



# Technical Specifications

## MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

Supported by high-performance DNN processor/SoC in combination with state-of-the-art CMOS video sensor, the MOBOTIX MOVE 5MP IR Video Analytics Speed Dome is much more than just standard, providing crisp, noise-free and smooth video streaming at high 5MP resolution even under extreme low-light conditions. The integrated DNN-based video analytics functions include face and license plate recognition that can be combined with preset PTZ positions to enable a wide variety of 24/7 video surveillance applications. 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.

- High light sensitivity: 0.02 Lux color, 0.001 Lux B/W
- 40x motorized zoom/focus lens 4.3 to 170 mm
- WDR up to 130 dB
- Integrated IR illumination up to 300 m/984 ft
- Quad streaming H.264/H.265/MJPEG
- Intelligent encoding, smart low-bitrate control
- MOBOTIX MxMessageSystem
- 2D & 3D motion-compensated noise reduction (MCTF)
- ONVIF Profile S/G/T/M support
- Electronic image stabilizer (EIS)
- Auto object tracking, DNN-based (persons, vehicles)
- DNN video analytics (8 VA, Face & ALPR) linkable to PTZ presets & smart event functions
- Smart Event Functions
- microSD/SDHC/SDXC card support up to 1 TB
- Dual power support (IEEE802.3bt/AC24V)
- Outdoor protection rate IP66, IK10 housing
- Temp. Range -40 to 55 °C/-40 to 131 °F with heater
- EverClear coating of front glass



BeyondHumanVision

MOBOTIX MOVE

## Technical Specifications

### MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

#### High-Quality DNN Edge Video Analytics



The latest computer vision technology makes the DNN-accelerated video processing engine efficient at the edge. This integrated engine provides high accuracy, real-time object tracking, and 10 (DNN-based) video analytics functions including ALPR and human face recognition. Moreover, it allows simultaneous detection on multiple objects.

#### 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	5MP IR Video Analytics Speed Dome
Order Code	Mx-SD1A-540-IR-VA

## Hardware Design

Processor	Ambarella CV25 (Quad-core ARM® Cortex®-A53, 1 GHz)
Memory	RAM: 512 MBytes FLASH: 256 MBytes
Image Sensor	5MP, 1/2.8" Progressive CMOS IMX675 (SONY STARVIS 2)
Effective (Used) Pixels	2688x1944 (5MP)

---

## Lens

Minimum Illumination	Color: 0.02 Lux B/W: 0.001 Lux F1.6, AGC=on, 30 IRE, 1/1 s
Lens Characteristics	Zoom Lens: Zoom, Auto Focus, P-IRIS, Auto-IRIS Focal Length: 4.3 to 170 mm Aperture: F1.6 – F4.95 Horizontal Field of View: 62.6° (Wide), 1.9° (Tele) Vertical Field of View: 48.8° (Wide), 1.4° (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	Automatically switchable IR-cut filter
Shutter Speed (Auto)	1 to 1/10000 s
Shutter Speed (Manual)	WDR: 1/67500 s Linear: 1/135000 s
Shutter Priority Mode	Up to 1/45 s

---

## Technical Specifications

### MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

---

Frame Rate (maximum)	<b>WDR on/off:</b> H.265/H.264: 5MP@30 fps MJPEG: 1080p@30 fps
Auto Gain	Min. gain: 3 dB, max. gain: 48 dB, step size: 3
WDR	Up to 130 dB
Electronic Image Stabilizer (EIS)	Yes
Auto Object Tracking	On/off (object-based DNN algorithm: humans/vehicles selectable)
Zoom	Optical: 40x, Digital: 10x
Image Settings	Color, Brightness, Sharpness, Contrast, White Balance, Exposure Control, 2DNR, 3DNR, NR by Motion, Masking, Text Overlay
Image Rotation	90°, 180°, 270°
Servo Feedback	Yes

---

## PTZ Features

Preset positions	Up to 256 positions, 1 Home position
Sequences	Up to 8 sequences with 64 preset positions each
Cruise Paths	Up to 8
Auto Pan Paths	Up to 4
Display Position	Pan/Tilt degrees can be displayed in live image
Pan Range	360° endless
Tilt Range	-20° to +100°
Pan Speed	Manual Pan Speed: 0.1°-90°/s Preset Pan Speed: 300°/s
Tilt Speed	Manual Tilt Speed: 0.1°-55°/s Preset Tilt Speed: 300°/s
Joystick/Keypoint Control	RS485 protocols DSCP, Pelco-D and Pelco-P
Video Analytics	Presets can be combined with 1 selectable integrated video analytics feature

---

## 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.

---

## Audio Codec

Compression/Encoding	G.711/G.726/AAC/LPCM
Streaming	Bi-directional
Audio Input	Line In Max. 2.28 V <sub>pp</sub> for line signal Input impedance: 33 kΩ
Audio Output	Line Out Output resistance: 220 Ω Output voltage: 1 V <sub>rms</sub>

---

## 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)

---

## Technical Specifications

### MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

---

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)

## Network

Interface	10/100 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, VPN
ONVIF conformance	Supports profiles S/G/T/M
Supported Browsers	All current browsers are supported.

---

## System Integration

Base Video Analytics	<ul style="list-style-type: none"><li>▪ Motion detection</li><li>▪ Audio detection</li></ul>
Enhanced DNN-Based Video Analytics (linkable to PTZ presets)	<ul style="list-style-type: none"><li>▪ Abandoned objects</li><li>▪ Intrusion (object classification/filtering for people, vehicles, etc.)</li><li>▪ Sabotage</li><li>▪ Wrong direction</li><li>▪ Loitering (object classification/filtering for people, vehicles, etc.)</li><li>▪ Object counting (object classification/filtering for people, vehicles, etc.)</li><li>▪ Object removal</li><li>▪ Stopped vehicle (object classification/filtering)</li></ul> <p>2 analytics functions can be activated simultaneously</p>

---

Enhanced DNN-Based Video Analytics  
(linkable to PTZ presets)

- Face Recognition (incl. gender & age estimation)
- Number Plate Recognition – supported countries: Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Moldova, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, Turkey, Ukraine, United Kingdom, Uzbekistan, Vietnam

Event Triggers

- External input
- Analytics
- Network failure detection
- Periodical event
- Manual trigger
- MxMessageSystem messages

Event Actions

- External output activation
- Video and audio recording to edge storage
- File upload: FTP, network share and email
- Notification: HTTP, FTP, email
- MxMessageSystem messages

## General

Housing Materials	Metal and plastic
Housing Color	RAL 9003
Power Requirements	IEEE802.3bt, Type 3, class 6, max 51.00 watt AC24V, max 59.05 watt, max 87.12 VA

## Technical Specifications

### MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

---

Connectors	<ul style="list-style-type: none"><li>▪ RJ45</li><li>▪ 4 x Alarm in, 2x Alarm out, Audio in, Audio out, RS485 terminal block</li><li>▪ AC24V terminal block</li><li>▪ CVBS connector (available with max. 2 activated streams)</li></ul>
------------	--

IR Illumination	850 nm; up to 300 m/984 ft distance depending on reflection of scenery
-----------------	--

Video Storage	Micro SD/SDHC/SDXC card support up to 1 TB (using SD card adapter), Support for recording to NAS, MOBOTIX HUB, MOBOTIX MOVE NVR
---------------	--

Remotely Upgradable	Yes
---------------------	-----

Environmental Protection Class	IP66/IK10 (housing only)
--------------------------------	--------------------------

Operating Temperature	-40 to 55 °C/-40 to 131 °F with heater
-----------------------	--

Relative Humidity	90 % non-condensing
-------------------	---------------------

Storage Conditions	-20 to 70 °C/-4 to 158 °F
--------------------	---------------------------

Approvals	EMC: CE, FCC, BIS Safety: LVD
-----------	----------------------------------

MTBF	50,000 hours
------	--------------

Warranty	5 years; mechanically wearable parts (motor, gears, belts, etc.) excluded
----------	---

Dimensions	ø 207 x 249 mm
------------	----------------

Weight	3800 g
--------	--------

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

## Alarm Input/Output Current and Voltage

### Alarm In

5 V with 10 kΩ pull up, 50 mA

### Alarm Out

400 V DC/AC, 120 mA



# DORI Specifications

In the video surveillance context, “DORI” stands for Detection, Observation, Recognition and Identification and is based on IEC EN62676-4: 2015. These levels define the minimum pixels that a face of a person must have to provide proper identification, for example.

- **Detection:** Up to this distance, you can reliably determine if a person or vehicle is present.
- **Observation:** Up to this distance, you can see characteristic details of an individual, such as distinctive clothing.
- **Recognition:** Up to this distance, you can determine with a high degree of certainty whether an individual is the same as someone that has been seen before.
- **Identification:** Up to this distance, you can determine the identity of an individual beyond reasonable doubt.

DORI Level	Detection		Observation		Recognition		Identification	
	Wide	Tele	Wide	Tele	Wide	Tele	Wide	Tele
Mx-SD1A-540-IR-VA	91 m/ 299 ft	3182 m/ 10440 ft	36 m/ 118 ft	1263 m/ 4144 ft	18 m/ 59 ft	636 m/ 2087 ft	9 m/ 30 ft	318 m/ 1043 ft

# Dimensions

**NOTE!** Download the drilling template from the section or on the MOBOTIX website: [www.mobotix.com](http://www.mobotix.com) > [Support](#) > [Download Center](#) > [Marketing & Documentation](#) > [Drilling Templates](#).

**CAUTION!** Always print or copy the drilling template at 100% of the original size!

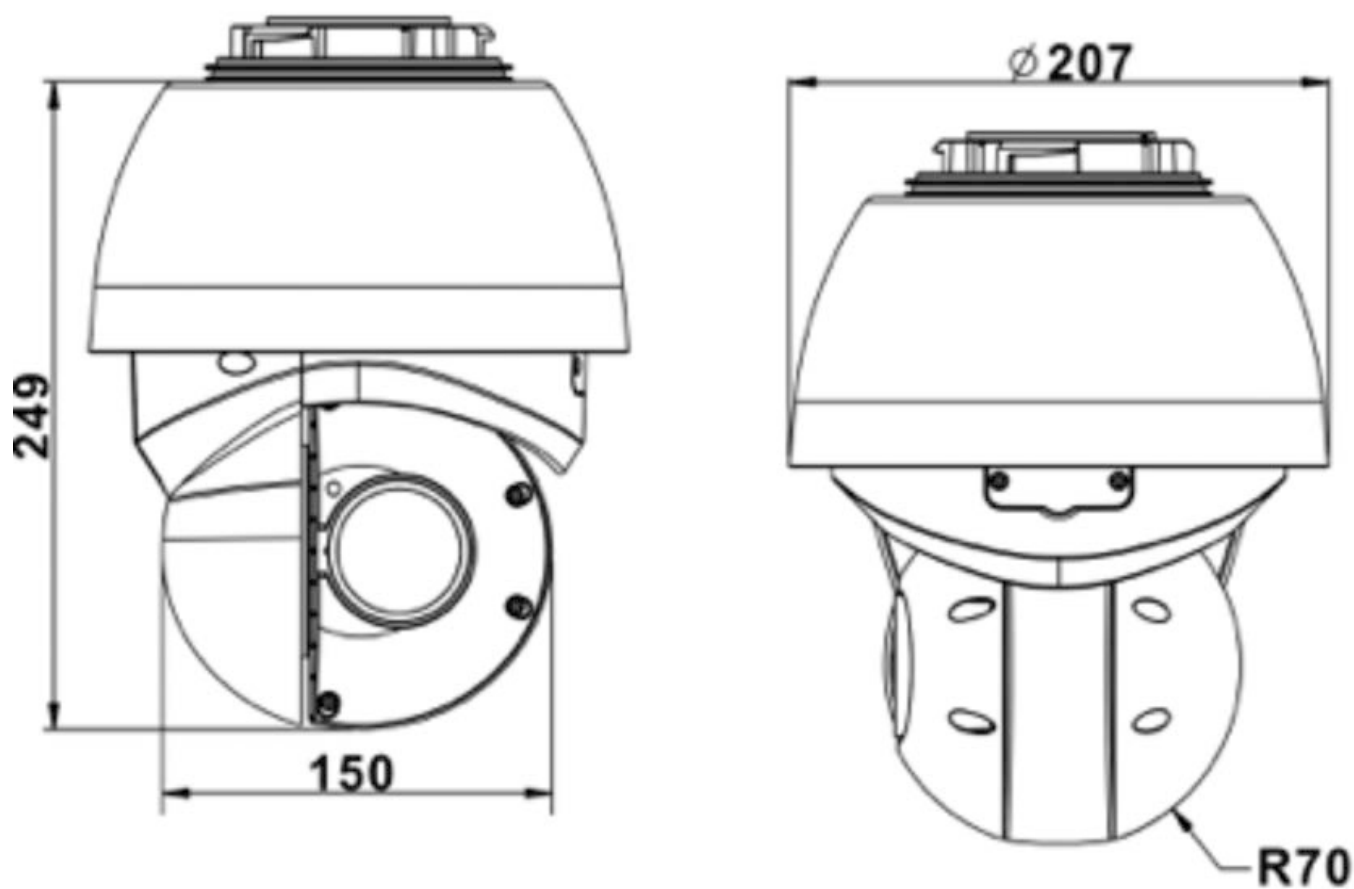




Fig. 1: Mx-SD1A-540-IR-VA: All measurements in mm

# Accessories for Speed Dome Cameras



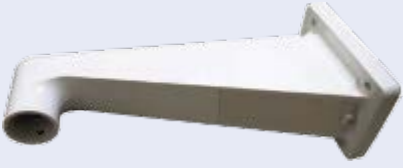
Order Code/ Picture	Description	Compatible Products	Material/ Color	Weight
<p data-bbox="323 524 456 553">Mx-M-SD-C</p> 	<p>Weatherproof corner mount for MOVE Speed Dome cameras.</p>	<p>All MOVE Speed Dome (SD) cameras.</p> <p>Requires Mx-M-SD-W or Mx-M-SD-WL.</p>	<p>Aluminum, RAL9003</p>	<p>2.17 kg</p>
<p data-bbox="323 1039 456 1068">Mx-M-SD-P</p> 	<p>Weatherproof pole mount for MOVE Speed Dome cameras.</p>	<p>All MOVE Speed Dome (SD) cameras.</p> <p>Requires Mx-M-SD-W or Mx-M-SD-WL.</p>	<p>Aluminum, RAL9003</p>	<p>1.58 kg</p>

**CAUTION!**  
 Cannot be used with MX-M-SD-WM!

**CAUTION!**  
 Cannot be used with MX-M-SD-WM!

## Technical Specifications



### MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

Order Code/ Picture	Description	Compatible Products	Material/ Color	Weight
MX-MH-SecureFlex-ESWS 	Weatherproof pole mount for MOVE Speed Dome cameras <b>for extreme conditions.</b>	All MOVE Speed Dome (SD) cameras.  Requires Mx-M-SD-W or Mx-M-SD-WL.	3 mm stainless steel, white	1.23 kg
Mx-M-SD-W 	Weatherproof wall mount for MOVE Speed Dome cameras.	All MOVE Speed Dome (SD) cameras.  Can be combined with Mx-M-SD-C or Mx-M-SD-P.	Aluminum, RAL9003	0.84 kg
Mx-M-SD-WL 	Extended weatherproof wall mount for MOVE Speed Dome cameras.	All MOVE Speed Dome (SD) cameras.  Can be combined with Mx-M-SD-C or Mx-M-SD-P.	Aluminum, RAL9003	1.5 kg

**CAUTION!**

Cannot be used with MX-M-SD-WM!

MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

Order Code/ Picture	Description	Compatible Products	Material/ Color	Weight
MX-M-SD-WM 	Weatherproof wall mount for MOVE Speed Dome cameras. Can also be mounted on top of wall mount junction box MX-M-SD-WMJB.	All MOVE Speed Dome (SD) cameras.	Aluminum, RAL9003	1.3 kg
MX-M-SD-WMJB 	Weatherproof wall mount junction box (IP66) for MOVE Speed Dome cameras. Allows for comfortable cabling and installation of additional HW equipment such as PoE Injectors, lightning protection, etc.	All MOVE Speed Dome (SD) cameras.		4.8 kg

**NOTE!** Can be combined with MX-M-SD-WMJB (wall mount is mounted on top of junction box).


**CAUTION!** Only to be used as base for Mx-M-SD-WM (wall mount is mounted on top of junction box).

## Technical Specifications

### MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

Order Code/ Picture	Description	Compatible Products	Material/ Color	Weight
MX-M-SD-PM 	Pendant mount kit incl. base mount, 25 cm/10 in pendant pipe, installation materials and safety wires 50 cm/20 in & 1 m/39 in.	All MOVE Speed Dome (SD) cameras.	Aluminum, RAL9003	1.58 kg
MX-M-SD-PMEXT 	Extension pipe 25 cm/10 in for MX-M-SD-PM.	Extends MX-M-SD-PM; max. extended total length is 1 m/39 in (3 extensions).	Aluminum, RAL9003	0.8 kg

MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

Order Code/ Picture	Description	Compatible Products	Material/ Color	Weight
MX-M-SD-GN 	Weatherproof parapet mount (gooseneck) (IP66) with integrated junction box for MOVE Speed Dome cameras.  Integrated junction box allows for comfortable cabling and installation of additional HW equipment such as PoE Injectors, lightning protection, etc.	All MOVE Speed Dome (SD) cameras.		14.8 kg
Mx-A-SD-DCS 	Tinted replacement dome for MOVE Speed Dome cameras SD-230 and SD-330.	All MOVE Speed Dome (SD) cameras SD-230 and SD-330.	Polycarbonate, tinted	0.3 kg
Mx-A-SD-DCT 	Clear replacement dome for MOVE Speed Dome cameras SD-230 and SD-330.	All MOVE Speed Dome (SD) cameras SD-230 and SD-330.	Polycarbonate, clear	0.3 kg

## Technical Specifications

### MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

---

Order Code/ Picture	Description	Compatible Products	Material/ Color	Weight
Mx-A-SD-DBC-EC 	Clear <b>EverClear-coated</b> replacement dome for MOVE Speed Dome cameras SD-230 and SD-330.	All MOVE Speed Dome (SD) cameras SD-230 and SD-330.	Polycarbonate, clear	0.58 kg
MX-A-SD-DBT-EC 	Tinted <b>EverClear-coated</b> replacement dome for MOVE Speed Dome cameras SD-230 and SD-330.	All MOVE Speed Dome (SD) cameras SD-230 and SD-330.	Polycarbonate, tinted	0.58 kg

---



## Dimensions



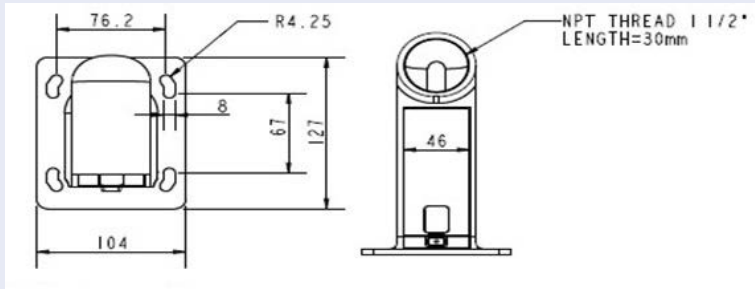
# Technical Specifications

## MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

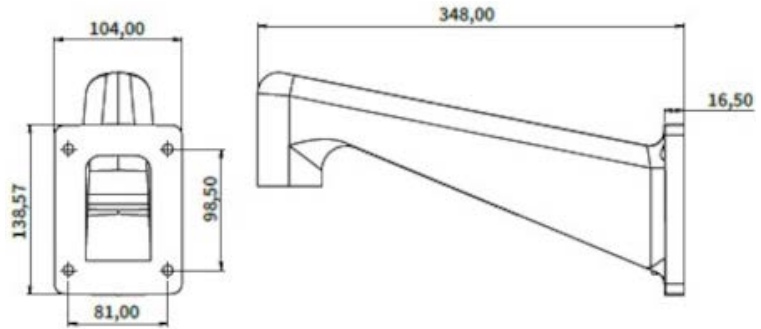
### Order Code

### Dimensions

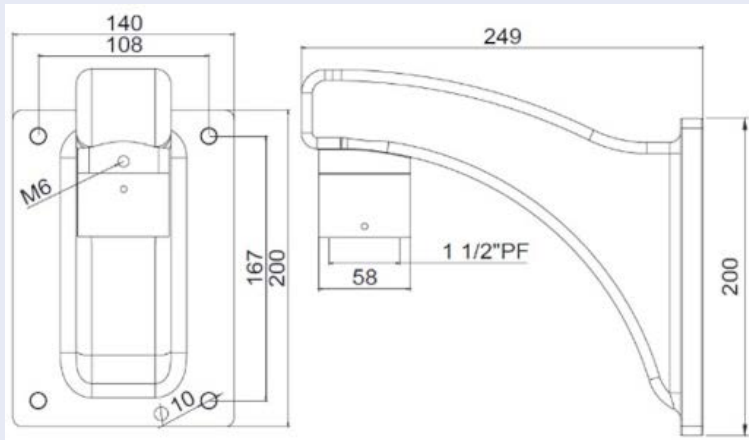
Mx-M-SD-W



Mx-M-SD-WL



MX-M-SD-WM



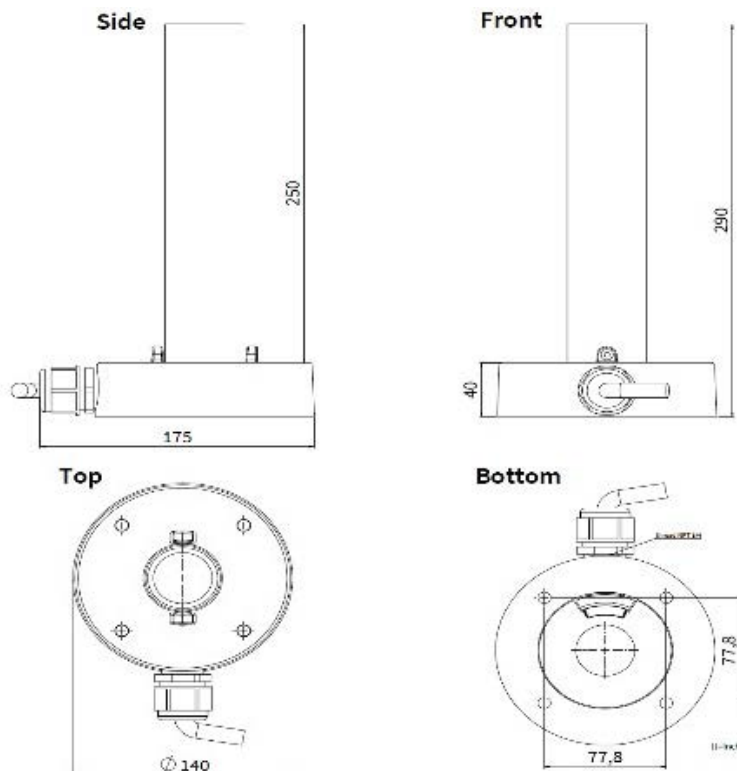
## Technical Specifications

### MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

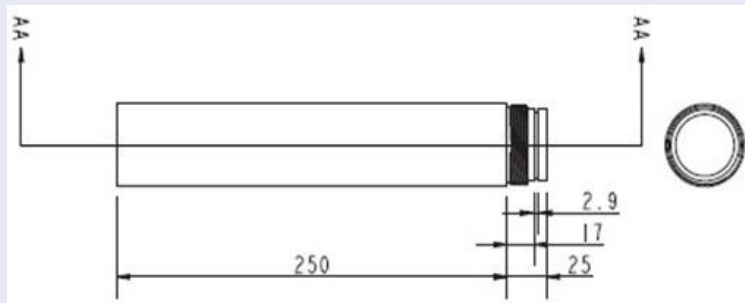
#### Order Code

MX-M-SD-PM

#### Dimensions



#### MX-M-SD-PMEXT



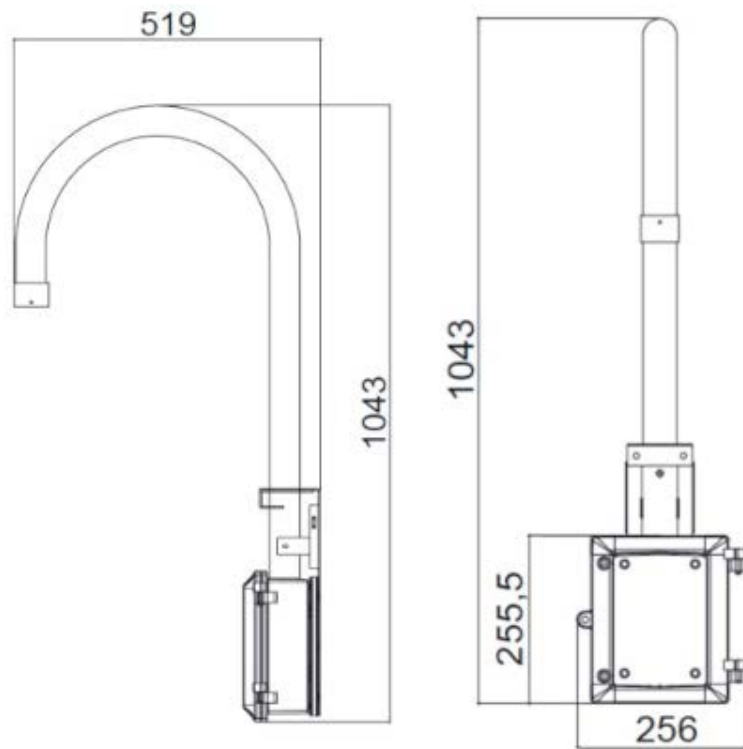
# Technical Specifications

## MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

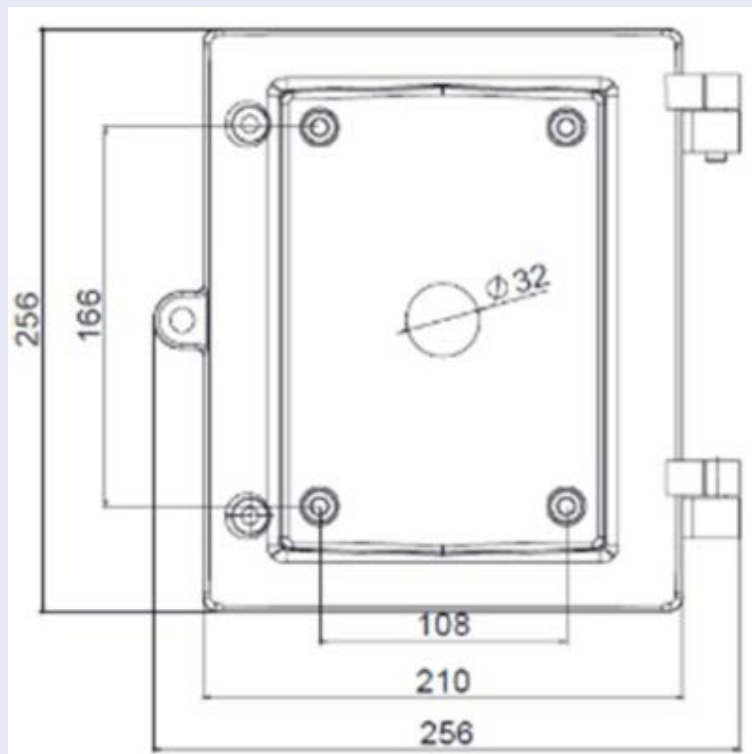
### Order Code

MX-M-SD-GN

### Dimensions



MX-M-SD-WMJB



## Accessories for All Cameras

Order Code/ Picture	Description	Compatible Products	Material/ Color	Weight
Mx-NPA-PoE1A-60W-BT	<p>PoE++ Power Network Injector 60 Watt.</p> <p>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 • Additional required power cord C14-type not included • Warranty: 1 year.</p>	All cameras.	Plastic housing, black	0.318 kg
				
Mx-A-ETP1A-2601-POW	<p>Plug-type power supply for Mx-A-ETP1A-2601-SET.</p> <p>Output: 57V DC +/-3% / 1.2 A • Input: 90-260V AC (47-63Hz) • 68,4 Watt • Operating Temperature: 0-40°C/32-122°F</p>	Mx-A-ETP1A-2601-SET	Plastic housing, black	0.49 kg
				

MOBOTIX MOVE 5MP IR Video Analytics Speed Dome

Order Code/ Picture	Description	Compatible Products	Material/ Color	Weight
Mx-A-KBD1A-PTZ-JOG 	<p>MOBOTIX USB Keyboard with PTZ Joystick &amp; Jog-Shuttle. USB control panel for operating MOBOTIX MxMC 2.6 and higher and MOBOTIX HUB incl. Control of software PTZ and motorized PTZ cameras and pan/tilt devices • Integrated 3-axis joystick • Integrated jog shuttle • 38 control keys with backlight predefined for MxMC functions or freely definable for MOBOTIX HUB • Integrated alarm buzzer • Suitable for operation as HID device on MOBOTIX VMS with Windows and MAC based operating systems via USB 2.0 • Suitable for right- and left-handed users • Power supply: USB, max. 350 mA • Operating temperature: 0°–45°C/32–113 °F.</p>	<p>All cameras. Requires Windows or macOS computer with USB 2.0 or better.</p>	<p>Plastic housing, black</p>	<p>1.9 kg</p>
MX-SWITCH1 	<p>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>All cameras.</p>	<p>Plastic housing, gray</p>	<p>0.31 kg</p>

## Further Reading

[Manuals and Quick Installation documents](#)



[Video Analytics Manual](#)



[Technical Specifications](#)



[MOBOTIX MOVE Installation Hints](#)



[MOBOTIX Community](#)





# MOBOTIX

BeyondHumanVision

EN\_10/24

MOBOTIX AG • Kaiserstrasse • D-67722 Langmeil • Tel.: +49 6302 9816-103 • sales@mobotix.com • www.mobotix.com

MOBOTIX is a trademark of MOBOTIX AG registered in the European Union, the U.S.A., and in other countries. Subject to change without notice. MOBOTIX do not assume any liability for technical or editorial errors or omissions contained herein. All rights reserved. © MOBOTIX AG 2021