

IMEX 99DG DUAL GRADE LASER



OPERATION MANUAL



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Introduction

Congratulations on your purchase of a quality Imex rotating laser.

These lasers have been designed for the professional and incorporate the latest laser technology with a robust and simple construction for years of trouble-free use.

These instruments are suitable for all interior and exterior general construction levelling applications and feature quick set-up, excellent accuracy and ease of use.

The following operating manual has been designed to assist you in getting the optimum performance from your instrument. Please read carefully before using the instrument, and observe all safety conditions.





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1. About the Instrument - Functions

1.1 Instrument Overview



1.3 Standard Function

The instrument is equipped with a semi-conductor diode with wavelength of 635nm. The laser beam is clearly visible, and the laser module rotates freely to form a laser scanning surface.

In the upright position, ideally placed on a standard aluminium tripod the laser beam emits a horizontal line which can be detected by the instruments receiver.

On the 99DG, if the unit is placed in a horizontal position, the laser emits a vertical beam.

A plumb spot at 90° to the main beam is emitted from the base and the top of the instrument.



Horizontal operation

Vertical Operation

A remote control is provided which works on an infra-red system up to 20m-30m from the instrument. The control panel has the same functions as the control panel on the instrument itself.

2. Basic Operation

2.1 Standard Set-up Levelling (see dia over page)

Place unit on tripod and roughly set up so that the instrument is within 5% of level.

Switch the unit on (d).

The unit will then level itself and the diode will emit a beam and commence spinning. The instrument will commence spinning at its maximum speed of 600rpm.

If the unit is bumped or moved the laser will stop and the out of level warning symbol will flash. After the instrument has re-levelled itself the laser will recommence spinning.

- Warning – If the unit has been bumped or moved and the unit recommences spinning, the instrument may not automatically be at the original level. Re-check on a datum point.

2.2 Hi-Alert Mode: Using the Hi alert mode, button (i), if the laser is bumped or moved it will not re-level & recommence spinning until you press button (i) again, therefore you can be assured accuracy

2.2 Rotation Speed: If a slower speed is required, i.e. for better visibility; press the speed control button (h).

Speed will revert to 0rpm, press button again to get required speed.

2.3 Receiver Set-up: Using the bracket included, mount this onto a staff or grade rod.

Turn the receiver on and raise or lower the receiver on staff until it makes a continuous beeping sound. This is the point level of with the instrument. The receiver has two settings; a course and a fine setting. The band width and the audio volume can be adjusted using the receiver's buttons.



Standard Leveling Set-up

When set up the instrument will create a laser beam across the entire work site to a radius of 250m and the receiver will give a signal in all points within the instruments range

3. Grade Slope Operation

The Imex 99DG has a semi-automatic grade slope function to 10% on both X and Y axis's.

This allows for the following tasks to be performed; Sloped concrete slabs, drainage slope, ceiling and grid slopes, fencing slopes.

3.1 Grade Mode

For best results use the remote control. Set up the instrument in the direction of slope required.

Turn on grade mode using button (a).

Once grade mode is activated 'X' will flash on the grade display (e) and grade slope indication (I) will turn on

By holding down grade setting buttons (f) or (g) you can now enter your desired slope on the x axis

To set grade on the y axis press button (b) x/y selection button, then the 'Y' indicator on the display screen will flash

Again using the grade setting buttons (f) & (g) you can now enter your desired slope on the y axis

Once you have set you required grade slopes on the x & y axis, press x/y selection button (b) so both the 'X' & 'Y' indicator on the display screen remain on

The laser will continue to spin for 30 seconds and will then bring the x & y values on the display screen back to 0.00% The laser will then start to adjust to your set grade slope Once your set slope is reached, this will be displayed on screen. i.e. X 2.50% Y-5.69%

3. Grade Slope Operation cont:

3.3 Dual Grade Sloping –Used for areas where a fall is made simultaneously to a point 90° to the other axis.

Ideally site instrument to one corner of the worksite. Set X axis as shown. At 90° to the X axis set the Y axis in the same manner. The grade is now set for both runs.



3.3 Exiting Grade mode

To exit grade mode press and hold button (a) grade display setting (e) will disappear and unit will re-level itself into level position.

4. Scan Mode Operation

The scan mode function allows the laser beam to emit only in a restricted radius.

This function is useful for;

- Internal layout work where work is being carried out in single runs or sections i.e. wall or ceilings
- On restricted sites internal or external where other laser or electrical equipment may be in use
- On busy sites where eye safety with other workers may be an OH & S issue
- On single long external runs i.e. pipe laying where full 360° is not required
- Especially useful in vertical mode 180° operation

4.1 Operating the Scan

With the unit on, press the scan button (h). Set the width required 0° , 10° , 45° , 90° or 180° by pressing the button once for every scan width increment.

To change the direction or position of the scan use the scan direction buttons (f and g). Press either of these buttons until the desired position is reached.



5. Vertical Function

The vertical function allows the instrument to be laid horizontally and a vertical line is emitted.

This function is used for;

- Alignment of formwork or pipeline runs in external situations
- Alignment of internal wall, floor and ceiling layout
- In conjunction with the plumb spot beam, which is always 90° to the rotating beam, a set-up reference point can be determined.

Alignment of internal wall, floor and ceiling layout

5.1 Using the Vertical Mode

Lay the instrument on a floor or board. Make sure the instrument is approximately level $+/-5^{\circ}$ and turn on. Instrument will level as in standard position.

All functions which can be carried out in standard position can be performed in the vertical position i.e. scanning, vary speed etc.

5.2 External use with Receiver

The vertical beam can be picked up with the use of the receiver in vertical position or 90° to normal position to check formwork or pipeline alignment set up instrument at the end of the run in a horizontal plane. Determine datum point at end of run with the receiver. Instrument is now set to give a straight laser beam over the full length of the run.



Outdoor vertical function

6. Batteries

The instrument is powered by 4 DC4.8-6V Nimh rechargeable batteries that allow for approximately 20 hours continuous use in standard conditions (20°-25°)

& 1 x 4D cell alkaline battery pack (60hours continuous use)

6.1 Battery Situation

The battery case is located on the base of the instrument. If changing batteries; undo the cover, replace batteries checking polarity.

6.2 Recharging Batteries

A battery level indicator light (k) is situated in the bottom right of display panel.

When battery is exhausted plug the charger provided into the recharging point on the instrument, located immediately below the control panel. The charger plugs into a standard 240V outlet.

Standard full charge time is approximately 7 hours. However the instrument can be charged and used simultaneously. In some instances a car charger accessory kit is an advantage.

DO NOT OVER CHARGE BATTERIES!

7. Checking Accuracy

Your Imex instrument has been pre-set and calibrated for accuracy before dispatch and should perform within the stated accuracy tolerance in standard conditions. However if the instrument is knocked, poorly transported or mistreated in any way the accuracy may be compromised and unit may need recalibration.

On commencement of a task it is advisable to carry out a simple control check.

7.1 Level Checking – Horizontal

Place instrument approximately 30m from a blank wall and with X1 axis square to the wall project a line onto the wall and mark line with a fine pencil or similar.

Turn the instrument 180° to X2 and repeat

The value or the difference between the two points should not exceed 3mm $(\pm 1.5 \text{mm from centre})$ Repeat the process on the Y axis



If values exceeded these by 10% contact your local service centre or 1800 669 110 to organise service and calibration.

9. Warranty Service and Care

9.1 Warranty

The Imex rotating laser range is covered with 5 year warranty as detailed on the warranty form.

9.2 Service and Calibration

It is recommended that in general use, laser equipment should be calibrated by a registered service centre every 12 months. For less frequent use 24 months is permissible.

9.3 Care of Instrument

For optimum results from your instrument care must be taken to prevent damage. Laser instruments contain sensitive optical assemblies and need to be treated carefully.

- Storage Store in an area away from direct sunlight and under the storage temperature limit of 70°C
- Transport Lasers can be affected by vibration and shock; never transport loose on the back of a vehicle.
- Cleaning When working in a dusty environment always clean instrument before packing away.
- If working in wet environment, completely dry unit with dry cloth before packing away. To prevent damage to instrument. Failure to do this will void warranty.

10. Technical Specifications

Model	99DG	Horizontal/Vertical	YES
Self-Levelling Range	+/5 ⁰	Water proof	IP64
Accuracy	1.5mm @ 30m	Power	DC 4.8-6v (Ni-mh rechargeable) or 4D cell alkaline pack
Working Distance	Diam 500m with included detector	Working time between charge	approx 20 hours
Rotation Speeds	0, 60, 120, 300, 600 rpm	Low Battery Indicator	Yes
Scan Mode	YES 10º,45º,90º,180º	Battery Charger	240V
Automatic Grade Slope	± 10.00% X & Y axis	Working Temperature	-20 ⁰ C - +50 ⁰ C
Plumb Spot	YES -accuracy +/ 1mm @ 1.5m	Detector	Imex LR1 Heavy duty Double sided operation fine & course setting
Light Source	Red laser diode, 635nm,	Unit Weight	2.7kgs
Remote Control	YES - Working range approx 20m	Set Inclusions	Laser unit, detector and bracket Remote, charger, Hard carry case, extra alkaline battery pack

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