ELP ELP-USBFHD06H-FV

ELP Sony IMX323 Low Light Mini USB Camera Module

Model: ELP-USBFHD06H-FV

Instruction Manual

1. Introduction

This manual provides essential information for the setup, operation, and maintenance of your ELP Sony IMX323 Low Light Mini USB Camera Module. This camera module is designed for various applications requiring high-resolution video capture in diverse lighting conditions, featuring a 2.8-12mm manual zoom lens and UVC compatibility for easy integration.

2. Key Features

- Sony IMX322/323 low illumination image sensor for clear images in dark environments.
- H.264 compression format for efficient video streaming.
- 1080P HD resolution (1920x1080 @ 30fps) for sharp and clear visuals.
- Manual zoom 2.8-12mm lens for adjustable field of view.
- Integrated microphone for audio capture.
- Miniature size suitable for robotic projects and embedded applications.
- UVC (USB Video Class) compliant, requiring no additional drivers for most operating systems.

3. Package Contents

- ELP Sony IMX323 USB Camera Module (ELP-USBFHD06H-FV)
- USB 2.0 Cable

4. Setup Instructions

4.1 Connecting the Camera Module

The ELP USB Camera Module is UVC (USB Video Class) compliant, meaning it does not require special drivers for most operating systems. Simply connect the camera to your device using the provided USB cable.

1. Locate an available USB 2.0 port on your PC, laptop, Android device, or Raspberry Pi.
2. Connect the smaller end of the USB cable to the camera module.
3. Connect the larger end of the USB cable to the USB port on your device.
4. The operating system should automatically detect and install the necessary generic drivers.

Figure 1: ELP Sony IMX323 USB Camera Module connected via USB.

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Video 1: Demonstration of connecting the ELP USB camera module to a computer and Android device, highlighting its UVC compliance and plug-and-play functionality.

4.2 Software Installation

No specific driver installation is required for UVC-compliant devices. For accessing the camera feed and adjusting settings, you can use standard webcam software available on your operating system (e.g., Camera app on Windows, Photo Booth on macOS) or third-party applications like AMCAP (for Windows) or VLC Media Player.

Figure 2: Plug and Play USB power supply connection.

Figure 3: Operating system compatibility with Android, Linux, Windows, and Mac OS.

5. Operating Instructions

5.1 Accessing the Camera Feed

1. After connecting the camera, open your preferred camera software (e.g., AMCAP, VLC, or your OS's built-in camera application).
2. Select the "HD USB Camera" or similar option from the device list within the software.
3. The live video feed from the camera module should now be visible.

5.2 Adjusting Manual Zoom and Focus

The 2.8-12mm lens allows for manual adjustment of zoom and focus to suit your specific application needs.

- **Zoom:** Gently rotate the outer ring of the lens to adjust the focal length between 2.8mm (wide angle) and 12mm (telephoto).
- **Focus:** After adjusting the zoom, rotate the inner ring of the lens until the image appears sharp and clear on your screen.

Figure 4: Manual zoom capability from 2.8mm to 12mm.

5.3 Parameter Adjustment

Most camera software allows you to adjust various image parameters. Refer to your software's documentation for specific instructions. Common adjustable parameters include:

- Brightness
- Contrast
- Saturation
- Hue
- Sharpness
- Gamma
- Gain
- White Balance
- Backlight Contrast
- Exposure

5.4 Low Light Performance

The camera module features a Sony IMX323 sensor, providing excellent low-light performance with a minimum

illumination of 0.01 lux.

Figure 5: Low illumination performance with Sony IMX322 sensor.

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Video 2: Demonstration of the ELP mini size H.264 low illumination USB camera module's performance in low light conditions.

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Video 3: ELP 1080P H.264 USB camera module demonstrating 0.01 lux low light capability.

6. Specifications

Feature	Description
Model	ELP-USBFHD06H-FV
Sensor	Sony IMX322/IMX323
Lens Size	1/2.9 inch

Feature	Description
Pixel Size	12.8 x 11.6 mm
Image Area	2000(H) x 1121(V) approx. 2.24 M pixels
Max. Resolution	1080P
Compression Format	H.264 / MJPEG / YUV2 (YUYV)
Resolution & Frame Rate (H.264)	320x240@30fps, 352x288@30fps, 640x360@30fps, 640x480@30fps, 800x600@30fps, 1280x720@30fps, 1920x1080@30fps
Resolution & Frame Rate (MJPEG)	320x240@30fps, 352x288@30fps, 640x360@30fps, 640x480@30fps, 800x600@30fps, 1280x720@30fps, 1920x1080@30fps
Resolution & Frame Rate (YUV)	320x240@30fps, 352x288@30fps, 640x360@30fps, 640x480@30fps, 800x600@15fps
S/N Ratio	42dB
Dynamic Range	86dB
Sensitivity	5.0V/lux-sec@550nm
Minimum Illumination	0.01 lux
Shutter Type	Electronic rolling shutter / Frame exposure
Connecting Port Type	USB2.0 High Speed
Free Drive Protocol	USB Video Class (UVC)
Support OTG Protocol	USB2.0 OTG
Adjustable Parameters	Brightness, Contrast, Saturation, Hue, Sharpness, Gamma, Gain, White balance, Backlight Contrast, Exposure
Lens Parameter	2.8-12mm Manual Zoom Lens
Digital Audio	High quality digital MIC, support single, dual channel
Power Supply	USB BUS POWER DC5V
Operating Voltage	140mA~190mA
Working Temperature	-10℃~70℃ (Storage: -20℃~85℃)
Board Size / Weight	38x38mm (Compatible 32x32mm) / about 30g
Cable Standard	1M (optional 2M, 3M, 5M)
Operating System Request	Win7, Win8, Linux 2.6 or above, Android 4.0 or above

7. Applications

The ELP Sony IMX323 USB Camera Module is versatile and can be used in a wide range of applications, including but not limited to:

- Home Surveillance Systems
- PC Webcams for Laptops and Desktops
- Robotic Projects
- Virtual Dressing Mirrors
- Virtual Reality (VR) Development
- High-tech Product Development
- Video Conferencing
- Industrial Vision Systems
- Medical Equipment
- Automated Vending Machines

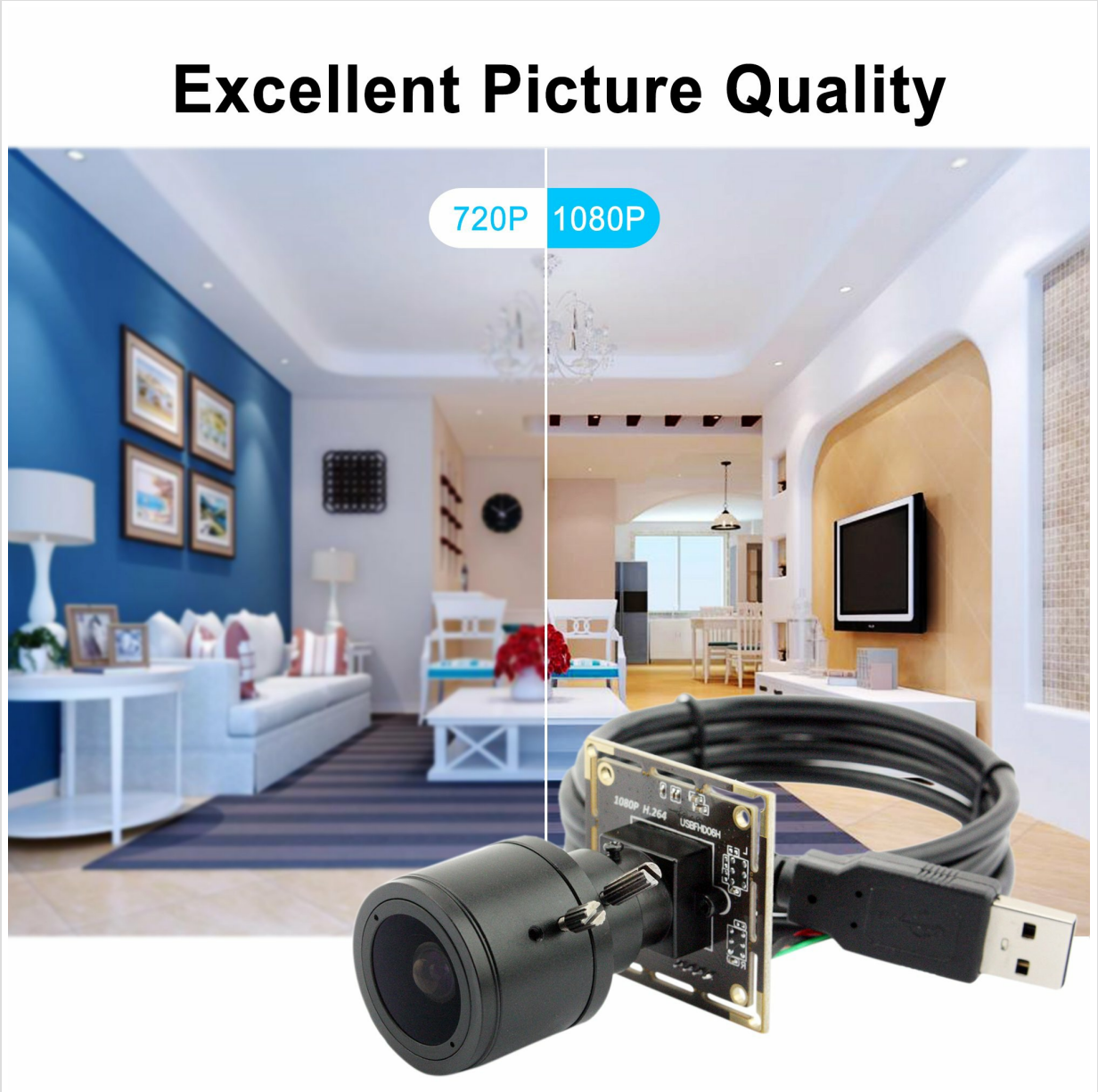

Figure 6: Excellent picture quality at 1080P resolution.

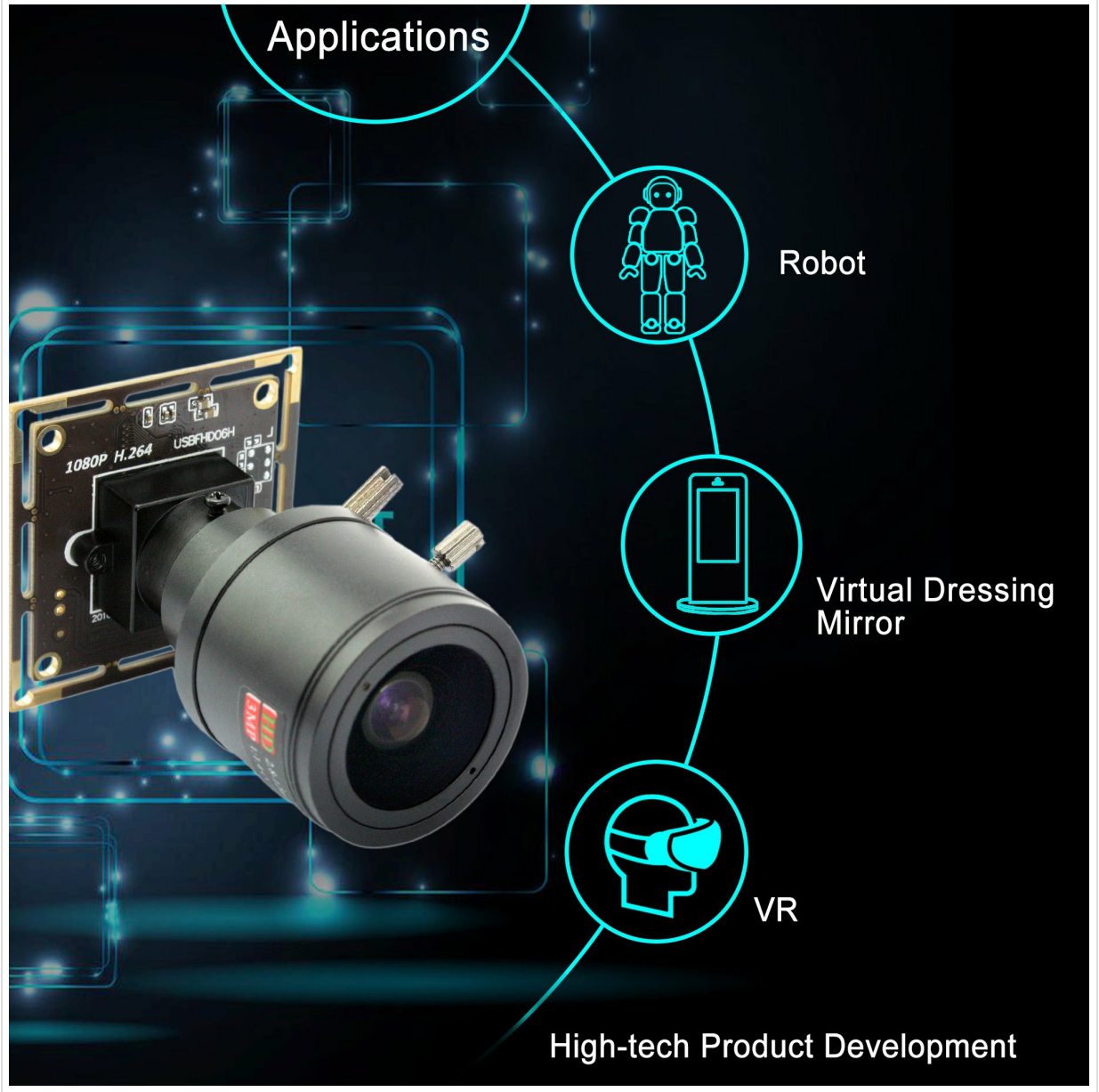

Figure 7: Diverse applications for the camera module.

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Video 4: Overview of ELP USB camera applications and compatibility with various operating systems.

8. Troubleshooting

- **No Image/Video:** Ensure the USB cable is securely connected to both the camera module and the host device. Verify that the correct camera device is selected in your software. Try a different USB port or cable.
- **Poor Image Quality:** Adjust the manual focus and zoom on the lens. Check lighting conditions. Adjust image parameters (brightness, contrast, etc.) in your camera software.
- **Camera Not Detected:** Restart your computer or device. Ensure your operating system is compatible (Windows 7/8 or above, Linux 2.6 or above, Android 4.0 or above).
- **Audio Issues:** Ensure the microphone is enabled and selected as the input device in your software settings.

9. Maintenance

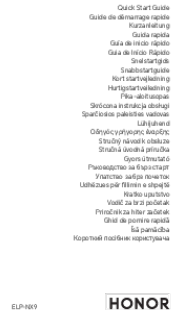
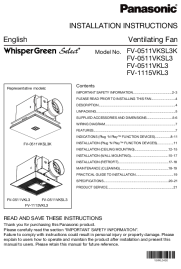
- **Cleaning:** Use a soft, dry cloth to clean the camera lens. For stubborn smudges, use a lens cleaning solution specifically designed for optical surfaces. Avoid abrasive materials or harsh chemicals.
- **Storage:** Store the camera module in a cool, dry place away from direct sunlight and extreme temperatures.

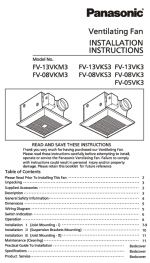
- **Handling:** Handle the camera module with care to avoid physical damage to the lens or circuit board.

10. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact ELP customer service directly. Keep your proof of purchase for warranty claims.

Related Documents - ELP-USBFHD06H-FV

	Honor ELP-NX9 Quick Start Guide Get started with your Honor ELP-NX9 smartphone. This quick start guide provides essential information on device setup, basic operations, safety, and regulatory compliance.
	Panasonic Ventilating Fan Installation and Operating Instructions This document provides comprehensive instructions for the installation, operation, and maintenance of Panasonic Ventilating Fan models. It includes essential safety warnings, installation guidelines, maintenance tips, and detailed specifications to ensure proper and safe use of the product.
	Panasonic Ventilation Solutions: High-Performance Fans for Indoor Air Quality Discover Panasonic's comprehensive range of high-performance, energy-efficient ventilation fans and indoor air quality solutions. This catalog details product lines like WhisperGreen, WhisperSense, and WhisperLine, highlighting key benefits, features, specifications, and installation guidance for creating healthier, more comfortable living and working environments.
	Martin Vacuum Tester User Manual and Operation Guide (Model 91611580) Comprehensive user manual and operation guide for the Martin 91611580 Vacuum Tester. This document details the procedures for performing vacuum tests, pressure tests, explains product overview, pump adaptors, test setup, and specifications for vacuum pumps.
	Panasonic Ventilating Fan Installation Instructions - FV-0511VKSL3K and other models Comprehensive installation guide for Panasonic WhisperGreen Select ventilating fans, including models FV-0511VKSL3K, FV-0511VKSL3, FV-0511VKL3, and FV-1115VKL3. Covers safety information, unpacking, parts, wiring diagrams, features, installation procedures for ceiling and wall mounting, retrofit installations, maintenance, and specifications.



Panasonic

Ventilating Fan

INSTALLATION INSTRUCTIONS

Model No.

FV-13VKM3 FV-13VKS3 FV-13VK3
FV-08VKM3 FV-08VKS3 FV-08VK3
FV-05VK3

READ AND SAVE THESE INSTRUCTIONS

Thank you for purchasing a Panasonic Ventilating Fan.
Please read these instructions carefully before attempting to install, operate or service this product. Improper installation or failure to follow with instructions could result in personal injury and/or property damage. Please retain this booklet for future reference.

Table of Contents

[Panasonic Ventilating Fan Installation Instructions]

Comprehensive installation instructions for Panasonic WhisperGreen ventilating fans, covering models FV-13VKM3, FV-08VKM3, FV-13VKS3, FV-08VKS3, FV-13VK3, FV-08VK3, and FV-05VK3. Includes safety information, dimensions, wiring diagrams, operation details, and maintenance guidelines.