GENERAL -NOT USED-

PRODUCTS

HIGH DEFINITION INDOOR REPOSITIONABLE DOME CAMERA WITH EMBEDDED VIDEO ANALYTICS

### Manufacturer:

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General

The camera shall:

Be designed to deliver embedded video analytics.

Be designed to provide H.264 and Motion JPEG (MJPEG) video.

Be designed to support resolutions up to 1920 x 1080 pixels.

Be designed to provide video at 30 frames per second (fps) for all resolutions.

Provide an embedded web-server.

Be equipped with a slot for microSD/SDHC memory card.

Be equipped with Remote Pan/Tilt/Zoom (repositioning) facility

Support Power over Ethernet (PoE) as a power source.

The camera mount accessaries available shall include :

Flush Mount Bracket

Hardware

The camera shall meet or exceed the following specifications:

1/2.7" progressive scan CMOS sensor

Mechanical IR-cut filter

DC auto iris lens

3x optical zoom lens

3.0 mm (wide) and 9.0 mm (tele)

F1.2 (wide) and F2.1 (tele)

Motorized Focus and Zoom (MFZ)

Refocus mode: Sync with Day & Night mode transition

Angle of view

Horizontal: Between 93° and 31.7°

Vertical: Between 68.4° and 23.8°

Minimum Illumination

IR Sensitivity Range: 700-1100 nm

Night mode (Black and White): 0.001lux at F1.2 (with IR-filter removed, Digital Slow Shutter on)

Remote Pan, Tilt (Repositioning)

Manual Pan/Tilt Speed: Max. 7°/sec

Preset Pan/Tilt Speed: Max. 7°/sec

Pan/Tilt Range: 0° ~ 355° (Pan), 0° ~ 80° (Tilt)

Pan/Tilt Lifespan: 5,000 motor rotations for each

Audio: 1 x Audio In, 1 x Audio Out

External I/O Terminals: 1 x Alarm In, 1 x Alarm Out

Analogue Video output for installation (NTSC/PAL)

256MB Flash memory and 256MB RAM

microSD/SDHC memory card slot

The camera shall support up to 64GB SD memory card.

Video

Supported Encording format shall include:

H.264 Baseline, Main, High profile (MPEG-4 Part 10/ AVC)

MJPEG (Motion JPEG)

Video Streaming shall provide:

Two separate video streams which are individually configurable (e.g. Alarm event at high quality and Continuous recording at low quality)

Configurable range of 1 ~ 30 fps in all resolutions of MJPEG

Configurable range of 1 ~ 30 fps in all resolutions of H.264

Configurable Group of Pictures (GOP) in H.264

Constant Bit Rate (CBR) and Variable Bit Rate (VBR) in H.264

Configurable image quality (Highest, High, Normal, Low, Lowest) in VBR mode of H.264

Configurable JPEG quality in MJPEG

Supported video resolution shall include:

320x180

480x270

640x360

800x450

960x540

1120x630

1280x720

1920x1080

Image control shall include:

Brightness, Contrast, Saturation and Sharpness

Image orientation (Vertical flip, Horizontal mirror)

Image rotation (90 degrees to the left, 90 degrees to the right)

Electronic shutter speed (Automatic and Manual, 1/2 ~ 1/10000)

Auto Gain Control (0~100)

Exposure adjustment (-1.0, -0.6, -0.3, 0, +0.3, +0.6, +1.0 EV)

Back Light Compensation (center, left, right, top, bottom, off)

Digital Slow Shutter (2x, 4x, 8x, 16x, off)

Wide Dynamic Range

Video Stabilization (Dynamic, Fixed, None)

Automatic and Manual Day (color) and Night (black and white)

Automatic and Manual White Balance

2D Digital Noise Reduction (0~15)

Video Stabilization shall:

Provide video motion analysis techniques to remove the shake in real-time, resulting in stable video, which is easier to view.

Compensate for at least 1~5Hz of angular movement (equivalent to yaw and pitch) of a camera.

Audio

The camera shall meet or exceed the following specifications:

Two-way full duplex audio

Input sources

External microphone

External line device

Output sources

External line device

Encoding

G.711 uLaw at 8/16kHz

Video Contents analytics (VCA)

General

The VCA software shall be embedded in the camera, so it can keep the latency of the alarm at minimum.

The video source used for the VCA software shall not be affected by any encoding/decoding actions performed by Video Management Software (VMS), Digital Video Recorder (DVR) and Network Video Recorder (NVR) before the VCA is performed.

The embedded VCA software shall be ready to use right out of the box minimizing difficulties in installation and maintenance.

The VCA software shall be usable for both indoor and outdoor video environment.

The VCA software shall operate in various environmental conditions including following:

Natural or artificial lighting in both indoor and outdoor environment

Day time and night time

Various weather conditions including sun, clouds, rain, wind or fog

Some camera shake from wind or vibration due to camera mounting location

Trees and leaves moving due to wind/weather

Slow creeping shadows and light

The VCA software shall operate with various video sources including color, black and white, SD resolution, HD resolution, infrared and thermal formats.

The VCA software shall provide a variety of detection zones. A detection zone is defined as a dedicated region within a camera’s field of view used to detect behaviors specific to that zone.

Multiple zones may be defined in a single camera view. The camera shall provide at least 40 individually configurable zones.

The VCA software shall provide a variety of detection rules. A detection rule is defined as a dedicated filter applied to a detection zone characterizing a specific behavior to detect for an object being tracked.

The VCA software shall continually track moving and stationary targets and generate real-time alerts of object presence in multiple overlapping detection zones.

Multiple rules may be applied in a single detection zone. The camera shall provide at least 60 simultaneously operable rules.

The VCA software shall be capable of detecting and tracking up to 100 objects simultaneously.

The VCA software shall provide calculated size and speed of tracked objects with an additional calibration. To reduce time and effort for the calibration, the VCA software shall provide 3 dimensional virtual grid, ruler and human figure as a guide for the calibration.

Detection zones shall include:

Non-detection zone

The VCA software shall provide a special zone that will suppress alarm generation until an object has left the object blocking zone. Object will be tracked while it is in the zone, but this will not generate alarms till it leaves the zone. This can be used in areas such as wildly moving trees, reflective surfaces, or moving door and gates and will greatly reduce the number of false alarms.

Line

Polygon

Detection rules shall include:

Enter/Exit/Appear/Disappear filter

An object entered alarm is raised when an object crosses from the outside to the inside of a detection zone. Conversely, an object exited alarm is raised when an object crosses from the inside to the outside of a detection zone.

Stopping filter

Objects that are stopped inside a detection zone for longer than the defined amount of time will trigger the detection rule and raise an alarm.

Dwell filter

Objects that dwell inside a detection zone for longer than the defined amount of time will trigger the detection rule and raise an alarm.

Direction filter

Objects that travel in the configured direction (within the limits of the acceptance angle) through a detection zone, trigger the detection rule and raise an alarm.

Tailgating filter

Object tailgating is defined as an object crossing a detection zone within a certain time after an object has already crossed the zone.

Object Classification filter

Object classification filter can be activated once the camera is calibrated. The object classification is based on properties extracted from the object including object area and speed.

Speed filter

Objects that travel within the bounds of the configured speeds, through a detection zone trigger the detection rule and raise an alarm.

The camera shall provide:

Tamper Detection which shall detect camera tampering events such as bagging, de-focusing, moving the camera, etc. This is achieved by detecting large persistent changes in the image.

At least 20 Counters which count triggers generated by detection rule violation. For example, if it is required to count the number of objects entering a detection zone, the zone must initially be configured to raise an alarm every time an object enters it. The zone can then be assigned to a counter and the counter will count the objects according to the type of counting required. Supported types of counting are:

Increment

Decrement

Occupancy

Counting Line which is specifically designed as a detection filter optimized for bi-directional object counting in busier detection scenarios.

Counting Database along with Counter reporting interface to query the database to generate reports, tables and to export data to Microsoft Excel for further analysis.

At least 16 presets of detection zone and rules. Detection zones and rules can be assigned to separate PTZ preset positions.

Metadata in plain XML format via video streaming protocol for third party applications. Contents to be included in the metadata shall be customizable by providing following content options to choose:

VCA event data

Object tracking data

Counting data

Blob diagnostic data

Counting line diagnostic data

Tamper diagnostic data

Scene change diagnostic data

Networking

The camera shall connect to the network via a RJ-45 with built-in Auto switching 10/100 Mbit/s Ethernet interface.

The camera shall support fixed IP addresses

The camera shall support IP addresses dynamically obtained by a Dynamic Host Control Protocol (DHCP)

IP addresses shall be compliance with the IP version 4 (IPv4)

The camera shall be accessible by a Link-Local Address supported system or software, providing an additional IP address in the Link-Local Address range. Link-Local Addresses shall be able to automatically be assigned and also be able to manually be assigned by user.

Supported protocols shall include:

QoS Layer 3 DiffServ, TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTCP, RTP/UDP, RTP/TCP, mDNS, UPnP™, SMTP, DHCP, DNS, DynDNS, NTP, SNMPv1/v2c/v3(MIB-II), IGMP, ICMP, SSLv2/v3, TLSv1

Video streaming protocol shall include:

HTTP (Unicast)

HTTPS (Unicast)

RTP over RTSP (Unicast & Multicast, UDP & TCP)

Video streaming protocol shall:

Provide Automatic and Manual Bandwidth control

Provide Selection for components of video stream (audio and metadata) to reduce bandwidth needed

Support Quality of Service (QoS) to be able to prioritize network traffic for video, audio and metadata

Web interface

Web interface shall provide:

Live view

Local storage management (SD/SDHC card)

Configuration page for the camera

ActiveX software installation with Microsoft Internet Explorer for specific task

ActiveX software shall:

Be downloaded directly from the camera.

Display live video images from the camera.

Save snapshots from the camera into a storage of a client computer.

Record and store live video images from the camera into a storage of a client computer.

Recording

The camera shall provide a recording function to store video into:

A SD memory card mounted in the camera

A storage of a client computer via web interface with Microsoft Internet Explorer.

An external storage server, such as FTP server.

All video recording files in SD memory card shall be searchable and downloadable via web interface and via application programmable interface.

The recording in SD memory card shall be instantly started for pre-defined timeframe by request of the user via the web interface, providing so-called Instant Recording.

The camera shall provide a video streaming function to transfer recorded video in SD memory card via RTSP/RTP connection.

Continuous Recording

The camera shall support continuous video recording in SD memory card.

The camera shall automatically start replacing old video footages with new video recordings when there is not enough space left in the SD memory card.

The camera shall allow video recordings to be stored in SD memory card being segmented by pre-defined length or by pre-defined size.

Event Recording

The camera shall support Event alarm based Recording in SD memory card and in an external FTP server.

The camera shall provide at least 5 seconds of pre alarm recording and 60 seconds of post alarm recording.

The camera shall provide a search interface for recording files in SD memory card, allowing the files to be searched by a specific event with a given time period.

The camera shall ensure a reliability of video file transfer into the external FTP server against any incident, such as connection to camera is down or recording FTP server is down. This is done by utilizing SD memory card as a buffer. It will resume the video file transfer after a recovery from system or network failure, providing so-called fail over recording on SD card.

Event Management

Event shall be triggered by:

External Sensor (DI, Digital Input) which shall programmatically work as a normally open type sensor or a normally close type sensor

External Alarming device (DO, Digital Output)

Motion Detection (MD)

Video Content Analytics (VCA)

Network configuration change

Recurrence (timer)

When an event triggered, there shall be available actions to:

Activate an external alarming device (DO, Digital Output)

Start recording in SD memory card (SD event recording) or start transferring recorded video into an external FTP server after the SD event recording is initiated.

Send a notification message with snapshots via Email. At least 3 snapshots as pre-image taken before an alarm triggers shall be available.

Send HTTP notification

Send TCP notification

Save a notification message and a snapshot in an external FTP server

The camera shall provide event scheduler to manage event monitoring to be activated only within pre-defined time period, providing following options:

Date (Start date ~ End date, 01/01/2000 ~ 12/31/2099)

Time (Start time ~ End time, 00:00 ~ 23:59)

Day (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday)

Motion Detection function shall:

Provide at least 8 individually configurable motion zones with sensitivity and minimum object size as properties of each motion zones. Multiple motion zones may be defined in a single camera view.

Provide an option to show motion blob in the web interface to reduce time and effort for configuration of motion zones.

The camera shall provide a search interface for events, allowing the events to be searched by a specific event type with a given time period. A video recording file for the event, if it is available, shall be downloaded via the search interface.

The camera shall provide a functionality of automatic and manual event log transfer to an external FTP server.

Text Overlay

Text Overlay is defined as a function which delivers on-screen embedded texts or drawings over a video stream and a snapshot. Supported element of the Text Overlay shall include:

Burnt-in Text

Burnt-in VCA annotation

Privacy mask

The Burnt-in Text shall deliver:

A customer-specific text of at least 48 ASCII characters.

Date and time

The Burnt-in VCA annotation shall deliver:

Detection zone and line

Non-detection zone

Object tracking bounding box

Counter (name, value)

Object classification

Object height

Object speed

The Burnt-in VCA annotation shall be individually configurable for each video stream. (First stream, Second stream, Snapshot stream)

The camera shall provide at least 4 individually configurable privacy masks to conceal defined areas in the image as non-viewable. These masks shall be dynamically adjusted based on current zoom-factor and camera's pan/tilt position.

Remote Pan/Tilt/Zoom facility

The camera shall provide:

At least 16 Pan/Tilt/Zoom preset positions

At least 4 configurable schedules with pre-defined day and time for changing its Pan/Tilt/Zoom position. (e.g. Viewing inside of building during working hours, and viewing front door during non-working hours)

Supported user interface to control the Pan/Tilt/Zoom shall include:

HTTP API command

Web interface

Application Programmable Interface (API) support

The camera shall be fully supported by an open API, which shall provide necessary information for integration of funcionality into third party applications.

Supported Third Party API shall include:

ONVIF Profile S

GENETEC Protocol

Security

The camera shall:

Support the use of HTTPS and SSL/TLS

Provide multiple user account with a password protection restricting access to the built-in web interface and video stream.

Provide authentication procedure which requires users to view video stream using an account ID and a password. The ID and password shall be encrypted by the Digest method (MD5) before being transferred.

Provide IP filtering function which allows or blocks network connection to the camera from pre-defined IP addresses.

Support replay attack protection of ONVIF by reinforcing authentication process.

Maintenance

The camera shall:

Be supplied with MS Windows-based management software, which discovers the cameras in the same network and allows assignment of IP addresses, firmware update and rebooting the camera.

Allow firmware (FW) update over the network via web interface.

Provide automatic and manual backup of system logs into an external File Transfer Protocol (FTP) server

Allow backup and reload a user-specific configuration data via web interface.

Provide reset function via web interface which turns all settings of camera back to its factory default with selectable exceptions to preserve:

Network settings

User account information

Timezone setting

Diagnostics

The camera shall:

Be monitored by a Watchdog functionality, which shall automatically re-initiate processes, restart the unit if a malfunction is detected or turn on Safe mode providing a simple interface to upload Firmware (FW) if Operating System (OS) is damaged.

Provide a heart beat signal, which continuously transfers a signal over network to a pre-defined destination with a certain time interval. It may be an indicator of which ensures whether or not the camera is alive.

Provide system monitor on a real time basis via web interface. The system monitor shall contain information of:

CPU usage

Memory usage

Device uptime

Video streaming (Type, Resolution, Frame per second, Bitrate)

List of RTSP streaming connection (IP address, port number)

Provide system log file which shall keep at least 10000 records. The camera shall keep records in log file when:

Any event occurs

Any event configuration is changed

Network configuration is changed

CPU is overloaded

System memory is overused

Environmental

The camera shall meet or exceed the following specifications:

Clear Transparent bubble

Operating Temperature Range

DC 12V / AC24V / PoE: 32 to 122 degrees Fahrenheit (0 to 50 degrees Celsius)

Relative Humidity Range

Up to 85%, non-condensing

Power Requirement

DC 12V

Input voltage range: 10.8 ~ 13.2 VDC

Consumption: max. 8.6 Watt

AC 24V

Input voltage range: 21.6 ~ 26.4 VAC

Power Over Ethernet

Standard: Class 0 (IEEE 802.3af)

Warranty

Manufacturer shall provide at least a 3 years warranty or a 5,000 activation(PAN/TILT) warranty whichever is sooner, on parts and repair labor for the camera commencing with the date of purchase.

MANUFACTURED UNITS

The camera shall be

#### Ganz ZN-DN332XE-MPD Indoor Repositionable Dome Network Camera

Dimensions: 6.5 inches (165.3mm) diameter by 5.3 inches (134.7mm) high

Color: Ivory

Weight: 2.64 pounds (1.2kg)

Provided material shall include

Installation Guide

User’s Guide

API Guide

Mounting template

EXECUTION -NOT USED-

END OF SECTION