



TELEDYNE
CETAC TECHNOLOGIES
Everywhereyoulook™

ASX-560 Autosampler
ASX-280 Autosampler
Alignment Guide



Manual Part Number **480221** Rev 4
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Introduction

The autosampler's alignment is critical to its ability to operate reliably. Alignment sets the horizontal location of known positions on the tray in relation to the home position at the rinse station. This alignment is done by setting offsets in the firmware. No mechanical adjustments are required.

When to Align the Autosampler

The autosampler may need alignment if:

- You suspect that shipping or rough handling may have disturbed the autosampler's chassis.
- Autosampler movement was stopped by hitting an obstruction. (In this case, you may also need to replace the sample probe.)
- An autosampler component such as the Z-drive has been replaced.
- The autosampler firmware has been updated.

Overview of the Alignment Software

The screenshot shows the alignment software interface with several key components highlighted by callouts:

- Connection Controls:** Located at the top left, featuring buttons for 'REFRESH', 'COM1', and 'CONNECT'.
- Map:** A large green area in the center-left for visualizing alignment zones and landmarks.
- Map Legend:** A small box below the map showing 'Target' (blue circle), 'All Target' (green circle), and 'Target Lost' (red circle).
- Map Size (mm):** A control panel with radio buttons for 0.01, 0.1, 0.5, 1.0, 5.0, and 10.0.
- Move Probe:** A control panel with directional arrows for X/Y and Z/W.
- Alignment Software Controls:** A row of buttons at the bottom: 'START ALIGNMENT', 'SAVE HOME', 'START ZONE', 'NEXT TARGET', 'SET ZONE HIGHLIGHTED', and 'VERIFY ALIGNMENT'.
- Alignment Position Controls:** A yellow 'Load' button.
- Load Alignment File:** A callout pointing to the 'Load' button with the instruction: 'Click this button to load an alignment file'.
- Status:** A panel on the right showing 'Messaging' and 'File Name:'. A callout points to it with the instruction: 'Detailed information about how the alignment is progressing.'
- Zone Message:** A pop-up box with the text 'Zone Message' and 'Align using diluent dispense probe', with an 'OKAY' button.

Overview of the Alignment Process

Step 1: Prepare the autosampler and computer.

- ❖ Gather the required equipment.
- ❖ Install the ASX Dashboard software and configure the PC.
- ❖ Physically prepare the autosampler for alignment.

Step 2: Start the alignment software.

- ❖ Choose and load an alignment file.

Step 3: Follow the instructions displayed by the software.

- ❖ Follow the instructions provided by the alignment software for each step of the process.
- ❖ The software will guide you to align the home position. After that, you will align landmarks (targets) for a set of alignment zones.
- ❖ Use the alignment position controls to adjust the position at each target.
- ❖ Refer to the information in this guide for details on each of the alignment zones.
- ❖ Verify and finish the alignment.

Step 1: Prepare the Autosampler and Computer

Equipment Required

- ASX-560 or ASX-280 autosampler
- USB cable
- Sample probe with probe clamps
- Rinse station and spill tray
- Two 60- or 90-position racks
- Four empty sample vials
- Three standards vials, optionally with caps
- ASX Dashboard software
- Alignment files

Installing the ASX Dashboard Software

The alignment utility is part of the ASX Dashboard software which is on the CD which was included with the autosampler.

It is important to use the latest version of the software. You may request access to download the software from www.teledynecetac.com. You can request the most recent alignment file by contacting cetacs-service@teledyne.com.

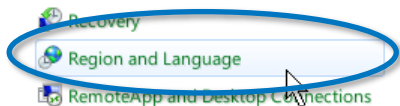
- 1 On the CD or other installation media, find the DashboardInstall folder.
- 2 Double-click the setup file (usually named ASX Dashboard-*version*.exe).
- 3 Follow the prompts to complete the installation.

Configuring the PC

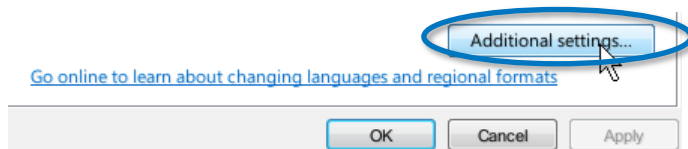
If you customarily use a period as the decimal symbol, skip to the next section.

The alignment software assumes that your PC is set up to use a period as the decimal symbol. If you customarily use a comma as the decimal symbol, then you need to change the Region settings on your PC. The procedure may be a little different depending on your version of Microsoft Windows.

- 1 Open the Windows **Control Panel**.
- 2 Select **Region and Language**.



- 3 Click **Additional Settings**.



- 4 For the **Decimal** symbol, choose the period (').

The screenshot shows a dialog box titled 'Numbers' with tabs for 'Numbers', 'Currency', 'Time', and 'Date'. The 'Numbers' tab is active. Under the 'Example' section, there are two input fields: 'Positive: 123,456,789.00' and 'Negative: -123,456,789.00'. Below this, the 'Decimal symbol:' dropdown menu is open, showing a period (') selected. The 'No. of digits after decimal:' dropdown menu is set to '2'.

- 5 Click **OK**.

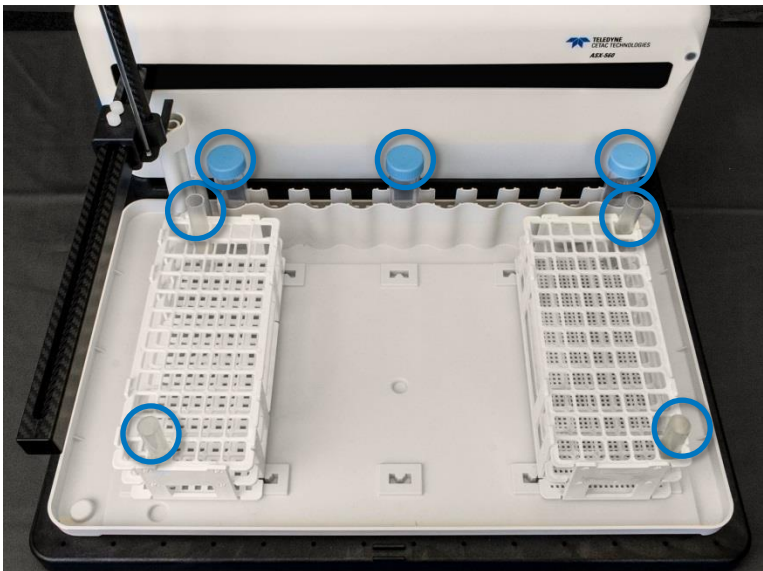
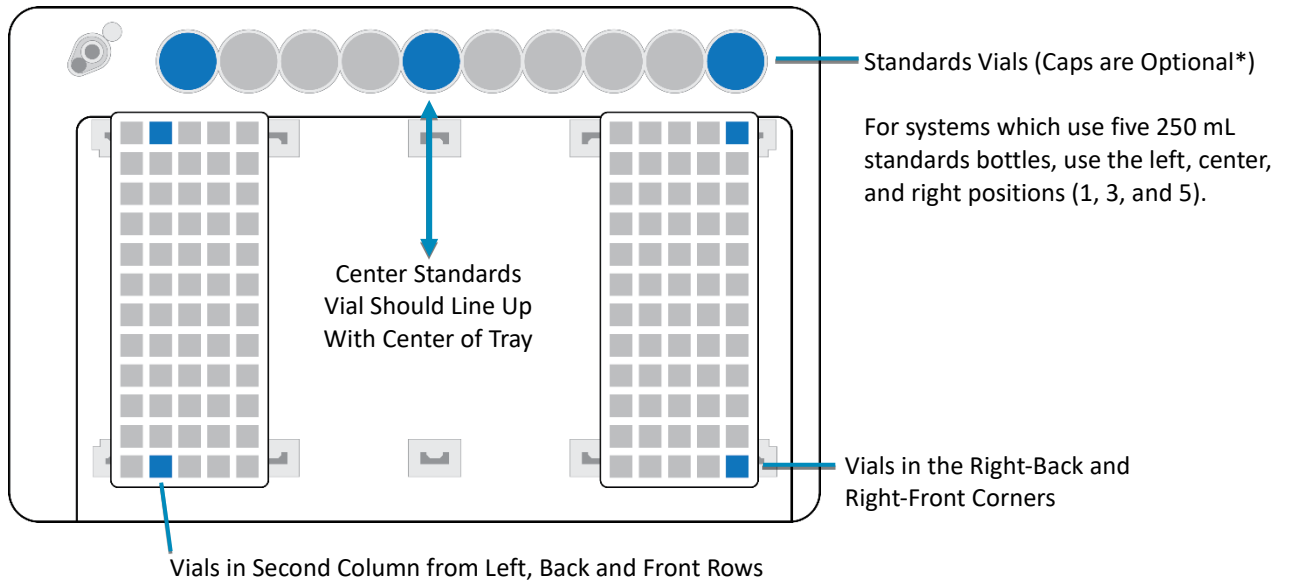
Preparing the Autosampler

- 1 Turn the autosampler off.
- 2 Remove any liquids (samples, standards, etc) from the tray of the autosampler.
- 3 Place the four sample vials and three standards vials as shown.

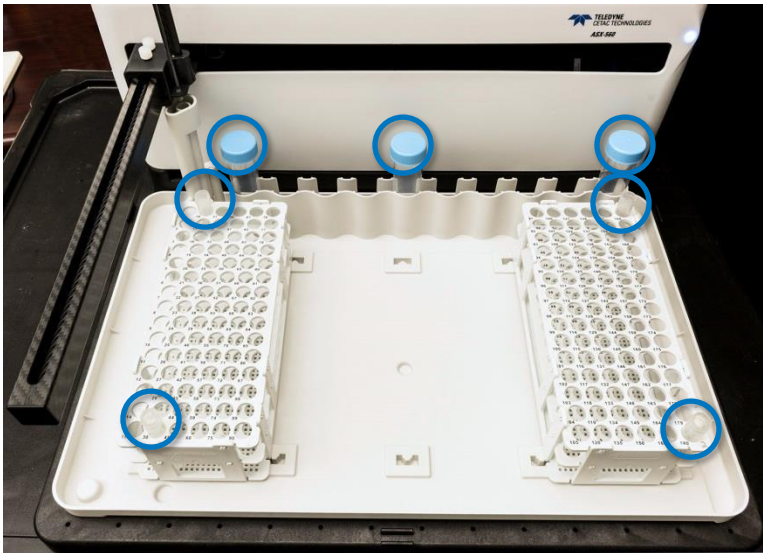
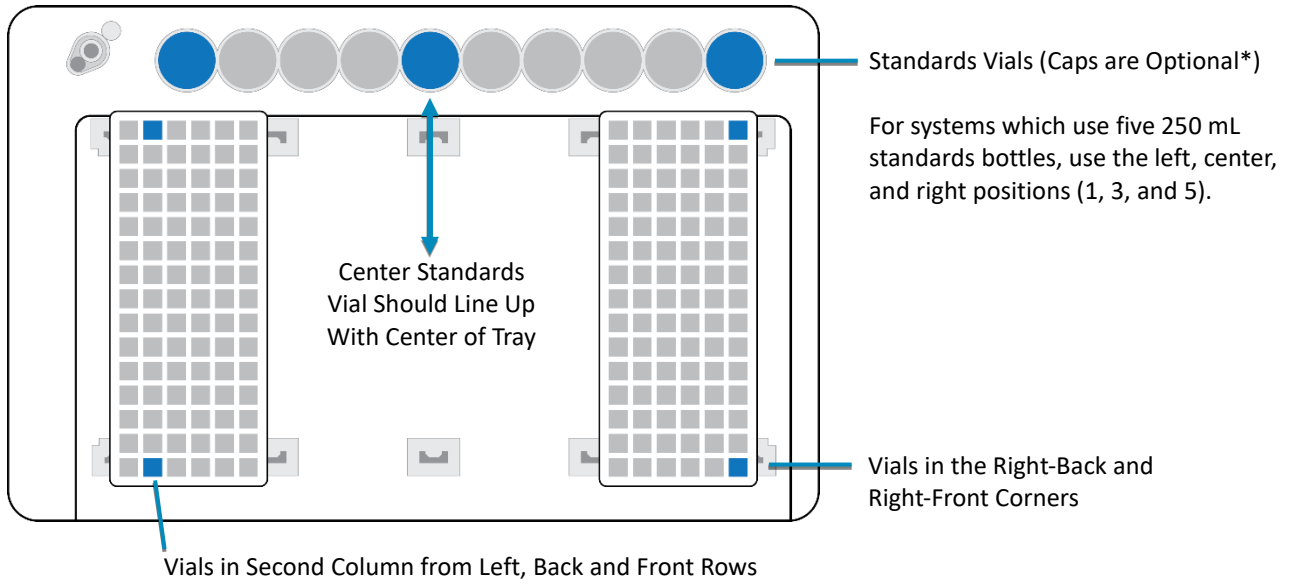
You will need three standards vials with caps*, two 60- or 90-position racks, and four empty sample vials.

** You can leave the caps on the standards vials. Most caps have a small dot (left by injection molding) in the very center, which helps visualize the alignment.*

ASX-560 with 60-position racks

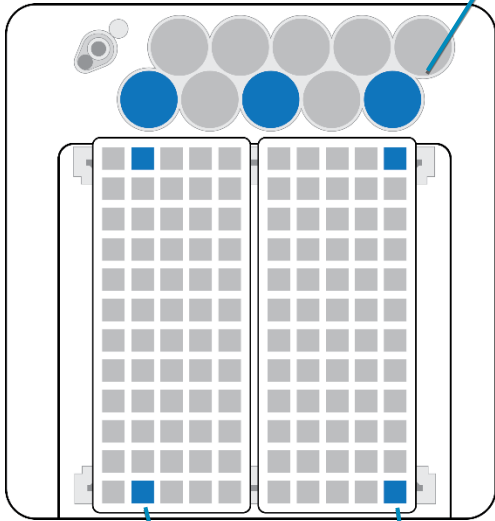


ASX-560 with 90-position racks



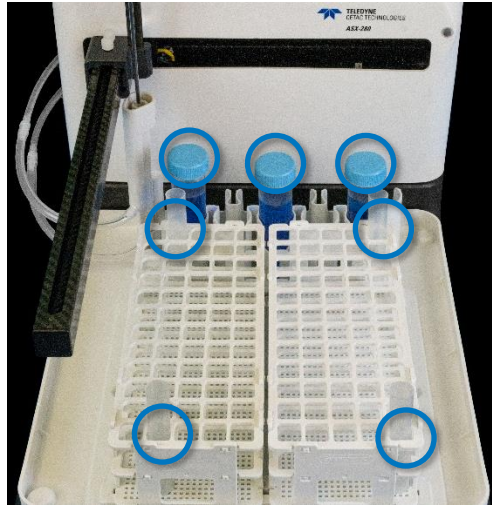
ASX-280 with 60-position racks

For the ASX-280, All Three Standards Vials Are in the Front Row



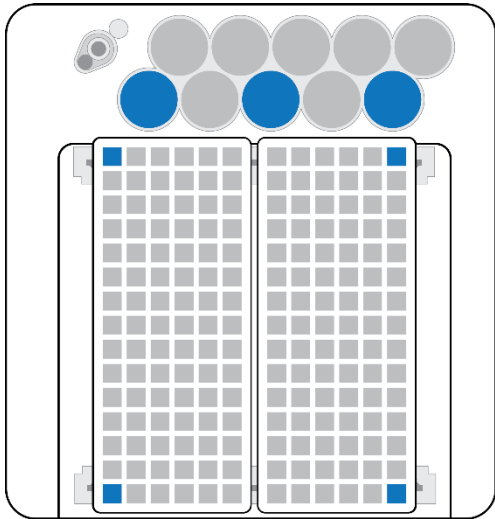
Vials in Left-Back and Left-Front Corners

Vials in the Right-Back and Right-Front Corners



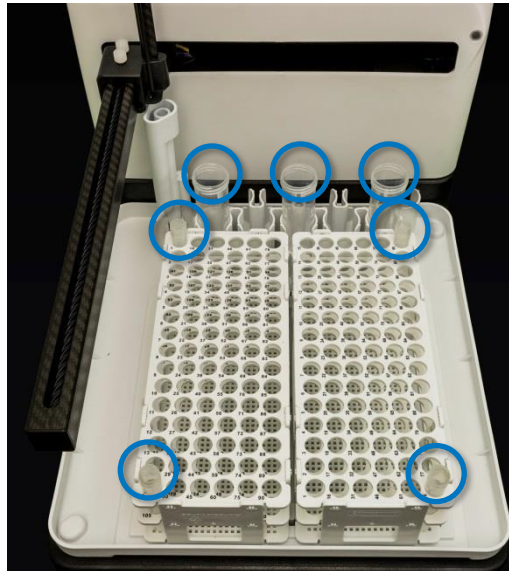
ASX-280 with 90-position racks

Vial placement in the left rack is different for the ASX-280 with 90-position racks.



Vials in Left-Back and Left-Front Corners

Vials in the Right-Back and Right-Front Corners



4 Connect the autosampler to the PC using a USB cable.

5 Turn the autosampler on.

6 Check that no other software is communicating with the autosampler.

Close any other software (such as the ICP software) which could potentially try to communicate with the autosampler.

7 Ensure that the autosampler is in the home position before proceeding. If the autosampler is not in the home position, cycle power then reestablish communications with the software.

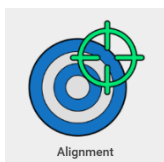
Note: If the probe has been caught or jammed, check it for straightness before proceeding.

Step 2: Start the Alignment Software

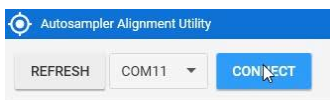
- 1 Open the ASX Dashboard.



- 2 Select the Alignment Utility from the Dashboard.

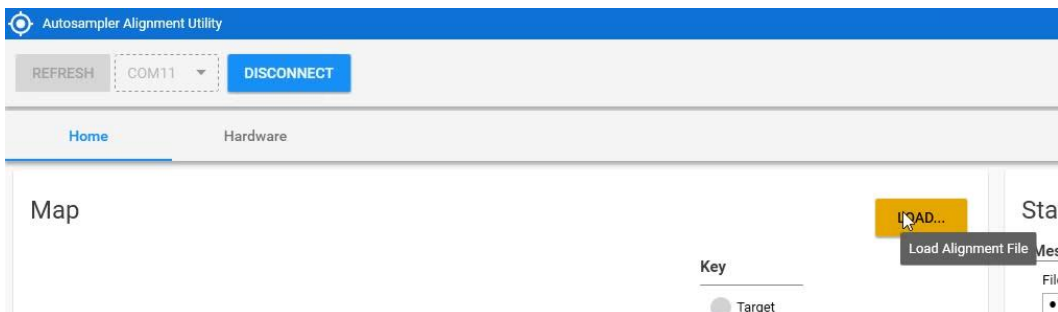


- 3 Select the appropriate COM port. Note that USB connections appear as COM ports.



Note: If the com port does not automatically populate, ensure that all other programs are closed and then select Refresh List. This will connect to any CETAC autosamplers present.

- 4 Click **Connect**.
- 5 A splash screen will appear while the devices are being detected.
- 6 Click **LOAD...** and choose the appropriate alignment file.



Choose the alignment file that matches the number of rack positions and tray standards positions for your autosampler. You will need to browse for the alignment files which are located on the CD in the Alignment Documents folder, then in the Alignment Files folder, or they can also be requested through the Teledyne CETAC website at

<https://www.teledynecetac.com>.

Name	Date modified	Type	Size
670110-008 ASX-280 Cust-Rack60-Std10 Alignment	11/3/2016 4:17 PM	XML Document	6 KB
670110-009 ASX-280 Cust-Rack90-Std10 Alignment	11/3/2016 4:20 PM	XML Document	6 KB
670110-010 ASX-560 Cust-Rack60-Std5 Alignment	11/3/2016 4:24 PM	XML Document	6 KB
670110-011 ASX-560 Cust-Rack60-Std10 Alignment	11/3/2016 4:25 PM	XML Document	6 KB
670110-012 ASX-560 Cust-Rack90-Std5 Alignment	11/3/2016 4:30 PM	XML Document	6 KB
670110-013 ASX-560 Cust-Rack90-Std10 Alignment	11/3/2016 4:32 PM	XML Document	6 KB

Step 3: Follow the Instructions Displayed by the Software

1 Click **START ALIGNMENT**.

The software will guide you through each step of the alignment. The first step of the alignment is always the origin, or home, point. This will be at the back left corner of the tray, at the rinse station.

2 Use the alignment controls to center the probe over the home location.

3 Click **SAVE HOME**.

Now the software will guide you through aligning more landmarks and zones.

A landmark is an individual point or target location.

A zone is a rectangular region such a rack. To align a zone, you will be guided through the alignment of landmarks at three of the corners. The autosampler will then move to the fourth corner to verify the alignment.

4 Click **START ZONE**.

5 Use the alignment controls to center the probe over the target location.


6 Click **NEXT TARGET**, then continue aligning the next two landmarks in the zone.

7 After three corners of the zone have been aligned, the autosampler will then move to the fourth corner to verify the alignment. If the alignment is correct, click **OKAY** then **SAVE ZONE**. If the position is not correct, click **RESTART ZONE**.

8 Continue aligning landmarks and zones until the alignment is complete.

9 To finish the alignment, click **VERIFY ALIGNMENT**.

Notes

- If needed, click  to view the online help.
- The rectangles in the Map area show the edges of the alignment zones. The edges of a zone might not be the same as the edges of the rack associated with it.
- Messages in the Status area show what the software is doing. A “Zone Message” box will pop up to tell you when you need to do something.
- The targets are color-coded to show when the probe is at the target, when alignment is in progress, when the target has been set, and when a verification target is being checked. When the offsets for the zone written to the autosampler's nonvolatile memory, the zone is shaded green.
- You only need to set the X/Y location of the probe over the target. You can move the probe (Z axis) up and down to make it easier to see the X/Y position.
- Start with a larger step size, then change to a smaller step size once you get close to the target.

Alignment Zones

Home Position (Origin)

Use the alignment controls (X/Y Axis Controls and Z Axis Controls) to center the probe tip in the rinse station. Position the probe so that the tip is approximately 1 cm into the rinse station (Z-axis) and the edges are equally spaced from the walls of the rinse station (X and Y axes).

The correct alignment over the rinse station should look like this:



Note: Previous versions of the alignment software provided separate “origin alignment” and “full alignment.” This version includes both forms of alignment in a single alignment process.

Sample Rack

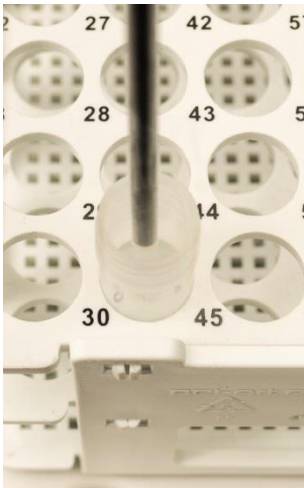
If you are using bottles or 50 mL vials with caps, leave the caps on. The caps assist with locating the exact center of the bottle or vial.

You will be asked to align three corners. Then the software will move the alignment rod to the fourth corner and you will be asked to verify that the position is correct.

Note that the physical edges of the racks will be outside the edges of the alignment zone rectangle shown on the map.

Use the alignment controls (X/Y Axis Controls) to center the probe tip in the vial. If necessary, adjust the Z axis position so you can better see the position of the probe. If the probe doesn't seem to move, right click and choose a larger step size.

Correct alignment over a vial should look like this:



10 Correct alignment over a standards vial should look like this:



Rinse Station

This position was already aligned as the “home” position, so all you need to do is verify that it is correct and click **SAVE ZONE**.

This is the last zone, so after you click **SAVE ZONE**, click **VERIFY ALIGNMENT**. The autosampler will move to each of the alignment targets; watch to make sure that each position is correct.