zwoasi Documentation

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Contents

Contents: Interface to ZWO ASI range of USB cameras.

Calls to the *zwoasi* module may raise `TypeError` or `ValueError` exceptions if an input argument is incorrect. Failure conditions from within the module may raise exceptions of type *ZWO_Error*. Errors from conditions specifically from the SDK C library are indicated by errors of type *ZWO_IOError*; certain *Camera.capture()* errors are signalled by *ZWO_CaptureError*.

class zwoasi.**Camera**(*id_*)

Representation of ZWO ASI camera.

The constructor for a camera object requires the camera ID number or model. The camera destructor automatically closes the camera.

capture(*initial_sleep=0.01*, *poll=0.01*, *buffer_=None*, *filename=None*)

Capture a still image. Type `numpy.ndarray`.

capture_video_frame(*buffer_=None*, *filename=None*, *timeout=None*)

Capture a single frame from video. Type `numpy.ndarray`.

Video mode must have been started previously otherwise a *ZWO_Error* will be raised. A new buffer will be used to store the image unless one has been supplied with the *buffer* keyword argument. If *filename* is not `None` the image is saved using `PIL.Image.Image.save()`. *capture_video_frame()* will wait indefinitely unless a *timeout* has been given. The SDK suggests that the *timeout* value, in milliseconds, should be twice the exposure plus 500 ms.

close()

Close the camera in the ASI library.

The destructor will automatically close the camera if it has not already been closed.

get_bin()

Retrieves the pixel binning. Type `int`.

A pixel binning of one means no binning is active, a value of 2 indicates two pixels horizontally and two pixels vertically are binned.

get_roi()

Retrieves the region of interest (ROI).

Returns a `tuple` containing `(start_x, start_y, width, height)`.

get_video_data(*timeout=None*, *buffer_=None*)

Retrieve a single video frame. Type `bytearray`.

Low-level function to retrieve data. See *capture_video_frame()* for a more convenient method to acquire an image (and optionally save it).

set_roi(*start_x=None*, *start_y=None*, *width=None*, *height=None*, *bins=None*, *image_type=None*)

Set the region of interest (ROI).

If `bins` is not given then the current pixel binning value will be used. The ROI coordinates are considered after binning has been taken into account, ie if `bins=2` then the maximum possible height is reduced by a factor of two.

If `width=None` or `height=None` then the maximum respective value will be used. The ASI SDK library requires that width is a multiple of 8 and height is a multiple of 2; a ValueError will be raised if this is not the case.

If `start_x=None` then the ROI will be horizontally centred. If `start_y=None` then the ROI will be vertically centred.

start_video_capture()

Enable video capture mode.

Retrieve video frames with *capture_video_frame()*.

stop_video_capture()
Leave video capture mode.

exception zwoasi.**ZWO_CaptureError**(*message*, *exposure_status=None*)
Exception class for when *Camera.capture()* fails.

exception zwoasi.**ZWO_Error**(*message*)
Exception class for errors returned from the *zwoasi* module.

exception zwoasi.**ZWO_IOError**(*message*, *error_code=None*)
Exception class for all errors returned from the ASI SDK library.

zwoasi.**get_num_cameras**()
Retrieves the number of ZWO ASI cameras that are connected. Type int.

zwoasi.**list_cameras**()
Retrieves model names of all connected ZWO ASI cameras. Type list of str.

CHAPTER 1

Indices and tables

- genindex
- modindex
- search

Python Module Index

z

Index