LABOMED
ideas for vision

SL 25i
Slit Lamp

User Manual

To ensure proper use of this instrument as well as to avoid injury while operating Instrument, understanding this manual completely before use is highly recommended.

Part No: 8127700-795
Issue 1.0
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The information contained in this document was accurate at the time of publication. Specification subject to change without notice.
Labotech and Labo America Inc. Reserves the right to make change in the product described in this manual without notice and without incorporating those changes in any products already sold.

ISO 13485 Certified - LABOMED products are designed and manufactured under quality management system conforming to ISO 13485 requirements.

Caution: Federal law restrict this devices to sale by or on the order of a licensed physician. Rx only.

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WARNINGS AND CAUTIONS

LABOMED is not responsible for the safety and reliability of this instrument when:
- Assembly, disassembly, repair, or modification is made by unauthorized dealers or persons.
- The instrument is not used in accordance with this user manual.

A WARNING IS AN INSTRUCTION THAT DRAWS ATTENTION TO THE RISK OF INJURY OR DEATH.

WARNING: UNITED STATES FEDERAL LAW AND EUROPEAN REGULATIONS REQUIRE THAT THIS DEVICE BE PURCHASED ONLY BY A PHYSICIAN OR A PERSON ACTING ON BEHALF OF A PHYSICIAN.

WARNING: THIS INSTRUMENT SHOULD BE USED IN STRICT ACCORDANCE WITH THE INSTRUCTIONS OUTLINES IN THIS USER'S GUIDE. THE SAFETY OF THE OPERATOR AND THE PERFORMANCE OF THE INSTRUMENT CANNOT BE GUARANTEED IF USED IN A MANNER NOT SPECIFIED BY LABOMED.

WARNING: DO NOT REPAIR OR SERVICE THIS INSTRUMENT WITHOUT AUTHORIZATION FROM THE MANUFACTURER OTHERWISE YOU MAY LOOSE WARRANTY CLAIM. ANY REPAIR OR SERVICE TO THIS INSTRUMENT MUST BE PERFORMED ONLY BY EXPERIENCED PERSONAL OR DEALERS TRAINED BY LABOMED OR SERIOUS INJURY TO THE OPERATOR OR PATIENT MAY OCCUR.

WARNING: MODIFICATIONS TO THIS INSTRUMENT ARE NOT ALLOWED. ANY MODIFICATION TO THIS UNIT MUST BE AUTHORIZED BY LABOMED OTHERWISE FAILURE OF INSTRUMENT OR SERIOUS INJURY TO THE OPERATOR OR PATIENT MAY OCCUR.

WARNING: IF THIS INSTRUMENT IS MODIFIED, APPROPRIATE INSPECTION AND TESTING MUST BE CONDUCTED TO ENSURE CONTINUED SAFE USE OF THIS INSTRUMENT.

WARNING: TO AVOID RISK OF ELECTRIC SHOCK, THIS EQUIPMENT MUST ONLY BE CONNECTED TO A SUPPLY MAIN WITH PROTECTIVE EARTH OTHERWISE FAILURE OF INSTRUMENT AND/OR INJURY TO THE OPERATOR OR PATIENT MAY OCCUR.

WARNING: ENSURE THAT THE VOLTAGE APPLIED TO THE UNIT IS THE SAME AS THE VOLTAGE THAT IS INDICATED ON THE DATA PLATE OR DAMAGE TO THE UNIT MAY OCCUR.

WARNING: THIS INSTRUMENT MUST BE PLUGGED INTO AN OUTLET WITH AN EARTH GROUND. DO NOT REMOVE OR DEFEAT THE EARTH GROUND CONNECTION ON POWER INPUT CONNECTOR OF THE UNIT'S POWER CORD. OTHERWISE FAILURE OF INSTRUMENT OR INJURY TO THE OPERATOR OR PATIENT MAY OCCUR.

WARNING: THE EQUIPMENT OR SYSTEM SHOULD NOT BE USED ADJACENT TO OR STACKED WITH OTHER EQUIPMENT. IF ADJACENT OR STACKED USE IS NECESSARY, THE EQUIPMENT OR SYSTEM SHOULD BE OBSERVED TO PERFORM NORMAL OPERATION IN SUCH CONDITION PRICE TO USE.

WARNING: THIS INSTRUMENT IS NOT SUITABLE FOR USE IN THE PRESENCE OF FLAMMABLE ANESTHETIC MIXTURES, SUCH AS OXYGEN OR NITROUS OXIDE.

WARNING: BECAUSE PROLONGED INTENSE LIGHT EXPOSURE CAN DAMAGE THE RETINA, THE USE OF THE DEVICE FOR OCULAR EXAMINATION SHOULD NOT BE UNNECESSARILY PROLONGED, AND THE BRIGHTNESS SETTING SHOULD NOT EXCEED WHAT IS NEEDED TO PROVIDE CLEAR VISUALIZATION OF THE TARGET STRUCTURES. THIS DEVICE PROVIDED WITH FILTERS THAT ELIMINATE UV RADIATION (<400NM) AND, WHENEVER POSSIBLE, FILTERS SHORT- WAVELENGTH BLUE LIGHT (<420NM).

WARNING: THE USE OF ACCESSORIES OR CABLES OTHER THAN THOSE SPECIFIED, FOR THE INTERNAL COMPONENTS, MAY RESULT IN INCREASED EMISSIONS OR DECREASED IMMUNITY OF THE EQUIPMENT OR SYSTEM.

WARNINGS AND CAUTIONS (continued)

A CAUTION IS AN INSTRUCTION THAT DRAWS ATTENTION TO THE RISK OF DAMAGE TO THE PRODUCT.

CAUTION: THE INTERNAL CIRCUITRY OF THE INSTRUMENT CONTAIN ELECTROSTATIC SENSITIVE DEVICES (ESD) THAT MAY BE SENSITIVE TO STATIC CHARGES PRODUCED BY THE HUMAN BODY. DO NOT REMOVE THE COVERS WITHOUT TAKING PROPER ESD PRECAUTIONS.

CAUTION: DO NOT USE SOLVENTS OR STRONG CLEANING SOLUTIONS ON ANY PART OF THIS INSTRUMENT, AS DAMAGE TO THE UNIT MAY OCCUR SEE THE CARE AND MAINTENANCE SECTION FOR DETAILED CLEANING INSTRUCTIONS.

CAUTION: MEDICAL ELECTRONIC EQUIPMENT NEEDS SPECIAL PRECAUTIONS WITH RESPECT TO ELECTROMAGNETIC CHARGE (EMC) AND NEEDS TO BE INSTALLED AND SERVICED ACCORDING TO THE EMC INFORMATION PROVIDED IN THE ACCOMPANYING DOCUMENTS.

CAUTION: PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT CAN AFFECT MEDICAL ELECTRICAL EQUIPMENT.

CAUTION: THIS INSTRUMENT IS NOT TO BE USED NEAR HIGH-FREQUENCY EMITTING SURGICAL EQUIPMENT.

CAUTION: THIS INSTRUMENT IS NOT INTENDED TO BE CONNECTED TO EQUIPMENT OUTSIDE THE CONTROL OF LABOMED OR MUST BE TESTED TO AN APPLICABLE IEC OR ISO STANDARDS.

CAUTION: CHIN REST PAPER-FOR SINGLE USE ONLY. REPLACE WITH EACH PATIENT.

EXPLANATION OF SYMBOLS

The following symbols appear on the instrument:

Caution symbol indicating important operating and maintenance Instructions that are included in this User's Guide.

Type B Applied Part

Alternating Current Power

Protective Earth

Connection ON/OFF

Manufacture

REF Catalog Number

S/N Serial Number

Waste of Electrical and Electronic Equipment

Compliance to medical Device Regulation (EU)MDR2017/745.

Accompanying Document must be consulted.

Authorized Representative in European Community.

Fragile Contents in Shipping Container- Handle with care

Keep Dry- Package shall be kept away from rain.

This way Up- Indicates correct upright position of package.

Rx Only U.S. Federal law restricts this devices to sale by or on the order of a physician.

INTRODUCTION

Congratulations on your purchase of the SL 25i Slit Lamp.

This User Manual is designed as a training and reference manual for the Installation operation and maintenance of the instrument. We recommend that you read it carefully prior to use and follow the instructions to ensure optimum performance of your new instrument. Properly trained eye care professionals such as ophthalmologists, optometrists, opticians and eye care technicians should operate this instrument.

Please retain this manual for future reference and to share with other users. Additional copies can be obtained from your authorized LABOMED dealer or from the LABOMED Customer Service Department at:

Tel: (510) 445-1257
Fax: (510) 991-9862
Email: sales@laboamerica.com

INDICATIONS FOR USE

The SL 25i Slit Lamp is an AC-powered slit lamp biomicroscope that is intended for use in examining the anterior segment, from the corneal epithelium to the posterior capsule. It is used to aid in the diagnosis of diseases or trauma, which affect the structural properties of the anterior segment of the eye.

CONTRAINDICATIONS

None.

SETUP

PART IDENTIFICATION

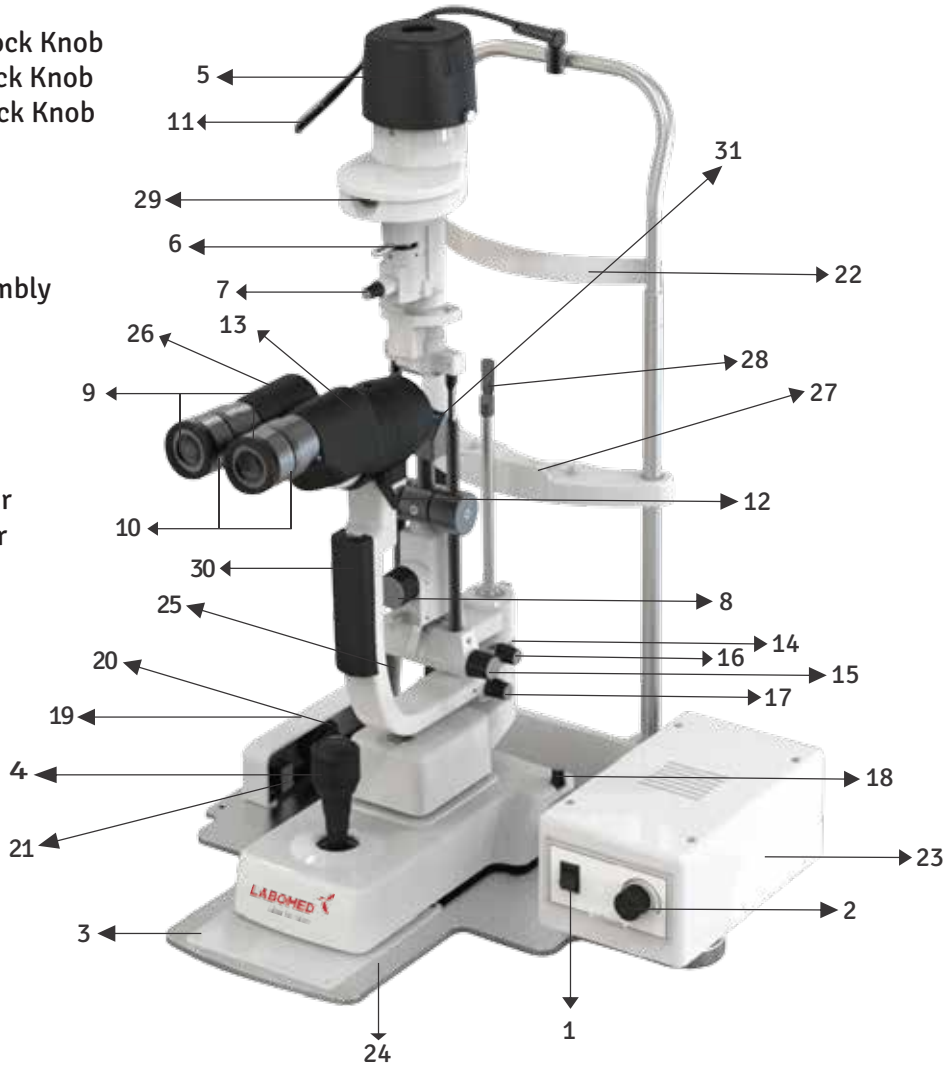
1. On/Off Switch
2. Illumination level Control
3. Joystick Tracking Plate
4. Joystick for horizontal and vertical movement
5. Bulb Cover
6. Filter Dial
7. Slit Length Control Knob
8. Illumination tower lock knob
9. Eyepieces
10. Focusing Ring
11. Fixation Light
12. Magnification changer lever
13. Observation Head Lock Knob
14. Slit Rotation Scale
15. Slit Control knob
16. Illumination Arm Lock Knob
17. Microscope Arm Lock Knob
18. Instrument base Lock Knob
19. Guide Rail Cover
20. Geared Rollers
21. Guide Rails
22. Fore head support
23. Power Supply Assembly
24. Table Top
25. Patient Handles
26. Observation Head
27. Chin Support
28. Target Rod
29. Slit Length Indicator
30. Camera Cable Cover
31. Mirror

SL 25i PACKAGE CONTENTS

1. SL 25i Slit Lamp HL (8127700)
2. User's Guide (8127700-795)

ACCESSORIES

1. Focusing Rod Assembly (8126005-868)
2. Hex Wrench - 3mm (LK-003)- X54264
3. White Dust Cover (15120-225)
4. Halogen lamp (HF-9102)
5. Guide Rail Covers (15140-003)
6. Replacement Fuses (8124900-900)
7. Chin Rest Paper-1 pack (15140-006)



SETUP (continued)

UNPACKING AND INSTALLATION

1. Open the Cardboard shipping box to see the Thermocol Box Inside.

2. Remove the User's Guide and follow it for Slit Lamp installation.

3. On Top of the Thermocol box Table top metal plate form is placed as Shown in Figure-1. Take it out.

4. Open the Thermocol box. You will find following Item Packed as Shown in Figure-2.
   a) Chin Rest Assembly
   b) Microscope Head with Eyepiece Mounted
   c) Power Supply Box
   d) Base Assembly
   e) Patient Resting Handle
   f) Illumination Arm Assembly
   g) **Accessories**
      - Slit Screen Rod -1
      - Wheel Rail Cover -2
      - Dust Cover -1
      - Chin Rest Paper -100
      - Power Supply Mounting Bracket -1
      - Allen Keys - 2mm, 2.5mm, 3mm, 5mm
      - Breath Shield -1
      - Fuse T 1.6A L 250V -1
      - Power cord -1

5. Assemble chin rest assembly to table top as shown in Figure-4 using (6) Allen Screw of M3, securing with help of Allen Wrench 2.5mm. Refer in figure-3.

6. Assemble the power supply bracket to the table top using (2) M4 Allen screws with 3mm Allen key provided with Instrument. Referred as (B) in figure-4.

Figure- 1 Table Top

Figure-2 Chin Rest Assembly

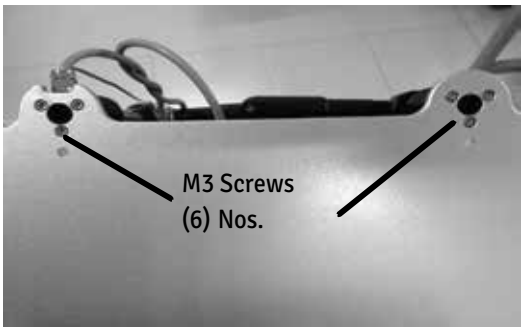


Fig.- 3 Chin Rest Attaching Screw

Fig.- 4 Chin Rest Ground

SETUP (continued)

UNPACKING AND INSTALLATION (continued)

7. Install the Slit Lamp Base Assembly onto the track of the Table Top and slide the Guide Rail Covers around the tracks. Refer to Figure-5. Lock the base at any position to prevent any undesired movement by using Base Locking Knob Shown as (A) in Fig. 5.

8. Assemble Illumination & moving arm assembly onto the base using Allen Screw M6 as shown in Figure.6.

9. Assemble Power Supply to the table top just by pushing into the hole shown as (C), refer Figure-7.

10. Connect the power supply earthing wire with table top at point “D”and “E”using 3mm Allen Wrench. Refer Figure-7&7a.

11. Attach the Base Lamp Wire Connector to the back of the Power Supply Assembly. Refer to Figure-8.

12. Connect the Chin rest target light Connector to the Power Supply Assembly by plugging it in. Refer to Figure-8.

13. Using the 3mm Hex Wrench, Assemble the Patient Handles to the Platform Assembly as shown in Figure.9.

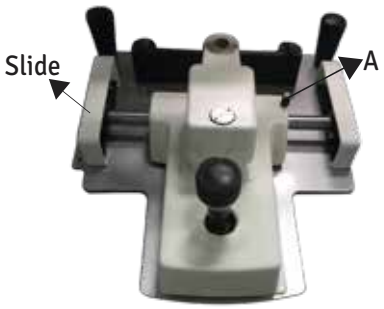


Figure- 5 Install Base

Figure- 6 Illumination & Moving Arm Assembly

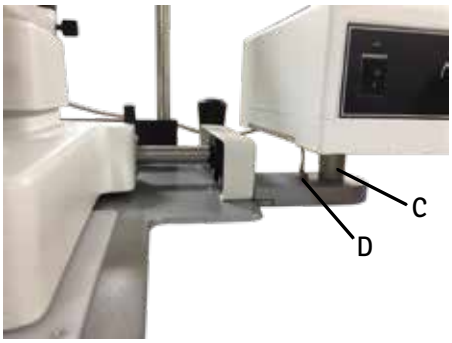


Figure. 7 Assembling Power Supply on the Power Supply Bracket

Figure- 7 a. Earthing wire attaching screw

Figure- 8 Connections

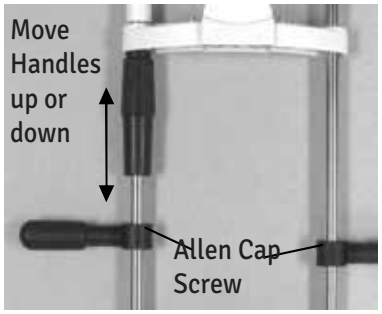


Figure- 9 Adjusting Patient Handle Height

SETUP (continued)

UNPACKING AND INSTALLATION

14. Install the Binocular Assembly & Eyepieces to the Magni-changer using knob 'X'.

15. Unscrew the Knob A Shown in Figure-5 to allow slit lamp to travel on Metal Plate form.

16. Remove the accessories and store them in an Appropriate place so that when they are needed they will be available. Refer to figure-2 & 10.

17. Microscope is ready to use now.

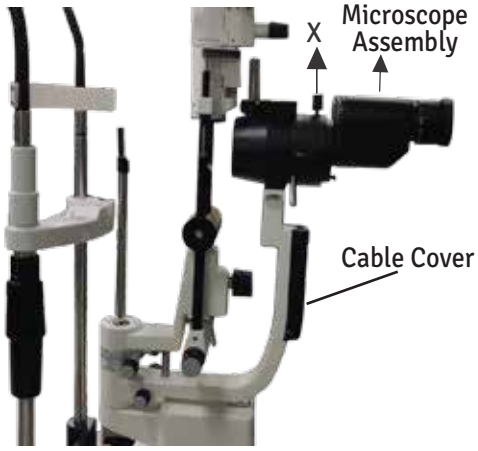


Figure -9 Install Microscope

APPLICATION OF INPUT POWER

WARNING: CARE MUST BE TAKEN TO ARRANGE THE CABLES THRU CABLE COVER REFER FIGURE-9 FOR THE ACCESSORIES SUCH THAT THEY DO NOT PRESENT A TRIPPING HAZARD TO THE EXAMINER OR A DANGER TO THE PATIENT.

WARNING: POSITION THIS INSTRUMENT SO THAT IT IS NOT DIFFICULT TO OPERATE THE DISCONNECTION DEVICE (PLUG).

1. After the unit is in its secure location, apply the correct input voltage to the instrument using the Power Cord from the Box.

NOTE: The power inlet is located on the backside of the Power Supply Assembly.

2. Press down on the "I" located on the ON/OFF Switch. Refer to figure-11.

NOTE: The Indicator just above ON/OFF Switch will illuminate green when there is power to the unit. When the ON/OFF Switch is set to off, the green light will turn off.

Figure -10 Accessories

DISCONNECTION OF INPUT POWER

1. At any time, the power switch can be set to OFF. The unit does not have a power down sequence. To terminate operation of this instrument, press the ON/OFF switch to the OFF position (O).

2. If this instrument is intended to be OFF for an extended period of time, it can be disconnected from power by detaching the power cord from the receptacle.

Figure-11 Power Supply Assembly

INSTRUCTIONS FOR USE

OPERATION

1. Turn on the power using the On/Off switch located on the front of the power supply. Brightness can be adjusted by rotating the illumination level knob. Change the knob for brighten control.

NOTE: The maximum position is for intermittent use only. Continuous use will shorten lamp life.

2. Insert the Focusing Rod in the pivot post of the instrument body to make rough IPD and focus adjustments.

3. Position the light onto the flat surface of the focusing rod and adjust the pupillary distance and focus of the eyepieces to suit the needs of the operator. Refer to figure-12.

4. Set Magnichanger knob to 16x. Bring 10mm Aperture into the light path by rotating aperture disc. Focus image on target rod. Circular Image should be in the Centre of FOV as Shown in Figure 12.

5. Using the Slit Width Knobs, adjust the projected slit so that the thinnest slit is shown on the Focusing Rod. Refer to fig. -12 & 15.

NOTE: The thinnest line will allow for greater accuracy.

6. Remove the Focusing Rod.

7. To position a patient, adjust the chin rest height by turning the Chin rest Elevation Handle on the post of the Chin Rest Assembly until the patient's canthus is in line with the canthus mark on the chin rest post. Refer to figure-13.

8. Microscope elevation is adjusted by rotating the joystick and observing the slit image through the Microscope Assembly until slit is centered on the patient's cornea. Refer to figure-14.

9. Move the slit lamp with the joystick held firmly and slightly angled toward the patient, until the slit appears sharply on the cornea.

NOTE: The accuracy of this rough adjustment should be checked by the naked eye. The fine adjustment is performed while observing the slit through the microscope.

10. Tilt the Joystick, which is now held lightly at its upper end, until the slit appears sharply at the depth of the eye which is to be observed.

11. The horizontal motion of the base can be locked by tightening the Base Locking Screw. Refer to figure-14.

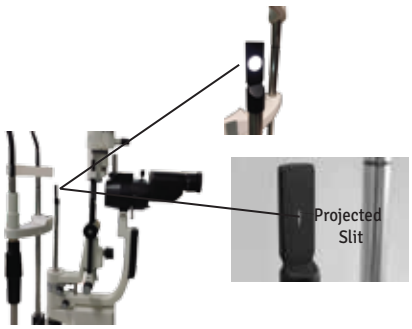


Figure-12 Focus on Slit

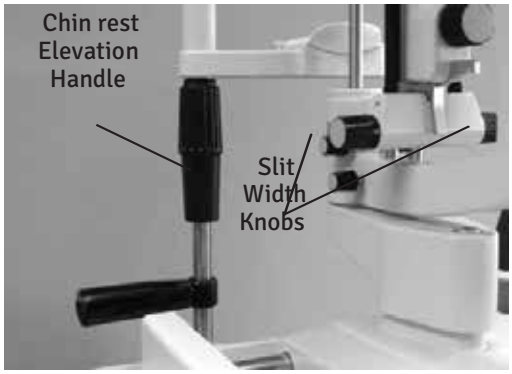


Figure-13 Adjust Patient Height

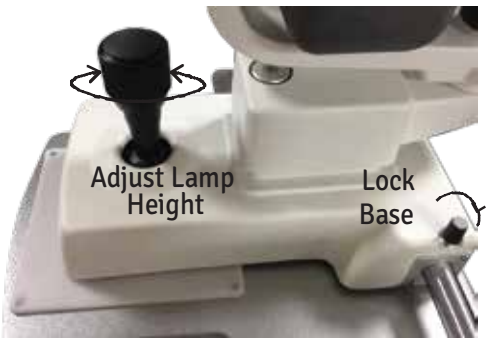


Figure-14 Adjust Height

Figure-15 Adjust Slit Width

INSTRUCTIONS FOR USE (continued)

OPERATION

NOTE: Lock the base whenever the lamp is not in use.

12. The slit width can be adjusted by rotating the Slit Width/ Rotation Knob on either side of the instrument. Refer to figure-15.

13. The angle between the illumination system and the microscope can be varied between 0° and 90° to either the left or to right. Refer to figure-16.

14. The illumination angle is indicated in the scale of the slit lamp arm. Refer to figure-17.

15. Magnification is altered by using lever on the Magnichanger. Refer to figure-16.

Figure-16 Illumination Angle

Figure-17 Illumination Angle Scale

SLIT LENGTH

The Slit length is adjusted by rotating the Slit Length Dial. The dial has seven stops for adjustments. They are 0.3,1,3,5,9,12 and continuous 1.5 to 12.0mm. They index into place. Refer to figure-18.

FILTER DIAL

The Filter Dial has four positions that index into place, and are color coded to indicate the active filter. Refer to figure-18. The color coded index stops are as follows:

Blue dot = Cobalt Blue
Red dot = Open
Yellow dot = Heat Absorbing
Gray dot = Neutral Density
Green dot = Red-free

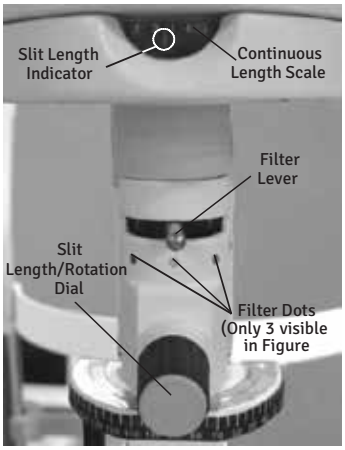


Figure-18 Filters and Slit Length

SLIT ROTATION

Slit Rotation is achieved by Rotating the Slit Rotation Ring. Refer item no. 29 on Page 8. The degree of rotation is indicated by the Slit Rotation Scale above the slit body. Refer to figure-19.

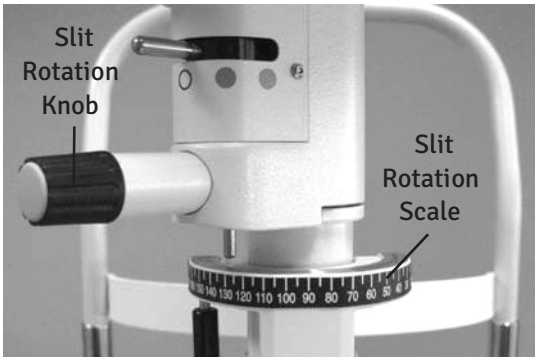


Figure-19 Slit Rotation Scale

CLEANING, DISINFECTION AND MAINTENANCE

WARNING: RISK OF ELECTRIC SHOCK. ALWAYS DISCONNECT THE POWER CORD FROM THE WALL AND THE INSTRUMENT BEFORE PERFORMING ANY OF THE FOLLOWING CARE AND MAINTENANCE PROCEDURES.

EXTERNAL CLEANING

Clean the external surfaces of this instrument using a clean, soft cloth moistened with a mild detergent solution of liquid dish soap (filtered below 5 microns). Refer to figure-20.

Figure-20 Cleaning Main Unit

FOREHEAD/CHIN REST PREPARATION

For hygienic reasons, wipe the forehead rest with an alcohol wipe and change the chin-rest papers after each patient.

CLEANING THE GUIDE PLATE

If the Guide Plate is dirty it may cause a rough feeling when Maneuvering the base of the slit lamp. Clean the Guide Plate with a sift cloth lightly dampened with a mild soap and water solution.

USER ENVIRONMENT REQUIREMENT

- Maintain Operational Environment as specified in Specification section of this manual.
- Do not use this Instrument in corrosive environment to prevent rusting etc.

CLEANING & DISINFECTION

Following disinfectants are recommended for cleaning and disinfection.

1. Normal household bleach (Sodium hypochlorite 5%)- strength 5000 ppm(10 parts water 1 part bleach).
2. 70% Isopropyl alcohol.

Procedure:

- Take a muslin cloth.
- Moist it to feel wet
- Disinfect/clean the surface gently.

Note – 1. Use mask and Gloves while performing cleaning and disinfection.
2. While cleaning, muslin cloth should not be dripped wet to prevent seepage and rusting to running/bare parts.
3. Alcohol is flammable,its use as a surface disinfectant should be in well-ventilated spaces only.

CHANGING THE HALOGEN BULB

WARNING: NEVER REMOVE A BULB THAT HAS RECENTLY BEEN IN USE AS IT WILL BE VERY HOT. WAIT UNTIL IT HAS COOLED AND USE GLOVES OR A THICK CLOTH WHEN HAN -DLING ANY HALOGEN BULB.

WARNING : NEVER TOUCH A HALOGEN BULB WITH BARE HANDS AS FINGERPRINTS WILL SHORTEN THE BULB LIFE.

1. Remove input power to the instrument.
2. Open the bulb door by rotating the Screw with hand as shown in Figure 20.
3. Swing the retaining spring away from the Bulb. Refer to figure-21.
4. Pull the Bulb Holder and Bulb from the unit. Refer fig.-22.
5. Replace the Bulb with the correct Bulb as indicated in the **Specifications** section of this manual.
6. Place the Bulb Holder back into the lamp housing.

NOTE: Position the Bulb Holder so the cut out in the metal collar of the Bulb lines up with the Notch in the lamp housing. Refer to figure-23.

7. Move the retaining spring back into its original position. Refer figure-21.
8. Close the bulb door.

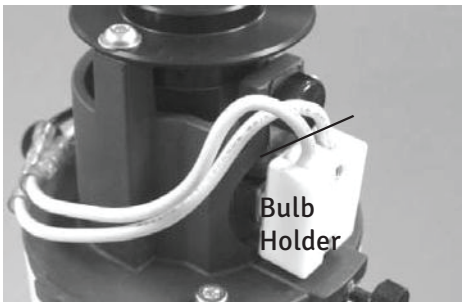


Figure 21 Securing Screw

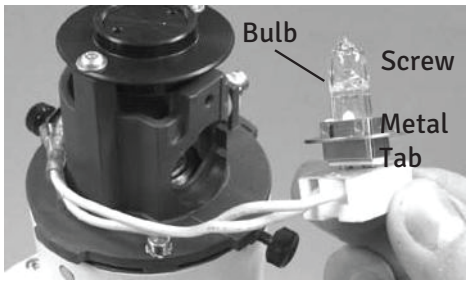


Figure 22a Bulb

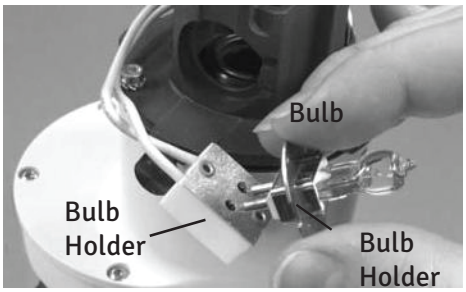


Figure 22bNew Bulb

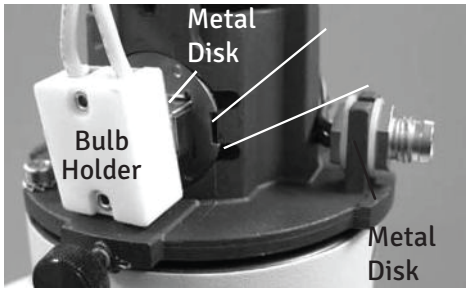


Figure-23 Notches

Notch

Cut Out

Replacement of Chin Rest Light Indicator

1. Unscrew the LED cap refer fig.-28.

2. Pull out the defective LED and replace with new LED. refer fig.-28A. Thread in the LED cap back.

NOTE: If New LED does not light up after switching on. remove it and re-fix after changing its polarity.

Figure-28 Changing Target Light LED

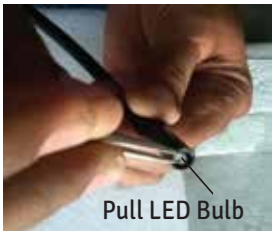


Figure-28 A Changing Target Light LED

FUSE REPLACEMENT

Replace the fuses in the Power Input Module with the fuses indicated in the **Specifications** section of this manual.

1. Remove input power to the instrument.

2. Press down on the top tab in the middle of the Power Input Module to release the Fuse Holder, and gently pull out the Fuse Holder by gripping the two small tabs. Refer to figures- 29 & 30.

3. Open the Door to the Fuse Holder by pulling it down. Refer to figure-29.

NOTE: The Fuses will pop up when the door is open, making removal easier.

4. Install new fuses into the Fuse Holder that is indicated in the Specification section of this manual.

5. Install the Fuse Holder by closing the door, and pushing the Fuse Holder back until it snaps into place.

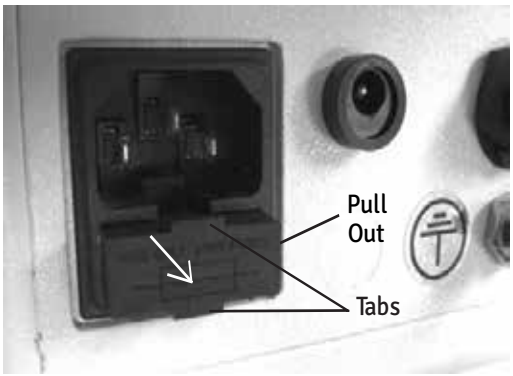


Figure- 29 Pull Out Fuse Door

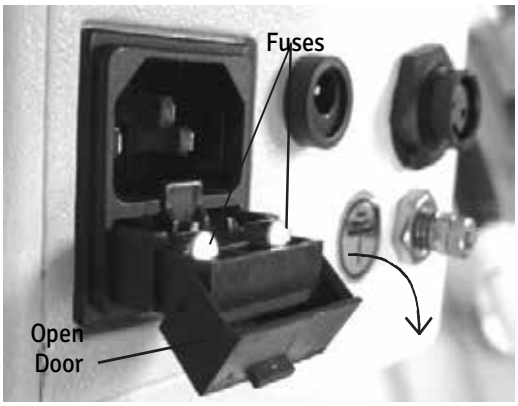


Figure-30 Open Fuse Door

USER ENVIRONMENT REQUIREMENT

- Maintain Operational Environment as specified in Specification section of this manual.
- Do not use this Instrument in corrosive environment to prevent rusting etc.

TROUBLESHOOTING TABLE

The following chart outlines some common issues with the SL 25i Slit Lamp and some steps you can take to correct the issue. If problems persist, please contact the LABOMED as listed in the **Introduction** section of this manual.

Chart of Common Errors

ISSUE	PROBABLE CAUSE	POSSIBLE SOLUTION
Lamp won't turn on.	Incorrect input power supplied to the SL 25i Slit Lamp.	Check the outlet to ensure proper power is being supplied.
	Defective Power Cord.	Replace the Power Cord.
	Bulb may be blown out.	Replace Bulb.
	Defective Power Supply.	Replace the Power Supply.
Slit Lamp won't move.	Base Lock Screw may be tightened.	Loosen the Base Lock Screw.
Rough base Movement.	Bearings may be damaged.	Replace the base bearing Assembly including Shaft and Sleeve.
	Shaft may be damaged.	Replace the base bearing Assembly including Shaft and Sleeve.
Fixation light does not light up.	Fixation Light Harness not plugged into the Power Supply Assembly.	Ensure the Fixation Light Harness is properly seated in the Power Supply Assembly.
	Defective Power Supply.	Replace the Power Supply.
Light too dim.	Incorrect wattage for bulb being used.	Replace with the proper Bulb.
	Bulb not installed properly.	Check bulb and ensure notch lines up with bulb housing.
Double slit visible in microscope.	Microscope not focused on focusing rod before use.	Install focusing rod and check to ensure microscope is focused on it.
	Bulb not installed properly.	Check bulb and ensure notch lines up with bulb housing.

The following is a checklist of items that need to be assessed in order to determine if the SL 25i Slit Lamp requires servicing.

- Check the outside of the Slit Lamp for any damage or missing components.
- Inspect the power cord for damage.
- Test the lamp by turning the lamp on and turning the light all the way to it's brightest setting, and all the way down to its lowest setting.
- Check to ensure all switches are functioning properly.
- Check the filters by cycling through all the options.
- Check the Slit Wheel by cycling through all the options.
- Check the base movement.

SPECIFICATIONS

Catalog Number 8127700-795

Physical Dimensions

Size:

Height: 19.8 in. (50.2 cm)
Width: 10.5 in. (26.7 cm)
Depth: 14.0 in. (35.6 cm)

Weight, unpacked: 23.0 lbs. (10.4 Kg)
Weight, packed: 52 lbs (23.64 Kg)

Electrical

Voltage: 100-240V AC
Power Input: Max 56-73vA
Frequency: 50/60Hz
Fuses: T 1.6A L 250V
Halogen Bulb: 6V,20W

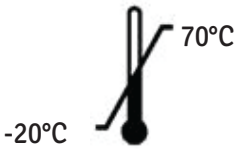
Operational Conditions

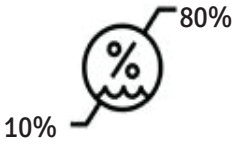
Environmental:

The environmental conditions are as follows:

Operating:

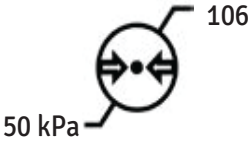
Temperature: 10° C (50° F) to 35° C (95° F)
Relative Humidity: 30% to 75%
Atmospheric Pressure: 80 kPa (23.6 in. Hg) to 106 kPa (31.3 in. Hg)





Transportation & Storage:

Temperature: -20°C (-4°F) to +70°C (158°F).
kPa Relative Humidity: 10% to 80% (non-condensing)
Atmospheric Pressure: 50kPa (14.8 in. Hg) to 106 kPa (31.3 in. Hg)



Exposure to extreme temperature conditions indicated above must not exceed 15 weeks.

Microscope	Galilean
Mag Change	2 Step Turret Rotation;
Eyepiece	10X/18mm; **Optional:** 12.5X/18mm
Mag Ratio	10X, 16X
IPD Range	48 -83mm
Diopter Adjustment	+/-5mm
Slit Illumination	6v 20W Halogen or 5W LED
Slit Width	0 – 14mm
Slit Length	0 – 14mm
Slit Apertures	0.3,1,3,5,9,12mm and continuous 1.5 to 12.0mm
Slit Rotation	0°-180°
Filters	Red Free, Cobalt Blue

SPECIFICATIONS (continued)

Movement Ranges

Longitudinal (In/Out)	80mm
Lateral (Left/Right)	109mm
Vertical (Up/Down)	30mm
Chin rest Range	80mm
Fine movement (Cross Slide)	13mm

DISPOSAL

This product does not generate any environmentally hazardous residues. At the end of its product life, follow your local laws and ordinances regarding the proper disposal of this equipment.

SOFTWARE REVISION

There is no software installed in this unit.

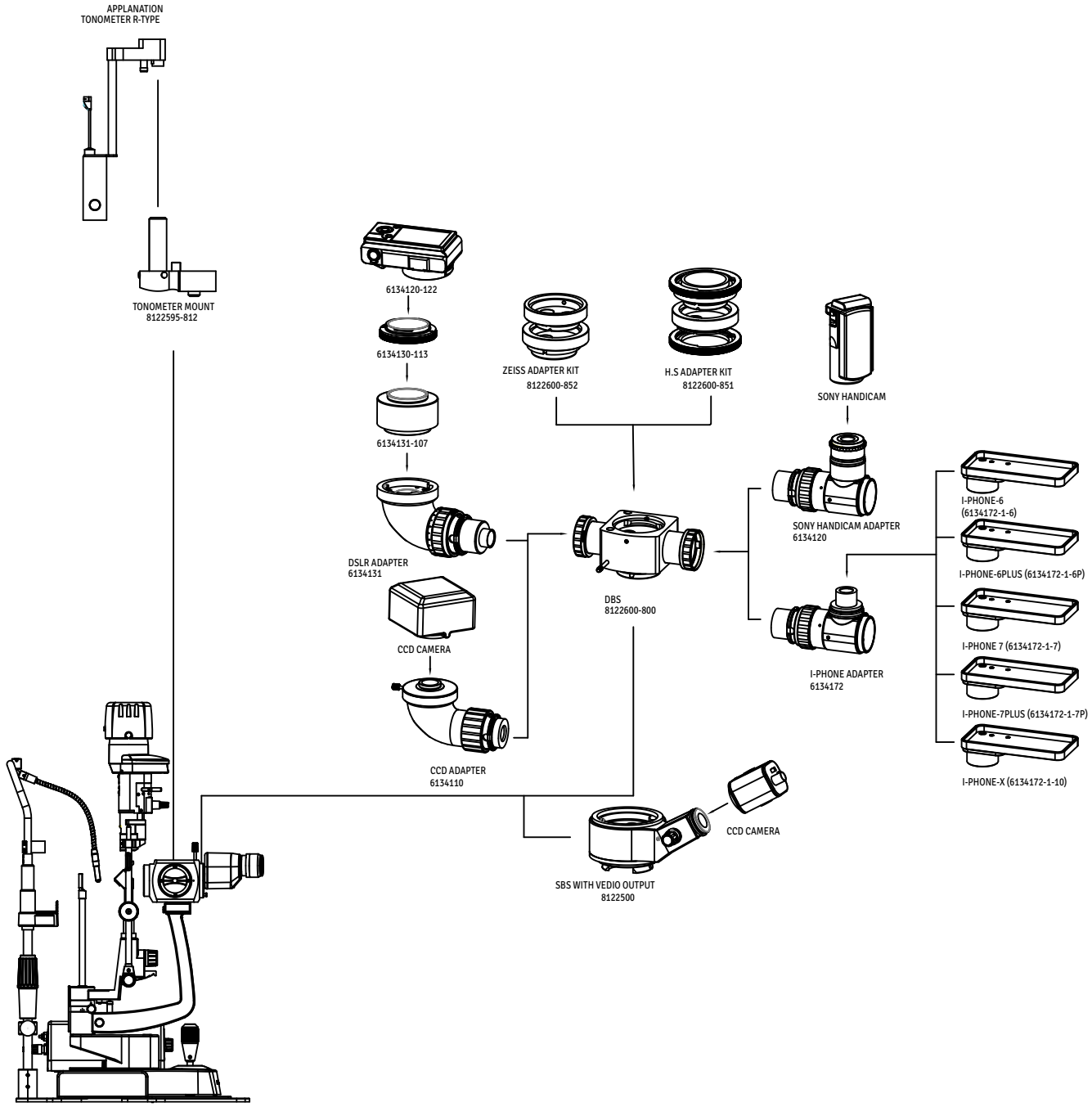
SYSTEM CLASSIFICATION

- **Classification of applied part by grade of protection against electric shocks:** B type applied part
  B type applied part provides a certain grade of protection against electric shocks, particularly with regard to leak current, measuring current for patient, and reliability of connection to protective facility (Class I equipment).
- **Type of protection against electric shocks: Class I equipment**
  Class I equipment does not depend on basic insulation only for electric shocks; it also provides means for connecting the equipment to a protective grounding system so that the accessi -ble metal parts do not become conductive in case of failure in the basic insulation.
- **Grade of protection against a hazardous ingress of water: IPxO**
  This product does not provide protection against ingress of water.
  (Grade of protection against a hazardous ingress of water stated by IEC 60529: IPxO)
- **Classification by the method of sterilization/disinfection: None**
  This product has no part requiring sterilization/disinfection.
- **Classification of safety of use in an environment containing air/combustible gas, oxygen or nitrogen monoxide/combustible anesthetic gas:** Equipment not suited for use in an environment containing air/combustible gas, oxygen or nitrogen monoxide/combustible anesthetic gas
  Use this product in an environment not containing combustible anesthetic gas and combusti -ble gas.
- **Classification by mode of operation: Continuous operation equipment**
  Continuous operation refers to an operation under normal load conditions without exceeding specified temperatures, without a limit of time.

RESTOCKING CHINREST TISSUE

When the chinrest tissue supply is depleted, pull out the chinrest tissue pins and replace the tissue.

SYSTEM CONFIGURATION



GUIDANCE TABLES

Table 201 – Guidance and Manufacturer's Declaration

Electromagnetic Emissions

All Equipment and Systems

Guidance and Manufacturer's Declaration – Electromagnetic Emissions

The SL 25i is intended for use in the electromagnetic environment specified below. The customer or user of the SL 25i should ensure that it is used in such an environment.

Emissions Test	Compliance	Electromagnetic Environment - Guidance -
RF Emissions CISPR 11	Group 1 Class A	The SL 25i uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in near by electronic equipment.
Harmonics IEC 61000-3-2	Class A	The SL 25i is suitable for use in all establishments, other than domestic, and those directly connected to the public low-voltage power network that supplies building used for domestic purposes.
Flicker IEC 61000-3-3	Complies	

GUIDANCE TABLES (continued)

Table 202 – Guidance and Manufacturer's Declaration

Electromagnetic Immunity

All Equipment and Systems

Guidance and Manufacturer's Declaration – Electromagnetic Immunity

The SL 25i is intended for use in the electromagnetic environment specified below. The customer or user of the SL 25i should ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidance
ESD IEC 61000-4-2	±6kv Contact ±8kv Air	±6kv Contact ±8kv Air	Floor should be wood, concrete or ceramic tile. If floors are synthetic, the R/H should be at least 30%.
EFT IEC 61000-4-4	±2kv Mains ±1kv I/Os	±2kv Mains ±1kv I/Os	Mains power quality should be that of a typical Commercial or hospital environment.
Surge IEC 61000-4-5	±1kv Differential ±2kv Common	±1kv Differential ±2kv Common	Mains power quality should be that of a typical Commercial or hospital environment.
voltage Dips/Dropout IEC 61000-4-11	>95% Dip for 0.5 Cycle 60% Dip for 5 Cycles 30% Dip for 25 Cycles >95% Dip for 5 Seconds	>95% Dip for 0.5 Cycle 60% Dip for 5 Cycles 30% Dip for 25 Cycles >95% Dip for 5 Seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the SL 25i requires continued operation during power mains interruptions, it is recommended that the SL 25i be powered from an uninterpretable power supply or battery.
Power Frequency 50/60Hz Magnetic Field IEC 61000-4-8	3A/m	3A/m	Power frequency magnetic fields should be that of a typical commercial or hospital environment.

GUIDANCE TABLES (continued)

Table 204– Guidance and Manufacturer's Declaration

Electromagnetic Immunity

Equipment and Systems that are NOT Life-supporting

Guidance and Manufacturer's Declaration – Electromagnetic Immunity

The SL 25i is intended for use in the electromagnetic environment specified below. The customer or user of the SL 25i should ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidance
Conducted RF IEC 61000-4-6	3 vrms 150 kHz to 80 MHz	(v1) = 3 vrms	Portable and mobile Rf communications equipment should be used no closer to any part of the SL 25i, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended Separation Distance: d=(3.5/v1)(Sqrt P) d=(3.5/E1)(Sqrt P) 80 to 800 MHz d=(7/E1)(Sqrt P) 800 MHz to 2.5 GHz Where P is the max output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed Rf transmitters, as determined by an electromagnetic site survey, should be less than the compliance levels in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol. 
Radiated RF IEC 61000-4-3	80 MHz to 2.5 GHz @ 3V/m	(E1) = 3 v/m	

Note 1: At 80 MHz to 800 MHz, the higher frequency range applies.
Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from Structures, objects and people.
*Field strengths from fixed transmitters, such as base stations for radio(cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To access the electromagnetic Environment due to fixed RF transmitters, an electromagnetic site survey should be considered. The measured field strength in the location in which the ME Equipment or ME system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the ME Equipment or ME System.
*Over the frequency range 150kHz to 80 MHz, field strengths should be less than [V1] V/m.

GUIDANCE TABLES (continued)

Table 206– Recommended Separation Distances between Portable and Mobile RF Communications Equipment and the SL 20i

ME Equipment and ME Systems that are NOT Life-supporting.

Guidance and Manufacturer's Declaration - Electromagnetic Immunity

Recommended Separation Distances for between
Portable and Mobile RF Communications Equipment and the SL 20i

The SL 25i is intended for use in the electromagnetic environment in which radiated RF disturbance are controlled. The customer or user of the SL 25i can help prevent Electromagnetic interference by maintaining a minimum distance between portable and mobile RF Communications Equipment (transmitters) and the SL 25i as recommended below, according to the maximum output power of the communications equipment.

Max Output Power of Transmitter (W)	Separation (m) 150kHz to 80 MHz d=(3.5/v1)(Sqrt P)	Separation (m) 80 to 800 MHz d=(3.5/E1)(Sqrt P)	Separation (m) 800MHz to 2.5GHz d=(7/E1)(Sqrt P)
0.01	0.1166	0.1166	0.2333
0.1	0.3689	0.3689	0.7378
1	1.1666	1.1666	2.3333
10	3.6893	3.6893	7.3786
100	11.6666	11.6666	23.3333

For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
Note 1: At 80MHz and 800 MHz, the separation distance for the higher frequency range applies.
Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

WARRANTY

This product is warranted by Labo America Inc. against defective material and workmanship under normal use for a period of one year from the date of invoice to the original purchaser.(An authorized dealer shall not be considered an original purchaser). Under this warranty, Labo America Inc. sole obligation is to repair or replace the defective part or product at Labotech/Labomed discretion.

This warranty applies to new product and does not apply to a product that has been tampered with, altered in any way, misused, damaged by accident or negligence, or which has had the serial number removed, altered or effaced. Nor shall this warranty be extended to a product installed or operated in a manner not in accordance with the applicable LABOMED instruction manual, nor to a product which has been sold, Serviced, installed or repaired other than by a Labo America Inc. factory or authorized LABOMED Dealer.

Lamps, bulbs, charts, cards and other expendable items are not covered by this warranty.

All claims under this warranty must be in writing and directed to the LABOMED factory, or authorized instrument dealer making the original sale ands must be accompanied by a copy of the purchaser's invoice.

This warranty is in lieu of all other warranties implied or expressed. All implied warranties of merchantability or fitness for a particular use are hereby disclaimed. No representative or other person is authorized to make any other obligations for a LABOMED product. Labomed shall not be liable for any special, Incidental, or consequent damages for any negligence, breach of warranty, strict liability or any other damages resulting from or relating to design, manufacture, sale, use or handling of the product.

PRODUCT CHANGES

Labo America Inc. reserve the right to make changes in design or to make additions to or improvements in its products without obligation to add such to product previously manufactured.

CLAIMS FOR SHORTAGES

We use extreme care in selection, checking, rechecking and packing to eliminate the possibility of error. If any shipping errors are discovered:

1. Carefully go through the packing material to be sure nothing was inadvertently overlooked when the unit was unpacked.
2. Call the dealer you purchased the product from and report the shortage. The material are packed at the factory and none should be missing if the box has never been opened.
3. Claims must be filed within 30 days of purchase.

CLAIMS FOR DAMAGES IN TRANSIT

Our shipping responsibility ceases with the safe delivery in good condition to the transportation company. Claims for loss or damage in transit should be made promptly and directly to the transportation company. If, upon delivery, the outside of the packing case shows evidence of rough handling or damage, the Transportation company's agent should be requested to make a "Received in Bad Order" notation on the Delivery receipt. If within 48 hours of delivery, concealed damage is noted upon unpacking the shipment and no exterior evidence of rough handling is apparent, the transportation company should be requested to make out a "Bad Order" report. This procedure is necessary in order for the dealer to maintain the right of recovery from the carrier.