POWERFLEET®

People Powered AIoT

Version 1.0

MiX Vision AI (M1N)

Product Fact Sheet

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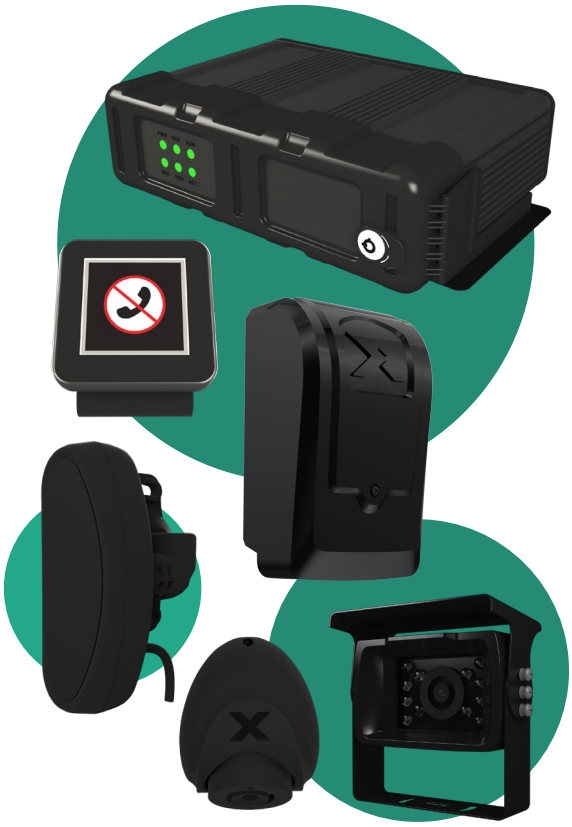


OVERVIEW

MiX Vision AI (M1N) is an advanced multi-camera device which detects risky driving behavior such as unsignaled lane departure, imminent forward collision, unsafe following distance, driver fatigue, distraction, smoking, and mobile phone usage. MiX Vision AI uses machine vision-based video analytics technology to detect risky driving behaviors. The Driver Coach (R-Watch) alerts the driver in real-time if these behaviors are detected using a voice message and visual display. Risky driving behavior events and related video files are uploaded to MiX Fleet Manager™ for review by fleet managers and drivers to aid them in coaching driver performance. The MiX Vision AI (M1N) can be paired with an OBC (FM3xx, MiX4000, MiX6000) or it can be used as a standalone video telematics device.

FEATURES

ADAS	Lane Departure Warning (LDW), Headway Monitoring Warning (HMW), Forward Collision Warning (FCW).
DRIVER MONITORING	Seat Belt Detection, Smoking Detection, Driver Distraction, Phone Detection, Yawning Detection, Driver Fatigue, No driver.
MONITORING	Video files for detected events are uploaded to the MiX Fleet Manager platform for viewing.
NOTIFICATION	A voice prompt notification will sound on detected events and the optional AI Driver Coach Display (R-Watch) will provide a visual alert.
ANTI-TAMPER	The system will automatically detect camera tampering and will generate a Video Loss alarm on the monitoring system to alert the fleet manager.

Technical Specifications

Main unit

Connectivity	
Connectivity	Quectel EC25, LTE Cat4 with fallback
Positioning	GPS L1 1575.42 MHz, BDS B1 1561.098MH, GALILEO E1B/C1, GLONASS L1OF 1602MHz, SBAS: WAAS, EGNOS, MSAS, GAGAN
Sensors	6-axis sensor
Storage	2 x SD-Card with maximum 256GB per card
Video	
Input	4-channels AHD + 1-channel IPC
Output	1-channel (CVBS)
Image Settings	Adjustable brightness, chroma, contrast, colur saturation, and sharpness
Video Encoding	H.264
Video Signal Standards	Level: 1 Vpp; impedance: 75 ohm NTSC/PAL (optional)
Audio	
Input	5 channels (1-channel IPC audio)
Output	1
Audio Compression	ADPCM,G.711U
Audio Signal Standards	Level: 2 Vpp; input impedance: 4.7 kilohm
Interface	
USB	1 × USB2.0 (Type A)
RS485	1-channel (Driver Coach)
RS232	2
IO	8-channel input and 2-channel output
Speed	1-channel pulse speed detection
Intercom	1 × MIC port
CAN	1
UPS	Supported (external)
UTC	Supported
G-MOUSE	Supported and connected with the 5559 connector
Environmental	
Dimensions (L x W x D)	167.3*146.3*54mm | 6.6*5.8*2.1"
Weight	830g | 29.3oz
Temperature (operate)	-40℃ ~ +70℃ | -40°F ~ +158°F
Temperature (store)	-40℃ ~ +85℃ | -40°F ~ +185°F
Power Input	8 – 36Vdc
Power Consumption	29W
Backup Power	Supercap for controlled shutdown
Relative Humidity	8% - 95% (non-condensing)
IP Rating	IP 30

Wi-Fi/Bluetooth Specification (Optional)

Realtek RTL8723DU	
Standard	WI-FI: IEEE 802.11 b/g/n (1x1); BT: 2.1/4.2
Frequency	2.402~2.4835GHzz
Modulation	DSSS, DBPSK, DQPSK, CCK and OFDM (BPSK/QPSK/16-QAM/64-QAM)
Data Rates	11b:1, 2, 5.5 and 11Mbps 11g:6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11n: MCS0~7, up to 150Mbps
Current – WI-FI	TX 11b mode: 130mA , RX 11b mode: 90mA
Current - BT	OPP TX: 40mA, OPP RX:24mA

Modem Specification

Quectel EC25-EC (EMEA/South Korea /Thailand /India)		
Device Details		Quectel EC25-EC Cat4 LTE with 3G fallback compatible with 3GPP E-UTRA Release 11 standards
4G	Bands	LTE FDD: B1/ B3/ B7/ B8/ B20/ B28A
	Output Power	Class 3 (23dBm±2dB) for LTE FDD
3G	Bands	WCDMA: B1/B8
	Output Power	Class 3 (24dBm+1/-3dB) for WCDMA
2G	Bands	GSM: B3/B8
	Output Power	Class E2 (27dBm±3dB) for EDGE 850/900MHz Class E2 (26dBm+3/-4dB) for EDGE 1800/1900MHz Class 4 (33dBm±2dB) for GSM 850/900MHz
Quectel EC25-EC (EMEA/South Korea /Thailand /India)		
Device Details		Quectel EC25-AF Cat4 LTE with 3G fallback compatible with 3GPP E-UTRA Release 11 standards
4G	Bands	LTE FDD: B2/B4/B5/B12/B13/B14/B66/B71
	Output Power	Class 3 (23dBm±2dB) for LTE FDD
3G	Bands	WCDMA: B2//B4/B5
	Output Power	Class 3 (24dBm+1/-3dB) for WCDMA
Quectel EC25-EC (EMEA/South Korea /Thailand /India)		
Device Details		Quectel EC25-AU Cat4 LTE with 3G fallback compatible with 3GPP E-UTRA Release 11 standards
4G	Bands Output Power	LTE FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE TDD: B40
		Class 3 (23dBm±2dB) for LTE FDD Class 3 (23dBm±2dB) for LTE TDD
3G	Bands	WCDMA: B1/B2/B5/B8
	Output Power	Class 3 (24dBm+1/-3dB) for TD-SCDMA Class 3 (24dBm+1/-3dB) for WCDMA
2G	Bands	GSM: B2/B3/B5/B8
	Output Power	Class E2 (27dBm±3dB) for EDGE 850/900MHz Class E2 (26dBm+3/-4dB) for EDGE 1800/1900MHz Class 4 (33dBm±2dB) for GSM 850/900MHz Class 1 (30dBm±2dB) for GSM 1800/1900MHz

Driver Coach Display (R-Watch)

Display	
Diagonal size (inch)	1.4"
Dimension (L x W)	40*45mm | 1.6*1.8"
Resolution	128*128
Brightness	400 cd/m3
Light Sensor	Support
Lens	Glass
Communication	RS485
Other	
Buzzer	Built-in
Power Input	5 – 12V DC
IP Rating	IP30

Camera Options


Driver Camera


Road Camera


In-Cab Camera


Side Camera


Rear Camera


Plate Camera

Driver Camera (AI)

Camera Parameters	
Model	C29N
Video Output	IPC, 6Pin Aviation connector
Video Resolution – HD	1280H x 800V @ 20 Frames/s
Video Resolution – SD	576p (704 x 576) @ 10 Frames/s
Image Sensor	1/4"100Mp Global Shutter Sensor"
Minimum Illuminance	0.1Lux (infrared light filling), F1.4
IR Range	1.5m
Shutter speed	1/30s-1/5000s
Signal-to-Noise Ratio	≥ 48dB
Lens	3mm M12-type, F1.6
FOV (H x V)	76° x 44°
Audio	Built-in microphone
Environmental	
Dimensions (LxWxH)	98x30x43mm | 3.9x1.2x1.7"
Temperature	-40°C - +70°C | -40°F - +158°F
Humidity	0% - 90%
Power	DC 9-18V
Power consumption	<2.1W
Net weight	230g | 8.1oz
IP Rating	IP53

Road Camera

Camera Parameters		
Model	CA20S V3.0 (SVT-A6720MS)	CA20S (SVT-A6210MS)
ADAS Capable	Yes	No
Video Output	AHD, 4Pin Aviation connector	
Video Resolution – HD	1080P (1920H x 1080V) @ 20 Frames/s	720P (1280H x 720V) @ 20Frames/s
Video Resolution – SD	576p (704H x 576V) @ 10 Frames/s	
Image Sensor	1/2.8〃2.13M pixel CMOS	1/3" 1.3M pixel CMOS
Minimum Illuminance	0.05lux (color)	0.01lux (color)
IR Range	n/a	
Shutter speed	1/25s-1/25,000s (auto)	
Signal-to-Noise Ratio	≥ 50dB	
Lens	8mm M12, F2.1	2.8mm M12, F2.0
FOV (H x V)	42° x 24°	92° x 51°
Aud	n/a	
Environmental		
Dimensions (LxWxH)	87x54.5x39mm | 3.4x2.1x1.5"	85x54.5x39mm | 3.3x2.1x1.5"
Temperature	-40°C - +70°C | -40°F - +158°F	
Humidity	<90% (no condensation)	
Power	DC 12V ± 10%	
Power consumption	90mA/DC12V ± 5%	
Net weight	± 100g | 3.5oz	
IP Rating	N/A	

In-Cab Camera

Camera Parameters	
Model	C6A
Video Output	AHD, 4Pin Aviation connector
Video Resolution – HD	720P (1280H x 720V) @ 20 Frames/s
Video Resolution – SD	576p (704H x 576V) @ 10 Frames/s
Image Sensor	1/3"1.3M pixel CMOS
Minimum Illuminance	0Lux (IR on)
IR Range	10-15m
Shutter speed	Auto
Signal-to-Noise Ratio	≥ 50dB
Lens	2.3mm
Audio	Built-in microphone
Environmental	Environmental
Dimensions (LxWxH)	98x30x43mm | 3.9x1.2x1.7"
Temperature	-40°C - +70°C | -40°F - +158°F
Power	DC 12V ± 10%
Power consumption	120m A/DC 12V (IR on)
IP Rating	N/A

Side Camera

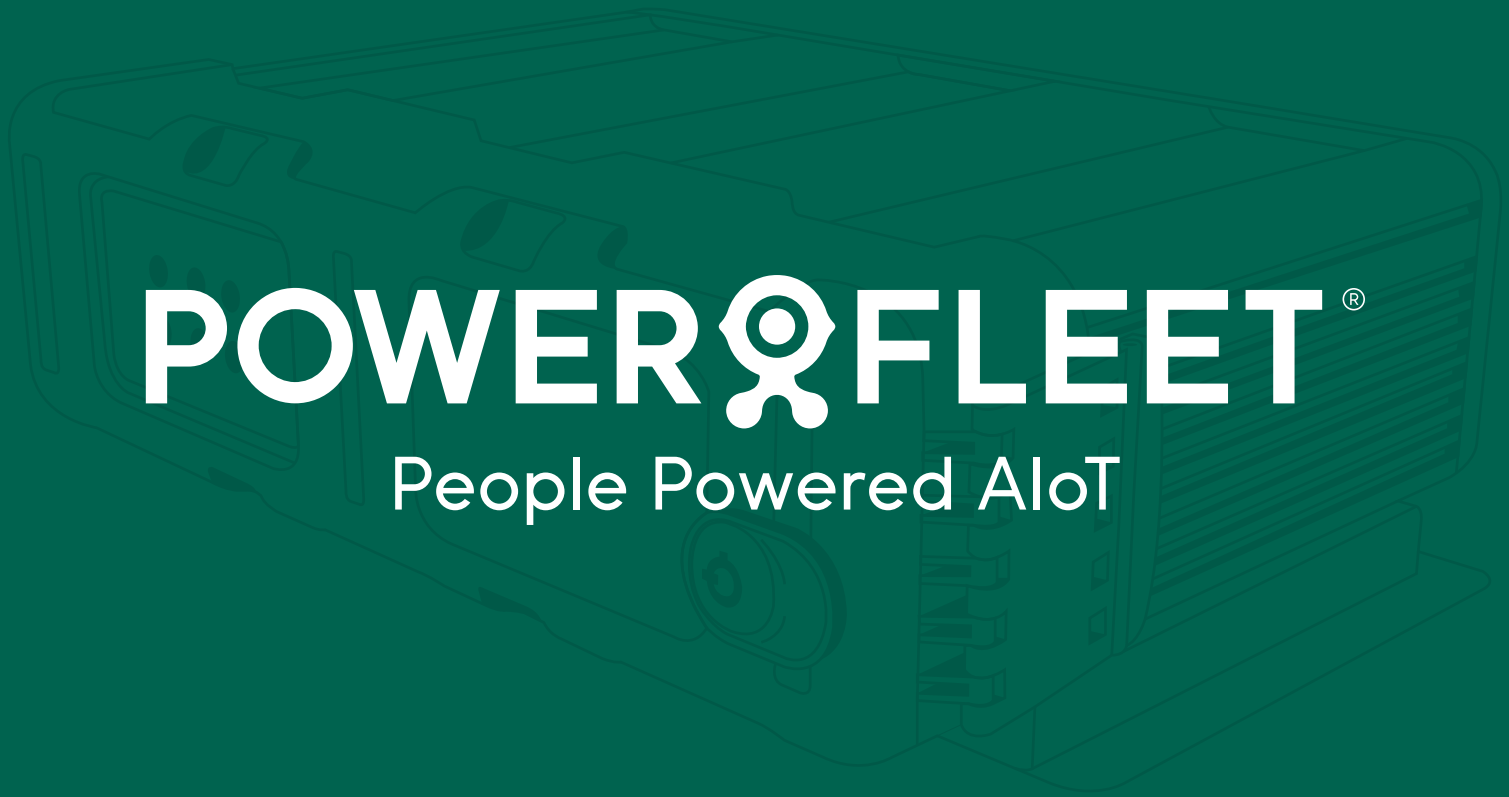
Camera Parameters		
Model	CA39 (SVT-A6320HS)	CA39A (SVT-A6410HS)
Video Output	AHD, 4Pin Aviation connector	
Video Resolution – HD	1080P (1920H x 1080V) @ 20 Frames/s	720P (1280H x 720V) @ 20Frames/s
Video Resolution – SD	576p (704H x 576V) @ 10 Frames/s	
Image Sensor	1/2.8〃2.13M pixel CMOS	1/3〃1.3M pixel CMOS
Minimum Illuminance	0.0lux (IR on), 0.05Lux (IR off)	
IR Range	10-15m	
Shutter speed	1/25s-1/25,000s (auto)	
Signal-to-Noise Ratio	≥ 50dB	
Lens	2.8mm M12, F2.2	2.8mm M12, F2.0
FOV (H x V)	103° x 56° x 121°	91° x 50° x 107°
Audio	n/a	
Environmental	Environmental	
Dimensions (LxWxH)	66x58x46mm | 2.6x2.3x1.8"	
Temperature	-40°C - +70°C | -40°F - +158°F	
Humidity	<90% (no condensation)	
Power	DC 12V ± 10%	
Power consumption	260mA/DC12V ± 5%	240mA/DC12V ±5%
Net weight	± 180g | 6.3oz	
IP Rating	IP69K	

Rear Square Camera

Camera Parameters		
Model	CA4	953C4XR
Video Output	AHD, 4Pin Aviation connector	IPC, 6Pin Aviation Connector
Video Resolution – HD	1080P (1920H x 1080V) @ 20 Frames/s	
Video Resolution – SD	576p (704H x 576V) @ 10 Frames/s	
Image Sensor	1/2.8〃2.13M pixel CMOS	1/2.9〃2.0M pixel CMOS
Minimum Illuminance	0.0lux (IR on), 0.05Lux (IR off)	0.1Lux (color),0Lux (IR on)
IR Range	10m	8-10m
Shutter speed	1/25s-1/25,000s (auto)	1/30s-1/10000s
Signal-to-Noise Ratio	≥ 50dB	≥48db
Lens	2.8mm M12, F2.2	2.8mm M12, F1.2
FOV (H x V)	103° x 56°	108° x 61°
Audio	No	Built-in microphone
Environmental	Environmental	
Dimensions (LxWxH)	75x65.1x37.7mm | 3x2.6x1.5"	
Temperature	-40°C - +70°C | -40°F - +158°F	
Humidity	<95% (no condensation)	0% - 90%
Power	DC 12V ± 10%	DC 8-15V
Power consumption	130mA/DC12V ± 5%	>=2.2W
Net weight	± 280g | 9.9oz	± 270g | 9.5oz
IP Rating	IP67	

Rear Square Camera

Camera Parameters	
Model	CA38
Video Output	AHD, 4Pin Aviation connector
Video Resolution – HD	1080P (1920H x 1080V) @ 20 Frames/s
Video Resolution – SD	576p (704H x 576V) @ 10 Frames/s
Image Sensor	1/2.9〃2.0M pixel CMOS
Minimum Illuminance	0.0lux (IR on), 0.05Lux (IR off)
IR Range	3-5m
Shutter speed	1/25s-1/25,000s (auto)
Signal-to-Noise Ratio	≥ 48dB
Lens	2.2mm M12
FOV (H x V)	178° x 142° x 80°
Audio	n/a
Environmental	Environmental
Dimensions (LxWxH)	196.7x29.5x30mm | 7.7x1.2x1.2"
Temperature	-40°C - +70°C | -40°F - +158°F
Humidity	0% - 95%
Power	DC 12V ± 10%
Power consumption	130mA/DC12V ± 5%
Net weight	± 200g | 7.1oz
IP Rating	IP69K



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