Kodak

# Thermal 3 Head

## Using the Diagnostic Stream Receiver

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# Revision History

| Revision | Date | Author | Comments |
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| DRAFT | Aug 2007 | K Shelton | Initial draft. |
| 719-00913A-A | 11 Sep 2007 | K Shelton | Initial release. |
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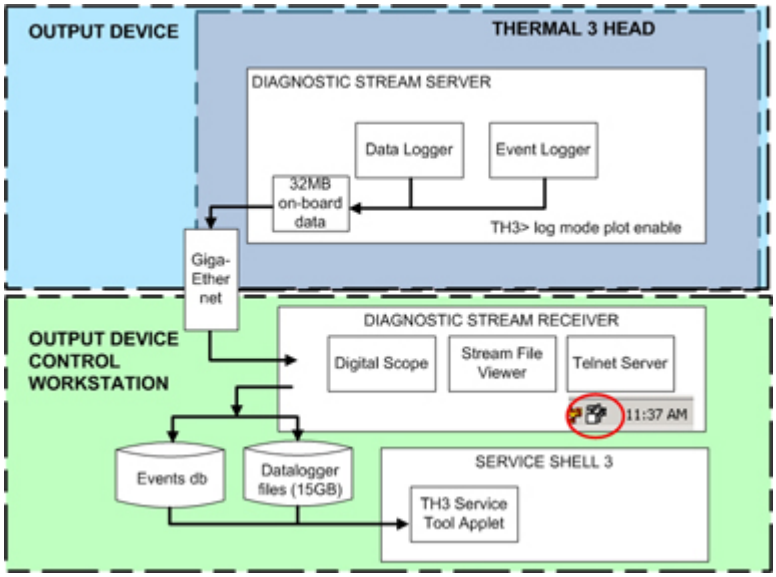
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# 1. TH3 DATA LOGGING ARCHITECTURE

Thermal 3 (TH3) systems use Service Shell logs, device debug logs, and script result folders to collect data.

Fiber connectivity and diagnostic streaming also allow TH3 to send data to the Data logger on the workstation. This enables diagnostic tools like Digital Scope, and Diagnostic Stream File Viewer.

**Note:** There is no need to recreate errors because you can view logged data from actual problem occurrences.




# 2. TH3 DATA CAPTURE TOOLS

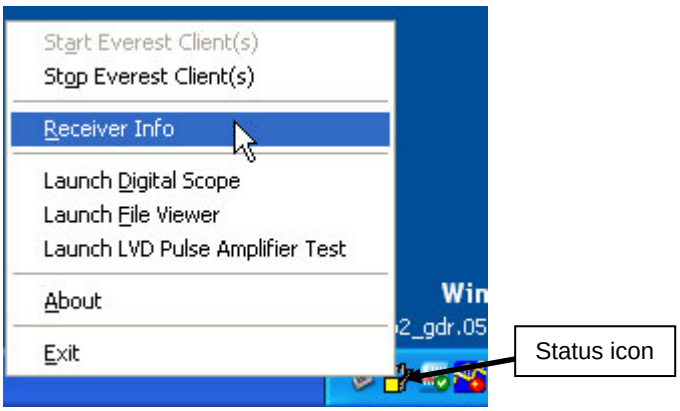
There are three development tools that capture and manipulate the large data stream from the TH3:

- Diagnostic Stream Server (onboard TH3):
  - Data logger function within TH3 firmware
  - Data is streamed on a per plot basis (`TH3> log mode plot enable`) or a per sample basis (`TH3> log mode sample enable`)
- Diagnostic Stream Receiver (onboard PC):
  - Automatically installed with the controlled release
  - Client service connects to data stream from a specific TH3 address
  - Manages receiving files on the client workstation
  - Stream Receiver Icon status color:
    - White: not configured
    - Red: stream receiver stopped

        - Yellow: no head connected
        - Green: currently connected to one or more heads
- Digital Scope and Stream File Viewer Tools (onboard PC):
    - Digital Scope software can view streamed TH3 data in real-time
    - File Viewer software can view captured data in the workstation **Plot** files

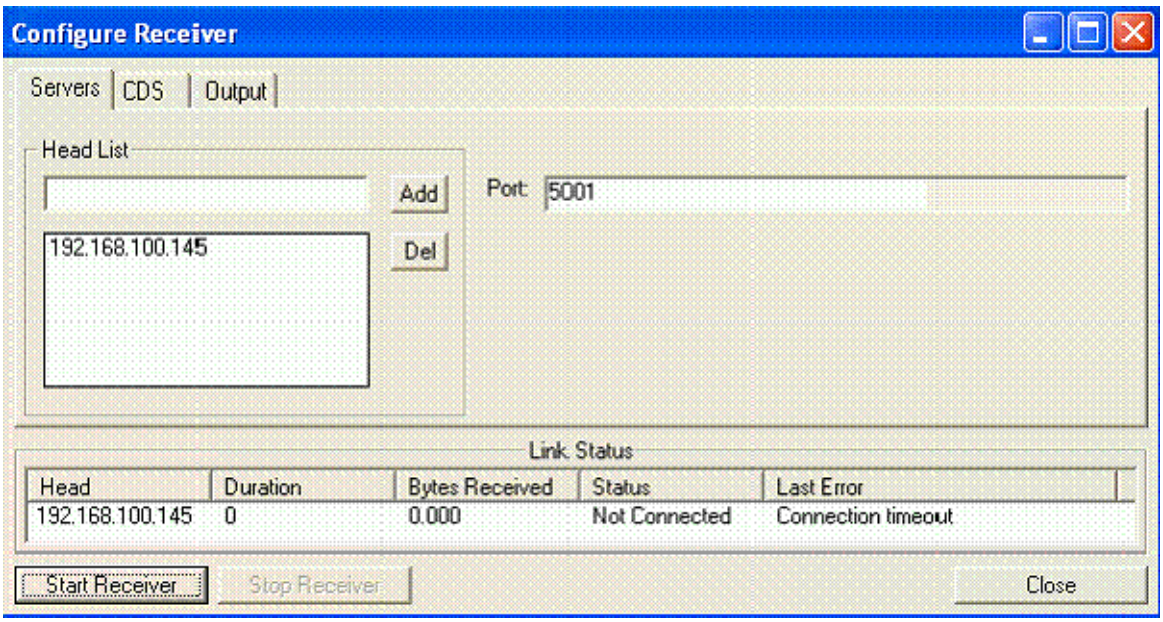
# 3. CONFIGURING THE DIAGNOSTIC STREAM RECEIVER

1. Right click on the stream receiver status icon and select **Receiver Info**.

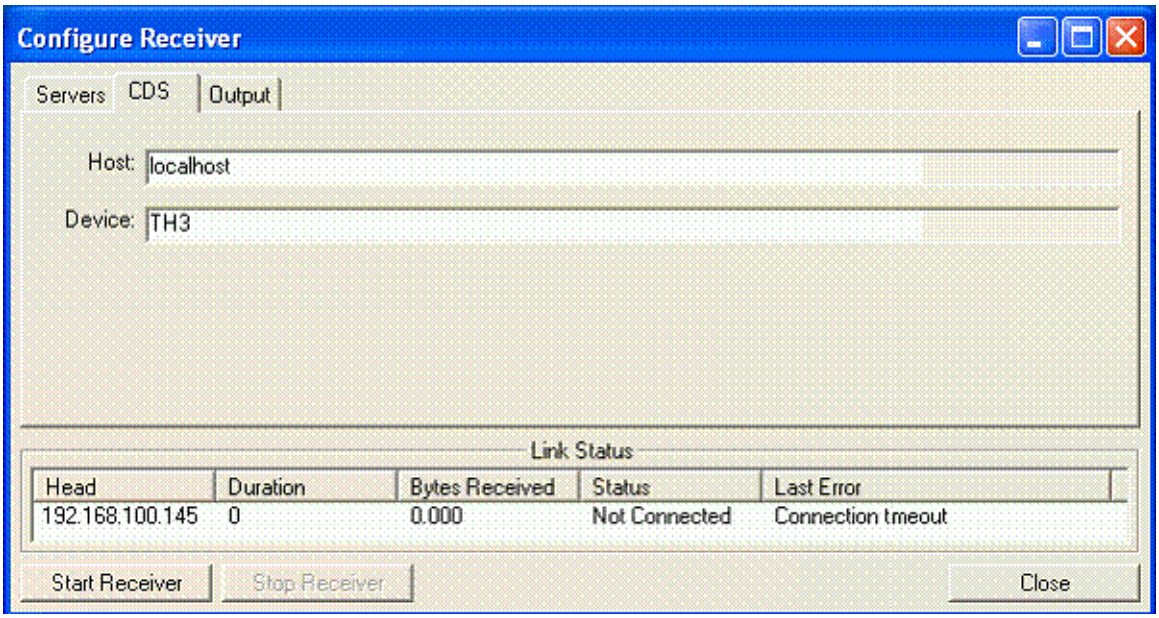



2. Stop the Receiver by clicking **Stop Receiver**.
3. Configure the three tabs:
   - In the **Servers** tab, ensure the correct TH3 IP address (as per BootP settings) has been added to the **Head List**.

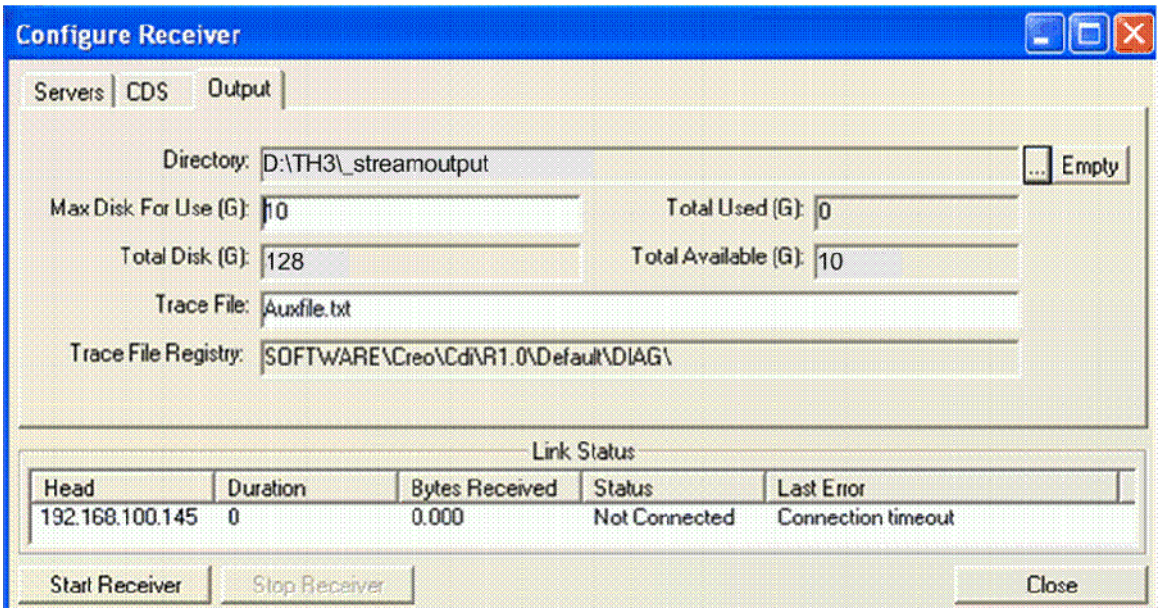
     **Note:** Do not change the Port assignment.




   - In the **CDS** tab,
     - Ensure **Host** is set to **localhost**.
     - Ensure **Device** is set to **TH3**.




- In the **Output** tab,
  - Enter the directory location of the data logger files.
  - Enter the desired data logger file size (10-15GB typical). What level you set it to depends on the verbosity (by default each subsystem is set to level 3). It also depends on the disk size of the customer workstation (use about 10% of available space).
  - Note the location of TH3_streamoutput.

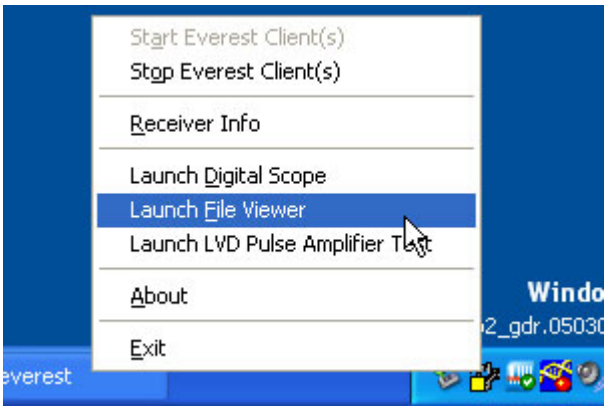


# 4. USING THE STREAM FILE VIEWER

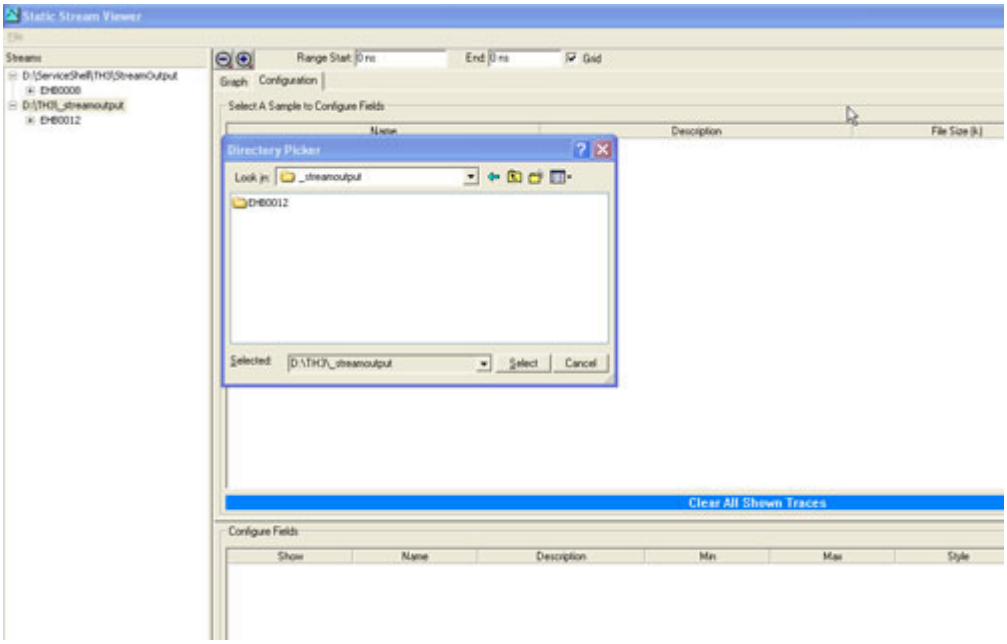
## 4.1 Launching the Stream File Viewer

To launch the file viewer:

1. Right click the Diagnostic Stream Receiver icon in the Quick Launch bar and select **Launch File Viewer**.




2. When the Viewer opens, click **File** > **Open Directory**. Select the _streamoutput directory.



## 4.2 Creating Plots and Samples

You can enable data streaming on either a per plot basis, or a per sample basis.

### 4.2.1 Enabling Data Streaming: Per Plot

- On a *per plot* basis, type the command **TH3> log mode plot enable**

**Note:** All heads ship with plot mode enabled, as a default. It is not recommended that you disable this setting.

### 4.2.2 Enabling Data Streaming: Per Sample

On a *per sample* basis, type the command **TH3> log mode sample enable**

1. Type the command `TH3 > log sample`. You will see the following:

```
Index  Name                  State
-----------------------------------
0      Load Estimate         Enable
1      Autofocus             Disable
2      Write Laser           Enable
3      Beam-Pointing         Enable
4      Beam-Balance          Disable
5      Int. Balance          Disable
6      Plot State            Enable
7      LVD State             Enable
8      Health Metric         Enable
*** Command Success ***
```

2. To enable data streaming for the desired subsystems, use the command `TH3 > log sample X enable`, where `X` is the index number of the desired subsystem.

   In this example, Autofocus streaming is disabled. To turn on Autofocus streaming, type:

```
TH3 > log sample 1 enable
*** Command Success ***
```

3. To confirm that the susbsystem is enabled, type `TH3 > log sample`.

```
Index  Name                  State
-----------------------------------
0      Load Estimate         Enable
1      Autofocus             Enable
2      Write Laser           Enable
3      Beam-Pointing         Enable
4      Beam-Balance          Disable
5      Int. Balance          Disable
6      Plot State            Enable
7      LVD State             Enable
8      Health Metric         Enable
*** Command Success ***
```

4. To turn data streaming for all enabled subsystems, type `TH3 > log mode sample enable`.
5. Initialize the subsystem or function that you want a log of.
6. Turn off data streaming. Type `TH3 > log mode sample disable`.

   The sample is now ready to view in File Viewer.

   Example:

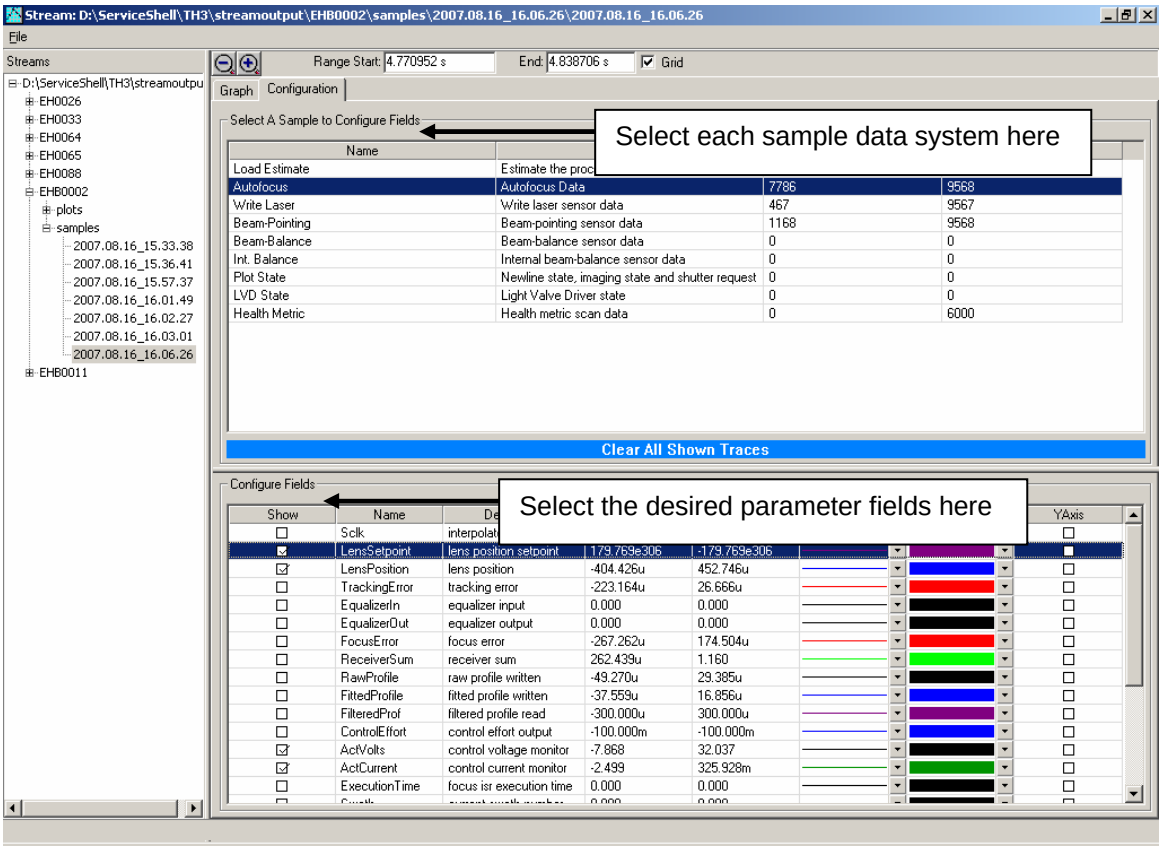
```
TH3 > log mode sample enable
*** Command Success ***

TH3 > foc init
*** Command Success ***

TH3 > log mode sample disable
*** Command Success ***
```

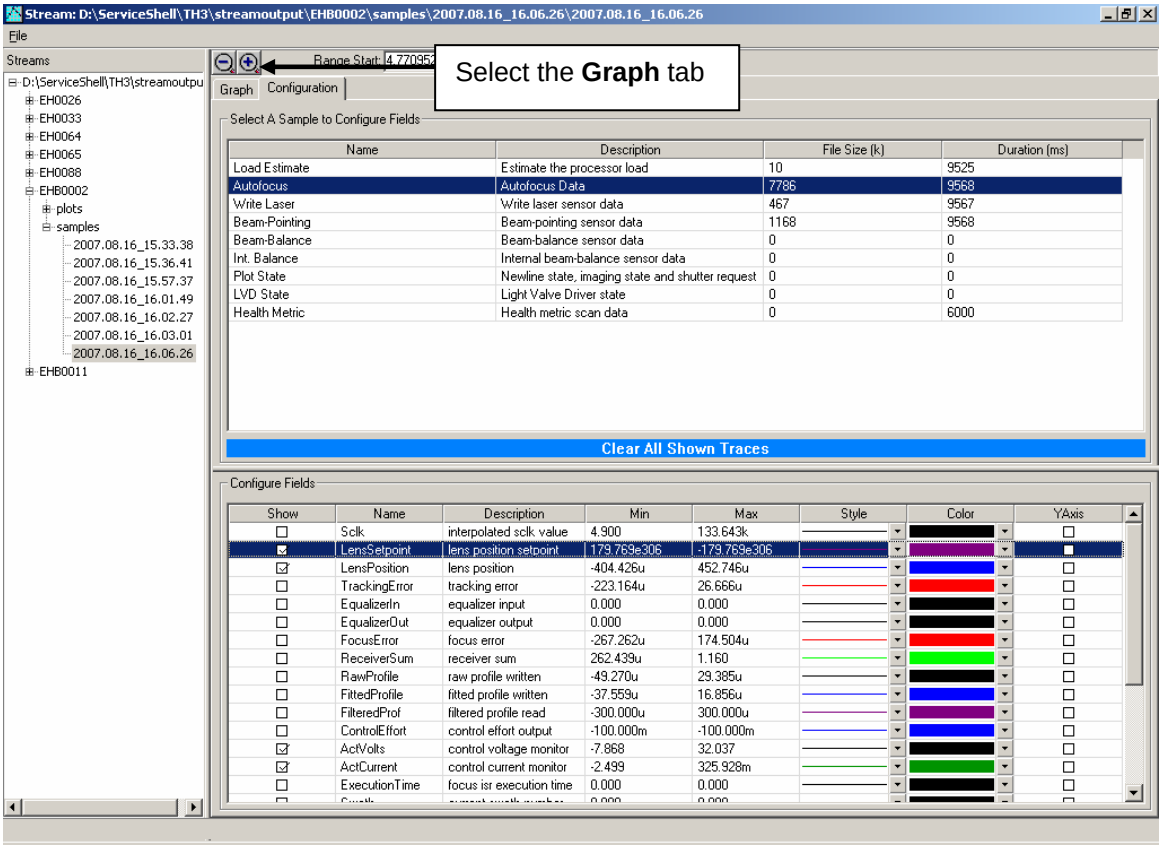
## 4.3 Configuring a Graph

1. To configure a graph in the file viewer, select the **Configuration** tab.
2. In the **Select A Sample to Configure Fields** window, select the sample data system, such as Autofocus or Beam Balance.
3. In the **Configure Fields** window, select the parameter fields that you want to graph.
4. Repeat steps 2 and 3 for each sample data system.


Stream: D:\ServiceShell\TH3\streamoutput\EHB0002\samples\2007.08.16_16.06.26\2007.08.16_16.06.26
File
Streams
D:\ServiceShell\TH3\streamoutpu
EH0026
EH0033
EH0064
EH0065
EH0088
EHB0002
plots
samples
2007.08.16_15.33.38
2007.08.16_15.36.41
2007.08.16_15.57.37
2007.08.16_16.01.49
2007.08.16_16.02.27
2007.08.16_16.03.01
2007.08.16_16.06.26
EHB0011
Range Start: 4.770952 s
End: 4.838706 s
Grid
Graph
Configuration
Select A Sample to Configure Fields
Select each sample data system here
Name
Load Estimate
Autofocus
Write Laser
Beam-Pointing
Beam-Balance
Int. Balance
Plot State
LVD State
Health Metric
Autofocus Data
7786
9568
Write laser sensor data
467
9567
Beam-pointing sensor data
1168
9568
Beam-balance sensor data
0
0
Internal beam-balance sensor data
0
0
Newline state, imaging state and shutter request
0
0
Light Valve Driver state
0
0
Health metric scan data
0
6000
Clear All Shown Traces
Configure Fields
Select the desired parameter fields here
Show
Name
YAxis
Sclk
LensSetpoint
lens position setpoint
179.769e306
-179.769e306
LensPosition
lens position
-404.426u
452.746u
TrackingError
tracking error
-223.164u
26.666u
EqualizerIn
equalizer input
0.000
0.000
EqualizerOut
equalizer output
0.000
0.000
FocusError
focus error
-267.262u
174.504u
ReceiverSum
receiver sum
262.439u
1.160
RawProfile
raw profile written
-49.270u
29.385u
FittedProfile
fitted profile written
-37.559u
16.856u
FilteredProf
filtered profile read
-300.000u
300.000u
ControlEffort
control effort output
-100.000m
-100.000m
ActVolts
control voltage monitor
-7.868
32.037
ActCurrent
control current monitor
-2.499
325.928m
ExecutionTime
focus isr execution time
0.000
0.000

## 4.4 Viewing a Graph

1. To view a graph in the file viewer, select the **Graph** tab.




2. Use the RawProfile Parameter to control the color, scale, offset, etc of the graph.

   For example, a rippling or bubble effect is cause by the clamping of the plate around the drum. (See the left side of the plate.) Each graph represents a swath imaged at a different time during a 35 second plot.

