Simple Image Processor Documentation

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CHAPTER 1

Simple Image Processor

The Simple Image Processor device can be connected to the output channel of a device producing images (usually a camera, or an image processor device).

Incoming data will be sought for images in the `data.image` key.

The Simple Image Processor device can provide for each incoming image:

- the maximum pixel value;
- gaussian fit parameters for the x and y integrals.

The settings of the Simple Image Processor are described in the next section.

1.1 Input to the Device

Property key	Description
pixelSize	The pixel size, to be used for converting the fit's standard deviation to FWHM.
imageThreshold	The threshold for doing processing. Only images having maximum pixel value above this threshold will be processed.
subtractImagePedestal	Set to *True*, to subtract the image pedestal (i.e. image = image - image.min()) before centre-of-mass and Gaussian fit.
thresholdType	Defines whether an absolute or relative thresholding is used in the calculations.
pixelThreshold	If thresholdType is set to 'absolute', pixels below this threshold will be set to 0 in the processing of images. If it is set to 'relative', pixels below this fraction of the maximum pixel value will be set to zero. If it is set to None, no thresholding will occur.

1.2 Commands

Slot key	Description
reset	Resets the processor output values.

1.3 Output of the Device

1.3.1 General properties

Property key	Description
frameRate	The actual frame rate.
imageSizeX	The image width.
imageSizeY	The image height.
offsetX	The image offset in X direction, i.e. the X position of its top-left corner.
offsetY	The image offset in Y direction, i.e. the Y position of its top-left corner.
binningX	The image binning in X direction.
binningY	The image binning in Y direction.

1.3.2 Gaussian Fit

Property key	Description
success	Success boolean whether the image processing was successful or not.
maxPxValue	Maximum pixel value.
amplitudeX, amplitudeY	Amplitude from Gaussian fit.
positionX, positionY	Beam position from Gaussian fit.
sigmaX, sigmaY	Standard deviation from Gaussian fit.
fwhmX, fwhmY	FWHM obtained from standard deviation.
errSigmaX, errSigmaY	Uncertainty on position from Gaussian fit.

1.4 Expert Contact

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CHAPTER 2

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