

ASI-100™ and ASI-100T™ Autosamplers

**The ASI-100 and ASI-100T**

Automated Sample Injectors are highly flexible autosamplers for automating high performance liquid chromatography (HPLC) methods. The ASI-100/ASI-100T, which allows independent processing of sample sequences and methods, has been designed for routine laboratory use and incorporates exceptional reliability and high performance. With integrated safety features such as automatic vial recognition and electronic needle resistance shut-down, the ASI-100 family is ideally suited for unattended operation. The ASI-100/ASI-100T incorporates an in-line split-loop injection system, thereby providing variable injection volumes with the precision of conventional fixed-loop autosamplers. The ASI-100T provides sample carousel temperature control.

No Sample Loss

In-line split-loop injection, where the needle itself is an integral part of the sample loop, not only delivers highly accurate and highly reproducible injection volumes, but also conserves valuable sample by drawing only the volume to be injected. The ASI-100/ASI-100T requires only 5 μL of sample to complete an injection, making it ideal for samples of limited volume. The minimum amount of sample that can be injected is 1 μL .

After injection, mobile phase is directed through the in-line needle, eliminating the need for an additional flush cycle and minimizing sample carryover (< 0.1%).

Flexibility

The ASI-100/ASI-100T allows easy loading of samples without the extra step of removing the sample carousel. The removable carousel is divided into three 120° sectors; each segment is interchangeable to accept eight different vials (Table 1). All three sectors can be configured for the same size vials or the sectors can be mixed to accept three sizes (Figure 2). The autosampler automatically identifies which size vials are in each sector. For programming purposes, vials are identified by sector, row, and position within the row.



Capacity

The number of samples that can be analyzed using the ASI-100/ASI-100T depends on the type of segments in the carousel. Three 4-mL vial segments hold 63 samples, three 2-mL segments hold 117 samples, and three 1.2-mL segments hold 192 vials. Each of these configurations also permits the use of three additional 4-mL wash vials. (See Table 1.)

Automation

The ASI-100/ASI-100T can be programmed in two ways: directly from its front panel using easy-to-follow menus, or externally through CHROMELEON™ chromatography management software (Figure 2), which provides significantly enhanced capabilities. These enhancements include random sample access, variable injection volume for each sample, a variable number of replicates, definition of longer sample batches, definition of more sample methods, and automatic documentation of measuring conditions via the Audit Trail feature. In addition, a second electrically activated switching valve for column switching can be controlled.

When necessary, the autosampler can be interrupted during a sequence to run a priority sample immediately. By pressing the “Quick Sample” button on the front panel and programming the position of the sample to be run, the sampler will finish processing the current sample, then run the specified sample and return to the previously programmed sequence.

ASI-100P for Semi-preparative Usage

For semi-preparative applications, the ASI-100P was designed for low backpressure contribution even at high flow rates. The carousel of the ASI-100P is equipped with semi-preparative 4-mL vial segments and a 2500 µL syringe and sample loop. The ASI-100PT provides sample temperature control.

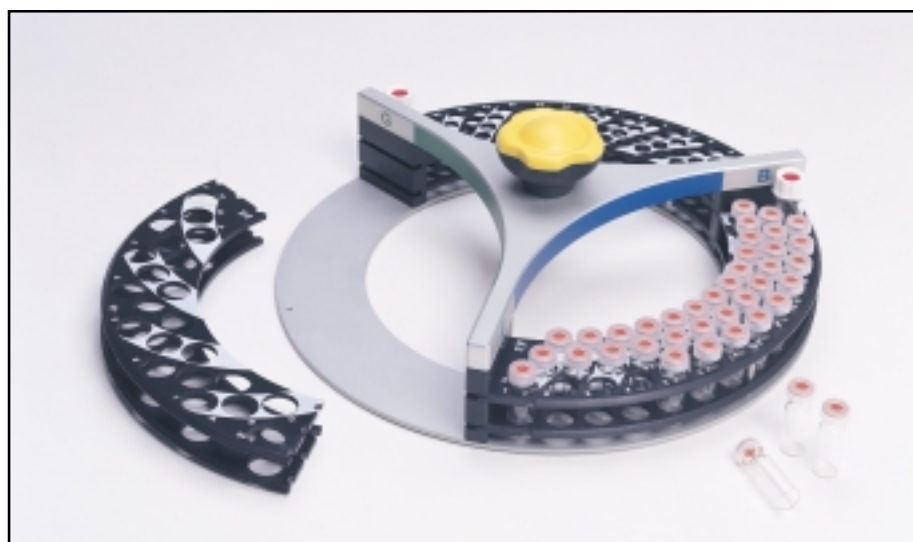


Figure 1. Segments can easily be changed to accommodate different vial sizes.

TABLE 1 SAMPLE CAROUSEL OPTIONS

Segment Type	Number of Sample Vials per Segment	Total Vials in Carousel (3 Segments)
Analytical, Cylindrical: 1.8 mL Vials	39 + 1 Wash Vial	117 + 3 Wash Vial
Analytical, Conical: 1.1 mL Vials	39 + 1 Wash Vial	117 + 3 Wash Vial
Mini, Cylindrical: 1.2 mL Vials	64 + 1 Wash Vial	192 + 3 Wash Vial
Mini, Beckmann: 0.25 mL Vials	64 + 1 Wash Vial	192 + 3 Wash Vial
Eppendorf, Cylindrical: 2 mL Vials	22 + 1 Wash Vial	66 + 3 Wash Vial
Eppendorf, Conical: 1.5 mL Vials	22 + 1 Wash Vial	66 + 3 Wash Vial
Eppendorf, Conical: 0.5 mL Vials	22 + 1 Wash Vial	66 + 3 Wash Vial
Semiprep, Cylindrical: 4 mL Vials	21 + Wash Vial	63 + 3 Wash Vial

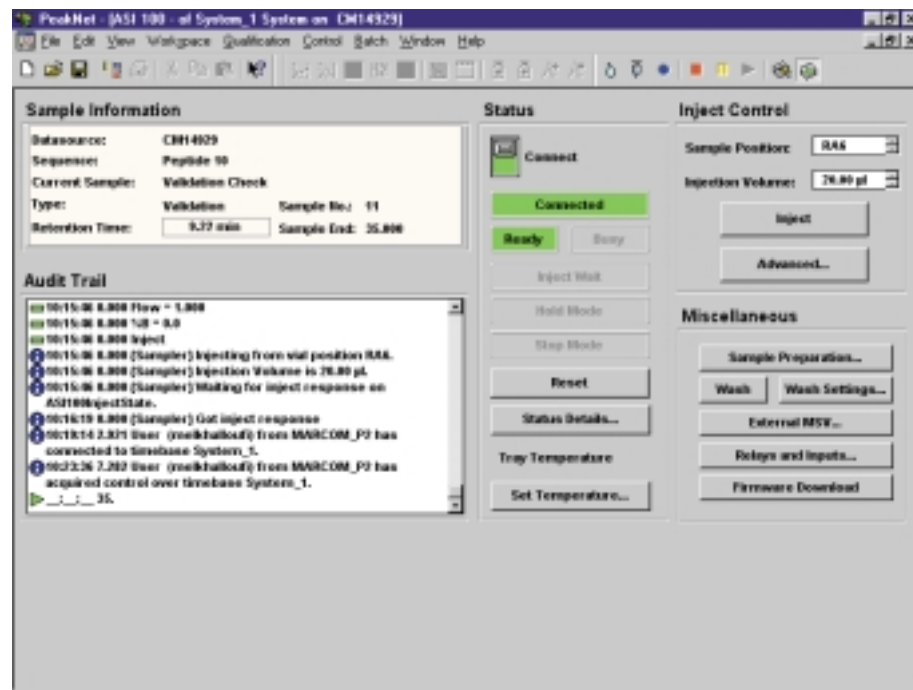


Figure 2. The ASI-100/ASI-100T can be programmed with CHROMELEON chromatography management software.

Sample Preparation

The ASI-100/ASI-100T can be programmed through the front panel or through CHROMELEON to perform several operations prior to sample injection that normally would be performed by the analyst before placing the sample in a vial. These operations include procedures such as reagent addition, sample dilution, standard additions, and standards preparation. Mixing is accomplished through a draw and dispense process; with CHROMELEON, multiple draw and dispense operations can be performed. The autosampler also can be programmed to perform a “Wash” protocol when required.

Sample Temperature Control

The ASI-100T provides sample carousel temperature control using Peltier heating and cooling. The temperature range of the ASI-100T is 4–45 °C (39–113 °F), with maximum cooling of -18 °C from ambient. Maximum heating is +35 °C from ambient.

Serviceability

The ASI-100/ASI-100T is easy to operate and maintain. Syringe and sample loop changes are made through an access panel on the right front corner (Figure 3). The standard syringe and sample loop volume is 250 µL; other volume options are 100, 1000, and 2500 µL. It is recommended that the syringe volume and sample loop



Figure 3. Easy access is provided to the syringe and sample loop.

size are equivalent.

To aid in maintenance schedules, the autosampler keeps an internal log of actions that have been performed. By accessing the “Counters” submenu, users can view statistical information for individual counters. The counters track the following parameters:

- Number of executed injections
- Number of injection valve stator and rotor movements
- Wear of the needle port
- Wear of the needle seal

- Wear of the syringe

ASI-100P for Semi-preparative Usage

For semi-preparative applications, the ASI-100 was designed for low backpressure contribution even at high flow rates. The carousel of the ASI-100P is equipped with semi-preparative 4-mL vial segments and a 2500 µL syringe and sample loop. The ASI-100PT provides sample temperature control.

SPECIFICATIONS

Sample Capacity

Dependent on sample carousel;
63 4-mL vials, 117 1.8-mL vials, or
192 1.2 mL vials

Injection Volume

1–250 μL with standard syringe and
appropriate sample loop

10–2500 μL with 2500 μL syringe
(ASI-100P)

Injection Volume Increment

0.1 μL

Flush Volume

None

Sample Loss/Injection

None

Minimum Sample Required

5 μL

Reproducibility

RSD < 0.3% at 5 μL (250 μL syringe)

Typical RSD < 1% at 1 μL
(250 μL syringe)

RSD < 0.3% at 100 μL
(2500 μL syringe)

Carryover

< 0.1%

Repeat Injections

Nine

Counters

Number of executed injections, number
of injection valve stator and rotor
movements, wear of needle port, wear
of needle seal, wear of syringe

Safety Features

Automatic segment detection, auto-
matic vial recognition, automatic vial
sensing, electronic needle protection,
overflow/leak sensor, all mechanical
operations internally monitored
(injection valve, syringe, etc.)

Input/Display

LCD display, keypad with control
elements and function keys for direct
control, LED display (seven segments)
for retention time indication, LED
display (seven segments) plus three
LEDs for indicating sample location

Wetted Parts

Stainless steel (1.4571/316SS),
PCTFE, PTFE, PEEK, Vespel®

Temperature Control (ASI-100T only)

4 to 45 °C

Operating Pressure

Max. 340 bar (4930 psi)

Operating Conditions

Temperature: 10–35 °C
Relative air humidity: 40–85%

In-/Outputs

2x serial (RS-232[A] and RS-232[B]),
MSV, sample position, digital I/O

Power Requirements

115 V/60 Hz; 230 V/50 Hz

Power Consumption

Max. 126 VA

Compressed Air

None

Dimensions (h x w x d)

36 x 40 x 45 cm
(14.2 x 15.7 x 17.7 in.)

Weight

17 kg (37.4 lb)

Max. Load for Stacking

25 kg (55 lb)


ORDERING INFORMATION

In the U.S., call 1-800-346-6390, or contact the Dionex Regional Office nearest you. Outside the U.S., order through your local Dionex office or distributor. Refer to the following part numbers.

Description	Part Number
ASI-100 Autosampler, with standard carousel (analytical, cylindrical 1.8 mL vials)	5810.0010
ASI-100T Autosampler, with standard carousel (analytical, cylindrical 1.8 mL vials)	5810.0015
ASI-100 Autosampler, with 1.2 mL vial carrier	5810.0020
ASI-100T Autosampler, with 1.2 mL vial carrier	5810.0025
ASI-100P Autosampler, 2500 μ L syringe/loop and 4 mL vial carrier	5810.0030
ASI-100PT Autosampler, 2500 μ L syringe/loop and 4 mL vial carrier	5810.0035
Standard carousel, three segments, analytical, cylindrical 1.8 mL vials	5810.9101A
Carousel, three segments, analytical, conical 1.1 mL vials	5810.9105A
Carousel, three segments, mini, cylindrical 1.2 mL vials	5810.9102A
Carousel, three segments, semi-prep, cylindrical 4 mL vials	5810.9103A
Carousel, one segment each for cylindrical 1.2, 1.8 and 4 mL vials	5810.9104A
Carousel, three segments, Eppendorf, cylindrical 2 mL vials	5810.9106A
Carousel, three segments, Eppendorf, conical 1.5 mL vials	5810.9107A
Carousel, three segments, Eppendorf, conical 0.5 mL vials	5810.9108A
Carousel, three segments, Beckmann, mini 0.25 mL vials	5810.9109A
Three segments for analytical, cylindrical 2 mL vials	5810.9110
Three segments for mini, cylindrical 1.2 mL vials	5810.9111
Three segments for semi-prep, cylindrical 4 mL vials	5810.9112
Three segments for analytical, conical 1.1 mL vials	5810.9114
Three segments for Eppendorf, cylindrical 2 mL vials	5810.9115
Three segments for Eppendorf, conical 1.5 mL vials	5810.9116
Three segments for Eppendorf, cylindrical 0.5 mL vials	5810.9117
Three segments for Beckmann, mini 0.25 mL vials	5810.9118
Syringe, 100 μ L with seal	5805.2920
Syringe, 1000 μ L with seal	5805.2940
Syringe, 2500 μ L with seal	5805.2950
Sample loop for 100 μ L syringe	5810.3012
Sample loop for 1000 μ L syringe	5810.3010
Sample loop for 2500 μ L syringe	5810.3011



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