RIVA® – RCC100HD

PART 1 GENERAL – NOT USED

PART 2 PRODUCTS

2.01 HIGH DEFINITION CAMERA WITH EMBEDDED VIDEO ANALYTICS

A MANUFACTURER

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B 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 1280 x 720 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 built-in PIR sensor.
- Be equipped with built-in microphone and speaker.

C HARDWARE

The camera shall meet or exceed the following specifications:

- 1/4" progressive scan CMOS sensor
- Fixed-focal lens: 2.7mm, F2.0
- Angle of view

  - Horizontal: 91°

  - Vertical: 59°
- Minimum Illumination

  -Day mode (Color): 0.8lux at F2.0

  - Night mode (Black and White): 0.1lux at F2.0 (Digital Slow Shutter on)
- Passive Infrared (PIR) motion Sensor

  - PIR working distance: Max. 6m (19.6 ft)
- Audio: 1 x Audio In, 1 x Audio Out
- External I/O Terminals: 1 x Alarm In, 1 x Alarm Out
- 256MB Flash memory and 256MB RAM
- microSD/SDHC memory card slot

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

D 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

Image control shall include:

- Brightness, Contrast, Saturation and Sharpness
- Image rotation (Vertical flip, Horizontal mirror)
- Electronic shutter speed (Automatic and Manual, 1/2 ~ 1/5000)
- Auto Gain Control (AGC)
- Exposure adjustment (-1.0, -0.6, -0.3, 0, +0.3, +0.6, +1.0 EV)
- Back Light Compensation (BLC)
- Digital Slow Shutter (DSS)
- Digital Wide Dynamic Range (WDR)
- Automatic and Manual Day (color) and Night (black and white)
- Automatic and Manual White Balance
- 2D Digital Noise Reduction (DNR)

E AUDIO

The camera shall meet or exceed the following specifications:

- Two-way full duplex audio
- Input sources

  - Built-in microphone

- Output sources

  - Built-in speaker

- Encoding

  - G.711 uLaw at 8/16kHz

F VIDEO CONTENT 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 with various video sources including color, black and white, SD resolution, HD resolution.
- 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. The VCA software shall provide 3 dimensional virtual grid, ruler and human figure to reduce time and effort for the calibration.
- The camera shall provide Metadata in plain XML format for third party applications.

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. Customer can modify default object classes or create own object classes to include or exclude this object classes inside the detection rule. Combinations of object classification filter with other detection filter can enhance VCA alarm reliability.

- 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.

G 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)

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

H WEB INTERFACE

Web interface shall provide:

- Live view
- Local storage management (SD/SDHC card)
- Configuration page for the camera
- ActiveX software installation for specific task

ActiveX software shall:

- Be downloaded directly from the camera
- Display live video images from the camera

I RECORDING

The camera shall record and store videos into a SD memory card mounted in the camera and into an external storage server, such as FTP server.

All video recording files shall be listed and downloaded via web 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.

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.

J 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
- Built-in PIR Sersor
- Motion Detection (MD)
- Video Content Analytics (VCA)
- Network configuration change

When an event triggered, it shall:

- Activate an external alarming device (DO, Digital Output)
- Start recording in SD memory card or in an external FTP server
- Send a notification message with a snapshot via Email
- Send HTTP notification
- Send TCP notification
- Save a notification message and a snapshot in an external FTP server

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.

K 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.
- Deliver date and time

The Burnt-in VCA annotation shall deliver:

- Detection zone and line
- Non-detection zone
- Object tracking bounding box
- Counter
- Object classification
- Object size and speed

The camera shall provide at least 4 individually configurable privacy masks to conceal defined areas in the image as non-viewable.

L APPLICATION PROGRAMMABLE INTERFACE (API) SUPPORT

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

Supported Third Party API shall include:

- ONVIF Profile S
- GENETEC Protocol

M SECURITY

The camera shall:

- Support the use of HTTPS and SSL/TLS, providing the ability to upload signed certificates to encrypt and secure authentication and communication of both administration data and video streams

- 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.

N 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 the web interface.
- Allow backup system logs into an external File Transfer Protocol (FTP) server
- Allow backup and reload a user-specific configuration data via the web interface.

O DIAGNOSTICS

The camera shall:

- Be equipped with an LED, indicating the camera's functional status.
- 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 device with a certain time interval. It may be an indicator of which ensures whether or not the camera is alive.
- 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

P ENVIRONMENTAL

The camera shall meet or exceed the following specifications:

- Operating Temperature Range

  - DC 12V: 32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius)

- Relative Humidity Range

  - Up to 85%, non-condensing

Q POWER REQUIREMENT

DC 12V

- Input voltage range: 10.8 ~ 13.2 VDC
- Consumption: max. 3.36 Watt

R WARRANTY

Manufacturer shall provide at least a 3 years warranty on parts and repair labor for the camera commencing with the date of purchase.

2.02 MANUFACTURED UNITS

A THE CAMERA SHALL BE:

RIVA® RCC100HD-5110PIR Indoor Megapixel Cube Network Camera

- Dimensions: 3 inches (76.1mm) width and 3.6 inches (92.3mm) length by 5.6 inches (142.5mm) high
- Color: Ivory
- Weight: 0.31 pounds (142g)

B PROVIDED MATERIALS SHALL INCLUDE:

Installation Guide

User's Guide

Mounting template

END OF SECTION