Micro-gyro north seeking HT-INS-100

(Weight only 65g; With heading keeping ability)

Product characteristics

1. High precision, small size, long-term stability.

2. Full temperature compensation.

3. Strong ability to withstand impact vibration.

4. Zero bias stability : Allan Variance 0.02° / h.

5. Completely independent gyro north seeking, free from ferromagnetism and external environment interference.

6. After the completion of north seeking, the heading keeping accuracy in motion is less than 0.3 °/h.

Product description

HT-INS-100 is a small-volume, high-precision MEMS inertial measurement unit, which integrates three-axis high-precision MEMS gyroscope, three-axis high-precision MEMS accelerometer, and full-temperature compensation before the product is out of the factory to ensure its stable performance in complex temperature environment. The products are widely used in intelligent handling robots (AGV), autonomous underwater vehicles (AUV), industrial equipment, measurement / map, stable platform, transportation,

unmanned aerial vehicles (UAV), and unmanned ground vehicles (UGV).

Main technical

system performance			
Parameters	Conditional	Index	Unit
Measurement range		0~360	°
Initial north-seeking accuracy	25℃ 1δ	0.5（0.2° after calibration）	°
Initial alignment time		3	min
Heading keeping accuracy		0.3	°/h
Attitude measurement accuracy		0.03（No long-term drift）	°

Gyroscope performance			
Parameters	Conditional	Index	Unit
Measurement range		150	°/s
Zero-bias stability	Allan Variance	0.02	°/h
Zero bias repeatability		0.1	°/h
Scale factor repeatability		100	ppm
Random walk		0.005	°/ √h

Accelerometer performance			
Parameter	Conditions	Index	Unit
Range		±2、±4、±8	g
Bias Stability	Allan Variance	30	ug
Bias repeatability		1	mg
vibration rectification error		<0.1	g

Interface characteristic	
Data update rate	100Hz
Start-Up time	<30s
Interface	RS422
Bps	460.8Kbps

Physical characteristics	
Operating Temperature	-40℃-+80℃
Storage Temperature	-50℃-+85℃
Size	44.5*38.5*21.5mm
Weight	65g

Output Form

RS422 Protocol：Baud=460.8K, no parity, data=8 bits, stop=1;			
Byte offset	**Name**	**Description**	**Size[bit]**
0	Header	0xDD	8
1	X-axis angular velocity	float (deg/s)	32
5	Y-axis angular velocity	float (deg/s)	32
9	Z-axis angular velocity	float (deg/s)	32
13	X-axis acceleration	float (g)	32
17	Y-axis acceleration	float (g)	32
21	Z-axis acceleration	float (g)	32

25	Pitch angle value	float (deg)	32
29	Roll angle value	float (deg)	32
33	Heading angle value	float (deg)	32
37	Temperature of X axis gyro	float (℃)	32
41	Temperature of Y axis gyro	float (℃)	32
45	Temperature of Z axis gyro	float (℃)	32
46	Checksum	1-44 byte summation	8

Pin definition

No.	NAME	I/O	Description
1	TX-	O	Line Tx- RS422 Level
2	RX-	I	Line Rx- RS422 Level
9	Tx+	O	Line Tx- RS422 Level
10	Rx+	I	Line Rx+ RS422 Level
8	VSUP	I	+5VDC Power supply
15	GND		Power ground
3, 4, 5, 6			Factory use. No access to any level
7, 11, 12, 13, 14			NC

product accumulation size