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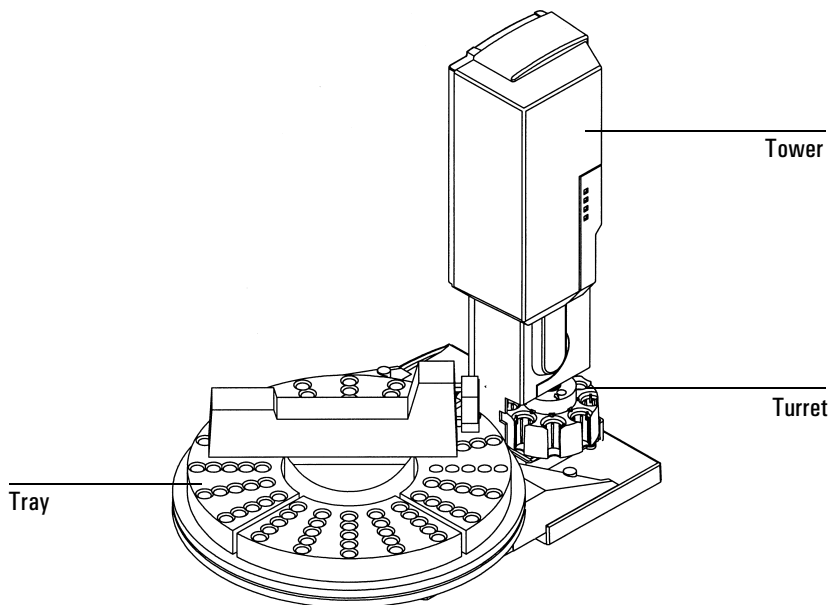
# The Automatic Liquid Sampler

This section describes how to configure and use your ALS.

The automatic liquid sampler system can include one or two injector towers, a bar code reader, and a tray. You use the GC keyboard to enter injector and tray setpoints and to control simple sequences. The parts of the sampler are:

- *Injector tower*—houses a syringe for sample injection. Two towers can be mounted for injection into both inlets. The tower can be lifted off the inlet and parked on posts at the back of the GC.
- *Sample tray*—holds a maximum of 100 sample vials.
- *Injector turret*—holds sample, waste, and wash vials.
- *Bar code reader*—reads and decodes several different bar codes.

For more information on the automatic liquid sampler, refer to its Operation Guide (Part no. G2612-90117).



**Figure 27** Automatic sampler components

## Injector control table

Press [Front Injector] or [Back Injector].

FRONT INJECTOR	
Injection vol	1.0<
#Sample pumps	1
Viscosity delay	1
#Sample washes	1
#Solv A washes	1
Stop plunger	Off
Pre dwell time	0.10
Post dwell	0.10
Sampling offset	2.0
#Solv A pre wash	2
#Solv B pre wash	2

Injection volume—Sample volume to be injected. Press [Mode/Type] to select. The available volumes depend on the syringe size configured. See [“Configuring the injector” on page 209](#).

- The selections represent 2%, 10%, 20%, 30%, 40%, and 50% of syringe size
- Turn the injection volume Off to disable the injector

Number of sample pumps—How many times the syringe plunger is moved up and down with the needle in the sample to expel air bubbles and improve reproducibility.

Viscosity delay—How many seconds the plunger pauses at the top of the pump and injection strokes. For viscous samples, the pause allows the sample to flow into the vacuum created in the syringe.

Number of sample washes—How many times the syringe is rinsed with sample before the injection. The injector lowers the needle into the sample vial, fills the syringe to eight-tenths its full volume, and empties it into one of the waste bottles.

Number of solvent A washes—How many times the syringe is rinsed with solvent from the solvent A bottle.

Number of solvent B washes—How many times the syringe is rinsed with solvent from the solvent B bottle.

Slow plunger—The speed of the syringe plunger during injection. Enables you to reduce the average speed of the plunger and hold the syringe needle in the inlet for 4 seconds after the injection. Turning the setpoint On pushes at a rate of about 5  $\mu\text{L}/\text{sec}$  (with a 10  $\mu\text{L}$  syringe)—Off is about 20 times faster. The plunger speed during the pump and waste dispensing does not change.

Dwell times—How long, in minutes, the needle remains in the inlet before or after the injection.

Sampling offset—Enables variable sampling depth.

### **Procedure: Editing injector setpoints**

Accessing either of the injector keys allows you to edit injector control setpoints, such as injection volumes, sample and solvent washes, etc.

To edit the injector setpoints:

1. Press [Front Injector] or [Back Injector].
2. Scroll to the desired setpoint.
3. Enter a setpoint value, or turn the setpoint on or off.
  - Press [Mode/Type] to make a selection for syringe size.

## Configuring the injector

### Tower position

Injector cables are connected to either the INJ1 or INJ2 port on the controller. This setpoint indicates which tower is on which inlet. With only one injector, you do not have to move cables when you move the tower, merely reconfigure the tower position.

### Waste bottle mode

The turret waste bottle positions are controlled using the [Mode/Type] key:

- Use both A and B alternates between the two waste bottles
- Use only A bottle uses bottle A only
- Use only B bottle uses bottle B only

### Use B2 wash

You can enable this option to use two 4 mL vials of solvent B, increasing the number of runs you can make before refilling solvent vials.

- Use the same solvent in position B and in position B2. (This option does not enable you to use a third solvent.)
- Use the three sample vial position turret.
- Because your solvent capacity is now 6 mL (2 mL each for solvent vials A, B, and B2), you **must** use two waste vials. See *Waste bottle mode* above.
- Configure each injector separately.

Note that the number of solvent B washes for each injection does not change. The injector simply alternates use between the two solvent B vials.

**Procedure: Configuring an injector with an eight sample vial turret**

1. Press [Config][Front Injector] or [Config][Back Injector].

```
┌───┐
│   CONFIG F INJECTOR   │
│ Front Tower      INJ1  │
│ Syringe size    10.0  │
│ Tower fan      Off    │
└───┘
```

2. With the cursor on a tower line, use the [On] or [Off] key to set the tower position to either INJ1 or INJ2.
3. Enter a value for Syringe size, in  $\mu\text{L}$ .
4. With the cursor on Tower Fan, use the [On] or [Off] key to select fan usage.
  - In general, leave the fan On.

**Procedure: Configuring an injector with a three sample vial turret**

1. Press [Config] [Front Injector] or [Config] [Back Injector].

```
┌───┐
│   CONFIG B INJ   │
│ Back Tower      INJ1  │
│ Use B2 wash     On    │
│ Waste Btle mode  A    │
│ Syringe size    10.0  │
│ Tower fan      Off    │
└───┘
```

2. Set the B2 wash bottle usage On or Off.
3. To select the waste bottle mode, press [Mode/Type].
4. Enter the installed syringe size, in  $\mu\text{L}$ , for Syringe size.
5. With the cursor on Tower Fan, use the [On] or [Off] key to select fan usage.
  - In general, leave the fan On.

## Sample tray setpoints

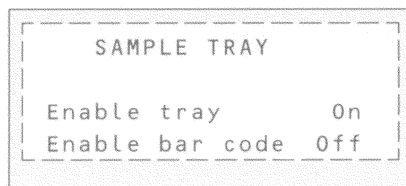
The sample tray delivers sample vials to the front and rear injectors according to the defined sequence parameters. There are a separate set of sequence parameters for each injector. The sample tray delivers vials to the front injector before the rear injector. Stored sequences and bar code configurations can be used to tell the sample tray where to deliver and retrieve sample vials.

Enable tray—turn On for a tray sequence, Off for sample bottles in the injector turret.

Enable bar code—turns the bar code reader on or off.

### Procedure: Editing the sample tray setpoints

1. Press [Sample tray] to access the sample tray and bar code reader setpoints.

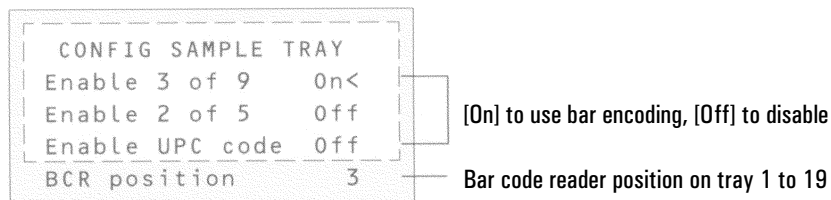


2. Press [On] or [Off] to enable or disable the tray.
3. Press [On] or [Off] to enable or disable the bar code reader.

### Procedure: Configuring the bar code reader

The bar code reader can be configured to read specific codes on the bar code label.

1. To edit the bar code reader setpoints, press [Config][Sample Tray].



2. Press [On] or [Off] to control the following bar code setpoints.

Enable 3 of 9—the 3 of 9 code offers the greatest versatility for laboratory use. It can encode both letters and numbers, plus a few punctuation marks, and message length can be varied to suit both the amount of data to be encoded and the space available.

Enable 2 of 5—the 2 of 5 code is restricted to numbers but does allow variable message length.

Enable UPC code—the Universal Product Code (UPC) is probably the most well-known code in use today. UPC codes are numbers-only and have fixed message length.

3. Enter 3 as the bar code reader position when it is installed in the front of the tray.

For more information on the bar code reader, refer to its Operating Manual or Installation Manual.

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## **Storing injector setpoints**

After setting up injector setpoints, sample tray setpoints and bar code reader configurations, store them as part of a method by following the procedures in [“Procedure: Storing a method”](#). This method becomes a part of the sequence used to run the samples. For more information on injector sequences and sequence control, see [“Analytical Sequences”](#).