Installation Requirements

ZEISS Lightsheet 7

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Original Manual

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1 About these Installation Requirements

This document describes the location requirements for the installation of the Lightsheet 7, hereinafter referred to as "microscope".

It helps to determine a suitable location within facilities and to prepare the location before delivery of the microscope. The suitability of a location depends on various factors such as:

- Room size
- Floor stability
- Environmental conditions
- Availability of supplies

The room size should be able to accommodate the microscope as well as potential accessories and 3rd party systems that may be attached to the microscope. For servicing the equipment, adequate access space is also required. The selected location should conform with the correct environmental conditions to ensure the safe and ideal operation of the microscope and its application whilst still ensuring the safety and comfort of the operators. Environmental conditions are often influenced by surrounding installed systems or activities.

We can distinguish between:

- Vibrations
- Acoustic noise
- Room temperature
- Air quality

The customer is responsible for ensuring that the conditions specified in this document are fulfilled and that the required equipment is available before delivery and installation. A ZEISS service representative will gladly assist in examining the installation conditions and suitable measures.

1.1 Further Applicable Documents

Brochures and Certificates

For brochures, certificates (e.g. ISO, CSA, SEMI), and declarations of conformity (e.g. EU, UK) ask your ZEISS Sales & Service Partner.

Local and National Health and Safety Regulations

Observe local and national health and safety regulations for the location of installation and during the use of the microscope.

Consult with your ZEISS Sales & Service Partner if these regulations are in conflict with the installation requirements of the microscope.

System and third-party Components, Accessories

Information about the individual components, enhancements, and accessories can be obtained from your ZEISS Sales & Service Partner. Also refer to the documentation of third-party manufacturers.

2 Requirements

The following sections describe each requirement in detail.

2.1 Environmental Requirements

Environmental effects such as acoustic noise, floor vibration and room temperature have a significant impact on the performance of the microscope and the ability to achieve the specified performance with particular regard to long term and sensitive workflows as well as equipment safety.

A site survey can be requested from your local ZEISS service representative prior to the installation.

2.1.1 Acoustic Noise

It is recommended that the microscope is installed and operated in a quiet room. Sound waves, e.g. vibration of the air caused by air-conditioning and other systems producing acoustic noise, will affect the microscope and may cause image distortion.

The following noise levels meet the specification of a quiet room and consider the potential resonance frequencies of damping tables.

Allowable noise level	
31.5 to 120 Hz	less than 55 dB (Z class)
120 to 200 Hz	less than 50 dB (Z class)
200 to 500 Hz	less than 55 dB (Z class)

2.1.2 Air Conditioning and Quality

The correct air conditioning of the proposed site for the microscope is critical for achieving high quality, stable and repeatable results as well as ensuring a suitable working environment for the users.

Many components of a microscope require stable ambient conditions to ensure that the optimal resolution of the system is achieved as well as stable results. The most common impact of instability is a focus drift of the image (e.g. during a time series).

For best operating conditions for the microscope:

- The conditions around the system (ambient) should remain at the recommended chosen ambient temperature and humidity 24 h per day and 7 days a week.
- Take note that many energy saving initiatives typically include reducing the air conditioning efficiency of buildings over night and over weekends which may affect your laboratory too.
- The actual ambient temperature should remain in the recommended range for best optical performance to ensure the optics of the system will achieve the specified resolution.
- To ensure stability of the results and reduce drift issues, the optimal temperature change gradients are indicated. The temperature stability requirements are far more stringent than the absolute ambient temperature and may require special attention if a high degree of focus stability is required.
- The air conditioning system must be of the correct size for the room dimensions, heat dissipated from the systems and number of people in the room. The air outlets and intakes must not be directed at the system.
- For applications requiring a high degree of stability, we recommend the use of temperature and humidity monitoring devices as a reference to monitor the stability of the ambient temperature.

In the event of the room temperature changing from a given, stable value, it may take up to 3 hours for the microscope to stabilize again.

Optical Resolution Performance	
Ambient temperature	22 °C
Range for best optical performance	± 3 °C
Reduced optical performance operation (out of range for best optical performance)	15 to 19 °C and 25 to 30 °C
Ambient temperature for reduced performance (out of range for best optical performance)	18 to 19 °C and 25 to 30 °C
Image and Data Stability	
Recommended best temperature stability	± 0.5 °C/h
Long-term recommended stability	± 0.5 °C/h not more than ± 1.5 °C/h/12h
General	
Relative humidity	< 65 %
Microscope max. Heat Dissipation	Max. 700 W Typical operation: 500 W
Microscope max. Heat Dissipation: Standby mode with PC off	250 W
Storage and Analysis PC max. Heat Dissipation	350 W
Warm-up time	1 h
Warm-up time (for highly precise and/or long-term measurements)	≥ 3 h
Pollution degree [▸ 6]	2

To ensure sufficient clean air circulation through the cooling systems, do not operate the system above the allowed altitude and below the allowed atmospheric pressure listed under *Location Requirements [▸ 8]*.

Dust can cause erratic errors or possibly irreversible damage to electronic devices. Care should be taken that the site is as dust free as possible.

2.1.2.1 Pollution Degrees

Defines the design consideration of electronic components for the occurrence of conductive and non-conductive air borne particles that could damage high voltage electrical components. According to EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1: General requirements

Dust can cause erratic errors or possibly irreversibly damage to electronic devices. Care should be taken that the site is as dust free as possible. The pollution degree does not specify the number and size of airborne particles that should be measured but rather the location of where the product should be safely used. Air pollutants and air borne particulate matter limits are country and time of year specific to encompass acceptable industrial and possible pollen particulates.

Pollution Degree	Description
1	No pollution or only dry, nonconductive pollution occurs. The pollution has no influence. Typical for equipment used in clean rooms and sealed environments.
2	Only nonconductive pollution occurs. Occasionally, temporary conductivity caused by condensation is to be expected. Typical for equipment used in a standard office environment, laboratory environment, homes and test laboratories where air-conditioning ensures a minimal dust level.
3	Conductive pollution occurs, or dry nonconductive pollution occurs that becomes conductive due to condensation that is to be expected. Typical for equipment used in industrial non air-conditioned areas exposed to the outside environment on a regular basis.
4	The pollution generates persistent conductivity caused by conductive dust or by rain or snow. Typical for equipment used in the outside environment not sheltered from the weather at all.

2.1.3 Electromagnetic Compatibility

The microscope is suitable for laboratory and industrial premises but less suitable for domestic premises where the EMC could interfere with nearby domestic appliances such as land line phones and radios. The microscope can cause minimal electrical and radio interference as detailed by its classification as a CISPR 11 / DIN EN 55011 / class A system according to DIN EN 61326-1.

2.1.4 Vibration

Vibrations can be caused e.g. by heavy-duty machinery installed on the same floor or even in the same building as well as transport facilities operated nearby. Depending on the floor stability and construction, even walking in the room or in the hallways may affect the image quality.

Allowable vibration values (under operating conditions on system table):

- **Less than Vibration Class VC-C**, 12.5 µm/s (IEST RP 12 and ISO 10811)

Reference for floor measurements:

- Please conform with the attenuation specifications of the proposed system table to ensure the VC-C specification is met on the table.
- For the NEWPORT Vision IsoStation series of damping tables recommended by ZEISS: Less than 63 µm/s for 0 to 4 Hz and less than 125 µm/s for 4 Hz to 1000 Hz
- These recommendations are based on an attenuation of -10 dB starting from 4 Hz and over -26 dB above 10 Hz. Low frequency vibrations (swaying) is recommended to be less than half of the 4 Hz limits.

Requirements for measuring vibrations:

- Three positions should be measured.
- The positions need to cover a triangle over the area where the microscope will be installed.
- At each position, measurements in X, Y and Z need to be taken.
- X is along the front of the microscope.

2.2 Location Requirements

The microscope must only be operated in closed rooms. It is recommended to install the microscope in a dimmed room where artificial illumination, sunlight or other light sources cannot interfere with image acquisition. The microscope should not be installed near radiators or windows with direct sunlight. The microscope must be placed securely on the table surface to prevent slipping and falling.

Compliance with the installation requirements of the microscope and the availability of the requested supplies is the responsibility of the customer and has to be readily available at the time of installation.

Installation site	Exclusively inside buildings
Altitude	Max. 2000 m above sea level
Atmospheric pressure	Min. 800 hPa

- Do not place the microscope near windows with direct sunlight or radiator heating systems which could change the temperature of the microscope.
- Do not position power supplies or racks under the system table because the heat dissipated can cause instability of the microscope through the expansion of the steel table.
- Harmful gases and fumes that may be used on the microscope must be safely extracted from the microscope and site in accordance with local safety regulations.
- The microscope must not be set up in areas with potential danger by explosives.

2.2.1 Space Requirements

Recommended room size	Min. 4.0 m x 5.0 m x 2.3 m
Service and safety clearance area	Min. 0.5 m around the microscope
Customer arranged computer workspace	Min. 0.8 m x 1.2 m x 0.76 m
Entrance	Min. 0.8 m wide
Hallways	Min. 1.2 m wide
Corners	Min. 1.2 m for boxes
Transport ways	Free of staircases
Power sockets	Should be no further than 1.5 m from the power supply entry socket of the microscope

- Allow for sufficient space depending on the size of the tables used on site.
- Electrical components must be at least 10 cm away from the wall and not near flammable objects.

The following layouts are recommended for optimal accessibility, airflow and stability, depending on the options purchased with the system (all measurements in mm). For possible changes in preferential layout, please discuss with your ZEISS representative. The placing of the user table can vary depending on available space and cable lengths.

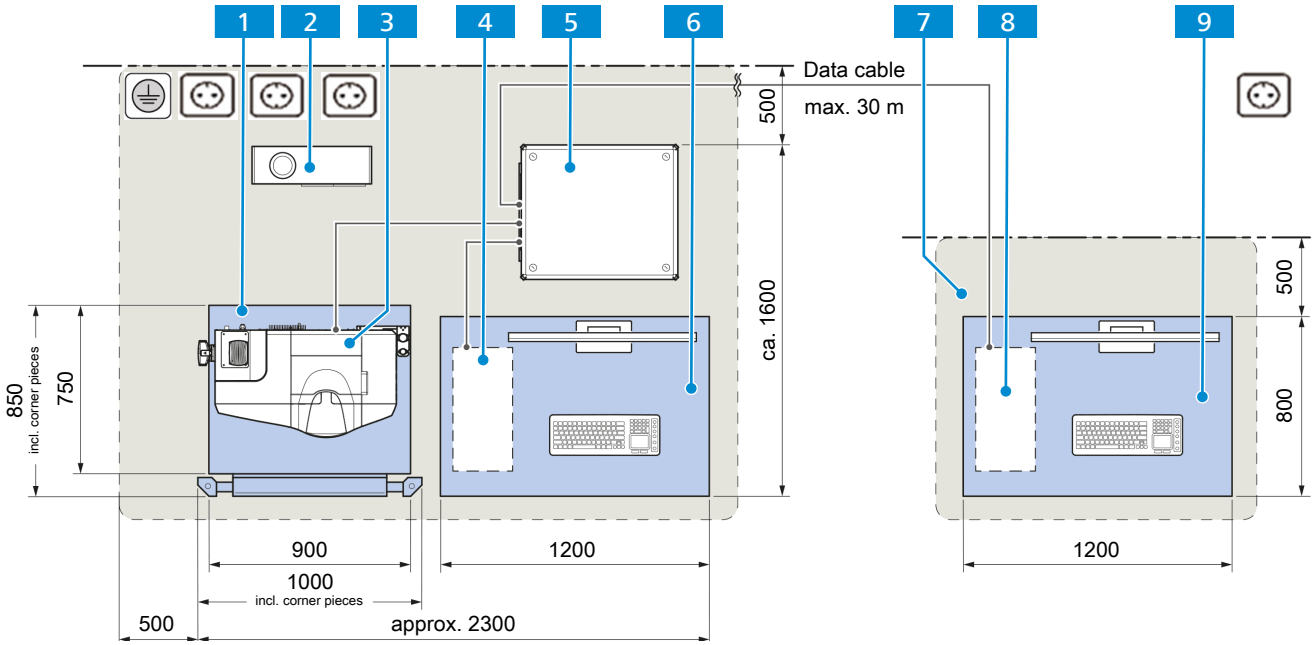

Fig. 1: Space requirement for Lightsheet 7 with a storage and data analysis PC (measurements in mm)

1	System table, small	2	Cooling system
3	Main system module Lightsheet 7	4	PC for system control
5	LB Rack Lightsheet 7	6	Customer arranged computer workspace
7	Optional working place	8	Storage and data analysis PC
9	Customer arranged computer workspace		

2.3 Mains Connection

The microscope must be properly installed with the power cords and supplied socket with protective ground contact securely connected.

The provided electrical connection must be in accordance with the applicable electrical codes for the country of installation. In order to avoid disturbance from other installed machines, you must use a separate power connection.

- Make sure the mains connector is not more than 1.5 m away from the position of the laser rack.
- Do not extend or modify the supplied 2.5 m power cord.
- Do not connect electrical systems that are not authorised by ZEISS on the supplied power supply cord.

	Value
Nominal AC voltage	1/N/PE 220-240 V AC (+/- 10%) / 100 - 125 V AC (+/- 10%)
Nominal frequency	50 - 60 Hz
Main Power Plug	Local mains plug will be supplied
Power consumption	(220-240 V) 800 VA (100-125 V) 750 VA Storage PC: Max. 400 VA
Max. current	3,5 A at 220 V 8 A at 100 V
Additional building PE	The system must be connected to a building earth point at all times.
Additional mains power	3 x Standard local 230 or 120 V mains sockets Required for the Storage PC, Monitor and other accessories.
Circuit breaker type	**Type C** MCB (Miniature Circuit Breaker) or MCCB (Moulded Case Circuit Breaker) according to IEC EN 60898
Leakage current (relevant for Residual Current Device)	Max. 23 mA at 230 V Max. 11 mA at 120 V
IEC earth class	Class 1 of IEC 61140 All chassis are connected to electrical earth by the earth cable in the mains cable.
Overvoltage Category [▸ 11]	II

2.3.1 Overvoltage Category

The IEC defined the term Overvoltage Category (sometimes referred to as Installation Category) to address transient voltages. Category IV devices can handle the largest transients relative to the normal working voltage. Category I devices can handle only small transients.

Voltage transients are defined as short duration surges of electrical energy. Repeatable transients are frequently caused by the operation of motors, generators, or the switching of reactive circuit components. Random transients, on the other hand, are often caused by lightning and electrostatic discharge. Ensure that the possibility of transient voltages on the mains line are minimal to prevent damage to the system.

	Max. transient voltage in V		
Nominal Voltage (VAC)	**Category I**	**Category II**	**Category III**
50	330	500	800
100	500	800	1500
150	800	1500	2500
300	1500	2500	4000
600	2500	4000	6000
1000	4000	6000	8000

Tab. 1: IEC Definitions of tolerated Transient Voltages for each Overvoltage Category

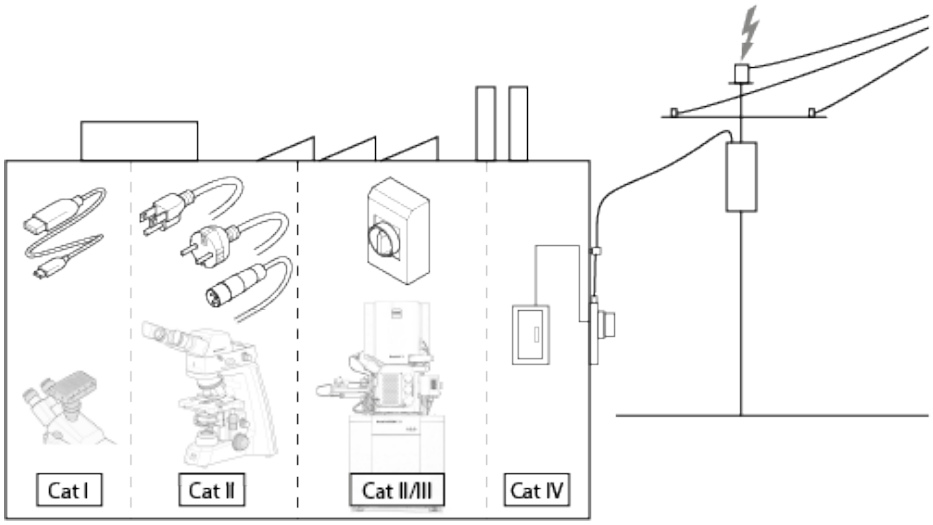

Fig. 2: Overvoltage Categories for plugs

Category	Description
I	For connection to circuits in which measures are taken to limit transient over-voltages to an appropriately low level. Examples: Protected electronic circuits.
II	Equipment intended to be supplied from the building wiring. Applies both to plug-connected equipment and to permanently connected equipment. Examples: Appliances, portable tools, and other household and similar loads. Measurement equipment intended to measure the voltage levels of these loads must be rated at this overvoltage category.

Category	Description
III	Equipment intended to form part of a building wiring installation and for cases where the reliability and the availability of the equipment is subject to special requirements. Examples: Switches in fixed installation and equipment for industrial use with permanent connection to the fixed installation; measurement equipment intended to measure the voltage levels of these fixed installations must be rated at this overvoltage category.
IV	Used at the origin of the installation. Examples: Electricity meters and primary overcurrent protection equipment.

Info

For further information on Overvoltage Categories refer to EN60664-1.

2.3.2 UPS Requirements

If the site requires a UPS (Uninterruptable Power Supply), please ensure the KVA rating of the UPS meets the ratings of the microscope and all third-party items that may also be connected, e.g. water chiller, air compressor, sample prep equipment, EDS or WDS, etc.

This will ensure that the complete system will continue to function during a blackout or brownout long enough to allow the user to save any experiments and data and to shut off the system properly.

As battery performance deteriorates over time, always overestimate the time (typically 2x) you require for the UPS to maintain power in a blackout (long mains interruption) or brownout (short fluctuation of the mains supply) situation. The UPS only serves to bridge the time of a blackout or brownout until normal mains is restored. Please ensure to switch off the microscope before the batteries run low in a blackout.

UPS Batteries are a consumable item and will need to be replaced over time depending on charge cycles and usage. They are typically not covered under a ZEISS support contract, unless specified.

In areas where the mains supply is very unstable or not very clean, the most stable mode of UPS is the online mode, where the UPS constantly generates the output mains supply.

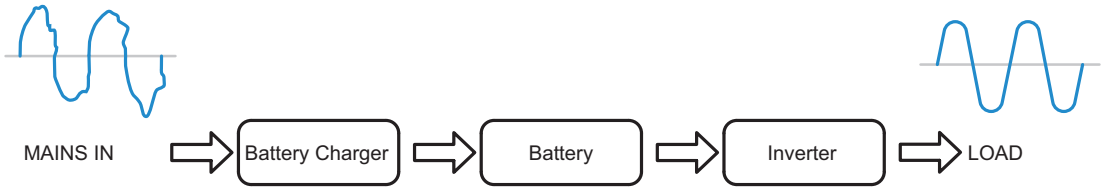

Fig. 3: Block diagram of online UPS

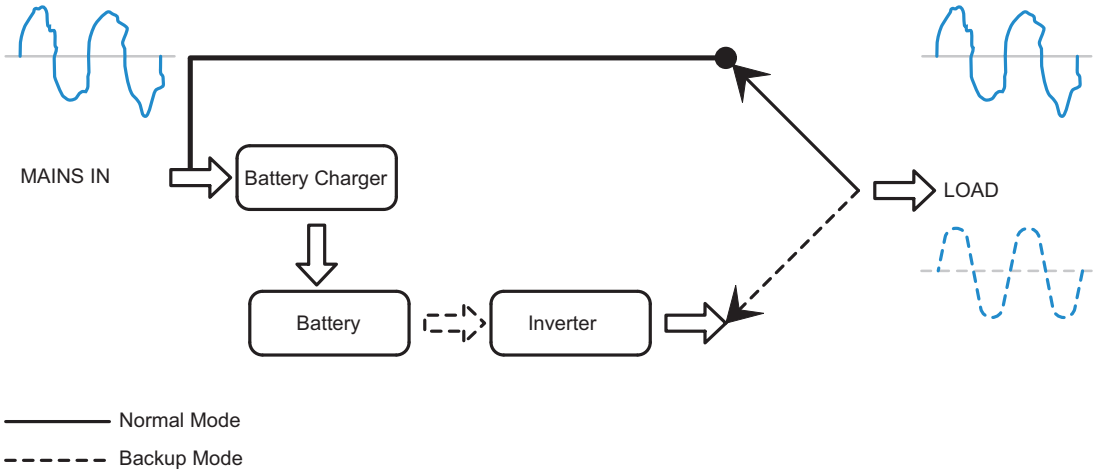

Fig. 4: Block diagram of offline UPS

2.4 Network Connectivity

In order to provide remote diagnostics, ZEISS recommends connecting the computer to the internet in a safe and secured method.

As a guideline, ask your ZEISS service representative about recommendations for data security policy on ZEISS Systems.

Cable type	CAT-6a
Connector type	RJ45 (IEC 60603-7 8P8C Modular connector)
Cable length	Site dependent – customer supplied. Not to exceed total length of 100 m.
Protocol	Ethernet 10BASE-T/100BASE-TX/1000BASE-T

2.4.1 ZEISS Predictive Service

ZEISS Predictive Service is used for condition monitoring by systematic retrieval of relevant instrument health information and its server based processing. The goal is to detect deviations in the instrument performance before they impair the user's result or even result in unplanned downtime. For details, ask the ZEISS service representative about recommendations for data security policy on ZEISS Systems.

For predictive service, we require the above network connectivity and predictive service will operate under the parameters shown in the table below.

Ports	443
Protocols	HTTPS, secure websocket
URL of ZEISS server	predictive-service.zeiss.com
IP addresses	52.174.243.245
Connection security	TLS 1.2 with AES 256 bit
Supported proxy settings for installation	▪ No authentication ▪ Basic authentication ▪ Digest authentication ▪ NTLM authentication

Available and patched local area network connected to ZEISS system PC	RJ 45 connector for LAN
Security patched and measures according to your local IT security standards	e. g. antivirus software, installed and maintained by customer/operator For details, ask your ZEISS Sales & Service Partner about recommendations for data security policy on ZEISS Microscopy Systems.

2.5 Safety and Radiation Information

2.5.1 Laser Safety

Under normal operation conditions, the microscope is classified as laser hazard Class 1 system. Under service conditions, the microscope is classified as Class 3B system. The operator of the laser equipment is responsible for conformance with protective measures and safety requirements.

Laser safety measures in accordance with the applicable country-specific legal regulations remain valid. As the responsible body, the operator is responsible for complying with laser safety regulations.

The following types of lasers are currently intended for use. Using other lasers than indicated below requires prior coordination with ZEISS. The performance values of the directly integrated multiphoton lasers correspond to the rated laser power.

Laser	Wavelength (nm)	Class	Typical power ex fiber (mW)
solid state laser (SSL)	405	3B	20
solid state laser (SSL)	405	3B	50
solid state laser (SSL)	445	3B	25
solid state laser (SSL)	488	3B	30
solid state laser (SSL)	488	3B	50
solid state laser (SSL)	515	3B	20
solid state laser (SSL)	561	3B	20
solid state laser (SSL)	561	3B	50
solid state laser (SSL)	638	3B	75

Tab. 2: Laser Data

Info

Observe technical documents and instruction manuals of external lasers

Information on the external lasers is available in the documents provided by the laser manufacturer. Particularly observe the notes by the laser manufacturer.

2.5.2 Biosafety Level of the Laboratory

The customer should inform ZEISS of the biosafety level of the installation site. Access to the system, safety training, correct safety dress code and use of tools and test equipment needs to be clarified for specified laboratories (World Health Organisation Laboratory Biosafety Manual 3).

Biosafety Level	Description
1	Suitable for work with well-characterized agents which do not cause disease in healthy humans. In general, these agents should pose minimal potential hazard to laboratory personnel and the environment.
2	Laboratories maintain the same standard microbial practices as BSL-1 labs, but also includes enhanced measures due to the potential risk of the aforementioned microbes. Personnel working in BSL-2 labs are expected to take even greater care to prevent injuries such as cuts and other breaches of the skin, as well as ingestion and mucous membrane exposures.
3	Laboratory typically includes work on microbes that are either indigenous or exotic, and can cause serious or potentially lethal disease through inhalation. Examples of microbes worked within a BSL-3 include yellow fever, West Nile virus, and the bacteria that causes tuberculosis.
4	Labs are rare. However, some do exist in a small number of places in the US and around the world. As the highest level of biological safety, a BSL-4 lab consists of work with highly dangerous and exotic microbes. Infections caused by these types of microbes are frequently fatal, since there are no available treatments or vaccines. Two examples of such microbes include Ebola and Marburg viruses.

Tab. 3: Biosafety Level

2.6 Gas Supplies (where applicable)

Make sure the gas bottles are stored safely in or outside of the building according to local safety and fire safety regulations.

The gas regulators should be supplied by the User.

The connection must be equipped with an appropriate pressure reducer and a main shut-off valve that is secured against accidental re-activation, e.g. a ball valve AKT 10TN88 with optional lock or equivalent. The user is responsible for the installation of a main shut-off valve at the site of installation, he/she should also provide instructions how to operate the main shut-off valves properly. Main shut-off valves have to be easily accessible. They must close off the connections to the corresponding media when needed. The main shut-off valves have to be lockable in their off position in order to prevent accidental re-activation.

Shut-off valves should be mounted near the microscope in such a way that the person actuating or inspecting the shut-off valve is not exposed to risks.

To prepare for the gas connections, it is recommended to discuss with the installation engineer to have converters available (see below) to be able to connect different size hosing depending on what sizing units are standard in your country.

Fig. 5: Converters (example)

2.6.1 Compressed Air

Active damping tables require compressed air to isolate the system from floor vibrations. The necessary compressed air can be either generated by a compressor (please ask your ZEISS service representative) or taken from a gas cylinder or from an in-house supply system.

Passive damping tables/systems typically do not require compressed air.

The compressor is connected to a separate mains socket. It runs occasionally and can introduce vibration and unwanted noise to the site. Compressed air is used to operate several valves and the auto leveling system.

Connection hose	¼ inch O.D. or 6 mm O.D.
Pressure	0.35 - 0.6 MPa (3.5 - 6 bar)
Typical flow rate	Approx. 12 l/min @ 0.6 MPa pressure during air leveling system inflation
Quality	Oil-free ISO 8573-1:2010 [7:4:4] (Particulate:Water:Oil)
System connection	Quick exchange connector. One piece is delivered with the microscope.

The gas regulators should be supplied by the user if the air supplied is from the building facilities or from gas bottles.

Due to acoustic noise and vibrations, where possible, the compressor should be installed in a separate room close to the workstation. Make sure there is enough room for air circulation to the sides and at least 100 cm to the back of the compressor. Refer to the manufacturer's documentation for further details.

2.6.2 CO_2 and other Gas Supplies

For systems making use of gases such as CO_2 or O_2 in their processes or experiments, please take note to safely handle the gases.

Make sure the gas bottles are stored safely in or outside of the building according to local safety and fire safety regulations. The gas regulators should be supplied by the user.

Connection hose	¼ inch O.D. or 6 mm O.D.
Max. pressure	2 bar

2.7 Cooling System

The detection modules in the microscope are connected to a liquid cooling system. A cooling liquid defined as a hazardous substance is used to cool the detection modules (depending on configuration). The supplied safety data sheet with notes on hazards and safety measures must be observed when handling the cooling liquid.

Please consider that the pH value of the cooling liquid changes over time. To prevent corrosion in the cooler of the detection module, the pH value of the cooling liquid must be checked at least once a year and the liquid replaced as necessary. Please observe the directions of the cooling system manufacturer in the supplied operating manual. If you have signed a service agreement with ZEISS, our service staff will perform the check as part of the maintenance procedure.

2.8 Transport and Storage

The following regulations must be observed before and during transport:

- Use devices (e.g. handles, fork lifts or hand pallet trucks) to transport the microscope safely to the installation room. In clean-room environments, this check is mandatory. The microscope may only be transported in air-suspended vehicles. Devices for transporting the microscope must be rated to handle its full weight and dimensions.
- Moving parts must be secured during transport to prevent them from slipping or tipping over.
- Avoid rocking the transport boxes back and forth.
- Note the weight information on the package and on the shipping document.
- Where possible, the original packaging must be used for shipping or transport.

Info

Detailed information on transport and storage is available from your ZEISS Sales & Service Partner.

Forklift and hand pallet truck

For on-site transport and unloading, a forklift and/or a hand pallet truck are necessary.

- Ensure all hallways and corners are wide enough to be passed by.
- Check the entrance to the building and to the final site for suitable ramps and compliant elevators that can match the weights of the microscope where necessary.
- Some components, such as the tables, are large, heavy or bulky and may require extra assistance to get the units into the allocated site.

Maximum shock resistance

- Do not drop or bump the boxes during movement or storage. Any acceleration shall be < 10 g.
- Evaluate packaging shock and tilting sensors on delivery and after internal transport.

Allowable temperature

Allowable temperature during transportation to or between sites:

- Between -20 °C and 55 °C for a maximum of 16 hours
- Relative humidity less than 65 %

Allowable temperature during storage at site:

- Between 10 °C and 30 °C
- Relative humidity less than 65 %

Info

24 hours before installation of the microscope it is required that the boxes be at recommended room temperature to avoid ingress of humidity, which is very harmful to optical paths, and to ensure effective stability of the microscope during installation and testing.

2.8.1 Weight and Sizes of the Transported Goods

For the weight and sizes of the transported goods for your specific system configuration, please contact your ZEISS sales and service representative.

Below is an example of the transport boxes that may be delivered:

Box contents	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
Main box 1	1210	810	1360	165
Accessories box 1	1200	800	1300/900	Max. 100
Accessories box 2	1200	800	1300/900	Max. 100
System table, small	1120	1120	1030	134
Laser rack	1050	970	900	Max. 100

2.8.2 Weight and Sizes

The table below gives some indication on the approximate weight and sizes of the unpacked items.

Component	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
System table, small (incl. corner pieces)	900 (1000)	750 (850)	810 - 870	130
Main system module Light-sheet 7	800	450	500	75
LB Rack Lightsheet	700	600	550	80
Cooling unit INNOVATEK 3156-01	500	130	190	7.5

Info

The tables for the computers are provided by the customer. ZEISS recommends two tables with the dimensions 1200 x 800 x 750 mm.

3 Applicable Standards and Regulations

Observe all general and country-specific safety regulations as well as applicable environmental protection laws and regulations.

The microscope is in compliance with the requirements of the following regulations and directives:

2011/65/EU	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)
2015/863/EU	Commission Delegated Directive (EU) 2015/863 of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances (RoHS Directive III)
2014/30/EU	Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility
2014/35/EU	Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits
KS C 9610-6-2:2019	Korean EMC standards EMC Immunity Testing of Industrial Environments
KS C 9610-6-4:2017	Korean EMC standards EMC Emission Testing of Industrial Environments
EN 60825-1:2015	Safety of laser products - Part 1: Equipment classification and requirements
EN 61010-1:2020	Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements IEC 61010-1:2010 in consideration of CSA and UL directives
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

Unauthorized modifications of the microscope will cancel this declaration.

According to directive 2011/65/EU (RoHS) the microscope and its accessories have been classified as instrument category 9 (Monitoring and control instruments including industrial monitoring and control instruments). They also fall under 2012/19/EU (WEEE).

In addition to the European and international guidelines and standards, the 21 CFR §1040.10: "Performance Standards for light emitting products - laser products" applies for the USA.

The following EMC user notice is for Korea only:

기종별	사용자안내문
A급기기(업무용방송통신기자재)	이기기는업무용(A급) 전자파적합기기로서 판매자또는사용자는이점을주의하시기바라며, 가정외의지역에서사용하는것을목적으로합니다.

European and International Directives / Standards: For more information on ISO and CSA certificates or CE Declarations of Conformity, contact your ZEISS Sales & Service Partner.

ZEISS works according to a certified Environment Management System according to ISO 14001. The microscope and its components were developed, tested, and produced in accordance with the valid regulations and guidelines for environmental law of the European Union.

ZEISS introduced a procedure for the return and recycling of the instruments within the member states of the European Union which ensures suitable recycling procedures conforming to the EU directives.

For more information on disposal and recycling please consult your ZEISS Sales & Service Partner. The microscope may not be disposed of in the household waste or through municipal waste disposal services. If the microscope is resold, the seller shall be obliged to inform the buyer that the microscope must be disposed of in accordance with the regulations.

4 Responsibility Checklist

The following is a checklist summarizing the requirements from the preceding sections of this document. The customer should internally evaluate the proposed site to verify its compatibility with all the requirements presented in this document. A ZEISS service representative can assist with the checklist to evaluate which requirements are already met, and which requirements are yet to be completed. ZEISS can be requested to assist with the checking of the environmental conditions.

Environmental conditions in and around a system can change with time due to various changes to the building, new equipment being installed or other reasons. Should the environmental conditions change due to changes to the building or other potential external influence after a site inspection was done, the customer should notify ZEISS to potentially redo the environmental inspection.

Company name:	
Address:	
Contact person:	

Requirements	Fulfillment				Comments
	Yes (Checked and complete)	Partially (Partially fulfilled)	No (Checked but not fulfilled)	N/A (not applicable)	
Environmental Requirements	☐	☐	☐	☐	
▪ Acoustic noise	☐	☐	☐	☐	
▪ Air Quality	☐	☐	☐	☐	
▪ Electromagnetic Compatibility	☐	☐	☐	☐	
▪ Magnetic Field	☐	☐	☐	☐	
▪ Vibration	☐	☐	☐	☐	
Location Requirements	☐	☐	☐	☐	
▪ Installation Plan	☐	☐	☐	☐	
▪ Space Requirements	☐	☐	☐	☐	
▪ Air Conditioning	☐	☐	☐	☐	
▪ Earthing	☐	☐	☐	☐	
Mains Connection	☐	☐	☐	☐	
Network Connection	☐	☐	☐	☐	
Safety and Radiation Information	☐	☐	☐	☐	
▪ X-Ray	☐	☐	☐	☐	
▪ Laser Safety	☐	☐	☐	☐	

Requirements	Fulfillment				Comments
▪ Biosafety Level of the Laboratory	☐	☐	☐	☐	
Cooling Water Supply	☐	☐	☐	☐	
▪ Cooling liquid and/or chemicals	☐	☐	☐	☐	
Exhaust Line	☐	☐	☐	☐	
Gas Supplies	☐	☐	☐	☐	
▪ Compressed Air	☐	☐	☐	☐	
▪ Nitrogen	☐	☐	☐	☐	
▪ Additional Gas	☐	☐	☐	☐	
Transport, storage and floor load	☐	☐	☐	☐	

Place, date	Name	Signature

The above signature conveys that the Installation Requirements have been read and understood. The customer further understands that some of these requirements are necessary to help assure the safety of personnel, or to prevent damage to the equipment or the facility. The customer further understands that some of the requirements must be fulfilled in order for the equipment to meet its full performance capabilities and for the equipment to be successfully installed.

Comments:

Space for Comments

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