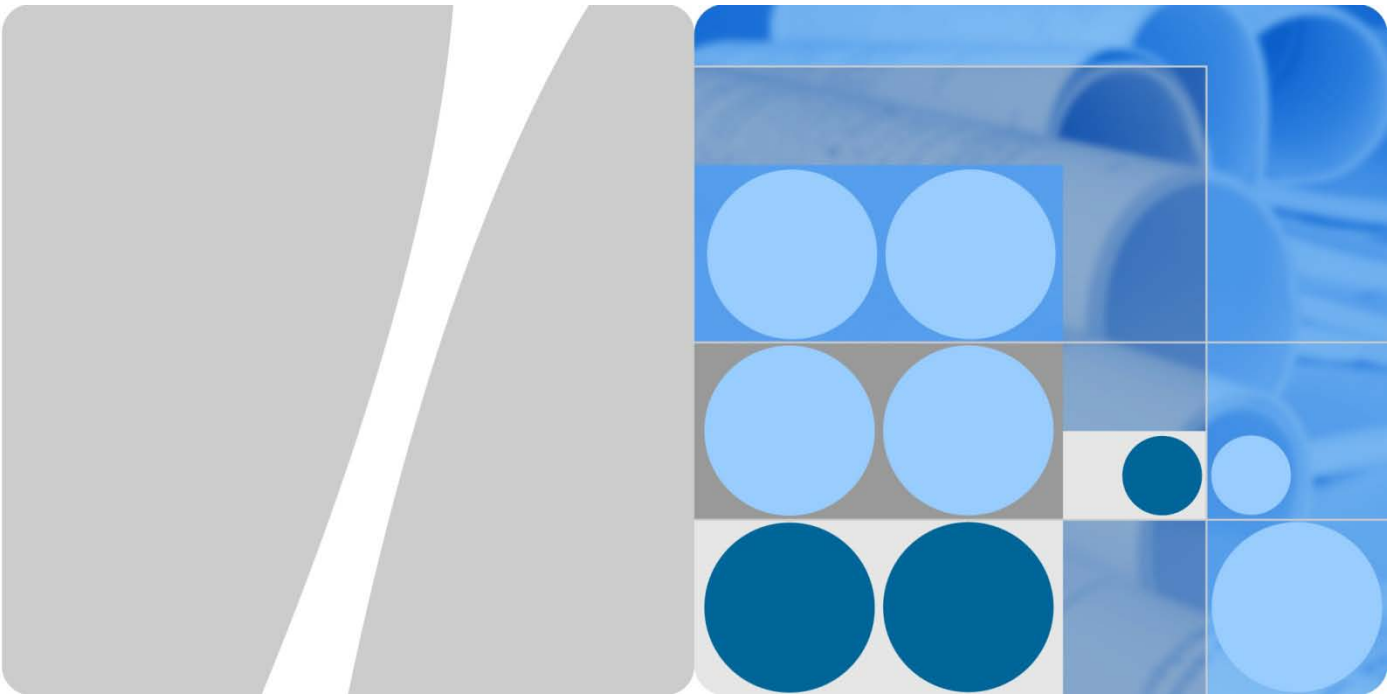

Huawei Videoconferencing HD Video Camera VPC620&VPC600

Product Overview

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Contents

1 Product Positioning and Features

This document is for the VPC620 and VPC600. Unless otherwise specified, the descriptions and operations in this document apply to both.

1.1 Product Positioning

With the rapid development of Internet Protocol (IP), telecommunications technologies and gradual improvement of bearer network quality, videoconferencing systems are developing quickly. These systems are now better specified to provide high-definition (HD) video and high-fidelity (hi-fi) audio, which give users a greatly enhanced conferencing experience.

Driven by customer demand, Huawei has developed a new series of HD cameras to be incorporated with the existing videoconferencing products to provide a complete HD videoconferencing solution.

Huawei HD cameras support 1080p60 HD video images, which are industry-leading in both format and frame rate. Being compatible with high-definition resolutions, such as 1080i and 720p, Huawei HD cameras also support automatic white balance (AWB), automatic exposure (AE), and automatic focus (AF) functions. The video-processing technology that Huawei HD cameras represent is on the cutting edge of the industry.

As a high-quality, next-generation videoconferencing product, the HD video camera can work with other videoconferencing endpoint products developed by Huawei, providing diversified and integrated HD videoconferencing solutions and implementing full-service videoconferencing applications.

The HD video camera features a built-in lens and a black-coated, solid-aluminium framework and integral sleeve that effectively protect the lens from collision and dust. The contemporary looks and uncluttered exterior provide an image of professionalism and reliability.

0 shows the front view of the VPC620.

The VPC600 and VPC620 do not differ in appearance with the exception that the VPC600 provides no 3G serial digital interface (3G-SDI) ports.

Figure 1-1 Front view of the VPC620

The HD video camera works with Huawei TEX0 series videoconferencing endpoints and supports HD video in the 1080p60/50, 1080i60/50, 1080p30/25, and 720p60/50 formats.

Figure 1-2 Rear view of the VPC620

The HD video camera provides an HD-VI port, which integrates a DVI, YPbPr, IR, power, and serial port, for Huawei videoconferencing endpoints. This HD-VI port can be converted to a standard digital visual interface (DVI) using an adapter cable. The VPC620 also provides a high-definition 3G-SDI port to output HD video images and needs only one cable to work with a Huawei TEX0 series videoconferencing endpoint.

1.2 Product Features

1.2.1 Superior Video Quality

The HD video camera uses a 1/2.8-inch HD complementary metal-oxide-semiconductor (CMOS) image sensor and supports an effective resolution of up to 2.38 megapixels, delivering superior video quality.

The HD video camera supports the industry-leading full HD resolution, 1080p60, as well as HD video in 1080p25/30, 1080i50/60, and 720p50/60 formats. Consequently, the HD video camera meets the requirements for different HD videoconferencing applications, guarantees professional videoconferencing image quality, and delivers realistic and superior dynamic images.

The HD video camera uses the industry-leading circuit design and Huawei's latest video enhancement algorithm to guarantee HD quality and fluency, making images with the same resolution as other cameras more explicit. Therefore, the camera provides an unprecedented visual experience.

The HD video camera uses a highly effective video denoising algorithm and 3D dynamic video filtering solution developed by Huawei, which reduce noise generated by the sensor. The HD video camera can remove noise even in low light conditions, preserving the clarity of images. Compared with similar HD cameras in the industry, the HD video camera provides better adaptability to varying light levels.

1.2.2 12x/4x Optical Zoom and Dynamic Exposure Control

With a high-performance, fast, and stable AF lens that provides impressive 12x or 4x zoom, the camera can focus on distant scenes or objects and provide high-quality video and images.

The unique dynamic exposure extender (DEE) control algorithm, which is based on the human visual system (HVS), guarantees correct exposures and sense of depth

The sensor supports a wide dynamic range (WDR) and captures images vividly especially when a prominent contrast exists between shaded areas of the scene and brighter-lit areas.

1.2.3 Perfect Control Function

The user-friendly architecture of the HD video camera attaches great importance to intelligent image processing using its AWB, AE, and AF functions. Without being manually adjusted, these features allow the camera to produce striking images with optimal exposure, focus and realistic colors.

With support for electric pan-tilt-zoom (PTZ), the HD video camera features quick and quiet movements, high-precision positioning, and a wide-angle field of view.

The camera's powerful PTZ mechanism supports a maximum panning speed of 100° per second, a maximum panning angle of 200° (±100°), a maximum tilting speed of 25° per second, and a maximum tilting angle of 60° (±30°). That is, the camera can complete a 200° horizontal movement within 2.4 seconds and a 60° vertical movement within 2.3 seconds.

1.2.4 Loss-free HD Output Ports

The VPC600 provides an HD-VI HD port, while the VPC620 provides 3G-SDI and HD-VI ports. The two HD ports of the VPC620 can output HD video signals simultaneously. This

means that one camera can be connected to two devices to meet video conferencing and local monitoring requirements.

The HD-VI port works with HD videoconferencing endpoints and integrates a DVI, YPbPr, IR, serial port, and power socket. The camera can work with Huawei's HD videoconferencing endpoints as is, or the HD-VI port can be converted to a standard DVI with a conversion cable. In this way, the camera can be connected to conference endpoints or display devices with a variety of ports.

The 3G-SDI port needs only one coaxial cable to transmit images without any loss of image quality over a 60-meter distance and can still be connected in this manner when the lens is far from an endpoint. Therefore, the 3G-SDI port avoids the attenuation caused by the red, green, blue (RGB) analog output and chromatic aberration, guarantees loss-free image quality, and reduces the cost associated with cable routing when compared with products that require multiple cables to transmit images over the same distance.

1.2.5 Support for Inverted Installation

The HD video camera supports the inverted installation mode, which is activated/inactivated by means of a button. Consequently, the camera can be inverted and sited on a ceiling to output images with the correct orientation. The inverted installation mode promotes convenient installation and usability.

1.2.6 Support for Lens Telecontrol Endpoint and RS-232C Remote Control Protocol

The HD video camera can transparently transmit infrared signals from the remote control (RC) of an endpoint. When a videoconferencing endpoint t is placed behind a television or inside a cabinet, infrared signals may be blocked to a greater or lesser extent. Users of the HD video camera, however, can align the RC to the camera's lens and perform operations such as menu setting on the videoconferencing endpoint for convenient use and maintenance of the videoconferencing endpoint.

The HD video camera also provides an RS-232 port, which can remotely control the PTZ, camera presets, exposure index, video output format, denoising parameters, and other advanced parameters using an videoconferencing endpoint. In this way, the HD camera and the videoconferencing endpoint are a perfect combination.

The standard RJ45 port is connected to the videoconferencing endpoint using an RS-232 control line. The line can be prolonged to reach a distance of at least 50 meters.

1.2.7 Easy Video-Format Configuration

Innovatively using buttons and a dedicated organic light emitting diode (OLED) screen, the HD video camera supports fast switching of displayed information and real-time configuration of various video formats: 1080p at 60 fps, 1080p at 30 fps, and 720p at 60 fps. Compared with traditional cameras that use dual in-line package (DIP) switches, the camera is qualitatively improved because it can be controlled and operated easily anytime, anywhere, without any additional tools, delivering better ease of use and reliability.

1.2.8 Flexible Power Supply Options

When the HD video camera is connected to Huawei TEX0 series videoconferencing endpoints, the videoconferencing endpoints alone can supply power to the camera through the power port.

Alternatively, the HD video camera can be externally supplied with power, which allows it to work with Huawei VP9000 series videoconferencing endpoints or third-party products requiring a video camera.

2 Product of Overview and Application Scenarios

2.1 Overview

Typically, the HD video camera will be used in conjunction with Huawei TEX0 series videoconferencing endpoints and together these devices provide superior 720p or 1080p HD videoconferencing solutions.

2.2 Application Scenario

VPC620/VPC600 is connected to Huawei TE series or 9000 series endpoints in the same way. Take TE60 for example.

The video input port 1 of the TE60 videoconferencing endpoint is connected to the HD-VI port of the camera.

Figure 2-1 Rear ports

The HD video camera has the following features:

- When networked with Huawei TE60 series videoconferencing endpoints, the HD video camera delivers 1080p or 720p dynamic HD full-frame video.
- With support for 1080p60 resolution, the HD video camera can work with Huawei TE60 series videoconferencing endpoints to produce a super HD conference experience.
- The VPC600 and VPC620 provide an HD-VI port that supports DVI and YPbPr. The VPC620 also provides a 3G-SDI port that transmits video without any loss over a 60-m distance.
- With support for 12x or 4x optical zoom, the HD video camera provides clear and high-quality images and video of distant scenes or objects.
- With buttons and an OLED screen for video format configuration, the HD video camera provides superior maintenance and ease of use.
- With support for transparent transmission of infrared signals from the RC of an endpoint, the HD video camera can remotely control an videoconferencing endpoint that is placed behind a television or inside a cabinet.
- The HD video camera supports inverted installation for placement on ceilings.
- Using state-of-the-art image algorithms, the HD video camera provides HD images with less noise and unprecedented quality.

3 Technical Specifications

3.1 Technical Specifications

Table 3-1 Technical specifications

Category	Item	Specifications
Lens	Imaging component	2.38-megapixel and 1/2.8 type CMOS imaging chip CMOS = complementary metal-oxide-semiconductor
	zoom	● VPC620 Specification 1: 12x optical zoom and 12x digital zoom Specification 2: 4x optical zoom and 2.5x digital zoom ● VPC600 Specification 1: 12x optical zoom and 12x digital zoom
	Focal length and aperture	● VPC620 12x: f = 3.9 mm to 46.8 mm (F1.8 to F2.8) 4x: f = 3.9 mm to 15.6 mm (F1.8 to F2.2) ● VPC600 12x: f = 3.9 mm to 46.8 mm (F1.8 to F2.8)
Video	Output video formats	1080p60, 1080p50, 1080i60, 1080i50, 1080p30, 1080p25, 720p60, and 720p50
	Maximum horizontal field of view	72°
	Maximum Vertical field of view	44.5º
	Lowest operating luminance	2 lux (F1.8, 50 IRE) IRE = Institute of Radio Engineers

Category	Item	Specifications
	Shutter speed	1/25 seconds to 1/10000 seconds
	Local camera presets	30 (Using serial port command, set and select the preset which is saved in the camera)
PTZ capability	Horizontal	Range: ±100° Speed: 2°/s to 100°/s Relocation precision: ±0.1°
	Vertical	Range: ±30° Speed: 2°/s to 25°/s Relocation precision: ±0.1°
Automatic adjustment	Automatic white balance (AWB)	Automatic, manual, and one-push
	Automatic exposure (AE)	Automatic, manual, Iris priority, and shutter priority
	Automatic focus (AF)	Automatic and manual
Infrared remote control	Infrared signal reception	Comply with the following standards: Control distance: 6 m Vertical angle: ±15° Horizontal angle: ±30°
Power and power supply	Input voltage	100–240 V AC, 50 Hz or 60 Hz
	Output voltage	12 V DC
	Power	< 22.4 W
Physical specifications	Control port rate	9600 baud
	Ambient temperature	0°C to 40°C
	Operating humidity	0% to 90%
	Operating height	≤ 5000 m (16.4 ft)
	Dimensions (H x W x D)	157 mm × 234 mm × 163 mm
	Weight (unpacked)	About 1.7 kg

3.2 Hardware Port Specifications

Table 3-2 Hardware port specifications

Port Type	Description and Quantity	Standards Compliance
Video output	One 3G-SDI port (not available on the VPC600)	SMPTE296M/SMPTE274M/ SMPTE292M
DVI, YPbPr, IR, power, and serial port	One HD-VI port connected to TEX0	DVI revision 1.0 Society of Motion Picture and Television Engineers (SMPTE) standard
Communication control input	One RS-232C port	EIA-232-B
Communication control output	One RS-232C port	EIA-232-B
Power port	One	16 x 14.2 x 17.5 female socket

A Acronyms and Abbreviations

A

AE	automatic exposure
AF	automatic focus
AWB	automatic white balance

C

CMOS	complementary metal-oxide-semiconductor

D

DEE	dynamic exposure extender
DIP	dual in-line package
DVI	digital visual interface

H

HD	high-definition
HVS	human visual system

I

IP	Internet Protocol

O

OLED	Organic Light Emitting Diode

P

PTZ	pan-tilt-zoom
R	
RC	remote control
RGB	red, green, blue
W	
WDR	wide dynamic range