Didactic Laser DL1

OPERATOR'S MANUAL

Introduction

This manual provides everything about the Didactic Laser. It contains all relevant information which is necessary for set up and handling with device. A manual is supplied with every product and is valid throughout its lifetime. Please read it carefully before using the device.
Thank you for buying this product.

Laser safety instructions

Light amplification by stimulated emission of radiation (LASER or laser) is a mechanism for emitting electromagnetic radiation, typically visible light, infrared or ultraviolet radiation. This mechanism produces intense beams of light. LASER is used mainly in measurement, industrial processing, medical diagnostics and surgery, for communication via optical fibers and many others. It is strictly forbidden to stare directly into the LASER. It may cause eye damage or blindness.

The norm EN 60825-1 categorizes lasers as follows:

Laser devices of classes 1, 1M, 2, 2M, 3R, 3B and 4
Short-time irradiation (0,25sec.) in a wavelength range between 400nm and 700nm is not considered to be dangerous (except of the classes 3B and 4). However, you should not point the beam at people for a long time.

Rules for laser safety

- Lasers produce a very intense beam of light. Treat them carefully. Majority of the lasers produced by the company Kvant have an output less than 1mW and will not harm the skin.
- Never look into the laser aperture while the laser is turned on! PERMANENT EYE DAMAGE COULD RESULT.
- Never stare into the oncoming beam. Never use magnifiers (such as binoculars or telescopes) to look at the beam as it travels or when it strikes a surface.
- Never point a laser at anyone's eyes or face, no matter how far away they are.
- When using a laser in the classroom or laboratory, always use a beam stop, or project the beam to areas which people won't enter or pass through.
- Never leave a laser unattended while it is turned on and always unplug it when it's not actually being used.
- Never disassemble or try to adjust the laser's internal components. Electric shock could result.
- Do not drop the product or expose it to moisture or dust – it can be easily damaged.

Didactic Laser

The Didactic Laser is delicate optical and electronics equipment. It consists of one independent laser diode module with **wavelength 635nm**. This product refers to the Class 2 laser product. The Didactic Laser contains a laser diode module that emits only **red** visible light. Ultra-violet, infrared, x-ray or other non-visible radiation is not emitted. Try to avoid direct contact of laser beam with eyes and skin, do not stare directly into a laser beam or at its reflections. Laser diode module is not suitable to be used for cutting, drilling or burning. Use only for intentions that are suitable for this device.

Using of the Didactic Laser

The output of the Didactic Laser consists of one light beam that can be used for demonstration effects at optical elements. The Didactic Laser is ideal for teaching the basics of optics. Its shape and design allows very easy handling. The main advantages in comparison with standard He-Ne lasers are its smaller size and low power consumption. This equipment contains also a stable holder, which bottom is magnetic.

Following are the steps how to use the Didactic Laser with the power supply properly:

1. Plug the power adapter into a grounded circuit.

2. Connect the power adapter cable to the Didactic Laser.

Following are the steps how to use the Didactic Laser with the external battery box properly:

1. Place the power cells into the external battery box.

2. Connect the power cable connector to the Didactic Laser.

Technical specifications

Input voltage:	3V DC
Input current:	50mA
Operating temperature:	0 – 40^{0}C
Power optical output:	P_{max} < 1mW
Beam dimensions:	4 x 2mm
Dimensions: (L) x (diameter)	300x35mm
Laser product:	CLASS 2
Laser type:	Diode
Wavelength:	635nm

Electrical safety instructions and warranty

The Didactic Laser is particularly safe because it operates at low wattage and current levels. However, as when using any electrical device, you must take certain safety precautions:

- Do not open the housing of the power adapter under any circumstances, as this will expose you to unshielded electrical connections.
- Do not open the device, otherwise the warranty is void.
- The warranty is invalid if damage is caused by incorrect use or inappropriate handling.

The set consists of:

- Didactic Laser
- Laser holder
- External battery box with interconnect cable (2x1,5V AA battery type)
- User's manual
- Power supply 110-240V AC/3V DC (optional)

Important and warning labels

Warning label for laser Class 2

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment (WEEE). For more information about where you can drop off your waste equipment for recycling, please contact your local city office, our household waste disposal service or the shop where you purchased the product.