



# Technical Specifications

## MOBOTIX MOVE 2MP Vandal Bullet ALPR Camera

Performant 2MP, Full HD/1080p resolution ALPR (Automatic License Plate Recognition) cameras with integrated high-performance ALPR/OCR engine. The MOBOTIX MOVEMx-VB1A-2-IR(-D)-ALPR camera extends the existing range of MOVE IP cameras with advanced ALPR features and MMC (make, model, color) vehicle classification “on board”. The MOBOTIX EverClear superhydrophilic and self-cleaning nano coating of the front glass ensures best image quality even in rain and reduces cleaning efforts and operational costs.

- Vaxtor ALPR-ready for all vehicle speeds and stop-and-go applications (license required)
- Automatic license plate recognition for all vehicle speeds and stop-and-go applications
- 64 GB SD card pre-installed
- EverClear coating of front glass
- **Mx-VB1A-2-IR-ALPR:** Motorized Vari-Focal Lens 2.7 to 12 mm, F1.6 to F2.9, Zoom, Focus, One-Push AF
- **Mx-VB1A-2-IR-D-ALPR:** Motorized Zoom Lens 9 to 22 mm, F1.6 to F2.4, Zoom, Focus, One-Push AF
- Wide Dynamic Range (WDR) max. 130 dB
- Integrated IR LEDs up to 50 m/164 ft distance visual, 20 m/66 ft for ALPR
- ONVIF Profile S/G/T/M support
- Triple power support (IEEE802.3bt/AC24V/DC24V)
- Temperature Range -55 to 60 °C/-67 to 140 °F with integrated heater ON
- IP66, IP67 and IK10
- Easily integrated into many common VMS solutions



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**MOBOTIX**

Document ID: Mx\_TS\_Mx-VB1A-2-IR(-D)-ALPR\_V1.21\_EN

V1.21\_7/1/2026, Order Code: Mx-VB1A-2-IR(-D)-ALPR

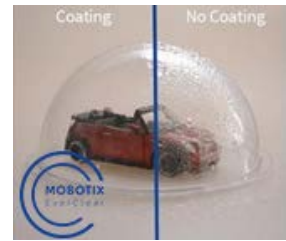
## Technical Specifications

### MOBOTIX MOVE 2MP Vandal Bullet ALPR Camera

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#### MOBOTIX EverClear Nano Coating

The new, groundbreaking MOBOTIX EverClear coating uses a special nano technology that transforms water droplets into an ultra-thin water film immediately upon impact. This ensures the highest image quality in rain and difficult environmental conditions and reduces maintenance costs due to its “self-cleaning” effect.



#### Product Information

Product Name	2MP Vandal Bullet ALPR Camera
Order Code	Mx-VB1A-2-IR(-D)-ALPR

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#### Hardware Design

Processor	Ambarella CV22 (Quad-core ARM® Cortex®-A53, 1 GHz)
Memory	RAM: 1 GB FLASH: 256 MB
Image Sensor	2MP, 1/2.8" Progressive CMOS IMX462 (SONY STARVIS)
Effective (Used) Pixels	1920x1080 (2MP)

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## Lens

Minimum Illumination	Color: 0.02 lux B/W: 0.001 lux
Lens Characteristics	<b>Mx-VB1A-2-IR-ALPR:</b> Motorized Lens: Zoom, Focus, P-IRIS Focal Length: 2.7 to 12 mm Aperture: F1.6 to F2.9 Horizontal Field of View: 102.1° (Wide), 31.5° (Tele) Vertical Field of View: 70.3° (Wide), 22.7° (Tele) <b>Mx-VB1A-2-IR-D-ALPR:</b> Motorized Lens: Zoom, Focus Focal Length: 9 to 22 mm Aperture: F1.6 to F2.4 Horizontal Field of View: 36.1° (Wide), 15.4° (Tele) Vertical Field of View: 19.8° (Wide), 8.8° (Tele)
Front Glass Coating	Superhydrophilic MOBOTIX EverClear nano coating transforms water droplets into an ultra-thin water film upon impact. The coating ensures best image quality in rain and difficult external conditions and it reduces reflections and noise in low-light scenarios. EverClear is dirt-repellent and increases the stability as well as the scratch-resistance of the front glass, further reducing maintenance efforts. Coating endurance up to 3 years depending on environmental conditions and cleaning treatment.

## Camera

Day/Night	Automatic mechanically switchable IR-cut filter
Shutter Speed	Up to 1/43040 s
Frame Rate (maximum)	H.265/H.264: 1920x1080@30 fps + 720x480@30fps MJPEG: 1080p@30fps
Auto Gain	Min. gain: 3 dB, max. gain: 48 dB, step size: 3
WDR	Up to 130 dB Multi Exposure WDR & HDR Engine support
Zoom	Optical zoom, digital zoom ready by lens type

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## Technical Specifications

### MOBOTIX MOVE 2MP Vandal Bullet ALPR Camera

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Image settings	Color, Brightness, Sharpness, Contrast, White Balance, Exposure Control, 2DNR, 3DNR, NR by Motion, Masking, Text Overlay
Corridor Mode	90°, 180°, 270° Rotation

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## Video Codec

Compression/Encoding	H.265/H.264/MJPEG
Streaming	Up to 4 individually configurable streams in H.264/H.265/MJPEG; configurable resolution, frame rate, bandwidth LBR/VBR/CBR in H.265/H.264.

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## Audio Codec

Compression/Encoding	G.711/G.726/AAC/LPCM
Streaming	2-Way, bidirectional
Audio Input	Line In: Max 6.2 Vpp Signal In, Input Impedance: 33 kΩ
Audio Output	Line Out: 1 Vrms Signal Out, Output Resistance: 200 Ω

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## Cyber Security Features

Password Protection	Yes (including “forced” password change during initial setup)
IP address filtering	Yes (to restrict unauthorized access based on IP addresses)
IEEE 802.1X network access control	Yes (for advanced network security and authentication)
Digest authentication	Yes (for secure user authentication)
Secure Boot	Yes (support of fixed IP setting and automatic DHCP IP configuration according to individual MAC address)
AES encryption for password protection	Yes (to ensure strong encryption for password storage)
HTTPS/SSL (using TLS)	Yes (TLS 1.2 default, TLS 1.0/1.1 optional selectable)
User and Group Management	Yes (for fine-grained access control)
VPN	Yes (to establish secure network connections)

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Digitally signed firmware	Yes (to prevent firmware file tampering)
RSA encryption	Yes (to support stronger ciphers; supported: RSA (2048 bits), AES-128, AES-256, SHA-256, SHA-384)

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## Network

Interface	10/100/1000 Mbps Ethernet
Supported Protocols	ARP, PPPoE, IPv4/v6, ICMP, IGMP, QoS, TCP, UDP, DHCP, UPnP, SNMP, SMTP, RTP, RTSP, HTTP, HTTPS, FTP, NTP, DDNS, SMBv2
ONVIF conformance	Supports profiles S/G/T/M
Supported Browsers	All current browsers are supported.

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## ALPR (Automatic License Plate Recognition) Features

### NOTE!

Formatted 64 GB SD card is pre-installed! For replacement cards, using a 64 GB or larger SD card is recommended. See **microSD Cards for MOBOTIX MOVE Cameras** document on [www.mobotix.com](http://www.mobotix.com) > [Services](#) > [Download Center](#) > [Marketing & Documentation](#) > [White Lists](#).

### NOTE!

Additional Vaxtor ALPR License Activation key required (available from [Vaxtor](#)).

## Technical Specifications

### MOBOTIX MOVE 2MP Vandal Bullet ALPR Camera

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#### Operational Range

- Monitors 1 or 2 lanes
- **Mx-VB1A-2-IR-ALPR:**
  - Reading distance up to 18 m/59 ft
  - Effective IR distance up to 20 m/66 ft
  - Recommended speed range from 0 to 60 km/h/37.3 mph
  - Suitable for low-speed scenarios: parking, Smart City traffic, etc.
- **Mx-VB1A-2-IR-D-ALPR:**
  - Reading distance up to 35 m/115 ft
  - Effective IR distance up to 35 m/115 ft
  - Recommended speed range from 0 to 160 km/h/99.4 mph (up to 200 km/h/124.3 mph)
  - Suitable for low-speed to high-speed scenarios: parking, Smart City traffic, urban traffic, highway traffic, etc.
- Min. to max. characters height: 14 to 70 pixels.
- Operates under extreme conditions such as low lighting, shadows, over-exposed/damaged/dirty plates
- Operates in bad weather and with extreme angles while maintaining high-accuracy readings

#### Vaxtor ALPR

#### Vaxtor Machine/Deep Learning Engine

#### MOBOTIX ALPR

#### MOBOTIX Machine/Deep Learning Engine

- Full support of over a hundred countries (full list available upon request)
  - High-performance DNN-based OCR engine for selected countries (full list available upon request)
  - Support of Latin, Arabic, and Thai alphabets, GCC members, and enhanced North America state recognition
  - Min. to max. characters height: 13 to 70 pixels (recommended 25 to 30)
  - Max. rotation X (pitch) vertical angle  $\pm 60^\circ$  (max  $\pm 25^\circ$  for optimal performance)
  - Max. rotation Y (yaw) horizontal angle  $\pm 65^\circ$  (max  $\pm 25^\circ$  for optimal performance)
  - Max. rotation Z (roll)  $\pm 35^\circ$  (max  $\pm 10^\circ$  for optimal performance)
  - Vehicle category, make, model, and color classification
  - Direction of travel reporting/filtering
  - Achieves >99% accuracy (several third-party independent assessments)
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Results Integration	<ul style="list-style-type: none"> <li>■ Both push and pull modes supported (API available)</li> <li>■ Generic HTTP XML/2x JSON</li> <li>■ TCP/IP proprietary protocol (open)</li> <li>■ UTMC</li> <li>■ FTP</li> <li>■ TCP server</li> <li>■ Branded SW/VMS integration: MOBOTIX HUB, Genetec Security Center, Milestone XProtect, Axis Camera Station, Helix, Network Optix, among others.</li> <li>■ Branded HW integration: MOBOTIX MOVE NVRs.</li> </ul>
Additional Features	<ul style="list-style-type: none"> <li>■ Failover capabilities for transmission of results</li> <li>■ Embedded whitelist/blacklist management</li> <li>■ Video overlay</li> <li>■ Customizable local relay triggering</li> <li>■ Free-flow or signaled modes</li> <li>■ 64 GB SD card pre-installed</li> </ul>

## System Integration

Base Video Analytics	<ul style="list-style-type: none"> <li>■ Motion detection</li> <li>■ Audio detection</li> </ul>
Event Triggers	<ul style="list-style-type: none"> <li>■ External input</li> <li>■ Analytics</li> <li>■ Network failure detection</li> <li>■ Periodical event</li> <li>■ Manual trigger</li> <li>■ MxMessageSystem messages</li> </ul>
Event Actions	<ul style="list-style-type: none"> <li>■ External output activation</li> <li>■ Video and audio recording to edge storage</li> <li>■ File upload: FTP, network share and email</li> <li>■ Notification: HTTP, FTP, email</li> <li>■ MxMessageSystem messages</li> </ul>

## Technical Specifications

### MOBOTIX MOVE 2MP Vandal Bullet ALPR Camera

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#### General

Housing Materials	Metal Back Housing, PC Front
Housing Color	RAL 9003
Device Color	PC front cover: RAL9003 Sunshield: <ul style="list-style-type: none"><li>■ Logo color: Pantone 286C and Pantone Gray 6 Cu</li><li>■ Body color: RAL9003</li><li>■ Back metal body: RAL9003</li></ul>
Power Requirements	PoE IEEE802.3af, class 0, max 12.95 W DC12V, max 15.59 W AC24V, max 13.31 W, max 25.08 VA
PoE Modes Supported	Mode A or Mode B
Connectors	RJ45, Alarm in x2, Alarm out x1, Audio in, Audio out terminal block, DC12V/AC24V terminal block, CVBS Connector COAX (75 Ohm) (CVBS output available with max. 2 activated streams)
IR Illumination	850 nm; up to 50 m/164 ft distance depending on reflection of scenery (visual), 20 m/66 ft for ALPR
Video Storage	microSD/SDHC/SDXC card support up to 1 TB, Support for recording to NAS, MOBOTIX HUB, MOBOTIX MOVE NVR
SD Card pre-installed	64 GB
Environmental Protection Class	IP66, IP67 and IK10
Operating Temperature	-55 to 60 °C/-67 to 140 °F with integrated heater ON
Cold Start Temperature	-30 °C/-22 °F
Relative Humidity	90 % non-condensing
Storage Conditions	-20 to 70 °C/-4 to 158 °F
Approvals	EMC: CE, FCC, BIS Safety: LVD Environmental: IP66, IP67, IK10

MTBF	95,000 hours
Warranty	5 years
Dimensions	ø 105x232 mm
Weight	1280 g

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**NOTE!**

Observe the [MOBOTIX MOVE Installation Hints](#) document to ensure optimum performance of the camera features.

## Alarm Input/Output Current and Voltage

**Alarm In**

3.3 V with 10 kΩ pull up, 50 mA

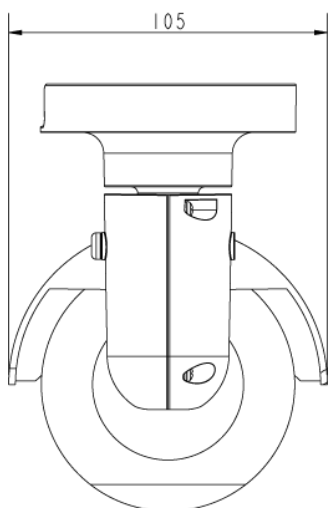
**Alarm Out**

350 V DC/AC, 130 mA

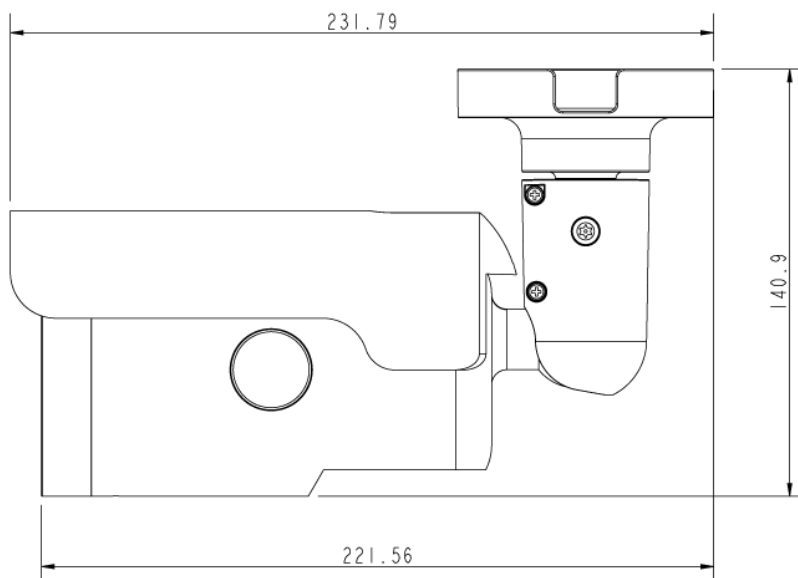
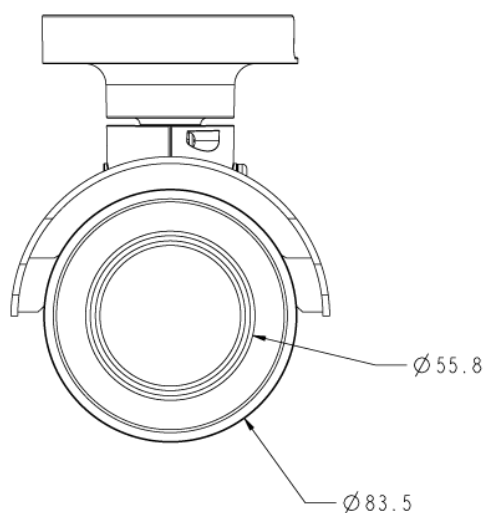
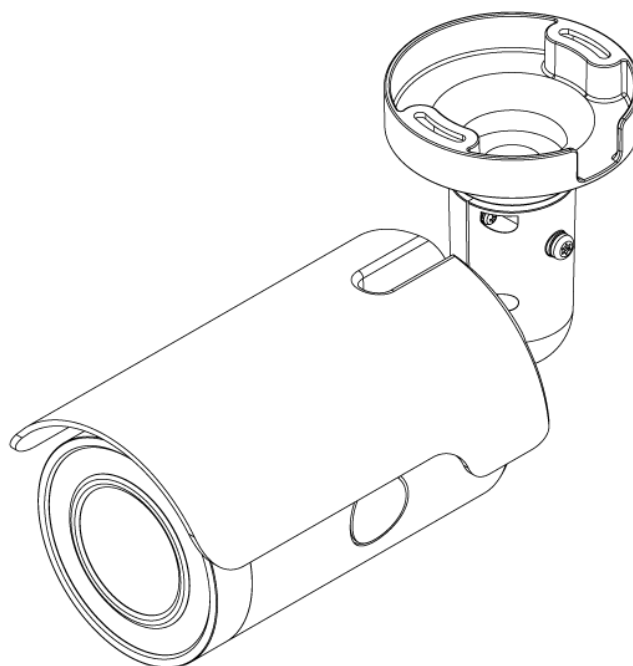
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# Dimensions

**NOTE!** Drilling template: [www.mobotix.com](http://www.mobotix.com) > Services > Download Center > Marketing & Documentation > Drilling Templates.

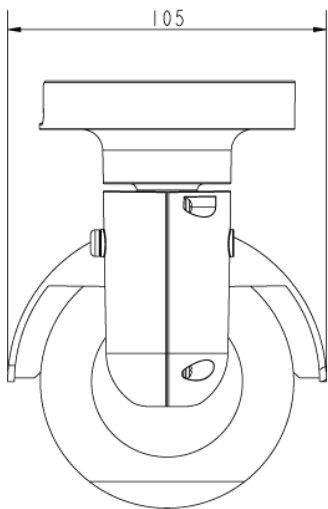


**Mx-VB1A-2-IR-ALPR**

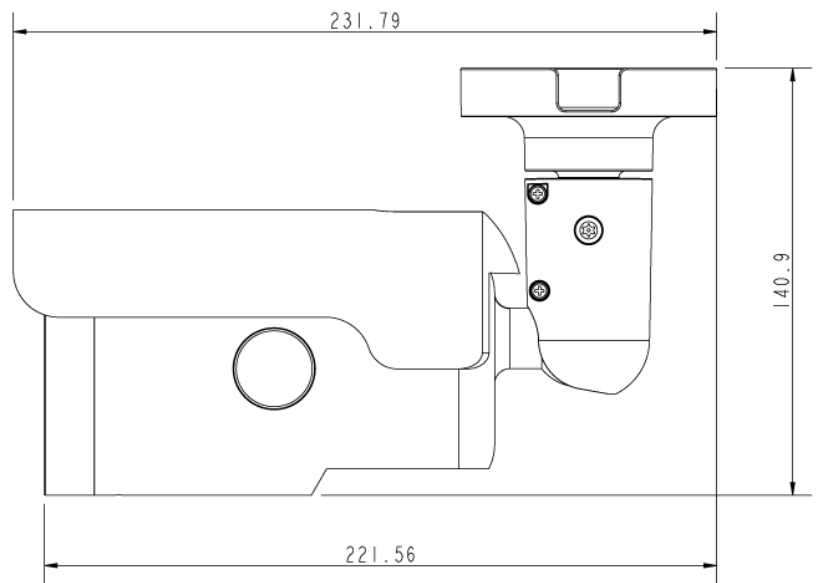
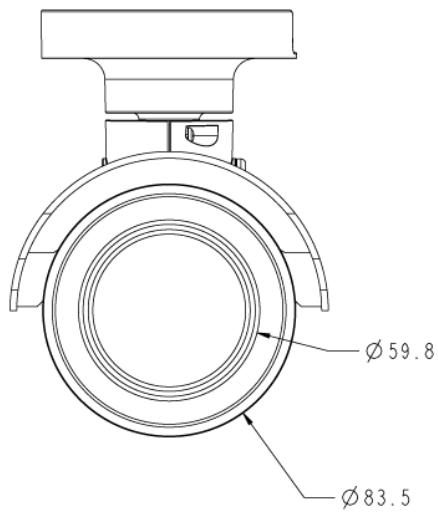
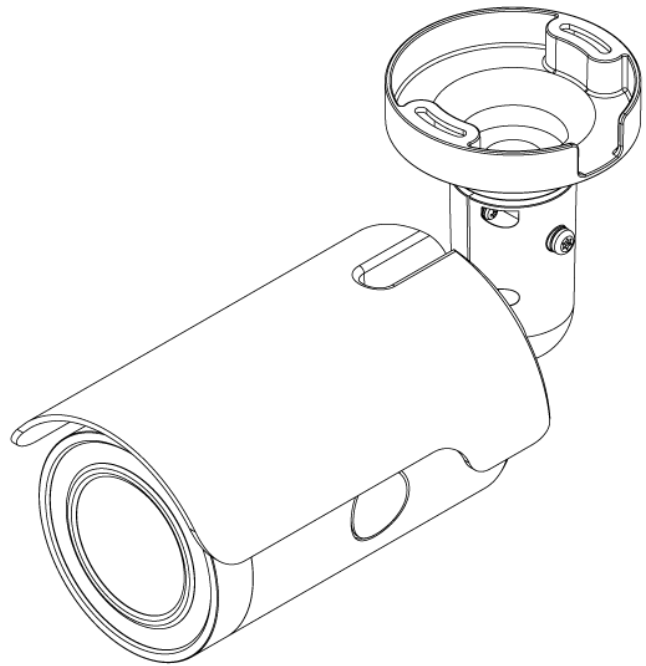


**Fig. 1: Mx-VB1A-2-IR-ALPR: All measurements in mm**

Technical Specifications  
MOBOTIX MOVE 2MP Vandal Bullet ALPR Camera



**Mx-VB1A-2-IR-D-ALPR**




**Fig. 2: Mx-VB1A-2-IR-D-ALPR: All measurements in mm**

## Accessories for Bullet Cameras

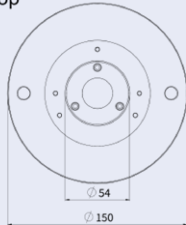
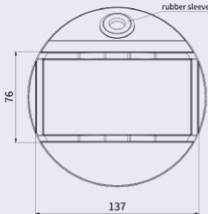
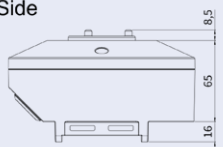
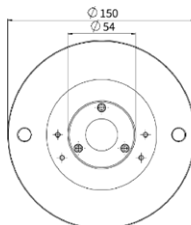
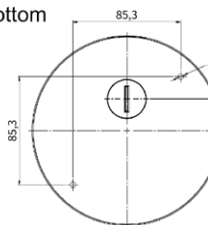
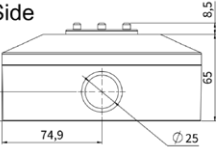
Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
 <p>Mx-M-BC-P</p>	Weatherproof pole mount for MOVE Bullet cameras (IP66, IP67).	All MOVE Bullet cameras except Mx-BC1A-2-IR.	Die-cast ADC12 aluminium alloy, hammer blow-painted RAL9003	1.0 kg
 <p>Mx-M-BC-W</p>	Weatherproof wall mount for MOVE Bullet cameras (IP66, IP67).	All MOVE Bullet cameras except Mx-BC1A-2-IR.	Die-cast ADC12 aluminium alloy, hammer blow-painted RAL9003	0.84 kg
 <p>Mx-A-VB-FGK-EC</p>	<b>EverClear-coated</b> front glass for MOVE2, 5, and 8 MP Vandal Bullet cameras.	All MOVE Vandal Bullet (VB) cameras <b>from Nov. 2021</b> .	Aluminum, glass, rubber	0.033 kg

# Technical Specifications

## MOBOTIX MOVE 2MP Vandal Bullet ALPR Camera

Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
 <p>Mx-A-VB1A-2-IR-ALPR-FGK-EC</p>	<p><b>EverClear-coated</b> front glass for MOVE 2MP ALPR cameras.</p>	<p>MOVE 2MP ALPR camera Mx-VB1A-2-IR-ALPR.</p>	<p>Aluminum, glass, rubber</p>	<p>0.033 kg</p>
 <p>Mx-A-VB1A-2-IR-D-ALPR-FGK-EC</p>	<p><b>EverClear-coated</b> front glass for MOVE 2MP ALPR (<b>D variant</b>) cameras.</p>	<p>MOVE 2MP ALPR camera Mx-VB1A-2-IR-D-ALPR.</p>	<p>Aluminum, glass, rubber</p>	<p>0.033 kg</p>

## Dimensions

Order Code	Dimensions		
Mx-M-BC-P	<p>Top</p> 	<p>Bottom</p> 	<p>Side</p> 
Mx-M-BC-W	<p>Top</p> 	<p>Bottom</p> 	<p>Side</p> 

All measurements in mm.

# Accessories for All Cameras

Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
 <p data-bbox="245 927 517 958">MX-NPA-UPOE1A-60W</p>	<p data-bbox="608 376 935 407">UPoE Power Injector 60W.</p> <p data-bbox="608 427 986 1144">PoE++ 60W Network Power injector • AC Input Voltage: 100 to 240 VAC (50 to 60Hz) • AC Input Current: 1.5A @100-240 VAC • Operating Ambient Temperature: • -10° to 40°C @60W • -10° to 50°C, humidity 10 to 90% @30W • IEEE 802.3bt compliant • Output power of 60W over 4-pairs • Supports 10/100/1000Base-T applications • Plug-and-play installation • Full Protection OVP, OCP• Supports 10/100/1000Base-T applications.</p>	<p data-bbox="1003 376 1158 407">All cameras.</p>	<p data-bbox="1230 376 1358 454">Plastic housing, black</p>	<p data-bbox="1410 376 1506 407">0.45 kg</p>

## Technical Specifications

### MOBOTIX MOVE 2MP Vandal Bullet ALPR Camera

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**Picture/  
Order Code**



Mx-A-ETP1A-2601-SET

**Description**

Media converter set Ethernet (PoE+) – Twisted-Pair. Complete set consisting of two two-wire transmit/receive units for establishing an Ethernet transmission path via twisted-pair cables. • Transmission of Ethernet and PoE+ power supply via two-wire line according to IEEE1901. • Simple connection of 10/100 Mbps Ethernet end devices • Max. 95 Mbps transmission bandwidth, range up to 600 m/656 yd for data only, 300 m/328 yd for PoE depending on the quality of the twisted-pair link • 128 bit AES network data encryption • Power supply 2-wire transmitter (Tx) and receiver (Rx) as well as end device via PoE+ network switch or external power supply 56VDC / 1.2A (not included!) • Connected end devices are supplied via PoE switch IEEE802.3af(PoE), IEEE802.3at (PoE+), UPoE up to 60W (requires ext. power supply unit). • Status LEDs (data, power supply, data link, PoE) • Integrated Over-voltage protection (IEC 61000-4-5 4kV(1.2 / 50us), 2kA(8 / 20us)) • Power Supply: TX: T-

**Compatible  
Products**

All cameras. Requires Mx-A-ETP1A-2601-POW.

**Material/  
Color**



Plastic housing, black

**Weight**

0.368 kg

## Technical Specifications

### MOBOTIX MOVE 2MP Vandal Bullet ALPR Camera

Picture/ Order Code	Description	Compatible Products	Material/ Color	Weight
 <p data-bbox="236 1160 523 1189">Mx-A-ETP1A-2601-POW</p>	<p data-bbox="608 371 978 678">Linx or DC12V~57V, RX: PoE Switch or DC48V~57V • Operational temperature: -20 to 60°C • Dimensions: 80.4(L) x 61.6(W) x 24(H)mm • Weight: RX/TX: 102g • Warranty: 2 years</p>	<p data-bbox="1003 707 1158 779">Mx-A-ETP1A-2601-SET</p>	<p data-bbox="1233 707 1353 779">Plastic housing, black</p>	<p data-bbox="1410 707 1505 736">0.49 kg</p>
 <p data-bbox="300 1637 459 1666">MX-SWITCH1</p>	<p data-bbox="608 1223 978 1807">MOBOTIX network switch for DIN (top-hat) rail mounting. 5x RJ45 port with 100 MBit/s (1x uplink, 4x PoE+ with max. 75 W). Supply: 48 V DC, max. 75 W. Simplified cabling for door stations due to available connectivity for anti-theft protection, door opener and MxBus. MxBus, anti-theft protection, door and lock contact can be connected via separate wires of Ethernet cable.</p>	<p data-bbox="1003 1223 1158 1252">All cameras.</p>	<p data-bbox="1233 1223 1353 1294">Plastic housing, gray</p>	<p data-bbox="1410 1223 1505 1252">0.31 kg</p>

## Further Reading

[Manuals and Quick Installation documents](#)



[Technical Specifications](#)



[MOBOTIX MOVE Installation Hints](#)



[MOBOTIX Community](#)



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EN\_07/26

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