

# DATUM

## 32X OPTICAL LEVEL

MODEL NO.: DL32X



**TO PREVENT SERIOUS INJURY, READ  
AND UNDERSTAND ALL WARNINGS  
AND INSTRUCTIONS BEFORE USE**

**OPERATING  
INSTRUCTIONS**

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# ABOUT YOUR OPTICAL LEVEL





Thank you for purchasing this DATUM OPTICAL LEVEL. Your measuring tool features 32x magnification, a peep sight and a bubble level mirror for ease of use.

Please read and understand the content of this instruction manual before using this product. Save this manual for future reference.

SPECIFICATIONS	
MODEL	DL32X
ACCURACY	±1mm at 1km double run levelling
LEVELLING ACCURACY	±3°
SETTING ACCURACY	±0.3"
COMPENSATOR	Air-damping compensation system
COMPENSATOR WORKING RANGE	±15'
HORIZONTAL CIRCLE PROTECTOR	360°
MAGNIFICATION	32X
FIELD OF VIEW	1°20'
MINIMUM SIGHTING DISTANCE	40cm
STADIA MULTIPLICATION	100
EFFECTIVE APERTURE LENSE SIZE	36mm
TRIPOD THREAD	5/8"
IP RATING	IP54

DATUM is constantly improving its products. All information in this manual is based on the latest product information available at the time of printing. The specifications outlined herein are subject to change without prior notice or obligation.

## HAZARD SIGNAL WORD DEFINITIONS

	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Obey all safety messages that follow this symbol to avoid possible injury or death.
 <b>DANGER</b>	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 <b>WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
<b>CAUTION</b>	Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

# GENERAL SAFETY RULES FOR OPERATION

<b>CAUTION</b>	Read all safety warnings, instructions, illustrations and specifications provided with this measuring tool. Failure to follow all instructions listed below may result in property injury.
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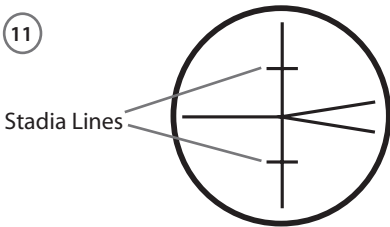
## Save all warnings and instructions for future reference.

- Check the levelling and indication accuracy of the measuring tool each time before using and after longer transport of the measuring tool.
- Avoid moisture and direct sun light.
- Do not subject the measuring tool to extreme temperatures or variations in temperature. the accuracy of the measuring tool can be impaired by extreme temperatures or variation in temperature.
- Store the measuring tool in upright position in the provided tool case when transporting. Store the tool in secure location when not in use.
- Avoid any impact to or dropping of the measuring tool.
- Do not use or store the instrument in locations where the temperature may reach or exceed 40°C.
- Do not disassemble the instrument or attempt to perform any internal servicing as this will void your warranty. Not user serviceable parts included.

# COMPONENT IDENTIFICATION



1. Bubble level mirror
2. Optical peep sight
3. Objective lens
4. Horizontal circle
5. Levelling screw
6. Bubble level
7. Adjusting screws for bubble level
8. 5/8" Tripod thread (bottom base)
9. Focusing knob
10. Horizontal drive screw
11. Field of view
12. Plumb bob



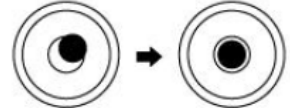
# OPERATION INSTRUCTION

## SET UP - MOUNTING ON TRIPOD

- Set up your tripod as levelled and stable as possible.
- Securely place the measuring tool on the tripod via the 5/8" thread.

## SET UP - ALIGN THE TOOL

- Align the measuring tool by adjusting the levelling screws (5) so that the air bubble is positioned in the centre of the bubble level as illustrated on the right.
- Bubble level mirror (1) is provided for ease of use.



## POINTING AND FOCUSING

- Direct the measuring tool towards a white background or a white sheet of paper. Turn the focusing knob (9) until the cross hairs appear clear and sharp.
- Point the measuring tool towards the staff through the peep sight (2). Continue to adjust the focusing knob until the the graduation field of the staff appears clear.
- Adjust the horizontal drive screws (10) until the vertical hair and the centre of the staff is aligned.
- When the telescope is correctly focused, the cross hairs and the image of the staff must remain aligned when moving your eye behind the eyepiece.

## MEASUREMENT - HEIGHT

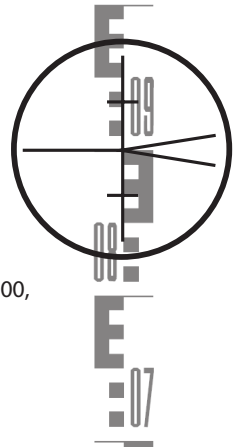
- Read off the height of the staff at the centre horizontal line of the cross hair.
- Height measured in the figure: 0.9 m

## MEASUREMENT - DISTANCE

- Centre the measuring tool above the point from which on the distance is to be measured.
- Read off the height of the staff at the top and bottom stadia lines.
- Multiplied the difference between top and bottom stadia line by 100, it's the distance from the unit to the staff.
- Distance measured in the figure:  $(0.932-0.87) \times 100 = 6.2$  m

## MEASUREMENT - ANGLES

- Point the measuring tool towards the first point.
- Set the horizontal circle (4) to 0°.
- Direct the measuring tool towards the 2nd point.
- Read off the angle at the reference mark.



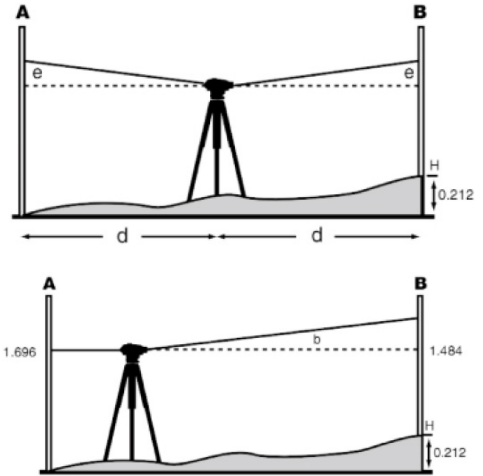
# ACCURACY CHECK

## CHECKING THE CIRCULAR BUBBLE LEVEL

- Adjust the levellings screws (5) so that the air bubble is centred.
- Rotate the measuring tool 180°. If the air bubble is no longer in the centre of the bubble vial, the bubble level must be re-adjusted.
- Adjust the levelling screws until the air bubble stays at the centre when the tool is turned to any directions.

## CHECKING HORIZONTAL LINE OF SIGHT

- Set up the measuring tool on a tripod halfway between two staves approximately 30m apart and ensure the tool is levelled.
- Read off height from staff A (ie. 1.924m). Turn the measuring tool and read off height from staff B (ie. 1.712m).
- $\text{Height} = A - B = +0.212\text{m}$  showing B is 0.212 higher than A.
- Position the measuring tool 1m away from staff A.
- Read off height from staff A (ie. 1.696m). Since B is 0.212 higher than A. If reading to B is  $1.484\text{m} \pm 3\text{mm}$ , the line of sight is horizontal.
- If the reading is beyond tolerance, cross hairs must be re-adjusted.



# MAINTENANCE AND SERVICE

- Do not attempt to open the device.
- Do not drop, knock or shake the optical level as this will affect precision.
- Keep the instrument clean at all times. Use a soft lint-free cloth for the body and lens tissue for glass windows. Do not use abrasive cleaners or solvents.
- Don't expose the laser level to high temperatures or humidity.
- Avoid shock, vibrations and extreme heat.



## WARRANTY INFORMATION

This warranty is provided by DATUM of 20 Thackray Road, Port Melbourne VIC 3207.  
Phone: 1800 868 258.

### **Express Warranty**

Subject to the exclusions set out below, we warrant that this product will be free from defects in materials or workmanship for 3 years (90 days for accessories, batteries and chargers) from the date of purchase.

The benefits conferred by this warranty are in addition to all rights and remedies which you may be entitled to under the Australian Consumer Law, and any other statutory rights you may have under other applicable laws. This warranty does not exclude, restrict or modify any such rights or remedies.

### **Warranty exclusions**

This express warranty does not apply where a defect or other issue with the product is caused by normal wear and tear, misuse or abuse of the product.

### **Consumer guarantees**

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage.

You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

### **Warranty claims**

To make a claim under this warranty, you must bring the product along with the proof of purchase and any other documentary evidence which you think is relevant to the your place of purchase where the claim will be handled on our behalf during the warranty period specified above. Any cost incurred by you in bringing the product to the place of purchase will be borne by you.

### **Calibration and repair service**

Datum recommends to check instrument calibration at least once a year or on as needed basis. Warranty does not cover calibration service. For calibration or repair, please visit your place of purchase.

