PHEREFIX

M6

DEFORMATION MONITORING

High precision sensor

Complete data link

M6 Universal Monitoring All-in-one Machine

M6 is a universal GNSS receiver suitable for geological disaster monitoring and early warning. It has a built-in independent high-precision and low-power positioning module. The host adopts an integrated design, which is easy to install and maintain. The ultra-low power design reduces system configuration. Battery capacity and solar panel power requirements reduce site construction and operating costs.

High-precision and low-power GNSS module

M6 integrates a high-precision and low-power positioning module, supporting BDS B1I/B2I/B3I/B1C/B2a, GPS L1/L2/L5, GLONASS L1/L2, Galileo E1/E5a/E5b, QZSS L1/L2/L5.

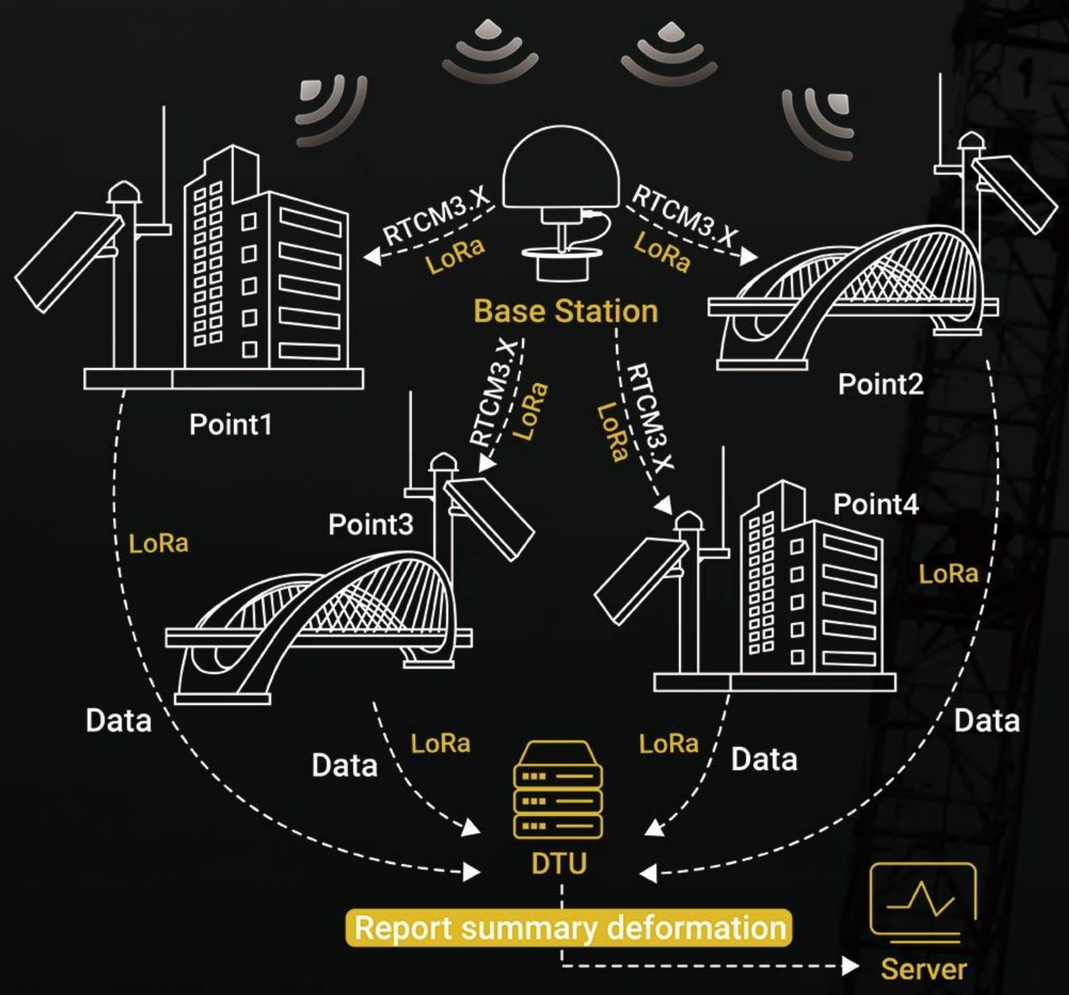
High precision sensor

M6 has a built-in high-precision three-axis accelerometer and barometer, combined with a newly designed fusion algorithm engine, to effectively eliminate false alarms and support mid- and long-term early warning.

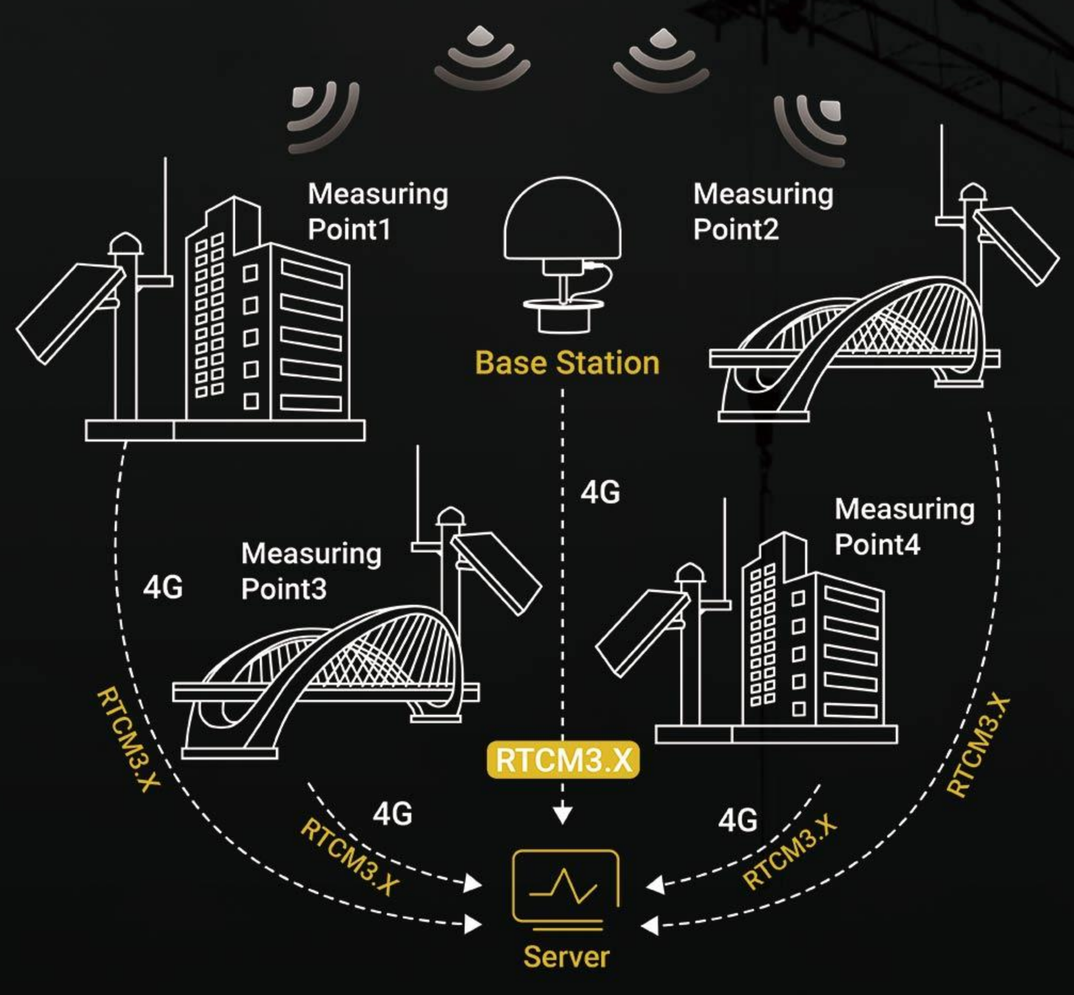
Cloud service function

M6 can regularly report its status such as device location, network status, signal strength, and satellite reception status, and supports the cloud platform's operations such as restarting, setting, and upgrading remote devices.

Solution Schematic Diagram



● Front-end calculation solution



● Back-end calculation solution

Characteristic

- Linux + Qualcomm MDM9628
- Cortex-A7 Intelligent System Platform

- Support 4G full Netcom,
- Backward compatible with 2G and 3G network

- Integrated design, low cost, low power consumption
- Easy to install and maintain

- Built-in high-precision sensor
- Support threshold trigger function

System Architecture

Application Scenario

Safety Monitoring of
Water Conservancy Dam

Safety Monitoring of
Slopes Along Highways

Bridge Structure Monitoring

ITEM		SPECIFICATION	REMARKS
HARDWARE PLATFORM		Qualcomm Cortex-A7	
SOFTWARE PLATFORM		Linux	
GNSS	GPS	L1(C/A)/L2P(W)/L5	
	GLONASS	G1/G2	
	BDS	B1I, B2I, B3I, B1C, B2a	
	GALILEO	E1, E5a, E5b	
	QZSS	L1, L2, L5	
	Data format	NMEA-0183	
	Correction I / O Protocol	RTCM3.X	
	Fixed convergence time	≤10s	
POSITIONING ACCURACY	Single(RMS)	Horizontal: 1.5m; Vertical: 2.5m	
	RTK(RMS)	Horizontal: ±(8mm+1ppm); Vertical: ±(15mm+1ppm)	
	Static Accuracy(RMS)	Horizontal: ±(2.5mm+0.5ppm); Vertical: ±(5mm+0.5ppm)	
ACCELERATION MEASUREMENT	Measuring Range	±6g	
	Measuring Accuracy	±1mg	
	Sampling Interval	0s~24h	
	Upload Interval	0s~72h	
INCLINATION MEASUREMENT	Measuring Range	±90°	
	Measuring Accuracy	±1°	
	Sampling Interval	0s~24h	
	Upload Interval	0s~72h	
SYSTEM PLATFORM	Bluetooth	V2.1+EDR/V4.0 dual mode	
	WIFI	802.11 b/g/n	
	Network	FULL NETCOM 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	
	Lora Spread Spectrum Wireless Transmission	Frequency: 410.125~493.125MHz Transmit Power:30dBm Communication Distance:10km (open conditions)	
	Storage	32GB	
	SIM	External SIM, FULL NETCOM	
	Custom Working Mode	Automatic Adjustment & Manual Adjustment	
INDICATOR	Power Indicator	Lights up when powered on	
	RTK Mode Indicator	Base Station: The base station starts up normally - always on RoverStation: Fixed solution - always on Singlepoint/Differential/Floatingpoint solution-flashing	
	SD DataIndicator	In the state of storing data, it flashes once every time 4K is written	
	4G Network Indicator	Lights up when the connection is successful	
ELECTRICAL CHARACTERISTIC	Voltage Input	9~36VDC	
	Power Consumption	1.8W	
	Interface	RS232*1RS485*1	RS485 supports standard Modbus protocol
ENVIRONMENT	Working Temperature	-40℃~+85℃	
	Storage Temperature	-40℃~+85℃	
	Anti-seismic Grade	IEC60068-2-6	
	Protection	IP68	
PHYSICAL	Material	PC + ABS + Aluminum Alloy	
	Dimension	Φ213*136(mm)	
	Weight	≤2100g	

- Manufacturers may update parameters at any time, please refer to the latest product information.
- Equipped with electronic fence system, Spherefix's product have area code restrictions. Any issue please contact Spherefix or local dealers to verify the specific details.

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