

# NeoPrep Library Prep System

## Site Prep Guide

For Research Use Only. Not for use in diagnostic procedures.

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## Revision History

Document	Date	Description of Change
Document # 15050812 v01	October 2015	Added required pipettes and tips to <i>Consumables and Equipment</i>
Part # 15050812 Rev. B	March 2015	Changed BaseSpace resource to BaseSpace help ( <a href="http://help.basespace.illumina.com">help.basespace.illumina.com</a> ) Corrected humidity operating conditions to 20–80% relative humidity (noncondensing).
Part # 15050812 Rev. A	March 2015	Initial release.

## Introduction

This guide provides specifications and guidelines to prepare your site for installation and operation of the Illumina® NeoPrep™ Library Prep System:

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

## Additional Resources

The following documentation is available for download from the Illumina website.

Resource	Description
<i>NeoPrep System Safety and Compliance Guide</i> (document # 15050811)	Provides information about instrument labeling, compliance certifications, and safety considerations.
<i>NeoPrep Library Prep System Guide</i> (document # 15049720)	Provides an overview of system components and software, instructions for performing library prep runs, and procedures for proper instrument maintenance and troubleshooting.
BaseSpace help ( <a href="http://help.basespace.illumina.com">help.basespace.illumina.com</a> )	Provides information about the BaseSpace® sequencing data analysis tool that also enables you to organize samples, libraries, pools, and sequencing runs in a single environment.

Visit the NeoPrep support page on the Illumina website for access to documentation, software downloads, online training, and frequently asked questions.

## Delivery and Installation

An authorized service provider delivers the instrument, removes the system from the box, and places it on the lab bench. Make sure that the lab space and bench are ready before delivery.

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

If you move the instrument after it is installed, hold it horizontally. After any move, verify the system using the NeoPrep Test Card. For more information, see *System Check* in the *NeoPrep Library Prep System Guide* (document # 15049720).

## Boxed Dimensions and Contents

The NeoPrep Library Prep System is shipped in a cardboard box with a wooden pallet strapped to the bottom. Use the following dimensions to determine the minimum door width required to accommodate the shipping container.

Measurement	Boxed Dimensions with Pallet
Height	64.77 cm (25.5 in)
Width	57.15 cm (22.5 in)
Depth	55.88 cm (22 in)
Weight	30 kg (67 lbs.)

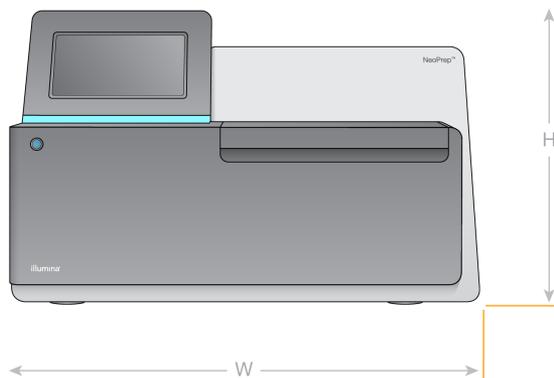
The box contains the instrument along with the following components:

- ▶ *NeoPrep Library Prep System Guide* (document # 15049720)
- ▶ *NeoPrep System Safety and Compliance Guide* (document # 15050811)
- ▶ Accessories Kit, which contains the following components:
  - ▶ Power cord
  - ▶ Ethernet cable
  - ▶ 2D hand-held barcode scanner
  - ▶ NeoPrep Test Card
  - ▶ Wrench (for adjusting instrument feet)

## Laboratory Requirements

This section provides specifications and requirements for setting up your lab space. For more information, see *Environmental Considerations* on page 8.

### Instrument Dimensions



Measurement	Instrument Dimensions
Height	34.3 cm (13.5 in)
Width	51.3 cm (20.2 in)
Depth	41.4 cm (16.3 in)
Weight	21 kg (46 lbs.)

### 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 turn on or turn off the power switch on the back panel.
- ▶ Position the instrument so that personnel can quickly disconnect the power cord from the outlet.
- ▶ Make sure that the instrument is accessible from all sides.

Access	Minimum Clearance
Sides	Allow at least 7.6 cm (3 in) on each side of the instrument. To reserve space for pipette tips and reagents during loading, allow at least 30.5 cm (12 in) on each side.
Rear	Allow at least 10.2 cm (4 in) behind the instrument.
Top	Allow at least 15.2 cm (6 in) above the instrument. If the instrument is positioned under a shelf, make sure that the minimum clearance requirement is met.

## 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

## Vibration Guidelines

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

- ▶ Place the instrument on a sturdy lab bench.
- ▶ Do not place any other equipment on the bench that might induce vibrations, such as a shaker, vortexer, centrifuge, or instruments with heavy fans.
- ▶ When the instrument is running, do not open the library card compartment door.
- ▶ Do not place anything on top of the instrument.

## 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, causing inaccurate results and delay normal operations.

### 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.

# Electrical Requirements

## Power Specifications

- ▶ Line Voltage: 100–240 Volts AC @ 50/60 Hz
- ▶ Power Consumption: 220 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 comes with an international standard IEC 60321-1 C14 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

Only Illumina Field Service Engineers are qualified to replace the fuses. The power entry module includes 2 input fuses on the high-voltage input lines. These fuses are rated for 7 Amps, 250 Vac, Slo-Blo.

## 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 C20
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	Transportation and Storage: -20°C to 60°C (-4°F to 140°F). Operating Conditions: 19°C to 25°C (66°F to 77°F).
Humidity	Transportation and Storage: 20–80% Relative Humidity Operating Conditions: 20–80% Relative Humidity (noncondensing)
Elevation	Locate the instrument at an elevation below 2000 meters (6500 feet).
Air Quality	Operate the instrument in a Pollution Degree II environment or better. A Pollution Degree II environment is defined as an environment that normally includes only nonconductive pollutants.
Ventilation	Consult your facilities department for ventilation requirements sufficient for the level of heat output expected from the instrument.

### Heat Output

Measured Power	Thermal Output
220 Watts	751 BTU/hour

### Noise Output

Noise Output (dB)	Distance from Instrument
< 60 dB	1 meter (3.3 feet)

A measurement of < 60 dB is within the level of a normal conversation at a distance of approximately 1 meter (3.3 feet).

## Network Considerations

The NeoPrep is designed for use with or without a network connection, however some functions are not available without a network connection. Run data are saved to the local drive on the NeoPrep and an option is provided to also save the data to a network drive.

The following operations require an internet connection:

- ▶ Connection to BaseSpace.
- ▶ Receive and install software updates from the NeoPrep Control Software interface.
- ▶ Save run data from the instrument to a network drive.
- ▶ Send instrument health information to Illumina.

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 CAT6 network cable of 3 meters (9.8 feet) in length is provided with the instrument.
- ▶ Illumina recommends a minimum network connection of no less than 10 Mbps.
- ▶ Upon connection to a network, configure Windows Update so that the NeoPrep does not automatically update. Illumina recommends waiting 1 month after a Windows release before allowing an update.

## Network Support

Illumina does not provide installation or technical support for networking the instrument.

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

- ▶ **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 that Illumina software accesses. Illumina recommends installing antivirus software to protect the instrument control computer against viruses. For more information, see *Antivirus Software* on page 10.
- ▶ **Changes to the privileges of preconfigured users**—Illumina recommends maintaining existing privileges for preconfigured users. However, the preconfigured users can be made unavailable.

## 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.

## Consumables and Equipment

The following consumables and equipment are required for use with the NeoPrep. For more information, see the *NeoPrep Library Prep System Guide (document # 15049720)*. Use the required pipettes and tips. Other pipettes and tips are not supported and can result in reagents not dispensing properly and run failure.

Also see the library prep guide, for the kit that you are using, for additional user-supplied consumables and equipment requirements.

### Pipettes and Tips

Volume	Use	Product Name	Supplier
20 µl	≤ 20 µl	Pipet-Lite XLS+ 8-channel LTS, 2 µl to 20 µl	Rainin, catalog # L8-20XLS+
		One of the following: <ul style="list-style-type: none"> <li>LTS tips 20 µl. Presterilized. Filter</li> <li>ART Barrier Pipette Tips 20 µl; 20 µl SoftFit-L</li> </ul>	<ul style="list-style-type: none"> <li>Rainin, catalog # RT-L10F</li> <li>Fisher Scientific, catalog # 2749RI</li> </ul>
200 µl	21–200 µl	Pipet-Lite XLS+ 8-channel LTS, 20 µl to 200 µl	Rainin, catalog # L8-200XLS+
		One of the following: <ul style="list-style-type: none"> <li>LTS tips 200 µl. Presterilized. Filter</li> <li>ART Barrier Pipette Tips 200 µl; 200 µl SoftFit-L</li> </ul>	<ul style="list-style-type: none"> <li>Rainin, catalog # RT-L200F</li> <li>Fisher Scientific, catalog # 2769RI</li> </ul>

### Consumables

Item	Supplier
Alcohol wipes, 70% Isopropyl or Ethanol, 70%	VWR, catalog # 15648-981 or equivalent General lab supplier
Deionized or distilled water	General lab supplier
Disposable gloves, powder-free	General lab supplier
Dust-free tissues	VWR, catalog # 52846-001 or equivalent
Paper towels or lint-free cotton cloths	General lab supplier

## Equipment

Item	Supplier
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
[Optional] Computer keyboard	General lab supplier
[Optional] Computer mouse	General lab supplier
[Optional] UPS—See <i>Uninterruptible Power Supply</i> on page 7 for specifications.	General lab supplier

## Technical Assistance

For technical assistance, contact Illumina Technical Support.

**Table 1** Illumina General Contact Information

<b>Website</b>	www.illumina.com
<b>Email</b>	techsupport@illumina.com

**Table 2** Illumina Customer Support Telephone Numbers

Region	Contact Number	Region	Contact Number
North America	1.800.809.4566	Italy	800.874909
Australia	1.800.775.688	Netherlands	0800.0223859
Austria	0800.296575	New Zealand	0800.451.650
Belgium	0800.81102	Norway	800.16836
Denmark	80882346	Spain	900.812168
Finland	0800.918363	Sweden	020790181
France	0800.911850	Switzerland	0800.563118
Germany	0800.180.8994	United Kingdom	0800.917.0041
Ireland	1.800.812949	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 in PDF from the Illumina website. Go to [support.illumina.com](http://support.illumina.com), select a product, then select **Documentation & Literature**.



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