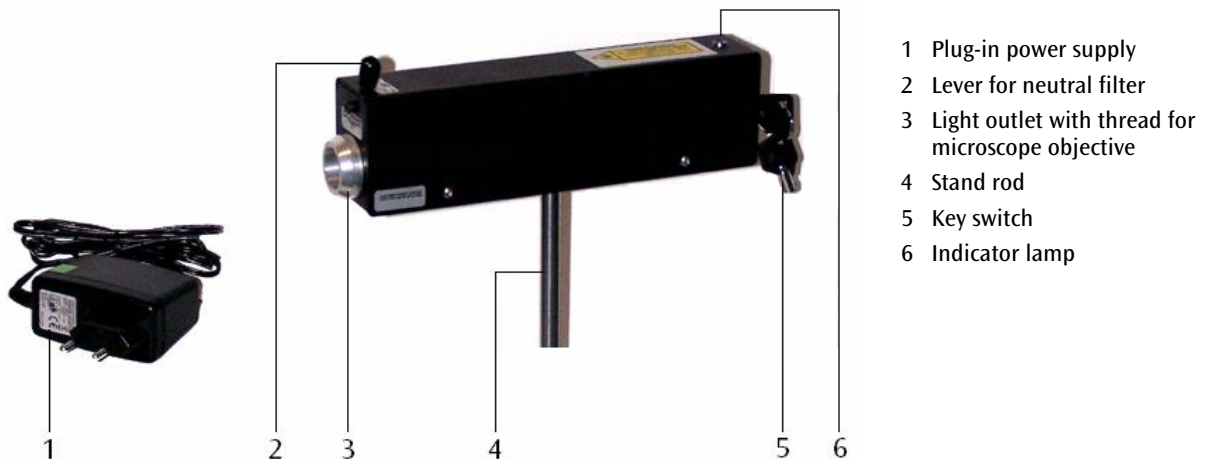


## He-Ne laser U21840

### Instruction sheet

01/07 Alf



### 1. Safety instructions

The He-Ne laser, U21840, emits visible radiation at a wavelength of 630-680 nm with a maximum power of less than 1 mW, thus conforming to class 2 regulations as specified in DIN EN 60825-1 "Safety of lasers", i.e. the human eye can be protected by the instinctive reaction to turn away and blink.

- Do not look straight into the laser beam or any reflected beam.
- Lasers should only be operated by trained and authorised personnel.
- All those people participating in or observing an experiment must have been informed of the dangers inherent in laser radiation and educated regarding protective measures.
- Experiments may only be performed using the minimum power output required in each specific instance.
- Ensure that the beam is not directed at eye level.
- Use suitable screening to isolate the area around the laser and avoid unwanted reflections.
- Any rooms in which laser experiments take place should be labelled with warning signs.

- Observe the regulations valid in the respective country where the experiment is being performed, e.g. Germany's health and safety regulations BGV B2 "Laser radiation", and any stipulations set by the relevant ministry.
- Keys should be carefully stored so that they cannot be accessed by unauthorised persons.

Safe operation of the He-Ne laser is guaranteed, provided it is used correctly. However, there is no guarantee of safety if the equipment is used in an inappropriate or careless manner. If it is deemed that the equipment can no longer be operated without risk (e.g. visible damage has occurred), the laser should be switched off immediately and secured against any unintended use.

- Before putting the equipment into operation, check for any signs of damage. In the event of any malfunction or visible damage, turn off the laser and put it away so that it cannot be used unintentionally.
- Due to internal operating and triggering voltages which can be hazardous to life, never open the housing.

## 2. Description

The He-Ne laser is a coherent, monochromatic light source for experiments on reflection, refraction, diffraction and interference, for the creation and display of holograms, as well as for rotating the plane of polarisation (saccharimetry, Kerr effect, Faraday effect).

The He-Ne-Laser has an anodised metal housing with a key switch and a neutral filter for attenuating the beam. Power is supplied via a plug-in power supply unit. To disperse the beam, microscope objectives may be screwed onto the light outlet.

### 2.1 Scope of delivery

- 1 He-Ne laser
- 2 Key
- 2 Stand rods (long and short)
- 1 Plug-in power supply

### 2.2 Accessories

For beam dispersal:

e.g. achromatic objective 4x / 0.10      W30613

## 3. Technical data

Output power:	< 0.2 mW, max. 1 mW (without filter), class 2
Wavelength:	633 nm
Beam diameter:	0.48 mm
Beam dispersal:	1.7 mrad
Mode:	TEM <sub>00</sub>
Polarisation:	Random
Lifespan:	> 12000 hours
Power supply:	12 V DC, 1 A
Dimensions:	200 x 40 x 50 mm
Weight:	0.6 kg approx.

## 4. Operation

- Plug the power supply for the laser into the mains.
- Turn the key 90° to the right to switch on the laser.

A laser beam may emerge immediately or after a few seconds (if the equipment has not been used for some time). An indicator lamp lights when the laser is switched on.

- To turn off the laser turn the key 90° to the left.
- To select the power of the laser, the filter lever may be set to the required position so that the neutral filter is swung in or out of the beam.
- For dispersal of the beam, screw a microscope objective onto the thread.