

QSight Triple Quadrupole LC/MS/MS System



PREPARING YOUR LAB

Liquid Chromatography/ Mass Spectrometry

Preparation Checklist

- QSight storage conditions and lab supplies
- Lab space and environmental requirements
- Electrical and power requirements
- Gas supply requirements

Introduction

Congratulations on the purchase of your new QSight® Triple Quadrupole LC/MS/MS system. This high-performance LC/MS/MS instrument can provide you with many years of use if you prepare your laboratory appropriately and ensure proper maintenance. We are providing you with the information you need to prepare your laboratory for the installation of the QSight system.

This document is used to verify that the installation site is properly configured for the PerkinElmer QSight Triple Quadrupole LC/MS/MS, including the QSight 100, 200 and 400 series mass spectrometers and the LX50 or SP50 liquid chromatographs. The site conditions must meet the minimum specifications before the PerkinElmer Service Representative can proceed with the QSight system installation.

Storage Conditions

It is the customer's responsibility to store the containers until installation. The environment in the storage area should be between 5 °C and 25 °C (41 °F and 77 °F), 20% to 80% relative humidity, non-condensing and non-corrosive. The storage area should be within 0-12,000 m (sea level to 39, 370 feet).

Instrument Identification

Each PerkinElmer QSight LC/MS/MS instrument is identified by a unique serial number. This serial number is located on a label on the rear panel lower left-hand side of the instrument from the rear view (example label pictured). When corresponding with PerkinElmer about this instrument, you must include the model number and the full serial number.

Each LX50 or SP50 LC component is also identified by a unique serial number labeled on the rear of the instrument.

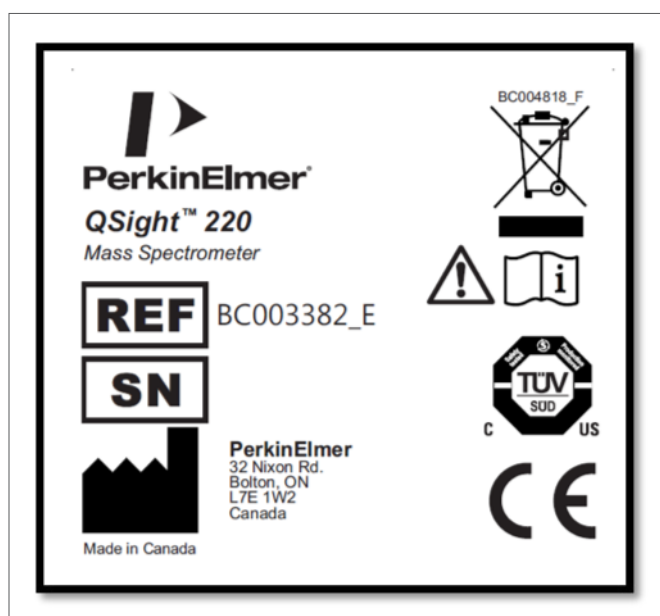


Figure 1. Example of label.

Receiving the System

When your QSight LC/MS/MS system is delivered, it is your responsibility to provide for the removal of the shipping containers from the truck and their storage prior to installation. Contact your PerkinElmer service representative as soon as your shipment arrives to arrange an installation date.

Customer Responsibilities

The customer should ensure that necessary operating supplies, consumables, and usage dependent items such as vials, syringes, pipettes, and solvents are available. You are responsible for the preparation of the laboratory before the arrival of your instrument. Failure to have the site prepared properly may result in additional charges by the service team.

Before the QSight LC/MS/MS system can be installed, please ensure that your site is properly prepared as specified in this document. Site preparation includes, but is not limited to, the following:

- Adequate space is available for the QSight LC/MS/MS system.
- A suitable supporting bench is available for the computer and LC system.
- Adequate electrical power is available at the correct voltages, frequencies and outlet configurations.
- Environmental control systems are adequate to maintain a correct, stable operating environment.
- An adequate source of clean, dry nitrogen >75 psi @15 LPM continuous flow.
- An adequate source of Zero Air >100 psi @34 LPM continuous flow.
- Adequate exhaust venting for the mass spectrometer and optional gas generator.
- General laboratory supplies necessary for instrument operation are available.

Laboratory Supplies

The following lab supplies are required and need to be available at the instrument location:

- Solvents
 - LC/MS grade Methanol
 - LC/MS grade Acetonitrile
 - LC/MS grade water
- Isopropanol and methanol in a squeeze bottle for surface cleaning
- General lab equipment – gloves, pipettes, glassware, lint-free wipes, etc.

PerkinElmer Service Responsibilities

Once it has been confirmed that the laboratory is ready, and the system has arrived, the PerkinElmer Service Representative shall perform the follow:

- Unpacking the QSight LC/MS/MS system and verifying that all components are present and undamaged.
- Move the QSight LC/MS/MS to the desired location. (Customer assistance may be required depending on the specifics of the location)
- Connecting the carrier gas line to the instrument from the tank, regulators, and lines installed by the customer.
- Installing, connecting, and turning on QSight LC/MS/MS system components.
- Verifying that the system meets PerkinElmer published installation performance specifications.
- Basic user familiarization for system hardware and software.

Any additional site-specific setup or modifications will NOT be performed by PerkinElmer Service Representatives.

Space Requirements

The QSight LC/MS/MS has been designed in such a way that the sides of the instrument can be placed directly next to a wall or directly next to the roughing pump. Care should be taken to ensure that the instrument is a minimum distance from the wall or roughing pump to prevent the transfer of vibrations, which could affect performance.

Care should also be taken to ensure that the air flow in front of the instrument, as well as behind the instrument, is unimpeded.

The roughing pump can be placed behind or beside the instrument, or can even be in a separate room from the instrument with the following provision: the hose length can be no longer than 3 m. The ends of the roughing pump must be at least 6 inches from an object or wall to allow sufficient airflow for cooling. Any enclosed space where the roughing pump will be located must be properly ventilated and cooled to prevent the pump from overheating.

Configurations

The following configurations demonstrate possible layouts for your laboratory using QSight LC/MS/MS Series 100 and 200 as an example.

For configuration of QSight LC/MS/MS 400 series, the instrument is about 15 cm taller than the 100/200 series. The SV120 rotary pump used with the QSight 400 series is about 24 cm longer and 6 cm taller than SV 40.

For system configured with the SP50 Online SPE LC system, an extra 15 inches of bench space are required.

Environmental Conditions

Environmental conditions should be conducive to the operation of the instrument, the rotary vane pump, and the computer, which will be used to operate the system. The following conditions outline the environmental conditions required when the system is fully running.

The additional maximum heat load generated by each component in the QSight LC/MS/MS system is listed below.

Physical Specifications

Component	Height	Width	Depth	Weight
QSight LC/MS/MS Series 100 and 200	120 cm (48 in.)	50 cm (20 in.)	50 cm (20 in.)	145 kg (320 lb)
QSight LC/MS/MS Series 400	135 cm (53 in.)	50 cm (20 in.)	50 cm (20 in.)	154 kg (340 lb)
SV40 Rotary Pump	34 cm (13.4 in.)	30 cm (11.8 in.)	51 cm (20.2 in.)	45 kg (100 lb)
SV120 Rotary Pump	40 cm (15.7 in.)	29 cm (11.4 in.)	75.5 cm (29.7 in.)	94 kg (207 lb)
LX50/SP50 System Pump and Autosampler (stacked)	76.2 cm (30 in.)	33 cm (13 in.)	62 cm (24 in.)	47 kg (103 lb)
LX50 Column Module	60 cm (24 in.)	17 cm (7 in.)	34.5 cm (13.5 in.)	16 kg (35 lb)
SP50 High Pressure Dispenser	42cm (16.25 in.)	33 cm (13 in.)	36 cm (14in.)	18 kg (40 lb)
PowerVar 5.2kVA UPS	72.9 cm (28.7 in.)	29.9 cm (11.8 in.)	82.9 cm (32.6 in.)	157 kg (348 lb)
NitroFlow TG2 NA Parker Gas Generator	85 cm (33.5 in.)	115 cm (45.25 in.)	53 cm (20.75 in.)	194 kg (427 lb)

Conditions While System is Running

Considerations	Specification
Ambient Temperature	18-25 °C
Humidity	20-80%, Non-Condensing
Vibration	The instrument should not be placed in an area prone to excessive vibration.
Heating and Cooling Vents	The instrument should not be placed directly in front of/below heating or cooling vents.
Altitude in Operation	0-2000 m
Lab Environment	The laboratory environment should be clean and free of drafts, direct sunlight. The laboratory should be free of flammable, explosive, toxic, caustic or corrosive vapors or gases and should be relatively free of dust.

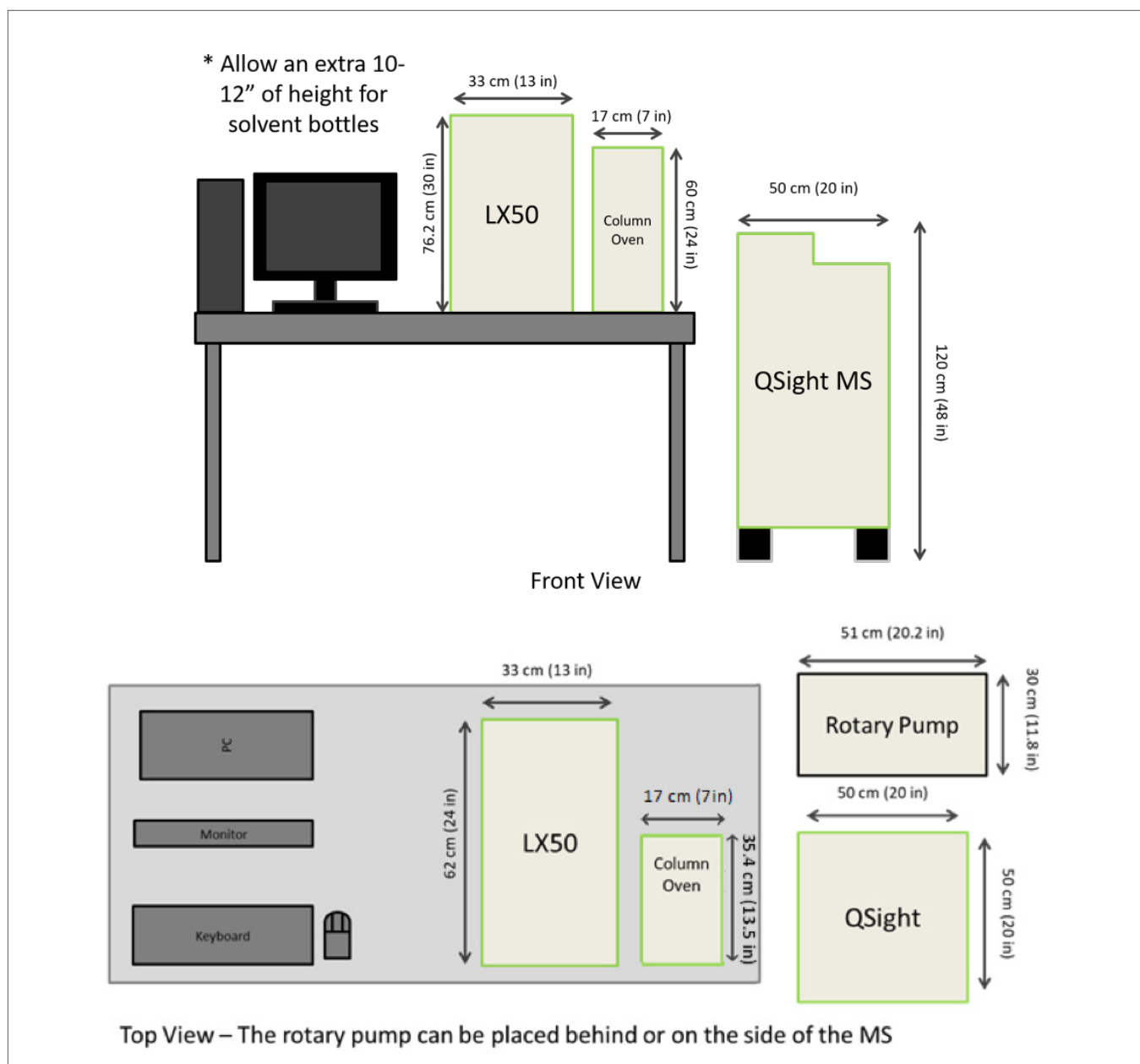


Figure 2. Space requirements.

Heat Load Generated

Component	100/200 Series	400 Series
QSight Mass Spectrometer and PC	3.4 kW	3.4 kW
SV40 Rotary Vane Pump	1.9 kW	--
SV120 Rotary Vane Pump	--	2.2 kW
Exhaust Blower	0.16 kW	0.16 kW
Syringe Pump	--	--
PC and Monitor	0.6 kW	0.6 kW
LX50/SP50 System	Up to 1.6kW	Up to 1.6 kW
NitroflowTG2NA Parker Gas Generator	3.5 kW	3.5 kW
PowerVar 5.2kVA On-Line Conditioned UPS	5.2 kW	5.2 kW

Electrical Needs

The following are the electrical requirements for all the components of the QSight LC/MS/MS system and the major optional accessories. Please review the items you are receiving or have ordered and arrange for the electrical requirements accordingly.

- If you are ordering the UPS, all components will be plugged into the UPS except the gas generator. Therefore, only the requirements of the UPS need to be available in the lab.
- If the gas generator is being purchased, it must have separate electrical service.

Power Considerations and UPS Requirements

Prior to any installation, a qualified, locally licensed electrician must ensure proper power requirements are available or installed to local codes and standards. PerkinElmer will work with your electrician to ensure that all requirements have been met.

If you intend to power the system from an uninterruptible power supply (UPS) other than the model recommended by PerkinElmer, the UPS must meet or exceed the following specifications.


	Input Voltage (AC)	Outlets Required	Maximum Power	Maximum Continuous Current	Operating Frequency
QSight Instrument	200-240 V Single Phase	1	2.9 kVA	12 A	50/60 Hz \pm 1 Hz
Rotary Vane Pump SV40 or SV120	200-240 V Single Phase	1	2.2 kVA	8.5 A	50/60 Hz \pm 1 Hz
Exhaust Blower Pump	110/220 V	1	0.16 kVA	1 A	50/60 Hz \pm 1 Hz
Syringe Pump	110/220 V	1			50/60 Hz \pm 1 Hz
PC and Monitor	110/220 V	2	0.6 kVA	--	50/60 Hz \pm 1 Hz
LX50/SP50 sampling module	115/230 V	1	450 VA	4 A	50/60 Hz \pm 1 Hz
LX50/SP50 Solvent Module	115/230 V	1	450 VA	4 A	50/60 Hz \pm 1 Hz
LX50/SP50 Column Module	115/230 V	1	550 VA	5 A	50/60 Hz \pm 1 Hz
SP50 High Pressure Dispenser	115/230 V	1	200 VA	2 A	50/60 Hz \pm 1 Hz
PowerVar 5.2k VA UPS **	220 V	1	5.2 kVA	24 A	50/60 Hz \pm 1 Hz
Ion Bench BCH120-NE78	110/220 V	1			50/60 Hz \pm 1 Hz
NitroflowTG2NA Parker Gas Generator	200-240 V Single Phase	1	3.4 kVA	16 A	60 Hz \pm 1 Hz
	230 V Single Phase		2.9 kVA	13 A	50 Hz \pm 1 Hz

** The typical operating power consumption for each component is about 50-70% of its maximum power. Therefore, PowerVar 5.2 kVA UPS meets the minimum power requirement.



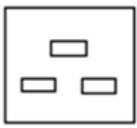
UPS Type	True On-Line (Double Conversion)
Output Voltage	100-120 and 200-240 V
Frequency	50/60 Hz
Waveform	Pure Sine Wave
Minimum Peak Current	3X nominal Current
Output Voltage Distortion	<3%
Output Protection	Circuit Breaker
Minimum Power Requirement	5.2 kVA

Power Cables and Outlets



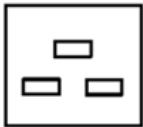
Region Dependent Kits have been created and should be a separate line item on each Instrument order. These kits include power cables and the blower pump.

North American Kit – BC005487			
BC005490	SX Blower, 110 VAC		
BC005348	Power Cable, SX Blower	NEMA 5-15-P	
BC004214	Power Cable, Roughing Pump	NEMA L6-20P Twist Lock	
BC004087	Power Cable, Instrument Main	NEMA L6-20P Twist Lock, *includes redundant grounding cable	





Supported Countries: American Samoa; Anguilla; Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Bermuda; Bolivia; British Virgin Islands; Canada; Cayman Islands; Colombia; Costa Rica; Cuba; Dominican Republic; Ecuador; El Salvador; Guam; Guatemala; Haiti; Honduras; Jamaica; Japan; Laos; Lebanon; Liberia; Mexico; Micronesia, Federated States of; Montserrat; Netherlands Antilles; Nicaragua; Palau; Panama; Peru; Philippines; Puerto Rico; Taiwan; Trinidad and Tobago; Turks and Caicos Islands; United States; Virgin Islands; United States of America; Venezuela

European Union Kit – BC005488			
BC005491	SX Blower, 220 VAC		
09988985	Linecord-3C 1.0 MM sQ2.5 M 250 V 10 A	5 cables included	
BC004809	Power Cable, Instrument Main	Plug: Shuko 16A/250 V CEE7 9EU-16P Instrument: IEC 60320 C-19 *includes redundant grounding cable	  Outlet Instrument

Supported Countries: Afghanistan; Albania; Algeria; Andorra; Argentina; Armenia; Austria; Australia; Azerbaijan; Belarus; Belgium; Benin; Bhutan; Bosnia and Herzegovina; Bulgaria; Burkina Faso; Burundi; Cameroon; Cape Verde; Central African Republic; Chad; Chile; Comoros; Congo; Congo (Democratic Rep. of); Cote d'Ivoire; Croatia; Czech Republic; Denmark; Djibouti; Egypt; Equatorial Guinea; Estonia; Ethiopia; Faroe Islands; Faroe Islands; Finland; France; French Guiana; Georgia; Germany; Greece; Greenland; Guadeloupe; Guinea; Hungary; Iceland; India; Indonesia; Iran; Italy; Jordan; Kazakhstan; Korea, North; Korea, South; Kyrgyzstan; Latvia; Libya; Lithuania; Luxembourg; Macau; Macedonia; Madagascar; Mali; Martinique; Moldova; Monaco; Mongolia; Montenegro; Morocco; Mozambique; Myanmar; New Zealand; Netherlands; New Caledonia; Niger; Norway; Poland; Portugal; Reunion; Romania; Russia; Saint Martin; San Marino; Sao Tome and Principe; Senegal; Serbia; Slovakia; Slovenia; South Africa; Spain; Suriname; Sweden; Syrian Arab Republic; Tajikistan; Thailand; Timor-East; Tunisia; Turkey; Turkmenistan; Ukraine; Uruguay; Vietnam

UK Kit – BC005489			
BC005491	SX Blower, 220 VAC		
09991414	UK Power Cord - Linecord 2.5 M 250 V 10A	5 cables included	
BC005346	Power Cable, Instrument Main	Plug: BS1363	  C-19 Instrument

Supported Countries: AAbu Dhabi; Bahrain; Bangladesh; Bhutan; Botswana; Brunei Darussalam; Cambodia; Cyprus; Dominica; Falkland Islands (Malvinas); Gambia; Ghana; Gibraltar; Grenada; Guyana; Hong Kong; Iraq; Ireland; Isle of Man; Jordan; Kenya; Kuwait; Lebanon; Macau; Malawi; Malaysia; Maldives; Malta; Mauritius; Myanmar; Nigeria; Oman; Pakistan; Qatar; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Saudi Arabia; Seychelles; Sierra Leone; Singapore; Solomon Islands; Sri Lanka; Tanzania; Uganda; United Arab Emirates; United Kingdom; Vanuatu; Yemen; Zambia; Zimbabwe

China Kit – BC005853			
BC005491	SX Blower, 220 VAC		
HH12300080	Power Cord, China	5 cables included	 
BC005832	Power Cable, Instrument Main		 

Supported Countries: China

Gas Requirements

The QSight LC/MS/MS instruments make use of two gas inputs. Configurations for both single and dual source instruments are listed below:

Single Source

Gas	Type	Quality	Connection to Instrument	Supply Pressure	Flow Capability
Drying Gas (DG)	Nitrogen	>99.0% purity Moisture Free <5 ppm Hydrocarbon	6.4 mm (1/4") OD tubing pushfit	520-590 kPa (75-85 psi)	15 SLPM
Source Gas (NG/HG)	Zero-Air*	Water and Oil Free (<0.003 ppm) Phthalate Free <5 ppm Particles <0.01 micron	6.4 mm (1/4") OD tubing pushfit	690-760 kPa (100-110 psi)	34 SLPM

Dual Source

Gas	Type	Quality	Connection to Instrument	Supply Pressure	Flow Capability
Drying Gas (DG)	Nitrogen	>99.0% purity Moisture Free <5ppm Hydrocarbon	6.4 mm (1/4") OD tubing pushfit	520-590 kPa (75-85 psi)	15 SLPM
Source Gas (NG/HG)	Zero-Air*	Water and Oil Free (<0.003 ppm) Phthalate Free <5 ppm Particles <0.01 micron	6.4 mm (1/4") OD tubing pushfit	690-760 kPa (100-110 psi)	67 SLPM

*Nitrogen may be used instead of Zero-air, however source optimization will be different.

Laboratory Exhaust System

The QSight line of mass spectrometers exhaust waste from the plenum chamber of the source, as well as from the rotary vane pumps.

The exhaust system must have the capability to eliminate all the waste exhaust from the source and rotary pump(s). If working with a distance beyond 300 cm (10 feet), the system should be comprised of tubing/piping with an inside diameter of no less than 2.54 cm (1 Inch). Typically, 1.5" plumbing pipe is recommended.

This system can be vented through a fume hood, or to the outdoors, according to local standards. A pump may be required if the system presents any further restrictions (many turns/bends). It should have connections to connect the source exhaust tubing (2.54 cm (1") ID hosing).

If the Parker TG2 gas generator is being installed with the system, an additional 6" exhaust vent must be available to route the exhaust and heat generated by the generators compressors.

Optional Customer Accessories

UPS/Line Conditioner

It is highly recommended to use an uninterruptable power supply, especially if the laboratory does not have stable power.

Model	Frequency	Part Number
PowerVar 5.2 kVA On-Line Conditioned UPS	50/60	N9306749

Gas Generator

Model	Part Number
NitroFlow TG2 Parker Gas Generator (LC/MS Grade Nitrogen @ 80 psig, Zero Air @ 110 psig)	BC004852 – North America
	BC004874 – World
	BC004875 – Japan

Optional Customer Accessories

Person(s) in Charge of Assisting Installation

Please provide PerkinElmer with the contact information of the person who will be responsible to assist during the installation. We need you to indicate the usual hours of operation in which the PerkinElmer CSE(s) can be on site to perform the installation. Please indicate whether (if necessary) the PerkinElmer CSE(s) can work beyond these hours, as well as any contact information of the person(s) they would make these arrangements with.

IT Support

The PC accompanying the instrument will have to be networked as part of your company's computer network for the purposes of transmitting data. An internet connection will also be required for remote troubleshooting purposes.

The computer may not be networked, until the instrument has been installed and signed for. Once the installation is deemed complete (both parties sign the acceptance document), you or a member of your IT staff may network the computer. If you would like to have the PerkinElmer CSE present for this, please book your IT staff to perform this at the end of the installation period. In all instances, please ensure that the following is observed:

- All users must have read/write access to the 'C:/Users/Public/' root folder and its subdirectories.
- Windows security settings must be modified to avoid unspecified incompatibilities due to automatic software updates.
 - Automatic Updates must be turned off and set to 'Check for updates but let me choose whether to download and install them'. Please contact PerkinElmer if an update is required for your domain.

- Java Update settings must be disabled. Disable the 'Check for Updates Automatically' option in the Java Control Panel. Please contact PerkinElmer if an update is required for your domain.
- Windows user settings must be modified to ensure connectivity to the mass spectrometer at all times.
 - Do not put the computer to sleep. This can be modified in the Power Options of the Control Panel.
 - The user may 'Lock' the computer, if necessary.

Site Preparation Sign-Off

This sheet must be completed, signed, dated and returned to the service representative (via email or fax) prior to his/her arrival for the installation. If the service representative arrives and finds that the site has not been prepared in accordance with the requirements listed below, the customer may be held liable for all service expenses, at normal billing rates, related to his/her visit.

The following requirements must be completed prior to the arrival of the installation representative:

<input type="checkbox"/>	Space requirements for the QSight LC/MS/MS instrument, computer and LC components meet the requirements listed in this document.
<input type="checkbox"/>	Laboratory environmental conditions meet the requirements listed in this document.
<input type="checkbox"/>	Ventilation requirements for rough pump and ion source exhaust (and gas generator if included with the order) are present and meet requirements listed in this document.
<input type="checkbox"/>	Zero Air and/or nitrogen sources are in place and meet requirements listed in this document.
<input type="checkbox"/>	Electrical outlet configurations verified to be correct and Line Voltage measured to be within specifications.
<input type="checkbox"/>	LCMS grade solvents and chemicals specified in the Laboratory Supplies section are on hand.
<input type="checkbox"/>	General laboratory equipment including pipettes, gloves, and clean glassware on hand.

The undersigned hereby confirms that the list of requirements specified above and described in this manual (Preparing Your Laboratory for the QSight LC/MS/MS System) has been completed, and the site is ready for the installation. He/she understands that they may be responsible for all service expenses, at normal billing rates, associated with an installation that cannot be performed due to any of the requirements on this sheet not being completed.

Please sign and date below.

Signature of Responsible Party

Date

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