

	Downward: 0.15 - 80 m Forward & Backward: 0.3 - 50 m Sidewards: 0.3 - 50 m 24 - 24.25GHz radar: Downward: 0.8 - 20 m
FOV	Horizontal (6dB): $\pm 35^\circ/\pm 22^\circ$ (60 GHz/24 GHz) Vertical (6dB): $\pm 45^\circ/\pm 20^\circ$ (60 GHz/24 GHz)
Operating Environment	60 GHz millimeter-wave radar sensing system: Supports all-weather obstacle avoidance for glass, water, wires, buildings, and trees in 6 directions. Its obstacle avoidance distance varies with the obstacle's ability to reflect electromagnetic waves and its surface size. 24 GHz millimeter-wave radar sensing system: Supports downward sensing, and its sensing range varies by the ground material. For example, the sensing range of cement ground is 20 meters, and the sensing range of grass with a thickness of more than 3 cm is less than 10 meters.
Aircraft Version Limitations*	To comply with (national) regional regulations, certain aircraft versions use a 24 GHz millimeter-wave radar in the downward direction and use 60 GHz radars in the forward, backward, left, right, and upward directions. In the 24 GHz aircraft version, the 60GHz radars in the forward, backward, leftward, rightward, and upward directions are disabled in the flight software at the factory, and only the 24GHz radar in the downward direction is enabled to assist in landing. The 24 GHz aircraft version only supports visual obstacle avoidance under good lighting conditions and does not support millimeter-wave radar obstacle avoidance at night.

Radar and Visual Sensing Systems

Sensing Range	60 - 64GHz radar: Forward & Backward: 0.2 - 50 m Sidewards: 0.2 - 60 m Upward: 0.2 - 60 m Downward: 0.15 - 80 m 24 - 24.25GHz radar: Downward: 0.2 - 40 m
FOV	Forward & Backward: $90^\circ(\text{H}), 90^\circ(\text{V})$ Sidewards: $90^\circ(\text{H}), 90^\circ(\text{V})$ Upward: $90^\circ(\text{H}), 90^\circ(\text{V})$ Downward: $90^\circ(\text{H}), 90^\circ(\text{V})$

Operating Environment	Forward, backward, upward, and downward: Supports all-weather obstacle avoidance for various conditions, including water, forests, buildings and high voltage lines. At least one of the two conditions should be met: sufficient lighting or the obstacle has a strong reflection ability to electromagnetic waves. Sideways: The surface has rich textures, under a sufficient lighting environment (>15 lux, normal indoor fluorescent lighting environment).
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A.2 Gimbal Camera

Technical Specifications	
Gimbal Model	DG-L35T
Dimension	144.7×133.3×158.4 mm
Weight	910g
IP Rating	IP55
Installation	Detachable (E-shape design)
Operating Temperature	-20℃ to +50℃
Storage Temperature	-30℃ to +70℃
Compatible Model	Autel Alpha, Autel Titan
Data Storage	Support microSD
Max. Expandable Memory	256GB
Recommended Memory Card List	UHS-I Speed Class U3 or V30, minimum write speed 30MB/s
Gimbal	
Mechanical Range	Pitch: -135° to 45° Roll: -60° to 60° Yaw: -90° to 90°
Controllable Range	Pitch: -90° to 30°
Stable system	3-axis mechanical gimbal (pitch, yaw, roll)
Max Control Speed (pitch)	100°/s

Angular Vibration Range	<0.005°
Wi-Fi	
Wi-Fi Protocol	802.11a/b/g/n/ac/ax, Support 2 x 2 MIMO Wi-Fi
Wi-Fi Operating Frequency	2.400 - 2.4835 GHz; 5.150 - 5.250GHz (CE/FCC)*; 5.725 - 5.850 GHz * Only applicable to CE, FCC regions.
Wi-Fi Transmitter Power (EIRP)	2.400 - 2.4835 GHz FCC: < 30dBm; CE/SRRC: < 20dBm 5.150 - 5.250GHz FCC/CE: <19dBm 5.725 - 5.850 GHz FCC/SRRC: < 19dBm; CE: < 14dBm
Zoom Camera	
Image Sensor	1/1.8" CMOS. Effective pixels: 8M
Lens	Focal length: 7.1 - 171.95 mm±5% 35 mm equivalent focal length: 34.7 - 838 mm Aperture: f/1.61(Wide)- f/5.19(Tele)±5% Focusing distance: 10 m ~ ∞
ISO Range	Normal mode ISO100 - ISO25600 Super Night ISO100 - ISO240000
Shutter Speed	Photo: 0.5s ~ 1/8000s Video: 1/30s ~ 1/8000s
Digital Zoom	1.4 - 35x continuous optical zoom, 35-560x hybrid zoom
Max Photo Resolution	3840×2160
Photo Format	JPG
Photo Taking Mode	Auto
Video Resolution	3840×2160 30P
Video Format	MP4
Max Bit Rate	30Mbps
Supported File Systems	exFAT/Fat32

Wide Angle Camera	
Image Sensor	1/2" CMOS. Effective pixels: 48M
Lens	Focal length: 4.49 mm Equivalent focal length: 24 mm Aperture: f/2.8
ISO Range	Auto: ISO100 - ISO3200
Shutter Speed	Photo: 0.5s ~ 1/8000s Video: 1/30s ~ 1/8000s
Photo Size	4000×3000, 8000×6000
Photo Format	JPG
Photo Taking Mode	Auto
Video Resolution	4000×3000 25P
Video Format	MP4
Max Bit Rate	30Mbps
Supported File Systems	exFAT/Fat32
Infrared Thermal Imaging Camera 1	
Image Sensor	Uncooled VOx Microbolometer
Lens	FOV: 42° Focal length: 13 mm Aperture: f/1.2 Focusing distance: 6 m ~ ∞
Sensitivity	≤50mK@f/1.0, 25°C
Pixel Pitch	12um
Wavelength	8 - 14um
Radiometric Measurement Method	Center measurement/Pot measurement/Rectangular measurement
Radiometric Temperature Range	-20°C to 150°C (high gain mode); 0 to 550°C (low gain mode)
Radiometric Measurement Accuracy	±3°C or reading ±3% (using the larger value) @ ambient temperature ranges from -20°C to 60°C

Accurate Temperature Measurement Distance	1 - 25 m
Digital Zoom	1-3.5x wide angle digital zoom
Temperature Alert	High and low temperature alarm thresholds, Reporting coordinates and temperature values
Palette	White Hot/Black Hot/Searing/ Rainbow/Grey/Ironbow/Cold and Hot
Photo Size	640×512
Photo Format	JPG (the images contain temperature information and are parsed by dedicated SDK and PC tools)
Photo Taking Mode	Auto
Video Resolution	640×512@25FPS
Video Format	MP4
Infrared Thermal Imaging Camera 2	
Image Sensor	Uncooled VOx Microbolometer
Lens	FOV: 12.3° Focal length: 45 mm Aperture: f/1.2 Focusing distance: 35 m ~ ∞
Sensitivity	≤50mK@f/1.0, 25°C
Pixel Pitch	12um
Wavelength	8 - 14um
Radiometric Measurement Method	Center measurement/Pot measurement/Rectangular measurement
Radiometric Temperature Range	-20°C to 150°C (high gain mode); 0 to 550°C (low gain mode)
Radiometric Measurement Accuracy	±3°C or reading ±3% (using the larger value) @ ambient temperature ranges from -20°C to 60°C
Accurate Temperature Measurement Distance	4 ~ 50 m
Digital Zoom	1-3.5x wide angle digital zoom 3.5x tele optical zoom

	3.5-56x tele digital zoom
Temperature Alert	High and low temperature alarm thresholds, Reporting coordinates and temperature values
Palette	White Hot/Black Hot/Searing/ Rainbow/Grey/Ironbow/Cold and Hot
Photo Size	640×512
Photo Format	JPG (the images contain temperature information and are parsed by dedicated SDK and PC tools)
Photo Taking Mode	Auto
Video Resolution	640×512@25FPS
Video Format	MP4
Laser Rangefinder	
Wavelength	905 nm
Measurement Accuracy	<400m: +1m, >400m: D×0.3% where D is the distance to a vertical reflecting plane
Measuring Range	10 - 2000 m

A.3 Remote Controller

Autel Smart Controller V3	
Material	PC+ABS
Dimensions	269×189×66 mm (antennas folded) 269×302×87 mm (antennas unfolded)
Weight	1194 g (protective case excluded) 1365 g (protective case included)
Operating Temperature	-20℃ to 40℃
Storage Temperature	+15℃ ~ +25℃ (within a year) 0℃ ~ +30℃ (within three months) -20℃ ~ +45℃ (within a month)
Protection Rating	IP43
Internal Storage	128GB

microSD Extension	Not supported
Operating System	Based on Android 11
Application Installation	Supports the installation of third-party Android apps
Video Performance	4K@24FPS H.264/H.265 video smooth play
HDMI	Outputs up to 1080P@60FPS video
USB-C	Charging: supports PD/QC fast charging, up to 65W Data: USB3.1 Gen2
USB-A	Charging: 5V/2A Data: USB2.0
GNSS	GPS+Galileo+BeiDou+GLONASS
Wi-Fi Protocol	802.11a/b/g/n/ac Supports 2×2 MIMO Wi-Fi
Wi-Fi Operating Frequency	2.400 - 2.4835 GHz 5.725 - 5.850 GHz
Wi-Fi Effective Isotropic Radiated Power (EIRP)	2.400 - 2.4835 GHz: ≤24dBm (FCC); ≤20dBm (CE/SRRC) 5.725 - 5.850 GHz: ≤22dBm (FCC/SRRC); ≤14dBm (CE)
Bluetooth	Bluetooth 5.0
Bluetooth Operating Frequency	2.400 - 2.4835 GHz
Bluetooth Effective Isotropic Radiated Power (EIRP)	≤11dBm
Image Transmission	
Antenna	Dual antennas, 1T2R, detachable design
Operating Frequency	902 - 928 MHz* * Only applicable to FCC regions. 2.400 - 2.4835 GHz 5.725 - 5.850 GHz
Effective Isotropic Radiated Power (EIRP)	902 - 928 MHz: ≤28dBm 2.400 - 2.4835 GHz: ≤28dBm (FCC); ≤20dBm (CE/SRRC)

	5.725 - 5.850 GHz: ≤28dBm (SRRC/FCC); ≤14dBm (CE)
Maximum Transmission Distance (Without Interference and Blocking)	FCC: 15 km CE/SRRC: 8 km
Display	
Type	TFT LCD
Dimensions	7.9 inches
Maximum Brightness	2000 nits
Resolution	2048×1536
Refresh Rate	60Hz
Touch Control	Supports 10-point touch
Battery	
Battery Type	Li-Po 3S
Rated Capacity	5800 mAh
Voltage	11.55V
Battery Energy	67 Wh
Charging Time	About 120 minutes
Battery Endurance	2.5 hours (Max brightness) 4.0 hours (50% brightness)
Battery Replacement	Not supported

A.4 Smart Battery

Smart Battery ABMC0	
Battery Dimension	252×145×126 mm
Operating Temperature	-20℃ to 50℃
Battery Type	LiPo 12S

Rated Capacity	23000mAh
Battery Energy	1090 WhX2
Voltage	47.4V
Charging Voltage Limit	53.4V
Rated Charging Power	747.6W
Maximum Charging Power	1200W
Weight	4130 g
Battery Charge Temperature	+10°C ~ +45°C* (When the battery temperature is below 10°C, the battery stops charging and activates self-heating. When the battery temperature is above +45°C, the battery stops charging.)
Battery Storage	
Ideal Storage Temperature	+22°C ~ +28°C
Storage Temperature & Humidity	-10°C ~ +30°C, 65±20%RH
Battery Charger DF15_CHARGER	
Power Input	100-240V~ 50/60Hz, 10.0A
Output Port 1/2	53.4V=14.0A
Total Power Output	747.6W Max

Appendix B Declaration of Conformity

Declaration of Conformity

Product: Autel Titan

Model Number: MDM

Manufacturer's Name: Autel Robotics Co., Ltd.

Manufacturer's Address: 601,701,801,901, Block B1, Nanshan iPark, No. 1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, 518055, China

We, Autel Robotics Co., Ltd., declare under our sole responsibility that the abovereferenced product is in conformity with the applicable requirements of the following directives:

RED Directive: 2014/53/EU

RoHS Recast Directive: 2011/65/EU

Conformity with these directives has been assessed for this product by demonstrating compliance to the following harmonized standards and/or regulations:

Safety	EN IEC 62368-1:2020+A11:2020
EMC	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-3 V2.3.2 (2023-01) ETSI EN 301 489-17 V3.2.4 (2020-09) ETSI EN 301 489-19 V2.2.1 (2022-09) EN 55032:2015+A11:2020+A1:2020 EN 55035:2017+A11:2020 EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A1:2019+A2:2021
Radio	ETSI EN 300 328 V2.2.2 (2019-07) ETSI EN 301 893 V2.1.1 (2017-05) ETSI EN 300 440 V2.2.1 (2018-07) ETSI EN 303 413 V1.2.1 (2021-04) ETSI EN 303 213-5-1 V1.1.1 (2020-03) ETSI EN 305 550-1 V1.2.1 (2014-10) ETSI EN 305 550-2 V1.2.1 (2014-10)
Health	EN IEC 62311:2020 EN 50665:2017
RoHS	2011/65/EU

The notified body, Bay Area Compliance Labs Corp, notified body number:1313, RED Directive 2014/53/EU.

Signed for and on behalf of: Autel Robotics Co., Ltd.

Place: Shenzhen, China

Date: 2023-11-29

Name: Cheng Zhuanpeng

Position: Legal Representative

Signature:

Cheng Zhuanpeng



FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

ISED Warning

This device complies with Innovation, Science, and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The device is compliance with RF exposure guidelines, users can obtain Canadian information on RF exposure and compliance. The minimum distance from body to use the device is 20cm.

Le présent appareil est conforme Après examen de ce matériel aux conformité ou aux limites d'intensité de champ RF, les utilisateurs peuvent sur l'exposition aux radiofréquences et la conformité and compliance d'acquérir les informations correspondantes. La distance minimale du corps à utiliser le dispositif est de 20cm.