

Agilent CrossLab Start Up Services

Agilent InfinityLab LC Series SFC Site Preparation Checklist

Thank you for purchasing an instrument from **Agilent Technologies**. CrossLab Start Up is focused on helping customers shorten the time it takes to start realizing the full value of their instrument investment.

Correct site preparation is the key first step in ensuring that your instruments and software systems operate reliably over an extended lifetime. This document is an **information guide and checklist** prepared for you that outlines the supplies, space, and utility requirements for the system set up in your lab.

Introduction

Customer Information

- If you have questions or problems in providing anything described as part of Customer Responsibilities below, please contact your local Agilent or partner support / service organization for assistance prior to delivery. In addition, Agilent and/or its partners reserve the right to reschedule the installation dependent upon the readiness of your laboratory.
- Should your site not be ready for whatever reasons, please contact Agilent as soon as possible to re-schedule any services that have been purchased.
- Other optional services such as additional training, operational qualification (OQ) and consultation for user-specific applications may also be provided at the time of installation when ordered with the system but should be contracted separately.
- Please refer to the other peripheral products (ie, Sampler, Barcode Reader, etc.) for site preparation requirements.
- The availability of pressurized CO₂ and an exhaust line is not typical for LC installations, but is critical for the installation of the SFC System. The required pressure is 40 – 70 bar. **The customer must provide a connector of appropriate size. The CO₂ Gas Cylinder Connector must be an SST adapter with PTFE seal (especially for SFC MSD Systems).** The CO₂ Gas Cylinder Connection is not supplied by Agilent, as there are many different cylinder connections worldwide.
- Do not to open/unpack boxes until an Agilent representative is present.
- If applicable, the Network Assessment Tool can be used to verify the network environment.

Customer Responsibilities

Ensure that your site meets the following specifications before the installation date. For details, see specific sections within this checklist, including:

- The necessary laboratory or bench space is available.
- The required **environmental conditions for the lab** as well as laboratory gases, tubing.
- The **power requirements** related to the product (e.g. **number & location** of electrical outlets).
- The **required operating supplies** necessary for the product and installation.
- While Agilent is delivering **Installation and Introduction** services, users of the instrument should be present throughout these services; otherwise, they will miss important operational, maintenance and safety information.
- Please consult the **Special Requirements and Other Considerations** section below for other product-specific information.
- HPLC grade (or better) solvents needed for installation (acetonitrile, isopropanol, and water).

Important Customer Web Links

- To access **Agilent University**, visit <http://www.agilent.com/crosslab/university/> to learn about training options, which include online, classroom and onsite delivery. A training specialist can work directly with you to help determine your best options.
- To access the **Agilent Resource Center** web page, visit <https://www.agilent.com/en-us/agilentresources>. The following information topics are available:
 - Sample Prep and Containment
 - Chemical Standards
 - Analysis
 - Service and Support
 - Application Workflows
- The **Agilent Community** is an excellent place to get answers, collaborate with others about applications and Agilent products, and find in-depth documents and videos relevant to Agilent technologies. Visit <https://community.agilent.com/welcome>
- Videos about specific preparation requirements for your instrument can be found by searching the **Agilent YouTube** channel at <https://www.youtube.com/user/agilent>
- **Need to place a service call?**
<https://www.agilent.com/en/promotions/flexible-repair-options>

Site Preparation

Module List

Module	Instrument description
G4301A	1260 Infinity II SFC Control Module
G4782A	1260 Infinity II SFC Binary Pump
G4767A	1260 Infinity II SFC Multisampler
G7116A	1260 Infinity II Multicolumn Thermostat
G7114A	1260 Infinity II Variable Wavelength Detector
G7114B	1290 Infinity II Variable Wavelength Detector
G7115A	1260 Infinity II Diode Array Detector WR
G7165A	1260 Infinity II Multiple Wavelength Detector

Dimensions and Weight

Identify the laboratory bench space before your system arrives based on the table below. Pay special attention to the total height and total weight requirements for all system components you have ordered and avoid bench space with overhanging shelves. Also pay special attention to the total weight of the modules you have ordered to ensure your laboratory bench can support this weight.

Special notes

The following table provides dimensions and weight requirements.

Instrument Description	Weight		Height		Depth		Width	
	kg	lbs	mm	in	mm	in	mm	in
G4782A	17.6	38.8	180	7.1	436	17.2	396	15.6
G7114A, G7114B	11	24.3	140	5.5	436	17.2	396	15.6
G7115A	12	26.5	140	5.5	436	17.2	396	15.6
G7116A	12.5	27.6	160	6.3	436	17.2	435 (460 ¹)	17.1 (18.1 ¹)
G7165A	12	26.5	140	5.5	436	17.2	396	15.6
G4767A	<22 with cooler/ thermostat add 6 kg	<48.5 with cooler/ thermostat add 13.2 lbs	324	12.6	468	18.4	396	15.6
G4301A	26	56	600	23	480	18	260	10

¹ width with column ID readers

Equipment Positioning on the Bench

- The module dimensions and weight allow you to place the module on almost any desk or laboratory bench. It needs an additional 2.5 cm (1.0 inches) of space on either side and approximately 8 cm (3.1 inches) in the rear for air circulation and electric connections.
- The ELSD needs an additional approximately 15 cm (5.9 inches) of space in the rear for air circulation and electric connections.
- The autosampler module especially with a sample cooler or sample thermostat installed should be operated in a proper horizontal position. Use a bubble level to check the leveling of the sampler.

Environmental Conditions

Operating your instrument within the recommended temperature ranges ensures optimum instrument performance and lifetime.

Special notes

- Performance can be affected by sources of heat & cold, e.g. direct sunlight, heating/cooling from air conditioning outlets, drafts and/or vibrations.
- The bench or supporting surface must be vibration free.
- Heat, cold, or vibration generated from other InfinityLab LC Series modules, which are installed according to instructions provided by Agilent Technologies, do not affect the performance of the LC system.
- The site's ambient temperature conditions must be stable for optimum performance.

The following table summarizes some key physical specifications. For the complete set of physical specifications, please refer to the corresponding module's manual.

Instrument Description	Operating Temperature Range °C (°F)	Operating Humidity Range %
G4301A	15 – 30 °C (59 – 85 °F), constant temperature	< 80 %, non-condensing
G4782A, G7114A, G7114B, G7115A, G7116A, G7165A	4 – 55 °C (39 – 131 °F), constant temperature	< 95 % r.h. at 40 °C (104 °F), non-condensing
G4767A	4 – 40 °C (39 – 104 °F), constant temperature	< 95 % r.h. at 40 °C (104 °F), non-condensing ¹

¹ If a sample cooler/thermostat is included the upper value for humidity can be reduced. Please check your lab conditions to stay beyond dew point values for non-condensing operation.

Power Consumption

Special notes

- If a computer system is supplied with your instrument, be sure to account for those electrical outlets.
- The heat dissipation can be calculated from the active power, using the following equation: $1 \text{ W} = 3.413 \text{ BTU/h}$

Instrument Description	Line Voltage & Frequency V, Hz	Maximum Power Consumption VA	Maximum Power Consumption W
G4301A ¹	100 – 240 V (AC), 50 or 60 Hz	700 VA	N/A
G4782A	100 – 240 V (AC), 50 or 60 Hz	90 VA	74 W
G7114A, G7114B	100 – 240 V (AC), 50 or 60 Hz	80 VA	70 W
G7116A	100 – 240 V (AC), 50 or 60 Hz	150 VA	150 W
G7115A, G7165A	100 – 240 V (AC), 50 or 60 Hz	110 VA	100 W
G4767A	100 – 240 V (AC), 50 or 60 Hz	180 VA	180 W

¹ A dedicated 15 A100 - 120 V or 10 A200 - 240 V AC power outlet is recommended for the SFC Control Module. The SFC Control Module should be located within 1 m (3 feet) of this outlet.

- Use the correct power cord.

Required Operating Supplies by Customer for Installation

Special notes

- For information on Agilent consumables, accessories, and laboratory operating supplies, please visit: <https://www.agilent.com/en-us/products/lab-supplies>

Special Requirements and Other Considerations

G4301A

Gas Selection

The SFC Control Module can accept either liquid or vapor phase CO₂ at its inlet. Both phases must be clean and substantially free of other entrained liquids, vapors or solids. It is highly recommended that CO₂ delivered from high pressure cylinders be delivered as vapor [i.e. no dip tube]. The Control Module contains a CO₂ supply valve that will fail if inlet pressure exceeds 80 bar (1200 psi). As a result, large CO₂ supply systems may require pressure regulation to prevent overpressure. The maximum recommended inlet pressure is 70 bar (900 psi). The minimum inlet pressure is 40 bar (600 psi). A listing of suitable and unsuitable CO₂ supplies appears below.

Suitable CO₂ Supplies

- Beverage Grade CO₂ (>99.99 % bulk purity; to be used for SFC-UV systems only, not pure enough for SFC-MSD systems) delivered as a vapor from high pressure cylinders
- SFC Grade CO₂ (>99.999 % bulk purity) delivered as a vapor or liquid from high pressure aluminum cylinders.
- High purity CO₂ (>99.9998 % bulk purity) delivered from a distributed high capacity CO₂ delivery system.

NOTE

The CO₂ may be delivered as either a vapor or liquid. The user is responsible for providing lubricant-free shutoff valving to isolate the SFC control module from the supply system. Also adequate pressure regulation must be supplied to prevent exceeding the maximum inlet pressure specification.

Unsuitable CO₂ sources

Unsuitable CO₂ sources include:

- Cryogenic Dewar Cylinders or tanks. The vapor from these vessels is of insufficient pressure.
- Helium padded high pressure CO₂ cylinders.
- Premixed CO₂/organic liquid cylinders.

The customer must provide a means of interfacing a supplied 1/8" steel tube with (Swagelok type) compression fitting to the gas supply or bottle. A 6 ft [~2 m] 1/8" od inlet transfer line is included with the system. The user supplied CO₂ system must be located within range of this line.

Alternately, the line may be extended by the user using appropriate compression fittings, and pressure rated stainless steel transfer tubing.

Conversions: 1 psi = 6.8947 kPa = 0.068947 bar = 0.068 ATM

Since the inner pressure of a CO₂ cylinder is dependent on the ambient temperature. The CO₂ cylinder need to be stored in an area with temperature range between 15 °C to 30 °C (59 F to 86 F).

Exhaust Venting Requirements

The SFC control module's exhaust must be vented outside of the laboratory environment. This can be done by placing the outlet of the waste bottle into the air stream inside a chemical fume hood or into a sealed vent to the outside. The exhaust vent system should not be part of an environmental control system that recirculates air inside of a building.

Exhaust venting requirements need to comply with all local, state and federal environmental and safety codes. Venting Capacity: Not less than 1 L/min.

A 2 m (66 ft) length of 1/4 inch i.d., 3/8 o.d. tubing is included for venting the gaseous exhaust. A small plastic bottle is provided to separate liquid components from gaseous exhaust. The vent line may be easily extended by a 1/4" o.d. PTFE extension tube. The customer is responsible for collection and disposal of all waste streams and maintenance of the waste collection system.

Safety

The SFC control module is equipped with several safety devices:

- Pressure sensors monitor inlet and outlet CO₂ pressure,
- RTD-style Temperature sensors monitor proper function of the CO₂ conditioning system and BPR,
- A system leak sensor monitors for flow stream and condensation liquid leaks into the drip tray,
- A CO₂ supply shutoff valve is included which shuts off the supply CO₂ when the pump is idle, in the event of a system error or a power failure

These safety devices as well as critical system fans and pumps are monitored for suitable operation by the SFC control module electronics. In the event of a failure, the controller will initiate an error routine which will perform a controlled shutdown of the local module and notify the HPLC system via hardware status lines. Hardware status lines are also monitored for HPLC system failure, which also cause a shutdown of the system. Safety devices must be maintained in good working order. A software diagnostic program is supplied with the SFC control module to assist in this task.

Stack Configurations

Recommended Stacking Configuration

NOTE

It is possible to place the SFC control module either at the right or left side of the stack.

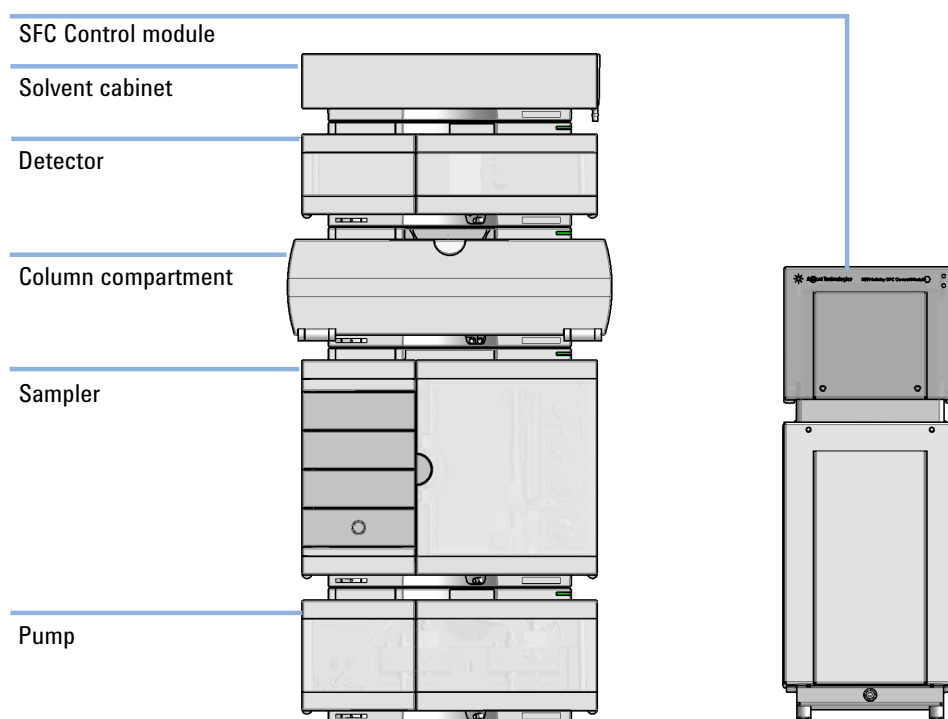


Figure 1 Exemplary stack configuration for an Agilent 1260 Infinity II SFC System

Minimum PC Requirements

Minimum PC Requirements:

- Support of Agilent OpenLab CDS Software
- USB 2.0 port available

Tools

Your Agilent instrument comes with a few basic tools and consumables which are relevant to the specific configuration of your system.

Service Engineer Review (Optional)

Service Engineer Comments

If the Service Engineer completed a review of the Site Preparation requirements with the customer, the Service Engineer should complete the following Comments section. Both the Service Engineer and the customer should complete the Site Verification section below.

If there are any specific points that should be noted as part of performing the site preparation review or other items of interest for the customer, please write in this box.

Site Preparation Verification

Service Request Number:

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Date Service Completed:

.....

Service Engineer Name:

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Customer Name:

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Service Engineer Signature:

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Customer Signature:

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