

Attitude Heading Reference System: AH200

The tracking control system of the satellite antenna can control the antenna to search for satellite signals during the movement of the carrier, and stably compensate the attitude of the antenna, so that the antenna can track the satellite in real time to ensure normal satellite communication. Therefore, the choice of the inertial attitude sensor plays an important role in the reliability of the antenna tracking control system.



With its rich experience in the development and production of inertial attitude sensors, Bewis Sensor has launched the attitude heading reference system AH200. Based on the requirements of the satellite communication stability system, the product has a mobile satellite antenna stability tracking sensor with a three-axis magnetometer, a three-axis gyroscope and a three-axis accelerometer. It realizes the automatic search of the satellite according to the received attitude signal and the strength of the satellite signal and the stable servo control according to the sensor signal, so as to achieve the purpose of isolating the carrier disturbance.



Product real shot

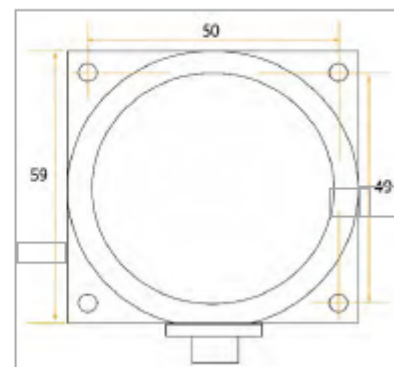
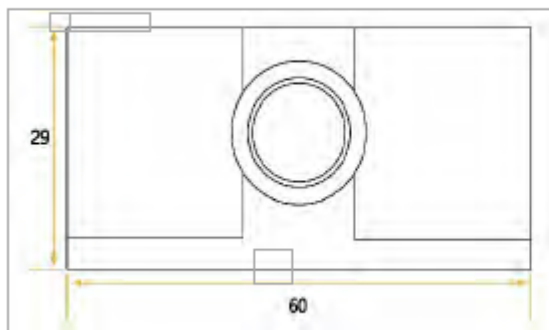
Features:

- Three-axis accelerometer, three-axis magnetometer, three-axis gyroscope stabilization and automatic polarization tracking
- 360° rotation azimuth accuracy is less than 1°
- Roll angle and pitch angle accuracy is less than 0.1°
- Fast star search, response frequency up to 100HZ
- Small size: L45 × W36 × H13 (mm)
- Full attitude use: pitch $\pm 90^\circ$, roll $\pm 360^\circ$
- Built-in anti-wind wave Kalman filter optimization algorithm
- Meets IEC EN 60721 requirements
- Meet the global temperature: $-40 \sim +85^\circ\text{C}$ wide temperature work
- Waterproof design to ensure normal operation in harsh environments
- Anti-vibration shock and anti-electromagnetic interference
- Market leader, cost-effective

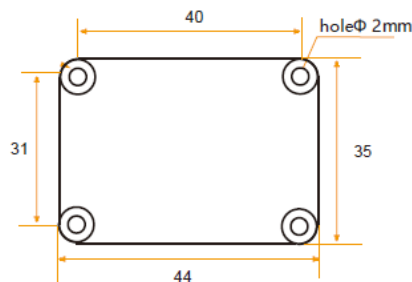
Attitude Heading Reference System: Technical Indicators

Attitude parameters	Pitch Accuracy	1° (RMS, dynamic) 0.5° (RMS, Static)
	Roll accuracy	1° (RMS, dynamic) 0.5° (RMS, Static)
	Resolution	0.01°
	Slant Range	Pitch $\pm 90^\circ$, Roll $\pm 180^\circ$
Heading parameters	Heading Accuracy	1° (Pitch<40°)
		1.2° (Pitch<60°)
		1.5° (Pitch<80°)
	Resolution	0.01°
Physical characteristics	Size	L60 x W59 x H29 (mm)
	Weight	150g
	Output form	RS232/RS485/TTL
	Start Delay	<3s
Interface characteristics	Maximum Output Rate	50Hz
	Serial Communication Rate	2400-115200 Baud rate
	Digital Output Format	Binary high performance protocol
Environment	Vibration Resistance	2000g

Size: L60*W59*H29 (mm)



Size: L44*W35*H11 (mm) ± 1 mm error for length and width dimensions, please refer to actual size.



Attitude Heading Reference System: Success Cases

During the movement of the carrier, due to changes in its attitude and geographical position, the antenna that was originally aimed at the satellite deviates from the satellite and the communication is interrupted. Therefore, these changes of the carrier must be isolated, so that the antenna is unaffected and always aimed at the satellite. This is the main problem to be solved by the antenna stabilization system, and it is also the premise of the mobile carrier for uninterrupted satellite communication

The AH200 measures the amount of change in the carrier so that it reacts on the antenna tracking. Among them, the AH200 has three built-in MEMS sensing units. The three-axis magnetometer measures the azimuth of the object. The accelerometer is used to measure the linear acceleration along one axis of the carrier. The gyroscope is used to measure the angular velocity of the object. Through the data fusion algorithm, the system can output the roll angle, pitch angle, angular velocity, acceleration, azimuth and other data of the carrier in real time, and has various working modes such as alignment, navigation and heading attitude reference. It is widely used in various satellite antenna tracking and positioning systems to ensure that various vehicles, ships and other mobile carriers can continuously transmit voice, data, high-definition dynamic video images, fax and other multimedia information in real time through the geosynchronous satellite during the movement. It is a major breakthrough in the field of communications.



Shipborne satellite communication antenna



Shipborne satellite TV antenna



Satcom on the move



Airborne satellite communication antenna