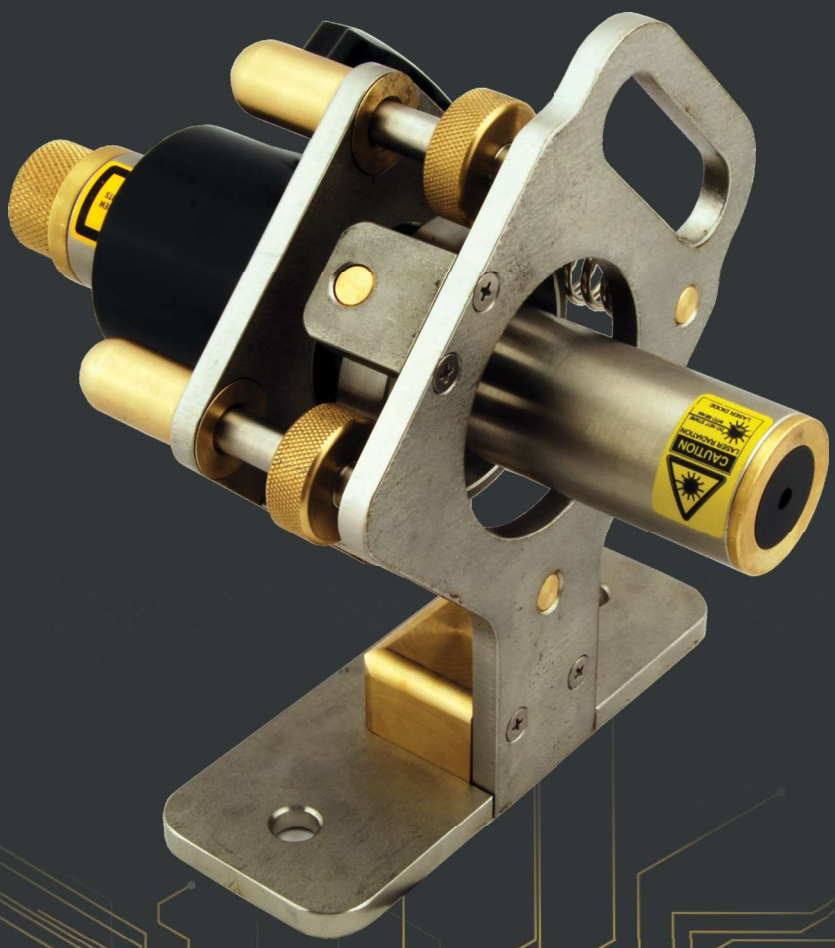
MOBILE AUTOMATION

USER MANUAL

TUNNEL LASER

- LD.35.IS
  Ex ia I/IIC T4 IP 55
  Ex ia I/IIC T3 IP 55



2 Imprint

This manual is an important part of your purchase. Please read it thoroughly before using your new equipment.

We recommend that you record details of your purchase here so that the information is readily available if you ever need to contact your supplier.

Serial number	
Date of purchase	
Purchased from	
Telephone	
Email	

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MOBA MOBILE AUTOMATION

MCE Lasers was acquired by MOBA in 2018, bringing 40 years of Australian development and manufacturing together with MOBA's globally recognised and trusted expertise in mobile automation technology.

MCE LASERS

STATEMENT OF LIMITED WARRANTY

MOBA Mobile Automation Australia Pty Ltd (MOBA Australia) warrants all equipment it manufactures and sells to be free of defects in material and workmanship for a period specified below. This warranty period is from the date of sales invoice. All other components not manufactured by MOBA Australia and not specified below, such as hydraulic or electrical components, hoses, fittings and clamps, will carry the original manufacturer's warranty. The warranty covers only equipment sold by MOBA Australia and it's authorised dealers and does not cover parallel imports, which are also known as grey or direct imports. Proof of purchase will be required before claiming warranty.
The warranty does not cover normal wear and tear or deterioration. Any evidence of negligence or abnormal use, accident, improper installation or an attempt to repair equipment by anyone other than factory authorised personnel even when using MOBA Australia's certified or recommended parts, automatically voids the warranty.
The warranty shall only be in force for the benefit of the Purchaser, not any third parties, including without limitation the Purchaser's customers, unless warranty transfer has been approved by MOBA Australia in writing

Warranty period:

Products	Warranty (months)
Mining, tunnelling and industrial alignment lasers	12

MOBA Australia or its authorised service centre will repair or replace, at its option, any defective part or component of which notice has been given during the warranty period. If service in the field is necessary to repair machine-mounted equipment under warranty, MOBA Australia may authorize on-site repairs at no charge for parts and labour. Travel time, accommodation and other expenses incurred to and from the place where repairs are made will be charged to the purchaser at the prevailing rates. If warranty service can be done at a factory authorised service centre, the customer will pay only one-way freight charges.
The foregoing states the entire liability of MOBA Australia regarding the purchase and use of its equipment. MOBA Australia will not be held responsible for any consequential loss or damage of any kind.
This warranty is in lieu of all other warranties, expressed or implied, except as set forth above, including any implied warranty of merchantability or fitness for a particular purpose which are hereby disclaimed.

SAFETY INFORMATION

Please become familiar with the important safety information in this section. Improper use or installation of the MOBA tunnel laser may result in personal injury or damage to the laser unit.

1 Read and become familiar with the manufacturer's operating manual for your machine, including safety information, before installing or using your laser.

2 A construction site can be hazardous and working around heavy construction equipment can be dangerous. Always exercise extreme caution when on a construction site.

3 Do not let any part of the unit protrude into traffic or limit the visibility of the operator.

4 Always use eye protection when welding, cutting or grinding is being done.

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1. General Information

1.1 Description

The MOBA Australia Tunnel Laser LD.35.IS enables accurate construction and alignment of tunnels. It can be used with various tunnelling techniques including tunnel boring machines, drill and blast, pipe jack or conventional hand techniques. This laser is certified to IEC 60079-0:2011 and IEC 60079-11:2011 standards as intrinsically safe.

Grouping And Classification:

Ex ia I/IIC T4 IP55 when used with Panasonic Batteries LR14(XW)

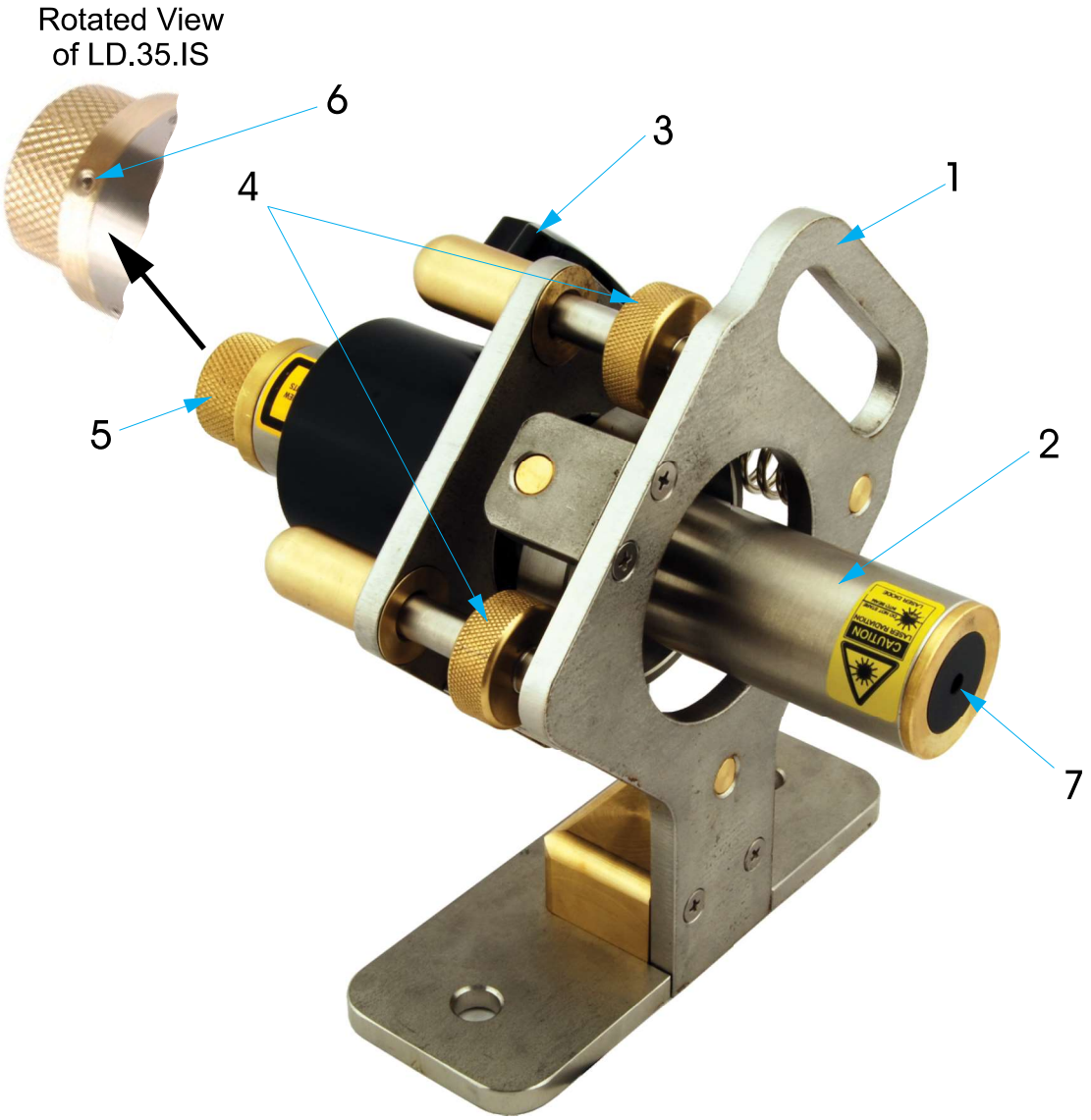
Ex ia I/IIC T3 IP55 when used with GP Batteries GP14AU

1.2 Features

The LD.35.IS is weather resistant to IP55 level, rugged and constructed from stainless steel and brass. The laser is based on diode technology and powered by 2 C cell alkaline batteries.

When used with the MOBA Australia designed adjustable gimbal, A.35.004.IS, the laser can be easily installed on tunnel walls and adjusted to aim the beam to a target.

1.3 Overview



1) Horizontal Mounting Gimbal A.35.004.IS
2) LD.35.IS
3) Knob to secure the LD.35.IS Laser
4) X & Y laser direction adjustment knobs
5) Switch Assembly with On/Off switch
6) Locking grub screw for Switch Assembly
7) Exit point for laser beam

2. Using the Laser

2.1 Conditions of Use

The LD.35.IS has a beam that falls within the Class 2 regime for laser safety. Although a safe class, the user should be aware of some possible hazards as outlined below. The laser should always be operated with the safety of the user and co-workers in mind. The laser beam will not cause any permanent eye damage but mounting and positioning of the laser should be such as to reduce distraction to co-workers.

1) Do not view the laser beam along its axis, do not stare into the beam.
2) Never view the beam directly through optical instruments such as dumpy levels, which increase laser density.
3) When mounting the laser, be aware to avoid:
    a) Mounting at eye level or where it may present a hazard to a person.
    b) Mounting in a position which may be a hazard to moving machinery.
    c) Positioning of the laser beam in a way that effects person and machinery moving towards the laser.
    d) Ergonomics for person replacing laser when batteries depleted.
4) Do not project the laser beam against highly reflective surfaces.

If required, additional visual aids such as scopes can be used to make the beam easier to see.

2.2 Set up and Mounting

1) For mounting of the laser, decide the position. This is usually a ceiling or a side wall. Height and direction of the laser should be decided in reference to the projection target.
2) Secure the mounting gimbal.
3) Slide the laser into the mounting gimbal and secure using knob.

2.3 Use

1) The laser can be switched on by pressing the switch on the Switch Assembly.
2) The projected laser dot can be aligned and positioned in two axes using the knobs for X & Y laser direction alignment. This alignment should be done in reference to the target.

3. Replacing the Batteries

WARNING:

Batteries MUST ONLY be replaced in a non hazardous area. Batteries MUST be Panasonic Alkaline C cells, model LR14(XW), to maintain the product's Ex ia I/IIC T4 IP55 classification. Alternatively, batteries MUST be GP Alkaline C cells, model GP14AU for a lower product classification of Ex ia I/IIC T3 IP55. With this lower T3 classification, the product cannot be used in a T4 or higher area.

To replace batteries:

1) Use a 2mm Allen Key to loosen the grub screw which locks the rear switch assembly in place.
2) Unscrew the rear switch assembly to access the battery compartment by turning counter clockwise.
3) Replace the batteries according to the polarity indicated in the battery compartment. Note that if the batteries are installed incorrectly, the laser has electrical and mechanical polarity protection.
4) Replace the rear switch assembly by turning clockwise until the rubber seal compresses firmly against the rear of the laser.
5) Using a 2mm Allen Key, turn the locking grub screw clockwise until firm to lock the rear switch assembly.

4. Maintenance and Repair

In the event of any defect, the LD.35.IS should be returned to MOBA Mobile Automation Australia for repair or service. Repair and service of this laser is carried out under strict procedures in compliance with relevant clauses of IEC 60079-19 in order to ensure the requirements for intrinsic safety are maintained. Any unauthorised repair or service attempted by third parties may invalidate compliance of the LD.35.IS to the relevant IEC Standards and may render the LD.35.IS a danger when used in hazardous areas.

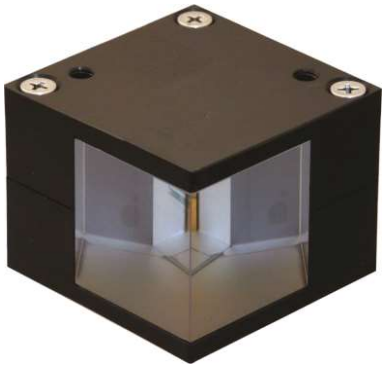
5. Care and Handling

1) Always store and transport the product and its accessories in the carry case.
2) Always keep the product and its accessories dry and clean after use. Do not store the product in its case if the product or the case is wet to avoid water condensation inside the instrument.
3) Although the components are rated from –20°C to +50°C, the recommended operating temperature is 0°C to +40°C.
4) Keep the aperture lens clean, using a soft cloth and glass cleaner.

6. Optional Accessories

Horizontal Gimbal I/S
A.35.004.IS

The gimbal must be securely mounted before use. This should be done through the use of either the two mounting holes or through the central 5/8 inch mounting thread.
Once the laser is inserted through the gimbal, ensure that it is securely tightened and held in position by tightening the knob.



Penta Prism
A.MCE.029

This 90 degree penta prism is an optical device used to bend the laser beam by 90 degrees regardless of the angle of input of the beam.
The penta prism should be mounted on an approved bracket or holder.

7. Labelling of the Laser

7.1 Intrinsically safe certification label

The LD.35.IS is labelled with laser and intrinsic safety information which must not be obscured to the end-user.

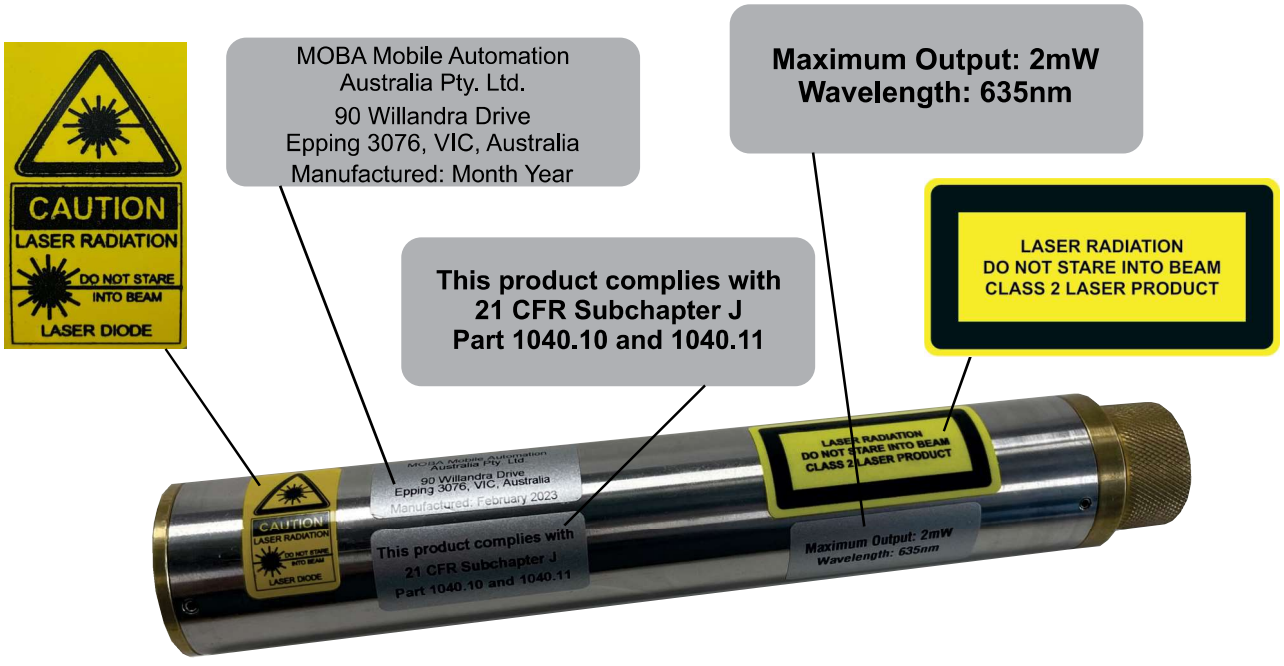
The label indicates the type of approval conferred on the instrument for intrinsic safety, as well as a warning that batteries must not be removed in hazardous environments and that only a specific battery type must be used.

The information is engraved on the outer casing of the laser and an example is shown below for reference.

MOBA Mobile Automation Australia
Tunnel Laser LD.35.IS
Ex ia I/IIC T3 IP55 or
Ex ia I/IIC T4 IP55 (subject to battery model)
S/N……
IECEx SIM 13.0004
WARNING: DO NOT REPLACE BATTERIES
WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT.
WARNING: USE ONLY BATTERIES SPECIFIED IN
OPERATOR MANUAL.

The laser is also engraved with the manufacturer name and unit model and serial number providing traceability for the product.

7.2 Laser safety and regulatory labels



8. Technical Specifications

Beam diameter	5 mm
Operating range	200m
Peak output power	2 mW
Operating time	300 hrs
Laser beam	Red (635nm)
Laser class	2
Power supply	2 X C cell alkaline batteries: Panasonic, LR14(XW) for T4 rating; GP, GP14AU for T3 rating
Length	231.5 mm
Diameter	38 mm
Weight	890g with batteries
Operating Temperature	-20 ºC to +40 ºC
IP Rating	IP55

14 Notes