

product description

The ER-EC31B is a high-precision 3D electronic compass that uses a 2D planar calibration algorithm. Calibration eliminates the need for three-dimensional attitude tilting, and the calibration process is completed by simply rotating the plane one turn. Using the hard magnetic and soft magnetic calibration algorithms of the US patent technology, the compass can achieve the best effect through the three-dimensional calibration method in the environment with magnetic interference. The ER-EC31B integrates the three-axis fluxgate sensor and is real-time through the central processing unit. Solving heading and using a three-axis accelerometer to compensate for heading over a wide range of tilt angles, ensuring that the compass provides high-precision heading data at tilt angles up to $\pm 85^\circ$. The electronic compass integrates high-precision MCU control and diversified output modes. The standard interface includes RS232/RS485/TTL interfaces, and other communication interfaces can be customized.

ER-EC31B is small in size, low in power consumption, and can be applied in many fields such as antenna stabilization, vehicle and system integration. High shock resistance and high reliability also make the compass work in extremely harsh environments, which is more suitable for today's small Chemical military high precision measurement integrated control system.



Main characteristics

- Azimuth accuracy: $0.5^\circ \sim 0.8^\circ$
- Inclination measurement range: $\pm 85^\circ$
- Inclination resolution: 0.1°
- Inclination accuracy: 0.3°
- Wide temperature range: $-40^\circ\text{C} \sim +85^\circ\text{C}$
- Size: L43×W35×H8mm
- With hard magnetic, soft magnetic and tilt compensation output interface
- Standard RS232/RS485/TTL
- DC 5V power supply
- 2D plane calibration

Applications

- Satellite antenna search star
- Artillery launch system
- ROV underwater robot navigation
- Navigation navigation mapping
- GPS integrated navigation
- Antenna servo control
- Infrared imager Laser rangefinder
- Map filler
- Oceanology tester
- Special occasion robot
- Unmanned aerial vehicle

Product electrical parameters

| ER-EC31B performance parameter indicator | | |
|--|--------------------------|------------------|
| Compass heading parameter | Optimum heading accuracy | 0.5° oblique<10° |
| | | 1.0° oblique<30° |
| | | 2.0° oblique<40° |
| | | 2.5° oblique<70° |

| | | |
|-------------------------------|--|---|
| | Resolution | 0.1° |
| Compass inclination parameter | Pitch accuracy | 0.1°<15° (Measuring range) |
| | | 0.2°<30° (Measuring range) |
| | | 0.3°<60° (Measuring range) |
| | | 0.3°<85° (Measuring range) |
| | Pitch oblique range | ±85° |
| | Roll accuracy | 0.1°<15° (Measuring range) |
| | | 0.2°<30° (Measuring range) |
| | | 0.3°<60° (Measuring range) |
| | | 0.3°<85° (Measuring range) |
| | Roll oblique range | ±85° |
| | Resolution | 0.1° |
| | Compass tilt optimal compensation angle range | <40° |
| calibration | Hard iron calibration | Have |
| | Soft iron calibration | Have |
| | Magnetic field interference calibration method | One rotation of the plane (two-dimensional calibration) |
| Physical characteristics | size | L43×W35×H8mm |
| | weight | 20 g |
| | RS-232/RS485/TTL interface connector | 5PIN connection terminal |
| Interface characteristics | Start delay | <50 ms |
| | Maximum output rate | 20Hz/s |
| | Communication rate | 2400~ 19200baud |

| | | |
|-------------------------------|---|----------------------------------|
| | Output format | Binary high performance protocol |
| power supply | Supply voltage | (default) DC +5V |
| | | (custom) DC 9 ~ 36V |
| | Current (maximum) | 45mA |
| | Ideal mode | 35mA |
| | Sleep mode | TBD |
| surroundings | Operating range | -40℃～+85℃ |
| | Storage temperature | -40℃～+100℃ |
| | Anti-vibration performance | 2500g |
| Electromagnetic compatibility | According to EN61000 and GBT17626 | |
| Mean time between failures | ≥40000 hours/time | |
| Insulation resistance | ≥100 MΩ | |
| Impact resistance | 100g@11ms, three axes and the same (half sine wave) | |
| Vibration resistant | 10grms、10～1000Hz | |
| weight | 40g (without cable) | |

Product size chart



