

Meridian M20L Specification

GNSS Signal	Channel	1408
	BDS	B1I, B2I, B3I, B1C, B2a, B2b*
	GPS	L1 C/A, L1C, L2P(Y), L2C, L5
	GLONASS	L1, L2, L3*
	GALILEO	E1, E5a, E5b, E6*
	QZSS	L1C/A, L1C, L2C, L5, L6*
	SBAS	L1, L5*
	NavIC(IRNSS)*	L5
	L-band	B2b PPP (Only for the Asian-Pacific Region)& HAS*
	Data Format	CMR, CMR+, RTCM2.X, RTCM3.X
	Data Output	NMEA-0183, RINEX, DAT
	Data Updating Rate	Up to 20Hz
	Time to Recapture	<1s
	Cold Start	<40s
Positioning Performance	Single Point Positioning (RMS)	Horizontal: 1.5m Vertical: 3.0m
	DGPS (RMS)	Horizontal: 0.4m Vertical: 0.8m
	Real-Time Kinematic (RMS)	Horizontal: $\pm(8\text{mm}+1\times 10^{-6}\cdot D)$ Vertical: $\pm(15\text{mm}+1\times 10^{-6}\cdot D)$
	Speed Accuracy (RMS)	0.03m/s
	Static Accuracy (RMS)	Horizontal: $\pm(2.5\text{mm}+0.5\cdot D)$ Vertical: $\pm(5\text{mm}+0.5\cdot D)$
	Time Accuracy (RMS)	20ns
	Speed Accuracy	$\geq 0.03\text{m/s}$
	Tilt Compensation Accuracy	$\leq 2\text{cm}$ (Tilt Angles $\leq 60^\circ$, Up to 120°)
	IMU Update Frequency	200Hz
	Laser Accuracy (RMS)	Horizontal: $\pm(8\text{mm}+3\text{mm/m})$ Vertical: $\pm(15\text{mm}+3\text{mm/m})$
Communication	Bluetooth	SPP3.0+BLE5.0 Dual Mode
	WiFi	802.11 a/b/g/n/ac
	Cellular	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
	Storage	32GB
	Internal Radio	Transmitting Power: 2W(37 \pm 1dBm) 1W(30 \pm 1dBm) Frequency: 410~470MHz Protocol: SOUTH19200, SOUTH9600, Trimtalk9600, TRANSEOT9600, HITARGEY9600, HITARGET19200, SATEL, MeridianLink optional Air Baud Rate: 9600, 19200
Battery	Specifications	7.4V, 7000mAh lithium-ion Rechargeable Battery
	Operating Time	Laser RTK Rover: Up to 22 hours (Typical Power Consumption) Static: Up to 40 hours (Typical Power Consumption)
	Charging	Support USB PD 15V/2A (Supports Quick Charging Adapter)
Environment	Operating Temperature	-40°C~+85°C
	Storage Temperature	-55°C~+85°C
	Anti-seismic Dust & Waterproof	2m Pole Drop Onto Concrete IP67
Physical	AR Camera	1200 MegaPixel, large viewing angle, supports live view stakeout
	Laser Assisted Camera	1200 MegaPixel, large viewing angle, supports live view stakeout
	I/O Interface	1x USB type-C port; 1x TNC antenna port; 1x SIM card slot; 1x 5 pin LEMO port
	Dimensions Weight	supports laser aiming and live view stakeout <749g

*All specifications are subject to change without notice.

(1) Compliant, GLONASS L3, Galileo E6, Galileo E6 High Accuracy Service (HAS), BDS B2b and SBAS L5 will be provided through future firmware upgrade.

(2) Accuracy and reliability are determined under open sky, free of multipaths, optimal GNSS geometry and atmospheric condition. PPP accuracy is subject to the region, environment, and convergence time. High-precision static requires a minimum of 24 hours of long-term observation and precise ephemeris.



Website: www.meridiangnss.com

Manufacture: **Guangzhou Meridian GNSS CO., LTD.**

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M20L Laser GNSS Receiver

To be the Best
GNSS Solution Provider

CE FCC IP67

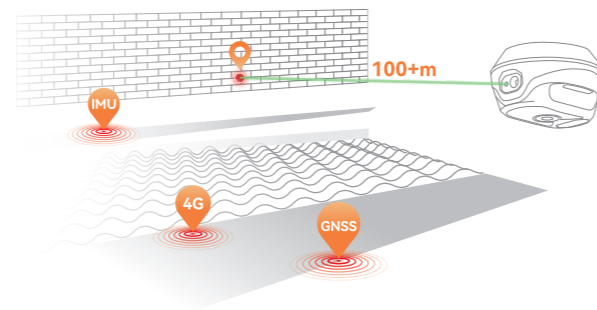
M20L High Precision Laser GNSS RTK

Meridian M20 Laser GNSS RTK is an innovative solution that combines advanced laser technology with Camera, IMU, and 4G integration. It is calibration-free, significantly boosting operational efficiency and laser measuring makes the rodless survey improve efficiency and reduce risk factors. The M20L laser receiver provides a new way to work in challenging & impossible scenarios with high accuracy, including riverine stake-out, bridge pile surveying, elevation surveying, municipal surveying, and outdoor & indoor combination surveying.



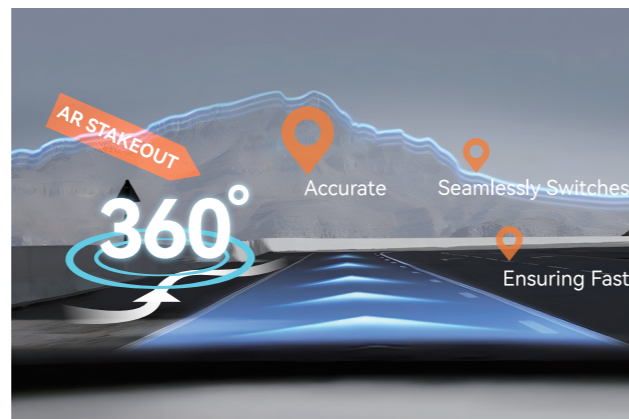
Latest Laser Technology

Laser technology offers unparalleled advantages in precision positioning and makes surveying work rodless and Easier. Combining cutting-edge 100m laser technology with full constellation GNSS, IMU, and 4G integration, delivers calibration-free accuracy, significantly enhancing work efficiency and reducing potential risks.



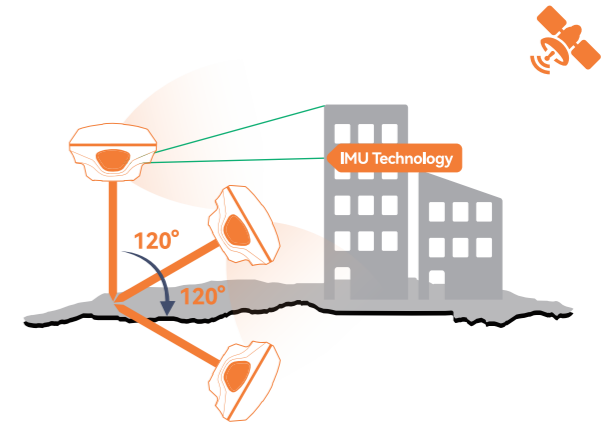
AR Stakeout

Visual positioning eases point finding by overlaying design files onto real scenes, enhancing stakeout efficiency. A high-performance HD camera achieves high accuracy with precise signal tracking. The 360-degree AR stakeout seamlessly switches between the handheld controller and rover, ensuring fast and accurate stakeout experiences.



Calibration-Free Solution

Equipped with laser & 120° calibration-free IMU technology in a small body, it complements the laser's outstanding performance, extending the M20L application range to locations that traditional RTK systems cannot reach, opening up new horizons for product applications, enhancing customer satisfaction and boosting operational efficiency.



Longer Working Distance

Equipped the MeridianLink protocol internal radio offers 15km working range and increases flexibility. By eliminating the need for an external radio, the M20L becomes more lightweight, less complex, and more portable, which can lead to increased efficiency and convenience in the field.



Full Constellations

Supports BDS, GPS, GLONASS, Galileo, QZSS, and SBAS. Its 1408 channels offer comprehensive GNSS signal tracking capabilities.





MBase High Performance Base Receiver

The MBase GNSS receiver is a fully integrated, professional-grade GNSS base station tailored to address 95% of surveyors' requirements for UHF GNSS base and rover operations. It also has built-in 4G connectivity, Bluetooth, Wi-Fi, and a 5W data transmission radio, enabling high-speed data transfer and User-friendly WebUI, which improves efficiency and convenience.

The MBase has a rugged design, making it suitable for outdoor and harsh environments. Equipped with a 5-watt radio module, it ensures reliable GNSS RTK coverage extending up to 35 kilometers under ideal conditions, makes MBase the perfect base station receiver.



Longer Working Distance

Equipped with the MeridianLink protocol internal radio and upper radio antenna port, MBase offers up to 35km working range and increases flexibility. By eliminating the need for an external radio, the MBase becomes more lightweight, less complex, and more portable, which can lead to increased efficiency and convenience in the field.



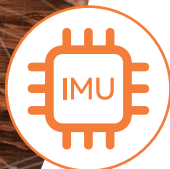
Highly Integrated Four-in-one Antenna

The highly integrated four-in-one antenna on the MBase provides several advantages, including saving space, improving performance and reliability, and reducing the failure rate during use, making MBase more portable and easier to handle, increasing the efficiency and accuracy of measurements.



Lightweight, Compact & Rugged Design

MBase is an ideal solution for surveyors who require portability and durability in demanding field conditions and eliminates the need for heavy external radio and accessories, ensuring easy transport and quick setup. This combination of lightweight portability, compact form factor, and rugged durability makes it a versatile tool for professionals on the go.



Enhanced Tilt IMU

Equipped with calibration-free IMU, support up to 60 ° tilt angle within 2cm accuracy, and no limitation tilt angle, allows for quick and accurate measurements without leveling the pole. Concentrate on where the pole tip needs to go, which is especially useful during a stakeout.



Meridian MBase Specification

GNSS Signal	Channel	1408	
	BDS	B1I, B2I, B3I, B1C, B2a, B2b*	
	GPS	L1 C/A, L1C, L2P(Y), L2C, L5	
	GLONASS	L1, L2, L3*	
	GALILEO	E1, E5a, E5b, E6*	
	QZSS	L1C/A, L1C, L2C, L5, L6*	
	SBAS	L1, L5*	
	NavIC(IRNSS)*	L5	
	L-band	B2b-PPP*, E6B-HAS*	
	Data Format	CMR, CMR+, RTCM2.X, RTCM3.X	
	Data Output	NMEA-0183, RINEX, TXT	
	Data Updating Rate	Up to 20Hz	
	Time to Recapture	<1s	
Cold Start	<40s		
Positioning Performance	Single Point Positioning (RMS)	Horizontal: 1.5m Vertical: 3.0m	
	DGPS (RMS)	Horizontal: 0.4m Vertical: 0.8m	
	Real-Time Kinematic (RMS)	Horizontal: ±(8mm+1ppm) Vertical: ±(15mm+1ppm)	
	Speed Accuracy (RMS)	0.03m/s	
	Static Accuracy (RMS)	Horizontal: ± (2.5mm+0.5ppm) Vertical: ± (5mm+0.5ppm)	
	Time Accuracy (RMS)	20ns	
	Speed Accuracy	≥0.03m/s	
	Tilt Compensation Accuracy	≤2cm(Tilt Angle≤60°), no tilt angle limitation	
	IMU Update Frequency	200Hz	
Communication	Bluetooth	V2.1+EDR/V4.0 Dual Mode	
	WiFi	802.11 a/b/g/n/ac	
	Cellular	LTE FDD:	B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28
		LTE TDD:	B38/39/40/41
		WCDMA:	B1/2/4/5/6/8/19
	Storage	GSM:	B2/3/5/8
		Storage	32GB, Up to 64GB
Transmitting power:		5W,2W	
Frequency:		410~470MHz	
Internal Radio	Protocol: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT, SATEL, MeridianLink Air Baud Rate: 9600, 19200		
Battery	Specifications	7.2V, 6900mAh lithium-ion Rechargeable Battery	
	Operating Times	RTK Rover: Up to 20 hours (Typical Power Consumption) Static: Up to 35 hours (Typical Power Consumption)	
	Charging	Support USB PD 15W/2A (Supports Quick Charging Adapter)	
Environment	Operating Temperature	-40°C~+85°C	
	Storage Temperature	-55°C~+85°C	
	Anti-seismic	2m Pole Drop Onto Concrete	
	Dust & waterproof	IP67	
Control Panel	Display	0.96" OLED Display	
	LED Lamp	Signal, Power	
	Physical button	2	
Physical	I/O Interface	1× USB type-C port; 1× SMA antenna port; 1× SIM card slot; 1× 5 pin LEMO port	
	Dimensions	133mm×133mm×84.5mm	
	Weight	700g	

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