

PILATUS3 X ROI Add-on

Documentation of the ROI feature

Version: V3

1. *Region Of Interest (ROI) readout*

1.1. Description

For the PILATUS3 X 1M, 2M and 6M detectors it is possible to read out a reduced area of the detector, a so-called region of interest (ROI) to achieve higher frame rates and reduced image sizes. This is useful, when higher frame rates are required or if only a sub-region of the frames contains relevant data.

For the ROI readout only a subset of all detector modules is read out. Below you can find the possible ROI patterns (as schematic drawings) and the corresponding maximum frame rates and image sizes.

1.2. Selecting the ROI

To select an ROI use the Camserver command "SetROI [pattern]", where the parameter 'pattern' can be any of the ROI patterns listed below. The selected ROI will be valid for all following imaging commands ("Exposure", "ExtTrigger", "ExtMTrigger", "ExtEnable") which will readout only the selected ROI.

Calling "SetROI" without parameter reports the currently selected ROI pattern. For all detectors "setroi 0" chooses the full detector readout, the default configuration.

1.3. Examples

for a PILATUS3 X 2M detector

Camserver command	Comment
<code>setroi c2</code>	selects the ROI "C2" i.e. the central two modules for readout.
<code>setroi 0</code>	resets the detector to full readout

2. ROI patterns

2.1. PILATUS3 X 6M

- 0 (full): 100 Hz
- C18: 200Hz
- C2: 500 Hz

The C18 ROI shown in green includes the two central modules colored in red.

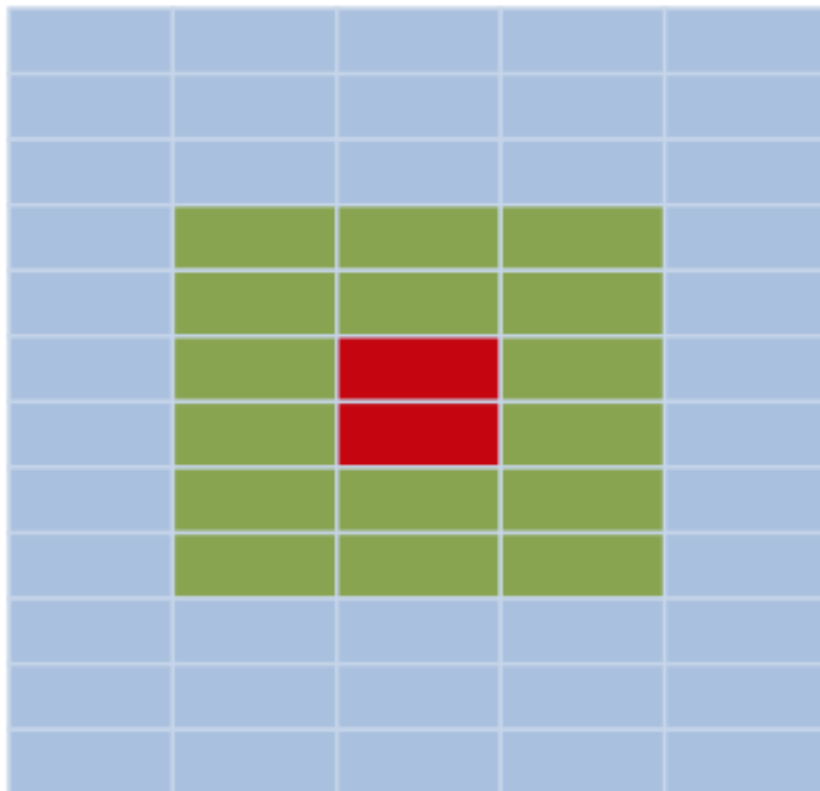


Figure 1: PILATUS3 X 6M ROI readout configurations

2.2. PILATUS3 X 2M

- 0 (full): 250 Hz
- C12: 250 Hz
- L8: 500 Hz
- R8: 500 Hz
- C2: 500 Hz

The C12 ROI shown in green includes the two central modules colored in red in figure 2a.

The R8 ROI shown colored in green in figure 2b.

The L8 ROI shown colored in green in figure 2c.

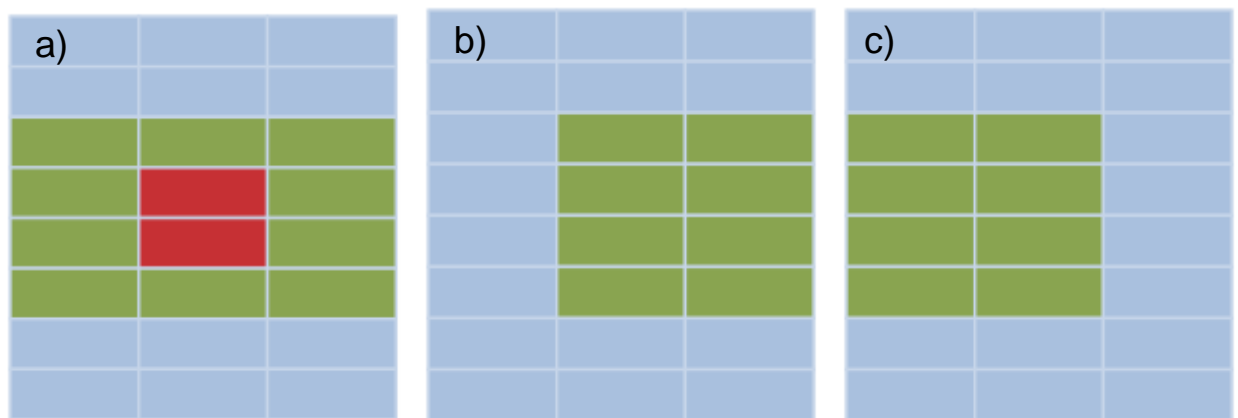


Figure 2: PILATUS3 X 2M ROI readout configurations

2.3. PILATUS3 X 1M

The 1M detector and all its ROIs can be read out at the same maximum frame rate of 500 Hz.

O (full): 500 Hz

L1: 500 Hz

R1: 500 Hz

L3: 500 Hz

R3: 500 Hz

The L3 ROI shown in green in the figure 3a.

The R3 ROI shown in red in the figure 3a.

The L1 ROI shown in green in figure 3b.

The R1 ROI shown in red in figure 3b.

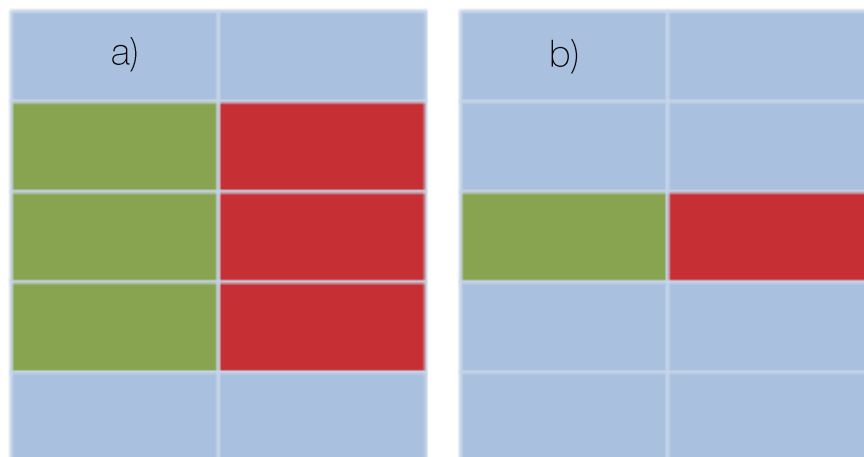


Figure 3: PILATUS3 X 1M ROI readout configurations