



Installation Requirements  
**ZEISS Lattice Lightsheet 7**



## ZEISS Lattice Lightsheet 7

### Original Manual

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# 1 About these Installation Requirements

This document describes the location requirements for the installation of the Lattice 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 met and that the required equipment is available before delivery and installation. A ZEISS service representative will gladly assist you in examining the installation conditions and suitable measures.

## 1.1 Further Applicable Documents

<b>Brochures and Certificates</b>	For brochures, certificates (e.g. ISO, CSA, SEMI), and declarations of conformity (e.g. EU, UK) ask your ZEISS Sales & Service Partner.
<b>Local and National Health and Safety Regulations</b>	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.
<b>System and Third-Party Components, Accessories</b>	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	
50 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.

<b>Optical Resolution Performance</b>	
Ambient temperature	22 °C
Range for best optical performance	± 1 °C
<b>Image and Data Stability</b>	
Recommended best temperature stability	less than 0.5 °C/h
<b>General</b>	
Relative humidity	< 65 %
Microscope max. Heat Dissipation	Max. 700 W
Warm up time with ZEN running (for highly precise and/or long term measurements)	10 h
Sample stability. Time in the incubator at de-sired temperature	> 1 h
<i>Pollution degree [▶ 6]</i>	2

To ensure sufficient clean air circulation through the cooling systems, do not operate the microscope above the allowed altitude and below the allowed atmospheric pressure listed under Location Requirements.

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.

<b>Pollution Degree</b>	<b>Description</b>
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.

Pollution Degree	Description
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 EMC Information

The microscope is intended to be used in a basic electromagnetic environment.

The microscope complies with the emission and immunity requirements as a CISPR 11 / EN 55011 / class A group 1 system according to IEC 61326-1. Emissions, which exceed the levels required by CISPR 11 / EN 55011, can occur when the microscope is connected to other devices.

The following EMC user notice is for Korea only:

기종별	사용자안내문
A급기기(업무용방송통신기자재)	이기는업무용(A급) 전자파적합기기로서 판매자또는사용자는이점을주의하시기바라며, 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

### 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  $\mu\text{m/s}$  (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  $\mu\text{m/s}$  for 0 to 4 Hz and less than 125  $\mu\text{m/s}$  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. 2.4 m x 3.0 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 50 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.



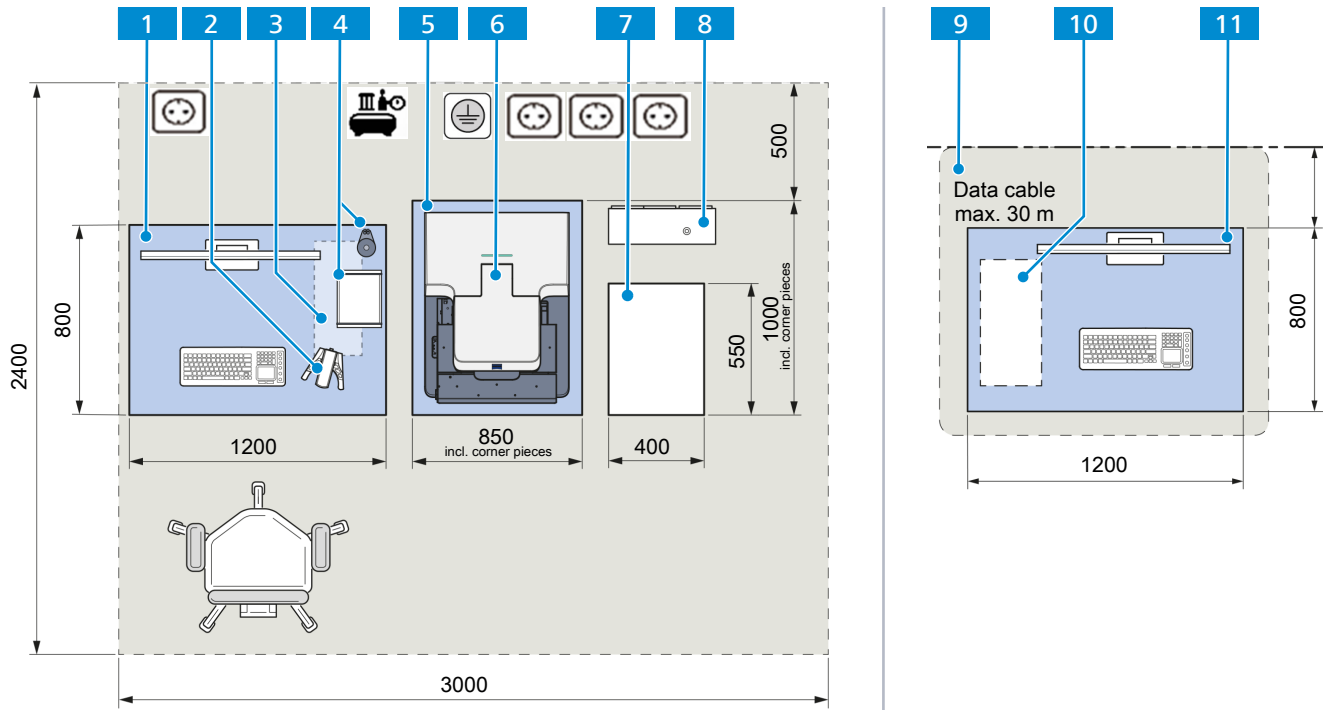


Fig. 1: Space requirements for Lattice Lightsheet 7 with optional storage and data analysis PC (measurements in mm)

- |           |                                      |           |                                 |
|-----------|--------------------------------------|-----------|---------------------------------|
| <b>1</b>  | Customer arranged computer workspace | <b>2</b>  | Stage ergo pointer              |
| <b>3</b>  | PC for system control (under table)  | <b>4</b>  | Incubation equipment (on table) |
| <b>5</b>  | System table, small                  | <b>6</b>  | Main system module              |
| <b>7</b>  | Component rack                       | <b>8</b>  | Liquid cooling unit             |
| <b>9</b>  | Optional working place               | <b>10</b> | Storage and data analysis PC    |
| <b>11</b> | Customer arranged computer workspace |           |                                 |

## 2.3 Electrical Supplies

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.

The microscope is connected to the AC mains via three mains cables, two running to power strips and one running to the Power Supply unit for further power distribution.

- 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 power cords.
- Do not connect electrical systems that are not authorized by ZEISS on the supplied power supply cord.

Parameter	Value
Nominal AC voltage	L1/N/PE 100 to 127 VAC or 230 VAC $\pm$ 10 %
Nominal frequency	50 - 60 Hz
Main Power Plug	Local mains plug will be supplied
Power consumption	Continuous operation: Max. 900 VA Standby operation: 280 VA
Max. current	4.5 A at 230 V 9 A at 120 V
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	<b>Type C</b> MCB (Miniature Circuit Breaker) or MCCB (Moulded Case Circuit Breaker) according to IEC EN 60898
Overvoltage Category [ <a href="#">▶ 10</a> ]	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.

Nominal Voltage (VAC)	Max. transient voltage in V		
	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

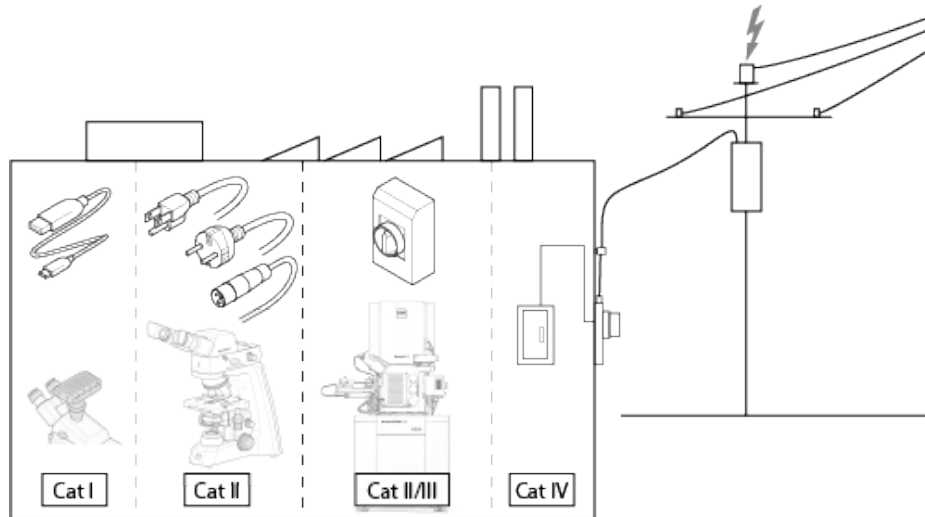


Fig. 2: Overvoltage Categories for plugs

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.
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.

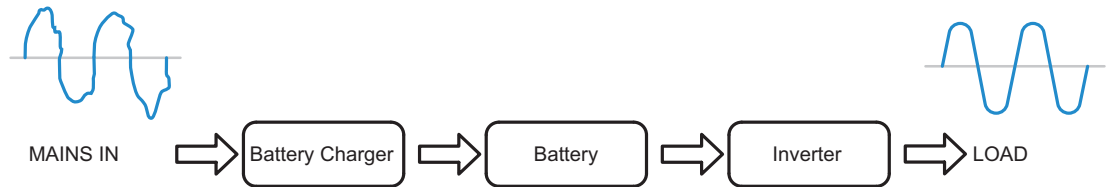


Fig. 3: Block diagram of online UPS

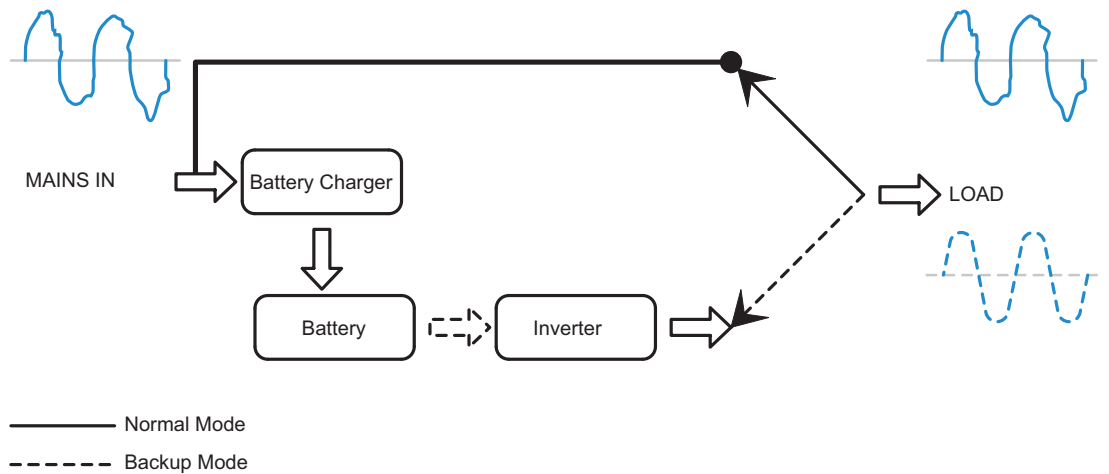


Fig. 4: Block diagram of offline UPS

## 2.4 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 hoses depending on what sizing units are standard in your country.



Fig. 5: Converters (example)

### 2.4.1 Compressed Air for the System Table

Passive damping tables/systems typically do not require compressed air. Active damping tables require compressed air to isolate the system from floor vibrations.

Compressed air is used to operate several valves and the auto leveling system.

The necessary compressed air can be either generated by a compressor (please ask your ZEISS sales and service representative) or taken from an in-house supply system.

The compressor is connected to a separate mains socket. It runs occasionally and can introduce vibration and unwanted noise to the site. Therefore, 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.

If the air supplied is from an in-house supply system, the gas regulators should be supplied by the user.

The compressed air for the system table must comply with the following specifications:

Connection hose	¼ inch O.D. or 6 mm O.D.
Pressure	0.15 - 0.2 MPa (1.5 - 2 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.

### 2.4.2 Compressed Air for Incubation

Compressed air is required for the incubation equipment.

The necessary compressed air can be either generated by a compressor (please ask your ZEISS sales and service representative) or taken from a gas cylinder or from an in-house supply system.

The compressor is connected to a separate mains socket. It runs occasionally and can introduce vibration and unwanted noise to the site. Therefore, 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.

If the air supplied is from the in-house supply system or from gas bottles, the gas regulators should be supplied by the user.

Compressed air for the incubation equipment must comply with the following specifications:

Connection hose	6 mm O.D. hose (supplied by the manufacturer)
Pressure	0.08 - 0.12 MPa (0.8 - 1.2 bar)
Quality	Oil-free ISO 8573-1:2010 [7:4:4] (Particulate:Water:Oil)
System connection	A suitable converter must be supplied by the customer (e. g. from 8 mm or 10 mm to 6 mm)

### 2.4.3 CO<sub>2</sub> and N<sub>2</sub> for Incubation

CO<sub>2</sub> is required for the incubation equipment. N<sub>2</sub> can optionally be connected to create hypoxic conditions for the specimen.

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.

The gases for the incubation equipment must comply with the following specifications:

Connection hose	6 mm O.D. hose is supplied by the manufacturer
Pressure	0.08 - 0.12 MPa (0.8 - 1.2 bar)
System connection	Suitable converter must be supplied by the customer (e. g. from 8 mm or 10 mm to 6 mm)

## 2.5 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

### 2.5.1 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	<ul style="list-style-type: none"> <li>▪ No authentication</li> <li>▪ Basic authentication</li> <li>▪ Digest authentication</li> <li>▪ NTLM authentication</li> </ul>
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	<p>e. g. antivirus software, installed and maintained by customer/operator</p> <p>For details, ask your ZEISS Sales &amp; Service Partner about recommendations for data security policy on ZEISS Microscopy Systems.</p>

## 2.6 Safety and Radiation Information

### 2.6.1 Laser Safety

Under normal operation conditions, the microscope is classified as laser hazard Class 2 system. Under service conditions, the system 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)
Diode laser	488	3B	10
Diode laser (SHG)	561	3B	10
Diode laser	640	3B	5

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.



### 2.6.2 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



## 2.7 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. 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. Acceleration must not exceed 10 g.
- Evaluate packaging shock and tilting sensors on delivery and after internal transport.

### Allowable temperature

Allowable temperature during on-site storage and transport:

- Between 15 °C and 30 °C
- Relative humidity less than 65 %

### Info

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

### Weight and sizes of the transport boxes

Box contents	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
Lattice Lightsheet 7 Stage (mounted) Camera (mounted)	770	690	840	94
Component rack Laser module (mounted) Power supply unit (mounted) PC, cooling system, incubation, 2nd camera (2 camera system only), and other accessories	1400	940	1460	275 277*
System Table	1120	1120	1030	134

\* with second camera

### 2.8.1 Weight and Sizes of the Transported Goods

For the weight and dimensions of the shipment crates for your specific microscope configuration, contact your ZEISS Sales & Service Partner.

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

Box contents	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
Lattice Lightsheet 7 Stage (mounted) Camera (mounted)	770	690	840	94
Component rack Laser module (mounted) Power supply unit (mounted) PC, cooling system, incubation, 2nd camera (2 camera system only), and other accessories	1400	940	1460	275 277*
System Table	1120	1120	1030	134

\* with second camera

### 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	84.0
Lattice Lightsheet 7 module	600	425	380	48.0
Stage	400	340	95	7.6
Stage motion controller	360	325	95	5.0
Stage ergo pointer	170	150	190	9.0
Incubation temp control	225	170	90	2.0
Incubation gas mixer	225	170	90	2.0
Incubation humidifier	110	70	300	1.6
Incubation top stage with lid	200	130	30	0.2
Camera pco.edge 4.2	123	70	76	1.5
Camera Hamamatsu Orca Fusion	131.7	84	84	1.2
Liquid cooling unit	500	390	190	7.0
Component rack	550	400	600	35.0

Component	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
Laser module	400	250	145	6.0
Power supply unit	400	250	145	10.0
System PC	450	220	550	25
Storage PC	645	220	420	40
Monitor HP Z32 (32")	715	564	248	12.2
Monitor HP Z27n G2 (27")	613	509	214	8

**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 and delegated directive (EU) 2015/863	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)
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 and (EG) Nr. 1907/2006	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
EN 55011:2018	Noise emission according to CISPR 11 intended use in industrial environment
EN 60825-1:2015	Safety of laser products - Part 1: Equipment classification and requirements
KN 61000-6-2:2012, KN 11:2015	Korean EMC standards
EN IEC 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.

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.

**Declaration of China RoHS 2 关于电器电子产品有害物质限制说明**

Microscopes and accessories of the Carl Zeiss Microscopy GmbH are in compliance with the China RoHS Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) SJ/T 11364 with respect to lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenylethers (PBDE) content.  
 兹证明，根据中国电器电子产品有害物质限制使用管理办法，我司产品符合中国对电器电子产品中含铅及其化合物、汞及其化合物、镉及其化合物、六价铬化合物、多溴联苯、多溴二苯醚六种有害物质的法规要求。

The toxic substances or elements  
有毒有害物质或元素

	Lead (Pb) 铅	Mercury (Hg) 汞	Cadmium (Cd) 镉	Hexavalent chromium (Cr6+) 六价铬	Polybrominated diphenyl ether (PBB) 多溴联苯	Polybrominated diphenyl ether (PBDE) 多溴二苯醚
Cable 电线	x	o	o	o	o	o
Electronical Parts 电子电路	x	o	o	o	o	o
Optical Parts 光学部件	o	o	o	o	o	o
Mechanical Parts 机械部件	x	o	o	o	o	o
Lamps 灯	o	o	o	o	o	o

o = Indicates that this toxic or hazardous substance contained in the homogeneous materials for this part, is below the limit requirement in GB/T 26572  
 表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。

x = Indicates that this toxic or hazardous substance contained in the homogeneous materials for this part, is above the limit requirement in GB/T 26572 .  
 表示该有害物质至少在该部件某一均质材料中的含量超出GB/ T26572规定的限量要求。

## 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)	
<b>Environmental Requirements</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Acoustic noise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Air Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Electromagnetic Compatibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Magnetic Field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Vibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<b>Location Requirements</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Installation Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Space Requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Air Conditioning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Earthing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<b>Mains Connection</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<b>Network Connection</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<b>Safety and Radiation Information</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ X-Ray	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
▪ Laser Safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>

Requirements	Fulfillment				Comments
<ul style="list-style-type: none"> <li>Biosafety Level of the Laboratory</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<b>Cooling Water Supply</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<ul style="list-style-type: none"> <li>Cooling liquid and/or chemicals</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<b>Exhaust Line</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<b>Gas Supplies</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<ul style="list-style-type: none"> <li>Compressed Air</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<ul style="list-style-type: none"> <li>Nitrogen</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<ul style="list-style-type: none"> <li>Additional Gas</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
<b>Transport, storage and floor load</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>

<input type="text"/>	<input type="text"/>	<input type="text"/>
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:





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