Applied Biosystems™ 3500/3500xL Genetic Analyzer

with 3500 Series Data Collection Software v3.3
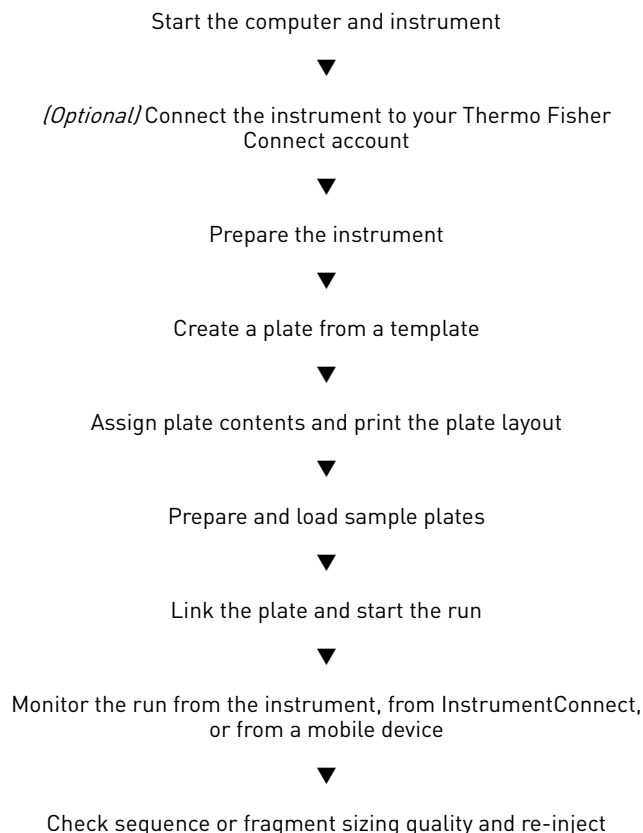
Catalog Numbers 4405186, 4405187

Pub. No. 100081365 **Rev.** B

Note: For safety and biohazard guidelines, see the "Safety" appendix in the (Pub. No.). Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

This Quick Reference assumes that a Thermo Fisher Scientific technical representative has installed the instrument, that spatial and spectral calibrations have been run, and that an install check has been run.

Workflow

Start the computer and instrument

▼

(Optional) Connect the instrument to your Thermo Fisher Connect account

▼

Prepare the instrument

▼

Create a plate from a template

▼

Assign plate contents and print the plate layout

▼

Prepare and load sample plates

▼

Link the plate and start the run

▼

Monitor the run from the instrument, from InstrumentConnect, or from a mobile device

▼

Check sequence or fragment sizing quality and re-inject

Start the computer and instrument

1. Power on the computer and monitor, but do not log in to the Windows™ operating system.

2. Power on the instrument and wait for the green status light to turn on.

3. Log on to the Windows™ operating system, then wait ~1 to 2 minutes until the 🖥 **Server Monitor** icon is displayed in the Windows™ **taskbar**.

4. Select ⊞ ▸ **Programs** ▸ **Applied Biosystems** ▸ **3500** ▸ **3500**, then log in to the software.

Connect the instrument to your Thermo Fisher Connect account

This option is not available if your system includes a license for the Security, Audit, and E-Signature module. The Thermo Fisher Connect menu is not active.

1. In any screen, select **Thermo Fisher Connect** ▸ **Thermo Fisher Connect**.

2. Enter the **User ID** and **Password** for your Thermo Fisher Connect account, then click **Link Account**.

Prepare the instrument

1. In the **Dashboard**, ensure that consumables are not expired and adequate injections remain for consumables.
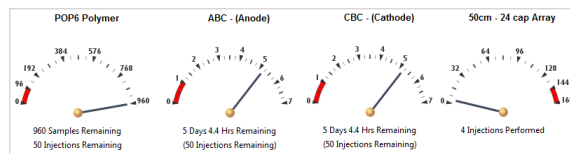
2. Check that buffer levels are at the fill lines.

3. Set the oven temperature, then click **Start Pre-heat**.

   We recommend that you pre-heat the oven for at least 30 minutes before you start a run if the instrument is cold.

4. Check the pump assembly for bubbles and run the **Remove Bubble wizard** if needed.

Thermo Fisher
S C I E N T I F I C

About plate templates

The software includes plate templates that you can use as a starting point to create a plate (sequencing examples shown). Plate template names reflect the run module associated with the plate. The run module contains data collection settings.

Seq_Std_BDTv3.1_xL-POP7	Sequencing	For the analysis of the Sequencing Install Standard (BigDye Terminator v3.1...
Std_Seq_xL-POP6	Sequencing	For read lengths of 600 bp or greater and a run time of 2 hours - 24 capill...
Std_Seq_xL-POP7	Sequencing	For read lengths of 850 bp or greater and a run time of 2 hours - 24 capill...

The plate templates provided include:
- **Assay** – Includes an instrument protocol (dye set and run module) and primary analysis protocol needed to collect data and basecall (sequencing) or sizecall (fragment analysis) a sample.
- **File name convention** – Determines the naming of data files.
- **Results group** – Determines location of data files.

You can also create your own plate templates, and can include sample information in the plate template if needed.

Create a plate from a template

1. In the Dashboard, click **Create Plate From Template**, select a template, then click **Open**.
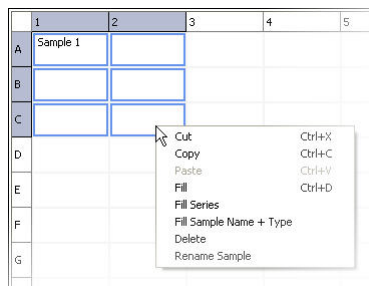

2. Enter plate details.

3. Click **Save**.

4. Click **Assign Plate Contents**.

Assign plate contents and print the plate layout

1. Click a well, type a sample name, then press **Enter**.

   You can also select multiple wells, then right-click and use the **Fill** options to name multiple wells (to use **Fill Series**, type a number as the last character of the named well).

2. At the bottom-right of the **Assign Plate Contents** screen, expand the **Customize Sample Info** pane, then select wells and specify sample types.


3. As needed, change the assay, file name convention, or results group for the plate.

4. Click **View Plate Grid Report** to print the plate layout.

   To save the report electronically (.pdf), print the report and select **CutePDF Writer** as the printer.

Prepare and load sample plates

1. Pipet samples into the plate according to the plate layout you printed in "Assign plate contents and print the plate layout" on page 2.

2. Briefly centrifuge the plate.

3. Verify that each sample is positioned correctly in the bottom of its well.

   IMPORTANT! If the contents of any well contain bubbles or are not located at the bottom of the well, briefly centrifuge the plate, remove the plate from the centrifuge, and verify that each sample is positioned correctly in the bottom of its well.
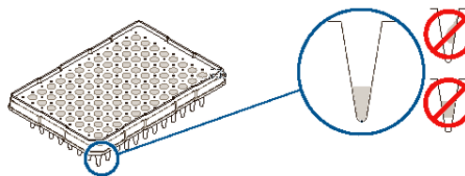

4. Store the plate on ice and protected from light until you prepare the plate assembly and load the plate in the instrument.

5. Prepare the plate assembly on a clean, level surface. Wear gloves when handling septa. Do not heat plates that are sealed with septa.
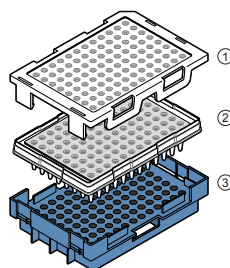
   ① Plate retainer
   ② Plate with septa strip
   ③ Plate base

## Link the plate and start the run

1. In the **Assign Plates for Run** screen, select Position A or B (the position in which you loaded the plate in the instrument), then click **Link Plate for Run**.
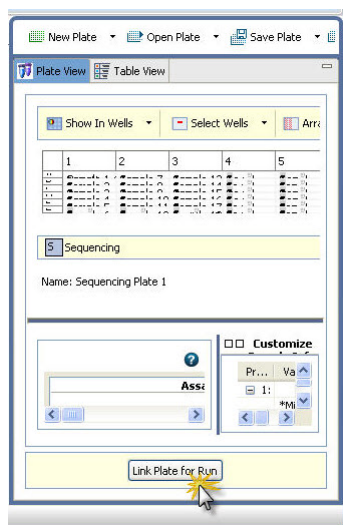
2. In the **Load Plates for Run** screen, click **Start Run**.

Monitor the run

The **Monitor Run** screen is automatically displayed when you click **Start Run**. The current injection is highlighted in green in the plate view. The injection list is linked to the plate view.
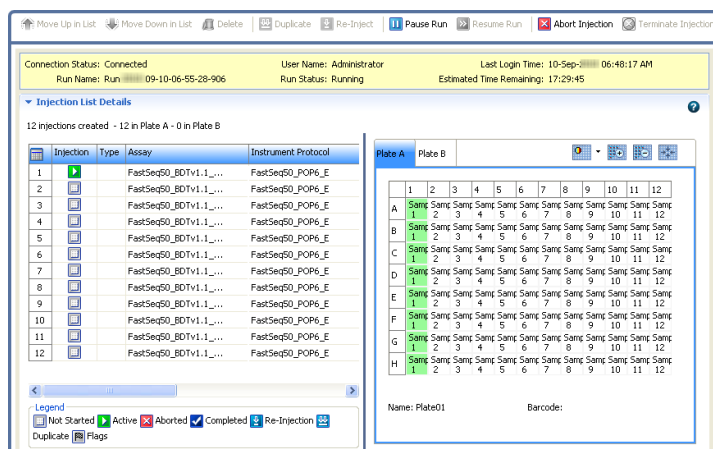
1. Click an injection to select the associated wells in the plate view.

   A selected injection is highlighted in green in the plate view.

2. Place the mouse pointer over a well to display sample details.

3. As needed:
   - Edit the injection list to re-inject, change injection order, or delete injections
   - Pause, or resume a run
   - Use the **Flag Summary Table** to review failed samples

Monitor a run from InstrumentConnect

1. Sign in to **thermofisher.com/cloud**.

2. Click **Connect Your Lab**, then click ▣ to access InstrumentConnect.

3. Click the instrument to display instrument status.

Monitor a run from a mobile device

The instrument must be connected to your Thermo Fisher Connect account before you can monitor it. See the *3500/3500xL Genetic Analyzer with 3500 Series Data Collection Software v3.3 User Guide*.

1. On your mobile device, download the InstrumentConnect app from the Apple Store or from Google™ Play.

2. On your mobile device, launch 🏠 InstrumentConnect.

3. Touch the instrument to monitor.
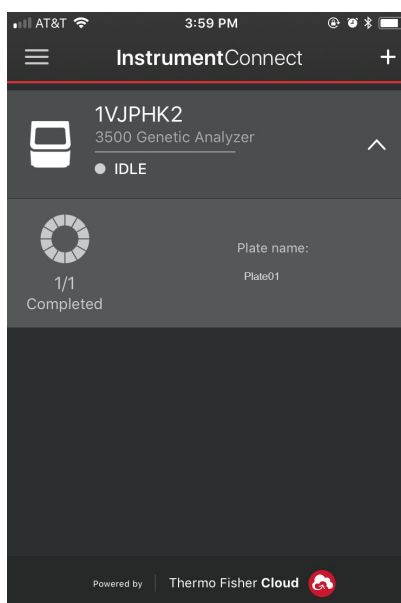
Check sequence or fragment sizing quality and re-inject

1. Click an option under Review Results in the left navigation pane.
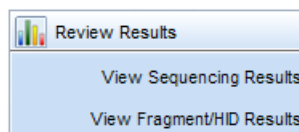
2. Display results for the currently running plate:
   - **Sequencing**: Select one or more samples, then click 📁 **Open Trace** to display the data in the Trace pane.
   - **Fragment**: Select one or more samples to display sample plots and sizing information.

3. Review traces or sample plots.

   If the sequence or sample quality falls below the user-specified quality thresholds (set in the Basecalling, Sizecalling, or QC protocols), a flag is displayed for the sample.

4. Before the run completes, you can select a sample or injection, then click ⬇ **Re-inject**.

   Note: A re-injection physically re-injects all samples in the capillary array. You can specify whether to collect data for all or only selected samples in the array.

Daily instrument maintenance tasks

Clean the assemblies, anode buffer container, and cathode buffer container, and ensure that the outside of the assemblies is dry.

IMPORTANT! Wear appropriate protection, including gloves, laboratory goggles, and coat whenever you work with the fluids used on this instrument, or parts that may come into contact with these fluids.

IMPORTANT! Use only the cleaning agents listed in this guide. Use of cleaning agents not listed in this manual can impair instrument function.

For details and additional maintenance information, refer to the user guide.

Task	Frequency
Click **Refresh**, then check consumables on the Dashboard—View the gauges on the Dashboard to see the status for anode buffer container, cathode buffer container, and polymer.	Before each run
Visually inspect the level of fluid inside the anode buffer container and the cathode buffer container. The fluid must line up with the fill line.	
Ensure that the CBC septa are properly seated on the container.	
Ensure that the plate assemblies are properly assembled. Align the holes in the plate retainer with the holes in the septa to avoid damaging capillary tips.	
Ensure that the plate assemblies and the cathode buffer container are positioned on the plate deck properly. They should sit securely on the deck.	
Ensure the array locking lever on the capillary array is secured.	
Check for bubbles in the pump block and channels. Use the **Remove Bubble wizard** to remove bubbles.	Daily or before each run
Check the loading-end header to ensure that the capillary tips are not crushed or damaged.	
Ensure that the pump block is in pushed back position.	Daily
Clean the instrument surfaces of dried residue, spilled buffer, or dirt. Use deionized water.	
Check for leaks and dried residue around the buffer-pin valve, check valve, and array locking lever. If leaks persist, contact Support.	

The information in this guide is subject to change without notice.

Revision history: Pub. no. 100081365

Revision	Date	Description
B	29 January 2019	Start the computer and instrument: Add to step 2 "and wait for the green status light to turn on." Update the reinject icon.
A	30 October 2018	New document.