A&E Specifications

for the

Evolution 12MP Camera Range

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1 Contents

2 General

The camera shall be based upon standard components and established technology.

2.1 Quality Assurance

All camera installation, configuration, setup, programming and related work shall be performed by trained technicians.

2.2 Certifications and Standards

Approvals

The camera shall meet:

- EMC to CISPR Class A
- FCC
- CE
- ICES-003
- Safety: cUL and UL60950

The camera shall meet the following standards:

- IP67 (outdoor version only)
- 12V, 1.0A (min) “LPS or NEC Class 2” power supply or Power over Ethernet (PoE), IEEE standard 802.3af
- IPv4 (RFC 791)
- The camera shall support the following IP protocols: TCP/IP, HTTP, DHCP, DNS, NTP, FTP, SMTP, RSTP, uPNP

2.3 Warranty

The camera shall be supplied with a full manufacturer warranty against defects in material and craftsmanship for 3 years from purchase date.

3 Product

The camera shall:

- Be IP-rated for ingress protection against dust and moisture such that it is suitable for indoor and outdoor use.
- Be designed to provide H.264 and Motion JPEG video,
- Support resolutions up to 3200x3000 pixels.
- Provide video at up to 30 frames per second.
- Operate on an embedded Linux platform and include a built-in web server.
- Be manufactured in solid state electronics with no moving parts.
- Have both FTP client and server capabilities.
- Support SD card.

3.1 Manufacturer

The camera manufacturer shall be:

Oncam Global Group AG

Postrasse 14

6300 Zug

Switzerland

3.2 Hardware

The camera shall use a 1/2.5-inch 12-Megapixel Array format (Active) 3552(H) x 3000(V) CMOS digital image sensor.

The camera shall use a 185° 1.6mm / F2.0 12 megapixel rated fisheye lens.

3.3 Processor

The camera shall use a proprietary TMS320DM8127 DaVinci™ processor.

3.4 Video

Supported video resolutions shall include:

- 1/4MP (544x512)
- 1MP (1056x992)
- 2MP (1471x1384)
- 4MP (2080x1960)
- 6MP (2528x2376)
- 9.6MP (3200x3000)

3.5 Image Formats

The camera shall provide the following image formats:

- Fisheye
  - 1/4MP (544x512)
  - 1MP (1056x992)
  - 2MP (1471x1384)
  - 4MP (2080x1960)
  - 6MP (2528x2376)
  - 9.6MP (3200x3000)

3.6 Transmission speed

The camera shall allow the transmission of images up to:

- 30 frames per second (2.0MP stream) using MJPEG and H.264
- 12 frames per second (9.6MP, 6MP, 4MP, 2MP, 1MP, ¼ MP stream) using MJPEG and H.264.

The camera shall be capable of streaming at user defined frame rate.

3.7 Compression

The camera shall provide support for H.264 and Motion JPEG.

The camera shall provide 85 different compression levels for the all fisheye image resolutions on MJPEG compression format.

The camera shall provide 100 different compression levels for all fisheye image resolutions on H.264 High, Level 5 compression format.

3.8 Video streams

The camera shall provide the following combination of video streams:

1. Fisheye1 (9.6, 6, 4, 2MP) h264
2. Fisheye1 (9.6, 6, 4, 2MP) h264 + Fisheye2 (4,2,1,0.25MP) h264
3. Fisheye1 (9.6, 6, 4, 2MP) h264 + 1 Vcam (0.25, 1MP) h264
4. Fisheye1 (9.6, 6, 4, 2MP) h264 + 2 Vcams (0.25, 1MP) h264
5. Fisheye1 (9.6, 6, 4, 2MP) h264 + 3 Vcams (0.25, 1MP) h264
6. Fisheye1 (9.6, 6, 4, 2MP) h264 + 4 Vcams (0.25, 1MP) h264

There is always a third MJPEG fisheye stream available in all combination. It will mirror the settings of Fisheye2.

The camera shall provide the following frames per second for the primary video stream:

9.6 MP @ 12 FPS

6 MP @ 14 Fps

4 MP @ 14 FPS

2 MP @ 14/30 FPS

3.9 Image Control

The camera shall incorporate:

- Automatic exposure control
- Automatic white balance (Range; 2500K~8000K)
- 50Hz and 60Hz mains frequency flicker control.
- Sharpness control setting
- EV compensation control setting
- Wide dynamic range setting (electronic WRD 60db)

The camera shall provide pictures down to 0.1 lux at 50 IRE / F2.0 (6500k).

3.10 Web Server

The camera shall contain a built-in web server allowing the streaming of video, motion data and input/output information from the camera as well as camera configuration using HTTP.

The camera requires the VLC software to be installed on a client station in order to view the video stream through a web browser.

The camera's web server shall support up to 20 clients simultaneously over the network.

The camera's web server shall provide support for defining usernames and passwords for up to three different user types shown below.

- Viewer USER: viewing LIVE video
- Operator USER as above plus LIVE and PLAYBACK video
- Administrator USER: as above plus User management and camera configuration.

The camera shall have user configurable port settings.

3.11 IP addresses

The camera shall support both fixed IP addresses and dynamically assigned addresses provided by a Dynamic Host Control Protocol (DHCP) server.

The camera shall be accessible via an IP address within the link-local address range (169.254.xxx.xxx).

The camera shall allow for automatic detection based on multicast when using a PC operating on a Windows operating system.

The camera shall provide support for IPv4 addressing.

3.12 Bandwidth

The camera shall be capable of providing bit rates up to 40 Megabits per second, MJPEG and 9.6MP at H.264.

- H.264 bandwidth controls:
  - Capped constant bit rate setting
  - Average constant bit rate setting
  - Bit rate control 'off' setting
  - Maximum FPS setting
  - GOP length setting

- MJPEG bandwidth controls:
  - Maximum FPS setting
  - Quality setting

3.13 vPTZ Functionality

The camera shall:

- Provide 4x independent 'on-board camera' non mechanical client side PTZ functionality (no moving parts) using Oncam Grandeye 3D dewarping technology.
- Provide non mechanical client side PTZ functionality (no moving parts) using Oncam Grandeye 3D dewarping SDK.
- Provide an 10x digital zoom capability when connected to a compatible NVR that uses the Oncam Grandeye client side dewarping.

3.14 Motion Detection

The camera shall:

- Provide built-in motion detection software that allows full configurability of sensitivity in motion detection with H.264
- Provide at least 16 motion detection regions
- Provide configurable motion response

3.15 Audio

The camera shall have:

- An audio microphone input (via 3.5mm jack; via RTSP using G711 codec (µLaw - 8K sample rate); via ONVIF S)
- An audio line-out output (via 3.5mm jack; via RTSP using G711 codec)

3.16 Event Functionality

The camera shall be equipped with an integrated event functionality, which can be triggered by:

- External hardware input
- Video motion detection
- Network down detection
- Manual trigger (remote trigger via '.cgi' command)

Response to triggers shall include:

- Activating external hardware output
- Notification via HTTP
- Image upload via FTP or SMTP
- Record to SD card
- TCP/IP script to external IP device

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3.17 Security

Access to the built-in web server shall be restricted by usernames and passwords.

The camera shall provide at least 10 privacy zones which shall hide polygonal regions on all video streams.

Each privacy zone can be individually named.

3.18 API Support

The camera shall be fully supported by an open Application Programmers Interface (API), which shall provide necessary information for integration of functionality into third party software.

3.19 ONVIF Support

The camera shall fully support ONVIF Profile S.

3.20 SDK Support

The camera shall be supported by the Oncam Grandeye Software Development Kit (SDK), which shall provide necessary interface for integration of functionality into third party software. This can provide client side / NVR side 3D dewarping of both live and playback fisheye images.

The algorithm use to dewarp the fisheye images should be of Curvilinear type.

3.21 Setup and Maintenance

The camera shall be supplied with Windows-based configuration software which allows the assignment of IP addresses, multi-camera configuration, backup of cameras configuration and upgrade of firmware and software.

- Remotely change and configure camera IP settings / DHCP settings, one camera at a time of multiple cameras via batch process
- Remotely import / Export of IP settings
- Enable remote upgrade of camera firmware
- Ability to remotely send commands to the camera
- Remotely enter camera settings and values

All customer-specific settings, including IP address settings, shall be stored in non-volatile memory and shall not be lost during power cuts or soft reset.

3.22 Camera Diagnostics

The camera shall be monitored by a Watchdog functionality, which shall automatically reset the camera chips and software if a malfunction disables the camera's normal operation.

The camera shall have a diagnostics tool to test hardware functionality and review statistics and diagnose hardware faults.

The cameras shall use the SD card functionally feature to create and store 'a boot-up' log for diagnostics and fault finding purposes.

3.23 Interfaces

The camera shall have a 1000baseTX Fast Ethernet connection using a standard RJ-45 socket.

The camera shall be equipped with one hardware input and one hardware output.

3.24 Construction

- Outdoor
    - The enclosure shall be designed and tested to meet IP-67 standards for water and dust ingress and shall meet the vandal resistance IK-10 standard. The housing shall be manufactured from die-cast aluminium alloy. The bubble and trim ring for the outdoor housing shall be made of polycarbonate polymers with UV inhibiters and shall be laser welded together. The enclosure shall be designed to require one thumb turn screw to secure the camera into its housing.

- Indoor
    - The enclosure trim cover shall be manufactured from ABS. The cover shall be designed to be secured by an anti-tamper Torx security locking screw. The metal mounting plate shall be designed with holes and slots to allow it to be mounted directly to just about any European or American standard electrical box if desired. The enclosure shall be designed to require one thumb turn screw to secure the camera into its housing.

- Concealed
    - The camera enclosure shall be manufactured from ABS. The enclosure shall be designed to be installed in ceilings and walls with material thickness between 3mm and 25 mm thick with no visible screws. The enclosure shall be designed to require one thumb turn screw to secure the camera into its concealed housing.

3.25 Electrical Specifications

Input Voltage and Power Consumption:

- The camera shall use an isolated power supply with an output voltage of 12VDC and a current rating of at least 1A.
- The camera shall have Power over Ethernet (PoE) capability, in accordance with IEEE 802.3af Class 2 standard.
- Power consumption of the camera shall be 6.132W (DC 12V) or 7.296W (PoE) max.

3.26 Environmental Specifications

Outdoor Camera:

- The outdoor camera shall be ingress-protected against dust and moisture in accordance with IP67 such that it is suitable for indoor and outdoor use.
- The outdoor housing shall have a Gore-Tex® vent to allow the two way movement of air through the housing, but maintain IP67 rating.
- The dome/trim ring assembly is fastened in place using the four captive security screws with the provided security driver bit.
- The outdoor camera shall operate in the temperature range of -40°C to +55°C (-40°F to 131°F).
- The outdoor camera shall withstand shock and vibration in accordance with BS EN 60068-2-64 and BS EN 60068-2-27.

Indoor Camera:

- The indoor camera shall operate in the temperature range of -40°C to +55°C (-40°F to 131°F).

Indoor Concealed Camera:

- The concealed camera shall operate in the temperature range of -40°C to +55°C (-40°F to 131°F).

3.27 Mechanical Specifications

The outdoor camera shall have a sealed IP67-rated cable entry point, side and rear.

The camera shall receive external power via a 2.1mm socket at the rear of the camera.

The alarm input/output socket shall be a 6-way (4 for alarm and 2 for RS485) 3.5mm pitch, Phoenix Contact socket with screw down terminals.

The camera shall have a standard RJ-45 socket for 1000baseTX Fast Ethernet connection and PoE.

3.28 Lens and Lens Mount Specifications

The camera shall use a 12 mega-pixel resolution miniature fisheye lens with focal length of 1.6mm, f-stop of 2.0 and with a 184 degree file of view.

The camera shall use a lens mount of M12x0.5 thread.

4 Technical Support

Please send an email to support@oncamgrandeye.com (the combined tech support contact for all Grandeye and Oncam products). Include a detailed description of the problem, the model number of the cameras you are using and any relevant configuration information.