

IZ9361-EH Zoom Lens Network Camera

- H.265 • 1080P 60fps • 20x Zoom • 150M IR • WDR Pro • Smart Stream II
- IP67 • EIS • Video Rotation • NEMA 4X

Architectural and Engineering Specification

2.01 Manufacturer

- VIVOTEK Inc.
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- Manufacturer shall warrant the camera to be free from defects in material and workmanship for three years from the purchase date.

2.02 General Network Camera Descriptions

- VIVOTEK IZ9361-EH is a H.265 bullet-style and outdoor-ready network camera with 150 M illuminators and a 20x optical zoom lens, providing a superb low light image in the most challenging situations. By adopting VIVOTEK's latest IR technology, VAIR (Vari-Angle IR), allows IZ9361-EH to automatically adjust IR angle to the optical zoom delivering consistent IR images in all fields of view.
- The IZ9361-EH also features VIVOTEK's sophisticated Smart Stream II, enabling to optimize quality for desired regions and therefore to maximize efficiency of bandwidth usage. Combining H.265 compression technology and VIVOTEK's Smart Stream II technology, users can obtain bandwidth savings of up to 80% compared to traditional H.264 system.
- Additionally, in order to ensure full protection against both harsh environments and acts of vandalism, the IZ9361-EH is specifically designed with IP67- and NEMA 4X-rated housing and a wide temperature range between -50°C to 60°C to suitable for outdoor surveillance applications, such as traffic monitoring, highway and harbor.

2.03 General Camera Requirements

- The camera shall incorporate a progressive scan CMOS imager with a 1/3-inch optical format, no less than 2,073,600 pixels.
- The image resolution shall be no less than 1920(H) x 1080(V) pixels. Users can specify resolutions smaller than default for a specific purpose and supports ePTZ for data efficiency.
- The camera shall have performance list below:
 - Frame rates:
 - H.265/H.264
Up to 60 fps @ 1920x1080
 - MJPEG:
Up to 30 fps @ 1920x1080
- The camera shall provide zoom lens, vari-focal, f=4.7~94mm, F1.6(W)~F3.5(T), DC-iris, and auto focus, with 20x optical zoom.

- E. The camera shall provide wide angle of view:
 - Horizontal: 2.9°~55.4°
 - Vertical: 1.6°~32.6°
 - Diagonal: 3.3°~62.7°
- F. The minimum illumination required to produce an image shall be approximately 0.26 lux @ F1.6 (Color), and 0.01 lux @ F1.6 (B/W).
- G. The camera shall have at least 512MB of RAM and 128MB of flash memory.
- H. The camera shall provide the possibility to sync the frequency with the power line frequency to eliminate a flickering image.
- I. The camera shall provide on-screen text and timestamp display on video, the text size and location could be changeable by user.
- J. To ensure that the text on video works with the specific language of the country, the camera shall be able to allow the user to upload fonts to solve it.
- K. The camera shall support flip and mirror to allow flexibility in the installation.
- L. The camera shall support 90 and 270 degrees rotation of the video. Obtaining maximum coverage and utilize the whole image sensor, eliminating bandwidth and storage waste to achieve maximum image quality and perfect adaption to the monitored environment, especially in aisles and corridors.
- M. The camera shall have built-in IR LED illuminators to help illuminate the environment. The effective illumination distance is up to 150 meters.
- N. There shall be 2 built-in IR LED to conserve power consumption.
- O. The IR LED shall be able to vary its light projecting angle according to the lens angle to ensure the IR light uniformity.
- P. The camera shall have a removable IR-cut filter for Day & Night function.
- Q. At least 3 levels of users shall be provided in case there are different persons that have access to the camera. To increase the security, the administrator shall have the possibility to configure his own password, select the permissions for the other user levels and configure the usernames and passwords for each account. Excluding the administrator user level, multiple accounts for the user levels must be available.
- R. The user shall be able to configure polygon-shaped motion detection windows (5 configurable windows). The user shall be able to set up different sensibilities for each window. It shall also offer 2 sets of 5 motion detection windows: one set for day environments and one set for night environments.

- S. The camera shall be able to detect the signal level of audio-in (microphone) and trigger events accordingly.
- T. The camera adopts lenses with built-in stepping motors that the installer can use to remotely control the focal length and precisely adjust the camera focus, offering hassle-free installation and maintenance.
- U. The camera shall support Micro SD/SDHC/SDXC or SD/SDHC/SDXC card for on-board storage, so that the camera could be a standalone recorder. When the network connection is lost, the camera will continue to record on the Micro SD/SDHC/SDXC or SD/SDHC/SDXC card.
- V. The camera shall offer the user to choose Ext4 or FAT32 as the filesystem used to format the SD or MicroSD card.
- W. When recording the video in the SD or MicroSD card, the camera shall offer the option of automatically recycling the old video and automatically erase video after a certain period of time.
- X. Depending on the MicroSD or SD card brand/model used, the camera shall be able to issue an error or warning from a failing or failed MicroSD or SD card and display the usage of spare blocks and lifespan via web browser.
- Y. To ensure a perfect recording in the recording server, the camera shall be able to detect when the connection with the recording server is lost and start to record in the SD or MicroSD card. When the connection is restored, the camera shall be able to synchronize with the recording server to stream the video and events that the recording server couldn't record. This function shall be available only if the recording server supports this functionality.
- Z. The user shall be able to configure at least 24 privacy masks in 3D.
- AA. A mechanical reset button shall be provided to return the camera to factory default settings.

2.03 Camera Networking Requirement

- A. The camera shall incorporate a built-in web server.
- B. Camera functionality shall be available to users running versions of Internet Explorer™ 7, 8, 9, 10, 11 or Mozilla™ Firefox: 7 or above (streaming only).
- C. The camera shall provide integrated support for IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPNP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPOE, CoS, QoS, SNMP v1,v2,v3(MIB-II), IEEE 802.1X, UDP, ICMP, ARP, SSL, TLS, NCTIP, CIFS, SMB.
- D. The camera shall provide integrated support Multicast RTSP streaming (following the standard RFC 2326).
- E. No unique or proprietary client software shall be required for viewing or controlling the camera.

- F. The camera shall be configurable and users may modify the camera's web pages according to a specific purpose.
- G. The camera shall be ONVIF compliant.
- H. The camera shall provide a RTSP/RTP/RTCP protocol video output via the Ethernet connection.
- I. The camera shall be able to transmit H.265 / H.264 streaming over HTTP to pass the firewall protection (RTSP over HTTP).
- J. The camera shall be able to transmit H.265 / H.264 over UDP for time-sensitive applications to achieve a better real-time Streaming.
- K. The camera shall be able to transmit H.265 / H.264 streaming over TCP for applications where the video quality is a top-priority, preventing packet losses.
- L. The camera shall support encrypted data transmission (HTTPS) to increase the overall security.
- M. The camera shall allow the live viewing for up to 10 clients simultaneously.

2.04 Camera Audio/Video Requirements

- A. The camera shall offer at least 4 simultaneous streams offering multiple simultaneous streaming for multiple purposes. All these streams shall support H.264, H.265 and MJPEG. All these streams shall support resolutions from 1920x1080 to 384x216:
 - a. 1st streaming: configurable codec / FPS / Resolution / Quality to be used for the recording.
 - b. 2nd streaming: configurable codec / FPS / Resolution / Quality to be used for live viewing.
 - c. 3rd streaming: configurable codec / FPS / Resolution / Quality to be used for mobile phone viewing which usually requires low fps and low resolution.
 - d. 4th streaming: configurable codec / FPS / Resolution / Quality to be used as a backup stream for multiple uses (snapshot, etc).
- B. The camera shall be able to control the video quality using variable bit rate (VBR) and constant bit rate (CBR).
- C. The camera shall be able to control the maximum bit rate consumed when using variable bit rate (VBR)
- D. The camera shall support H.264 Main Profile, H.264 Baseline Profile and H.264 High Profile.
- E. The camera shall support H.265 HEVC (high efficiency video coding) codec to reduce bitrate compared to H.264.
- F. The camera shall support MJPEG codec.

- G. The camera shall provide 20~40000 Kbps H.265 video bit rate.
- H. The camera shall provide 20~40000 Kbps H.264 video bit rate.
- I. The camera shall provide 20~40000 Kbps MJPEG video bit rate.
- J. In order to optimize bandwidth consumption by using high quality only in the important objects/areas (foreground areas) and using low quality for the unimportant objects/areas (background areas), the camera shall let the user configure the quality for the areas. The camera shall let the user choose from the following usage scenarios:
 - 1. Under the same stream, the camera shall be able to detect moving objects, assigned them as foreground areas and give high quality only to those moving objects, while maintaining the rest of the image in a low quality.
 - 2. Under the same stream, the camera shall be able to let the user define multiple regions of interest and only give those regions high quality while maintaining the rest of the image in a low quality.
 - 3. Under the same stream, the camera shall be able to detect moving objects, assign them as foreground areas and give high quality to those moving objects. In addition, the camera shall also let the user define multiple regions of interest and give those regions high quality. The rest of the image will be assigned as background and have low quality.
- K. The camera shall be able to dynamically change the I-frame interval to optimize the bandwidth consumption. The user shall be able to configure the minimum I-frame interval.
- L. The camera shall provide 13 levels of exposure compensation.
- M. The camera shall support exposure time from 1/30000 sec to 1/8 sec.
- N. The camera shall provide pcma and pcmu for G.711.
- O. The camera shall be able to provide the audio codec G.726 to obtain high quality audio.
- P. The camera shall provide 4 audio quality levels for G.726.
- Q. The camera shall allow the possibility to connect an external microphone.
- R. The camera shall have audio out connector for external speaker.
- S. The camera shall offer full duplex two way audio capability.
- T. The camera shall provide automatic white balance. The camera shall also provide manual white balance to fit different light conditions. The camera shall have configurable brightness, contrast, saturation, sharpness.

- U. The camera shall provide defog functionality in order to provide a clearer image in environments with fog/rain.
- V. The camera shall have implemented 3D Noise Reduction technology in order to improve the image quality.
- W. The camera shall have Automatic Gain Control (AGC).
- X. The camera shall support backlight compensation (BLC).
- Y. The camera shall have Electronic or Digital Image Stabilizer to reduce the blurring due to the physical vibration.
- Z. The camera shall have auto exposure (AE), but the camera shall allow the user to select manual mode if necessary.
- AA. The camera shall provide WDR (wide dynamic range) by using 2 shutter capture method to obtain visibility in extremely dark & light environments.
- BB. The camera shall provide dynamic range of 110 dB.
- CC. The camera shall provide WDR (wide dynamic range) by using 2 shutter capture method to obtain visibility in extremely dark & light environments.
- DD. The camera shall support digital WDR (WDR Enhanced) capability for unparalleled visibility in extremely bright and dark environments.
- EE. The camera shall provide SNR higher than 53 dB.
- FF. The camera shall support HLC (Highlight Compensation), which detects strong light spots such as car headlights and flashlights in the dark, masking them in the captured image to relieve operator eye strain and making monitoring easier.

2.06 Connectors

- A. RJ45 cable connector for 10 Base-T /100 BaseTX / 1000 BaseTX Ethernet connection
- B. 3 D/I and 1 D/O for external sensor and alarm.
- C. One DC 24V/AC 24V power input.
- D. One RS-485 for PTZ control
- E. One audio input for external microphone.
- F. One Audio output.

2.07 Electrical Specifications

- A. Power Consumption:
 - i. Max. 18W(heater off)
 - ii. Max. 48W(heater on)

- B. Power requirement:
 - i. PoE IEEE 802.3af Class 3
 - ii. DC24V
 - iii. AC24V

2.08 Mechanical Specifications

- A. Net weight: 4300g
- B. Dimensions: Ø 375 mm (D) x 147 mm (W) x 322 mm (H)
- C. The camera mount shall have cable management to conceal camera cables to prevent tampering the cables. It shall also offer the cables protection against the weather, while making the installation very clean and neat.

2.09 Environmental Specifications

- A. Operating temperature range:
Working Temperature: -50 °C - 60 °C
- B. The camera shall support up to 90% Humidity.
- C. The camera shall have IP67 rating to protect against ingress of dust and water.
- D. The camera shall come with an IK10-rated vandal-proof housing.
- E. The camera shall come with a NEMA 4X-rated housing.
- F. The camera shall have built-in heater in order to enhance the performance and reliability in extremely cold weather.

2.10 Certifications and Approvals

- A. Electromagnetic Compatibility
 - a. Emissions:
 - i. CE
 - ii. FCC Class A
 - iii. VCCI
 - iv. C-Tick
 - v. LVD
 - vi. UL
 - vii. EN50121-4

- B. RoHS

- a. All material and/or components used in the manufacture of the product shall be in compliance with the EU Directive 2002/95/EC Restriction of Hazardous Substance (RoHS).