

# Simoa® HD-1/HD-X Analyzer Site Requirements

USER-0006 05



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# 1 Overview

This guide contains general site requirements for the installation and use of the Simoa® HD-1/HD-X Analyzer as well as the basic laboratory instrumentation and consumables required to operate the Analyzer.

For information on using the Analyzer, see either the *Simoa HD-1 Analyzer User Guide* or *Simoa HD-X Analyzer User Guide*.

# 2 Instrument Consumables

Simoa Discs	Part #100001	16 discs
Quanterix® cuvettes	Part #103346	3000 cuvettes (6 bags x 500 ct)
Simoa® Conductive pipette tips	Part #101620	8 boxes of tips (2 x 96 ct)
System Buffer Combo Pack	Part #100488	1 x 5L system wash buffer 1 1 x 3 L system wash buffer 2
Simoa® sealing oil	Part #100206	500 mL bag ~8000 tests
Sample plates	Part #101457	20 conical 96-well plates

# 3 Customer Supplied Materials

## Commercial Assay Kits

<b>Hardware</b>	Standard laboratory vortex mixer
	Ice bucket and ice
	Fixed rotor microcentrifuge capable – 14,000 x g to spin samples
	Mini benchtop centrifuge – e.g. VWR SN1112 0528
	Plate shaker
	Magnetic separator – For capture beads (Discovery kits only)
	Single-channel/multi-channel pipettors and tips – Only required for samples and calibrators

<b>Consumables</b>	Quanterix analyte-specific kit – <a href="http://quanterix.com/products/assay-kits">http://quanterix.com/products/assay-kits</a>
	~60 µL sample (most kits, pre-dilution) – Duplicates
	Deionized water – ~10 liters

## Homebrew Assay Development

<b>Hardware</b>	Magnetic separator for 1.7-mL centrifuge tubes – e.g. Life Technologies DynaMag-2, Ref.12321D
	Fixed rotor microcentrifuge capable – 14,000 x g for 1.7-mL conical tubes
	Mini benchtop centrifuge – e.g. VWR SN1112 0528
	Spectrophotometer (OD280) – e.g. Nanodrop
	Rotator that accommodates 1.7-mL tubes – e.g. HulaMixer or Argos Rotoflex
	Standard laboratory vortex mixer
	Ice bucket and ice
	Single-channel/multi-channel pipettors and tips
	Plate shaker
<b>Consumables</b>	Quanterix Homebrew Assay Starter Kit – Part #101351
	Samples and controls for assay optimization
	Deionized water – ~10 liters
	1.7-mL microcentrifuge tubes
	15-mL tubes
	Simoa Consumables (Discs, Tips, Cuvettes, Buffers 1&2): <ul style="list-style-type: none"> <li>• Simoa Discs Kit P/N 103347 (Contains stack of 16 Simoa Discs, 500 cuvettes, 4 Simoa assay plates with lids, 8-pack of 15 mL bottles and 8 boxes of disposable pipettor tips)</li> <li>• System Buffer Combo Pack (1&amp;2) P/N 100488 (Contains 1x (5 L) System Buffer 1 and 1x (3 L) System Buffer 2)</li> </ul>
<b>Reagents</b>	Capture Antibody – recommended ~300 µg and carrier protein free
	Detection Antibody – recommended ~300 µg and carrier protein free
	Calibrator – ~10 µg depending on assay range

Calibrator/Sample Diluent

## 4 Networking and Remote Support

Quanterix uses remote access software to provide support. Please inform the Field Service Engineer performing the installation if your policies do not allow remote access software to run on computers at your facility.

## 5 Installation Specifications

The instrument must be installed by qualified service personnel only.

Where specifications differ between HD-1 and HD-X Analyzers, details are provided below. Shared specifications are listed without reference to individual platforms.

### Physical Specifications

Weight (without fluids)	HD-1 – 269 kg (593 lb) HD-X – 294 kg (648 lb)
Dimensions	Width: 141.4 cm (55.66 in) Depth: 78.7 cm (31 in) Depth with monitor: 89.7 cm (35.3 in) Height: 161.2 cm (63.5 in)

### Installation & Service Dimension Requirements

Doorway width for installation	80.0 cm (31.5 in)
Service clearance at instrument rear	60.0 cm (23.6 in) If clearance at the rear is not sufficient, enough front clearance must be available to move the instrument away from the wall for service.
Service clearance at instrument sides	60.0 cm (23.6 in)
Operator clearance at instrument front	100.0 cm (39.38 in)
Ventilation clearance at instrument rear	Minimum of 20.5 cm (8 in)

Earthquake safety	For sites that require the system to be secured from tipping due to an earthquake, adhesive straps must be affixed to the <u>rear panel</u> of the instrument only.
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## Power Requirements

### Instrument

Instrument	Electrical receptacles (2 each): <ul style="list-style-type: none"> <li>• Europe: DIN49441</li> <li>• North America: 5 – 15R</li> </ul>
Voltage	100 V – 240 V ± 10%
Frequency	50 – 60 Hz
Input current	7.5 A @100 VAC, 3.2 A @240 VAC
Fuse	Thermal overload protection

### Computer and UPS

Computer	Input: 100 – 240 VAC ~50 – 60 Hz, 300W Ethernet (RJ45)
Recommended UPS	APC Smart-UPS SRT 2200VA 120V

## Environmental Operating Conditions

Operating temperature	18°C to 25°C (64.4°F to 77°F)
Operating humidity	30% to 80%, noncondensing
BTU output during operating conditions (non-standby)	HD-1 – 6142 BTU/Hr HD-X – 3288 BTU/Hr



## Noise Emission

Noise emission	72 dB(A), distance 1 m (39.4 in)
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## Laser Barcode Scanner

Class	Class 2 laser product
Maximal output radiation	1.3 mW
Maximal pulse duration	110 $\mu$ s
Wavelength	650 nm
Reading distance	3.0 – 30.0 cm

## Laser Light Barrier (HD-X)

Maximal output radiation	1.0 mW
Wavelength	650 nm

## Packaging

See delivery note enclosed with the instrument for the contents, weight, and dimensions.

Number of crates	3
<b>Crate 1</b>	
Contents	Instrument
Dimensions (WxDxH)	HD-1 160.0 cm x 90.0 cm x 182.0 cm (63 in x 35.4 in x 71.6 in)  HD-X 160.0 cm x 92.0 cm x 178.0 cm (63 in x 36.2 in x 70.1 in)

Weight	HD-1 – 352 kg (776 lb) HD-X – 378 kg (833 lb)
<b>Crate 2</b>	
Contents	Instrument covers
Dimensions (WxDxH)	HD-1 167.0 cm x 80.0 cm x 100.0 cm (65.7 in x 31.5 in x 39.4 in)  HD-X 157.0 cm x 80.0 cm x 97.0 cm (61.8 in x 31.5 in x 38.2 in) (Box 3 on top of crate 2 bundled)
Weight	HD-1 – 132 kg (291 lb) HD-X – 130 kg (287 lb)
<b>Crate 3</b>	
Contents	Accessories
Dimensions (WxDxH)	HD-1 and HD-X  120.0 cm x 80.0 cm x 50.0 cm (47.2 in x 31.5 in x 19.7 in)  (packaged in card board box and can be handled separately)
Weight	HD-1 – 38 kg (84 lb) HD-X – 39 kg (86 lb)

## Environmental Conditions

The following table shows the range of conditions needed to run the system safely.

Environmental conditions	The system is made for indoor use.
Temperature	Operating: 18°C to 25°C (64.4°F to 77°F) Storage: 1°C to 45°C (33.8°F to 113°F) Transport: –20°C to 60°C (–4°F to 140°F)

Humidity	Operating: 30% – 80% noncondensing Storage: 5% – 80% noncondensing Transport: 20% – 80% noncondensing
Pollution degree	Degree 2
Overvoltage category	Class 2
Limit class	Class A (For industrial use. Domestic use restricted.)
Sunlight	No direct sunlight. May mislead optical sensors and affect performance.
Altitude	Up to 2000 m (1.24 mi) above mean sea level.
Dust	No excessive dust

## Instrument Installation Dimensions

The following diagram shows a top-down view of the instrument.

