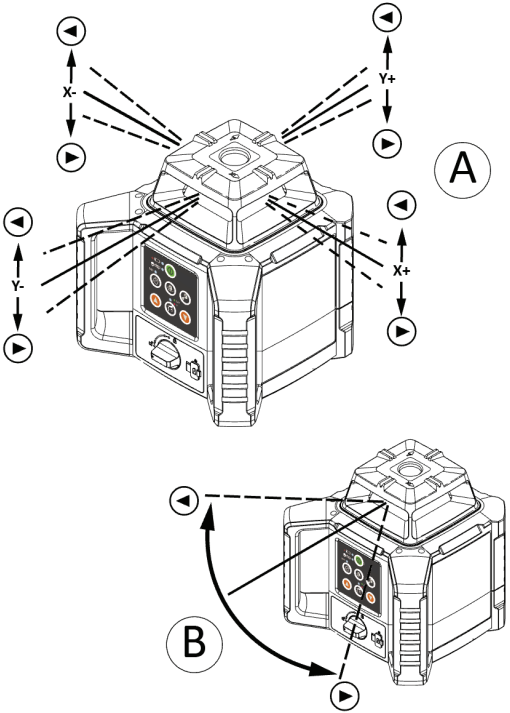
Spot Mode

- Press to the stopped (0 rpm) setting
- Press to rotate the direction of the spot clockwise
- Press to rotate the direction of the spot counterclockwise.
- A single press of or will rotate the direction by 0,5°
- Holding down the key will rotate the direction continuously, slowly at first, followed by a faster rate when hold for an extended time.

Scan Mode

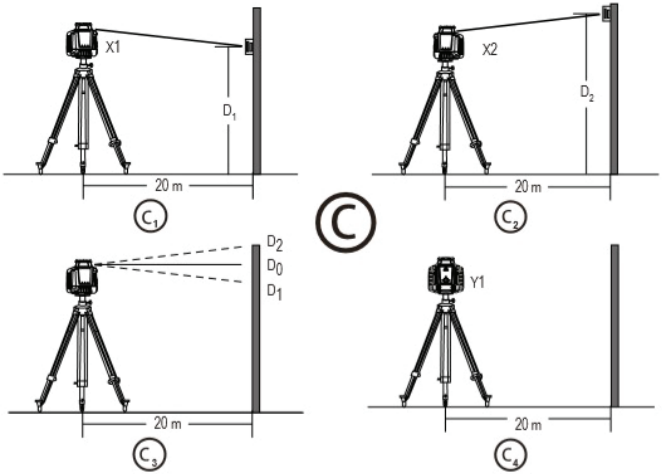
- Press to cycle through available scan angles. (15°/30°/60°)
- Press to rotate the direction of the scan clockwise
- Press to rotate the direction of the scan counterclockwise.
- Press to turn OFF Scan Mode and return to 300rpm.
- A single press of or will rotate the direction by 2.0°
- Holding down the key will rotate the direction continuously, slowly at first, followed by a faster rate when hold for an extended time.

ACCURACY CHECK



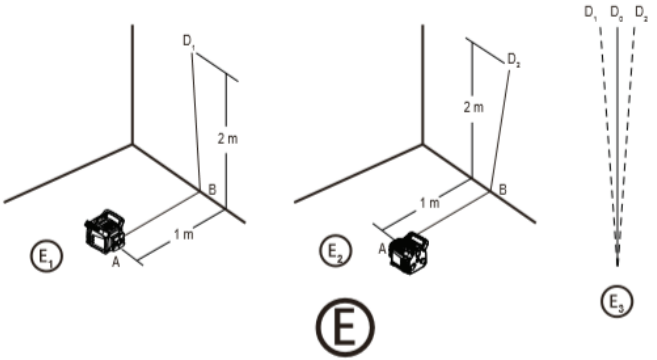
Note

- The laser tools are sealed and calibrated at the factory to the accuracies specified.
- It is recommended to perform a calibration check prior to its first use and then periodically during future use.
- Be sure to allow the laser tool adequate time to Auto-Level (<60s) prior to a calibration check.
- The laser tool should be checked regularly to ensure its accuracies, especially for precise.



Horizontal check (see Figure C)

- Set the laser tool on a tripod 20m away with the “X1” side facing the wall (C1)
- Powered ON the laser tool and allow the laser tool to Auto-Level and be sure laser is rotating
- Go to the wall and mark a reference point “D1” where the laser line is on the wall. If available, using a detector may help in locating the beam more easily.
- Loosen the laser tool from the tripod and rotate the laser tool 180°so that the “X2” side is now facing the wall.(C2)
- Go back to the wall and measure the distance between the first reference point “D1” and the second reference point “D2” (C3).
- There is no need to adjust calibration if the distance between reference point “D1” and “D2” is <2mm.
- If the distance measured is 2.0mm then a calibration adjustment is necessary.
- Perform the same steps for the “Y” axis as was done for the “X” axis. Replace”X1” and “X2” with “Y1” and “Y2” (C4).



Vertical check (see Figure E)

(Only necessary on models with vertical Auto-Levelling)

- Set the laser tool on a stable surface in its vertical position 1m away from a wall that extends ≧2.0m high with the "Y1" side facing that wall.(E1)
- Powered ON the laser tool and allow the laser tool to Auto-Level and be sure laser is rotating
- Mark reference points "A" (where laser line is on floor 1m away from wall), "B" (where laser beam is at corner), and "D1" (where laser beam is 2m up the wall. (E2)
- Rotate the laser tool 180°so that the "Y2" side is now facing the wall
- Align the laser beam with reference points "A" and "B" and then go back to the wall and measure the distance between the reference points "D1" and "D2". (E3)
- There is no need to adjust calibration if the distance between reference point "D1" and "D2" is <1mm.
- If the distance measured is ≧1.0mm then a calibration adjustment is necessary.

SPECIFICATIONS

	TUF-208R	TUF-208G
Horizontal Rotary Accuracy	±1 mm @10m (20”)	
Vertical Rotary Accuracy		±1.5 mm @10m (30”)
Vertical Up Beam Accuracy	±3.0mm @30m	
Compensation Range	≧5°	
Slope Range	±10%	
Minimum Increment	±0.01%	
Scan Range	15°,30°,60°	
Working Range with detector	0.5m ~ 300m	
Levelling Time	≤20s	
Rotation Speed	600/300/150/0 RPM (±10%)	
Laser Class	Class 2 (EN60825-1,2014)	
Laser wavelength	(R)635nm/(G)520nm	
Operating Time	≧60h(RED)/≧40h(GREEN)	
Recharging Time	<8h	
Power Supply	2*26650 Li-Ion battery pack	
IP Rating	IP66	
Operating Temperature Range	-10℃ ~ +40℃	
Storage Temperature Range	-20℃ ~ +60℃	