

Hardware Site Preparation Specification

Purpose of Procedure

Your site must meet this specification or set of requirements to assure a successful and timely installation of your Agilent instrumentation. This document is designed to prevent delays during installation, familiarization, and the initial use of the system in your application. This document outlines the supplies, consumables, space and utility requirements for a 1200 LC. It also recommends tools and consumables that may help you get started. Use this document along with the 1200 Installation documentation and Consumable Catalog. This information is also available from Agilent Technologies, Inc.'s website (<http://www.agilent.com>).

Agilent Responsibilities

The Installation call begins with a call to the Customer by the "Call Initiator." The Call Initiator may be the Support Provider, a workload administrator, or a dispatcher, depending on local processes. The Call Initiator:

- Calls the Customer, schedules the date and time for I&F, and confirms Customer preparation.
- With the G4281A see below

- **NOTE:** the availability of pressurized nitrogen and an exhaust line is not typical for LC installations but it is **critical** for the installation of the ELSD. The required pressure is 3.5 bar and must be controllable by an external pressure regulator (which is available optionally as G4218-60100). The nitrogen must not contain particles (which would create a noisy background) or should be filtered with a filter of 0.5 μm or less (the optional pressure regulator G4218-60100 uses a 0.01 μm filter). Gas consumption is typically 3 l to 4 l per minute. The diameter of the tube coming from the G4218A ELSD is 6 mm (0.236 inch). The customer must provide a connector of appropriate size.
 - If the lab is not prepared for the installation, there will be a significant delay for the customer as well as the support provider. It is a customer responsibility to prepare the lab accordingly, but it is the responsibility of the call initiator to point to this fact in order to avoid delays and additional costs for both sides.
- Reminds Customer not to open/unpack boxes until an Agilent representative is present.
 - Discusses possible problem areas before Support Provider goes on site

Support Provider Responsibilities

All Support Providers shall be Agilent trained and certified to install and familiarize a customer on the 1200 LC. Support Providers shall take necessary Electro-Static Discharge (ESD) precautions (see appropriate **Hardware Manual**) when working on or near printed circuit boards or other sensitive assemblies.

Delivery

- Brings all necessary tools for LC system installation including the Isocratic Checkout sample, part number - **01080-68704 (Service Note 01200-048) and 8500-6917 Caffeine Standard for ELSD** (if applicable for the ELSD)
- Complete all steps in the I&F Checklist that are applicable to the instrument. Note that the I&F Checklist is a separate document.
- Brings the prep. Checkout column for a Prep. Scale Purification System - 846975-202 (if applicable)

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Customer Responsibilities

In preparation for the Installation, the Call Initiator (see below for a definition of the Call Initiator) verifies with the Customer that they have complied with the **Site Preparation Checklist**. Specific Site Preparation information (dimensions, weights, solvents, environmental, and electrical specifications) can be found in the **1100/1200 Site Preparation Specification**.

- Customer should have available HPLC grade Isopropanol, Acetonitrile and Water
- The site is well ventilated and free of corrosive materials and overhanging obstacles.
- Site temperature is within the recommended range of 0 to 55°C for the G1314A/B/C/D/E, G1315B/C/D, G1316A/B/C, G1322A, G1365B/C/D, G1362A, 4 to 45°C for the G1379B, 4 to 40°C for the G1330B, G1361A, G1364B/C/D, G2258A, 0 to 40°C for the G1321A and all other modules 4 to 55°C.
- The sites ambient temperature conditions **must** be stable, 2°C/hour or less is required to meet Agilent Technology's published drift specification. The greater the temperature fluctuation in the lab the greater baseline instability of the LC System. Take care in placement of the system, trying to avoid placement near heating and air conditioning vents to insure optimum performance.
- Site humidity is within the recommended range of <95%, non-condensing.
- Bench space is adequate and can support the weight of the Agilent 1200 system, including all LC modules and the ChemStation PC. Additionally the instrument requires 2.5 cm (1.0 inch) of space on either side and 8cm (3.1inch) at the rear for circulation of air and room for electrical connections. The TCC requires 25cm (10 inches) of space on either side.
- An AC outlet is required for each module, in addition to the Computer System.
- The ELS detector is designed for the use with an LC system. A successful installation requires the availability of a complete HPLC/RRLC system including a solvent supply, pump, sampler, column and data acquisition/evaluation system (PC with ChemStation, EZ Chrom etc.). Using a thermostatted column compartment and degasser is recommended. The ELSD is often installed as a second detector following a non-destructive detector based on UV/VIS absorption (DAD/VWD/MWD). While a second detector is not mandatory, it may help demonstrating a successful installation. The detector is controlled via RS232, not via LAN/CAN, so it must be installed close to the control PC unless special data transmission systems are used. The length of the included straight female/female RS 232 cable is 1.7 m.
- Customer should have available HPLC grade Acetonitrile and Water with a dry residue below 1 ppm or MS grade solvents. See next section regarding requirements for a supply of pressurized nitrogen and an exhaust line.
- The site is well ventilated and free of corrosive materials and overhanging obstacles.
- Site temperature is within the recommended range of 5 to 40°C for the G4218A.
- Site humidity is within the recommended range of <80% for temperatures below 31 °C, non-condensing.
- The instrument requires 2.5 cm (1.0 inch) of space on either side of it and 8cm (3.1inch) at the rear for circulation of air and room for electrical connections.
- The detector must be installed close to the LC system in order to ensure good measurement results using short capillary connections.
- Following connections must be available
- An AC outlet-

Product number(s)	Line Voltage	Frequency	Current	Power (or VA)
G4218-64000	230 V +/- 10%	50 Hz	1.7 A	400 W
G4218-64010	115 V +/- 10%	60 Hz	1.8 A	210 W
G4218-64020	100 V +/- 10%	50 or 60 Hz	2.1 A	210 W



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Important Information

If you have problems in providing anything described as a *Customer Responsibility*, please contact your local Agilent Technologies office for assistance. Assistance with user specific applications may be provided but should be contracted separately.

PLEASE NOTE:

Some of the instrumentation, you have ordered, may not appear on the following tables, because some of the individual modules that generate a system are not sold as individual parts.

For example, if you ordered a:

- G1354A, you will receive a G1311A (Quat. Pump) and a G1322A (Micro Vacuum Degasser)
- G1382A, you will receive a G1376A (Capillary Pump) and a G1379B (Micro Degasser)
- G2225A, you will receive a G2226A (Nano Pump) and a G1379B (Micro Degasser)

If you have ordered a bundled system or if you have problems in identifying the individual modules that are part of your system, please contact your sales representative for information about the individual modules that generate this system.



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Dimensions and Weight

Select the laboratory bench space before your system arrives. Pay special attention to the total height requirements. Avoid bench space with overhanging shelves. Pay special attention to the total weight of the modules you have ordered. Make sure that your laboratory bench can support this weight.

Module	Weight		Height		Depth		Width	
G1310A/G1311A Iso. / Quat. Pumps	11 kg	25 lbs.	14 cm	5.5 in	43.5 cm	17 in	34.5 cm	13.5 in
G1312A Binary Pump	15.5 kg	34 lbs.	18 cm	7 in	43.5 cm	17 in	34.5 cm	13.5 in
G1376A Capillary Pump G2226A Nano Pump	17 kg	39 lbs.	18 cm	7 in	43.5 cm	17 in	34.5 cm	13.5 in
G1322A / G1379B Degassers	7.5 kg	16.5 lbs.	8 cm	3 in	43.5 cm	17 in	34.5 cm	13.5 in
G1361A Preparative Pump	15 kg	32.9 lbs.	20 cm	8 in	43.5 cm	17 in	34.5 cm	13.5 in
G2258A Dual Loop Autosampler	14.0 kg	29.8 lbs.	20 cm	8 in	43.5 cm	17 in	34.5 cm	13.5 in
G1329A/G2260A Autosamplers	14.2 kg	31.3 lbs.	20 cm	8 in	43.5 cm	17 in	34.5 cm	13.5 in
G1367B/C/DG1377A High Performance Autosamplers	15.5 kg	34.2 lbs	20 cm	8 in	43.5 cm	17 in	34.5 cm	13.5 in
G1330B ALS Thermostats	18.5 kg	40.7 lbs.	14.4 cm	5.5 in	43.5 cm	17 in	34.5 cm	13.5 in
G1316B/C Thermostatted Column Compartment	10.2 kg	22.5 lbs.	14 cm	5.5 in	43.5 cm	17 in	41 cm	16 in
G1314B/C Variable Wavelength Detectors	11 kg	25 lbs.	14 cm	5.5 in	43.5 cm	17 in	34.5 cm	13.5 in
G1314D/E Variable Wavelength Detectors	Approx 11kg	Approx 25 lbs	14 cm	5.5 in	43.5 cm	17 in	34.5 cm	13.5 in
G1315B/C/D Diode-Array Detectors	11.5 kg	26 lbs.	14 cm	5.5 in	43.5 cm	17 in	34.5 cm	13.5 in
G1365B/C/D Multiple Wavelength Detectors	11.5 kg	26 lbs.	14 cm	5.5 in	43.5 cm	17 in	34.5 cm	13.5 in
G1321A Fluorescence Detector	11.5 kg	25.4 lbs	14 cm	5.5 in	43.5 cm	17 in	34.5 cm	13.5 in
G1362A Refractive Index Detector	17 kg	38 lbs.	18 cm	7 in	43.5 cm	17 in	34.5 cm	13.5 in
G4218A Evaporating Light Scattering Detector	20kg	45 lbs	45cm	17.7 in	55cm	21.7 in	25cm	9.8 in
G1364B/C/D Fraction Collectors	17 kg	38 lbs.	18 cm	7 in	43.5 cm	17 in	34.5 cm	13.5 in

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Environmental Conditions

Operating the LC System within the recommended temperature ranges insures optimum instrument performance and lifetime. Performance can be affected by sources of heat and cold from heating, air conditioning systems, or drafts.

Please Note:

The site's ambient temperature conditions must be stable for optimum performance of the system's modules (as specified in the "Performance Specifications" section of each module's Reference Manual). Temperature changes of 2°C / hour or less (as defined by ASTM conditions) are required to achieve best possible baseline stability. Higher variations will definitely result in higher signal drift and wander of the baseline.

Module	Operating temp range	Operating humidity range
<i>G1314B/C/D/E, G1315B/C/D, G1316B/C, G1322A, G1365B/C/D, G1362A</i>	0 to 55°C (32 to 131°F), constant temperature.	< 95%, non-condensing
<i>G1379B</i>	0 to 45°C (32 to 113°F)	< 95%, non-condensing
<i>G1330B, G1361A, G1364B/C/D, G2258A</i>	4 to 40°C (39 to 104°F)	< 95%, non-condensing
<i>G1321A</i>	0 to 40°C (32 to 104°F), constant temperature	< 95%, non-condensing
<i>G4218A¹</i>	5 to 40°C (41 to 104°F)	<80%, non-condensing
<i>All other modules</i>	4 to 55°C (39 to 131°F), constant temperature.	< 95%, non-condensing

1. *Humidity must be below 80 % for temperatures below and is linearly decreasing to 50% at 40 °C, non-condensing conditions in complete range, may be add as*



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Power Consumption

PLEASE NOTE:

An AC power outlet is required for EACH module, in addition to the Computer System (if applicable)

All Agilent 1200 modules have automatic line sensing, wide ranging power supplies. All modules operate with line voltages in the range of 100-240 VAC, +/- 10%

Module	Maximum Power Consumption [VA]	Maximum Power Consumption [W]	BTU
G1310/11A Iso. / Quat. Pumps	180 VA	55 W	188
G1312A Binary Pump	220 VA	74 W	253
G1376A Capillary Pump G2226A Nano Pump	220 VA	75 W	256
G1361A Prep Pump	250 VA	210 W	717
G1379B Micro Degasser	30 VA	30 W	102
G1322A Degasser	30 VA	30 W	102
G1329A, G2260A ALS	300 VA	200 W	683
G1367B/D/G1377A High Performance Autosamplers	300 VA	200 W	683
G2258A Dual Loop Autosampler	260 VA	210 W	717
G1330B Sample Thermostat	260 VA	210 W	717
G1316B/C Therm Column Comp	320 VA	150 W	512
G1314B/C VWD	220 VA	85 W	290
G1314D/E VWD	120 VA	100W	341
G1315B DAD	300 VA	125 W	427
G1315C/D DAD	160 VA	160 W	546
G1365B MWD	300 VA	125 W	427
G1365C/D MWD	160 VA	130 W	546
G1362A RID	160 VA	65 W	222
G1321A FLD	180 VA	70 W	239
G1364B/C/D Fraction Collectors	200 VA	180 W	614
G4218A ELSD (230 V model)	N/A	400 W	1364
G4218A ELSD (100/115 V models)	N/A	210 W	716

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Other considerations



Module Stacking

Bench Space:

The modular dimensions and weight allow the instrument to be placed on almost any laboratory bench. The instrument requires a space of at least 2.5 cm (1.0 inch) on both sides, and approximately 8 cm (3.1 inches) at the rear for the circulation of air and room for electrical connections.

If the bench is to support a complete Agilent Technologies 1200 Series system, make sure that the bench is designed to carry the total weight of all the modules.

Ensure that all 1200 series modules are installed and operated in a horizontal position. Operating a module on its side will defeat the leak detection system of the module and possibly cause a hardware failure within the module.

Recommended Stacking Configurations:

A single-stack configuration may be considered only if:

- * The height of the stack does not result in a safety problem.
- * The system does not include a G1330B thermostat module.

A multiple stack configuration **must** be used if:

- * The stack of 1200 modules is too high, resulting in a safety problem.
- * The system includes a thermostatted sampler or fraction collector.

PLEASE NOTE:

The thermostatted version of all samplers and the fraction collector include the G1330B thermostat module. The thermostat module must be placed directly under the sampler or the fraction collector to be thermostatted. It is recommended that the thermostat module is positioned as the bottom module of the stack, directly on the laboratory bench. Any stack containing a G1330B thermostat module needs at least 25 cm (10 inches) of space on either side to guarantee proper ventilation.

PLEASE NOTE:

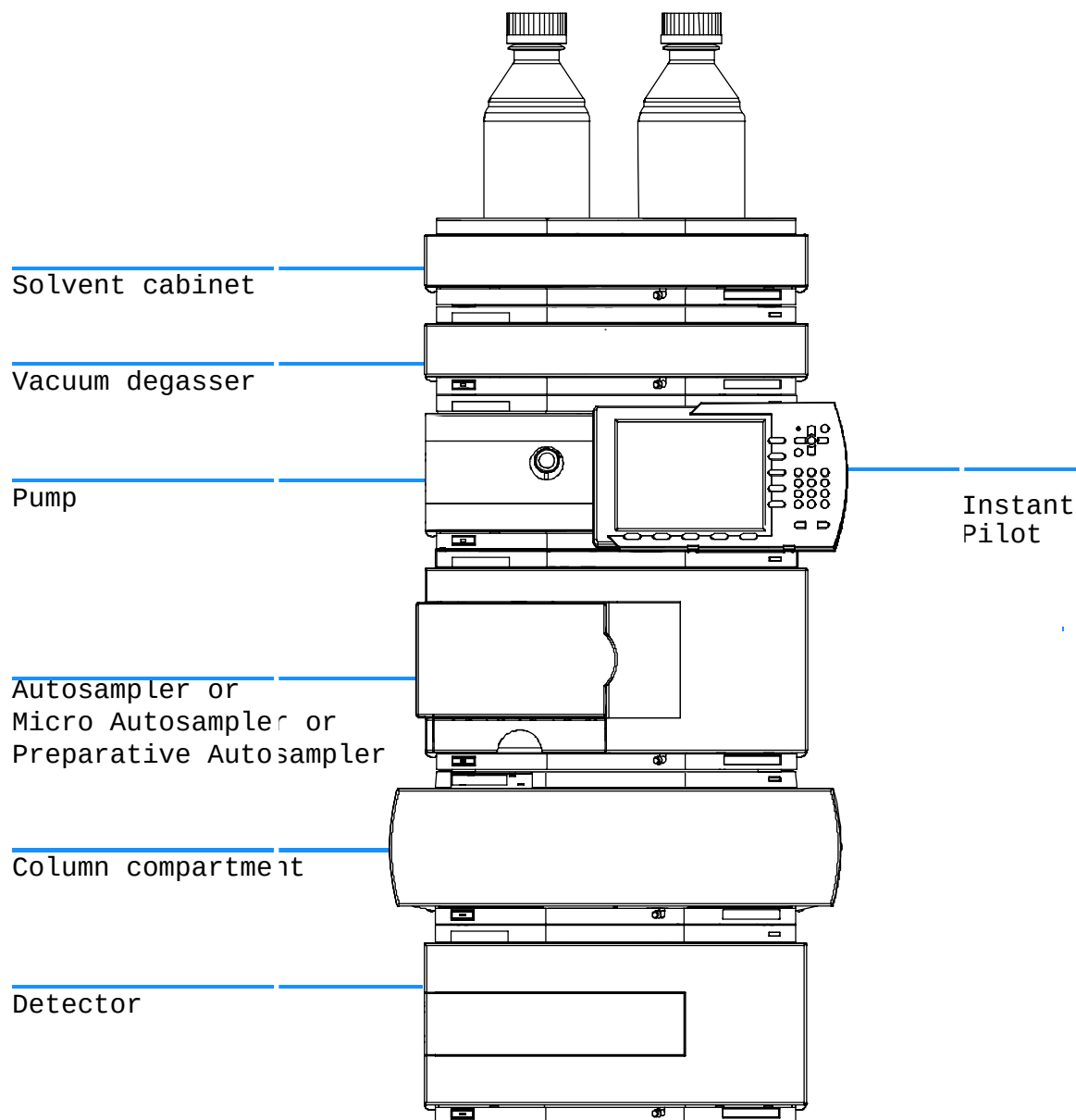
Try to avoid stacking configurations that result in excessive volumes between sampler and column, and between column and detector(s) to avoid potential problems related to excessive delay volume or peak broadening.

Please refer to figures 1, 2, 3 and 4 for recommended stacking configurations. The figures just show a selected number of recommended configurations. Other module setups might be possible, but may require additional connecting capillaries.



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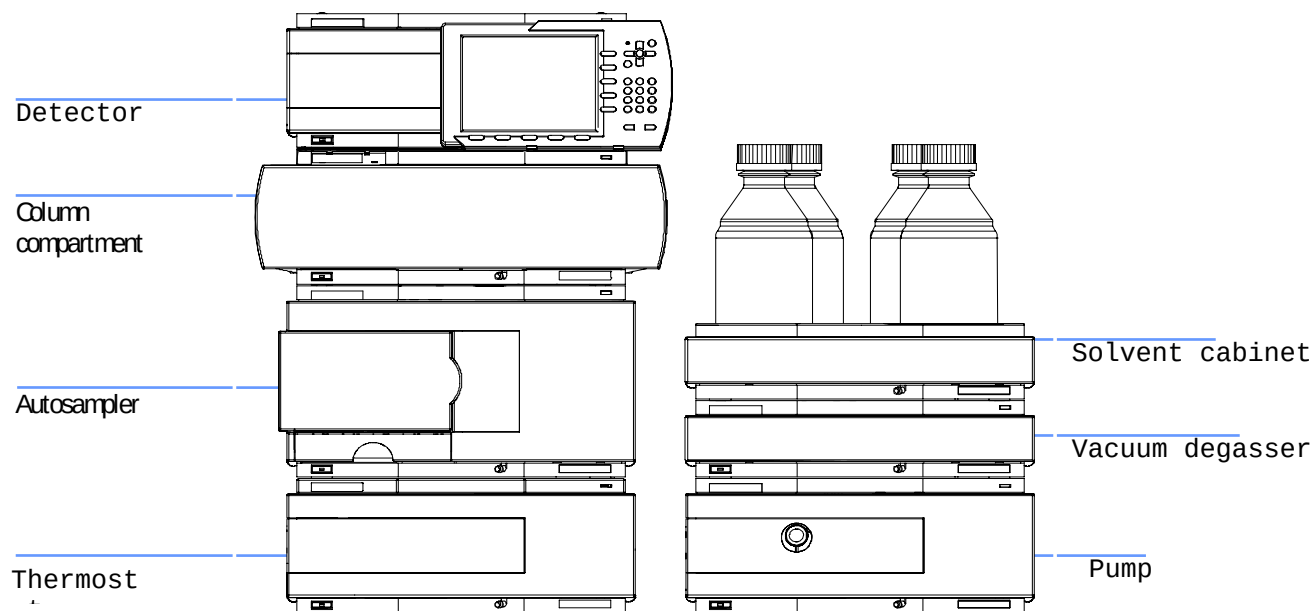
Figure 1
Recommended 1-Stack Configuration





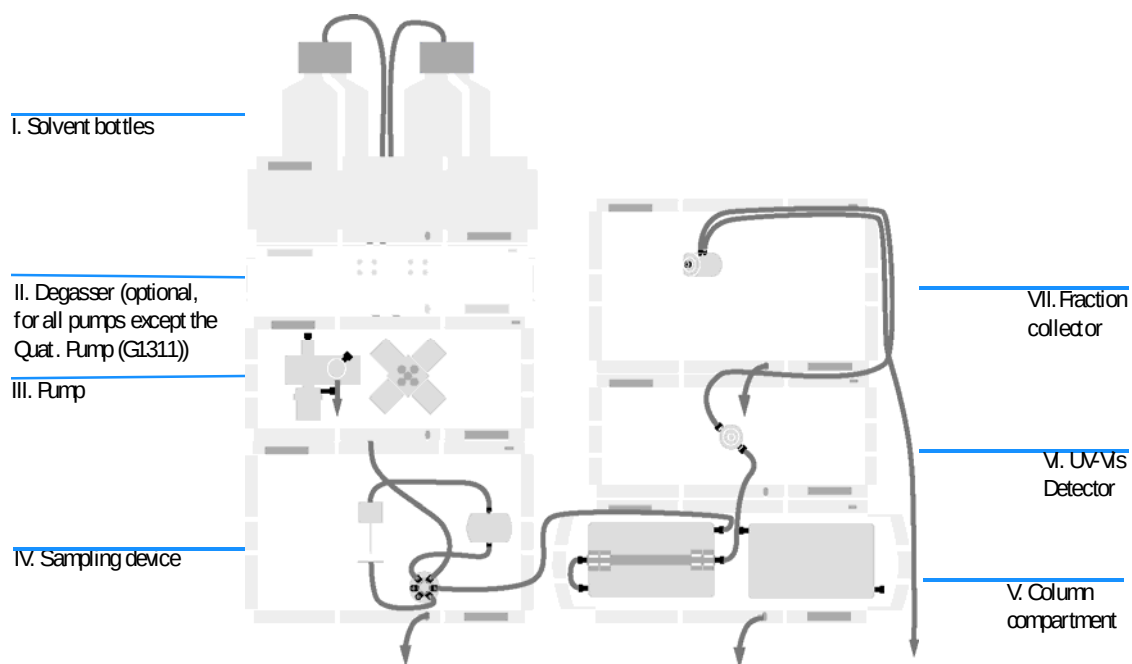
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Figure 2
Recommended 2-Stack Configuration (with Thermostat)



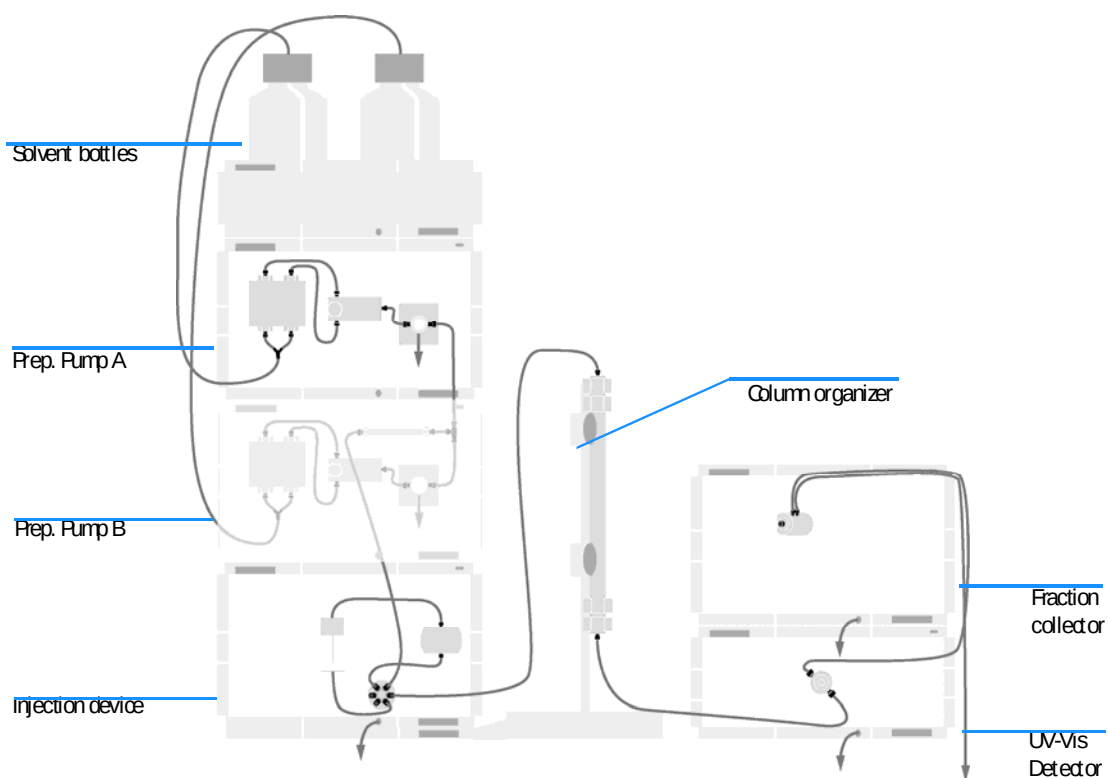
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Figure 3
Recommended 2-Stack Configuration with Fraction Collector (Analytical Scale System)



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Figure 4
Recommended 2-Stack Configuration with Fraction Collector (Preparative Scale System)



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