

SPECIFICATIONS

Marvel Laser GNSS Receiver

Marvel SPECIFICATIONS		
GNSS Performance	Channels	1408
	Satellites Tracking	GPS:L1C/A/L2P(Y)/L2C/L5
		GLONASS:L1/L2
		BDS:B1/B2/B3I/BIC/B2a/B2b
		Galileo:E1/E5a/E5b/E6
		QZSS:L1/L2/L5/L6
		SBAS:L1
	Positioning Rate	Up to 50Hz
	Operation System	Linux
	Initialization Time	<5s(Typical value)
	Initialization Reliability	99.99%
	Static Horizontal Accuracy	±(2.5mm+0.5x 10 <sup>-6</sup> xD)
Static Vertical Accuracy	±(5mm+0.5x10 <sup>-6</sup> xD)	
RTK Horizontal Accuracy	±[8mm+1.0x10 <sup>-6</sup> xD)	
RTK Vertical Accuracy	±(15mm+1.0xx10 <sup>-6</sup> xD)	
IMU Sensor	IMU	Supported
	Accuracy	Less than 2cm within 60°
	Tiltangle	0~120°
Data Output	Correction Data	RTCM2.X, RTCM3.X
	GPS Data	NMEA0183s RJK, Binary
Function Configuration	Tilt Survey	Supported
	PPK Survey	Supported
	Buzzer	Supported
	Voice	Supported
	NFC	Supported
	Size	120*89mm
Feature	Weight	0.66kg
	Indicator Light	Satellite + Data + Power + Bluetooth
	Operating Temperature	-45°C~+75°C
	Storage Temperature	-55°C~+85°C
	Water/Dust Proof	IP67
	Shock Resistance Grade	IK08
	Shock	Survive a 1.8m drop
	Static Data Format	TXT
Static Data Recording	Data storage	32G
	Battery Capacity	7.4V, 7000mAh
Electrical	Working Time	20 hours with rover CORS workmode
	External Power	7.5 hours with base station work mode
	I/O Port	1 x USB Type-C power, power bank supported 1 x USBType-C port (power supply and charge) 1 x SMA radio antenna port
Communication	Wireless Communication	1 x Five-core Lemo port (9V-14V)
	Built In Network	Supports Bluetooth. 4G handbook devices, WIFI, built in 4G-LTE
	Radio Transmit Power	2W
	Standard Internal Rx/Tx	410-470 MHZ
Camera	Protocol	TRIMTALK450S, SATEL, TRIMMARKIII, TRANSEOT, SOUTH, INTALK (LoRa)
	Function	5M&5M double high-definition cameras, with a large view angle that supports real-life AR stakeout
Laser Tilt Survey	Laser Survey	Supported. Three-D error: 0.008+0.005*D (tiltangle s30)



**LASER RTK**  
Laser pointing, measurement reaching

- New Generation IMU 
- Rear Laser 
- HD Real Stakeout 



## Millimeter Level Laser Professional Camera Better Real Stakeout



- \*Realistic stakeout, with clear and precise stakeout points; overlay design files, combining virtual and real points clearly, greatly improving the efficiency of stakeout.
- \*Professional starlight night vision HD lens with wide viewing angle, combined with professional algorithms, with accuracy better than 1cm.
- \*Carefully selected 3R class green light, clearly visible under strong light, with millimeter level laser module embedded at the back.
- \*360 ° panoramic measurement brings you a different work experience. Point to point pile measurement, laser pointing, and measurement reach, challenging complex environment and mastering the field of measurement.

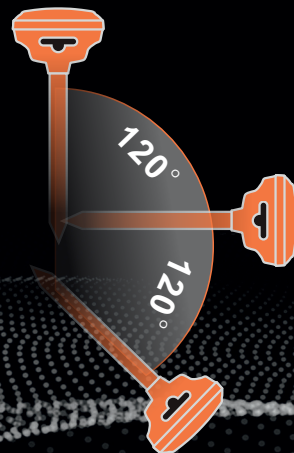


## Self-developed Algorithm Support SBAS No Fear of Ionospheres

- \*Self-developed PPP-IAR algorithm can achieve high-precision operations even in areas without communication networks, as well as in mountainous, oceanic and desert areas where CORS network signals are not covered.
- \*High performance RTK core, integrated with developed algorithm, combined with high-density CORS nationwide, to achieve fixed startup seconds; according to the working environment, the host automatically selects the optimal algorithm, which can maintain a fixed solution and stable accuracy even when the ionosphere is active.
- \*Even if the signal is interrupted, it can still maintain cm level accuracy and continue working over 5 minutes, focusing on solving pain points such as weak and unstable signals in forest areas and cross regional boundaries, greatly improving the availability of RTK.



## New Generation High-precision IMU Automatic Initialization Upon Startup



- \* Newly upgraded seamless super IMU, 120° large angle without initialization, bidding farewell to shaking.
- \* After initialization is complete, there is no need to exit. The inertial navigation can be used whenever the receiver is shoulder resistant, hand-held, or horizontally placed.
- \* No need to look at the bubbles, point to measure, with reliable accuracy.



## Power Indicator light Bulit-in 2W radio with

- \*With the power indicator light, we can effectively control the usage time of the receiver, thereby improving work efficiency
- \*With built-in 2W radio with lora protocol, the working distance of the radio can reach over 15 km, effectively improving the efficiency of the surveyor's work

