

PHYTEC USB-CAM Series under Linux

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1 Introduction

This application note is valid for the following products:

Article Number	Description	Details	Color Format
AK087-UVC	USB-CAM-003H	CMOS 744x480	Y8
AK088-UVC	USB-CAM-004H	CMOS 744x480	Bayer GRBG
AK089-UVC	USB-CAM-103H	CMOS 744x480	Y8 ¹
AK090-UVC	USB-CAM-104H	CMOS 744x480	Bayer GRBG ¹
AK091-UVC	USB-CAM-051H	CMOS 2592x1944	Y8
AK092-UVC	USB-CAM-052H	CMOS 2592x1944	Bayer GBRG
AK093-UVC	USB-CAM-151H	CMOS 2592x1944	Y8 ¹
AK094-UVC	USB-CAM-152H	CMOS 2592x1944	Bayer GBRG ¹

For more information about our USB cameras, please read our manual L-740 "USB CAM Series". You will find more details about this series there.

Note!

Although the manual L-740 is for cameras with standard firmware, the described hardware characteristics are identical.

1: **CAUTION:** Under Linux, the functionality of the trigger, strobe, and digital switching output is not available.

2 UVC / V4L2

Under Linux, USB cameras that are UVC (USB Video Capture) compatible can be registered and used as V4L2 devices.

All PHYTEC USB cameras can be provided with UVC-compliant firmware on request. The BSPs of many of our modules already contain uvcvideo drivers as well as suitable demo scripts.

Cameras equipped by us with UVC-compliant firmware provide RAW data in Bayer format. If you need an RGB or YUV data stream instead, this requires a conversion, for example using GStreamer.

3 Possible V4L2 Camera Controls

The cameras can be configured using v4l2. The following controls are available for all cameras:

V4L2-CTL	Description
Gain	The gain can be varied.
Exposure_absolute	The exposure time can be varied.

The possible V4l2 controls can be output using the following command:

```
v4l2-ctl -d [VIDEO-DEVICE] -all
```

The following formats and FPS are available:

AK087-UVC and AK089-UVC	
Resolution	FPS
744x480 GREY8	76,046, 60, 30, 25, 15, 7,5, 5
640x480 GREY8	87, 60, 30, 25, 15, 7,5, 5
320x240 GREY8	161,29, 120, 80, 60, 30, 25, 15

AK088-UVC and AK090-UVC	
Resolution	FPS
744x480 GBRG	76,046, 60, 30, 25, 15, 7,5, 5
640x480 GBRG	87, 60, 30, 25, 15, 7,5, 5
320x240 GBRG	161,29, 120, 80, 60, 30, 25, 15

AK091-UVC and AK093-UVC	
Resolution	FPS
2592x1944 GREY8	7,5, 7, 5, 4
1920x1080 GREY8	15, 10, 7,5, 5
1280x720 GREY8	30, 25, 15, 10
640x480 GREY8	60, 30, 25, 15

An overview of the available formats can be displayed using the following command:

```
v4l2-ctl -d /dev/video8 --list-formats-ext
```

4 Revision History

Version	Changes	Date	Author
1.0	document preparation	07.03.2013	D. Heer
2.0	Note on trigger output	16.05.2017	D. Bender
3.0	Complete revision of the document	21.04.2020	D. Bender

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