

Grandeye Halocam IPM

Architectural and Engineering Specification

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PART 1 - GENERAL

1.01 General Requirements

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

1.02 Quality Assurance

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

1.03 Certifications and Standards

A Approvals

1. The camera shall meet EMC to CISPR Class B, for CE, FCC, ICES-003.

B The camera shall meet the following standards:

1. IP67
2. IEEE 802.3af Class 2 (Power over Ethernet)
3. IPv4 (RFC 791)
4. The camera shall support the following IP protocols: FTP, HTTP, TCP, UDP, TELNET, ARP, ICMP, SMTP, DHCP, RARP, DNS, NTP

1.04 Warranty

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

PART 2 – PRODUCTS

2.01 General

1. The camera shall
 - a. Be IP67-rated for ingress protection against dust and moisture such that it is suitable for indoor and outdoor use.
 - b. Be designed to provide Motion JPEG video, and support resolutions up to 2144x1944 pixels
 - c. Provide video at up to 10 frames per second
 - d. Provide high speed pan, tilt and zoom functions with no moving parts
 - e. Operate on an embedded Linux platform and include a built-in web server
 - f. Be manufactured in solid state electronics with no moving parts
 - g. Shall have both FTP client and server capabilities
 - h. Shall support multi-user independent pan-tilt-zoom

2.02 Manufacturer

Grandeye Ltd
6 Huxley Road
Guildford
GU2 7RE

2.03 Hardware

1. The camera shall use a 1/2.5-inch 5-Megapixel CMOS digital image sensor
2. The camera shall use a 5 megapixel rated fisheye lens providing a horizontal view of up to 180°.

2.04 Processor

1. The camera shall use a proprietary IMTERA 2™ 3D visual processing pipeline, enabling intelligent video analysis within the camera.

2.05 Video

A - Resolution

1. Supported video resolutions shall include:
 - a. 160x120 (QQVGA)
 - b. 320x240 (QVGA)
 - c. 640x480 (VGA)
 - d. 1024x768 (XGA)
 - e. 1024x1024
 - f. 2144x1944
 - g. 640x208

B Image Formats

1. The camera shall provide the following image formats:
 - a. QQVGA, QVGA, VGA, XGA sized de-warped VCams
 - b. 640x208 sized de-warped Panoramas
 - c. VGA, 1024x1024, 2144x1944 Fisheye

C Transmission speed

1. The camera shall allow the transmission of images up to 10 frames per second (VGA) and up to 5 frames per second (2144x1944 Fisheye) using Motion JPEG.
2. The camera shall be capable of streaming at a reduced frame rate

D Compression

1. The camera shall provide support for Motion JPEG
2. The camera shall provide 95 different compression levels separately for the 2144x1944 fisheye and for the other stream's formats.

E Image Control

1. The camera shall incorporate:
 - a. Automatic Exposure control
 - b. Automatic white balance
 - c. Per video stream brightness, saturation and contrast control
 - d. Flicker and motion blur control
2. The camera shall provide pictures down to 0.5 lux

2.06 Functionality

A Web Server

1. 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, available in standard browsers using HTTP, without the need for additional software.
2. The camera shall not require any additional software to fully operate, such that standard web browsers Internet Explorer and Mozilla Firefox (V2.x) can be used to view the camera's view without the need for special viewer software.
3. The camera's web server shall support up to 20 clients simultaneously over the network
4. The camera's web server shall provide support for defining usernames and passwords for up to three different user types shown below
 - a. **User** Viewing video, PTZ, and reviewing configuration
 - b. **Operator** As above. Image and system configuration.
 - c. **Administrator** As above. User management.
5. The camera shall have user configurable port settings.

B IP addresses

1. The camera shall support both fixed IP addresses and dynamically assigned addresses provided by a Dynamic Host Control Protocol (DHCP) server.
2. The camera shall be accessible via an IP address within the link-local address range (169.254.*).
3. The camera shall allow for automatic detection based on multicast when using a PC operating on a Windows operating system.
4. The camera shall provide support for IPv4 addressing.

C Bandwidth

1. The camera shall be capable of providing bit rates up to 6 Megabits per second

D PTZ Functionality

1. The camera shall
 - a. Provide non mechanical PTZ functionality (no moving parts).
 - b. Provide 10x optical equivalent zoom.
 - c. Provide independent pan-tilt-zoom positions for at least 4 different video streams
 - d. Provide at least 10 preset positions
 - e. Allow users to PTZ by a relative or absolute amount, by specifying rectangular coordinates, or by specifying a pre-defined preset position.

E Motion Detection

1. The camera shall
 - a. Provide built-in motion detection software that allows full configurability for sensitivity, latency, light sensitivity for both motion tracking and motion detection.
 - b. Provide at least 10 polygonal motion detection regions.
 - c. Allow the display of up to four separate objects in separate respective video streams

F Event Functionality

1. The camera shall be equipped with an integrated event functionality, which can be triggered by:
 - a. External hardware input
 - b. Video motion detection
 - c. Manual event via HTTP
2. Response to triggers shall include:
 - a. Activating external hardware output
 - b. Notification via HTTP
 - c. Image upload via FTP or SMTP

G Security

1. Access to the built-in web server shall be restricted by usernames and passwords
2. The camera shall provide at least 10 privacy zones which shall hide polygonal regions on all video streams.

H API Support

1. 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.

I SDK Support

1. The camera shall be supported by a Software Development Kit (SDK), which shall provide necessary interface for integration of functionality into third party software.

J Maintenance

1. 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.
2. 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.

2.07 Camera Diagnostics

1. 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.
2. The camera shall have a diagnostics tool to test hardware functionality and review statistics and diagnose hardware faults.

2.08 Interfaces

1. The camera shall have a 100baseTX Fast Ethernet connection using a standard RJ-45 socket.
2. The camera shall be equipped with one hardware input and one hardware output. The input shall be configurable to respond to normally open (NO) or normally closed (NC) contacts.

2.09 Physical Specifications

A Construction

1. The enclosure shall be manufactured from die-cast aluminium alloy.
2. The camera's lens shall be covered by a transparent polycarbonate dome-shaped cover.
3. The lens trim ring shall be manufactured from painted steel.

B Finish

1. The camera shall be finished with metallic grey paint, with a matt finish

C Dimensions

1. The camera shall be of the following dimensions:

L x W x H: 200 x 140 x 110mm; 7.87" x 5.51" x 4.33"

D Weight

1. The weight of the camera shall be less approx 1.2kg (2.64lb)

2.10 Electrical Specifications

A Input Voltage and Power Consumption

1. The camera shall use a switched-mode, isolated power supply with an output voltage of 5VDC +/-5% and a current rating =>1.5A, which uses a 2.1mm plug connector.
2. The camera shall have Power over Ethernet (PoE) capability, in accordance with IEEE 802.3af Class 2 standard.
3. Power consumption of the camera shall not exceed 5W.

2.11 Environmental Specifications

A Environmental

1. The camera shall be ingress-protected against dust and moisture in accordance with IP67 such that it is suitable for indoor and outdoor use.
2. The camera shall operate in the temperature range of 0°C to +40°C (32°F to 104°F)
3. The camera shall have a storage temperature range of -10°C to +60°C (14°F to 140°F)

2.12 Mechanical Specifications

A Cable Entry

1. The camera shall have sealed IP67-rated cable entry cover via two cable glands.
2. Inside the sealed cover, the camera shall receive external power via a 2.1mm socket at the rear of the camera.
3. The alarm input/output socket shall be a 3-way 3.81mm Phoenix Contact socket with screw down terminals.
4. The camera shall have a standard RJ-45 socket for 100baseTX Fast Ethernet connection and PoE.

B Lens and Lens Mount Specifications

1. The camera shall use a 5 mega-pixel resolution fisheye lens with focal length of 1.55mm.
2. The camera shall use a lens mount of M12x0.5 thread.

C Enclosure Fixings

1. All PCB's shall be mounted to the enclosures using M3x6 dome head screws.
2. The camera enclosure shall be held together with tamper-proof screws.

PART 3- EXECUTION

3.01 Installation

1. The installer shall carefully follow instructions provided in the User Manual to ensure all steps have been taken to provide a safely installed system
2. All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation
3. All firmware installed on the camera shall be the latest and most up-to-date provided by the manufacturer.
4. The camera shall be configured with a system default password