Architectural and Engineering Specifications

GeoVision License Plate Recognition Cameras

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The document is written using industry standard formatting and language, and is designed for use by architects, consultants, and specifying engineers who are preparing bid specifications for security cameras, surveillance systems and access control systems.

The electronic version of these specifications may be copied into the appropriate sections of a complete bid specification by using the "cut and paste" method. They are written to highlight the features and specifications of GeoVision products. Specific models mentioned are only for clarity – these may be deleted after insertion into the complete specification.

Products covered in this document include:

The LPR cameras shall work with the following software and hardware for license plate recognition or surveillance use

- **GV-DVR / NVR:** DVR / NVR software
- **GV-DVR LPR:** DVR / NVR software with LPR processor
- **GV-DSP LPR:** an analog-to-IP video encoder with LPR processor

All specifications are subject to change. For more information on GeoVision products, please visit www.geovision.com.tw.

GV-IP LPR Camera & GV-Hybrid LPR Camera

GV-IP LPR Camera & GV-Hybrid LPR Camera shall include the following models:

- **GV-IP LPR Camera 5R**

- **GV-Hybrid LPR Camera 10R**

- **GV-Hybrid LPR Camera 20R**

A. General Requirements

1. The camera shall be a black and white network camera capable of capturing reflective license plates on vehicle traveling under the following speed limitation:
   - **GV-IP LPR Camera 5R:** 60 km/hr (37 mph) or less
   - **GV-Hybrid LPR Camera 10R / 20R:** 120 km/hr (75 mph) or less

2. GV-IP LPR Camera 5R shall provide a pure network solution. GV-Hybrid LPR Camera 10R / 20R shall be equipped with a TV output to provide both IP and analog video.
3. The camera shall be capable of filtering out the background of license plates and capturing only the license plate numbers.
4. Under low-light conditions, the camera shall be capable of producing clear license plate capture with IR LED or IR illuminator turned on.
5. The camera shall support capturing license plates for the following numbers of lanes in a single shot:
   - **GV-IP LPR Camera 5R:** one (1) lane.
   - **GV-Hybrid LPR Camera 10R:** two (2) lanes.
   - **GV-Hybrid LPR Camera 20R:** one (1) lane.
6. The camera shall be able to transmit the images of license plates to GV-DVR LPR software (DVR/NVR software with LPR processor) for identification and the software shall be able to trigger an output to grant access to a gate.
7. The camera shall be capable of connecting with GV-DVR / NVR software to transmit the vehicle images for live monitoring.
8. The camera shall utilize a progressive scan CMOS imager with a 1/3-inch image sensor.
9. The camera shall utilize H.264 and MJPEG video compression methods with a resolution of 1280 x 1024.
10. Up to eight (8) streams shall be supported simultaneously over the network. When one camera is connected to IE browser or any other application, it takes up one (1) stream. When one camera is connected to GV-DVR / NVR or GV-DVR LPR (DVR/NVR software with LPR processor), it takes up two (2) streams.
11. The camera shall provide administrator and guest level settings on the Web interface. The administrator account shall have full access to all functions, and the guest account shall have access to camera live video and network status information only.
12. Maximum frame rate capacity of the camera shall be up to 30 frames per second at a 1280 x 1024 resolution.

B. Alarm and Notification Requirements
1. The camera shall be capable of motion detection.

2. A privacy mask function shall be provided to allow users to specify areas of the image to be blocked off on the camera view for privacy purpose.
3. The GV-Hybrid LPR Camera 10R / 20R shall support tampering alarm such that an E-mail notification shall be triggered when the camera is being tampered with.
4. The camera shall have E-mail and FTP ability for alert notification.

C. Recording and Playback Requirements
1. The camera shall be able to connect to GV-DVR / NVR software for live monitoring of vehicles and recording.
2. The camera shall be able to connect to GV-DVR LPR software (DVR/NVR software with LPR processor) for license plate recognition and recording.
3. Users shall be able to play back recorded data on a GV-DVR / NVR software, GV-DVR LPR software (DVR/NVR software with LPR processor) or over network.

D. Video Requirements
1. The camera shall support both constant bitrate (CBR) and variable bitrate (VBR). For variable bitrate (VBR), the maximal bit rate shall be selectable to restrict the system from exceeding a specified bit rate.
2. The camera shall have both automatic shutter and manual shutter with a speed range of 1/500 – 1/8000 seconds.
3. The following image settings shall be adjustable from the Web interface of the camera: brightness, contrast, sharpness, gamma, image orientation, Defog
4. GV-IP LPR Camera 5R shall be equipped with motorized varifocal lens, and support remote focus and zoom change through the Web interface. The user shall be able to:
   - Focus in and focus out
   - Automatically focus using a quick focus (Normal Scan), partial focus of a selected region (Regional Scan) or a detailed, full-view focus (Full Scan)
5. The camera shall support three (3) aspect ratios: 4:3, 16:9 and 5:4.
6. The S/N ratio for the camera shall be 50 dB.

E. Audio Requirements

1. GV-Hybrid LPR Camera 10R / 20R shall be equipped with stereo phone jacks (3.5 mm / 0.14") to support external microphone and speaker.
2. GV-Hybrid LPR Camera 10R / 20R shall support bi-directional audio transmission.

F. Networking Requirements

1. Network interface shall be via an Ethernet (10/100 Base-T), RJ-45 connector.
2. The camera shall be built with a Web server with which the live view is accessible using Web browsers, without the need for special viewer software.
3. The camera shall support the following network protocols: DHCP, DynDNS, FTP, HTTP, HTTPS, NTP, ONVIF (Profile S), PSIA, QoS (DSCP), RTSP, SMTP, SNMP, TCP, UDP, UPnP, 3GPP/ISMA
4. Users shall be able to configure port settings.
5. The camera shall be capable of setting IP filtering to restrict access to the camera.
6. QoS (DSCP) shall be supported to allow differentiated bandwidth control.

G. Lens Requirements

1. The camera shall have the following aperture:
   - **GV-IP LPR Camera 5R:** F/1.2
   - **GV-Hybrid LPR Camera 10R / 20R:** F/1.6
2. The camera shall have the following lens
   - **GV-IP LPR Camera 5R:** motorized varifocal lens with a DC drive iris and a focal length of 3-9 mm.
   - **GV-Hybrid LPR Camera 10R / 20R:** Varifocal lens with a DC drive iris and a focal length of 5-50 mm.

3. The camera shall come with the following IR LED:
   - **GV-IP LPR Camera 5R** shall be equipped with 12 IR LEDs that support a maximum IR distance of 5 m / 16.4 ft.
   - **GV-Hybrid LPR Camera 10R** shall be equipped with 4 high power IR LEDs that support an IR distance of 6 - 12 m / 19.7 - 39.4 ft.
   - **GV-Hybrid LPR Camera 20R** shall be equipped with an external IR illuminator that has 12 high power IR LEDs, supporting an IR distance of 18 - 22 m / 59.1 - 72.2 ft.
     - The external IR illuminator shall have an operating temperature of -40°C ~ 60°C / -40°F ~ 140°F.

H. Mechanical Requirements

1. The camera body shall have the following dimensions:
   - **GV-IP LPR Camera 5R:** 289.02 x 87.75 x 148.95 mm / 11.4 x 3.45 x 5.86 in
   - **GV-Hybrid LPR Camera 10R:** 317.5 x 108.5 x 230.57 mm /12.5 x 4.27 x 9.08 in (with mounting base)
   - **GV-Hybrid LPR Camera 20R:** 317.5 x 284.2 x 290 mm /12.5 x 11.19 x 11.41 in (including IR Illuminator / with mounting base)
2. The camera shall have the following weight:
   - **GV-IP LPR Camera 5R:** 1.4 kg / 3.08 lb
   - **GV-Hybrid LPR Camera 10R:** 3.2 kg / 7.05 lb
   - **GV-Hybrid LPR Camera 20R:** 5.4 kg /11.9 lb (including IR Illuminator)
3. The camera shall have following lens mount:
   - **GV-IP LPR Camera 5R:** ø 14 mm lens mount.
   - **GV-Hybrid LPR Camera 10R / 20R:** CS camera lens mount.
4. The camera shall have a built-in temperature detector to detect the chipset temperature inside the camera.

I. Power Requirements

1. Power shall be connected using the Power over Ethernet (PoE).
2. The camera shall be capable of receiving power from IEEE802.3at Power over Ethernet (PoE).
3. The camera shall have the following maximum power consumption:
   - **GV-IP LPR Camera 5R:** 16.6 W
   - **GV-Hybrid LPR Camera 10R / 20R:** 48W

4. The external IR illuminator for GV-Hybrid LPR Camera 20R shall require extra power supply with a maximum power consumption of 28W.

J. Environmental Requirements
1. The operating temperature shall be within the following range:
   - **GV-IP LPR Camera 5R:** -10°C ~ 50°C / 14°F ~ 122°F.
   - **GV-Hybrid LPR Camera 10R / 20R:** -40°C ~ 50°C / -40°F ~ 122°F.
2. The humidity shall be within the range of 10% to 90% with no condensation.
3. The camera shall comply with IP67 ingress protection classification.
4. The camera's metal casing shall have a vandal resistance of IK10

K. System Requirements
1. The camera shall be accessible through Web browsers including Microsoft Internet Explorer (version 7.0 or later), Google Chrome, Mozilla Firefox and Safari.
2. The camera shall support the following languages on the Web interface: Arabic, Bulgarian, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hebrew, Hungarian, Indonesian, Italian, Japanese, Lithuanian, Norwegian, Persian, Polish, Portuguese, Romanian, Russian, Serbian, Simplified Chinese, Slovakian, Slovenian, Spanish, Swedish, Thai, Traditional Chinese and Turkish.

L. Certifications and Approvals
1. CE, FCC, CTick, RoHS Compliant

GV-LPR CAM 10A / 20A ANPR Camera

GV-LPR CAM 10A ANPR Camera   **GV-LPR CAM 20A ANPR Camera**

A. General Requirements

1. GV-LPR CAM 10A / 20A ANPR Camera shall be a black and white analog camera capable of capturing reflective license plates on vehicle traveling at 200 km/hr (124 mph) or less.
2. GV-LPR Cam 10A / 20A shall be capable of connecting with GV-DVR LPR software (DVR/NVR software with LPR processor) or GV-DSP LPR (a video encoder with LPR processor) to allow recognition of the license plates captured by the camera.
3. The camera shall be able to transmit the images of license plates to GV-DVR LPR software (DVR/NVR software with LPR processor) for identification and GV-DVR LPR shall be able to trigger an output to grant access to a gate.
4. The camera shall be capable of connecting with GV-DVR / NVR software to transmit the vehicle images for live monitoring.
5. Two models shall be available for GV-LPR CAM 10A ANPR Camera and GV-LPR CAM 20A ANPR Camera with different video formats:
   - **GV-LPR CAM 10A ANPR**
     - ⊙ GV-LPR Cam 10A EIA DC12V: EIA video format
     - ⊙ GV-LPR Cam 10A CCIR DC 12V: CCIR video format
   - **GV-LPR CAM 20A ANPR**
     - ⊙ GV-LPR Cam 20A EIA DC12V: EIA video format
     - ⊙ GV-LPR Cam 20A CCIR DC 12V: CCIR video format
6. The camera shall utilize a 1/3" B/W Exview CCD image sensor.
7. The camera shall support a resolution of 570 TVL.

B. Recording and Playback Requirements

1. The camera shall be able to connect to GV-DVR / NVR software for live monitoring of vehicles and recording.
2. The camera shall be able to connect to GV-DVR LPR software (DVR/NVR software with LPR processor) for license plate recognition and recording.
3. Users shall be able to play back recorded data on a GV-DVR / NVR, GV-DVR LPR (DVR/NVR system/LPR processor) or over network.

C. Video Requirements

1. The camera shall be capable of motion detection.
2. The camera shall have both automatic shutter and fixed shutter with a speed range of 1/60 – 1/100000 seconds.
3. Backlight compensation (BLC) function with adjustable BLC ratio shall be provided through OSD interface to process scenes with strong backlight.
4. Privacy mask function shall be provided through OSD interface to allow users to specify up to four (4) areas of the image to be blocked off on the camera view for privacy purpose.
8. On-Screen Display (OSD) shall be provided to allow users to configure the following settings:
   - Camera exposure
   - White balance
   - Privacy mask
   - Day & night mode
   - Image settings including sharpness, gamma, Sidelight Compensation (SLC), Highlight Masking Exposure (HME) and Dynamic Range Compressor (DRC)
   - Motion detection

D. Lens Requirements

1. The camera shall have a maximum aperture of 1.6.
2. The camera shall have a DC-drive auto iris and the following focal length:
   - **GV-LPR CAM 10A ANPR Camera:** 5-50 mm
   - **GV-LPR CAM 20A ANPR Camera:** 10-120 mm

3. The camera shall have IR LEDs with switches to adjust LED brightness and an illuminator life of 25,000 hrs.
   - **GV-LPR CAM 10A ANPR Camera** shall be equipped with 7 high-efficient LEDs that support an IR range of 7 - 12 m / 22.96 – 39.37 ft. The optimal IR distance shall be 10 m / 32.80 ft
   - **GV-LPR CAM 20A ANPR Camera** shall be equipped with 24 high-efficient LEDs that support an IR range of 15 - 25 m / 49.21 – 82.02 ft. The optimal IR distance shall be 18 m / 59.06 ft

E. Mechanical Requirements
1. The camera body shall have the following dimensions:
   - **GV-LPR CAM 10A ANPR Camera:** 315 x 109 x 110.2 mm / 12.40 x 4.29 x 4.34 in (with sun shield)
   - **GV-LPR CAM 20A ANPR Camera:** 425.01 x 155 x 156.75 mm / 16.73 x 6.10 x 6.17 in (with sun shield)
2. The camera shall have the following weight:
   - **GV-LPR CAM 10A ANPR Camera:** 4.6 kg / 10.14 lb
   - **GV-LPR CAM 20A ANPR Camera:** 5 kg / 11.02 lb
3. The camera shall have CS camera lens mount.
4. The camera shall have a BNC TV-out port.
5. GV-LPR CAM 20A ANPR Camera shall have a heater that will turn on when the environmental temperature is below or equal to 5°C / 41°F.
6. The camera shall have a built-in fan which is always turned on.

F. Power Requirements
1. The camera shall be capable of receiving power from 12V DC.
2. The camera shall have the following maximum power consumption:
   - **GV-LPR CAM 10A ANPR Camera:** 15 W
   - **GV-LPR CAM 20A ANPR Camera:** 30 W (normal), 50 W (heater on)

G. Environmental Requirements
1. The operating temperature shall be within the following range:
   - **GV-LPR CAM 10A ANPR Camera:** -20°C ~ 50°C / -4°F ~ 122°F
   - **GV-LPR CAM 20A ANPR Camera:** -30°C ~ 50°C / -22°F - 122°F

2. The storage temperature shall be within the following range:
   - **GV-LPR CAM 10A ANPR Camera:** -20°C ~ 70°C / -4°F ~ 158°F
   - **GV-LPR CAM 20A ANPR Camera:** -30°C ~ 70°C / -22°F - 158°F
3. The camera shall comply with IP66 ingress protection classification.

H. Certifications and Approvals
1. CE, FCC, CTick Compliant