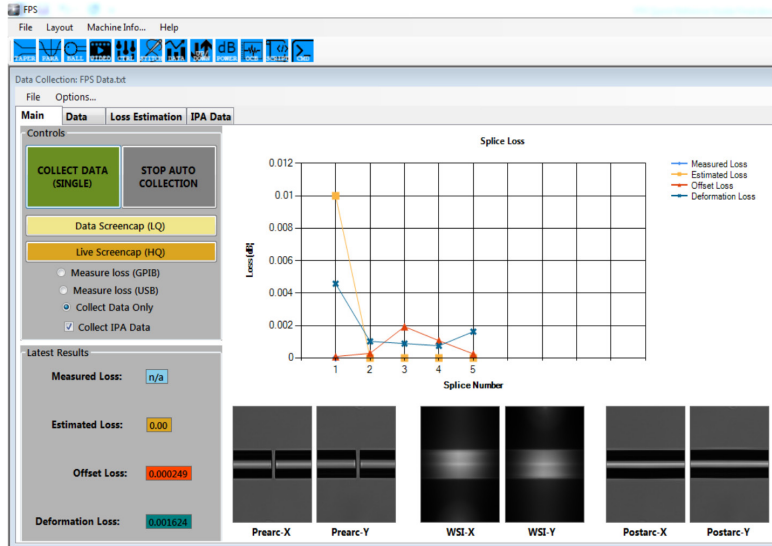




# FPS QUICK REFERENCE GUIDE

*Fiber Processing Software Software for the FSM-100 and LZM-100/110/120 Splicers*



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# DATA COLLECTION APPLICATION

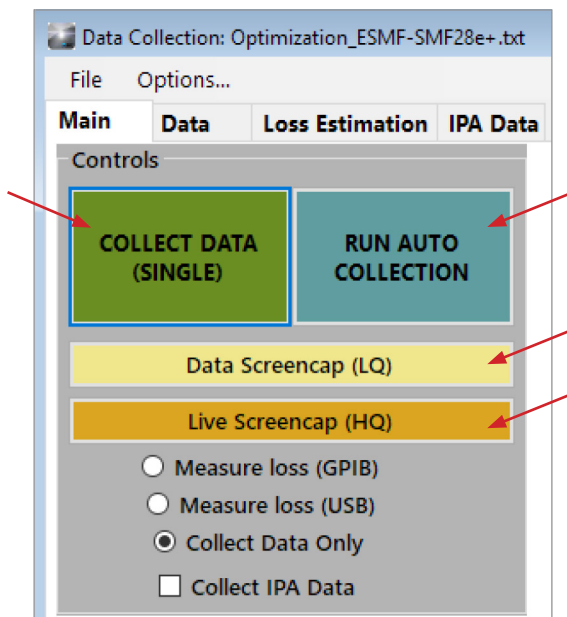


The **Data Collection** application is used to collect various, user-specified splicer output data, to include loss estimation and power meter measured loss data after a splice is completed. This application gives users a tool to optimize splice mode parameters for improved splice loss and/or PER performance. The collection of estimation data from the splicer, in-tandem with measured loss, provides operators the ability to simultaneously optimize splice loss estimation for process and quality control.

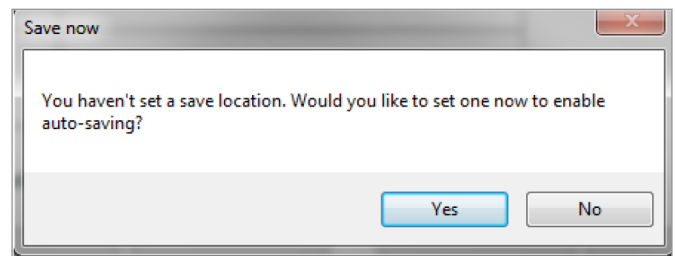
When the application is launched, it will enter the **Main** screen.

The main page contains four buttons as well as a switch for enabling Power Meter measurement and an option to collect IPA data. Their functions and layouts are shown in **Figure 1**.

When pressed for the first time, both **Collect Data (Single)** and **Run Auto Collection** will prompt you to choose a location to save data. The former will first collect data before prompting, while the latter will not allow you to proceed before selecting a save location. FPS will save data collection instances as ".txt" files by default, so in order to save to an Excel file, click **File**, then in the drop-down menu click **Save as Excel File** and save to the desired location.



**Figure 1**



**Figure 2**

**Figure 2** above shows the save prompt that launches on first run.

**Collect Data (Single):** Will collect parameters specified on the **Data** tab, as well as pre-arc, WSI, and post-arc images. In order to collect splice data, the splicer must be in the "Finish" state after completing a splice. The file previously saved will be automatically updated each subsequent time the Collect Data (Single) button is pressed.

**Run Auto Collection:** FPS will begin polling the splicer, checking if it is in a "Finish" state. If so, FPS will automatically perform a Data Collection and update the selected or previously saved file. **NOTE:** Auto collection cannot be run without an autosave location.

**Data Screenshot(LQ):** Saves the current splicer image at 240x320 to the same folder as the data file. If no data file folder has been chosen, you will be prompted to choose a location for the images.

**Live Screenshot(HQ):** Saves the current splicer image at 480x640 to the same folder as the data file. This image is ONLY of the camera feed, no menus or overlays are captured. If no data file folder has been chosen, you will be prompted to choose a location for the images.

This file-save will determine the folder that all images are saved to. The save location can be changed later by performing a **File»Save As...** or loading a different Data Collection file.

**Measure Loss (GPIB)/Measure Loss (USB)/Collect Data Only:** A GPIB (General Purpose Interface Bus) or USB Power meter stream is required in order to measure loss rather than estimate loss.

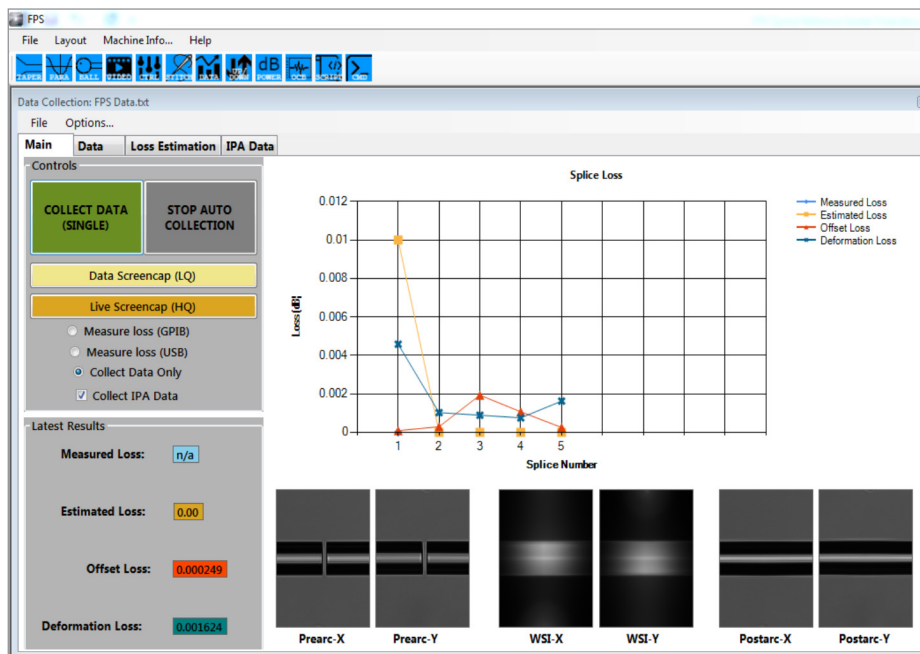
- When checking the **Measure Loss (GPIB)** button, you will be warned that failure to connect a GPIB will result in a Communication Error, which will crash FPS and erase your data.
- If connected correctly, the splicer will read the value from the power meter and report it in a “Measured Loss” column in the **Data** tab, as well as in the **Loss Estimation** tab.
- Alternatively, by selecting **Measure Loss (USB)**, the splicer will collect measured loss data by attempting to read a currently streaming USB power meter via the **Power Meter Reader** application in FPS. Collecting data with this function activated will capture the live reading from the power meter. Because the **Measure Loss (USB)** function captures a live reading, a reference value must be saved on the power meter before attempting to measure splice loss.
- Post splice, the loss value may change if the splice is moved; therefore, data should be collected while the connected power meter is streaming to FPS and before disturbing the finished splice in any way.

**Collect Data Only:** Retrieves splicer output parameters only and will not retrieve measured loss.

**Collect IPA Data:** Retrieves IPA data for a given splice. If this box is checked and there is no IPA data to be retrieved, it will be ignored.

**Figure 3** below shows a sample of five splices run with Run Auto Collection selected and the results subsequently populated on the data screen.

Within the Excel file, Splice Data, Loss Estimation Data, and IPA Data will be available depending on what data was collected.



**Figure 3**

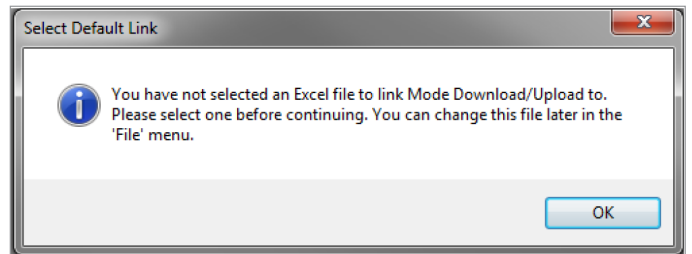
# UPLOAD/DOWNLOAD APPLICATION



The *Upload/Download* application allows users to change, store, and transfer splice mode parameters using PC control.

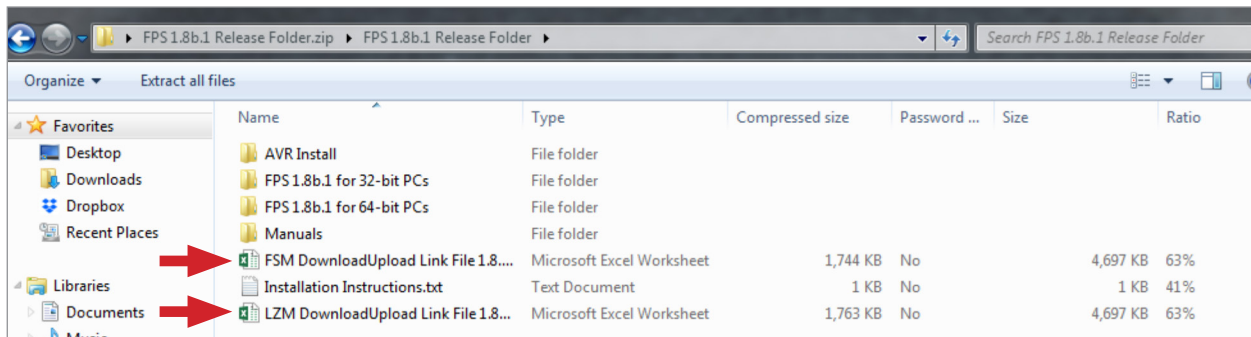
Furthermore, *Upload/Download* uses an Excel file to manage splice mode parameters. FPS is compatible with previously saved *SpliceLab* Upload/Download forms, as well as provided templates. When opening *Upload/Download* for the first time, the user will be prompted to select a default Excel file to read and write to. A recommended template is included with the install files.

*Figure 4* shows the initial prompt to link an Excel file.



**Figure 4**

The recommended Excel template for FSM or LZM is in the Release Folder shown in *Figure 5*.



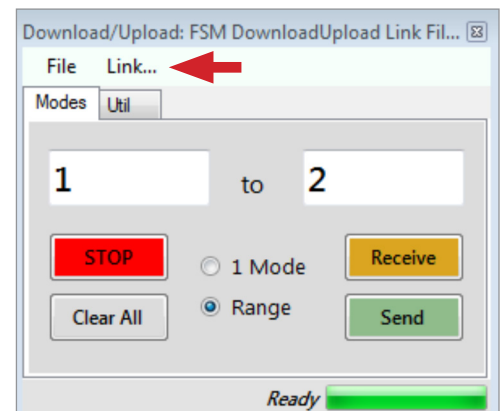
**Figure 5**

When the *Upload/Download* application is opened, the *Range* option is selected by default which allows from 1 to 300 modes to be sent or received. Alternatively, select the *1 Mode* option to send or receive one specific splice mode, e.g. (Mode 53)

Once you have selected a file, click the *Link...* button, located in the menu bar. This will open the chosen file, from which you can send and receive modes from.

*Figure 6* shows the *Upload/Download* application box with the *Range* option selected. In this instance, FPS can either receive or send splice modes 1-2.

*Figure 7* (next page) shows the main page with *Upload/Download* application and Link file open. Each mode received from the splicer will populate subsequent columns in the link file.



**Figure 6**

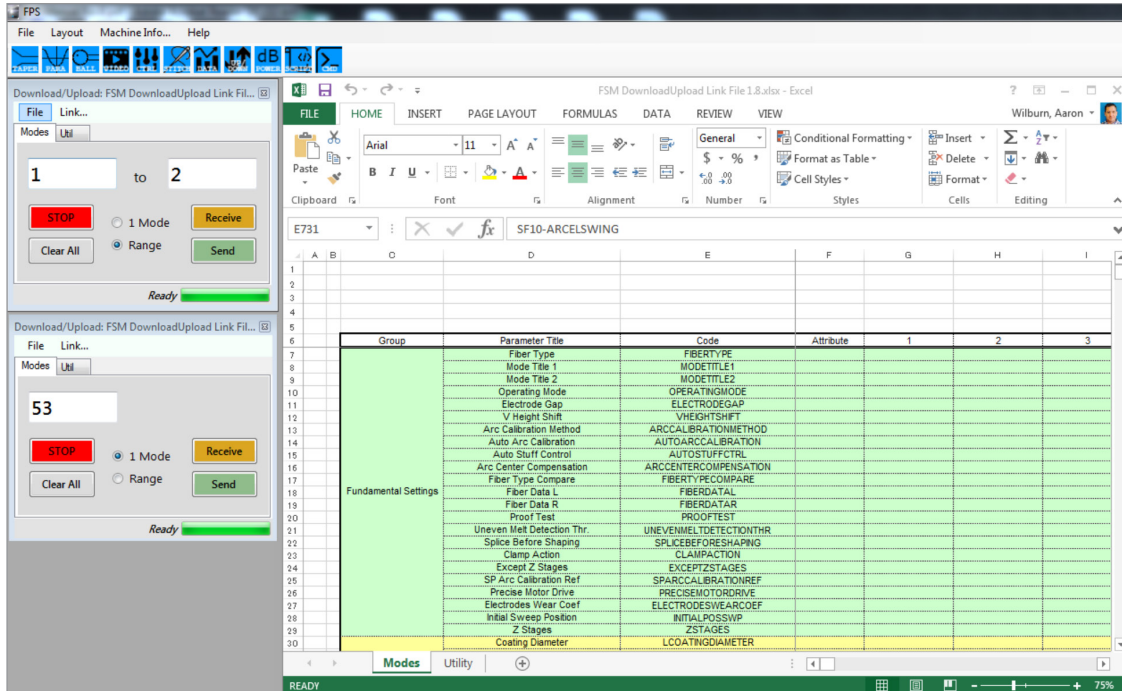


Figure 7

## LIVE VIDEO FEED APPLICATION



The *Live Video* application displays a live video feed from the splicer. By default, video will begin streaming when this application is opened.

To save screen images, click *Screencap* as shown in *Figure 8*. The live feed will stop, and the "Save As" dialog box will prompt the user to choose the file location for the captured image to be saved. The video feed will resume when the dialog box is closed.

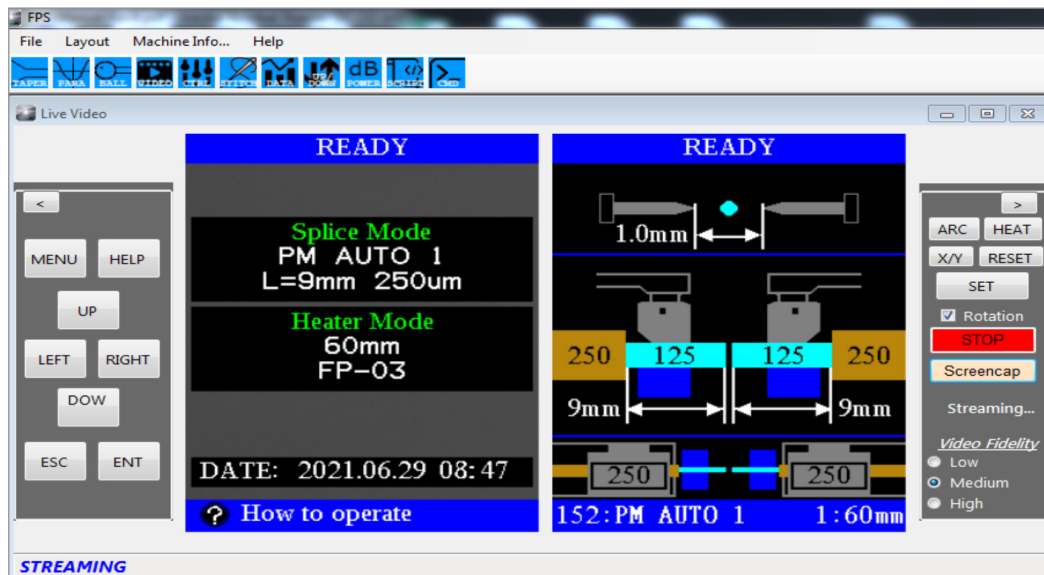


Figure 8



Unless a save format and location is otherwise defined, images will be saved in “.bmp” format to the Documents library by default.

**NOTE:** While live video is running, it will interrupt any other FPS program that is trying to control the splicer. For example, if the *Live Video* application is open and the *Ball Lens* program is started, upon clicking *Initiate* or *Start*, FPS will respond with an error message, citing an error communicating with the splicer. In order to use a different FPS application, *Live Video* must be closed.

## POWER METER READER APPLICATION



The *Power Meter Reader* application allows for reading of select USB Power Meters. This application sends the power meter readings to the splicer for performing active fiber alignments based on a max, min, or target loss condition, as defined by the user.

Parabolic Alignment constructs a graphical plot of the measured loss value vs. relative (X, Y) position of the two fibers. Selecting *Para Align* prompts the splicer to execute two subsequent scans of the fibers’ relative end face positions – first, a rough scan (*StepL*) and second, a fine scan (*StepF*). From the initial scan, the resulting graph is a rough parabola, wherein the minimum

or maximum value is used to establish a new approximate range of X and Y fiber position values for optimum alignment. The program then performs the fine scan, where the (X, Y) range established from the rough scan is scanned again at finer intervals, defined by the input value for *StepF*. When parabolic alignment is complete, the optimal (X, Y) position and the optimal loss value is displayed.

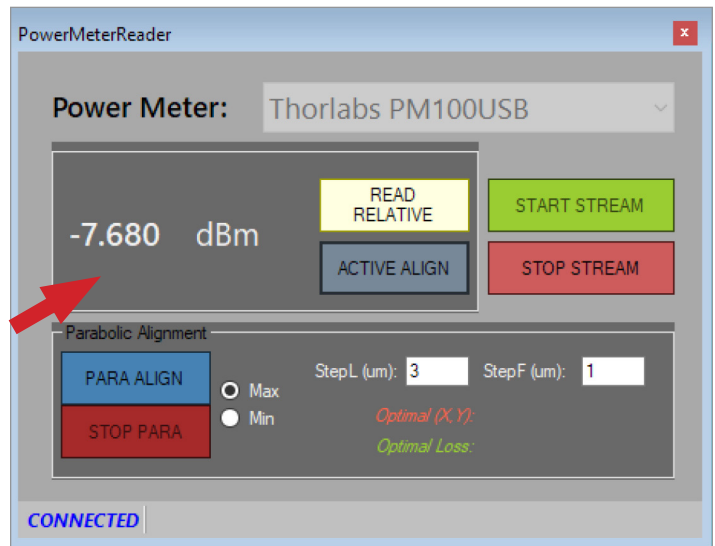
By default, FPS only supports the AFL OPM5, though other power meter drivers are available and new drivers can be developed if needed. Once the power meter’s drivers are installed, simply clicking the *Start Stream* button will establish a connection and show loss in dB in the “PowerMeterReader” window.

*Figure 9* shows the value the splicer will use for performing an active alignment, discussed below.

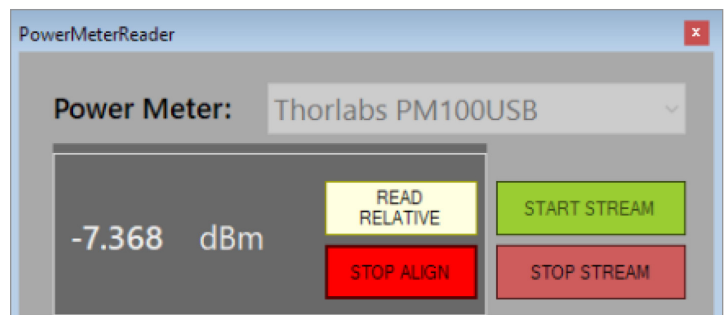
To set up active alignment with a splicer, follow the splicer setup and power meter setup steps outlined in the FPS instruction manual. As shown in *Figure 10*, use the *Active/Stop Align*, *Read Relative*, and *Start/Stop Stream* buttons to manage the active alignment procedure from the FPS interface.

The splicer settings must be modified according to the FPS instruction manual. If not, the splicer will be unable to execute the active alignment procedure.

To set up *Parabolic Alignment* in a connection through a PC, follow the steps in the FPS Instruction Manual.



**Figure 9**



**Figure 10**

In most cases, parabolic alignment is faster than standard splicer alignment and does not require a specific setup in the splicer. Parabolic alignment collects a range of loss values from the power meter and plots a vertical parabola of the values. After the initial parabola is plotted, a finer scan of the data near the parabola minimal, or maximal, is completed to assess the min. or max. loss.

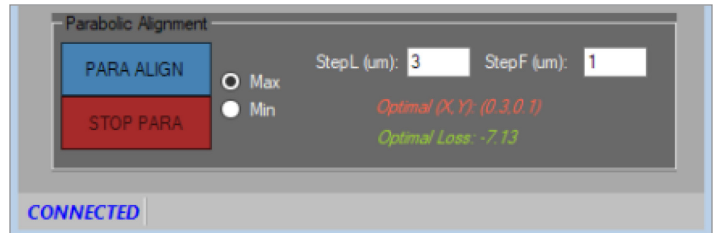


Figure 11

The following parameters shown in **Figure 11** can be customized as needed:

- **Max/Min:** Power meters may sign their losses differently depending on the manufacturer.
  - **Max** should be selected if your Power Meter reports a negative value (i.e., moving from an initial loss of -10dBm to -1dBm).
  - **Min** should be selected if your power meter reports a positive value (i.e., moving from an initial loss of 10dB to 1dB).
- **StepL ( $\mu\text{m}$ )** is the distance moved with each iteration during the **Rough Alignment** phase. The larger this value, the larger and less precise the rough search area will be.
- **StepF ( $\mu\text{m}$ )** is the distance moved with each iteration during the **Fine Alignment** phase. It should be less than the **StepL** value to refine the initial results.

**NOTE:** Take special care to ensure that the proper OPM drivers are installed on the PC. OPM driver software should have been supplied on a USB drive or CD with the purchase of the power meter. If the OPM driver is not installed on the PC, FPS will be unable to connect to the power meter and will display an error.

## TECHNICAL SUPPORT INFORMATION

If errors persist or if general support is needed, please call AFL Fusion Splicer Technical Support at 1-800-866-3602, or visit our Technical Support Request web page at [www.aflglobal.com/Contact/Contact-and-Feedback-Forms/Technical-Support.aspx](http://www.aflglobal.com/Contact/Contact-and-Feedback-Forms/Technical-Support.aspx).