

**CHCN**AV

**H3**

**GNSS MONITORING RECEIVER**



**INFRASTRUCTURE**

# INTEGRATED GNSS MONITORING RECEIVER

The H3 is a cost-effective and versatile GNSS smart receiver leveraging CHC Navigation's expertise in subsidence and deformation monitoring for critical infrastructure such as dams, bridges and landslide-prone areas. Unlike traditional GNSS monitoring systems, the H3 features an intelligent antenna design that achieves a high level of integration. This design includes the GNSS module, a low-power interface board, Communication modules and MEMS in a compact, all-in-one unit. The H3 provides reliable data for both long-term static positioning and dynamic positioning, making it a prime and efficient solution for demanding monitoring applications.

## SEAMLESS INTEGRATION, EFFORTLESS INSTALLATION

### Simplify on-site installation workflow

The H3 serves as an all-in-one multi-data sensor tailored for subsidence and deformation monitoring applications. It seamlessly integrates the GNSS antenna and module, MEMS component, and 4G modem into a single unit, simplifying on-site installation. No additional components beyond the power supply are required, ensuring seamless operation. The H3 is designed to streamline the installation workflow without overwhelming complexity, minimizing resource expenditure.

## GNSS+MEMS SENSOR

### Timely response to deformations

Utilizing high-end MEMS components and advanced variable-frequency control technology, the H3 enables rapid data uploads when sudden ground deformation is detected. This feature is critical for providing immediate warning and overcoming the constraints of long-term static GNSS monitoring.

## PRECISION ASSURANCE

### iSTAR Algorithm and Extensive GNSS Compatibility

The H3 uses the innovative iSTAR algorithm and supports 1408 GNSS channels with full compatibility with GPS, GLONASS, BeiDou, Galileo and QZSS satellite constellations. This ensures the delivery of the highest quality positioning data in complex environments. In addition, MEMS data enhances the integrity validation process of GNSS-based deformation data.

## RELIABILITY IN ANY ENVIRONMENT

### Energy-efficient long-term performance

Designed for extended monitoring scenarios, the H3's integrated design and low power consumption (less than 1.8W) make it suitable for outdoor installations and solar panel powering. The H3 delivers consistent and reliable data whatever the environmental challenges.





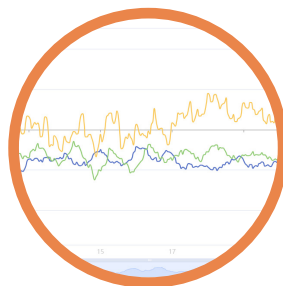
**GNSS Module**

1408 GNSS channels, compatible with GPS, GLONASS, Beidou, Galileo and QZSS



**GNSS Antenna**

Rugged design for durability in harsh environments



**MEMS sensor**

Provide inclination and acceleration for comprehensive monitoring.



**Communication Module**

No add-ons required; all communication modules are built-in.

# SPECIFICATIONS

GNSS Technology	
Signal tracking	GPS(L1,L2,L5) GLONASS(L1,L2) BDS(B1C,B2A,B1I,B2I,B3I) Galileo(E1,E5a,E5b) QZSS(L1,L2C,L5)
Number of channels	1408
Update rate	15s(Up to 1HZ)
Antenna	Integrated antenna
Measurement performance and Accuracy <sup>(1)</sup>	
Post processing static mode	Horizontal: 3 mm + 0.5 ppm Vertical: 5 mm + 0.5 ppm
Real-time kinematic	Horizontal: 8 mm + 1 ppm Vertical: 15 mm + 1 ppm
Time for initialisation	≤20s
Time Accuracy (RMS)	20ns
Velocity Accuracy (RMS)	0.2m/s
MEMS function	
Angle Range	Three-axis ±90°
Acceleration Range	Three-axis ±2000mg
Connection and power	
Status indicator(LED)	Power,communication,satellite tracking
Port	7-pin Lemo Connector
Cable	2m(RS232 & power)
Power consumption	1.8 W (when all GNSS constellations tracked) Nominal 12 V DC, voltage range 9-21V
Power Mode	Automatic Power-On upon Connection
Mounting	5/8" Whitworth

Communications	
Data Format	NMEA-0183 V2.30 RTCM3.2; RTCM3.x
Data Transfer Protocol	TCP, MQTT, NTRIP
Card Type	Nano SIM(0.76mm, ISO/IEC 7810)
Network 4G modem	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/ B12/B13/B18/ B19/B20/B25/B26/B28 LTE-TDD: B38/B39/B40/B41 UMTS: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8

Environmental data	
Temperature	Operating: -40 °C to +65 °C (-40 °F to +149 °F) Storage: -40 °C to +80 °C (-40 °F to +176 °F)
Humidity	0%RH ~ 99%RH, non-condensing
Dust and Water Proof	IP67
Drop	Withstands 1 m drop onto hard surface
Dimensions / weight	Diameter: 212.1mm Height: 129.7mm / 1.5kg



\* Specifications are subject to change without notice.  
\* Android®, Google Play and other marks are trademarks of Google LLC.

(1) Measurement precision, accuracy in position and height, reliability and time for initialisation are dependent upon various factors including the number of satellites tracked, the observation time, the ephemeris accuracy, the atmospheric conditions, multipath and resolved ambiguities. Figures quoted are RMS (root mean square) and assume normal to favourable conditions.

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