Command List Reference

Shad-o-Box HS

1. Camera and Sensor Information

Camera and sensor information can be retrieved via a controlling GUI application — in the examples shown here, CamExpert. Parameters such as camera model, firmware version, sensor characteristics, etc. are read to uniquely identify the connected device.

The camera information parameters are listed under the **Device Control and Image Format Controls** set.

Camera Information	
Parameter	**Options**
Vendor Name	
Model Name	
Firmware Version	
GigE Firmware Version	Read-only Parameters
Firmware Version	
Camera serial ID number	
Scan Type	
Image Width	
Image Height	

2. Test Patterns

To retrieve a test pattern, select **Image Format Controls > Test Image Selector** and choose one of the following available test images:

Image Format Control	
Parameter	**Description**
Test Image Selector	Selects the type of test image that is sent by the camera: • None. Image is from the camera sensor. • HorizontalWedge. • VerticalWedge. • Purity. Image is filled with an image that goes from the darkest possible value to the brightest by 1 DN increment per frame. • Columns. • Rows. • White. Image is filled with the brightest value.

3. Synchronization Modes

The camera's image exposures are initiated by a trigger signal. The trigger event is either a programmable internal signal used in free running mode, or an external input used for synchronizing exposures to external triggers. These triggering modes are described in more detail in the detector's User's Manual.

- Free running (trigger disabled): The camera free-running mode has a programmable internal timer for exposure period.
- External trigger: Continuous image captured and controlled by an external trigger signal.
- Snapshot: Single image captured by external trigger signal.

4. Set Extended Exposure Time

To set the camera's extended exposure time, use **Device Control > Extended Exposure**. The value of the extended exposure can be any integer between 1 and 19000 for *512/1024HS* models, or between 1 and 65535 for all other detector models.

The Shad-o-Box HS camera frame rate can be calculated as follows:

$$FrameRate\ (fps) = \frac{40{,}000{,}000}{(ExtendedExposure + LinesPerFrame) * ClocksPerLine}$$

where LinesPerFrame and ClocksPerLine are

Camera Model	LinesPerFrame	ClocksPerLine
Shad-o-Box 512 HS	515	2202
Shad-o-Box 1024 HS	515	2202
Shad-o-Box 688 HS	690	1395
Shad-o-Box 1548 HS	1550	1395
Shad-o-Box 3K HS	1310	2600
Shad-o-Box 6K HS	2946	2600

5. Readout Modes

To set the camera readout mode, use **Device Control > Readout Mode**. Check the following table for which readout modes are available on each model:

- High full well / low full well selection
- Nondestructive readout mode (NDR) on (enable) and off (disable)
- Binning2 (2x2 binning) mode

Please note that the **HighFullWell** and **LowFullWell** selections may not be available on all cameras.

Camera Model	HighFW	LowFW	NDR	NDR off	Binning2
Shad-o-Box 512 HS	X	X	X	X	
Shad-o-Box 1024 HS	X	X	X	X	
Shad-o-Box 688 HS	X	X	X	X	
Shad-o-Box 1548 HS	X	X	X	X	
Shad-o-Box 3K HS			X	X	X
Shad-o-Box 6K HS			X	X	X