

HT-M-IMU

High precision MEMS IMU, gyro bias stability $0.02^\circ / h - 0.5^\circ / h$ (Allan variance).

Product characteristics

- 1.High precision, small volume, long-term stability.
2. Full temperature compensation.
- 3.Users can re-set gyro zeros that exclude earth rotation by serial instructions.
4. Has strong ability to withstand shock vibration.



Product description

HT-M-IMU is a small, high-precision MEMS inertial measurement unit, which integrates three-axis high-precision MEMS gyroscopes, three-axis high-precision MEMS accelerometers, and the full temperature compensation of the product before leaving the factory to ensure its stable performance in complex temperature environments.

The product is widely used in intelligent handling robots (AGV), autonomous underwater vehicles (AUV), industrial equipment, measurement / map, stable platform, traffic, unmanned aerial vehicles (UAV), unmanned ground vehicles (UGV), etc.

Main technical

No	Parameter	HT-M-IMU -100	HT-M-IMU -400	HT-M-IMU -500	HT-M-IMU -2000	HT-M-IMU -4000	HT-M-IMU -8000	Unit
1	Measurement Range	100	400	500	2000	4000	8000	deg/s
2	Bias Instability	<0.02	<0.3	<0.3	<1	<2	<5	deg/hr
3	Bias Repeatability (1 σ)	<0.1	<1	<1	<3	<5	<5	deg/hr
4	AngularRandom Walk	<0.005	<0.125	<0.15	<0.3	<0.5	<0.8	$^{\circ}/\sqrt{h}$
5	ScaleFactor Repeatability (1 σ)	<50	<100	<50	<10	<10	<10	ppm
6	Bandwidth (-3dB)	100	300	250	200	200	200	Hz

Accelerometer performance			
Parameters	Conditional	Index	Unit
Measurement range		± 10 、 ± 20 、 ± 40	g
Zero-bias stability	Allan Variance	30	μg
Zero bias repeatability	25°C 1 $\bar{0}$	2	mg
Zero bias change of total temperature		10	mg
Scale factor nonlinearity		300	ppm
Noise density		80	$\mu g/\sqrt{Hz}$
Vibration rectification error		<0.1	g

Interface characteristics	
Data update rate	600Hz、1200Hz、2000Hz
Start-up time	<300ms
Data interface	RS422
Baud rate	921.6Kbps

Physical characteristics	
Working temperature	-40℃-+80℃
Storage temperature	-50℃-+85℃
Size	38.6*44.8*21.5mm
Weight	75g

Output data format

RS422 Protocol: Baud=921.6K, no parity, data=8 bits, stop=1;				
Byte	offset	Name	description	Size[bit]
0		header	0xC0C0	16
2		Angle rate	float (deg/s)	32
6		Angle rate	float (deg/s)	32
10		Angle rate	float (deg/s)	32
14		Acceleration	float (g)	32
18		Acceleration	float (g)	32
22		Acceleration	float (g)	32
26		Temperature / BIT	Integer LSB 0.01	16
28		Packet counter	uint8	8
29		BIT_Status	uint8	8
30		CRC16	CRC-CCITT: Bytes 2-29	16

Definition of wiring

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	Power supply
15	GND		Power ground
3,4,5,6			Factory use. No access to any level
7,11,12, 13,14			NC