

Meridian



M20LV

Laser & Photogrammetry

GNSS Receiver

To be the Best
GNSS Solution Provider

CE FCC IP68

All-in-One · Survey More · Spend Less

M20LV Laser & Photogrammetry GNSS Receiver

M20LV integrates high-precision GNSS surveying, Laser measurement, Photogrammetry, AR stakeout, and 120° calibration-free IMU tilt surveying into one versatile GNSS receiver.

Combining multiple surveying capabilities in a single device, it delivers greater flexibility, broader application possibilities, and improved field efficiency.

Feature-rich, versatile, and cost-effective, M20LV delivers professional surveying performance with outstanding value.



Photogrammetry



120° Calibration-Free IMU



AR Rapid Stakeout



Up to 10Hz Laser Frequency



200 m Laser + Camera Assist



Up to 15 km Radio Range



PHOTOGRAMMETRY

CAPTURE · PROCESS · MEASURE

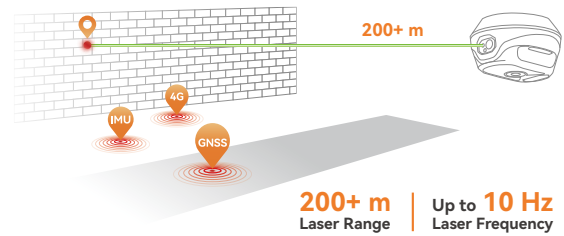
M20LV supports photogrammetric data capture, allowing field images to be collected for coordinate extraction and measurement.

- ★ Hard-to-reach points
- ★ Obstructed points
- ★ Complex terrain
- ★ Areas with limited direct access



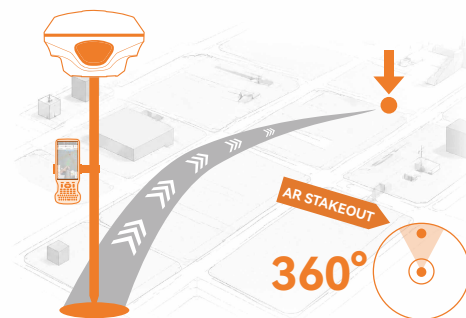
Latest Laser Technology

M20LV with 5th-generation laser module, 200+ m laser range, and up to 10 Hz laser frequency, enabling fast and precise positioning and measurement. Combined with full-constellation GNSS, IMU, and 4G technology, it delivers calibration-free accuracy, significantly improving field efficiency and making surveying easier and safer.



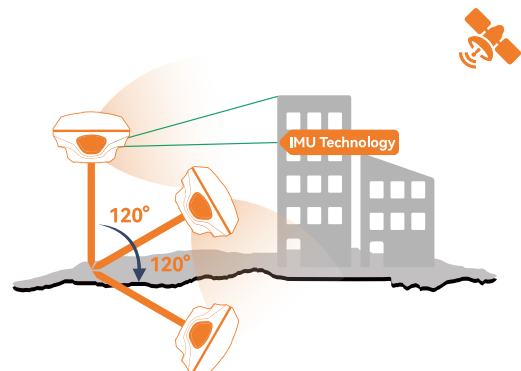
AR Stakeout

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° AR stakeout seamlessly switches between the hand held 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 M20LV 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 M20LV becomes more lightweight, less complex, and more portable, which can lead to increased efficiency and convenience in the field.



Meridian M20LV Specification

GNSS Signal	Channel	1408
	BDS	B1I, B2I, B3I, B1C, B2a, B2b*
	GPS	L1C/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: $\pm(8\text{mm}+1\times10^{-6}\cdot D)$ Vertical: $\pm(15\text{mm}+1\times10^{-6}\cdot D)$
	Speed Accuracy (RMS)	0.03m/s
	Static Accuracy (RMS)	Horizontal: $\pm(2.5\text{mm}+0.5^{-6}\cdot D)$ Vertical: $\pm(5\text{mm}+0.5^{-6}\cdot D)$
	Time Accuracy (RMS)	20ns
	Speed Accuracy	$\geq 0.03\text{m/s}$
	Tilt Compensation Accuracy	$\leq 2\text{cm}$ (Tilt Angle $\leq 60^\circ$, Up to 120°)
	IMU Update Frequency	200Hz
	Laser Accuracy	Horizontal: $\pm(8\text{mm}+3\text{mm/m})$ Vertical: $\pm(15\text{mm}+3\text{mm/m})$
	Laser Distance	Supports up to 200 meter laser measurement with high-brightness laser technology
	Update Frequency	Up to 10Hz
	Photogrammetry Accuracy	5~10 cm @ 10 m
Communication	Bluetooth	SPP3.0+BLE5.0 Dual Mode, 2.4 GHz @ +6 dBm
	WiFi	802.11 a/b/g/n 5.0GHz
	Cellular	LTE TDD: B34/38/39/40/41
		LTE FDD: B1/3/5/7/8/20/28
	Storage	WCDMA: B1/5/8
		GSM: B850/900/1800
	Internal Radio	32GB Transmitting Power: 2W(33 $\pm$ 1dBm) 1W(30 $\pm$ 1dBm) Frequency: 410~470MHz Protocol: SOUTH, TRIMTALK 450S, TRIMMK III, TRANSEOT, SATEL, MERIDIANLINK Air Baud Rate: 9600,19200,11000
Battery	Specifications	7.2V , 7000mAh lithium-ion Rechargeable Battery
	Operating Time	Laser RTK Rover: Up to 20 hours (Typical Power Consumption) Static: Up to 21 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	2m Pole Drop Onto Concrete
	Dust & Waterproof	IP68
Physical	AR Camera	Up to 12 MegaPixel, large viewing angle, supports live view stakeout
	Laser Assisted Camera	Up to 12 MegaPixel, supports laser aiming display
	I/O Interface	1× USB type-C port; 1 × TNC antenna port; 1× SIM card slot; 1 × 5 pin LEMO port
	Dimensions	125mm x 125mm x 79mm
	Weight	$\leq 699\text{g}$

*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.



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