Quick Guide SMART Control Reader Control Software

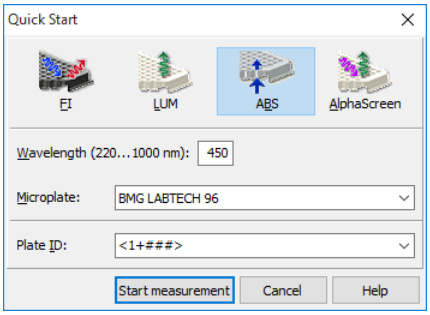
Startup

- Turn on the instrument and the computer.
- Start the **SMART Control** software and login.

- To measure a microplate, you can use the **Quick Start** function, run pre-defined test protocols or define a new protocol.

Quick Start

- Click the **Quick Start** button in the main menu for a rapid measurement of a full plate.

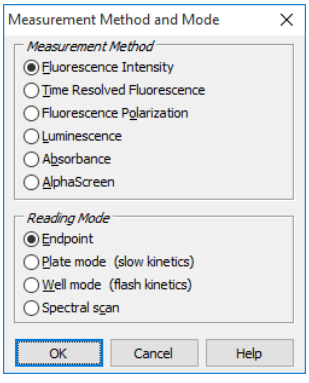


- Select the measurement method, e.g. **FI** for fluorescence intensity. Choose a **fluorophore** and a **microplate** type in the respective list.
- Optional: Enter plate or experiment description in **Plate ID**.
- **Start** the measurement.

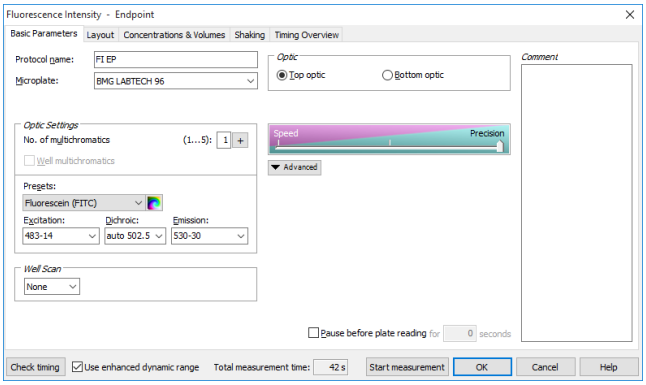
Protocol Definition

1. Create a New Test Protocol:

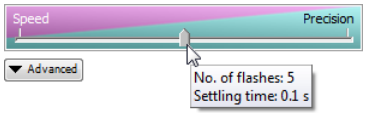
- Click the **Manage Protocols** button in the main menu.
- Click **New**.
- Select the **measurement method:** FI, TRF, FP, luminescence, absorbance or AlphaScreen.
- Select the **reading mode**:
  - **End point** for single reading
  - **Plate mode** for slow kinetics
  - **Well mode** for fast kinetics
  - **Spectral scan** for Excitation / Emission scanning in FI and LUM detection modes



2. Basic Parameters



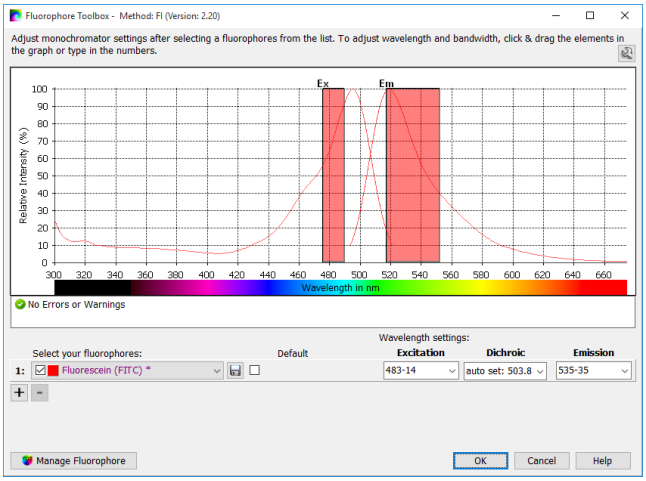
- Enter the **protocol name** inside the protocol definition dialogue.
- Select a **microplate** from the plate library (Greiner, Corning, Nunc, etc.).
- Two or more **multichromatics** should be defined for BRET/FRET applications.
- In the **Presets** fluorophore library select the **fluorophore** used in your experiment**.**
- **Well scan** may improve the result for non-homogenous samples.
- Select whether **top** or **bottom** optic will be used.
- Select **Speed** for a fast, reading time-optimized measurement or **Precision** for a measurement optimized for stability of the signal.



3. Fluorophore Toolbox

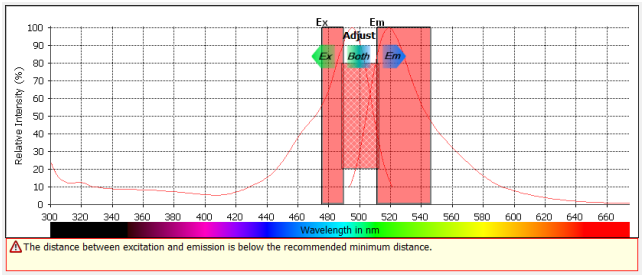
- Open the **Fluorophore Toolbox** for advanced LVF monochromator settings using this button:

- Excitation / emission wavelengths settings can be adapted by moving the **range symbols** in the spectrum or by typing the values into respective fields.

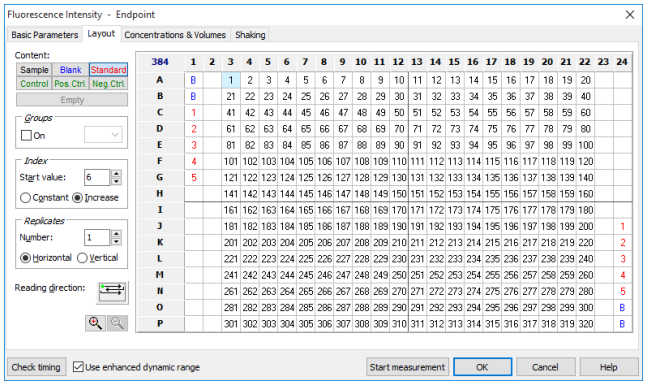


- The value behind the dash (e.g. 483-**14**) indicates the selected bandwidth.

- Optimal dichroic mirror settings will be automatically selected by the software.
- Possible conflicts in settings will be automatically recognized and corrections suggested.

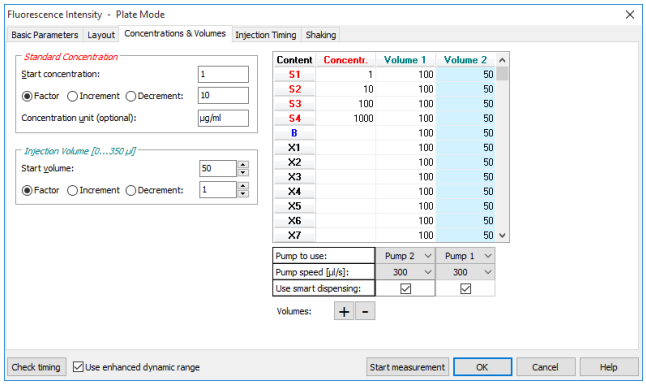


4. Layout



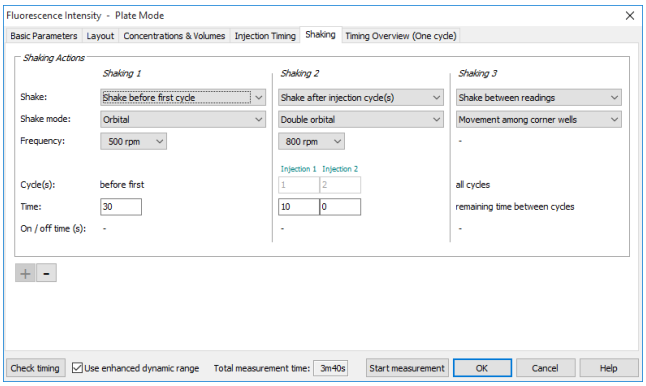
- Go to the Layout tab.
- Define positions of **samples**, **blanks** and **standards**. Select the content first and then click on the layout grid.
- Activate groups if two or more kinds of standards were used on the same plate.
- Enter the number and direction of used replicates in the Replicates box.
- Proceed with Concentrations & Volumes tab, if standards and/or reagent injections were defined.
- Otherwise, click the **Start measurement** button.

5. Concentrations & Volumes



- Enter the standard concentrations in the **Concentrations** column.
- Define injection volumes in **Volume 1 to 4** columns and select Pump 1 or 2 in the **Pump to use** pull down box. Up to 4 different injection volumes can be defined for each well.

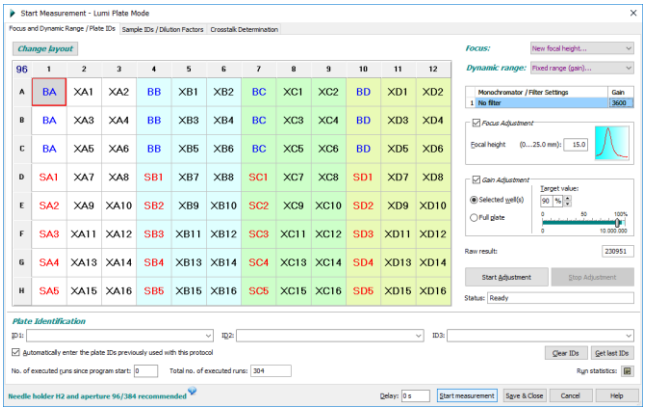
6. Shaking



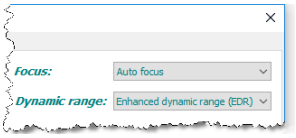
- Optionally activate up to three shaking actions in the **Shaking tab.**

- Click the **Check timing** button.
- Click the **Start measurement** button.

Start Measurement



- When using a CLARIOstar Plus with an appropriate test protocol it is recommended to use **Auto focus** and the **Enhanced dynamic range** feature:



Otherwise select the well with the highest expected signal inside the Start Measurement dialogue, check boxes **Focus Adjustment** and **Gain Adjustment** and click the **Start Adjustment** button to get focal height and gain values.

- Optionally: Enter plate identifications in **ID** fields.
- Optionally: Specify sample IDs or dilution factors in the **Sample IDs / Dilution Factors** tab.
- Start the measurement by clicking the **Start measurement** button.

HELP Function

- The SMART Control software offers a content-sensitive Help function. Click the **F1 button.** Depending on the **active dialogue or menu** the respective part of the **Help Manual** will be displayed.