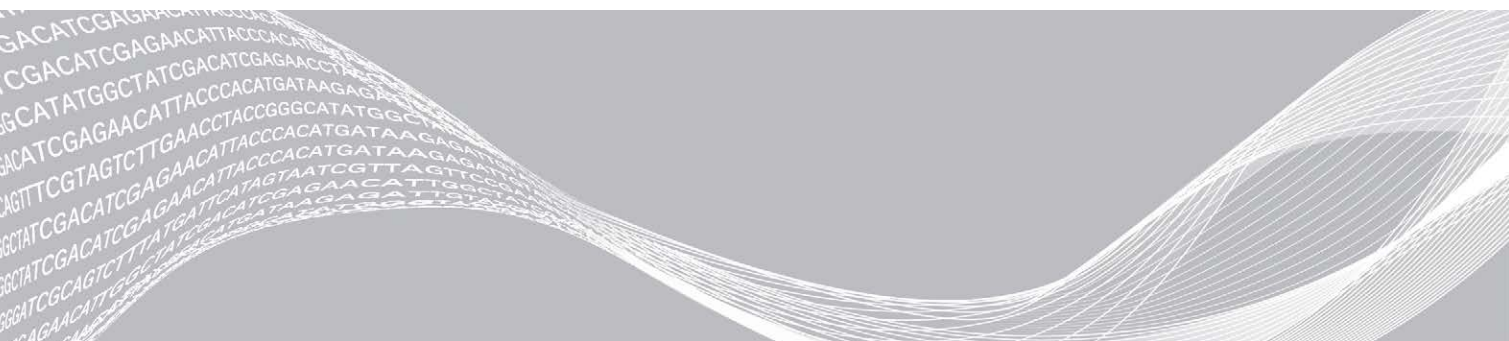


# MiniSeq System

## Site Prep Guide

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## Introduction

This guide provides specifications and guidelines for preparing your site for installation and operation of the Illumina® MiniSeq® System.

- ▶ Laboratory space requirements
- ▶ Electrical requirements
- ▶ Environmental constraints
- ▶ Computing requirements
- ▶ User-supplied consumables and equipment

## Safety Considerations

See the *MiniSeq System Safety and Compliance Guide (document # 1000000002698)* for important information about safety considerations.

## Additional Resources

The [MiniSeq System support pages](#) on the Illumina website provide additional resources. These resources include software, training, compatible products, and the following documentation. Always check support pages for the latest versions.

Resource	Description
<a href="#">Custom Protocol Selector</a>	A wizard for generating customized end-to-end documentation that is tailored to the library prep method, run parameters, and analysis method used for the sequencing run.
<i>MiniSeq System Safety and Compliance Guide (document # 1000000002698)</i>	Provides information about operational safety considerations, compliance statements, and instrument labeling.
<i>RFID Reader Compliance Guide (document # 1000000002699)</i>	Provides information about the RFID reader in the instrument, compliance certifications, and safety considerations.
<i>MiniSeq System Denature and Dilute Libraries Guide (document # 1000000002697)</i>	Provides instructions for denaturing and diluting prepared libraries for a sequencing run, and preparing an optional PhiX control.
<i>MiniSeq System Guide (document # 1000000002695)</i>	Provides an overview of instrument components, instructions for operating the instrument, and maintenance and troubleshooting procedures.
<i>Local Run Manager Software Guide (document # 1000000002702)</i>	Provides information about using the Local Run Manager software and available analysis options.

## Delivery and Installation

An authorized service provider delivers the system, uncrates components, and places the instrument on the lab bench. Make sure that the lab space and bench are ready before delivery.



### CAUTION

Only authorized personnel can uncrate, install, or move the instrument. Mishandling of the instrument can affect the alignment or damage instrument components.

An Illumina representative installs and prepares the instrument. When connecting the instrument to a data management system or remote network location, make sure that the path for data storage is selected before the date of installation. The Illumina representative can test the data transfer process during installation.



### CAUTION

After your Illumina representative has installed and prepared the instrument, **do not** relocate the instrument. Moving the instrument improperly can affect the optical alignment and compromise data integrity. If you have to relocate the instrument, contact your Illumina representative.

## Crated Dimensions and Contents

The MiniSeq System is shipped in one crate. Use the following dimensions to determine the minimum door width required to accommodate the shipping container.

Measurement	Crated Dimensions
Height	82.5 cm (32.5 in)
Width	86.4 cm (34 in)
Depth	63.0 cm (25 in)
Weight	59 kg (130 lb)

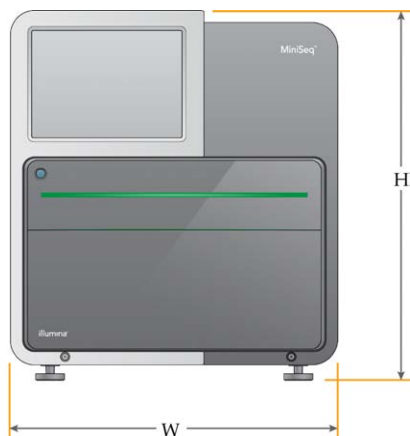
The crate contains the instrument along with the following components:

- ▶ Spent reagents bottle
- ▶ Wash cartridge
- ▶ Wash flow cell
- ▶ Power cord
- ▶ Accessories kit, which contains the following components:
  - ▶ Keyboard
  - ▶ Network cable, shielded CAT 5e
  - ▶ Hex wrench, 5 mm

## Laboratory Requirements

Use the specifications and requirements provided in this section to set up your lab space.

### Instrument Dimensions



Measurement	Instrument Dimensions (Installed)
Height	51.8 cm (20.4 in)
Width	45.6 cm (18 in)
Depth	48.0 cm (18.9 in)
Weight	45 kg (99 lb)

## Placement Requirements

Position the instrument to allow proper ventilation, access to the power switch and power outlet, and access for servicing the instrument.

- ▶ Make sure that you can reach around the left-side of the instrument to access the power switch on the back panel.
- ▶ Position the instrument so that personnel can quickly disconnect the power cord.
- ▶ Make sure that the instrument is accessible from all sides.

Access	Minimum Clearance
Sides	Allow at least 61 cm (24 in) on each side of the instrument.
Rear	Allow at least 15.25 cm (6 in) behind the instrument.
Top	Allow at least 61 cm (24 in) above the instrument.



### CAUTION

Moving the instrument improperly can affect the optical alignment and compromise data integrity. If you have to relocate the instrument, contact your Illumina representative.

## Lab Bench Guidelines

The instrument includes precision optical elements. Place the instrument on a sturdy lab bench away from sources of vibration.

Width	Height	Depth	Casters
122 cm (48 in)	91.4 cm (36 in)	76.2 cm (30 in)	Optional

For North American customers, Illumina recommends the following lab bench: Bench-Tek Solutions ([www.bench-tek.com](http://www.bench-tek.com)), part # BT40CR-3048BS-PS.

## Vibration Guidelines

Use the following guidelines to minimize vibrations during sequencing runs and ensure optimal performance:

- ▶ Place the instrument on a sturdy lab bench.
- ▶ Do not place other equipment on the bench that can produce vibrations, such as a shaker, vortexer, centrifuge, or instruments with heavy fans.
- ▶ Do not place objects on top of the instrument.
- ▶ When the instrument is sequencing, do not open the reagent compartment door, rear service panel, or flow cell compartment.

## Lab Setup for PCR Procedures

Some library prep methods require the polymerase chain reaction (PCR) process.

Establish dedicated areas and lab procedures to prevent PCR product contamination before you begin work in the lab. PCR products can contaminate reagents, instruments, and samples, delaying normal operations and causing inaccurate results.

## Establish Pre-PCR and Post-PCR Areas

- ▶ Establish a pre-PCR area for pre-PCR processes.
- ▶ Establish a post-PCR area for processing PCR products.
- ▶ Do not use the same sink to wash pre-PCR and post-PCR materials.
- ▶ Do not use the same water purification system for pre-PCR and post-PCR areas.
- ▶ Store supplies used in pre-PCR protocols in the pre-PCR area, and transfer to the post-PCR area as needed.

## Dedicate Equipment and Supplies

- ▶ Do not share equipment and supplies between pre-PCR and post-PCR processes. Dedicate a separate set of equipment and supplies in each area.
- ▶ Establish dedicated storage areas for consumables used in each area.

## Required Storage for Sequencing Consumables

Item (1 per run)	Storage Requirement
Reagent cartridge	-25°C to -15°C
Flow cell	2°C to 8°C

## Electrical Requirements

### Power Specifications

Type	Specification
Line Voltage	100–240 Volts AC @ 50/60 Hz
Peak Power Consumption	240 Watts

### Receptacles

Your facility must be wired with the following equipment:

- ▶ **For 100–120 Volts AC**—A 15 Amp grounded, dedicated line with proper voltage and electrical ground is required. North America and Japan—Receptacle: NEMA 5-15
- ▶ **For 220–240 Volts AC**—A 10 Amp grounded line with proper voltage and electrical ground is required. If the voltage fluctuates more than 10%, a power line regulator is required.

### Protective Earth



The instrument has a connection to protective earth through the enclosure. The safety ground on the power cord returns protective earth to a safe reference. The protective earth connection on the power cord must be in good working condition when using this device.

## Power Cords

The instrument is equipped with an international standard IEC 60320 C13 receptacle and is shipped with a region-specific power cord.

Hazardous voltages are removed from the instrument only when the power cord is disconnected from the AC power source.

To obtain equivalent receptacles or power cords that comply with local standards, consult a third-party supplier such as Interpower Corporation ([www.interpower.com](http://www.interpower.com)).



### CAUTION

Never use an extension cord to connect the instrument to a power supply.

## Fuses

The instrument contains no user-replaceable fuses.

## Uninterruptible Power Supply

A user-supplied uninterruptible power supply (UPS) is highly recommended. Illumina is not responsible for runs affected by interrupted power regardless of whether the instrument is connected to a UPS. Standard generator-backed power is often *not* uninterruptible and a brief power outage is typical before power resumes.

The following table lists region-specific recommendations.

Specification	APC Smart UPS 2200 VA LCD 120 V (Japan/North America)	APC Smart UPS 2200 VA LCD 230 V (International)
Maximum Power	1920 W	1980 W
Input Voltage (nominal)	100–120 VAC	220–240 VAC
Input Frequency	50/60 Hz	50/60 Hz
Input Connection	NEMA 5-20P	IEC-320 C13
Typical Run Time (300 W)	90 minutes	90 minutes
Typical Run Time (600 W)	40 minutes	40 minutes

To obtain an equivalent UPS that complies with local standards for facilities outside the referenced regions, consult a third-party supplier such as Interpower Corporation ([www.interpower.com](http://www.interpower.com)).

## Environmental Considerations

Element	Specification
Temperature	Maintain a lab temperature of 19°C to 25°C (22°C $\pm$ 3°C). During a run, do not allow the ambient temperature to vary more than $\pm$ 2°C.
Humidity	Maintain a noncondensing relative humidity between 20–80%.
Elevation	Locate the instrument at an elevation below 2000 meters (6500 feet).
Air Quality	Operate the instrument in an indoor environment with air particulate cleanliness levels per ISO 9 (ordinary room air), or better.
Vibration	Limit environmental vibration to ISO office level, or better.

## Heat Output

Peak Power Consumption	Thermal Output
240 Watts	819 BTU/hour

## Noise Output

Noise Output (dB)	Distance from Instrument
< 62 dBA	1 meter (3.3 feet)

A measurement of < 62 dBA is within the level of a normal conversation at a distance of approximately 1 meter (3.3 feet).

## Antivirus Software

An antivirus software of your choice is highly recommended to protect the instrument control computer against viruses.

To avoid data loss or interruptions, configure the antivirus software as follows:

- ▶ Set for manual scans. Do not enable automatic scans.
- ▶ Perform manual scans only when the instrument is not in use.
- ▶ Set updates to download without user authorization, but not install.
- ▶ Do not update during instrument operation. Update only when the instrument is not running and when it is safe to reboot the instrument computer.
- ▶ Do not reboot the computer automatically upon update.

## Network and Computer Security

The following sections provide guidelines for maintaining network and computer security.

### Control Computer Security

The control computer combines Windows Software Restriction Policies (SRP) and user-supplied antivirus software for enhanced security. SRP increases the reliability, integrity, and manageability of computers in a domain. By restricting configurations, only identified applications can run.

If necessary, turn off or reconfigure SRP. For more information, see the *MiniSeq System Guide (document # 1000000002695)*.

### Network Considerations

A network connection is required for transferring sequencing run data to a network location. An internet connection is required to connect to BaseSpace. An internet connection also enables system notifications about software updates and installation of updates from the MiniSeq Control Software interface.

### Network Connections

Use the following recommendations to install and configure a network connection:

- ▶ Use a 1 gigabit connection between the instrument and your data management system. This connection can be made directly or through a network switch.



- ▶ For network connections, a shielded CAT 5e network cable of 3 meters (9.8 feet) in length is provided with the instrument.
- ▶ Configure Windows Updates to prevent automatic updates.
- ▶ If you are using BaseSpace, use a minimum network connection of 10 Mbps.

## Local Run Manager Domains

The following domains provide access from Universal Copy Service to Local Run Manager and Illumina Proactive. Some Enterprise addresses include a user-defined domain field. This custom field is reserved with {domain}.

Instance	Address
US Enterprise	{domain}.basespace.illumina.com
	{domain}.api.basespace.illumina.com
	basespace-data-east.s3-external-1.amazonaws.com
	basespace-data-east.s3.amazonaws.com
	instruments.sh.basespace.illumina.com
EU Enterprise	{domain}.euc1.sh.basespace.illumina.com
	{domain}.api.euc1.sh.basespace.illumina.com
	euc1-prd-seq-hub-data-bucket.s3.eu-central-1.amazonaws.com
	instruments.sh.basespace.illumina.com
AUS Enterprise	{domain}.aps2.sh.basespace.illumina.com
	{domain}.api.aps2.sh.basespace.illumina.com
	instruments.sh.basespace.illumina.com
	aps2-sh-prd-seq-hub-data-bucket.s3.ap-southeast-2.amazonaws.com
US Basic and Professional	basespace.illumina.com
	api.basespace.illumina.com
	basespace-data-east.s3-external-1.amazonaws.com
	basespace-data-east.s3.amazonaws.com
	instruments.sh.basespace.illumina.com
EU Basic and Professional	euc1.sh.basespace.illumina.com
	api.euc1.sh.basespace.illumina.com
	euc1-prd-seq-hub-data-bucket.s3.eu-central-1.amazonaws.com
	instruments.sh.basespace.illumina.com
AUS Basic and Professional	aps2.sh.basespace.illumina.com
	api.aps2.sh.basespace.illumina.com
	instruments.sh.basespace.illumina.com
	aps2-sh-prd-seq-hub-data-bucket.s3.ap-southeast-2.amazonaws.com
GC Basic and Professional	cnn1.sh.basespace.illumina.com.cn
	api.cnn1.sh.basespace.illumina.com.cn
	instruments.sh.basespace.illumina.com.cn
	cn-sh-cnn1-prod-seq-hub-data-bucket.s3.cn-north-1.amazonaws.com.cn

## Network Support

Illumina does not install or provide technical support for network connections.

Review network maintenance activities for potential compatibility risks with the Illumina system, including the following risks:

- ▶ **Removal of the Group Policy Objects (GPOs)**—GPOs can affect the operating system (OS) of connected Illumina resources. OS changes can disrupt the proprietary software in Illumina systems. Illumina instruments have been tested and verified to operate correctly. After connecting to domain GPOs, some settings might affect the instrument software. If the instrument software operates incorrectly, consult your facility IT administrator about possible GPO interference.
- ▶ **Activation of Windows Firewall and Windows Defender**—These Windows products can affect the OS resources used by Illumina software. Install antivirus software to protect the instrument control computer.
- ▶ **Changes to the privileges of preconfigured users**—Maintain existing privileges for preconfigured users. Make preconfigured users unavailable as needed.

## User-Supplied Consumables and Equipment

The following consumables and equipment are used for sequencing and system maintenance. For more information, see the *MiniSeq System Guide (document # 1000000002695)*.

### Consumables for Sequencing

Consumable	Supplier	Purpose
1 N NaOH (sodium hydroxide)	General lab supplier	Library denaturation, diluted to 0.1 N
10 mM Tris-HCl, pH 8.5	General lab supplier	Diluting libraries and an optional PhiX control before denaturation
200 mM Tris-HCl, pH 7.0	General lab supplier	Neutralizing libraries and an optional PhiX control after denaturation
Isopropyl alcohol wipes, 70% or Ethanol, 70%	VWR, catalog # 95041-714 (or equivalent) General lab supplier	Flow cell cleaning and general purpose
Disposable gloves, powder-free	General lab supplier	General purpose
Lab tissue, low-lint	VWR, catalog # 21905-026 (or equivalent)	Flow cell cleaning

### Consumables for Maintenance and Troubleshooting

Consumable	Supplier	Purpose
NaOCl, 5% (sodium hypochlorite)	Sigma-Aldrich, catalog # 239305 (or laboratory-grade equivalent)	Performing a manual post-run wash; diluted to 0.12%
Tween 20	Sigma-Aldrich, catalog # P7949	Performing a manual instrument wash; diluted to 0.05%
Water, laboratory-grade	General lab supplier	Performing a manual instrument wash

## Guidelines for Laboratory-Grade Water

Always use laboratory-grade water or deionized water to perform instrument procedures. Never use tap water. Use only the following grades of water or equivalents:

- ▶ Deionized water
- ▶ Illumina PW1
- ▶ 18 Megohms (M $\Omega$ ) water
- ▶ Milli-Q water
- ▶ Super-Q water
- ▶ Molecular biology grade water

## Equipment

Item	Source
Freezer, -25°C to -15°C, frost-free	General lab supplier
Ice bucket	General lab supplier
Refrigerator, 2°C to 8°C	General lab supplier

## Revision History

Document	Date	Description of Change
Document # 1000000002696 v01	February 2020	Updated and added BSSH domains. Added 200 mM Tris-HCl, pH 7.0 and Tris-HCl, pH 7.0 to the list of user-supplied consumables. Added Software Restriction Policy information. Removed reference to the Illumina Security Best Practices guide. Minor text edits.
Document # 1000000002696 v00	January 2016	Initial release.

## Technical Assistance

For technical assistance, contact Illumina Technical Support.

Website: [www.illumina.com](http://www.illumina.com)  
 Email: [techsupport@illumina.com](mailto:techsupport@illumina.com)

### Illumina Customer Support Telephone Numbers

Region	Toll Free	Regional
North America	+1.800.809.4566	
Australia	+1.800.775.688	
Austria	+43 800006249	+43 19286540
Belgium	+32 80077160	+32 34002973
China	400.066.5835	
Denmark	+45 80820183	+45 89871156
Finland	+358 800918363	+358 974790110
France	+33 805102193	+33 170770446
Germany	+49 8001014940	+49 8938035677
Hong Kong, China	800960230	
Ireland	+353 1800936608	+353 016950506
Italy	+39 800985513	+39 236003759
Japan	0800.111.5011	
Netherlands	+31 8000222493	+31 207132960
New Zealand	0800.451.650	
Norway	+47 800 16836	+47 21939693
Singapore	+1.800.579.2745	
South Korea	+82 80 234 5300	
Spain	+34 911899417	+34 800300143
Sweden	+46 850619671	+46 200883979
Switzerland	+41 565800000	+41 800200442
Taiwan, China	00806651752	
United Kingdom	+44 8000126019	+44 2073057197
Other countries	+44.1799.534000	

Safety data sheets (SDSs)—Available on the Illumina website at [support.illumina.com/sds.html](http://support.illumina.com/sds.html).

Product documentation—Available for download from [support.illumina.com](http://support.illumina.com).



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