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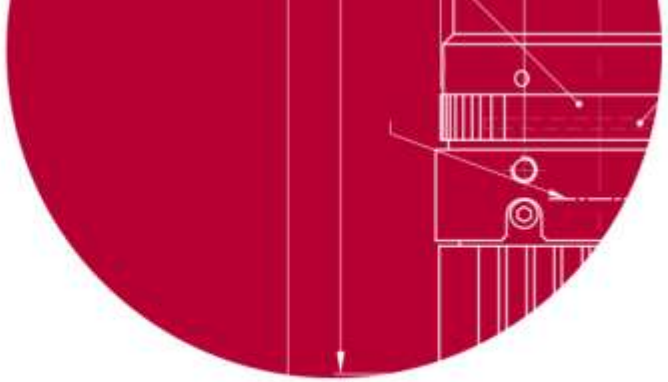

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How to calibrate PRNU correction

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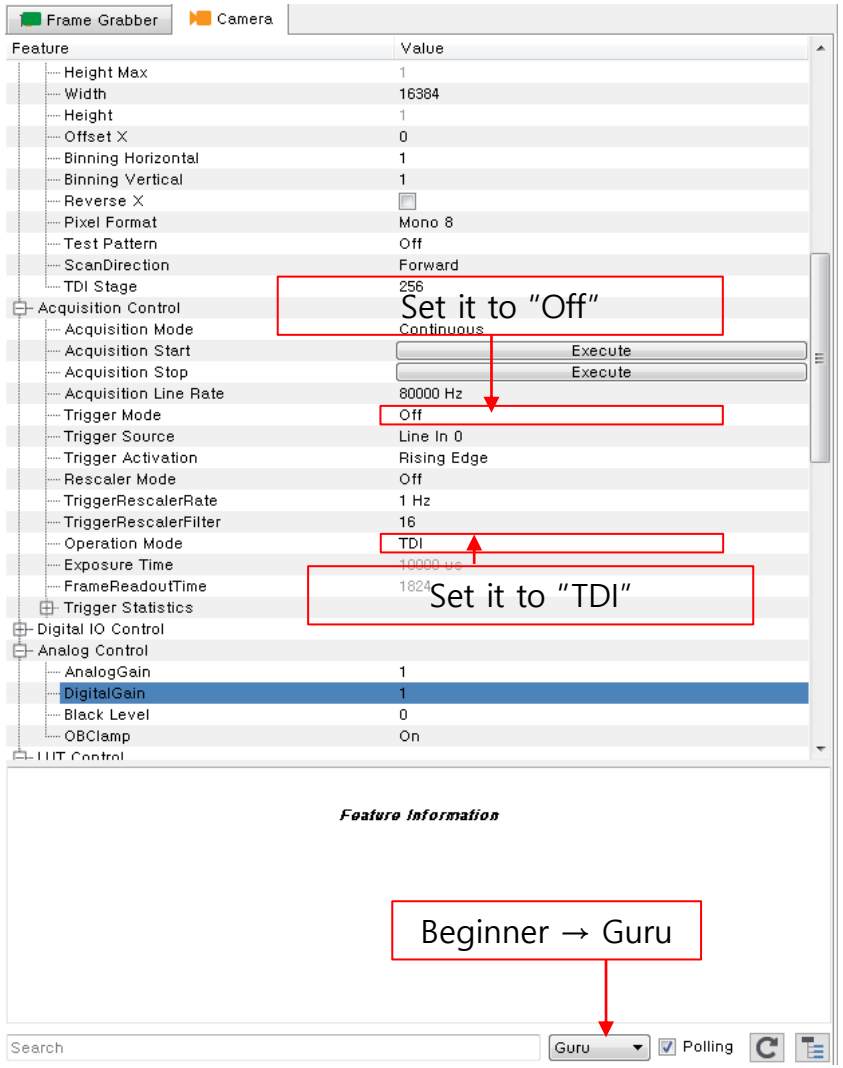
Camera Settings



Please try to adjust all settings as much as possible to the customer's use condition.
Ex. Line rate, Analog gain, Digital gain, Light and Lens

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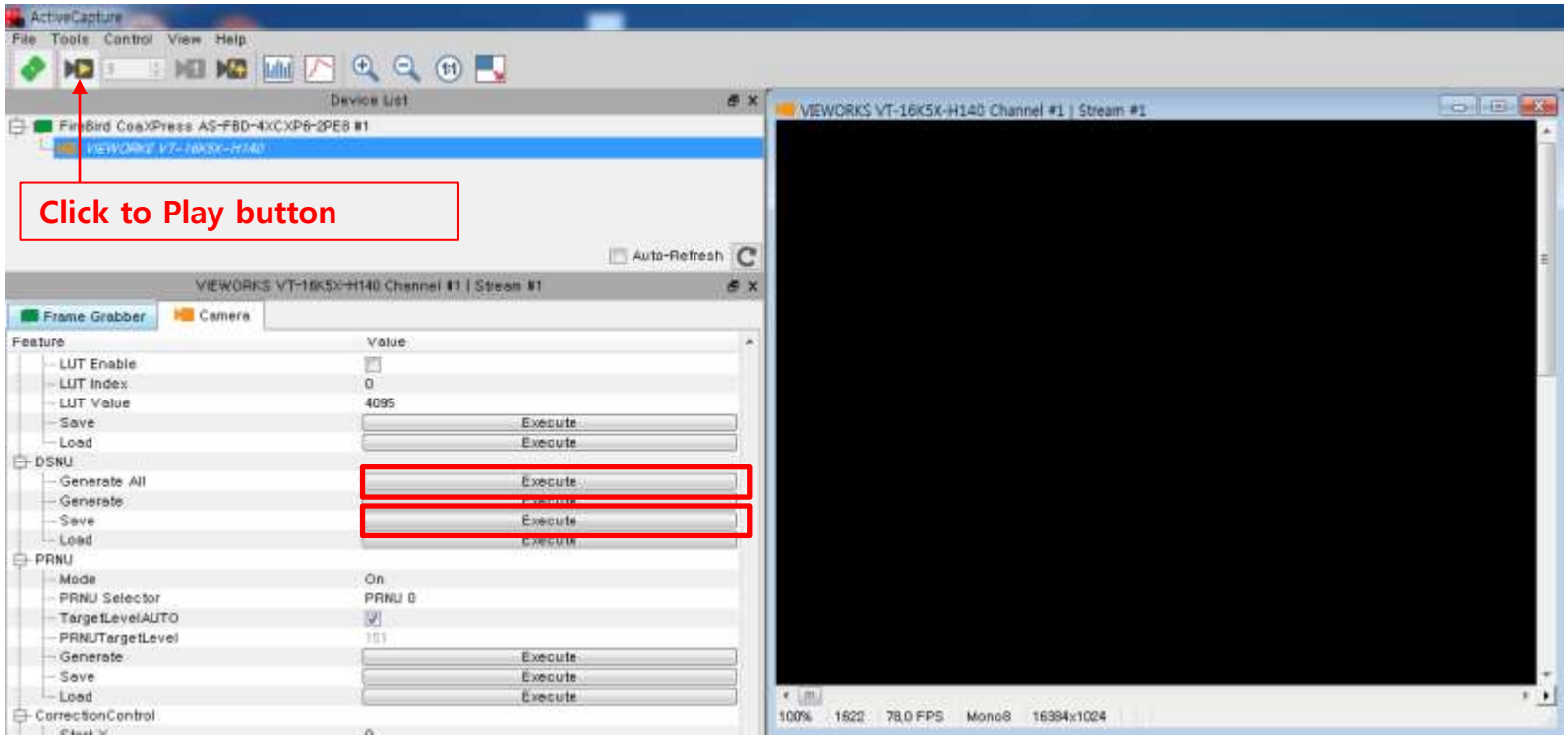
DSNU Correction

- Cover the lens cap to make a perfect dark image.
- Start to grab.
- Click “DSNU Generate All”.
- After 10 seconds, click “DSNU Save”.



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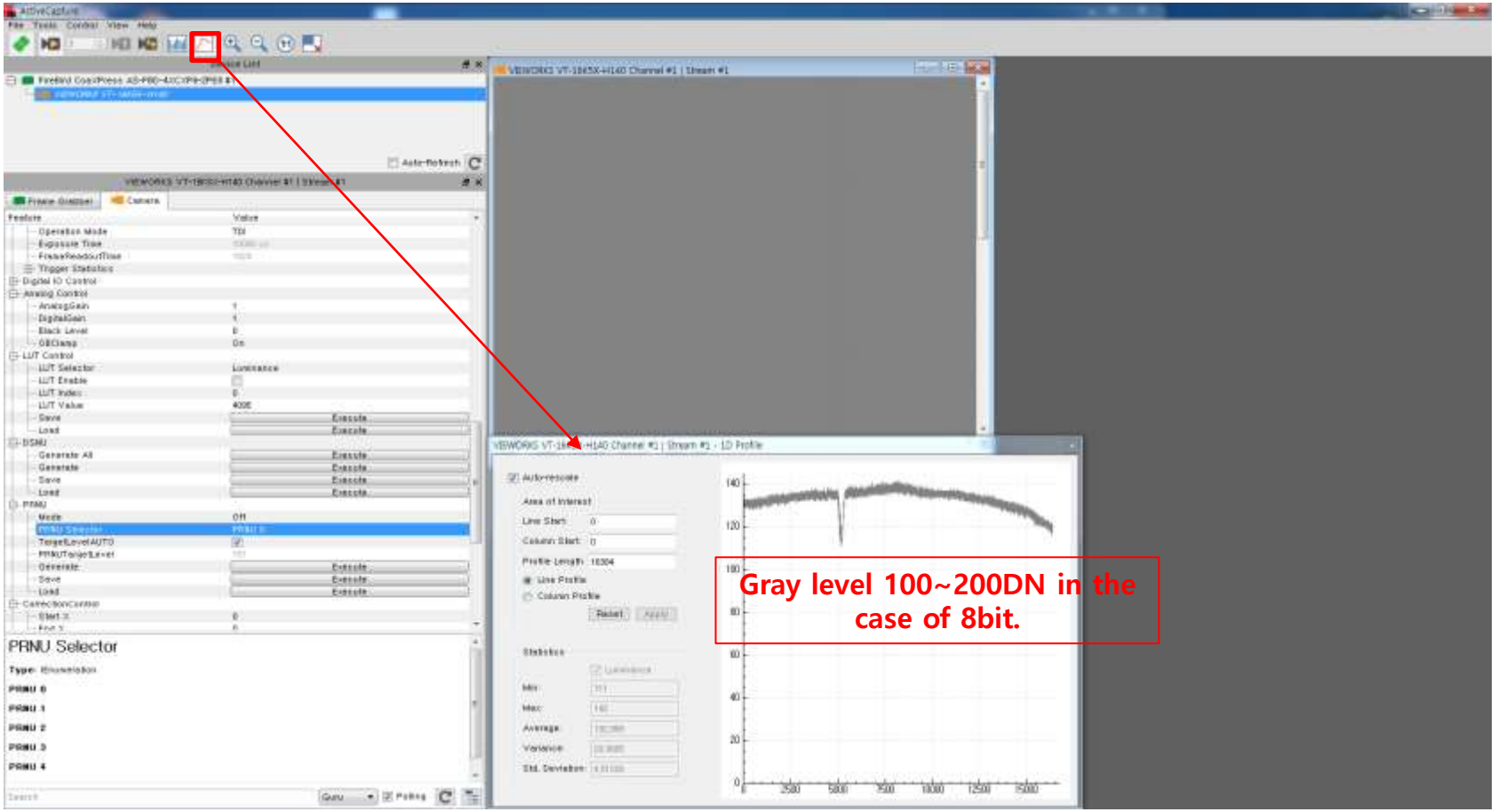
PRNU Correction

- After attaching the lens to the camera, make it to the optical condition used in the filed.
- Put Flat object like paper without any pattern, dust and then start to play.
- Adjust the gray level to 50%~60% of Saturation level by controlling the light level.



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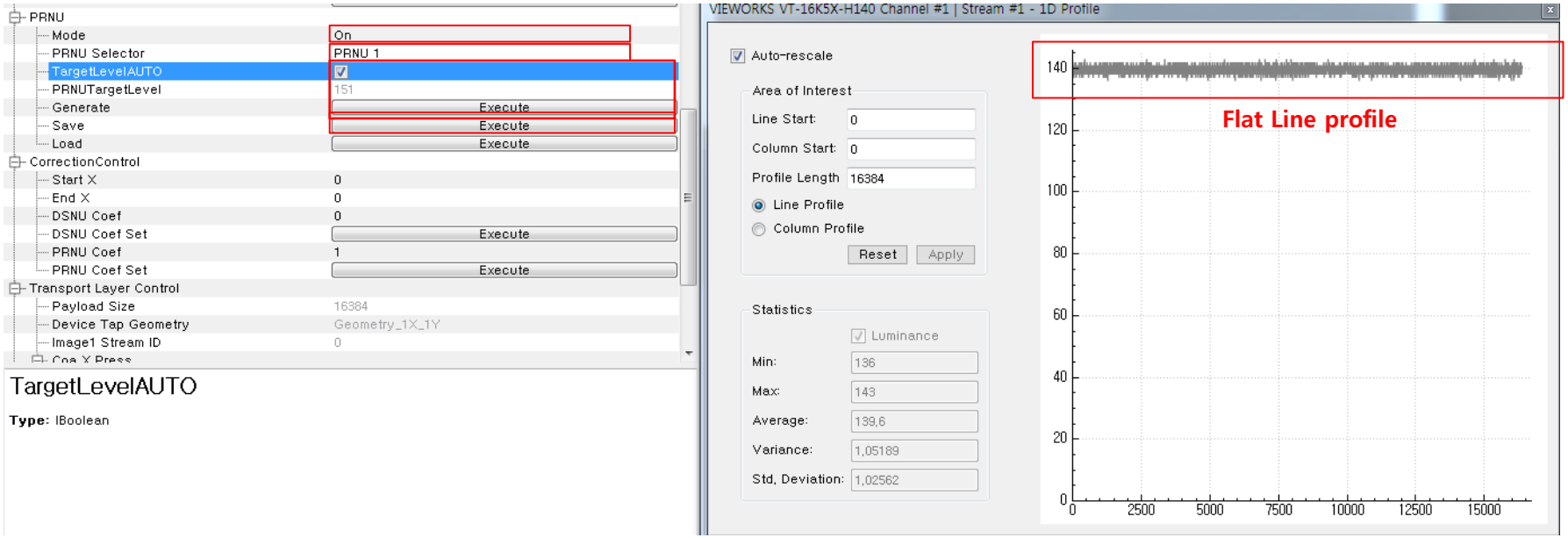
PRNU Correction

- Select one of PRNU 1 ~ 4(PRNU 0 is the factory setting value)
- Click "TargetLevelAUTO" and click "Generate"(If you want to set it your target level, uncheck and then set your target level)
- Click "Save"
- Change it to "On"
- Check the line profile is actually flat



- Save the current settings to User 1 or User 2 area

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9.10 Photo Response Non-uniformity Correction

In theory, when a line scan camera acquires images with the camera viewing a uniform light-colored target in bright light, all of the pixel values in the image should be near the maximum grey value and they should be equal. In practice, however, slight variations in the performance of the pixels in the sensor, variations in the optics, and variations in the lighting will cause some variations in the pixel values output from the camera. This variation is known as Photo Response Non-uniformity (PRNU). VT CXP camera provides the PRNU Correction feature and five storage locations for PRNU correction values.
The XML parameters related to PRNU are as follows.

XML Parameters		Value	Description
PRNU	PRNUMode	Off	Disables the PRNU Correction feature.
		On	Enables the PRNU Correction feature.
	PRNU Selector	0/1/2/3/4	Selects a location to save PRNU data to or load PRNU data from.
	TargetLevelAUTO	-	Select to set the PRNU Target Level automatically.
	PRNUTargetLevel	0 ~ 255	Sets the PRNU Target Level.
	PRNU Generate	-	Generates the PRNU data.
	PRNUSave	-	Saves the generated PRNU data in the non-volatile memory. • The generated data by executing the **PRNUGenerate** parameter are saved in the volatile memory so that the data are lost if the camera is reset or if power is turned off. To use the data after the camera is powered on or reset, save them in the non-volatile memory.
	PRNULoad	-	Loads the PRNU data from the non-volatile memory into the volatile memory.

Table 9.11 XML Parameters related to PRNU

9.10.1 Generating and Saving User PRNU Correction Values

To generate and save user PRNU correction values, use the following procedure.

- We strongly recommend that you generate new PRNU correction values whenever you make a change to the optics or lighting or if you change the camera's line rate.
- For optimum PRNU correction results, we recommend to generate DSNU correction values first before generating PRNU correction values.

1. The camera will use the entire sensor when generating PRNU correction values. Therefore, we recommend that you set the ROI settings to use the entire width of the sensor.
2. Place a uniform white target in the field of view of the camera. Adjust the optics, lighting and line rate as you would for normal operation. We recommend that you make adjustments to achieve the digital output level in a range from 100 to 200 (Gain: 1.00 at 8 bit).
3. Begin acquiring line images either by setting the camera for the Free-Run mode or by supplying external trigger signals to trigger line acquisition.
4. Set the Target Level.
   - To set the Target Level automatically, select the **Target Level AUTO** check box.
   - To set the Target Level manually, deselect the **Target Level AUTO** check box and input the target level in a range from 0 to 255.
5. Execute the **PRNU Generate** command to generate PRNU correction values.
6. The camera must acquire at least 1024 line images to create a set of PRNU correction values.
7. After completing 1024 line acquisitions, the generated PRNU correction values will be activated and saved in the camera's volatile memory.
8. To save the generated PRNU correction values in the camera's Flash (non-volatile) memory, specify a location to save by using the **PRNU Selector** parameter and execute the **PRNU Save** command. The existing values in the memory will be overwritten.
   To ignore the generated PRNU correction values and load the existing values in the Flash memory, specify a location to load from by using the **PRNU Selector** parameter and execute the **PRNU Load** command.

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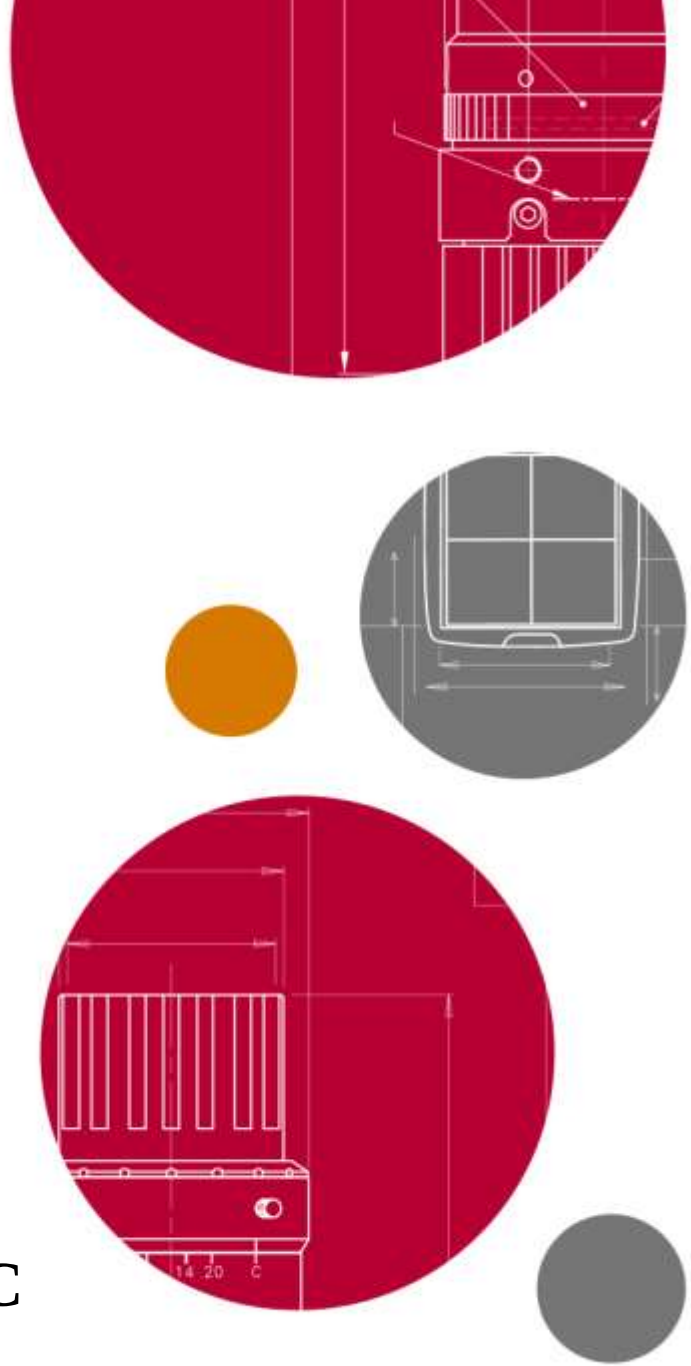
Thank You



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