

LC-05 plus online injector and LC-051 online sampler

1. Introduction

LC-05 Plus online injector and LC-051 online sampler are two new products from PromoChrom Technologies. They are designed for process monitoring and optimization in pharmaceutical and chemical industries. The two products have been derived from collaboration with Systag (a leading company for process development and automation in Switzerland) and customers from major pharmaceutical companies.

The online injector works with an Agilent 1200 HPLC for online monitoring of reaction progress. It provides a more reliable control on the product quality and helps to improve the production yields by providing a timely harvest indication.

The online sampler can automatically collect samples from reaction vessels. It helps to free up the operators. The computer free design makes it very convenient to use in a plant or in a space tight laboratory.

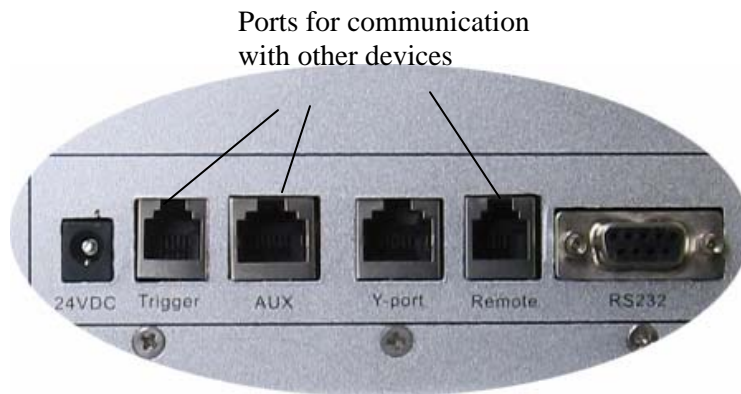
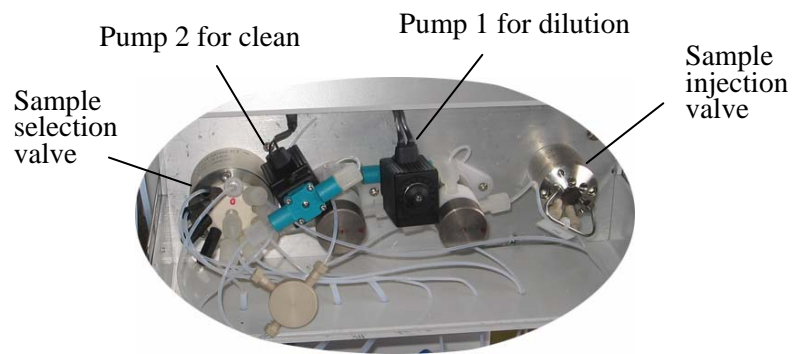
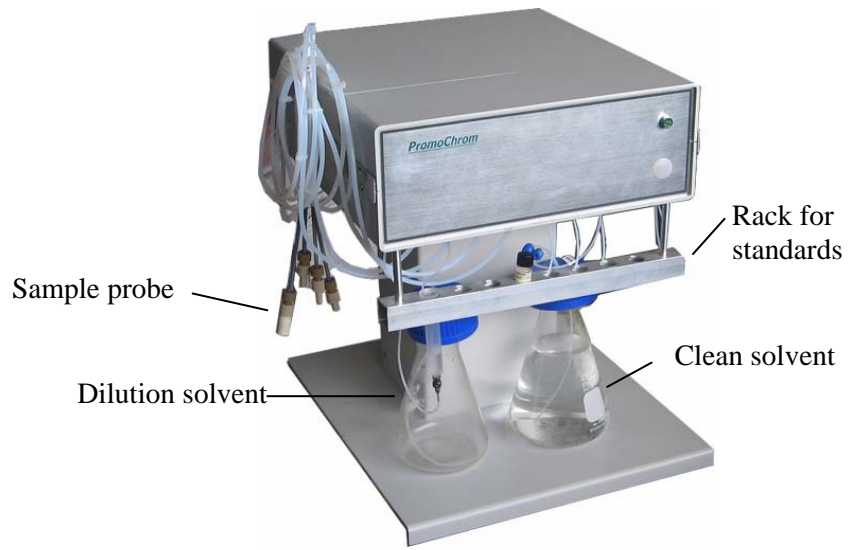
2. Features for LC-05 plus online injector

The online injector can be used to collect and inject samples from up to 4 sites. It is designed to work with an Agilent 1200 HPLC for online monitoring of reaction progress. A typical working cycle includes following steps:

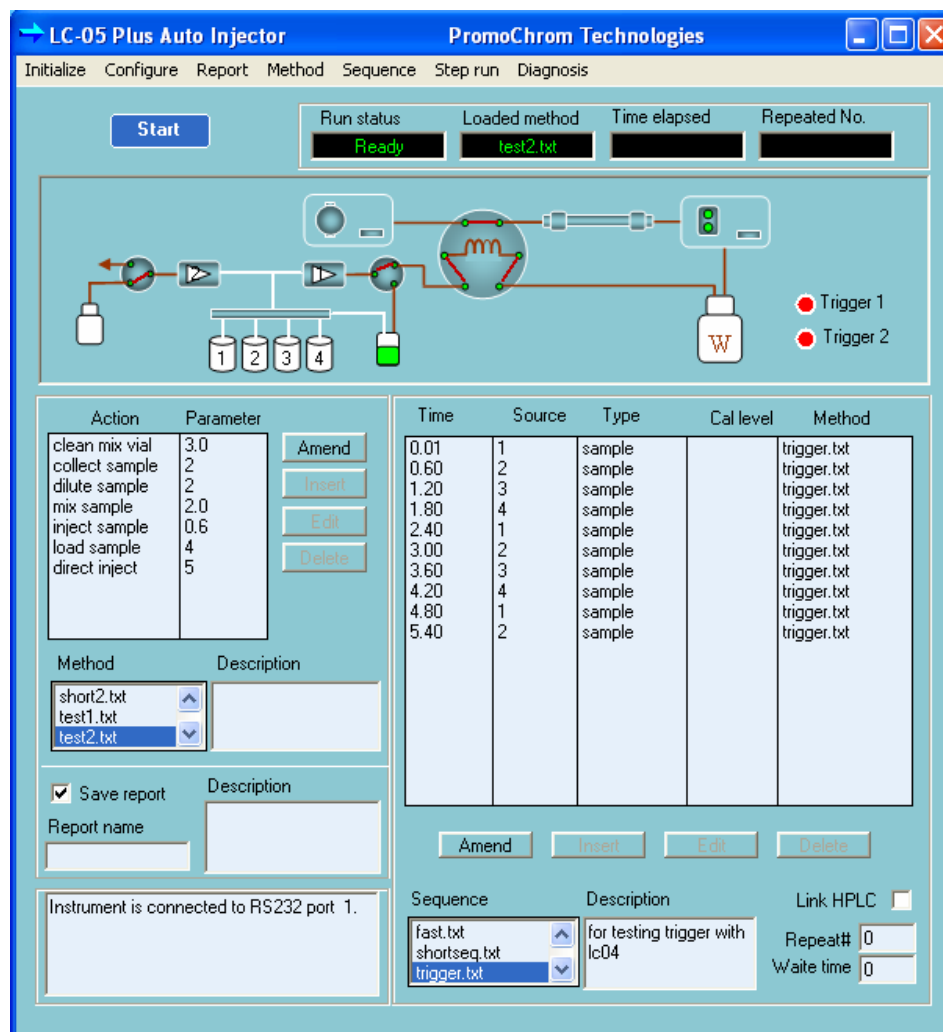
- 1) Collect and filter a sample from a site (a reaction vessel or a calibration standard).
- 2) Dilute the sample to make the media compatible with the HPLC mobile phase and the concentration suitable for the HPLC detector.
- 3) Load the sample to the loop of the injection valve.
- 4) Export the sample information (such as sample source, type, collection time, and data file name) to the Chemstation sequence table.
- 5) Check the status of the HPLC. Start the HPLC analysis when HPLC is ready.
- 6) Clean the dilution vial and the sample line.

All the above procedures are carried out automatically using methods or sequence. Users do not need to know the real valve and pump switches.

The integration of the online injector with Agilent HPLC is based on dynamic data exchange. There are no cables involved. The injector also provides an injection port to allow manual introduction of calibration standard for HPLC calibration.



The software of LC-05 Plus has the same user-friendly features as other sample preparation products from PromoChrom. All the flow path and status of pumps and valves are displayed real time. The product can be controlled by using methods or by direct clicking at the relevant icons.

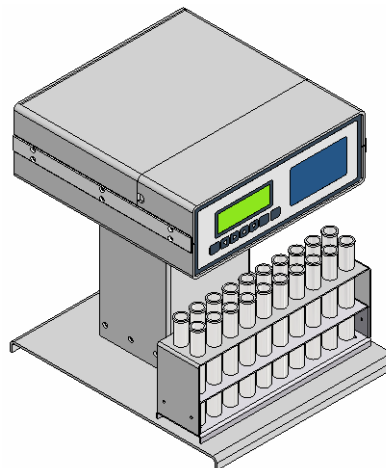


LC-05 plus online injector can work as a control master and use a sequence to decide the timing and location of sampling. It can also work as a control slave. The reaction vessels or the HPLC can decide the location and the timing of the sampling. They can use the remote or the AUX port to trigger start/stop of the online injector.

3. Features for LC-051 online sampler

LC-051 online sampler can collect samples from up to 4 sites. The fraction collection is based on stream selection valves and can have up to 18 fractions. Since the system does not use XY motion control, the receiving containers can have any shape and volume.

When the sample collection duration is long, the receiving containers can be placed in a cooler to minimize sample decomposition. Since the sample is introduced to the vials using individual tubing, each vial can be closed using a cover with a hole for the tubing. It avoids solvent evaporation for overnight operation.



The most outstanding feature of the online sampler is its computer free operation. It saves space and cost of a computer. It also enables the device to be placed near the sampling site. The device can store two methods and a sequence for automatic operation. Although the online sampler involves two pumps and many valves, the commands of a method is simple, such as “collect”, “dilute”, etc. The device will look after the operation of the relevant pumps and valves according the method command.

The online sampler can work as a control master and use the sequence to decide sampling location, collection time, and the collection position. It can also work as slave and carry out sample collection at the request from other devices (such as the reaction vessel controller or a pH sensor). The communication with other devices is through two ports with 2 digital outputs and 4 digital inputs. The integration is easy and fast.

4. Ordering information

LC-05 plus online injector includes necessary tubing for connection with HPLC and for sample collection. The length of tubing for the sampling can be 1.2 to 3 meters. It also includes control software and a USB/RS232 converter. The software will share the computer with the HPLC control software.

The HPLC should be ordered separately from Agilent Technologies. The typical configuration is a quaternary pump, a VWD, control software, and computer. Sampler is not necessary.

LC-05 online sampler includes a power supply, 4 sampling probes with filters, a rack for 20 test tubes, and a rack for 20 2-mL vials.

In case explosion proof is required, an Class I, Division 2, Groups C & D enclosure can be provided to hold the online injector +HPLC or the online sampler.