

TR07M

Multi-functional Receiver
for CORS and Monitoring

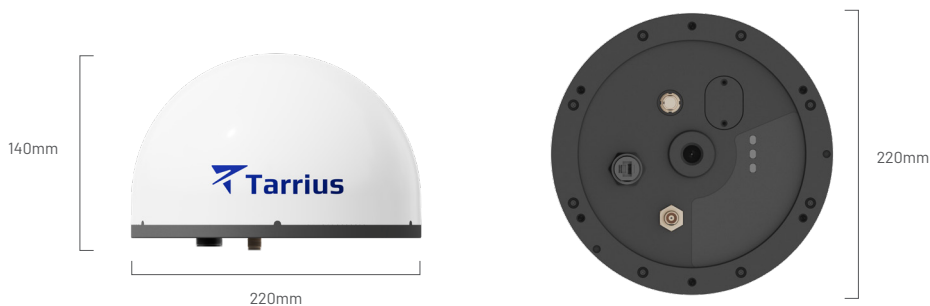


Precision you can build on.

Tarrius | TR07M

Multi-functional Receiver for CORS and Monitoring

Overview



TR07M is a full-system, multi-frequency, integrated GNSS monitoring station. Adopting low-power and integrated design for easy deployment, it is widely applied in safety monitoring scenarios including dams, geological disasters, mines and slopes, delivering high-precision 3-axis surface displacement data around the clock. This device can also function as a base station for use in transportation, robotic lawn mowers and other fields.

The TR07M supports flexible data transmission and remote management via cellular, Ethernet, and Wi-Fi interfaces. An intuitive web-based interface allows for easy monitoring and configuration over local networks.

Engineered for harsh environments, the TR07M features a rugged IP67-rated enclosure, ensuring reliable operation and long-term durability in outdoor conditions. Its low power consumption and integrated compact design make it ideal for space- and energy-constrained deployments.

Application Scenarios

Land Slide



Mine Slope



Dam and Reservoir



Bridge



Highlights and Features



1 Seamless Integration, effortless setup

Simplify on-site deployment with the all-in-one architecture. By integrating a high-precision GNSS antenna and receiver, MEMS sensors, and a cellular modem into a single unit – requiring only a power source to run.



2 High accuracy GNSS + MEMS

The system enables timely deformation response via MEMS and variable-frequency control. The GNSS+MEMS unit triggers high-speed data uploads and instant alerts upon sudden movement, overcoming the response-time constraints of traditional long-term static GNSS monitoring.



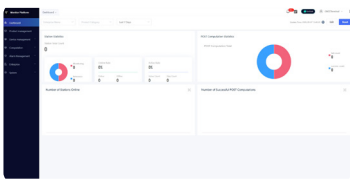
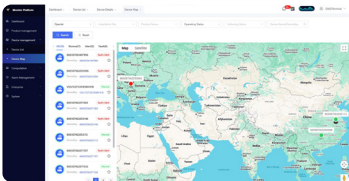
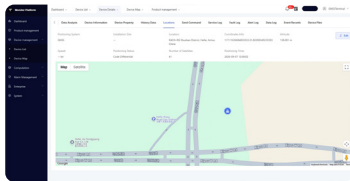
3 Intelligent edge-cloud synergy

Edge processing performs real-time sensor fusion and anomaly detection. The cloud runs advanced positioning for mm-level precision. This edge-cloud synergy delivers instant responsiveness with deep computing power, while significantly reducing data transmission overhead.



4 End-to-end monitoring data chain

Integrates with TARRIUS cloud IoT platform for an end-to-end structural health monitoring pipeline: on-site GNSS data collection → encrypted wireless transmission → real-time deformation visualization, threshold alerting, and historical trend analysis on a web-based infrastructure monitoring dashboard.



Technical specifications

Technical specification			
GNSS positioning	Supported constellations and frequency bands	GPS	L1 C/A, L2C, L5
		GLONASS	L1, L2
		Galileo	E1, E5a, E5b, E6
		BDS	B1I, B1C, B2a, B2b, B3I
		QZSS	L1 C/A, L2C, L5
		NavIC	L5
	Channels	1040	
	Time to first fix	Cold Start: < 50 s	
	Real-time kinematic (RMS)	Horizontal	8 mm + 1 ppm
Vertical		15 mm + 1 ppm	
Post-processing static (RMS)	Horizontal	2.5 mm + 0.5 ppm	
	Vertical	5 mm + 0.5 ppm	
MEMS	Acceleration	Range	±2000mg
		Resolution	1mg
	Inclinometer	Range	±90°
		Resolution	0.01°
Communication method	Wireless	Cellular	LTE-FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28/66 LTE-TDD: B34/38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: GSM850/EGSM900/DCS1800/PCS1900
		Wi-Fi	Wi-Fi (Range ≤10m, access point mode, Web user interface)
		Sub-GHz	Sub-GHz (Range ≤500M)
	Wired	Ethernet RJ45	IEEE 802.3
		RS-485	Debug console; Modbus RTU support planned
		RS-232	NMEA 0183, RTCM 3.x protocols support
Electrical characteristics	Power input	DC: 9–36 V Typical value: 12 V	
	Power Consumption	1.3W@ 12 V	In base station mode, data is transmitted only via Sub-GHz.
		1.4 W @ 12 V	In monitoring station mode, data is transmitted only via Sub-GHz.
	LED indicator lights	3 (one red power light, one blue satellite light and one orange signal light)	
	SIM card slot	1 Nano SIM card slot	
Interfaces	Connector	1 LEMO connector (power input, RS-232, RS-485) 1 RJ45 connector 1 TNC connector for short-range	
Cable	Length	Default 2 M	
Storage	Capacity	64 GiB	
Specifications	Dimensions	Φ220×149 mm	
	Net weight	2.1 kg	
	Operating temperature	-40 °C to +70 °C	
	Storage Temperature	-40 °C to +85 °C	
	Humidity	0-95 % RH	
	ESD protection	Contact discharge: ±8 kV, air discharge: ±15 kV	
	Protection rating	IP67	
Regulatory		CE, FCC, IC, RCM	