

PRODUCT:	HIGH DEFINITION, IP BULLET CAMERA VB-M751LE Full HD, IP Fixed Outdoor Bullet Camera with in-built IR LED
Division 28	ELECTRONIC SAFETY and SECURITY
Level 1	28 20 00 ELECTRONIC SURVEILLANCE
Level 2	28 23 00 VIDEO SURVEILLANCE
Level 3	28 23 29 VIDEO SURVEILLANCE REMOTE DEVICES and SENSORS

PART 2 GENERAL - Safety, standards and certification

2.01 General Requirements

- A. The camera shall be from the manufacturer's official standard product line, designed for commercial/industrial continuous use i.e. for 24-hour operation.
- B. The camera shall be based upon standardised components and proven technology generally using open and published protocols.

2.02 Quality Assurance

- A. All camera installation, configuration, setup, program and related work shall be performed by trained technicians thoroughly familiar with the installation, setup and service of the camera equipment provided.
- B. All equipment provided shall be backed by a minimum of 1years manufacturer's warranty.

2.03 Certifications and standards

- A. The camera shall carry the following international standards and other approvals:

 EN55032 Class A, FCC part15 subpart B Class A, ICES-003 Class A, VCCI Class A, C-tick AS/NZS EN55032 Class A, CNS13438 Class A, KN32 Class A, EN55024, KN35, EN50581, EN62471

 IEC/UL/EN60950-1, IEC/UL/EN60950-22, EN50130-4, IEC/UL/EN60529 IP66, NEMA 250 Type 4X
- B. The camera shall meet the following coding/compression standards:

 JPEG

 H.264 - ISO/IEC 14496-10 AVC, - 12 and -15
- C. Networking:

 IEEE 802.1X (EAP-MD5, EAP-TLS, EAP-TTLS, EAP-PEAP)

 IPv4

 IPv6

PRODUCTS

2.04 Sensor

The camera shall:

- A. Use a high quality 1/3" CMOS sensor using a primary colour filter with approximately 2.1M pixels.
Have an active number of pixels of 1920 x 1080
- B. Use Progressive scanning

2.05 Optics

The camera shall:

- A. Be fitted with a removable IR-cut filter, providing "day mode & night mode" functionality, with automatic switching
- B. Be fitted with a 2.4 x optical zoom lens, with autofocus and a 4 x digital zoom. The focal length range shall be 2.55mm (W) to 6.12mm (T), giving a horizontal field of view of 124.3° (W) to 50.5° (T) and a vertical field of view of 66.9° (W) to 28.4° (T) (16 : 9 aspect ratio). The F number of the lens shall be in the range of F1.2 (W) to F1.8 (T)
- C. In colour, provide images down to a lighting level of 0.035 Lux, (F1.2 shutter speed 1/30sec, Smart Shade Control off, 50 IRE)
In monochrome, provide images of a minimum subject illumination down to 0.002Lux (F1.2 shutter speed 1/30sec, Smart Shade Control off, 50 IRE). Night mode with IR lamp on, 0 Lux
- D. Have focus control adjustable between:
Auto/One-Shot AF/Manual/Fixed at infinity
- E. Have the focusing region
Day mode from 0.3 m - infinity
Night mode from 0.3 m - infinity
- F. Have the shutter speed adjustable from
1 sec to 1/16000 sec in 16 steps (17 levels)
- G. Have the White Balance settings selectable between:
Auto/Light Source/Manual
Light Source : Fluorescent (Daylight-white-warm)/mercury lamp/sodium lamp/halogen lamp
Manual : One- shot WB (R Gain/ B Gain)
- H. Have three settings of noise reduction, [mild], [standard] or [strong].
- I. Have seven settings of sharpness.
- J. Have Smart Shade Control with settings as [Auto], [Manual] with seven levels and [Disable].
- K. Have Motion-Adaptive Noise Reduction (NR)
- L. Adjustable day/night switching settings and an adjustable time period for switching between day and night (with five levels and five time settings).
- M. Have an Automatic Gain Control (AGC) with five levels and Off.
- N. Digital image stabiliser with 2 settings
- O. IR illumination range – 30m (when using 24Vac or PoE+)

2.06 Server unit

Shall provide video compression in either H.264 or JPEG (both with ten levels of quality).

- A. There shall be 9 image output sizes up to 1920 x 1080 pixels.
- B. Image rates shall be up to 30fps for both H.264 and JPEG with two simultaneous streams possible as H.264 at 15fps at maximum resolution.
- C. The I frame interval shall be variable between 0.5 seconds up to 5 seconds.
- D. Maximum number of clients shall be 41 (including one admin client), 31 as http clients (of which 10 can be H.264) plus 10 as RTP clients on H.264
- E. Both IPv4 and IPv6 shall be supported in both TCP/IP and UDP with DHCP (and DHCPv6) and ONVIF Profile S
- F. Shall be able to use encrypted communication such as SSL/TLS, IPsec

2.07 Embedded analytics to include

- A. Camera tampering detection
- B. Moving object detection
- C. Abandoned object detection
- D. Removed object detection
- E. Passing detection
- F. Intruder detection
- G. Audio Volume and Scream detection
- H. And have the ability to set Non-Detection areas and link events conditions by OR, AND whether or not there is a sequence to events.

2.08 Connectors

- A. RJ45 network (LAN 100BaseT)
- B. Power connector
- C. 1 x 3.5mm mono mini jack input (Mic or Line IN, selectable, external MIC required)
- D. 1 x 3.5mm mono audio jack output (Line Out)
- E. 2x input, 2x output for external devices
- F. SD, SDHC, SDXC memory card (1fps JPEG, 30fps H.264).

2.09 Mechanical

- A. Manual pan 344° (∇ 172°) pan rotation and 93° (-3 to +90°) tilt.

- B. A manual rotation of 344° (√1725°) to allow for ceiling or wall mounting of the camera or correcting an angled mounting.
- C. Have up to 21 pre-set positions (20, plus Home). The move to preset on “alarm” is to a “digital” virtual position within the camera’s view

2.10 Dimensions, weight, colour & IP rating

(HxWxD) 111 x 102 x 214mm (camera body only)

Approximately 2600g

Be available in Titanium White

Be IP66 & NEMA250 Type4X rated

2.11 Video

- A. Size setting
The camera shall be able to deliver high-quality video in at least 9 different resolutions up to 1920 x1080
- B. Transmission speed
The camera shall allow the transmission of images at up to 30fps all resolutions, using JPEG and H.264 at maximum resolution.
- C. Compression
The camera shall provide simultaneous support for both JPEG and H.264.
The H.264 implementation shall include support Bit Rate Control and shall support both unicast and multicast.
The camera shall provide at least ten different levels of compression (quality settings) in total.
- D. The camera shall be able to record video at “the edge” i.e. to a memory card at the camera. This can be downloaded to a PC for viewing remotely. This is ONVIF Profile G compliant.
- E. Privacy masking
The camera shall have 8 privacy masks of one of nine colours.

2.12 Audio

The camera shall support full duplex audio using G.711 m-law compression.

The camera shall be capable of using Sound Transfer Protocol by Canon

2.13 Functionality

- A. IP addresses

The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server or for IPv6 as DHCPv6.

The camera shall provide support for both IPv4 and IPv6.

B. Bandwidth management

The camera shall provide the ability to control network traffic by limiting the maximum bandwidth to a selected value.

Provide the capability to limit the frame rate to a selected value.

C. Area-specific Data Size Reduction

Having a maximum of 8 areas to specify high quality transmission.

D. Event functionality

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

External inputs

Timer,

Intelligent Function (video)

Intelligent function (audio)

Two Linked events on an AND or OR basis

E. Response to triggers shall include:

Notification, using E-mail

Image upload using HTTP/FTP or record to Memory card

Video upload using H.264

Preset call up of digital preset position within the camera's view

Activating external output

2.14 Text overlay

The camera shall provide embedded on-screen text in the video, with support for date & time (NTP server linked), and a customer-specific text, camera name.

2.15 Security

The camera shall support the use of:

IPSec mode shall be supported including Tunnel mode

HTTPS and SSL/TLS, providing the ability to manage certificates and private key files.

Authentication shall be possible by using IEEE 802.1X authentication.

The camera shall provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.

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

ONVIF Profile S and G Compliant.

2.16 Installation and Maintenance

The camera shall:

Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the cameras configuration.

Be equipped with a Camera Viewer capable of supporting access and control via Windows Internet Explorer 9, 10 and 11, Edge and Google Chrome 45 web browsers

Be equipped with a Mobile Camera Viewer capable of supporting Windows Surface, Apple iPad and iPhone, Google Nexus and Samsung Galaxy mobile devices

Support the use of SNMP-based management tools.

Customer-specific settings, including statically assigned IP address, the local time & date, event functionality and video configuration, shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

2.17 Interfaces

A. Inputs/Outputs

The camera shall be equipped with two digital (alarm) inputs and two digital outputs, accessible via a terminal block. These inputs shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts.

B. Audio

The camera shall be equipped with one mono 3.5mm jack for line/mic input and one mono 3.5mm jack for line out.

C. Network interface

The camera shall be equipped with one 100baseTX Fast Ethernet-port, using a standard RJ-45 socket and shall support auto sensing of network speed.

2.18 Power requirements

PoE+ IEEE802.3at (approx. 20.1 max)

Mains adapter (100 – 240Vac) max 12.6W

12 V DC, max 11.1W

24V AC max 20.9W

2.15 Operating environment

For indoor/outdoor use

Operating temperature -50°C to +55°C (AC, PoE+), -10°C to +55°C (AC, PoE)

Humidity 5% to 85% non-condensing

2.16 Manufactured units

The camera shall be a Canon VB-M751LE.

[If this is to be a performance-based specification, remove Item 2.18.]