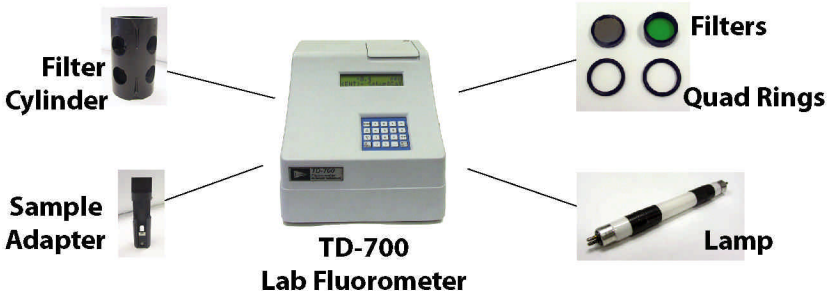
TD-700
QUICK REFERENCE GUIDE

TURNER BIOSYSTEMS

Thank you for your interest in the TD-700 laboratory fluorometer. Turner BioSystems is committed to customer satisfaction. Application Scientists are available to answer any questions you may have.

This is a quick guide to help you with the set up and calibration of the TD-700 so you can proceed with sample analysis as quickly as possible.

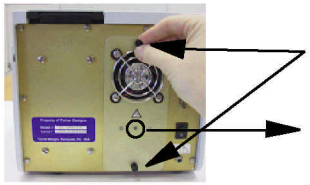
Necessary equipment and supplies

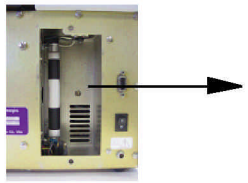


1 Lamp Installation

To avoid damage, the lamp is not installed during shipping. This will need to be installed before any calibration can be performed.

a. Looking at the back of the instrument, pull on the 2 black quick release latches and remove the back panel to access the lamp compartment.
b. Line up the lamp contacts with the slots of the lamp socket. Once in the socket, twist the lamp ~90° to seat the lamp. Make sure both the top and bottom contacts are properly seated in the socket.
c. Plug in the back panel and replace the lamp access panel. Push in latches to secure the panel in place.





2 Filter Installation

With evaluation units, one filter set comes preinstalled in the filter cylinder. If you are evaluating several different applications, you may need to install other filter sets.

A. Locate the excitation filter and emission filter(s). Use the application grid if you are uncertain which filters you need.

B. Open the TD-700's sample compartment and remove the filter cylinder.

C. Choose a letter (A-D) for where you will install the filter set.

D. Locate the labeled positions that correspond to the letter you have chosen (A, B, C, or D). For example: BEX and BEM stand for Set B excitation and Set B emission.

E. Install the excitation filter into the _EX position. If the filter has mirrored surfaces, face the most mirrored side out towards you. Secure with a quad ring.

F. Install your emission filter into the _EM position. If the filter has mirrored surfaces, face the most mirrored side in away from you. If the filter has an arrow inscribed on it, install the filter so the arrow points away from you. Secure with a quad ring.

G. Insert the filter cylinder into the sample compartment such that your filter set letter (Ex: B) on the top edge of the cylinder is on the left hand side (at "9 o'clock") and right side up.

3 Operation & Calibration

1. Plug in and power up the TD-700 fluorometer.
2. Check the lamp port on the back panel to see if the lamp is operating. The port should have light shining through it. See the FAQ's if the lamp is not on.
3. Allow the instrument to warm up for at least 10 minutes.
4. Use the setup screens to choose a calibration procedure for your analysis. There are three separate calibration types you can choose from.

Each is briefly described here:

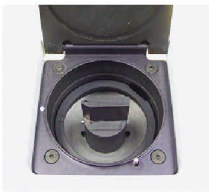
Simple: One point calibration
Allows one standard (or sample) and no blanks. The instrument gives the standard a relative value of 500 on a scale of 0-1000. The instrument uses a preprogrammed absolute zero as the 0 point.

Multi-Optional / Raw fluorescence: Two point calibration (standard +blank)
Allows one standard and the option to blank subtract. The user can specify the magnitude in relative fluorescence units for the standard (on a scale of 0-1000). As an example, if you expect your standard is ~75% of the full range for the application (see application notes on our web site for ranges), then call the standard 750 RFUs.

Multi-Optional /Direct Concentration: Multi point calibration (up to 5 standards + blank)
Allows the use of up to 5 different standards plus a blank for the calibration.The output can be in direct concentration so no further calculations are needed.

5. When ready (having blanks and standards in hand), from the "Setup&Cal" screen, press[2] to start the calibration

   ***NOTE:** When inserting the sample adapter into the instrument, orientation is important. Where you hold the adapter, one side is shaped like an arrow. Have this arrow point to the left - towards your filter set letter. If the arrow points right, the instrument will detect no signal.



6. The screens will direct you through the calibration. See the firmware flow chart in the manual for more detail.

7. Once the calibration is finished, the firmware will return to the Home Screen. Simply insert your sample and read the result from the home screen.

? Frequently asked questions

Q My sensitivity is 99% - or - What is wrong, I got the Max Sensitivity error message?

A This occurs when no light reaches the detector. Ideally, you want the % sensitivity to be in the range of 15% - 40%. If using the minicell, up to 60% is acceptable. There are a few main causes for experiencing 99% sensitivity.

1. The lamp is not on or is not installed. Look at the back panel and see if there is any light shining through the lamp port. If not, check the lamp. Make sure it is seated fully. Also the light will not turn on if the black latches are not completely pushed in.
2. The 10x10 cuvette sample adapter is in backwards. Notice on the top of the adapter where you hold it that one side is shaped like an arrow. This must point left toward the silver dot. If it points right, you will get this error message.
3. Filters or filter cylinder is not installed properly (Ex: excitation filter is installed in the emission position and emission filter is installed in the excitation position). If the filters are installed correctly, make sure the filter cylinder is installed correctly. The letter matching the positions where the filters are installed should be upright and located on the left edge of the filter cylinder aligned with the silver dot on the TD-700.

Q I have 2 emission filters - which one do I install first?

A If you are using the Rhodamine optical kit 7000-966, there are two emission filters (10-052R and 10-058R. Place the blue 10-058R filter in the cylinder first and then the orange 10-052R. Secure with a quad ring.

Q Both sides of my filter are mirrored - which way do I install it?

A We recommend installing the most mirrored side towards the lamp (for excitation filters, install that side out - for emission filters that side in), to help reflect excess heat from the lamp. Use your best judgement to which side is most reflective. The difference in performance is extremely subtle and not significant.

Q Which calibration type should I use?

A This will depend upon your research. Multi-Optional/Direct concentration is best for most users, but if you prefer reading a raw value and doing your own linear regression, then the simple or raw fluorescence mode will be better for you. If you are developing new methods, or are working with negative slopes (blank gives highest signal and higher concentrations are partially quenched) then simple mode is probably best for you.

Please contact Turner BioSystems at 1-877-316-8049 or via email at support@turnerbiosystems.com with any questions you may have.