



TELEDYNE
CETAC TECHNOLOGIES
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Oils 7400 and Oils 7600 Homogenizing Autosampler



Quick Installation Guide

Manual Part Number **32-0356-048 Rev 3**, September, 2020

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Preparing for Installation

This document shows you how to install the Teledyne CETAC Oils 7400 and Oils 7600 homogenizing autosampler. See the *Oils 7400 and Oils 7600 Operators Manual* (on the CD) for additional instructions on installing, using, and caring for the system. The Oils 7400 autosampler is shown as an example throughout this guide.

System Components

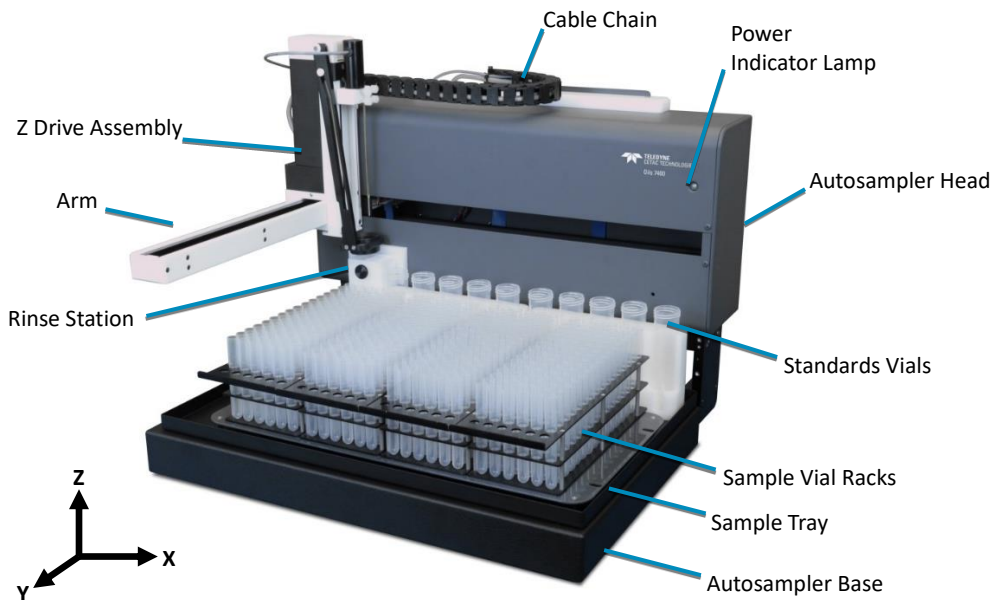


FIGURE 1 Oils 7400 Autosampler—Front View

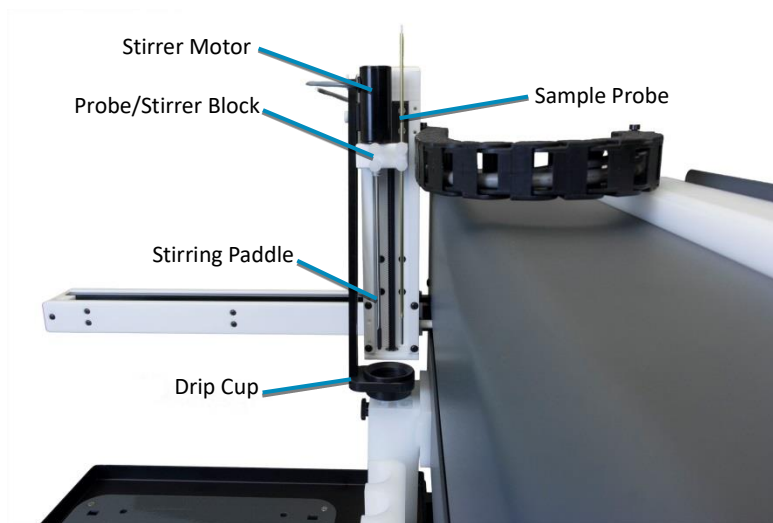


FIGURE 2 Z-Drive Assembly—Right Side View

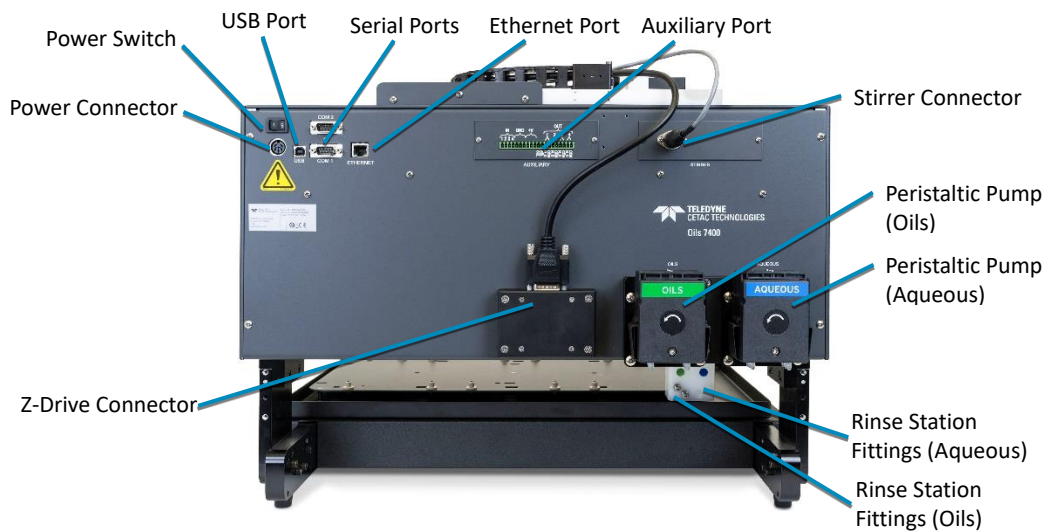


FIGURE 3 Oils 7400 Autosampler—Back View

Equipment Required

You will need to supply the following items:

- Liquid waste containers, 5 liters or larger
- Solvent bottles
- Computer
- ICP or other analytical instrument

Choosing a Location

Position the autosampler on a sturdy surface as close as possible to the ICP nebulizer.

CAUTION

LIFTING HAZARD

Two people are required to lift the autosampler. Lifting should be done with a person situated on either side of the instrument. Lifting without assistance may cause injury.

NOTE

Keep the original packaging for use in case the product ever needs to be returned or shipped to another location.

Installing the ASX Dashboard Software

- 1 On the included CD, double-click the ASX Dashboard installation file and follow the prompts to complete the installation.

You do not need to run the software yet. The installation includes a USB driver which Windows should automatically find when you connect the autosampler to the PC.

Mounting the Tray

- 1 Check that the tray is securely seated on the base of the autosampler.

Make sure the locating pins on the tray fully seat into the locating holes in the base.

- 2 Place the standards racks at the back of the tray.

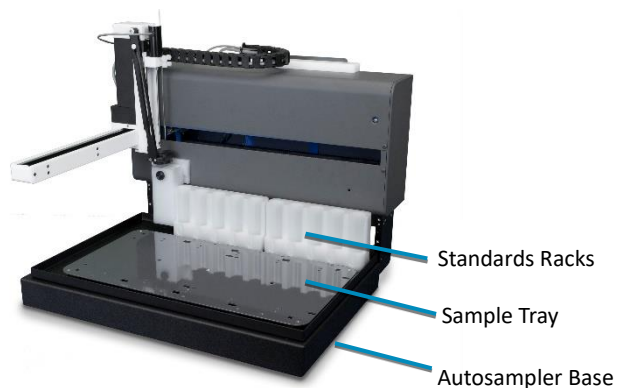


FIGURE 4 Tray and Standards Racks

Installing the Stirrer

When the autosampler is used for oils, install the stirrer paddle. When the autosampler is used for aqueous samples such as coolants, the stirrer paddle should be removed (or replaced with the optional aqueous stirrer paddle).

- 1 Press the drip cup into the hole in the Z-drive assembly.



FIGURE 5 Drip Cup

- 2 Locate the oils stirrer paddle. Place the nut and ferrule on the paddle as shown.



FIGURE 6 Stirrer Paddle for Oils with Nut and Ferrule

- 3 Loosen the thumbscrews on the probe/stirrer block and lift the stirrer motor straight up.

- 4 Press the stirrer paddle into the hole on the bottom of the stirrer motor.

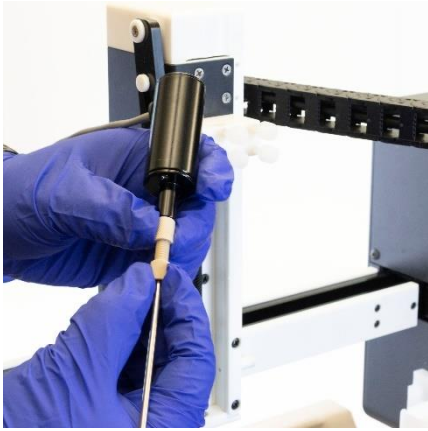


FIGURE 7 Inserting the Stirrer Paddle

- 5 Place the stirrer motor into the larger hole in the probe/stirrer block on the Z-drive.

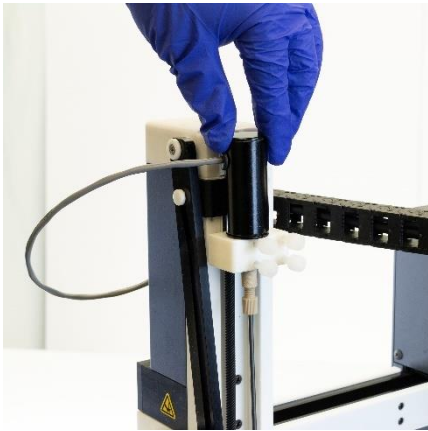


FIGURE 8 Placing the Stirrer Motor

- 6 Tighten the two thumbscrews.



FIGURE 9 Securing the Stirrer

Installing and Adjusting the Sample Probe

- 1 Choose the appropriate probe for your application.



FIGURE 10 Stainless Steel Probe for Oils Applications (Left) and Carbon Fiber Probe for Aqueous Applications (Right)

- 2 Guide the probe straight down through the smaller hole in the Z-drive.
- 3 Adjust the height of the probe so that the tip of the probe is level with the tip of the stirrer paddle.

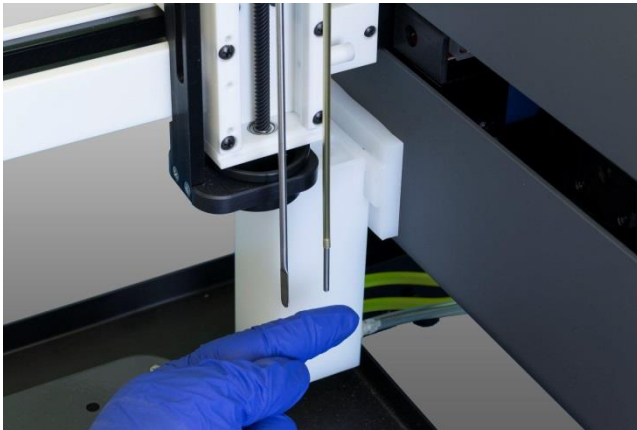


FIGURE 11 Probe Level With Stirrer Paddle

- 4 Tighten the thumbscrews.

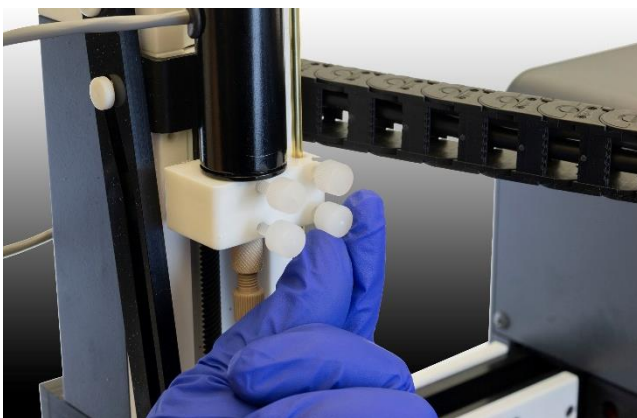


FIGURE 12 Installing the Probe

- 5 Route the sample tubing. If desired, route the sample tubing through the guide on the top of the autosampler.

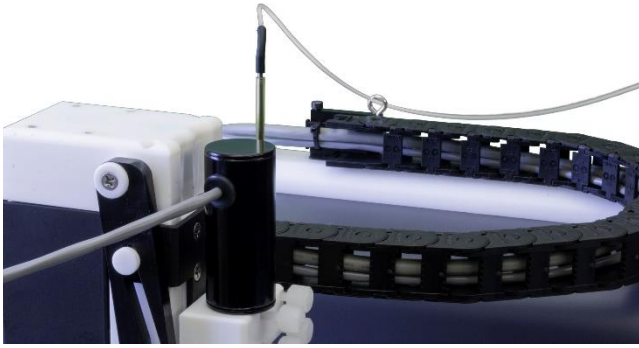


FIGURE 13 Routing Probe Tubing Through the Guide

Always position the sample transfer tubing so that it does not pull on the probe. The tubing should naturally curve away from the probe so that it won't rub or get caught. Be sure to check that the tubing will not be stretched and will not snag on an obstacle when the probe is moved to the far corner sample positions.

Connecting the Rinse Station

For aqueous samples (coolants), the rinse solution is typically deionized water or a dilute acid rinse such as 1% HNO₃. For oils samples, the rinse solution is typically a solution from the kerosene family.

If you will be switching between coolants and oils, you will need to make two sets of tubing connections: one for the Aqueous pump and the aqueous side of the rinse station, and one for the oils side. **The “Aqueous” peristaltic pump should be connected to the blue side of the rinse station and the “Oils” pump should be connected to the metal fittings on the green side of the rinse station.**

If you are only using oils, you do not need to connect the “Aqueous” pump.

Direction of Flow

The rinse solution flows from the sample probe reservoir to the drain (rinse out) reservoir within the rinse station. The waste rinse solution is then drained from the rinse station.

For each side of the rinse station, two inlets are used to ensure sufficient flow. The rinse solution flows from the bottom to the top of the sample probe reservoir. Up-flow rinsing is the most effective method for decontaminating the sample probe tube between samples. Reversing the connections will reverse the flow direction, resulting in cross-contamination and unsatisfactory performance.

Waste Rinse Solution

Most applications will use a gravity drain arrangement. If you need a pumped drain arrangement, see the *Operators Manual*.

In most cases, rinse solution will be “recycled” by returning it to the rinse solution bottle. If necessary, rinse solution can be pulled from a fresh bottle and used solution drained to a waste container. Remember to label the waste container according to your laboratory policy and local regulations.

CAUTION

Ensure that the tubing outlet is placed so that it will remain above the surface of the liquid in the waste container. If the end of the tube is immersed, the waste solution might back up and overflow.

Tubing Material and Diameter

Verify that the supplied tubing material is compatible with the rinse solution you are using. Clear Superthane® tubing is supplied (except for the peristaltic pump tubing cartridge). There are many different types of tubing that can be used for the rinse station. Clear Tygon®, Viton®, Tygon® Fuel and Lube (yellow), and PharMed® (opaque) may be used depending on the application and user preference. Refer to the *Oils 7400 Spare Parts and Accessories Catalog* or contact CETAC if you need different tubing material.

The fittings on the rinse station and on the peristaltic pump use 1/8 inch (3.2mm) ID tubing.

Attaching the Tubing

Carefully press the tubing straight on to the fittings to avoid breaking the fittings. If you find it difficult to get a good connection to the rinse station, remove the rinse station and press the tubing firmly so that it completely covers the barb of the fitting. It helps to use your other hand to apply counter-pressure.

When removing tubing, apply only a linear force to prevent the fittings from breaking. If the tubing does not come off easily, carefully make small cuts at the end of the tubing.

To ensure a smooth, straight cut, use a razor blade or sharp knife to cut the tubing.

Gravity Drain Arrangement

For most laboratories, a gravity drain arrangement is recommended. Channels 2 and 3 of the peristaltic pump are used to supply rinse solution to the rinse station. The rinse station then drains directly—either to the container of rinse solution (for recycled rinse) or to a separate waste container. Channel 1 of the pump is unused.

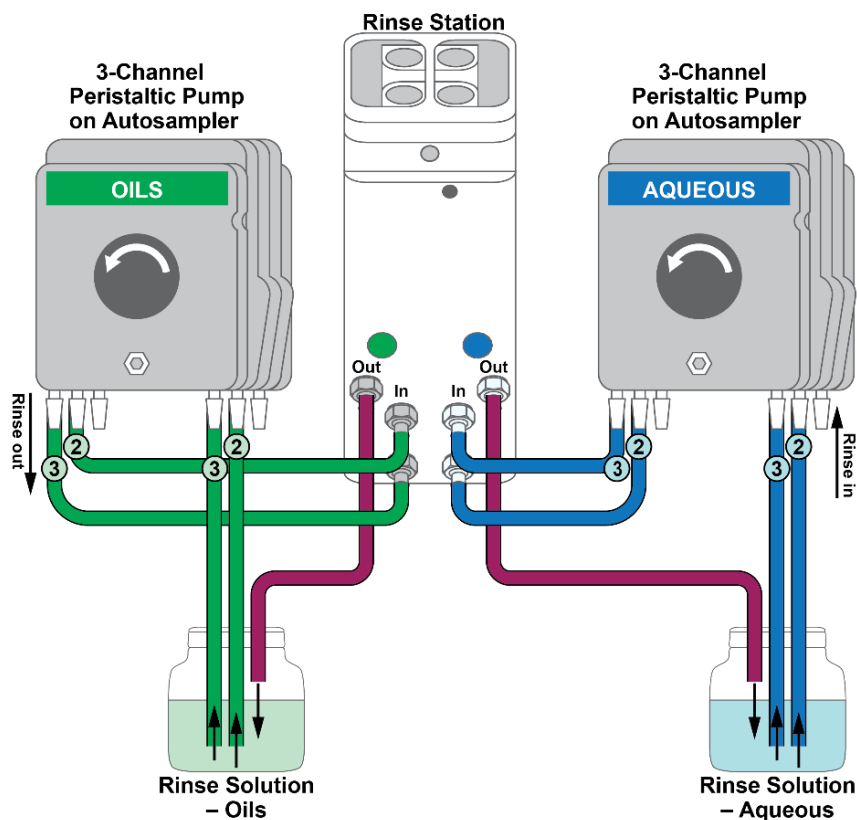


FIGURE 14 Gravity Drain Tubing Connections

- 1 Position yourself behind the autosampler, where you can see the fittings on the peristaltic pump and on the rinse station. If necessary, you can remove the rinse station or the pump tubing cartridge while you make the connections.



FIGURE 15 Autosampler Before Rinse Tubing Connections

- 2 Connect up to 1.8 meters of tubing from the outlet fitting of the rinse station (the *upper* fitting) to the waste container.



FIGURE 16 Connecting the Waste Line (Oils Side Is Shown)

CAUTION

Ensure that the tubing outlet is placed so that it will remain above the surface of the liquid in the waste container. If the end of the tube is immersed, the waste solution might back up and overflow.

- 3 Connect two pieces of tubing to the right (inlet) side of the pump. Cut the tubing to an appropriate length to reach the bottom of the rinse solution container.



FIGURE 17 Connecting the Rinse Supply to the Pump

- 4 Cut two pieces of tubing to go between the peristaltic pump and the rinse station; ensure that the tubing is long enough to reach without any sharp bends or kinks—the tubing should be about 25 cm (10 inches) long.

- 5 Connect the pieces of tubing from step 4 from left (outlet) side of the pump to the inputs (the two *lower* fittings) of the rinse station.



From Rinse Solution Source To Waste Container

FIGURE 18 Connecting the Pump to the Rinse Station

Assembling and Placing the Sample Vial Racks

Some styles of sample vial racks are shipped unassembled. You can easily assemble them without using tools.

WARNING

PUNCTURE HAZARD

Never attempt to load, unload or reposition the sample vial rack or sample vial while the autosampler is operating. The sample probe may move unexpectedly and cause an injury.

- 1 Before loading or unloading any sample vial racks on the sample tray, park the sampling arm and probe in the home position. The home position is the initial position at power up.
- 2 If necessary, assemble the racks as shown in the instructions included with each rack.
- 3 Place the first sample vial rack at the extreme left-hand side of the sample tray. Place the next sample vial rack to the right of the first rack, and so forth.

Connecting to an ASXPRESS PLUS System

See the *ASXPRESS PLUS Rapid Sample Introduction System Installation Guide* for more information.

If you are using an existing *ASXPRESS PLUS* system (not purchased with the autosampler), then you may also need to:

- 1 Install the ASX Dashboard from the Oils 7400-7600 CD. Do not use the standalone Xpress Configuration Tool which came with the *ASXPRESS PLUS*. For information on using the *ASXPRESS PLUS* with the ASX Dashboard, download the latest *ASXPRESS PLUS Rapid Sample Introduction System Operator's Manual* from www.teledynecetac.com.
- 2 Upgrade the *ASXPRESS PLUS* firmware to version 2.63 or greater.

- 3 Set the *ASXPRESS PLUS* personality to the appropriate value.

Connecting to the Analytical Instrument's Sample Port

You can connect the autosampler directly to a sample introduction peristaltic pump and then to a nebulizer or other sample introduction device.

One end of the sample transfer tubing is preconnected to the sample probe.

The transfer tubing should be long enough so that there will be no strain on the tubing connectors even when the sample probe is at the position farthest from the analytical instrument.

- 1 Determine the length of the sample transfer tubing you need, and cut it to size.
- 2 Connect the free end of the sample transfer tubing to the inlet of the analytical instrument's peristaltic pump.

Connecting the Autosampler to the Power Supply

The autosampler is powered by the supplied external desktop "brick" power supply. Ensure that you position the autosampler so that the location where the power supply cord plugs into it is easily accessible (is not blocked) and it can be quickly disconnected if needed. In case of hazard, the system should be disconnected from the power source.

- 1 Turn the power switch on the autosampler OFF.
- 2 Check the plug on the power cord to verify that it is of the correct type for your country.
- 3 Plug the power cord into a power outlet.
- 4 Plug the power cord into the power supply.



FIGURE 19 Power Supply

- 5 Plug the power supply into the 24 V connector on the autosampler.
- 6 Turn the power switch on the autosampler ON.

It is important to use the appropriate power cord for your country.

Connecting the Autosampler to the Host Computer

Software on the host computer controls both the analytical instrument and the autosampler. The USB interface is the standard configuration. A virtual COM port is created so that the connection looks like a standard RS-232 serial port to the host PC software. If necessary, you may also use a serial (RS-232) cable.

NOTE

Use either a USB cable or a serial cable, but not both. The serial port will not function when a USB cable is connected.

- 1** Power on both the computer and the autosampler.
- 2** Plug one end of the cable into the host computer's USB port and the other end into the autosampler's USB port.

Windows will automatically find the driver which was installed with the ASX Dashboard software.
- 3** When driver installation is complete, make a note of which COM port number was assigned. The COM port number may be displayed in a "bubble" in the lower right corner of the screen.

Switching Between Aqueous and Oil Samples

- 1 Move the rinse station to the appropriate position. The status LED on the front of the autosampler will show green for the oils position or blue for the aqueous/coolants position.

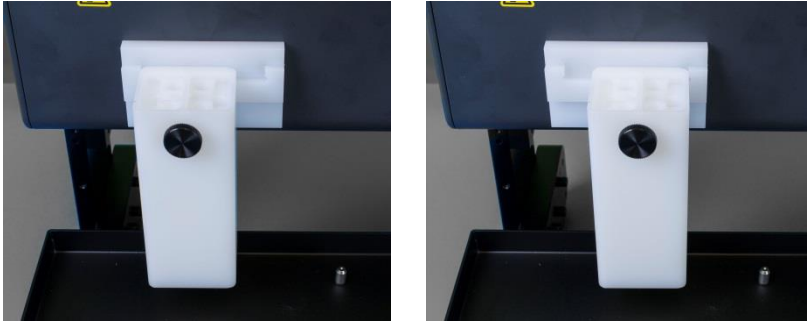


FIGURE 20 Rinse station in oils (left) and aqueous (right) position.

- 2 Moving the rinse station will automatically switch to the appropriate peristaltic pump on the back of the autosampler. Visually verify that the tubing is directed to the correct rinse supply and waste containers.
- 3 Replace the sample probe with the appropriate version.
- 4 Replace the stirring paddle with the appropriate version. For oils, use the oils paddle. For coolants, remove the paddle or use the optional aqueous paddle (identified by a black band).
- 5 If using an *ASXPRESS PLUS* Rapid Sample Introduction System, either replace the valve and tubing, or use a second valve/pump module which has been set up for oils or aqueous samples.