

Miovision Detection

Move traffic through your network quickly and safely

Understand demand at your intersection so you can safely and efficiently move traffic through your city. With reliable, accurate presence and pulse detection you can control and optimize traffic flow, identify and handle demand, and reduce the number of opportunities for traffic incidents to occur.

Easy to install and maintain

Non-invasive installation minimizes disruption to your traffic network saving you time and resources.

- Above ground installation is easy to install and troubleshoot with minimal downtime
- Remote and roadside access allows you to configure devices to fit your workflow
- Supports up to six cameras and customize detection zones across all lanes of traffic at the intersection or as vehicles approach

Reliable in all conditions

Hardware and algorithms designed to provide reliable performance in all environments.

- Rugged commercial-grade components ensure maximum product life
- Accurate consistent results with algorithms that can adapt to inclement weather
- Optimized design means fewer issues at the intersection and fewer citizen complaints

Complete, accurate data

Make informed decision with data you can trust from the industry leaders in computer vision.

- Metrics for occupancy ratios, phase intervals, and arrivals on red and green
- Available rolling 90-day count data for vehicles, bicycles, and pedestrians
- Optional advance detection data for vehicles approaching the intersection



Features

The Miovision Detection solution meets the needs of today's traffic teams with:

Detection Features		Detection	Detection Plus
Detection zones	Unlimited presence and pulse detection zones	•	•
Turning Movement Counts (TMCs)	Rolling 90-day count (CSV) (vehicles, pedestrians, bicycles)		•
Detection metrics	Occupancy ratios, arrivals on red, arrivals on green, and phase interval		•
Usability Features			
Cameras	Connect up to three cameras for each Core DCM, or up to six with an additional switch (sold separately)	•	•
Advance detection	Detect vehicles as they approach from 500 ft away (requires SmartView Approach)	•	•
Remote configuration and validation	Configure and validate detection performance without a truck roll	•	•
Local configuration and data access	Connect directly via Ethernet or existing fiber to perform local configurations, access available data, and manage MQTT APIs and RTSP interfaces	•	•
Actuation Channels			
SDLC	64	•	•
GPIO header block	16 x I/O pins for actuation (fail active)	•	•

Hardware

The Miovision Detection solution is built on the industry's most versatile and scalable traffic operations hardware platform.

Miovision Core® DCM

Full-stack ITS solution for managing and analyzing your intersections

Open and secure platform provides wireless connectivity and communications to access your cabinets from anywhere. The improved modular design optimizes performance and reliability in all environments and can be upgraded to expand functionality and evolve with the development of your traffic network.

The high-performance NVIDIA Volta™ GPU enables you to process detection and count data at the source with industry-leading precision and accuracy giving you the power to make real-time decisions with accurate and complete data.

Required Hardware. See the Miovision Core DCM Datasheet for full specifications.

Industry Certified

NEMA TS-2 Compliant
UL and cUL certified power source

Cabinet Ready

64-Channel SDLC, RS232, GPIO,
Networked Ethernet, 16 actuating IOs

Secure

TPM with secure RSA key generation
and management

Camera Support

Support for two SmartView 360
cameras with future extensibility

Color Display

2.4" TFT color display



Core DCM

Miovision SmartView™ 360

Get a 360° birds eye view of your intersection

Designed for robust operation in all weather conditions delivers high-resolution video streams required by a range of traffic operations solutions.

Required Hardware. See the Miovision SmartView 360 Datasheet for full specifications.

Sensor

4K, 9 megapixel, 360° fisheye lens

Angular Field of View

Horizontal: 182°, Vertical: 176°



SmartView 360

Miovision SmartView™ Approach

Detect vehicles as they approach your intersection

Move traffic efficiently through your network by using anticipated demand to build responsive control schemes and measuring free-flow traffic to understand how effectively you are servicing demand.

Optional Hardware. See the Miovision SmartView Approach Datasheet for full specifications.

Sensor

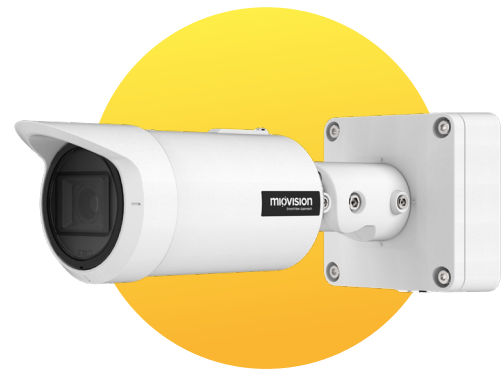
Approx. 1/2.8 type CMOS image
sensor, 1280x960

Maximum Detection Range

500'

Angular Field of View

Horizontal: 15° (Zoom),
Vertical: 9° (Zoom)



SmartView Approach

For more information, visit miovision.com/trafficlink, email us at hello@miovision.com, or call us NA Toll-free at 1-855-360-7752

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Miovision SmartView360 Hardware Specifications



The Miovision SmartView Approach[®] is a full HD outdoor bullet camera that can expand the use of your Miovision Detection solution to detect vehicles as they approach intersections from up to 500 feet. Configure multiple detection zones with single or multilane detection over four lanes and build responsive control schemes and measure free-flow traffic to understand how effectively you are servicing demand.

Contents

Kit contents	Miovision SmartView 360 Camera Pole mount Mast arm Power supply
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Device weight (not including cables)

Miovision[®] SmartView 360	1.9 lb (860 g) when using attachment plate 2.87 lb (1.3 kg) when using base bracket
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Power

Power adapter	PoE DC 48 V; 270 mA/ Approx. 12.95 W (Class 0 device)
Power consumption	Max: Typical:
Dimensions	in ? mm ?
Hold up	?

Operating conditions

Operating temp	-29° to 165°F (-34° to 74°C)
Humidity	5% - 95% RH non-condensing

Lens

Focal length	1.4 mm (1/16 inches)
Angular field of view	Horizontal : 183° Vertical : 183°
Maximum aperture ratio	1 : 1.9
Digital (electronic) zoom	Choose from 3 levels of x1, x2, x4
Focus range	0.5 m (11/16 inches) - infinity

Camera

Image sensor	1/2 type MOS image sensor, built-in primary color filter
Effective pixels	9 megapixel
Minimum illumination	Color : 0.4 lx {0.02787 footcandle} (F1.9, Maximum shutter: Off (1/30 s), AGC: 11) 0.03 lx {0.00186 footcandle} (F1.9, Maximum shutter: max. 16/30 s, AGC: 11)* BW : 0.05 lx {0.0372 footcandle} (F1.9, Maximum shutter: Off (1/30 s), AGC: 11) 0.004 lx {0.00023 footcandle} (F1.9, Maximum shutter: max. 16/30 s, AGC: 11)* * Converted value
Image Settings	Gain (AGC), White balance
Image Compensation	Adaptive black stretch, Back light compensation (BLC), Fog compensation, High light compensation (HLC), Digital noise reduction
Maximum shutter	Max.16/30s to Max. 1/10000s
Wide dynamic range	On/Off
Adaptive Black Stretch	On/Off (only when Wide Dynamic range: Off)
Super Dynamic*2	On / Off, the level can be set in the range of 0 to 31
Day & Night (ICR)	Off/On / Auto1(Normal)
Back focus	Auto back focus/ Focus/ Adjusting method (Auto/ Preset/ Fix)

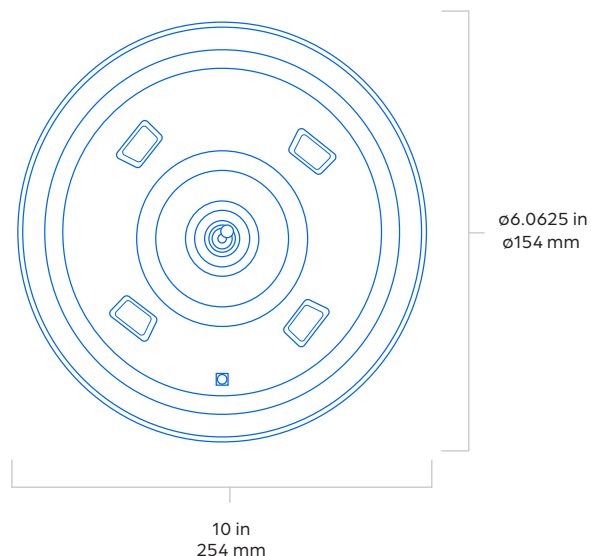
Network

Network IF	10Base-T / 100Base-TX, RJ45 connector
Resolution	H.264, H.265, MJPEG Fisheye mode (max.30 fps): 2992x2992 / 2192x2192 / 1280x1280 / 640x640 / 320x320
Transmission mode	Constant bit rate / VBR / Frame rate / Best effort / Advanced VBR
Supported protocol	IPv6 : TCP/IP, UDP/IP, HTTP, HTTPS, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, RTP, MLD, ICMP, ARP, IEEE 802.1X, DiffServ IPv4 : TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP, IEEE 802.1X, DiffServ

General

Mounting method	Pole mount and mast arm
Safety	UL (UL60950-1), C-UL (CAN/CSA C22.2 No.60950-1), CE, IEC60950-1
EMC	FCC (Part15 ClassA), ICES003 ClassA, EN55022 ClassB, EN55024, ECE-R10, EN50498 compliant, EN50121
Ambient operating temperature	-29 to 165°F (-34 to 74°C)
Ambient operating humidity	10% to 90% (non-condensing)
Water and dust resistance	IP66, IEC60529 measuring standard compatible, Type 4X(UL50), NEMA 4X compliant
Shock resistance	Compliant with 50 J (IEC 60068-2-75 / IK10 (IEC 62262), NEMA 2.2.9 Compliant (10g pulse)
Dimensions	When using the attachment plate: ø154 mm x 60.5 mm (H) {ø6-1/16 inches x 2-3/8 inches (H)} Dome radius 35 mm {1-3/8 inches} When using the base bracket: ø164 mm x 96.5 mm (H) {ø6-15/32 inches x 3-13/16 inches (H)}Dome radius 35 mm {1-3/8 inches}
Mass (approx.)	When using the attachment plate: Approx. 860 g (1.90 lbs). When using the base bracket: Approx. 1.3 kg (2.87 lbs)
Finish	Main body: Aluminum die cast, light gray Dome section: Clear polycarbonate resin
Camera Heater	Thermostatically controlled. Operates with standard PoE

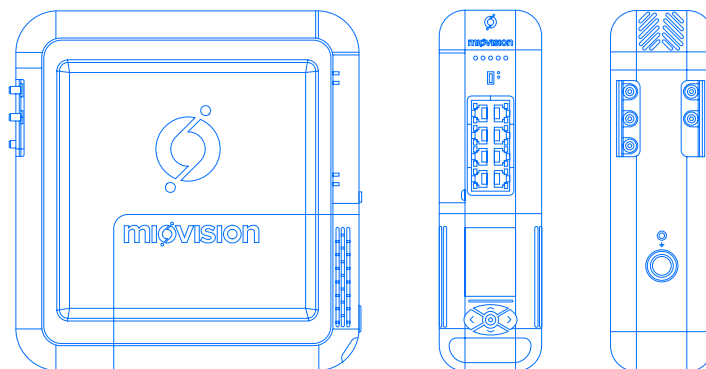
Dimensions



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Miovision Core® DCM Hardware Specifications

Device weight (not including cables)	
Miovision Core® DCM	6.3 lbs (2.9 kg)
Dimensions	
Miovision Core DCM	10.5 x 3 x 10 in 266 x 75 x 254 mm
Power adapter	7.9 x 2.6 x 1.8 in 200 x 65 x 45 mm
Power	
Power adapter	Input: 89 to 240 VAC, 47 to 63 Hz uninterrupted (non-GFCI required). Standard NEMA 5-15R or terminal block wiring supported. Output: 48 VDC at 135W UL and cUL certified
Power consumption	Max: 129W (includes 3 cameras) Typical: 114W (includes 2 cameras)
Hold up	Minimum 5 second hold up for power loss events
Operating conditions	
Operating temp	-29°F to 165°F (-34°C to 74°C)
Humidity	5% - 95% RH non-condensing
Processor	
CTM NVIDIA Processor	CPU: Quad-core ARM® A57 @ 1.43 GHz GPU: 128-core Maxwell
DCM NVIDIA Processor	CPU: 6-core NVIDIA Carmel ARM® 64-bit GPU: 384-core NVIDIA Volta™ GPU with 48 Tensor Cores
Security Trusted Platform Module (TPM)	RSA Key Generation 2048 Bits RSA Signature and Encryption ECC 256 AES 128 SHA 256
Memory	
Mass storage	Built-in 240GB solid state
Wireless connectivity	
Cellular	LTE Cat 4 bands B2, B4, B5, B12, B13, B14, B66, B71
Location services	GPS, GLONASS
Wi-Fi	802.11 a/b/g/n Restricted to customer-authorized communications
5-in-1 antenna	
Antenna specs	2x MIMO LTE 2x MIMO Wi-Fi 1x GPS-GLONASS-Beidou
Enclosure	8.5 x 3.6 x 1.1 in 216 x 93 x 30 mm Permanent Screw Mount IP67 rated



Contents	
Kit contents	1 x Miovision Core with DCM 1 x Cable Kit 1 x Power Supply 1 x Antenna
I/O	
Ethernet ports	1 x 10/100/1000 Ethernet WAN port 2 x 10/100/1000 Ethernet LAN ports 3 x 10/100/1000 Ethernet LAN ports with PoE (support for 802.3af PoE and 802.3at PoE+ to a maximum of 50W across all three ports)
SDLC port	1x SDLC port (proprietary connector, DB15 adapter included)
Serial ports	2 x EIA RS-232 over RJ45 interface (cable included)
USB port	1 x USB-A port
General Purpose I/O	4 x +5V open drain I/Os
Priority Control I/O	8 x NEMA compliant I/Os
Detector I/O	8 x NEMA compliant I/Os (fail passive) 16 x NEMA compliant I/Os (fail active)
Certifications	
NEMA	Compliant to NEMA TS-2 Environmental Requirements
FCC	FCC Part 15, Subpart B, Class A
PTCRB	PTCRB compliant
Material composition	
Core DCM base and lid	Aluminum
Core DCM center structure	PC/ABS (Polycarbonate-ABS)

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Miovision SmartView Approach Hardware Specifications



The Miovision SmartView Approach[®] is a full HD bullet camera that can expand the use of your Miovision Detection solution to detect vehicles as they approach intersections from up to 500 feet.

Configure multiple detection zones with single or multilane detection over four lanes and build responsive control schemes and measure free-flow traffic to understand how effectively you are servicing demand.

General

Safety	UL (UL62368-1), c-UL (CSA C22.2 No.62368-1), CE, IEC62368-1
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Device weight (not including cables)

Miovision[®] SmartView Approach	1.9 lbs (860 g) when using attachment plate 2.87 lbs (1.3 kg) when using base bracket
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Power

Power source and power consumption	PoE (IEEE802 .3af compliant) Device : DC48 V 220 mA, Approx. 10.6 W (Class O device)
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General

Safety	UL (UL62368-1), c-UL (CSA C22.2 No.62368-1), CE, IEC62368-1
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EMC	FCC (Part15 ClassA), ICES-0 03 ClassA, EN55032 ClassB, EN55035
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Power Source and Power Consumption	PoE (IEEE802 .3af compliant) Device: DC48 V 220 mA, Approx. 10.6W (Class O device)
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Ambient Operating Temperature	-34°C to +74°C
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Ambient Operating Humidity	5 to 100 % (no condensation)
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Water and Dust Resistance	Temish element + heater + moisture absorption gel
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Shock Resistance	IK10 (IEC 62262)
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Dimensions	0133 mm(W) x 133 mm(H) x 383 mm(D) {05- 1{4 inches (W) x 5-1{4 inches (H) x 15-3{32 inches (D)}
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Mass (approx.)	Approx. 2.4kg (5.3lbs)
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Main body: Aluminum die cast and resin, white

Finish	Outer fixing screws: Stainless steel (Corrosion-resistant treatment)
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Front panel: Polycarbonate resin, clear

Camera

Image Sensor	Approx. 1/2.8 type CMOS image sensor
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Minimum Illumination	Color: 0.011 lx (30I RE, F1.7, 1{30s) Color: 0.015 lx (50I RE, F1.7, 1{30s)
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White Balance	ATW1 / ATW2 / AWC
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Shutter Speed	60 fps Mode - 1/60 Fix to 1/10000 Fix 30 fps/15 fps mode - 1/30 Fix to 1/10000 Fix 50 fps Mode - 1/50 Fix to 1/10000 Fix 25 fps/12.5 fps mode - 1/25 Fix to 1/10000 Fix
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Dynamic Range	Max. 144 dB
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Focus Adjustment	Autofocus
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Lens

Optical Zoom	2.3x (Motorized zoom / motorized focus)
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Focal length	9 - 21 mm (11/32 inches - 13/16 inches)
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Angular Field of View	16 : 9 mode - Horizontal: 15° (TELE) - 36° (WIDE), Vertical: 9° (TELE) - 20° (WIDE)
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	4 : 3 mode - Horizontal: 11° (TELE) - 27° (WIDE), Vertical: 9° (TELE) - 20° (WIDE)
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Maximum Aperture Ratio	1 : 1.7 (WIDE) - 1 : 3.0 (TELE)
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Focus Range	2m (78 - 3/4 inches) - ∞
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Adjustments

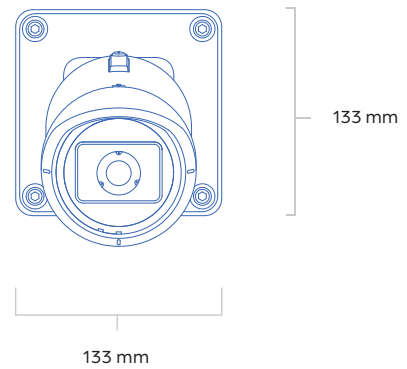
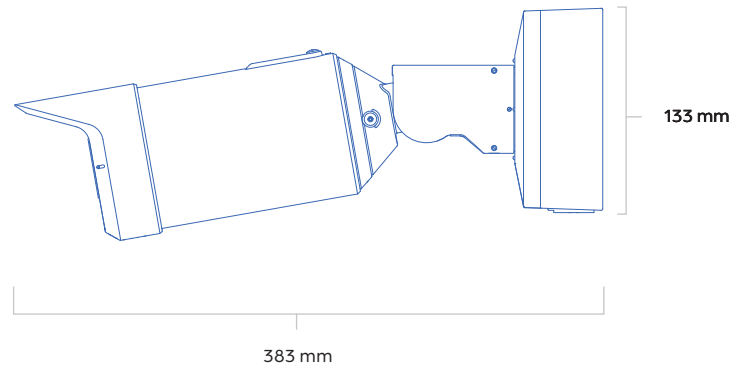
Mounting	Horizontal: ±100° (TILT rotation part)* Vertical: ±100° (TILT rotation part)* Yaw: -190° to +100° (YAW rotation part)
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* You can change between horizontal and vertical angels by adjusting the PAN rotation part

Network

Network IF	10Base-T / 100Base-TX, RJ45 connector
Resolution H.265 / H. 264 / JPEG (MJPEG)	16 : 9 mode (60 fps model) 16 : 9 mode (30 fps model) 16 : 9 mode (50 fps model)] 16 : 9 mode (25 fps model) 1920x1080, 1280x720, 640x360, 320x180 4 : 3 mode (30 fps model) 4 : 3 mode (25 fps model) 1280x960, VGA, QVGA 4 : 3 mode (15 fps model) 4 : 3 mode (12.5 fps model) 2048x1536"5, 1280x960, VGA, QVGA
Transmission mode	Constant bit rate / VBR / Frame rate / Best effort
Transmission Type	Unicast port (AUTO) / Unicast port (MANUAL) / Multicast
Supported protocol	IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, SSL/TLS, SMTP, DNS, NTP IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, SSL/TLS, RTSP, RTP, RTP/RTCP, SMTP, DHCP, DNS, DDNS, NTP, SNMPv1/v2/v3, UPnP, IGMP, ICMP, ARP, IEEE 802.IX, DiffServ, SRTP, SFTP, MQTT, LLDP

Dimensions



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