BWSENSING

BW-GNSS-DS

GNSS Displacement Sphere

Technical Manual

V1.0

Product Introduction

BW-GNSS-DS is a GNSS displacement observation sphere with visual displacement monitoring and millimetre accuracy positioning launched by BWSENSING. Displacement observation ball adopts multi-system and multi-frequency RTK positioning technology and video AI perception technology fusion, simultaneously receiving five-star sixteen-frequency satellite positioning signals, with RTK dynamic and static observation modes, simultaneously measuring horizontal displacement and vertical displacement, built-in high-precision MEMS sensors, support remote video inspection, video linkage review. Low power consumption design, has a very high cost-effective, applied to universal ground disaster monitoring, water conservancy dam monitoring, landslide monitoring along roads and important buildings, hazardous mining reservoirs and dangerous houses monitoring and other scenes.

Specifications

GNSS	
Static accuracy	Planar± (2.5 + 0.5 × 10 - 6 × D) mm, D is the baseline distance(unit: km)
	Vertical± (5.0 + 0.5 × 10 - 6 × D) mm, D is the baseline distance(unit: km)
Differential data	RTCM2.x/3.x
Satellite support	GPS：L1，L1C，L2C，L2P，L5
	BDS-2：B1I，B2I，B3I
	BDS-3：B1I，B3I，B1C，B2a，B2b*
	GLONASS：G1，G2
	Galileo：E1，E5a，E5b
	QZSS：L1，L2C，L5
	SBAS：L1
	IRNSS：L5*
	L-band
Differential format support	CMR，RTCM2.X，RTCM3.X
Output format support	NMEA-1083，RTCM2.X，RTCM3.X

Basic Parameters	
Shutter	1/1 s~1/30,000 s
Day/Night conversion mode	Auto ICR Colour to Black
Zoom	4x optical zoom, 16x digital zoom
Slow shutter	Support

Video	
Video compression standard	H.265/H.264/MJPEG

Fill Light	
Fill light type	Hybrid fill light
Fill light distance	70 m infrared fill light, 30 m white light fill light
Anti-fill light overexposure	Support
Infrared wavelength range	850 nm

Cloud Tower	
Horizontal range	0~340°
Vertical range	-10°~50°
Proportional zoom	Support
Number of presets	300
Preset point video freeze	Support
3D Positioning	Support
Azimuth information display	Support
Timed tasks	Preset Points / Ball Restart / Ball Verification
Power failure memory	Support

Network	
Interface protocols	Open API for software integration, open network video interface, ISAPI, Hikvision SDK, third-party management platform access, GB/T28181 protocol, ISUP, support for Fluorite access.
Security management	Authorised user name and password, and MAC address binding, HTTPS encryption, IEEE 802.1x network access control, IP address filtering.
Client	Support iVMS-4200 client

Mobile Communication Parameters	
Mobile communication type	4G
SIM card	Mobile Unicom Telecom nano card

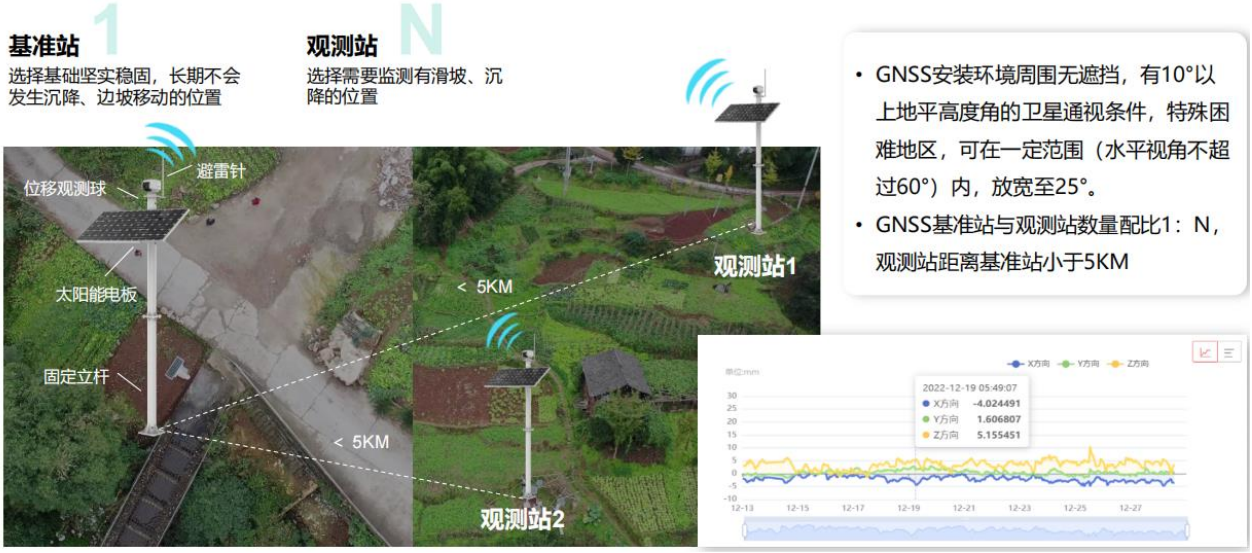
Interfaces	
Network interface	RJ45 network port, adaptive 10 M/100 M network data
Audio	One way audio output
Alarm	One in one out
RS485	one way
Restore factory settings	Support

Image	
Image parameter switching	Support
Image settings	Saturation, Brightness, Contrast, Sharpness
Day and night conversion mode	Day, night, automatic, timed switching
Wide dynamic	120 dB ultra-wide dynamic
Signal-to-noise ratio	> 52 dB
Fog transmission support	Support
Image enhancement	Backlight compensation, glare suppression, 3D digital noise reduction
Area Focus	Support
Area Exposure	Support

General Specification	
Dimensions	252.1 mm × 232.3 mm × 221.2 mm
Weight	4.2 kg
Material	Corrosion-resistant material
Operating temperature and humidity	-40 ℃~85 ℃； humidity less than 95%
General features	Mirroring, password protection, watermarking technology, IP address filtering
Defogging	Support

Deployment Programme　Yunfan Geological Hazard Monitoring Cloud Platform

Layout Design　Unobstructed surroundings, datum station & observatory 1: N



Installation instructions

1. Installation Base

Digging a pit → Installing reinforced concrete beam→Cement curing

①Dig a 60*60*80cm pit at the equipment installation point.

② Fix the embedded parts of reinforced concrete beams of the uprights, pour concrete, and install the equipment uprights after solidification.

2. Equipment Installation

① Install the equipment on the top of the pole, use the fixed bracket, and install the solar panel.

② Organise the cables to be threaded from inside the riser, erect the riser, fix it to the pre-embedded reinforced concrete beam, and tighten the screws.

3. Equipment Power-up

① Power on the device, built-in ESIM card, the device automatically connects to the cloud server.

② Add device, mobile phone APP scanning device serial number to add to the platform.

GNSS Displacement sphere

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