

MS401 Receiver



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The MS401 receiver is a compact and all-in-one GNSS receiver with low power consumption, high performance, and high stability. It adopts a Linux operation system, built-in high-performance positioning board, antenna, MEMS sensor, and a variety of 4G modules, supporting MEMS combination of decoding, remote control, different configuration modes, intelligent communication, and other important functions. Simultaneously, with a simple and small integrated structure and several features of easy installation, IP68 protection level, and ultra-low power consumption, it is suitable for the monitoring of geohazard, mines, reservoirs, slopes, bridges, and other fields.

Main Functions and Features



Three constellations with eight bands.



Large capacity storage: 16GB + external storage (TF card).



Built-in MEMS sensor with trigger function supports dynamic adjustment of monitoring frequency.



Low power consumption: average power consumption $\leq 2.6W$ (long link) saves the cost of power supply.



The indicator is tilted at 45°, which fully considers the visual habit.



High integration: integrated GNSS board, MEMS sensor, and NB-IOT modules.



Intelligent communication: built-in ESIM card supports an intelligent switch between internal and external cards.



Configuration mode: support configuration by Bluetooth APP, web terminal, and remote control software.



High security: built-in firewall, high-security port, and other reliable functions for system management.



High level of protection: an industrial design with an IP68 protection rating for shockproof, drop proof, and lightning protection.



Functions of self-checking for working status, self-diagnosis, self-healing, power loss data protection, and real-time clock calibration.



User-friendly: the monitoring system is easy-to-install and supports remote configuration. It can be configured within 1 minute.



Support solution of common reference station. The interval between the reference station and monitoring station is $\leq 15km$.

Specification

GNSS Specification	Satellite Signals	1408 Channels	Frequency band	
		BDS	B1, B2, B3	
		GPS	L1C/A, L2C, L2P(Y), L5	
		GLONASS	G1, G2	
		Galileo	E1, E5a, E5b	
		QZSS	L1C/A, L2C, L5	
		SBAS	L1C/A	
	Accuracy	RTK Horizontal	±(8mm+1x10 ⁻⁶ D)	
		RTK Vertical	±(15mm+1x10 ⁻⁶ D)	
		Static Horizontal	±(2.5mm+0.5x10 ⁻⁶ D)	
		Static Vertical	±(5mm+0.5x10 ⁻⁶ D)	
Initialization Time		Typically<10 seconds		
Initialization Reliability		>99.9%		
Data Formats	RTCM 3.0, RTCM 3.2, NMEA-0183, MEMS			
Positioning Output Frequency	1 Hz, 5 Hz			
Network Communication	RS485	Support multiple sensor access		
	LAN	Transmission rate: 10/100 Mbps		
	Bluetooth	Less than 10m		
	NB-IOT/4G/LoRa	2G/3G/4G NB-IOT/LoRa (Optional)		
Transmission Protocol	TCP client, TCP server, Ntrip client, Ntrip server, Ntrip caster			
MEMS	Inclination angle: ±90°; Accuracy: 0.1°; Accelerometer: ±2g; Accuracy: 1mg MEMS trigger function: support dynamic adjustment of monitoring frequency			
I/O Interface	Light/Slot	Lights*4: satellite, power, communication, LAN 1×SIM card, 1×TF card, 1×USB port		
	External	1 LoRa antenna interface, 1 data cable interface (including signal interfaces for power supply, RS232, RS485, LAN)		
Physical	Average power consumption of the whole machine: ≤2.6W (acquisition: 15s, upload: 15s) Input voltage range: 9~28V-DC/1A Weight: ≤1.4kg Size: Ø185mm*143mm			
	Temperature	-40℃~85℃		
	Humidity	95% humidity with 25℃~55℃		
	Protection Level	IP68		
	Salt Spray	96 hours		
System	Configuration	Operation system	Linux system	
		Storage	16GB+TF card	



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