

# Juno System

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## Introduction

Fluidigm technical support will schedule a time to install the Juno™ system at your site and train your staff to use the system. Before a Fluidigm service representative arrives to install the system, you need to choose and prepare your site according to the instructions in this document.

Notify your Fluidigm representative if special shipping arrangements are necessary at your site, or if you need assistance in placing the Juno system.

### Installation Time Estimate

Installation of the Juno system is estimated to take one day.

### Site Preparation Workflow

To choose your site and prepare for the installation of the Juno system:

- 1 Review this guide.
- 2 Select a site for the Juno system.
- 3 Receive the system.
- 4 Place the crated and boxed components at the site.

## Step 1: Review This Guide

Read and understand this guide for information on all Juno system site requirements, including safety, environmental, electrical, and space requirements.

For a complete list of reagents and consumables used with the Juno system, see the appropriate user guide or protocol. For a list of user guides, see [Appendix A: Related Documentation on page 10](#).

## Step 2: Select a Site for the Juno System

To operate the Juno system, your site must meet the following requirements:

- Harmonized standards
- Environmental conditions
- System dimensions and laboratory bench requirements
- Electrical requirements
- (Optional) In-house air supply



**WARNING** The installation location **cannot** be done at a site designated BioSafety Level 3 (BSL-3) or BioSafety Level 4 (BSL-4). Fluidigm does not install, service, or repair the Juno system in areas designated BSL-3 or BSL-4.

### Harmonized Standards

The following harmonized standards were used to evaluate the safety and performance of the Juno system:

- IEC/EN 61326-1
- IEC/EN 61010-1
- IEC/EN 61010-2-010
- IEC/EN 61010-2-081
- UL Standard Number 61010-1 2nd Edition
- CAN/CSA-C22.2 No. 61010-1-04
- CAN/CSA-C22.2 No. 61010-2-010:4
- CAN/CSA-C22.2 No. 61010-2-081-04

### Environmental Conditions

Juno is for indoor use only and should be used in an environment that meets these conditions:

Conditions	Requirements
Temperature	Ambient between 15–28 °C (59–82 °F), stable <b>IMPORTANT</b> Do not locate the system next to heat sources or cooling ducts, or in direct sunlight or extreme ambient lighting. Temperature extremes can cause system instability.
Humidity (relative)	20–80%, non-condensing
Pollution	Degree 2 rating, whereby only nonconductive pollution occurs for electrical and laboratory equipment. Juno conforms to standard laboratory environments. Do not install the system where conductive pollutants are present.

Conditions	Requirements
Electrical Installation	Category II
Altitude	Juno is for use in altitudes not exceeding 2,000 m (6,562 ft) above sea level.
Ventilation	<p>Ensure your lab space is ventilated using non-recirculating air exchanges.</p> <p>Maintain at least 10.2 cm (4 in) of clearance at the exhaust grill exit. Juno produces only hot air exhaust (no fumes or vapors). It has an exhaust grill exit at the back of the instrument, and the air intake is on the bottom of the instrument.</p> <p><b>IMPORTANT</b> Do not place paper or any object underneath the instrument.</p>

## System Dimensions and Laboratory Bench Requirements

The Juno system is a benchtop instrument. Provide a work surface that can accommodate Juno. There must be provisions to address seismic concerns, such as straps or other devices to secure the system to a bench or wall.

### IMPORTANT

- Your laboratory bench must support at least 91 kg (200 lb).
- During a run, be certain that the instrument is on a sturdy, immobilized lab bench that is away from vibration-generating lab equipment (such as shakers, vortexers, centrifuges, or instruments with heavy fans) and from doors that might generate vibrations when opening or closing.
- Do not place the system on a heated surface or near a source of heat.
- Position the system so the power cord can be easily disconnected.

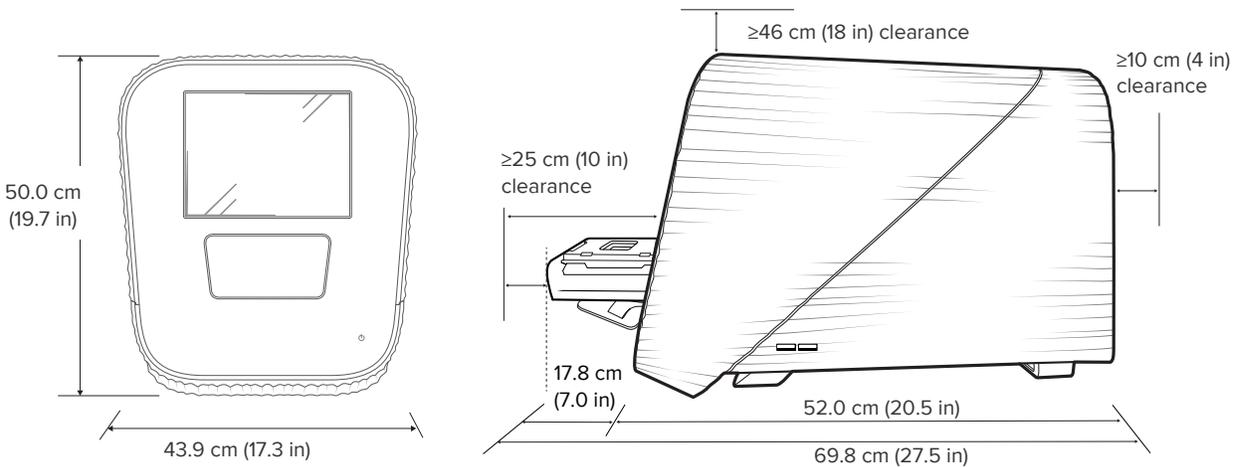
To accommodate one instrument, you will need to consider the following dimensions:

Component	Height	Width	Length or Depth
Juno instrument	50 cm (19.7 in)	43.9 cm (17.3 in)	69.8 cm (27.5 in)

At least three feet of total “service area” clearance should be available on either side of Juno so that it can be rotated 360° if required. The clearance need not be retained at all times. However, any ancillary equipment occupying that space should be easily movable.

To allow for adequate air circulation and maintenance, the recommended instrument clearance is as follows:

	Front	Top	Sides	Back
Minimum clearance	25 cm (10 in)	46 cm (18 in)	15.2 cm (6 in)	10 cm (4 in)



## Electrical Requirements

This section applies to the Juno instrument.

### Instrument Electrical Requirements

The Juno system requires one electrical power outlet. The system operates through 100–240 V AC power at 50–60 Hz, (8.0 amps). Power consumption is variable due to ambient conditions, such as temperature and humidity extreme, operating frequency, and mode of operation.

Customer Location	Voltage (VAC)	Frequency (Hz)	Maximum Current (A)	Typical Average Power Consumption (W)
US, Canada	115 ±10%	50-60 ±1%	8.0	Idle: 40 Operating: 175
Japan	100 ±10%	50-60 ±1%	8.0	Idle: 40 Operating: 175
Europe, Australia	230 ±10%	50-60 ±1%	3.7	Idle: 40 Operating: 175

**IMPORTANT** Fluidigm recommends a UPS with voltage regulating capability to prevent damage to the equipment due to power fluctuations. See the [Uninterruptible Power Supply Recommendation on page 6](#).

### Power Cord Requirements

Fluidigm provides a country-specific power cord.

Customer Location	Minimum Wire Gauge (AWG)	Maximum Length	Instrument End Plug	Receptacle End Plug
US, Canada, Japan, Europe, Australia	16	2 m (6 ft)	IEC C13	Country-specific

### IMPORTANT

- The instrument has a connection to protective earth through the power cord provided by Fluidigm. Ensure that the electrical receptacle provides an earth ground before connecting the power cord.
- Use only power cords provided by Fluidigm.
- Do not use extension cords.



### Receptacle Requirements

When connecting this instrument to a receptacle, check with your site's Facilities department to make sure the circuit will not be overloaded. If you are connecting multiple instruments to the same electrical receptacle or circuit, be sure the sum of all the instruments' maximum current draw is within the circuit's current limit. Receptacles must be grounded. Juno requires only one grounded electrical connection.

### Disconnecting Power

In case of emergency, you must be able to immediately disconnect the main power supply to the instrument.

### Uninterruptible Power Supply Recommendation

Fluidigm strongly recommends that you protect your Juno system with an uninterruptible power supply (UPS) with voltage regulating capability, such as an APC Smart-UPS™ (APC, PN SRT3000XLW-IEC or equivalent) with battery power (APC, PN SRT96BP or equivalent), to prevent any damage to the equipment because of power fluctuations. For customers who will connect the instrument to backup power in the event of power loss, Fluidigm recommends purchasing sufficient UPS battery power to support the transition from UPS to backup power at your site.

Conditions	Requirements
UPS type	Double conversion online (AC to DC to AC for cleanest power)
Output power capacity	2.7 kW/3.0 kVA
Power factor	0.9
Backup time (run time)	7 minutes (for a longer backup time, install additional battery packs)
APC battery power (optional)	30 minutes
Power draw (load)	175 W

## In-House Air Supply (optional)

Juno has an internal compressor to generate compressed air and draws in ambient air by default. The instrument can draw in-house air, and it must be clean dry air (CDA). To use in-house compressed air, attach 1/4-inch outside diameter tubing into the air inlet on the back of the system. The allowable pressure input is listed on the back of the instrument.

For detailed instructions on enabling use of in-house air, see the Juno System User Guide (PN 100-7070).

## Site Safety

**IMPORTANT** Safety personnel at your company must ensure that:

- Safety policies to protect laboratory personnel from potential harm are established and are followed by personnel.
- All necessary safety devices and equipment are in the laboratory or in close proximity.

Fluidigm expects your laboratory to have safety policies in place to protect laboratory personnel from potential harm. We expect that appropriate safety practices are followed at all times.

## Step 3: Receive the System

For new Juno system installations, you can anticipate receiving the Juno system, crated.

Because the crated Juno system weighs approximately 72 kg (160 lb), consider where it is going to be delivered and how to get it to and into your laboratory.

### Juno Crated System Size and Weight Specifications



**WARNING PHYSICAL INJURY HAZARD.** Do not attempt to lift or move any boxed or crated items unless you use proper lifting techniques. The crated Juno weighs approximately 72 kg (160 lb).

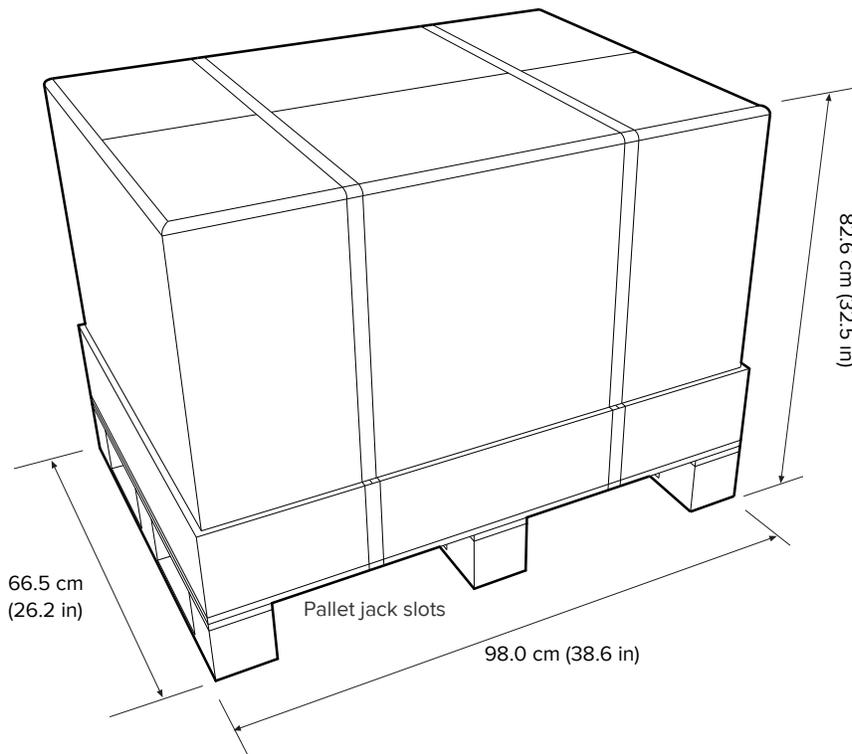


Figure 1. Dimensions of crated Juno

The measurements for the Juno system as shipped are:

	Length	Width	Height	Weight
Crated Juno	98.0 cm (38.6 in)	66.5 cm (26.2 in)	82.6 cm (32.5 in)	72 kg (160 lb)

The uncrated measurements for the Juno system are:

	Length	Width	Height	Weight
Uncrated Juno	69.8 cm (27.5 in)	43.9 cm (17.3 in)	50.0 cm (19.7 in)	52 kg (115 lb)

## Delivery and System Inspection

Use this checklist to perform a check of all delivered components:

- Check the packing list against the original order.
- Check all boxes and crates for damage.
- Note any damage and report it to the Fluidigm Service Representative.
- Locate the reagent kit (if ordered) and unpack it immediately.
- Store each component of the reagent kit at the appropriate temperature according to the instructions.

## Step 4: Place the System at the Site

**NOTE** Notify your Fluidigm representative if you need assistance in placing the Juno system.

Remove all unnecessary materials from the proposed installation site prior to the arrival of the Fluidigm field service engineer.

Have the crated Juno system at its permanent location prior to the arrival of a field service engineer. Wait for the engineer to arrive before unpacking the crate.



**WARNING** PHYSICAL INJURY HAZARD. The instrument is to be moved and positioned only by the Fluidigm service representative. The crated Juno system weighs approximately 72 kg (160 lb).



**WARNING** PHYSICAL INJURY HAZARD. Do not attempt to lift or move any boxed or crated items unless you use proper lifting techniques. The crated Juno weighs approximately 72 kg (160 lb).

If you choose to lift or move the Juno system after it has been installed, do not attempt to do so without the assistance of others. Use appropriate moving equipment and proper lifting techniques to minimize the chance of physical injury.



**WARNING** Do not tip the Juno system on end. Tipping damages the instrument hardware and electronics.

## Path Clearances

**IMPORTANT** A clear path from the loading dock to the laboratory bench must be established. The path must accommodate the dimensions of the crate.

Ensure the path to the installation site has the following minimum clearances:

	Width	Height
Minimum path clearance	102 cm (40 in)	91 cm (36 in)

## Installation

Before the installation date, be certain that you have done the following:

- Removed all unnecessary materials from the proposed final installation site
- Received the Juno system and performed a visual check of the crate and containers
- Moved the crated and boxed equipment from the receiving location to the installation area. Crates that needed to be transported via forklift or other means to the installation area should be moved prior to arrival of the Fluidigm field service engineer.
- Placed the crated and boxed components at their final and permanent location.

Contact your Fluidigm representative if you require assistance with any of these steps.

## Appendix A: Related Documentation

Document Title	Part Number
Juno System User Guide	100-7070
Advanta™ NGS Library Preparation with Juno Protocol	101-7878
Genotyping with Juno Getting Started Guide	100-7074
Targeted Sequencing Preparation with Juno Getting Started Guide	101-0414

## Appendix B: Safety

The instrument should be serviced by authorized personnel only.



**WARNING** Do not modify this instrument. Unauthorized modifications may create a safety hazard.



**WARNING** BIOHAZARD. If you are putting biohazardous material on the instrument, use appropriate personal protective equipment and adhere to Biosafety in Microbiological and Biomedical Laboratories (BMBL), a publication from the Centers for Disease Control and Prevention, and to your lab's safety protocol to limit biohazard risks. If biohazardous materials are used, properly label the equipment as a biohazard. For more information, see the BMBL guidelines online at [cdc.gov/biosafety/publications/index.htm](http://cdc.gov/biosafety/publications/index.htm).



**WARNING** PHYSICAL INJURY HAZARD. The instrument is to be moved and positioned only by the Fluidigm service representative. The crated Juno system weighs approximately 90 kg (198 lb).



**WARNING** PHYSICAL INJURY HAZARD. Do not attempt to lift or move any boxed or crated items unless you use proper lifting techniques. The crated Juno weighs approximately 90 kg (198 lb).

If you choose to lift or move the Juno system after it has been installed, do not attempt to do so without the assistance of others. Use appropriate moving equipment and proper lifting techniques to minimize the chance of physical injury.



**WARNING** Do not tip the Juno system on end. Tipping damages the instrument hardware and electronics.

## Electrical Safety

**NOTE** The main power disconnect is on the rear panel of the instrument.



**WARNING** ELECTRICAL HAZARD. DO NOT REMOVE THE COVERS. Electrical shock can result if the instrument is operated without its protective covers. No internal components are serviceable by the user.



**WARNING** ELECTRICAL HAZARD. Plug the instrument into a properly grounded receptacle with adequate current capacity.

## Chemical Safety

The responsible individuals must take the necessary precautions to ensure that the surrounding workplace is safe and that instrument operators are not exposed to hazardous levels of toxic substances. When working with any chemicals, refer to the applicable safety data sheets (SDSs) provided by the manufacturer or supplier.

**For technical support visit [techsupport.fluidigm.com](https://techsupport.fluidigm.com).**

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