

MEMS Inertial Navigation Product Manual

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China MoneyPro M E M S . was established in January 2003, with its registered office located at Shenzhen Park, Lianchi District, Baoding City, Hebei Province, and a registered capital of RMB 100 million. The company operates two branch offices in Beijing and Hefei, as well as one holding subsidiary, Hunan Qixing Technology Co., Ltd. The company is dedicated to technical research, product development, and industrial application in the field of inertial navigation, primarily focusing on the research, development, production, and sales of inertial sensors and inertial navigation products. Its main product portfolio includes quartz flexible accelerometers, MEMS angular rate sensor modules, Inertial Measurement Units (IMUs), motion sensor modules, Attitude Heading Reference Systems (AHRS), INS/GNSS integrated navigation systems, compasses, inclinometers, electronic compasses, fiber-optic inertial navigation systems, gravimeters, accelerometer test systems, and related solutions.

The company is recognized as a National High-Tech Enterprise, a National "Little Giant" Enterprise in the Specialized, Refined, Unique, and Innovative sector, a Hebei Province Single-Champion Enterprise, and an Outstanding Private Enterprise in Baoding City. It has established the Hebei Provincial Quartz Accelerometer Sensor Technology Innovation Center, the Baoding Municipal Accelerometer Sensor and Application Technology Innovation Center, and the Baoding Municipal Enterprise Technology Center; it also ranks among the leading domestic suppliers of quartz flexible accelerometers, MEMS inertial navigation products, and accelerometer testing systems.



MEMS
Inertial Navigation Products

Production Capacity

The company has established nearly 45,000 square meters of research and production bases at the Shenzhen Industrial Park in Baoding, Hebei; the Beijing Yizhuang Economic and Technological Development Zone; the Hefei Shushan Economic and Technological Development Zone in Anhui; and the Changsha Zhongdian Software Park in Hunan; these facilities include 6,000 square meters of cleanrooms (including Class 10,000) that comply with the national "Code for Design of Clean Rooms". The company possesses more than 200 sets of various types of production equipment, including dual-axis high-precision temperature-controlled turntables, triple-axis high-precision temperature-controlled turntables, ambient-temperature triple-axis turntables, cryogenic chambers, vibration tables, impact tables, and component aging tables, covering all production and testing stages, such as precision assembly, temperature compensation, calibration, testing, and environmental testing. The annual output capacity of the company reaches 300,000 units/sets of products, including MEMS angular rate sensor modules, inertial measurement units (IMUs), motion sensor modules, attitude heading reference systems (AHRS), INS/GNSS integrated navigation systems, compasses, inclinometers, and electronic compasses.



Hebei Baoding Inertial Navigation Product Production Line



Beijing Inertial Navigation Product Production Line



Anhui Hefei Inertial Navigation Product Production Line

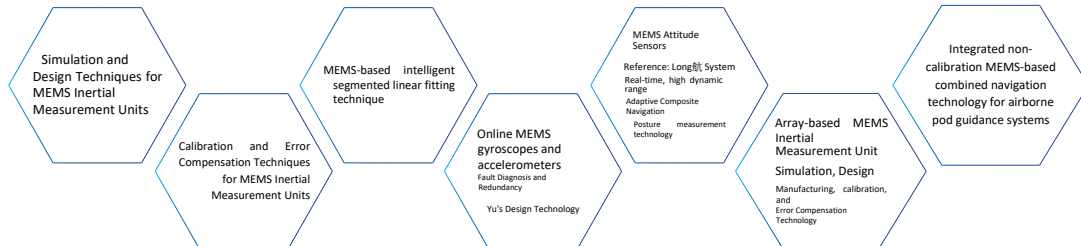




Scientific Prowess

The company has established an Inertial Navigation Technology R&D Center in Beijing and Changsha, Hunan Province, which specializes in technical research and product development across various fields, including MEMS angular rate sensor modules, inertial measurement units (IMUs), motion sensor modules, attitude heading reference systems (AHRS), INS/GNSS integrated navigation systems, compasses, inclinometers, and electronic compasses. The R&D Center is led by a team of technical experts with over two decades of deep expertise in MEMS-based inertial navigation technology, comprising more than 40 R&D engineers; the team boasts comprehensive professional expertise and extensive experience in engineering implementation and product commercialization.

Through years of independent innovation, the company has achieved breakthroughs and mastered core technologies and key processes in the field of MEMS inertial navigation, including sensor integration design technology, signal processing technology, calibration and compensation algorithms, attitude measurement algorithms, integrated navigation algorithms, as well as low-stress assembly, encapsulation, and vibration damping processes; consequently, the company has developed a portfolio of patented technologies and innovative achievements with fully independent intellectual property rights. To date, the company has obtained 11 national authorized invention patents, 3 utility model patents, and 56 software copyrights, while several of its products have been awarded new product certificates at both provincial and municipal levels.



Main Features

The company's MEMS inertial navigation products employ precision signal processing technology, error calibration methods, and error compensation algorithms to enable high-precision measurement of performance parameters—including angular rate, acceleration, and attitude—for moving platforms operating in complex and harsh environments, while offering exceptional ease of use, flexibility, and scalability.

The key performance indicators of the company's MEMS angular rate sensor modules, inertial measurement units (IMUs), and motion sensor modules all meet leading domestic industry standards, enabling their in-situ replacement of competing products such as Sensor's STIM202,210, and 300 series; Honeywell's HG4930 series; and ADI's ADIS16467,16475,16477,16505,16507,16488, and 16495 series; furthermore, the attitude reference system and integrated navigation system can achieve in-situ replacement of French SBG's Ellipse-N series products and American Inertial Labs' AHRS-10P series products.



Application Area

The company's MEMS inertial navigation products are primarily applied in fields such as commercial aerospace, autonomous driving, robotics, mobile surveying, oil exploration, wind power generation, bridge engineering, and rail transit, where they are utilized for navigation, control, measurement, positioning, and orientation.



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►► Single-Degree-of-Freedom Angular Velocity Sensor Module

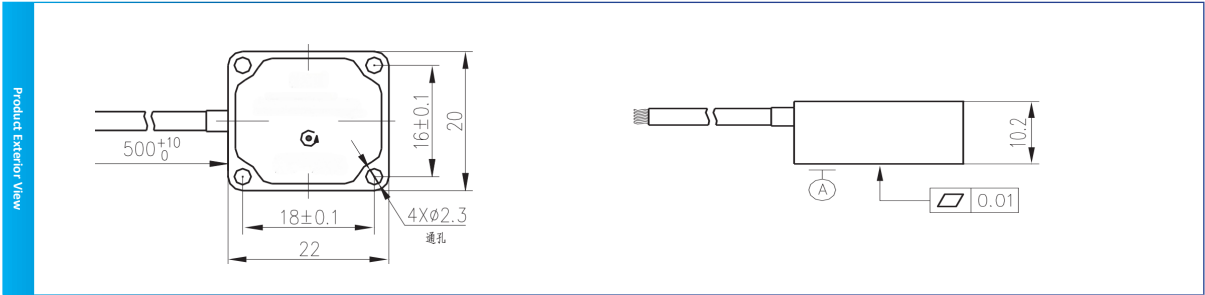
product model⌚ MOPKT-EX1-4 (Domestic Version)⌚ MOPKT-EX1-2



The product consists of a MEMS gyro chip, a temperature sensor, a digital signal processing circuit, a housing, and software; it employs flexible connection technology and incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—ensuring excellent performance under static, dynamic, and harsh operating conditions. Additionally, it provides users with stabilized and reliable angular rate measurement data via a high-speed RS-422 serial port after applying error compensation.

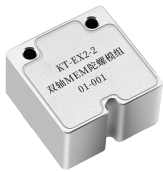
direction of application ⌚ Navigation ⌚ Control ⌚ Measurement

Parameters (Typical Values)	Unit	Fundamental form	A mould	B mould	C mould
Measuring range	° /s	±400	±400	±400	±300
Zero offset	° /h	15	10	3	5
Zero drift instability (@ALLAN variance)	° /h	0.3	0.1	0.05	0.2
Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	3	1	0.4	1
Zero-bias repeatability	° /h	3	1	0.3	0.5
Zero offset error across the entire temperature range	° /h	20	10	2	5
Random walk	° / √ h	0.15	0.05	0.02	0.03
Zero-drift acceleration sensitivity	° /h/g	2	2	2	2
Resolution ratio	° /s	0.0005	0.0003	0.0001	0.0003
Output noise (half-power point)	° /s	0.3	0.25	0.15	0.2
Tape width	Hz	250	250	150	400
Nonlinear scaling factor	ppm	100			
Scale factor repeatability	ppm	100			
Start-up stabilization time	s	< 1			
Data Update Rate	Hz	2000			
Voltage	V	5±0.25			
Starting current	mA	< 120			
Steady state power consumption	W	< 0.4			
Ripple wave	mV	100			
Working temperature	°C	-45~85			
Storage temperature	°C	-55~105			
Weight	g	< 15			
Size	mm	22*20*10.2			
Interface	--	RS-422			



▶▶Two-degree-of-freedom angular rate sensor module

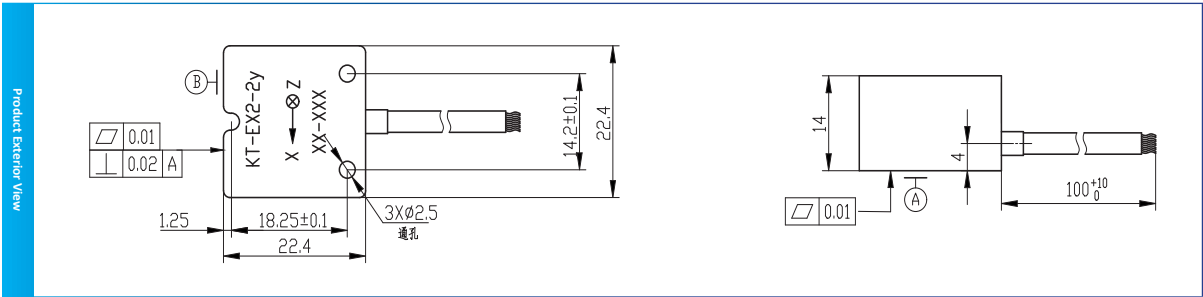
product model⊕ MOPKT-EX2-2 (Domestic Version)⊕ MOPKT-EX2-5



The product consists of a MEMS gyro chip, a temperature sensor, a digital signal processing circuit, a housing, and software; it employs flexible connection technology and incorporates built-in compensation algorithms—including full-temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to maintain excellent performance under static, dynamic, and harsh operating conditions. Additionally, it outputs stable and reliable angular rate measurement data to the user via a high-speed RS-422 serial port after applying error compensation.

direction of application ⊙ Navigation ⊙ Control ⊙ Measurement

Parameters (Typical Values)	Unit	Fundamental form	A mould (X, z)	B mould (X, z)	C mould (X, z)
Measuring range	° /s	±400	±400	±400	±300
Zero offset	° /h	15	10	3	5
Zero drift instability (@ALLAN variance)	° /h	0.3	0.1	0.05	0.2
Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	3	1	0.4	1
Zero-bias repeatability	° /h	3	1	0.3	0.5
Zero offset error across the entire temperature range	° /h	20	10	2	5
Random walk	° / √ h	0.15	0.05	0.02	0.03
Zero-drift acceleration sensitivity	° /h/g	2	2	2	2
Resolution ratio	° /s	0.0005	0.0003	0.0001	0.0003
Output noise (half-power point)	° /s	0.4	0.25	0.15	0.2
Tape width	Hz	250	250	150	400
Nonlinear scaling factor	ppm	100			
Scale factor repeatability	ppm	100			
Cross coupling	%	0.1			
Start-up stabilization time	s	< 1			
Data Update Rate	Hz	1000			
Voltage	V	5±0.25			
Starting current	mA	200			
Steady state power consumption	W	≤ 1			
Ripple wave	mV	100			
Working temperature	°C	-45~85			
Storage temperature	°C	-55~105			
Weight	g	≤ 20			
Size	mm	22.4*22.4*14			
Interface	--	RS-422			



▶▶ Three-DOF Angular Rate Sensor Module

product model MOPKT-EX3-20 (Domestic Version) MOPKT-EX3-6

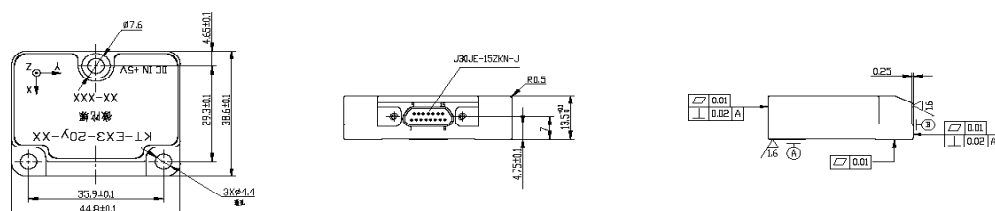


The product consists of a MEMS gyro chip, a temperature sensor, a digital signal processing circuit, a housing, and software; it incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to maintain excellent performance under static, dynamic, and harsh operating conditions. Additionally, it outputs stable and reliable angular rate measurement data to the user via a high-speed RS-422 serial port after applying error compensation.

direction of application

- Navigation
- Control
- Measurement

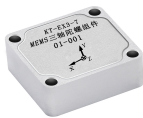
Parameters (Typical Values)	Unit	Fundamental form	A mould	B mould	C mould
Measurement Range (Customizable)	° /s	±400	±400	±400	±300
Zero offset	° /h	15	10	3	5
Zero drift instability (@ALLAN variance)	° /h	0.3	0.1	0.05	0.2
Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	3	1	0.4	1
Zero-bias repeatability	° /h	3	1	0.3	0.5
Zero offset error across the entire temperature range	° /h	20	10	2	5
Random walk	° / √ h	0.15	0.05	0.02	0.03
Zero-drift acceleration sensitivity	° /h/g	2	2	2	2
Resolution ratio	° /s	0.0005	0.0003	0.0001	0.0003
Output noise (half-power point)	° /s	0.3	0.25	0.15	0.2
Tape width	Hz	250	250	150	400
Nonlinear scaling factor	ppm	100			
Scale factor repeatability	ppm	100			
Cross coupling	%	0.1			
Start-up stabilization time	s	1			
Data Update Rate	Hz	1000			
Voltage	V	5±0.5			
Starting current	mA	< 400			
Steady state power consumption	W	< 1.5			
Ripple wave	mV	100			
Working temperature	℃	-45~85			
Storage temperature	℃	-55~105			
Weight	g	38±1			
Size	mm	44.8*38.6*13.5			
Interface	--	RS-422			



▶▶ Three-DOF Angular Rate Sensor Module

product model

⦿ MOPKT-EX3-7



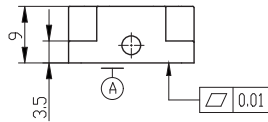
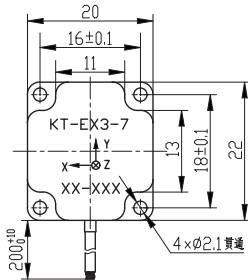
The product consists of a MEMS gyro chip, a temperature sensor, a digital signal processing circuit, a structural design, and software; it employs flexible connection technology, and its software incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—ensuring excellent performance even under static, dynamic, and harsh operating conditions. Additionally, the device outputs stable and reliable angular rate measurement data to the user via a high-speed RS-422 serial port after applying error compensation.

direction of application

⦿ Navigation ⦿ Control ⦿ Measurement

Parameters (Typical Values)	Unit	Fundamental form
Measurement Range (Customizable)	° /s	±500
Zero offset	° /h	180
Zero drift instability (@ALLAN variance)	° /h	5
Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	10
Zero-bias repeatability	° /h	20
Zero offset error across the entire temperature range	° /h	72
Random walk	° / √ h	0.5
Zero-drift acceleration sensitivity	° /h/g	5
Resolution ratio	° /s	0.01
Output noise (half-power point)	° /s	0.4
Tape width	Hz	125
Nonlinear scaling factor	ppm	100
Scale factor repeatability	ppm	100
Cross coupling	%	0.2
Start-up stabilization time	s	1
Data Update Rate	Hz	2000
Voltage	V	5±0.25
Starting current	mA	100
Steady state power consumption	W	0.5
Ripple wave	mV	100
Working temperature	°C	-45~85
Storage temperature	°C	-55~105
Weight	g	10
Size	mm	22*20*9
Interface	--	RS-422

Product Exterior View



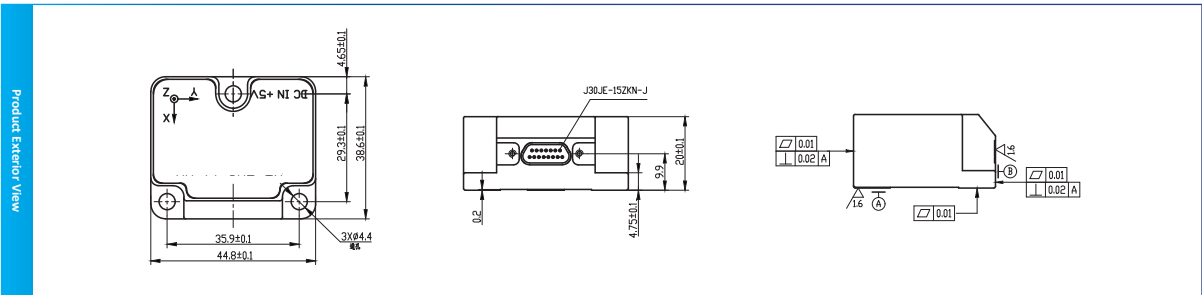
▶▶ Three-DOF Angular Rate Sensor Module

product model☉ MOPKT-EX3-14 (Domestic-made, satellite-mounted)☉ MOPKT-EX3-1 (Satellite-based)



The product consists of a MEMS gyro chip, a temperature sensor, a digital signal processing circuit, a housing, and software; it employs flexible connection technology and incorporates built-in compensation algorithms—including full-temperature compensation, installation bias angle compensation, and nonlinear compensation—ensuring excellent performance under static, dynamic, and harsh operating conditions. Additionally, it provides users with stable and reliable angular rate measurement data via a high-speed RS-422 serial port after error compensation has been applied. The product is fully compatible with products from the STIM210 series in situ.
direction of application ● navigation● control● measure

Parameters (Typical Values)	Unit	Fundamental form	A mould	B mould	C mould
Measurement Range (Customizable)	° /s	±400	±400	±400	±100
Zero offset	° /h	15	10	3	3
Zero drift instability (@ALLAN variance)	° /h	0.3	0.1	0.05	0.05
Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	3	1	0.4	0.2
Zero-bias repeatability	° /h	3	1	0.3	0.2
Zero offset error across the entire temperature range	° /h	20	10	2	1.5
Random walk	° / √ h	0.15	0.05	0.02	0.01
Zero-drift acceleration sensitivity	° /h/g	2	2	2	1
Resolution ratio	° /s	0.0005	0.0003	0.0001	0.0005
Output noise (half-power point)	° /s	0.3	0.25	0.15	0.005
Tape width	Hz	250	250	150	12
Nonlinear scaling factor	ppm	100			
Scale factor repeatability	ppm	100			
Cross coupling	%	0.1			
Start-up stabilization time	s	1			
Data Update Rate	Hz	1000			
Voltage	V	5±0.25			
Starting current	mA	< 400			
Steady state power consumption	W	< 1.4			
Ripple wave	mV	100			
Working temperature	°C	-45~85			
Storage temperature	°C	-55~105			
Weight	g	52±5			
Size	mm	44.8*38.6*20			
Interface	--	RS-422			



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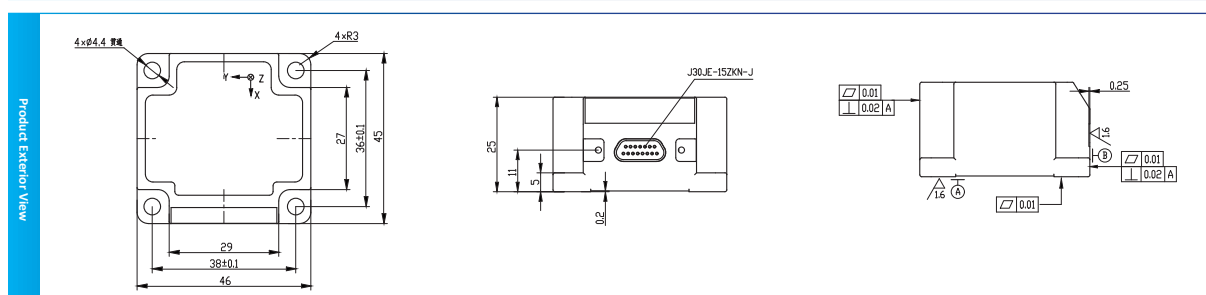
product model MOPKT-EX3-26 (Satellite-based)



The product consists of a MEMS gyro chip, a temperature sensor, a digital signal processing circuit, a structural design, and software; it incorporates built-in compensation algorithms such as full temperature compensation, installation bias angle compensation, and nonlinear compensation, enabling it to maintain excellent performance under static, dynamic, and harsh operating conditions. Additionally, it outputs stable and reliable angular rate measurement data to the user via a high-speed RS-422 serial port after applying error compensation. This product has been mass-integrated into the target satellite, successfully launched with the satellite into orbit, and is currently operating stably in orbit.

direction of application ● navigation● control● measure

Parameters (Typical Values)	Unit	F2 type
Measurement Range (Customizable)	° /s	±10
Zero offset	° /h	3
Zero drift instability (@ALLAN variance)	° /h	0.05
Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	0.2
Zero-bias repeatability	° /h	0.2
Zero offset error across the entire temperature range	° /h	1.5
Random walk	° / √ h	0.01
Zero-drift acceleration sensitivity	° /h/g	1
Resolution ratio	° /s	0.0005
Output noise (half-power point)	° /s	0.005
Tape width	Hz	12
Nonlinear scaling factor	ppm	200
Scale factor repeatability	ppm	200
Cross coupling	%	0.1
Start-up stabilization time	s	1
Data Update Rate	Hz	100
Voltage	V	5.2~5.7
Starting current	mA	1000
Steady state power consumption	W	1.5
Ripple wave	mV	150
Working temperature	°C	-20~50
Storage temperature	°C	-55~85
Weight	g	65±5
Size	mm	46*45*25
Interface	--	RS-422



▶▶ Three-DOF Angular Rate Sensor Module

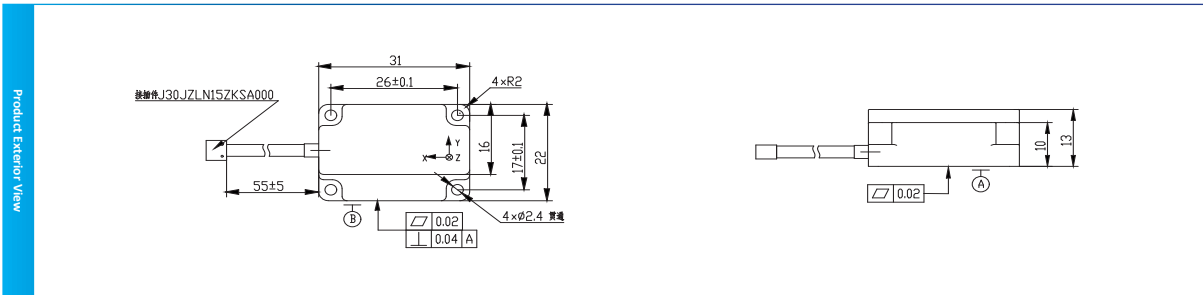
product model ⌚ MOPKT-EX3-27 (Domestic Version)



The product consists of domestically produced MEMS gyro chips, temperature sensors, digital signal processing circuits, a housing, and software; it employs flexible connection technology and incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to maintain excellent performance under static, dynamic, and harsh operating conditions. Additionally, it outputs stable and reliable angular rate measurement data via a high-speed RS-422 serial port after applying error compensation.

direction of application ○ Navigation ○ Control ○ Measurement

Parameters (Typical Values)	Unit	Fundamental form
Measurement Range (Customizable)	° /s	±400
Zero offset	° /h	30
Zero drift instability (@ALLAN variance)	° /h	0.3
Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	3
Zero-bias repeatability	° /h	3
Zero offset error across the entire temperature range	° /h	15
Random walk	° / √ h	0.15
Zero-drift acceleration sensitivity	° /h/g	2
Resolution ratio	° /s	0.0005
Output noise (half-power point)	° /s	0.3
Tape width	Hz	250
Nonlinear scaling factor	ppm	100
Scale factor repeatability	ppm	100
Cross coupling	%	0.1
Start-up stabilization time	s	1
Data Update Rate	Hz	4000
Voltage	V	5±0.2
Starting current	mA	400
Steady state power consumption	W	≤ 1
Ripple wave	mV	200
Working temperature	°C	-55~85
Storage temperature	°C	-55~105
Weight	g	20
Size	mm	22*20*9
Interface	--	RS-422



▶▶Three-DOF Angular Rate Sensor Module

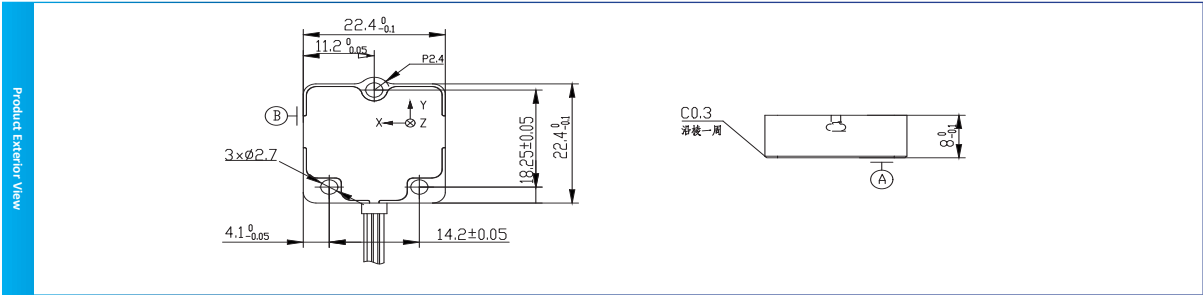
product model MOPKT-EX3-30J



The product consists of a MEMS gyro chip, a temperature sensor, a digital signal processing circuit, a structural design, and software; it employs flexible connection technology, and its software incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—ensuring excellent performance even under static, dynamic, and harsh operating conditions. Additionally, the device outputs stable and reliable angular rate measurement data to the user via a high-speed RS-422 serial port after applying error compensation.

direction of application Navigation Control Measurement

Parameters (Typical Values)	Unit	Fundamental form
Measurement Range (Customizable)	° /s	±400
Zero offset	° /h	108
Zero drift instability (@ALLAN variance)	° /h	4
Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	5
Zero-bias repeatability	° /h	10
Zero offset error across the entire temperature range	° /h	50
Random walk	° / √ h	0.08
Zero-drift acceleration sensitivity	° /h/g	18
Resolution ratio	° /s	0.0005
Output noise (half-power point)	° /s	0.1
Tape width	Hz	250
Nonlinear scaling factor	ppm	100
Scale factor repeatability	ppm	100
Cross coupling	%	0.2
Start-up stabilization time	s	2
Data Update Rate	Hz	4000
Voltage	V	5±0.2
Starting current	mA	200
Steady state power consumption	W	< 0.5
Ripple wave	mV	100
Working temperature	°C	-45~85
Storage temperature	°C	-55~105
Weight	g	10.5±2
Size	mm	22.4×22.4×8
Interface	--	RS-422



▶▶ Three-DOF Angular Rate Sensor Module

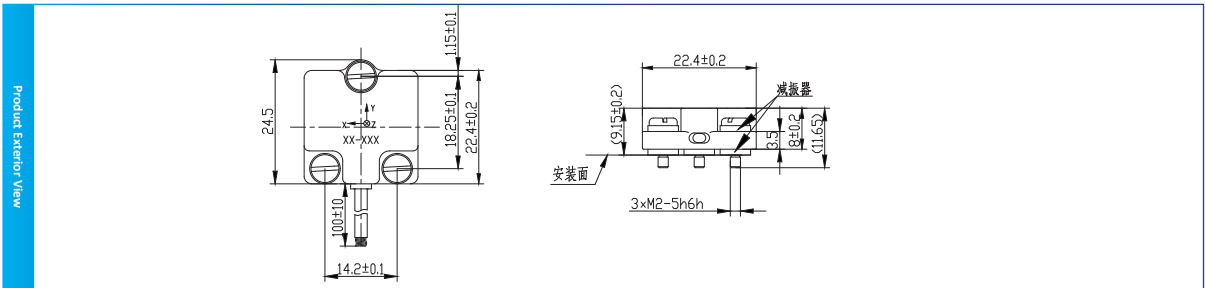
product model ⓘ MOPKT-EX3-33J



The product consists of a MEMS gyro chip, a temperature sensor, a digital signal processing circuit, a structural design, and software; it employs flexible connection technology, and its software incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—ensuring excellent performance even under static, dynamic, and harsh operating conditions. Additionally, the device outputs stable and reliable angular rate measurement data to the user via a high-speed RS-422 serial port after applying error compensation.

direction of application ⓘ Navigation ⓘ Control ⓘ Measurement

Parameters (Typical Values)	Unit	Fundamental form
Measurement Range (Customizable)	° /s	±300
Zero offset	° /h	150
Zero drift instability (@ALLAN variance)	° /h	3
Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	8
Zero-bias repeatability	° /h	5
Zero offset error across the entire temperature range	° /h	60
Random walk	° / √ h	0.25
Zero-drift acceleration sensitivity	° /h/g	20
Resolution ratio	° /s	0.01
Output noise (half-power point)	° /s	0.3
Tape width	Hz	200
Nonlinear scaling factor	ppm	50
Scale factor repeatability	ppm	50
Cross coupling	%	0.1
Start-up stabilization time	s	2
Data Update Rate	Hz	4000
Voltage	V	5±0.2
Starting current	mA	200
Steady state power consumption	W	< 0.5
Ripple wave	mV	100
Working temperature	°C	-45~85
Storage temperature	°C	-55~105
Weight	g	20
Size	mm	24.5×22.4×9.5
Interface	--	RS-422



►►Motion Sensor Module

product model⊕ MOPS6475⊕ MOPS6477



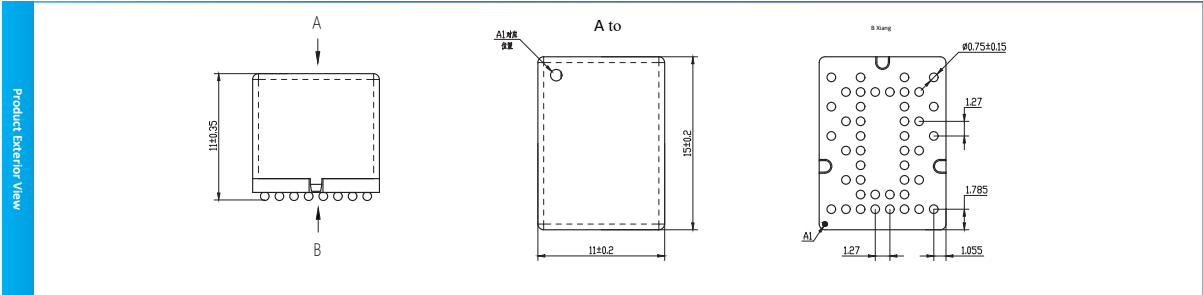
The product consists of a MEMS gyroscope chip, a MEMS accelerometer chip, signal processing circuits, a housing, and software; it incorporates built-in compensation algorithms such as full-temperature compensation, installation bias angle compensation, and nonlinear compensation, enabling it to provide users with stable and reliable measurement data after error compensation under static, dynamic, and harsh operating conditions. It can be used as a direct replacement for products in the ADIS16475 and ADIS16477 series.

direction of application ⊙ Navigation ⊙ Control ⊙ Measurement

Parameters (Typical Values)		Unit	Fundamental form
Gyroscope	Measurement Range (Customizable)	° /s	±500
	Zero offset	° /h	180
	Zero drift instability (@ALLAN variance)	° /h	2.5
	Zero-drift stability (10-second smoothing, 1σ, room temperature)	° /h	10
	Zero-bias repeatability	° /h	30
	Zero offset error across the entire temperature range	° /h	72
	Random walk	° / √ h	0.15
	Zero-drift acceleration sensitivity	° /h/g	2
	Resolution ratio	° /s	0.01
	Output noise (half-power point)	° /s	0.3
	Tape width	Hz	345
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	300
	Cross coupling	%	0.1

Parameters (Typical Values)		Unit	S6475	S6477
Accelerometer	Measurement Range (Customizable)	g	±8	±40
	Zero drift instability (@ALLAN variance)	mg	0.02	0.01
	Zero-drift stability (10-second smoothing, 1σ, room temperature)	mg	0.05	0.1
	Zero-bias repeatability	mg	0.3	0.1
	Zero offset error across the entire temperature range	mg	3	X、Y: 0.5; Z: 2
	Random walk	m/s/ √ h	0.1	0.03
	Resolution ratio	mg	0.1	0.1
	Tape width	Hz	393	1000
	Scale factor repeatability	ppm	500	300
	Cross coupling	%	0.1	0.1

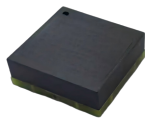
Parameters (Typical Values)		Unit	Fundamental form
Other	Start-up stabilization time	s	1
	Data Update Rate	Hz	2000
	Voltage	V	3.3±0.3
	Steady state power consumption	W	0.1
	Ripple wave	mV	100
	Working temperature	°C	-45~85
	Storage temperature	°C	-55~85
	Weight	g	2.2±0.2
	Size	mm	15×11×11
Interface		—	SPI



►►Motion Sensor Module

product model

⊙MOPS6505⊙ MOPS6507



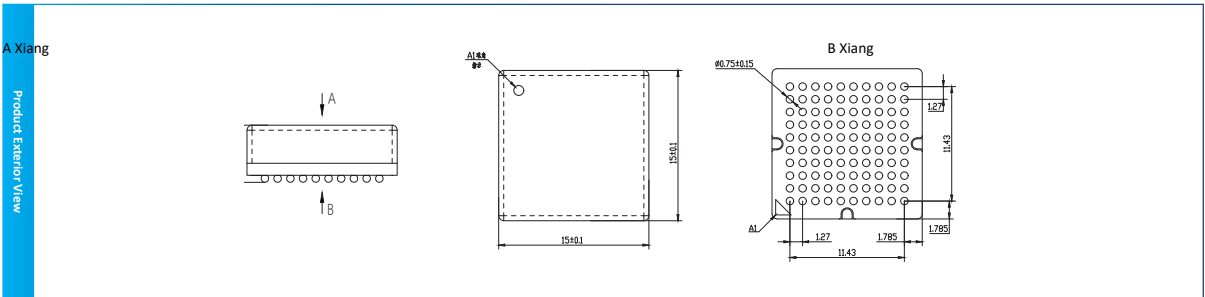
The product consists of a MEMS gyroscope chip, a MEMS accelerometer chip, signal processing circuits, a housing, and software; it incorporates built-in compensation algorithms such as full-temperature compensation, installation bias angle compensation, and nonlinear compensation, enabling it to provide users with stable and reliable measurement data after error compensation under static, dynamic, and harsh operating conditions. It can be used as a direct replacement for products from the ADIS16505 and ADIS16507 series.

direction of application ☐ navigation ☒ control ☐ measure

Gyroscope	Parameters (Typical Values)	Unit	Fundamental form
	Measurement Range (Customizable)	° /s	±500
	Zero offset	° /h	180
	Zero drift instability (@ALLAN variance)	° /h	2.5
	Zero-drift stability (10-second smoothing, 1σ, room temperature)	° /h	10
	Zero-bias repeatability	° /h	30
	Zero offset error across the entire temperature range	° /h	72
	Random walk	° / √ h	0.15
	Zero-drift acceleration sensitivity	° /h/g	2
	Resolution ratio	° /s	0.01
	Output noise (half-power point)	° /s	0.3
	Tape width	Hz	345
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	300
	Cross coupling	%	0.1

Accelerometer	Parameters (Typical Values)	Unit	S6505	S6507
	Measurement Range (Customizable)	g	±8	±40
	Zero drift instability (@ALLAN variance)	mg	0.02	0.01
	Zero-drift stability (10-second smoothing, 1σ, room temperature)	mg	0.05	0.1
	Zero-bias repeatability	mg	0.3	0.1
	Zero offset error across the entire temperature range	mg	3	X、Y: 0.5; Z: 2
	Random walk	m/s/ √ h	0.1	0.03
	Resolution ratio	mg	0.1	0.1
	Tape width	Hz	393	1000
	Scale factor repeatability	ppm	500	300
	Cross coupling	%	0.1	0.1

Other	Parameters (Typical Values)	Unit	Fundamental form
	Start-up stabilization time	s	1
	Data Update Rate	Hz	2000
	Voltage	V	3.3±0.3
	Steady state power consumption	W	0.1
	Ripple wave	mV	100
	Working temperature	°C	-45~85
	Storage temperature	°C	-55~85
	Weight	g	1.7±0.2
	Size	mm	15×15×5.7
	Interface	—	SPI



►► Six-DOF Inertial Measurement Module

product model MOPKT-EX6-13 (Domestic-made, wide operating temperature range) MOPKT-EX6-40 (Domestic Version) KT-EX6-4



The product consists of a MEMS gyro chip, a MEMS accelerometer chip, a temperature sensor, a digital signal processing circuit, a housing, and software; it employs flexible connection technology and incorporates built-in compensation algorithms—including full-temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data after error compensation under static, dynamic, and harsh operating conditions, while remaining fully compatible with products in the STIM300 series.

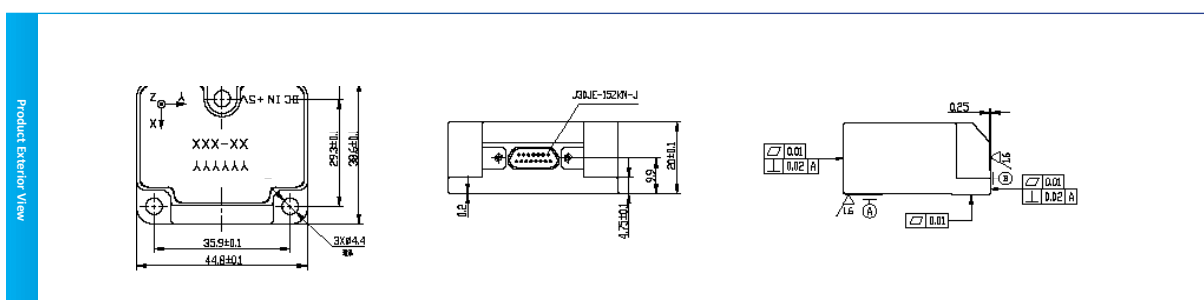
direction of application

Navigation Control Measurement

Parameters (Typical Values)	Unit	Fundamental form	A mould	B mould	C mould	F mould
Measurement Range (Customizable)	° /s	±400	±400	±400	±2000	±300
Zero offset	° /h	15	10	3	30	3
Zero drift instability (@ALLAN variance)	° /h	0.3	0.1	0.05	1	0.05
Zero-drift stability (10-second smoothing, 1σ, room temperature)	° /h	3	2	0.4	6	0.2
Zero-bias repeatability	° /h	3	1	0.3	3	0.2
Zero offset error across the entire temperature range	° /h	20	10	2	30	1
Random walk	° / √ h	0.15	0.05	0.02	0.3	0.02
Zero-drift acceleration sensitivity	° /h/g	2	2	2	2	1
Resolution ratio	° /s	0.0005	0.0003	0.0001	0.001	0.0005
Output noise (half-power point)	° /s	0.3	0.25	0.15	0.45	0.03
Tape width	Hz	250		150	250	100
Nonlinear scaling factor	ppm	100				
Scale factor repeatability	ppm	100				
Cross coupling	%	0.1				

Parameters (Typical Values)	Unit	I mould	II mould	III mould
Measurement Range (Customizable)	g	±10	±40	±80
Zero drift instability (@ALLAN variance)	mg	0.006	0.02	0.08
Zero-drift stability (10-second smoothing, 1σ, room temperature)	mg	0.05	0.2	1
Zero-bias repeatability	mg	0.2	1	0.5
Zero offset error across the entire temperature range	mg	2	2	5
Random walk	m/s/ √ h	0.01	0.04	0.06
Resolution ratio	mg	0.1		
Tape width	Hz	100		
Scale factor repeatability	ppm	500		
Cross coupling	%	0.1		

Parameters (Typical Values)	Unit	Fundamental form	
Measurement Range (Customizable)	g	±1.7	
Zero-drift stability (10-second smoothing, 1σ, room temperature)	mg	0.5	
Nonlinear scaling factor	ppm	500	
Start-up stabilization time	s	1	
Data Update Rate	Hz	1000	
Voltage	V	5±0.5	
Steady state power consumption	W	1.5	
Ripple wave	mV	100	
Working temperature	°C	-45~85	-55~85
Storage temperature	°C	-55~105	-55~105
Weight	g	52±5	
Size	mm	44.8*38.6*20	
Interface	—	RS-422	



Note: Different product models correspond to different accelerometer accuracies; for specific values, please consult our sales representatives.

►►Six-DOF Inertial Measurement Module

product model  MOPKT-EX6-6 (Domestic Version)



The product consists of a MEMS gyroscope chip, a MEMS accelerometer chip, a temperature sensor, a digital signal processing circuit, a housing, and software; it employs flexible connection technology and incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data after error compensation under static, dynamic, and harsh operating conditions, while remaining fully compatible with HG4930 series products in situ.

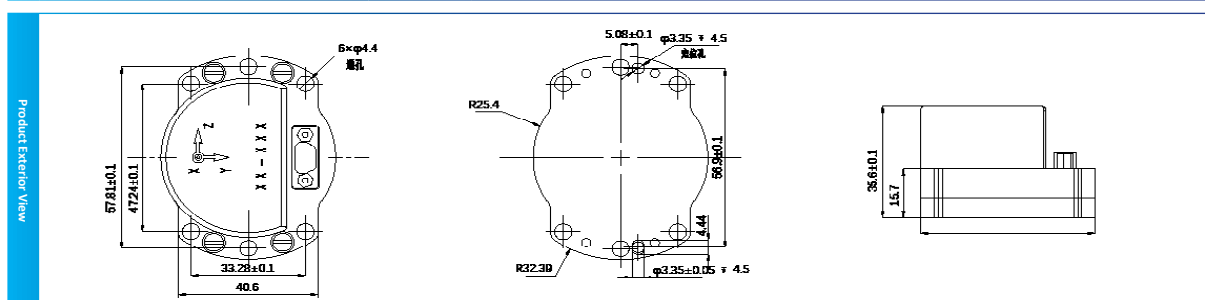
direction of application

 Navigation  Control  Measurement

Parameters (Typical Values)	Unit	Fundamental form	A mould	B mould	C mould	F mould
Measurement Range (Customizable)	° /s	±400	±400	±400	±2000	±300
Zero offset	° /h	15	10	3	30	3
Zero drift instability (@ALLAN variance)	° /h	0.3	0.1	0.05	1	0.03
Zero-drift stability (10-second smoothing, 1σ, room temperature)	° /h	3	1	0.4	6	0.2
Zero-bias repeatability	° /h	3	1	0.3	3	0.1
Zero offset error across the entire temperature range	° /h	20	10	2	30	1
Random walk	° / √ h	0.15	0.05	0.02	0.3	0.01
Zero-drift acceleration sensitivity	° /h/g	2				
Resolution ratio	° /s	0.0005	0.0003	0.0001	0.001	0.0001
Output noise (half-power point)	° /s	0.3	0.25	0.15	0.45	0.15
Tape width	Hz	250		150	250	100
Nonlinear scaling factor	ppm	100				
Scale factor repeatability	ppm	100				
Cross coupling	%	0.1				

Parameters (Typical Values)	Unit	I mould	II mould	III mould	IV mould
Measurement Range (Customizable)	g	±10	±30	±50	±80
Zero drift instability (@ALLAN variance)	mg	0.005	0.007	0.01	0.015
Zero-drift stability (10-second smoothing, 1σ, room temperature)	mg	0.05	0.2	0.5	1
Zero-bias repeatability	mg	0.1	0.2	0.3	0.5
Zero offset error across the entire temperature range	mg	1	2	3	5
Random walk	m/s/ √ h	0.012	0.018	0.018	0.06
Resolution ratio	mg	0.1			
Tape width	Hz	200			
Scale factor repeatability	ppm	500			
Cross coupling	%	0.1			

Parameters (Typical Values)	Unit	Fundamental form
Start-up stabilization time	s	1
Data Update Rate	Hz	600
Voltage	V	5±0.5
Steady state power consumption	W	2
Ripple wave	mV	100
Working temperature	°C	-45~85
Storage temperature	°C	-55~105
Weight	g	120
Size	mm	φ64.78*35.6
Interface	—	RS-422



►► Six-DOF Inertial Measurement Module

product model

MOPKT-EX6-7



The product consists of a MEMS gyroscope chip, a MEMS accelerometer chip, a temperature sensor, a digital signal processing circuit, as well as a structural design and software component. It employs miniaturized, vibration-resistant, and shock-resistant structural design techniques, incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—ensuring that it can provide users with stable and reliable measurement data even under static, dynamic, and harsh operating conditions after error compensation.

direction of application

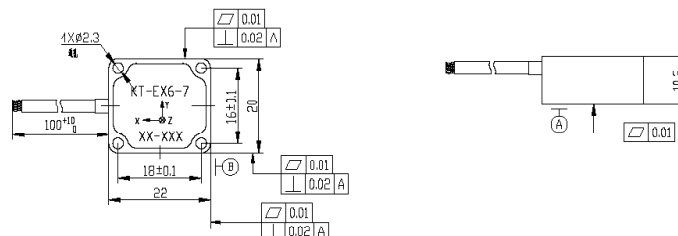
o Navigation o Control o Measurement

Parameters (Typical Values)	Unit	Fundamental form	A mould	B mould	C mould
Measurement Range (Customizable)	° /s	±500	±1000	±2000	±4000
Zero offset	° /h	180	180	180	180
Zero drift instability (@ALLAN variance)	° /h	5	5	10	15
Zero-drift stability (10-second smoothing, 1σ, room temperature)	° /h	10	10	10	10
Zero-bias repeatability	° /h	20	20	30	50
Zero offset error across the entire temperature range	° /h	60	60	100	100
Random walk	° / √ h	0.5	0.5	1	1
Zero-drift acceleration sensitivity	° /h/g	20	20	20	20
Resolution ratio	° /s	0.01	0.01	0.01	0.01
Output noise (half-power point)	° /s	0.4	0.4	0.45	0.45
Tape width	Hz	100			
Nonlinear scaling factor	ppm	200			
Scale factor repeatability	ppm	200			
Cross coupling	%	0.2			

Parameters (Typical Values)	Unit	I mould	II mould	III mould
Measurement Range (Customizable)	g	±10	±20	±40
Zero drift instability (@ALLAN variance)	mg	0.01	0.015	0.02
Zero-drift stability (10-second smoothing, 1σ, room temperature)	mg	0.05	0.1	0.2
Zero-bias repeatability	mg	0.2	0.5	1
Zero offset error across the entire temperature range	mg	2	2	2
Random walk	m/s/ √ h	0.03	0.03	0.04
Resolution ratio	mg	0.1	0.1	0.1
Tape width	Hz	100		
Scale factor repeatability	ppm	500		
Cross coupling	%	0.1		

Parameters (Typical Values)	Unit	Fundamental form
Start-up stabilization time	s	1
Data Update Rate	Hz	1000
Voltage	V	5±0.25
Steady state power consumption	W	≤ 0.4
Ripple wave	mV	100
Working temperature	°C	-45~85
Storage temperature	°C	-55~105
Weight	g	12
Size	mm	22*20*10.2
Interface	—	RS-422

Product Exterior View



►►Six-DOF Inertial Measurement Module

product model MOPKT-EX6-31



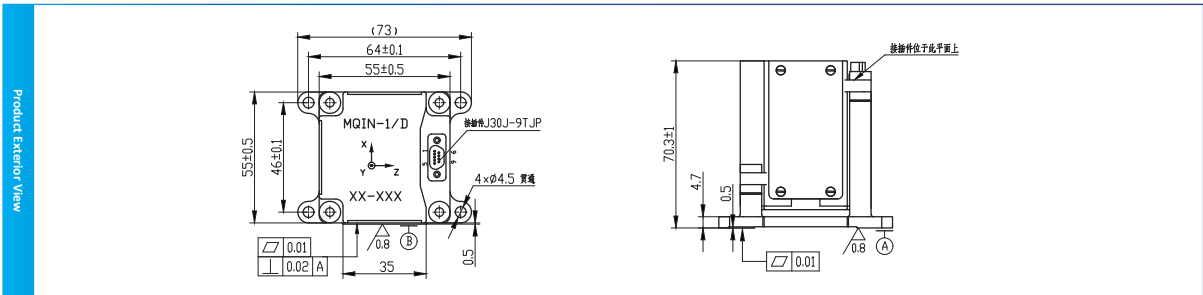
The product consists of a MEMS gyro chip, a high-precision quartz flexible accelerometer, a temperature sensor, a digital signal processing circuit, as well as a housing and software. It features a vibration and shock-resistant structural design along with flexible connection technology, and incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data even under static, dynamic, and harsh operating conditions after error compensation.

direction of application navigation control measure

Parameters (Typical Values)		Unit	Fundamental form
Gyroscope	Measurement Range (Customizable)	° /s	±400
	Zero offset	° /h	15
	Zero drift instability (@ALLAN variance)	° /h	0.3
	Zero-drift stability (10-second smoothing, 1σ, room temperature)	° /h	3
	Zero-bias repeatability	° /h	3
	Zero offset error across the entire temperature range	° /h	20
	Random walk	° / √ h	0.15
	Zero-drift acceleration sensitivity	° /h/g	2
	Resolution ratio	° /s	0.0005
	Output noise (half-power point)	° /s	0.3
	Tape width	Hz	100
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.1

Parameters (Typical Values)		Unit	I mould
Accelerometer	Measurement Range (Customizable)	g	±30
	Zero drift instability (@ALLAN variance)	mg	0.01
	Zero-drift stability (10-second smoothing, 1σ, room temperature)	mg	0.03
	Zero-bias repeatability	mg	0.1
	Zero offset error across the entire temperature range	mg	1
	Random walk	m/s/ √ h	0.005
	Resolution ratio	mg	0.1
	Tape width	Hz	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.1

Parameters (Typical Values)		Unit	Fundamental form
Other	Start-up stabilization time	s	1
	Data Update Rate	Hz	200
	Voltage	V	28
	Steady state power consumption	W	3
	Ripple wave	mV	100
	Working temperature	°C	-45~70
	Storage temperature	°C	-45~85
	Weight	g	380
	Size	mm	73x55x70
Interface			RS-422



►►Six-DOF Inertial Measurement Module

product model MOPKT-EX6-33J



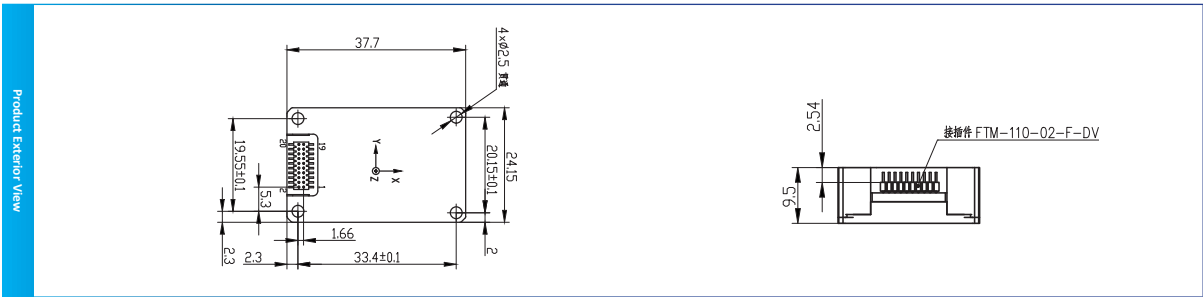
The product consists of a MEMS gyroscope chip, a MEMS accelerometer chip, a temperature sensor, a digital signal processing circuit, a housing, and software; it employs flexible connection technology and incorporates built-in compensation algorithms—including full-temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data after error compensation, even under static, dynamic, and harsh operating conditions.

direction of application ● navigation● control● measure

Parameters (Typical Values)		Unit	Fundamental form
Gyroscope	Measurement Range (Customizable)	° /s	±450
	Zero offset	° /h	180
	Zero drift instability (@ALLAN variance)	° /h	6
	Zero-drift stability (10-second smoothing, 1σ, room temperature)	° /h	15
	Zero-bias repeatability	° /h	30
	Zero offset error across the entire temperature range	° /h	50
	Random walk	° / √ h	0.3
	Zero-drift acceleration sensitivity	° /h/g	20
	Resolution ratio	° /s	0.01
	Output noise (half-power point)	° /s	0.4
	Tape width	Hz	5~50
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.2

Parameters (Typical Values)		Unit	I mould
Accelerometer	Measurement Range (Customizable)	g	±16
	Zero drift instability (@ALLAN variance)	mg	0.06
	Zero-drift stability (10-second smoothing, 1σ, room temperature)	mg	0.2
	Zero-bias repeatability	mg	0.2
	Zero offset error across the entire temperature range	mg	1
	Random walk	m/s/ √ h	0.1
	Resolution ratio	mg	0.01
	Tape width	Hz	5~50
	Scale factor repeatability	ppm	200
	Cross coupling	%	0.2

Parameters (Typical Values)		Unit	Fundamental form
Ot her	Start-up stabilization time	s	1
	Data Update Rate	Hz	200
	Voltage	V	3.3
	Steady state power consumption	W	0.2
	Ripple wave	mW	100
	Working temperature	°C	-40~65
	Storage temperature	°C	-40~85
	Weight	g	≦ 15
	Size	mm	37.7*24.15*9.5
Interface		—	SPI



►► Six-DOF Inertial Measurement Module

product model

⦿ MOPKT-EX6-35 (Domestic production, high overload rating)

The product consists of a high-precision MEMS gyroscope chip, a high-precision MEMS accelerometer chip, a temperature sensor, a digital signal processing circuit, as well as a housing and software. It features a vibration-resistant and shock-resistant structural design along with flexible connection technology, and incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—thereby delivering stable and reliable measurement data to users in complex environments characterized by high rotational speeds, high overload conditions, and high dynamic loads.



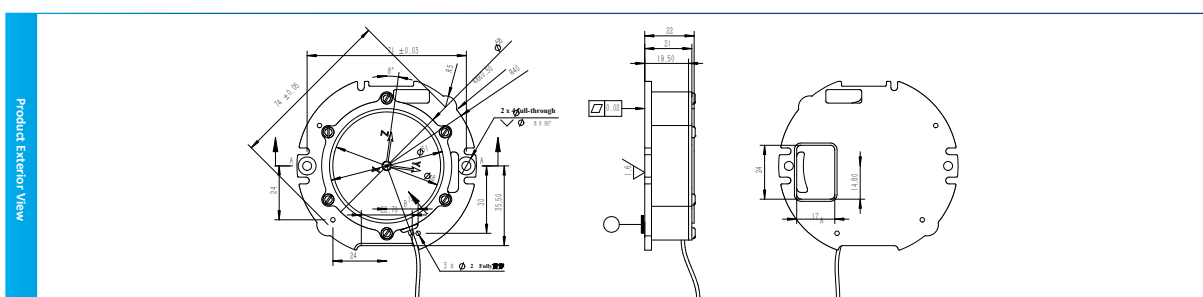
direction of application

- navigation
- control
- measure

Parameters (Typical Values)			Unit	Fundamental form
Gyroscope	Measurement Range (Customizable)	° /s	X: ±4000; Y/Z: ±400	
	Zero offset	° /h	X: 50; Y/Z: 30	
	Zero drift instability (@ALLAN variance)	° /h	≤ 1	
	Zero-drift stability (10-second smoothing, 1s, room temperature)	° /h	X: 30; Y/Z: 10	
	Zero-bias repeatability	° /h	2	
	Zero offset error across the entire temperature range	° /h	X: 35; Y/Z: 15	
	Random walk	° / √ h	0.15	
	Zero-drift acceleration sensitivity	° /h/g	2	
	Resolution ratio	° /s	0.0005	
	Output noise (half-power point)	° /s	X: 0.35; Y/Z: 0.15	
	Tape width	Hz	150	
	Nonlinear scaling factor	ppm	X: 500; Y/Z: 300	
	Scale factor repeatability	ppm	X: 500; Y/Z: 300	
	Cross coupling	%	0.2	

Parameters (Typical Values)		Unit	I mould
Accelerometer	Measurement Range (Customizable)	g	±50
	Zero drift instability (@ALLAN variance)	mg	X/Y: 0.025; Z: 0.03
	Zero-drift stability (10-second smoothing, 1σ, room temperature)	mg	1
	Zero-bias repeatability	mg	1
	Zero offset error across the entire temperature range	mg	6
	Random walk	m/s/ √ h	X/Y: 0.03; Z: 0.06
	Resolution ratio	mg	0.1
	Tape width	Hz	150
	Scale factor repeatability	ppm	300
	Cross coupling	%	0.2

Parameters (Typical Values)		Unit	Fundamental form
Other	Start-up stabilization time	s	1.5
	Data Update Rate	Hz	1000
	Voltage	V	5
	Steady state power consumption	W	< 2
	Ripple wave	mV	100
	Working temperature	℃	-40~80
	Storage temperature	℃	-55~105
	Weight	g	≤ 120
	Size	mm	φ80*22
	Interface		TTL



►►Six-DOF Inertial Measurement Module

product model

⊕ MOPKT-EX6-36J



The product consists of a MEMS gyroscope chip, a MEMS accelerometer chip, a temperature sensor, a signal processing circuit, a housing, and software; it incorporates built-in compensation algorithms—including full-temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data even under static, dynamic, and harsh operating conditions after error compensation.

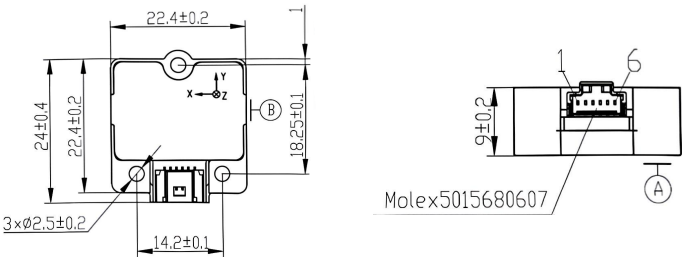
direction of application ☐ navigation ☒ control ☐ measure

Parameters (Typical Values)		Unit	Fundamental form
Gyroscope	Measurement Range (Customizable)	° /s	±480
	Zero offset	° /h	150
	Zero drift instability (@ALLAN variance)	° /h	3
	Zero-drift stability (10-second smoothing, 1 ° , room temperature)	° /h	8
	Zero-bias repeatability	° /h	5
	Zero offset error across the entire temperature range	° /h	60
	Random walk	° / √ h	0.25
	Zero-drift acceleration sensitivity	° /h/g	20
	Resolution ratio	° /s	0.01
	Output noise (half-power point)	° /s	0.3
	Tape width	Hz	100
	Nonlinear scaling factor	ppm	50
	Scale factor repeatability	ppm	50
	Cross coupling	%	0.1

Parameters (Typical Values)		Unit	I mould
Accelerometer	Measurement Range (Customizable)	g	±16
	Zero drift instability (@ALLAN variance)	mg	0.05
	Zero-drift stability (10-second smoothing, 1 ° , room temperature)	mg	0.1
	Zero-bias repeatability	mg	0.1
	Zero offset error across the entire temperature range	mg	2.5
	Random walk	m/s/ √ h	0.03
	Resolution ratio	mg	0.1
	Tape width	Hz	100
	Scale factor repeatability	ppm	200
	Cross coupling	%	0.1

Parameters (Typical Values)		Unit	Fundamental form
Ot her	Start-up stabilization time	s	2
	Data Update Rate	Hz	400
	Voltage	V	5±0.3
	Steady state power consumption	W	0.25
	Ripple wave	mV	100
	Working temperature	°C	-45~85
	Storage temperature	°C	-55~105
	Weight	g	18±1
	Size	mm	24*22.4*9
Interface		—	UART

Product Exterior View



►► Six-DOF Inertial Measurement Module

product model MOPKT-EX6-37 (Domestic-made, high-precision model)



The product consists of a high-precision MEMS gyroscope chip, a high-precision MEMS accelerometer chip, a temperature sensor, signal processing circuitry, a housing, and software; it incorporates built-in compensation algorithms—including full-range temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data after error compensation, even under static, dynamic, and harsh operating conditions.

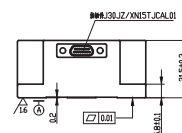
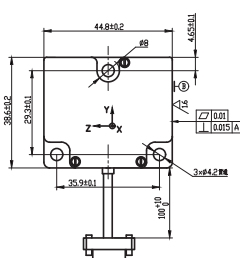
direction of application

- Navigation
- Control
- Measurement

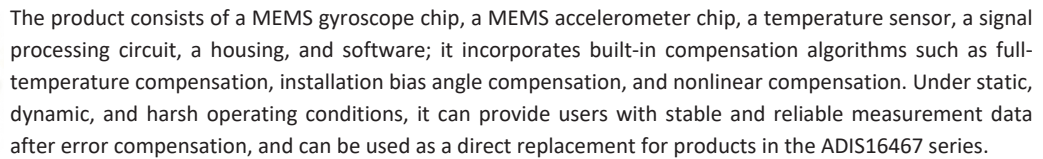
Parameters (Typical Values)		Unit	Fundamental form
Gyroscope	Measurement Range (Customizable)	° /s	±300
	Zero offset	° /h	2
	Zero drift instability (@ALLAN variance)	° /h	0.05
	Zero-drift stability (10-second smoothing, 1 ° , room temperature)	° /h	1
	Zero-bias repeatability	° /h	1
	Zero offset error across the entire temperature range	° /h	1
	Random walk	° / √ h	0.051
	Zero-drift acceleration sensitivity	° /h/g	1
	Resolution ratio	° /s	0.01
	Output noise (half-power point)	° /s	0.1
	Tape width	Hz	100
	Nonlinear scaling factor	ppm	200
	Scale factor repeatability	ppm	200
	Cross coupling	%	0.2

Parameters (Typical Values)		Unit	I mould
Accelerometer	Measurement Range (Customizable)	g	±30
	Zero drift instability (@ALLAN variance)	mg	0.002
	Zero-drift stability (10-second smoothing, 1 °, room temperature)	mg	0.05
	Zero-bias repeatability	mg	0.1
	Zero offset error across the entire temperature range	mg	1
	Random walk	m/s/ √ h	0.009
	Resolution ratio	mg	0.05
	Tape width	Hz	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.1

Parameters (Typical Values)		Unit	Fundamental form
Other	Start-up stabilization time	s	2
	Data Update Rate	Hz	1000
	Voltage	V	5±0.25
	Steady state power consumption	W	≤ 2
	Ripple wave	mV	100
	Working temperature	°C	-40~60
	Storage temperature	°C	-55~105
	Weight	g	≤ 60
	Size	mm	44.8*38.6*21.5
Interface	—	RS-422	



⦿ MOPKT-EX6-38J

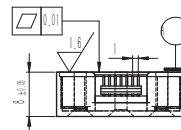


☐ navigation ☒ control ☐ measure

Parameters (Typical Values)		Unit	Fundamental form
Gyroscope	Measurement Range (Customizable)	° /s	±1000
	Zero offset	° /h	180
	Zero drift instability (@ALLAN variance)	° /h	5
	Zero-drift stability (10-second smoothing, 1 ° , room temperature)	° /h	25
	Zero-bias repeatability	° /h	20
	Zero offset error across the entire temperature range	° /h	50
	Random walk	° / √ h	0.3
	Zero-drift acceleration sensitivity	° /h/g	20
	Resolution ratio	° /s	0.01
	Output noise (half-power point)	° /s	0.4
	Tape width	Hz	345
	Nonlinear scaling factor	%	100
	Scale factor repeatability	%	100
	Cross coupling	%	0.2

Parameters (Typical Values)		Unit	I mould
Accelerometer	Measurement Range (Customizable)	g	±16
	Zero drift instability (@ALLAN variance)	mg	0.01
	Zero-drift stability (10-second smoothing, 1 °, room temperature)	mg	0.2
	Zero-bias repeatability	mg	0.2
	Zero offset error across the entire temperature range	mg	1
	Random walk	m/s/ √ h	0.03
	Resolution ratio	mg	0.1
	Tape width	Hz	≥ 200
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.2

Parameters (Typical Values)		Unit	Fundamental form
Other	Start-up stabilization time	s	1
	Data Update Rate	Hz	2000
	Voltage	V	5±0.5
	Steady state power consumption	W	< 0.5
	Ripple wave	mV	100
	Working temperature	℃	-45~85
	Storage temperature	℃	-55~105
	Weight	g	15
	Size	mm	22.4×24.3×8
	Interface	—	RS-422/SPI



►►Six-DOF Inertial Measurement Module

product model MOPKT-EX9-1



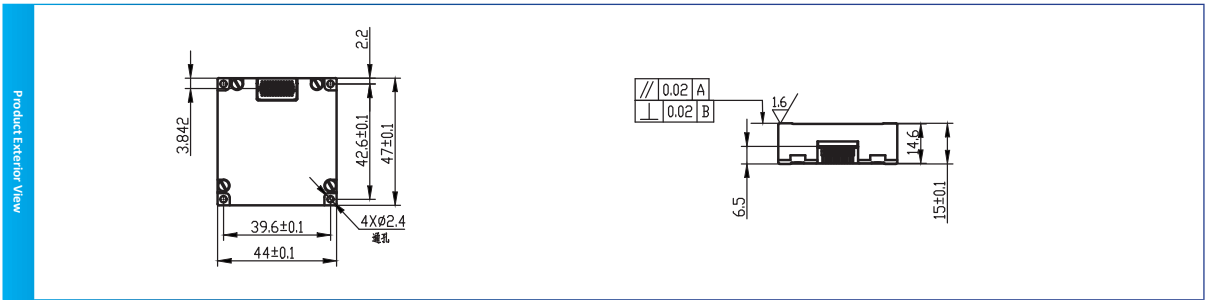
The product consists of a MEMS gyroscope chip, a MEMS accelerometer chip, a housing, and software; it incorporates built-in compensation algorithms such as full-temperature compensation, installation bias angle compensation, and nonlinear compensation. Under static, dynamic, and harsh operating conditions, the device can provide users with stable and reliable measurement data after error compensation, and is fully compatible with products in the ADIS16495 series.

direction of application navigation control measure

Parameters (Typical Values)		Unit	Fundamental form
Gyroscope	Measurement Range (Customizable)	° /s	±480
	Zero offset	° /h	15
	Zero drift instability (@ALLAN variance)	° /h	0.3
	Zero-drift stability (10-second smoothing, 1σ , room temperature)	° /h	3
	Zero-bias repeatability	° /h	5
	Zero offset error across the entire temperature range	° /h	20
	Random walk	° / √ h	0.15
	Zero-drift acceleration sensitivity	° /h/g	2
	Resolution ratio	° /s	0.0005
	Output noise (half-power point)	° /s	0.3
	Tape width	Hz	250
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.1

Parameters (Typical Values)		Unit	Fundamental form
Accelerometer	Measurement Range (Customizable)	g	±20
	Zero drift instability (@ALLAN variance)	mg	0.07
	Zero-drift stability (10-second smoothing, 1σ , room temperature)	mg	0.25
	Zero-bias repeatability	mg	0.5
	Zero offset error across the entire temperature range	mg	3
	Random walk	m/s/ √ h	0.029
	Resolution ratio	mg	0.1
	Tape width	Hz	200
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.1

Parameters (Typical Values)		Unit	Fundamental form
Other	Start-up stabilization time	s	1
	Data Update Rate	Hz	3200
	Voltage	V	3.3
	Steady state power consumption	W	1.5
	Ripple wave	mV	100
	Working temperature	°C	-45~85
	Storage temperature	°C	-55~85
	Weight	g	48±2
	Size	mm	44*47*15
	Interface	—	SPI



►►9-DOF Inertial Measurement Module

product model  MOPKT-EX9-2



The product comprises components such as MEMS gyro chips, MEMS accelerometer chips, magnetometer chips, atmospheric pressure sensors, as well as corresponding structures and software; it incorporates built-in compensation algorithms—including full-temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data after error compensation under static, dynamic, and harsh operating conditions, while remaining fully compatible with products in the ADIS16488 series.

direction of application

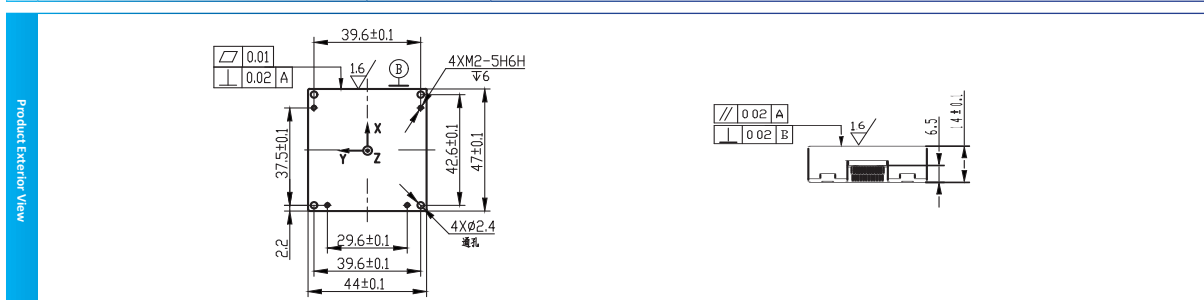
● navigation ● control ● measure ● Positioning and Orientation

Parameters (Typical Values)	Unit	Fundamental form
Measurement Range (Customizable)	°/s	±480
Zero offset	°/h	180
Zero drift instability (@ALLAN variance)	°/h	5
Zero-drift stability (10-second smoothing, 1°, room temperature)	°/h	10
Zero-bias repeatability	°/h	20
Zero offset error across the entire temperature range	°/h	72
Random walk	°/√h	0.26
Zero-drift acceleration sensitivity	°/h/g	20
Resolution ratio	°/s	0.01
Output noise (half-power point)	°/s	0.4
Tape width	Hz	330
Nonlinear scaling factor	ppm	200
Scale factor repeatability	ppm	200
Cross coupling	%	0.2

Parameters (Typical Values)	Unit	Fundamental form
Measurement Range (Customizable)	g	±20
Zero drift instability (@ALLAN variance)	mg	0.07
Zero-drift stability (10-second smoothing, 1°, room temperature)	mg	0.25
Zero-bias repeatability	mg	0.5
Zero offset error across the entire temperature range	mg	3
Random walk	m/s/√h	0.029
Resolution ratio	mg	0.1
Tape width	Hz	250
Scale factor repeatability	ppm	500
Cross coupling	%	0.2

Parameters (Typical Values)	Unit	Fundamental form
Dynamic measurement range	guass	±2.5
Sensitivity value	mguass/LSB	0.1
Pressure limit	mbar	300~1100
Sensitivity	mbar/LSB	6.1×10^{-7}

Parameters (Typical Values)	Unit	Fundamental form
Start-up stabilization time	s	1
Data Update Rate	Hz	2460
Voltage	V	3.3±0.15
Steady state power consumption	W	0.5
Ripple wave	mV	100
Working temperature	°C	-45~85
Storage temperature	°C	-55~85
Weight	g	48±2
Size	mm	44*47*14
Interface	—	SPI



►►9-DOF Inertial Measurement Module

product model MOPKT-EX9-3



The product comprises components such as MEMS gyro chips, MEMS accelerometer chips, magnetometer chips, atmospheric pressure sensors, as well as corresponding structures and software; it incorporates built-in compensation algorithms—including full-temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data after error compensation under static, dynamic, and harsh operating conditions, while remaining fully compatible with products in the ADIS16488 series.

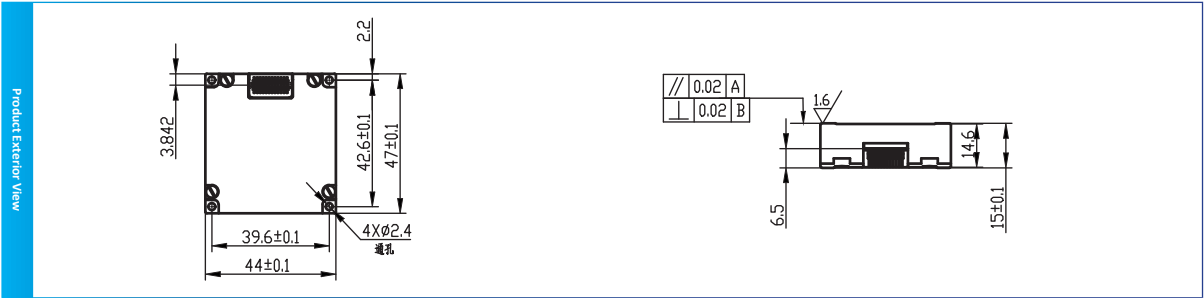
direction of application ● navigation ● control ● measure ● Positioning and Orientation

Parameters (Typical Values)		Unit	Fundamental form
Gyroscope	Measurement Range (Customizable)	° /s	±480
	Zero offset	° /h	15
	Zero drift instability (@ALLAN variance)	° /h	0.3
	Zero-drift stability (10-second smoothing, 1 σ , room temperature)	° /h	3
	Zero-bias repeatability	° /h	5
	Zero offset error across the entire temperature range	° /h	20
	Random walk	° / $\sqrt{h}$	0.15
	Zero-drift acceleration sensitivity	° /h/g	2
	Resolution ratio	° /s	0.0005
	Output noise (half-power point)	° /s	0.3
	Tape width	Hz	250
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.1

Parameters (Typical Values)		Unit	Fundamental form
Accelerometer	Measurement Range (Customizable)	g	±20
	Zero drift instability (@ALLAN variance)	mg	0.07
	Zero-drift stability (10-second smoothing, 1 σ , room temperature)	mg	0.25
	Zero-bias repeatability	mg	0.5
	Zero offset error across the entire temperature range	mg	3
	Random walk	m/s/ $\sqrt{h}$	0.029
	Resolution ratio	mg	0.1
	Tape width	Hz	250
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.2

Parameters (Typical Values)		Unit	Fundamental form
Magnetometer	Dynamic measurement range	guass	±2.5
	Sensitivity value	mguass/LSB	0.1
Barometer	Pressure limit	mbar	300~1100
	Sensitivity	mbar/LSB	6.1*10 ⁻⁷

Parameters (Typical Values)		Unit	Fundamental form
Other	Start-up stabilization time	s	1
	Data Update Rate	Hz	2400
	Voltage	V	3.3±0.15
	Steady state power consumption	W	0.5
	Ripple wave	mV	100
	Working temperature	°C	-45~85
	Storage temperature	°C	-55~85
	Weight	g	48±2
	Size	mm	44*47*15
	Interface	—	SPI



►►inclinometer

product model

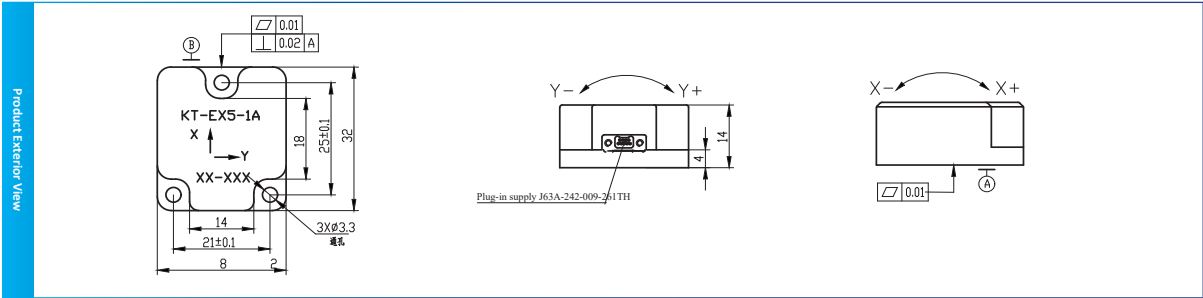
MOPKT-EX5-1



The product consists of a dual-axis attitude sensor, a temperature sensor, a digital signal processing board, as well as a structural design and software package. It incorporates built-in compensation algorithms—including full-temperature compensation, installation offset angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data after error compensation, even under static, dynamic, and harsh operating conditions.

direction of application ● attitude control

Parameters (Typical Values)	Unit	A mould
Measurement Range (Customizable)	°	±15 (Customizable)
Full-range temperature measurement accuracy	°	0.01
Tape width	Hz	10
Start-up stabilization time	s	1
Operating voltage (DC)	V	5~24
Operating current	mA	80
Data Update Rate	Hz	20
Working temperature	°C	-40~60
Storage temperature	°C	-55~105
Weight	g	22.5
Size	mm	32*28*14
Interface	—	RS-422



►►inclinor

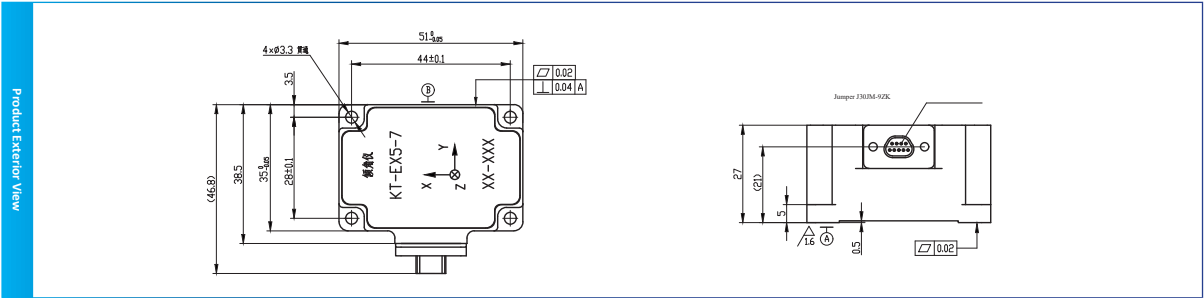
product model  MOPKT-EX5-7 (Domestic Version)



The product consists of a domestically produced dual-axis attitude sensor, a temperature sensor, a digital signal processing board, as well as a structural design and software package. It incorporates built-in compensation algorithms—including full-temperature compensation, installation offset angle compensation, and nonlinear compensation—enabling it to provide users with stable and reliable measurement data even under static, dynamic, and harsh operating conditions after error compensation.

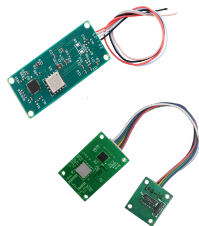
direction of application  attitude control

Parameters (Typical Values)	Unit	Fundamental form
Measuring range	°	±15 (Customizable)
Room temperature measurement accuracy	°	0.02
Tape width	Hz	10
Start-up stabilization time	s	1
Operating voltage (DC)	V	5~24
Operating current	mA	≤ 100 @18V
Data Update Rate	Hz	20
Working temperature	°C	-40~60
Storage temperature	°C	-45~70
Weight	g	<300
Size	mm	51*46.8*27
Interface		RS-422



►► Electronic Compass

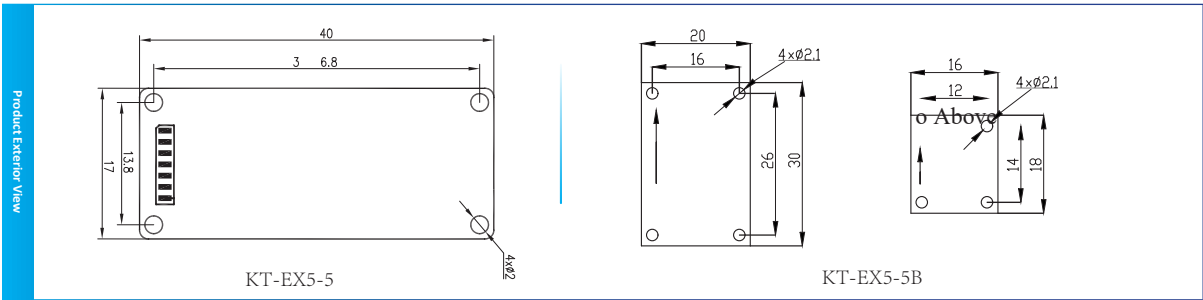
product model⊕ MOPKT-EX5-5 ⊕ MOPKT-EX5-5B



The product consists of a triaxial magnetometer, a triaxial accelerometer, and a temperature sensor. Through full-temperature-range temperature compensation, high-precision position turntable calibration, and on-site magnetometer calibration, the system can support various baud rates and different output modes, thereby meeting the majority of users' requirements for orientation and attitude measurement applications.

direction of application ○ Geomagnetic Heading Measurement

Parameters (Typical Values)			Unit	Fundamental form	
Azimuth	Measuring range		°	0~360	
	Static measurement accuracy	After magnetic field spatial calibration	°	0.5 (-65℃ ≤ tilt angle ≤ 65°)	
				0.2 (Horizontal)	
		After horizontal calibration	°	0.2 (Horizontal)	
	Resolution ratio		°	0.01	
	Repetitiveness		°	0.05	
Angle of roll	Measuring range	Angle of pitch	°	-90~90	
		Roll angle	°	-180~180	
	Accuracy	Angle of pitch	°	0.1 (-80° ~80°)	
		Roll angle	°	0.1 (-65° ~65°)	
	Resolution ratio		°	0.01	
	Repetitiveness		°	0.05	
Magnetometer	Measuring range		uT	±125	
	Resolution ratio		uT	0.015	
	Repetitiveness		uT	±0.1	
Temperature sensor	Measuring range		℃	-40~85	
	Accuracy		℃	±5	
Data Update Rate			Hz	100	
Voltage			V	DC3.6~20	
Current	Work pattern		mA	12	
	Sleep Mode		uA	300	
Baud rate			——	300~921600	
Working temperature			℃	-40~85	
Storage temperature			℃	-40~85	
Weight			g	7	
Dimensions (excluding casing)			mm	17*40*13	30*20——18*16
CI			——	TTL/RS-232/RS-422/RS-485	



▶▶North-seeking instrument

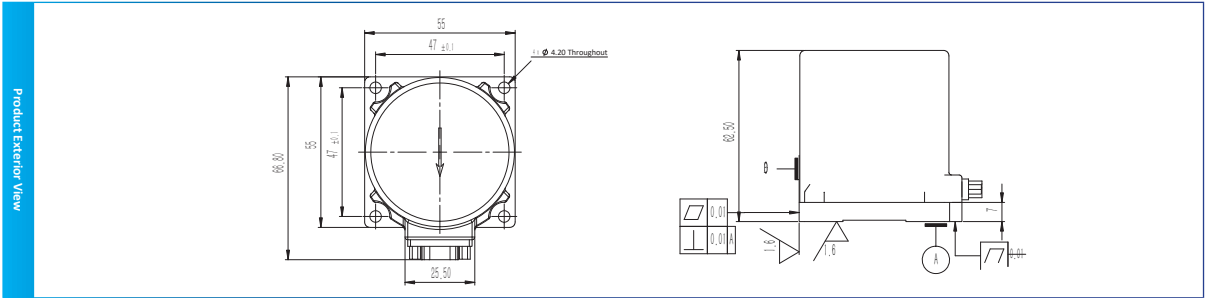
product model ⌚ MOPKT-EX7-1



The product consists of a high-precision MEMS compass gyroscope, a MEMS dual-axis accelerometer, a high-precision motor servo system, and peripheral circuits; under static conditions, it outputs a northward value corresponding to the direction indicated by the product's casing label. The compass utilizes the gyroscope to sense the Earth's rotation for autonomous north-seeking, ensuring that it remains unaffected by surrounding magnetic fields or other external environmental disturbances.

direction of application ● Seeking the North

Parameters (Typical Values)	Unit	Fundamental form
North-seeking accuracy	°	$0.2^{\circ} \times \sec(L)$ (1σ ; L denotes the local latitude; no latitude correction is required for inclination angles within $\pm 5^{\circ}$; latitude correction is required for large inclination angles)
Seeking the North Time	°	<180 (Power-on initialization: 15s; single north-seeking time: 160s)
Installation surface tilt angle (pitch and roll)	°	± 20
Attitude accuracy (pitch and roll)	°	0.05
Voltage	V	9~24
Steady state power consumption	W	≤ 2
Working temperature	°C	-20~80
Storage temperature	°C	-20~80
Weight	g	290
Size	mm	55*66.8*62.5
Interface	—	RS-422



MEMS Attitude Reference System

product model MOPKT-EX6-7-A

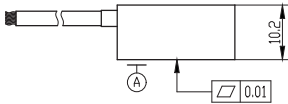
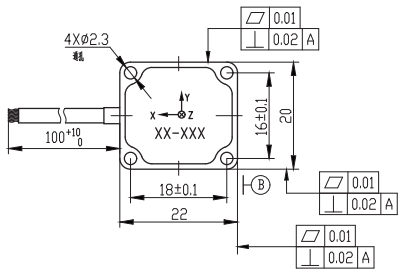


The product consists of a MEMS gyro chip, a MEMS accelerometer chip, a structural design, and software; it incorporates built-in compensation algorithms—including full-temperature compensation, installation bias angle compensation, and nonlinear compensation—enabling it to output stable and reliable angular rate, acceleration, and attitude data to the user even under static, dynamic, and harsh operating conditions after error compensation.

direction of application ● navigation ○ control ○ measure ○ Positioning and Orientation

Parameters (Typical Values)		Unit	Fundamental form
Heading angle drift (initial value: 0°, RMS)		° /h	72
Pitch angle accuracy / Roll angle accuracy (RMS)		°	Static: 0.2
		°	Dynamic: 0.3
Gyroscope	Measuring range	° /s	±500
	Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	10
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	° /h	60
	Zero-bias repeatability	° /h	20
	Random walk	° / √ h	0.5
	Tape width	Hz	100
	Nonlinear scaling factor	ppm	200
	Scale factor repeatability	ppm	200
	Cross coupling	%	0.2
Accelerometer	Measuring range	g	±40
	Zero bias stability (10s smoothing, 1σ, room temperature)	mg	0.2
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	mg	2
	Zero-bias repeatability	mg	1
	Tape width	Hz	100
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.1
Data Update Rate		Hz	200 (Customizable)
Voltage		V	5±0.25
Power dissipation		W	≤ 0.4
Working temperature		°C	-45~80
Size		mm	22*20*10.2
Weight		g	≤ 12
Interface		—	RS-422

Product Exterior View



MEMS Attitude Reference System

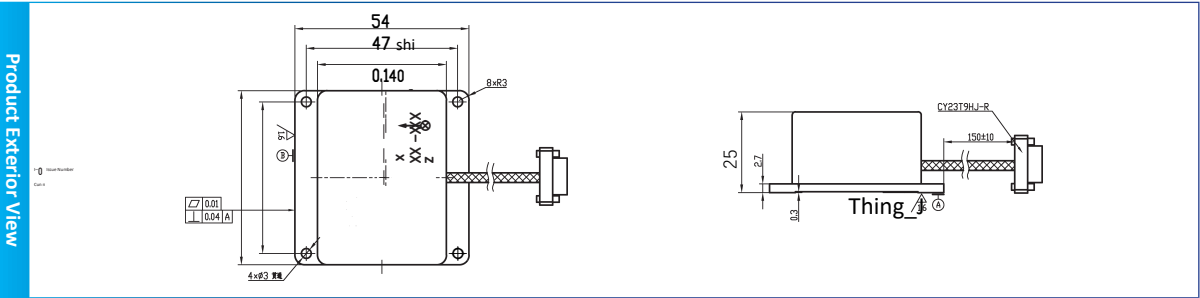
product model MOPKT-EX6-27-A



The product consists of a MEMS inertial measurement unit integrated with an independent intellectual property-based heading/attitude estimation and complementary filtering algorithm. The system employs MEMS device temperature error compensation technology and a complementary filtering algorithm to maintain attitude accuracy over extended periods, enabling it to output stable and reliable angular rate, acceleration, and attitude data even in complex environments characterized by high dynamics and high overload conditions.

direction of application Navigation Control Measurement Positioning & Orientation

Parameters (Typical Values)		Unit	Fundamental form
Heading angle drift (initial value: 0°, RMS)		° /h	20
Pitch angle accuracy / Roll angle accuracy (RMS)		°	Static: 0.1
		°	Dynamic: 0.2
Gyroscope	Measuring range	° /s	±400
	Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	3
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	° /h	20
	Zero-bias repeatability	° /h	3
	Random walk	° / √ h	0.15
	Tape width	Hz	100
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.1
Accelerometer	Measuring range	g	±10
	Zero bias stability (10s smoothing, 1σ, room temperature)	mg	0.05
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	mg	2
	Zero-bias repeatability	mg	0.2
	Tape width	Hz	100
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.1
Data Update Rate		Hz	500 (Customizable)
Voltage		V	5±0.25
Power dissipation		W	≤ 1.5
Working temperature		°C	-45~80
Size		mm	54*54*25
Weight		g	≤ 80
Interface		—	RS-422



MEMS Attitude Reference System

product model  MOPKT-EX7-4 (Domestic Version)



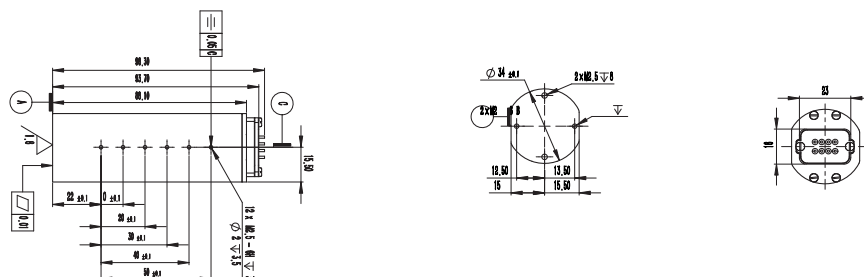
The product consists of a MEMS inertial measurement unit integrated with proprietary heading/attitude estimation and complementary filtering algorithms. The system employs MEMS device temperature error compensation technology and a complementary filtering algorithm to maintain attitude accuracy over extended periods; the product has passed rigorous pressure testing and is capable of outputting stable and reliable data—including angular rate, acceleration, magnetic heading, and attitude—under underwater conditions up to 8.9 MPa.

direction of application

● navigation ● control ● measure ● Positioning and Orientation

Parameters (Typical Values)		Unit	Fundamental form
Heading angle accuracy (RMS)		°	0.8
Pitch angle accuracy / Roll angle accuracy (RMS)		°	0.2
Gyroscope	Measuring range	° /s	±400
	Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	3
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	° /h	20
	Zero-bias repeatability	° /h	3
	Random walk	° / $\sqrt{h}$	0.15
	Tape width	Hz	100
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.1
Accelerometer	Measuring range	g	±10
	Zero bias stability (10s smoothing, 1σ, room temperature)	mg	0.05
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	mg	2
	Zero-bias repeatability	mg	0.2
	Tape width	Hz	100
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.1
Fluxgate	Measuring range	nT	±100000
	Zero-point coefficient repeatability	nT	±50
	Accuracy of magnetic field measurement	nT	±200
	Measuring the magnetic field resolution	nT	±10
	Noise	nT	±50
Data Update Rate		Hz	100
Voltage		V	7~28
Power dissipation		W	< 2.25
Working temperature		°C	-40~+80
Size		mm	Ø34*88
Weight		g	145±5
Interface		—	RS-422 /RS-485

Product Exterior View



MEMS Attitude Reference System

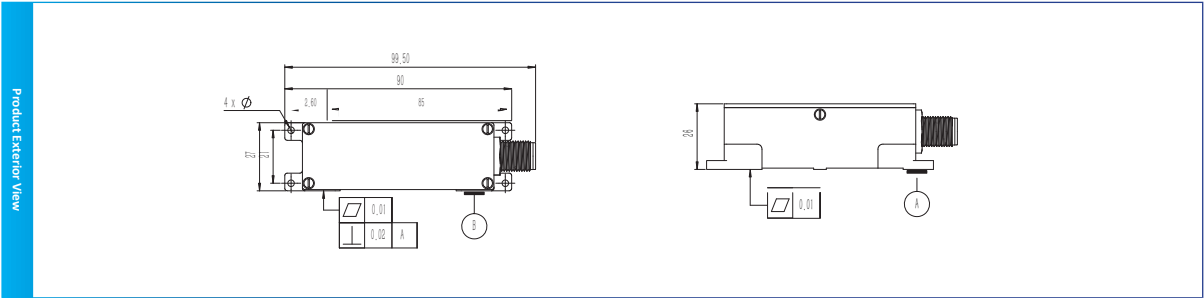
product model MOPKT-EX7-12



The product consists of a MEMS inertial measurement unit integrated with proprietary heading/ attitude and complementary filtering algorithms. The system employs MEMS device temperature error compensation technology and a complementary filtering algorithm to maintain attitude accuracy over extended periods, enabling it to output stable and reliable angular rate, acceleration, heading, and attitude data even in dynamic environments. It is fully compatible with the AHR5-10p product from the US-based Inertial-Lab laboratory.

direction of application navigation control measure Positioning & Targeting

Parameters (Typical Values)		Unit	Fundamental form
Heading angle accuracy		°	0.8
Pitch angle accuracy / Roll angle accuracy (RMS)		°	0.2
Gyroscope	Measuring range	° /s	±400
	Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	10
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	° /h	60
	Zero-bias repeatability	° /h	70
	Random walk	° / √ h	0.5
	Tape width	Hz	100
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.2
Accelerometer	Measuring range	g	±20
	Zero bias stability (10s smoothing, 1σ, room temperature)	mg	0.1
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	mg	2
	Zero-bias repeatability	mg	0.5
	Tape width	Hz	100
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.1
Data Update Rate		Hz	100
Voltage		V	9~28
Power dissipation		W	≤ 2.25
Working temperature		°C	-40~+80
Size		mm	99.5*27*26
Weight		g	≤ 50
Interface		—	RS-422



MEMS Attitude Reference System

product model

MOPKT-EX9-1-A

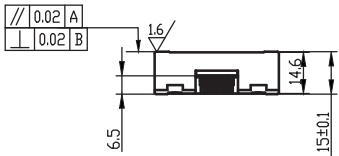
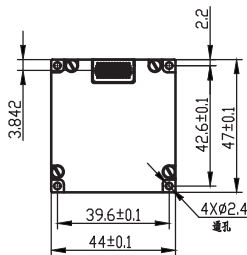


The product consists of a MEMS inertial measurement unit integrated with a fully proprietary heading/ attitude and complementary filtering algorithm; by measuring the three-axis angular velocity and three-axis linear acceleration of the carrier, it calculates the pitch angle, roll angle, and relative heading angle, enabling it to output stable and reliable angular rate, acceleration, and attitude data even in dynamic environments.

direction of application navigation control measure Positioning and Orientation

Parameters (Typical Values)		Unit	Fundamental form
Heading angle drift (initial value: 0°, RMS)		° /h	20
Pitch angle accuracy / Roll angle accuracy (RMS)		°	Static: 0.1
		°	Dynamic: 0.2
Gyroscope	Measuring range	° /s	±480
	Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	3
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	° /h	20
	Zero-bias repeatability	° /h	5
	Random walk	° / √ h	0.15
	Tape width	Hz	250
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.1
Accelerometer	Measuring range	g	±20
	Zero bias stability (10s smoothing, 1σ, room temperature)	mg	0.25
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	mg	2
	Zero-bias repeatability	mg	0.5
	Tape width	Hz	200
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.1
Data Update Rate		Hz	500 (Customizable)
Voltage		V	3.3±0.33
Power dissipation		W	≤ 1.5
Working temperature		°C	-45~85
Size		mm	44*47*15
Weight		g	≤ 50
Interface		—	TTL

Product Exterior View



MEMS Attitude Reference System

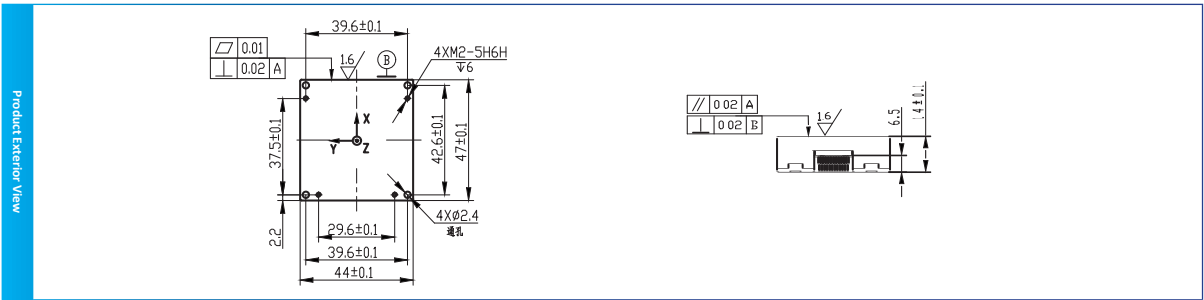
product model MOPKT-EX9-2-A



The product consists of a MEMS inertial measurement unit integrated with a fully proprietary heading, attitude, and geomagnetic fusion algorithm, as well as a magnetometer error ellipsoid model to enable online calibration of the magnetometer's errors. It can output stable and reliable data on angular rate, acceleration, heading, and attitude in dynamic environments.

direction of application navigation control measure Positioning and Orientation

Parameters (Typical Values)		Unit	Fundamental form
Heading angle accuracy (uniform magnetic field, RMS)		°	1.5
Pitch angle accuracy / Roll angle accuracy (RMS)		°	Static: 0.2
		°	Dynamic: 0.3
Gyroscope	Measuring range	° /s	±480
	Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	10
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	° /h	72
	Zero-bias repeatability	° /h	20
	Random walk	° / √ h	0.26
	Tape width	Hz	330
	Nonlinear scaling factor	ppm	200
	Scale factor repeatability	ppm	200
	Cross coupling	%	0.2
Accelerometer	Measuring range	g	±20
	Zero bias stability (10s smoothing, 1σ, room temperature)	mg	0.07
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	mg	3
	Zero-bias repeatability	mg	0.5
	Tape width	Hz	250
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.2
Magnetometer	Measuring range	guass	±2.5
	Sensitivity	mguass/LSB	0.1
Barometer	Pressure limit	mbar	300~1100
	Sensitivity	mbar/LSB	6.1*10 ⁻⁷
Data Update Rate		Hz	200
Voltage		V	3.3±0.33
Power dissipation		W	≤ 1
Working temperature		°C	-45~80
Size		mm	44*47*14
Weight		g	48±2
Interface		—	TTL



MEMS Attitude Reference System

product model MOPKT-EX9-3-A

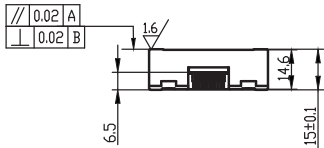
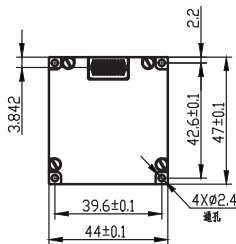


The product consists of a MEMS inertial measurement unit integrated with a fully proprietary heading, attitude, and geomagnetic fusion algorithm, as well as a magnetometer error ellipsoid model to enable online calibration of the magnetometer's errors. It can output stable and reliable data—including angular rate, acceleration, heading, and attitude—even in dynamic environments.

direction of application ● navigation ● control ● measure ● Positioning and Orientation

Parameters (Typical Values)		Unit	Fundamental form
Heading angle accuracy (uniform magnetic field, RMS)		°	1.0
Pitch angle accuracy / Roll angle accuracy (RMS)		°	Static: 0.1
		°	Dynamic: 0.2
Gyroscope	Measuring range	°/s	±480
	Zero bias stability (10s smoothing, 1σ, room temperature)	°/h	3
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	°/h	20
	Zero-bias repeatability	°/h	5
	Random walk	°/√h	0.15
	Tape width	Hz	250
	Nonlinear scaling factor	ppm	100
	Scale factor repeatability	ppm	100
	Cross coupling	%	0.1
Accelerometer	Measuring range	g	±20
	Zero bias stability (10s smoothing, 1σ, room temperature)	mg	0.25
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	mg	3
	Zero-bias repeatability	mg	0.5
	Tape width	Hz	250
	Scale factor repeatability	ppm	500
	Cross coupling	%	0.2
Magnetometer	Measuring range	guass	±2.5
	Sensitivity	mguass/LSB	0.1
Barometer	Pressure limit	mbar	300~1100
	Sensitivity	mbar/LSB	6.1*10 ⁻⁷
Data Update Rate		Hz	200 (Customizable)
Voltage		V	3.3±0.33
Power dissipation		W	≤ 0.5
Working temperature		°C	-45~80
Size		mm	44*47*14
Weight		g	48±2
Interface		—	TTL

Product Exterior View



►► Single-Antenna Integrated Navigation System

product model  MOPKT-EX8-4N

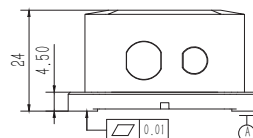
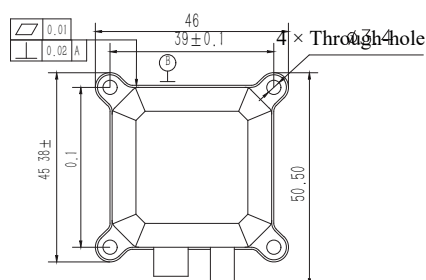


The product consists of a MEMS inertial measurement unit, a magnetometer, an altimeter, a satellite positioning receiver, among other components. It employs a fully proprietary INS/GNSS integrated navigation algorithm, MEMS device temperature error compensation technology, and system-level self-calibration and error compensation techniques to achieve precise measurement of data such as angular rate, acceleration, heading, attitude, velocity, and position. The product is compatible with the SBG Ellipse-N series products.

direction of application  navigation  control  measure  Positioning & Targeting

Parameters (Typical Values)			Unit	Metric
Heading accuracy (uniform magnetic field, RMS)	Path angle	Airborne and Shipborne	°	0.5
		Vehicle	°	0.2
		Uniform magnetic field, heading alignment mode	°	1.0
	Pitch angle / Roll angle	Airborne and Shipboard	°	0.2
		Vehicle	°	0.15
Position accuracy (RMS)	Horizontal	——	m	1.5 (RTK:0.8cm+1ppm)
	Altitude	——	m	3 (RTK:1.5cm+1ppm)
Speed Accuracy (RMS)			m/s	0.2
Gyroscope	Measuring range		° /s	±500
	Zero bias stability (10s smoothing, 1σ, room temperature)		° /h	10
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)		° /h	60
	Zero-bias repeatability		° /h	20
	Random walk		° / √ h	0.5
	Tape width		Hz	250
	Nonlinear scaling factor		ppm	200
	Scale factor repeatability		ppm	200
	Cross coupling		%	0.2
Accelerometer	Measuring range		g	±10
	Zero bias stability (10s smoothing, 1σ, room temperature)		mg	0.05
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)		mg	2
	Zero-bias repeatability		mg	0.2
	Tape width		Hz	250
	Scale factor repeatability		ppm	500
	Cross coupling		%	0.1
Magnetometer	Measuring range		guass	±2.5
	Sensitivity		mguass/LSB	0.1
Barometer	Pressure limit		mbar	300~1100
	Fractional error		mbar	2.5
Satellite positioning	Frequency point		——	BDS:B1B2B3B1C B2a GPS:L1C/A L1C L2P(W) L2CL5 GLONASS:L1L2 Galileo:E1 E5a E5b QZSS: L1 L2 L5
	Cold boot		s	20
Data Update Rate			Hz	100 (Customizable)
Voltage			V	5~30
Power dissipation			W	≤ 1.0
Working temperature			°C	-45~80
Size			mm	45*46*24
Weight			g	≤ 55
Interface			——	1 Bus: RS-422/RS-232 (Navigation Output) 1 RS-232 Interface (Differential Input) 1 Road PPS Output

Product Exterior View



►► Pod-mounted Follow-up Integrated Navigation System

product model⊕ MOPKT-EX8-11-G (Domestic Version)⊕ MOPKT-EX8-11

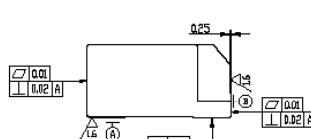
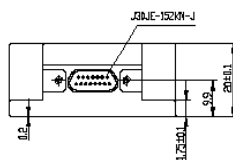
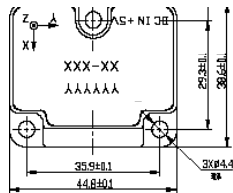


The product utilizes a MEMS inertial measurement unit to receive data from the primary inertial navigation system, satellite navigation, and the frame orientation; it can be installed inside the pod and synchronized with the pod frame, supporting a transfer alignment startup method even under continuous rotation conditions of the pod. It enables online compensation for the relative installation relationship between the primary inertial navigation system and the pod frame's zero position. Upon switching to navigation mode, the device outputs an automatic calibration of the relative relationship between the MEMS inertial navigation system and the frame orientation, thereby achieving decoupling of the pod frame and outputting the attitude information of both the internal and external bases as required.

direction of application ⊕ Navigation ⊕ Control ⊕ Measurement

Parameters (Typical Values)			Unit	Fundamental form	A mould	B mould
The airborne primary inertial navigation system provides the navigation information required for alignment.	Heading Accuracy (RMS)	Path angle	°	0.1	0.3	0.1
		Pitch angle / Roll angle	°	0.05	0.2	0.05
	Position accuracy (RMS)	Horizontal	m	1.5	1.5	1.5
		Altitude	m	3	3	3
Speed Accuracy (RMS)			m/s	0.1	0.2	0.08
Gyroscope	Measuring range		° /s	±400	±300	±300
	Zero bias stability (10s smoothing, 1σ, room temperature)		° /h	1	5	0.05
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)		° /h	5	20	2
	Zero-bias repeatability		° /h	5	10	1
	Random walk		° / √ h	0.03	0.15	0.02
	Tape width		Hz	400	250	200
	Nonlinear scaling factor		ppm	100	100	100
	Scale factor repeatability		ppm	100	100	100
	Cross coupling		%	0.1	0.2	0.1
Accelerometer	Measuring range		g	±10	±10	±10
	Zero-drift stability (10-second smoothing, RMS, room temperature)		mg	0.05	0.05	0.05
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)		mg	2	2	2
	Zero-bias repeatability		mg	0.2	0.2	0.2
	Tape width		Hz	250	250	250
	Scale factor repeatability		ppm	500	500	500
	Cross coupling		%	0.1	0.1	0.1
Data Update Rate			Hz	200 (Navigation data output) 4000 (Gyroscopic data output)		
Voltage			V	5±0.5		
Power dissipation			W	≤ 2		
Working temperature			°C	-45~80		
Size			mm	44.8*38.6*20		
Weight			g	≤ 55		
Interface			——	1 RS-422 Line (Navigation Data Output) 1 RS-422 Interface (High-frequency gyro output) 1 RS-422 Line (Transmitting Alignment Input) 1 Route PPS Input		

Product Exterior View



►►Dual-Antenna Integrated Navigation System

product model  MOPKT-EX8-3D

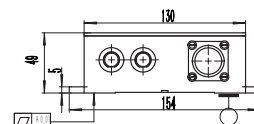
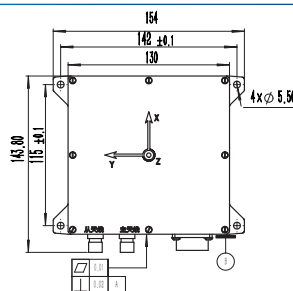


The product consists of a MEMS inertial measurement unit, a satellite positioning receiver, and other components. It employs technologies such as temperature error compensation for MEMS devices, system-level self-calibration and error compensation, dual-antenna heading output delay compensation combined with heading angle fusion, tight-coupled filtering and sequential processing for INS/GNSS integrated navigation, and non-orthogonal online compensation for the IMU itself, enabling real-time measurement and output of high-precision data including angular rate, acceleration, heading, attitude, velocity, and position; it can also be externally connected to a vehicle wheel speed sensor.

direction of application  navigation  control  measure  Positioning and Orientation

Parameters (Typical Values)		Unit	1 mould	2 mould	3 mould	4 mould
Heading Accuracy (RMS)	Path angle	°	0.1 (2 m baseline)			
	Pitch angle / Roll angle	°	0.2	0.1	0.08	0.05
Position accuracy (RMS)	Horizontal	m	1.5 (Single point) (RTK: 0.8 cm + 1 ppm)			
	Altitude	m	3 (Single point) (RTK: 1.5 cm + 1 ppm)			
Speed Accuracy (RMS)		m/s	0.1			
Gyroscope	Measuring range	° /s	±400			
	Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	10	3	1	0.4
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	° /h	60	20	10	2
	Zero-bias repeatability	° /h	20	3	1	0.3
	Random walk	° / √ h	0.5	0.15	0.05	0.02
	Tape width	Hz	250			150
	The scaling factor is nonlinear.	ppm	100			
	Scale factor repeatability	ppm	100			
	Cross coupling	%	0.2	0.1		
Accelerometer	Measuring range	g	±10			
	Zero bias stability (10s smoothing, 1σ, room temperature)	mg	0.05			
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	mg	2			
	Zero-bias repeatability	mg	0.2			
	Tape width	Hz	100			
	Scale factor repeatability	ppm	500			
	Cross coupling	%	0.1			
Satellite positioning	Frequency point	——	BDS:B1B2B3B1C B2a GPS:L1C/A L1C L2P(W) L2CL5 GLONASS:L1L2 Galileo:E1 E5a E5b QZSS: L1 L2 L5			
	Cold boot	s	20			
Data Update Rate		Hz	100 (Customizable)			
Voltage		V	9~36			
Power dissipation		W	≤ 8			
Working temperature		℃	-45~80			
Size		mm	143.8*154*49			
Weight		g	≤ 1200			
Interface		——	2 1 RS-422/RS-232 interface (navigation output); 1 RS-232 interface (differential output) 1 Road PPS Output 1 CAN Bus Output			

Product Exterior View



Dual-Antenna Integrated Navigation System

product model

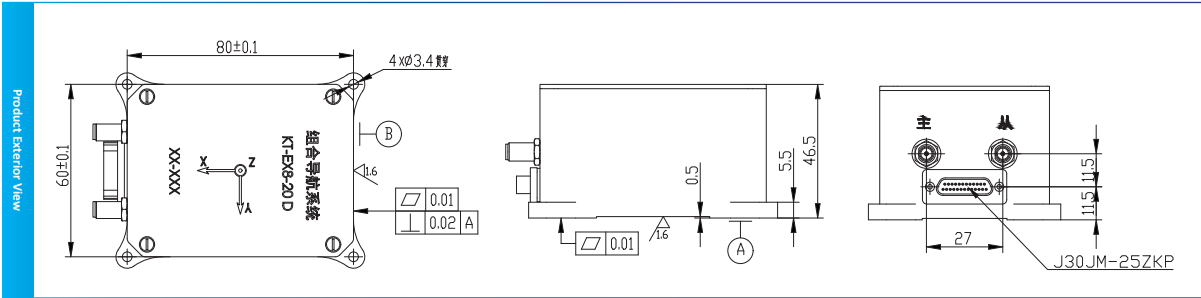
MOPKT-EX8-20D-G (Domestic Version) MOPKT-EX8-20D



The product consists of a MEMS inertial measurement unit, a satellite positioning receiver, and other components. It employs technologies such as temperature error compensation for MEMS devices, system-level self-calibration and error compensation, dual-antenna heading output delay compensation combined with heading angle fusion, tight-coupled filtering and sequential processing for INS/GNSS integrated navigation, and non-orthogonal online compensation for the IMU itself to perform real-time measurement and output high-precision navigation parameters—including vehicle position, velocity, and attitude angles—and can be externally connected to a vehicle wheel speed sensor.

direction of application ● navigation● control● measure● Positioning and Orientation

Parameters (Typical Values)		Unit	1 mould	2 mould	3 mould	4 mould
Heading Accuracy (RMS)	Path angle	°	0.1 (2 m baseline)			
	Pitch angle / Roll angle	°	0.2	0.1	0.08	0.05
Position accuracy (RMS)	Horizontal	m	1.5 (Single point) (RTK: 0.8 cm + 1 ppm)			
	Altitude	m	3 (Single point) (RTK: 1.5 cm + 1 ppm)			
Speed Accuracy (RMS)		m/s	0.1			
Gyroscope	Measuring range	° /s	±400			
	Zero bias stability (10s smoothing, 1σ, room temperature)	° /h	10	3	1	0.4
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	° /h	60	20	10	2
	Zero-bias repeatability	° /h	20	3	1	0.3
	Random walk	° / √ h	0.5	0.15	0.05	0.02
	Tape width	Hz	250			150
	The scaling factor is nonlinear.	ppm	100			
	Scale factor repeatability	ppm	100			
	Cross coupling	%	0.2	0.1		
Accelerometer	Measuring range	g	±10			
	Zero bias stability (10s smoothing, 1σ, room temperature)	mg	0.05			
	Full-temperature zero-bias variation (10-second smoothing, RMS, variable temperature)	mg	2			
	Zero-bias repeatability	mg	0.2			
	Tape width	Hz	100			
	Scale factor repeatability	ppm	500			
	Cross coupling	%	0.1			
Satellite positioning	Frequency point	——	BDS:B1B2IB3IB1C B2a GPS:L1C/A L1C L2P(W) L2CL5 GLONASS:L1L2 Galileo:E1 E5a E5b QZSS: L1 L2 L5			
	Cold boot	s	20			
Data Update Rate		Hz	100 (Customizable)			
Voltage		V	9~36			
Power dissipation		W	≤ 5			
Working temperature		℃	-45~80			
Size		mm	88*68*46			
Weight		g	≤ 300			
Interface		——	2 1 RS-422/RS-232 interface (navigation output); 1 RS-232 interface (differential output) 1 Road PPS Output 1 CAN Bus Output			



II

MOPKT-JB1 Series Quartz Flexible Accelerometer

MOPKT-JB1 series quartz flexible accelerometer is a high-precision military inertial navigation grade accelerometer. The product has the characteristics of excellent long-term stability, repeatability, startup performance, environmental adaptability and high reliability. It can be used for both static and dynamic tests. It is also a standard vibration sensor and tilt sensor.

The output current of the product has a linear relationship with the force or acceleration, and the user can select the appropriate sampling resistance through calculation to achieve high-precision output. The built-in temperature sensor can be used to compensate the bias and scale factor and reduce the influence of ambient temperature according to the user's requirements.

Applications: inertial measurement and vibration isolation test of precision instruments and equipment for military high-precision inertial navigation systems in aerospace, aviation, shipping, weapons and other fields.



Outline drawing and pin definition:

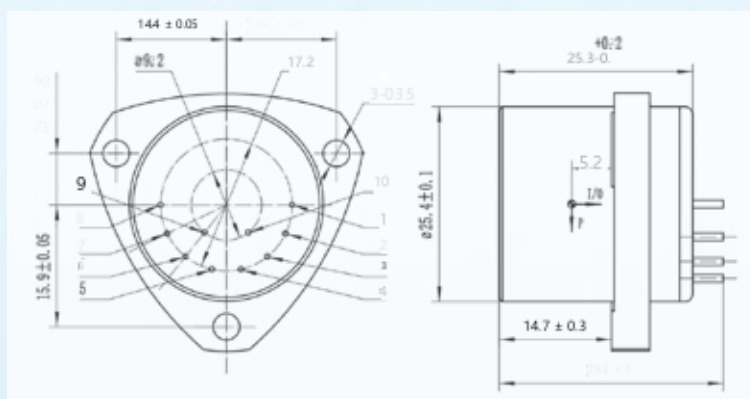
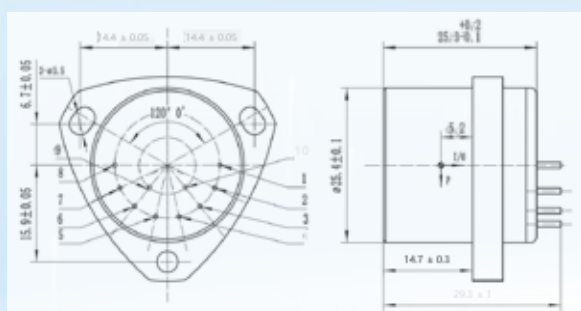
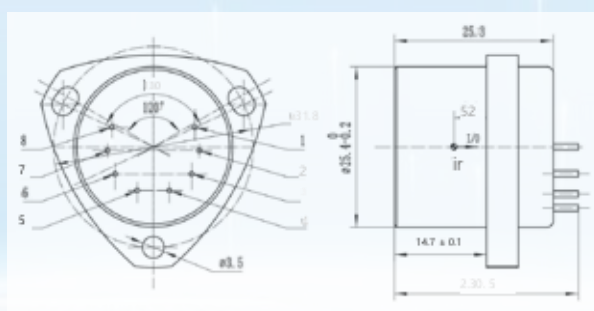


Figure 1: General Accelerometer

General definition of pins: 1. Signal output; 2. Null; 3. -15V; 4. +15V; 5. Power supply and signal ground; 6. Null; 7. Null; 8. Null; 9. -9 V output; 10. +9V output.

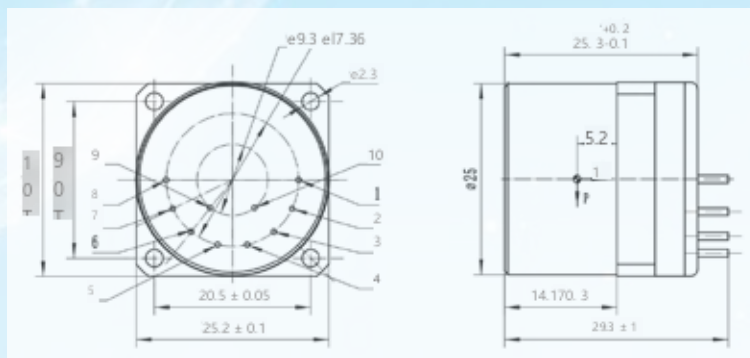


The mounting hole is U-shaped.



The mounting hole is U-shaped and the pin is 8-pin.

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The overall dimensions are square.

Technical Parameters

Serial number	Parameter	MOPKT-JB1-01	MOPKT-JB1-02	MOPKT-JB1-03
1	Range	±50g、±60g、±70g	±50g、±60g、±70g	±50g、±60g、±70g
2	Threshold	5μg	5μg	5μg
3	Bias K0/K1	≤ ±3mg	≤ ±3mg	≤ ±5 mg
4	Scale factor K1	1.05~1.30 mA/g	1.05~1.30 mA/g	1.05~1.30 mA/g
5	Second-order nonlinear coefficient K2	≤ ±10μg /g ²	≤ ±15μg /g ²	≤ ±20μg /g ²
6	0 G 4 hour short term stability	≤ 10 μg	≤ 10μg	≤ 10 μg
7	1G 4-hour short-term stability	≤ 10 ppm	≤ 10 ppm	≤ 10 ppm
8	Partial value comprehensive repeatability σK0 (1σ, 1 month)	≤ 10 μg	≤ 15 μg	≤ 25 μg
9	Scale factor integrated repeatability σK1/K1 (1σ, 1 month)	≤ 10ppm	≤ 20 ppm	≤ 30 ppm
10	Nonlinear coefficient comprehensive repeatability K2/K1 (1σ, 1 month)	≤ ±10 μg /g ²	≤ ±15 μg /g ²	≤ ±20 μg /g ²
11	Partial temperature coefficient (full temperature average value)	≤ ±10 μg /°C	≤ ±20 μg /°C	≤ ±30 μg /°C
12	Scale Factor Temperature Coefficient (Averaged Over Temperature)	≤ ±10 ppm /°C	≤ ±30 ppm /°C	≤ ±50 ppm /°C
13	Noise (840 Ω sampling resistor)	≤ 5mv	≤ 8.4mv	≤ 8.4mv
14	Natural frequency	400~800 Hz	400~800 Hz	400~800 Hz
15	Bandwidth	800~2500 Hz	800~2500 Hz	800~2500 Hz
16	Random vibration	6g(20-2000Hz)	6g(20-2000Hz)	6g(20-2000Hz)
17	Impact	100g,8ms,1/2sin	100g,8ms,1/2sin	100g,8ms,1/2sin
18	Operating temperature range	-55~+85°C	-55~+85°C	-55~+85°C
19	Storage temperature range	-60~+120°C	-60~+120°C	-60~+120°C
20	Power supply	±12~±15V	±12~±15V	±12~±15V
21	Current consumption	≤ ±20mA	≤ ±20mA	≤ ±20mA
22	Temperature sensor	User-customizable	User-customizable	User-customizable
23	Size	Φ25.4X30mm	Φ25.4X30mm	Φ25.4X30mm
24	Weight	≤ 80g	≤ 80g	≤ 80g

Note:

1. The scale factor shall be adjusted according to the user's requirements;
2. Temperature sensor: AD590, pt1000, 18B20;
3. Test cycle: divided into 1 month, 3 months, 6 months, 12 months, according to user requirements for testing;
4. According to the user's installation requirements; The overall dimensions can be slightly adjusted according to the user's requirements, and other test requirements can be carried out according to the customer's requirements. Disclaimer: Specifications are subject to change without notice. Baoding Kaituo Precision Instrument Company reserves the right to modify any product or technology of this Agreement.

Rights to improve reliability, functionality, or design while providing consultation and explanation.

MOPKT-JB2 Series Quartz Flexible Accelerometer

MOPKT-JB2 series quartz flexible accelerometer is a high-precision, wide-range military inertial navigation accelerometer (up to 100g), which has excellent long-term stability, repeatability, start-up performance, environmental adaptability and high reliability, and can be used for both static and dynamic tests. It is also a standard vibration sensor and tilt sensor.

The output current of the product has a linear relationship with the force or acceleration, and the user can select the appropriate sampling resistance through calculation to achieve high-precision output. The built-in temperature sensor can be used to compensate the bias and scale factor and reduce the influence of ambient temperature according to the user's requirements. Applications: inertial measurement of military high-precision inertial navigation system and vibration isolation measurement of precision instruments and equipment in aerospace, aviation, shipping, weapons and other fields

Test and inclination test.



Outline drawing and pin definition:

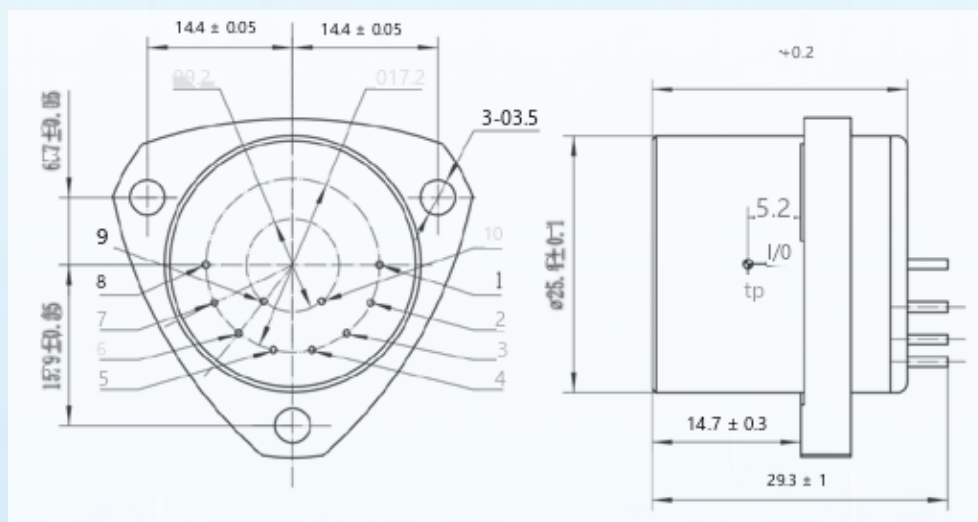


Figure 1: General Accelerometer

General definition of pins: 1. Signal output; 2. Empty; 3. -15V; 4. +15V; 5. Power supply and signal ground; 6. Empty; 7. Empty; 8, null; 9, -9V output; 10. +9V output.

China MoneyPro

Table of Technical Parameters

Serial number	Parameter	MOPKT-JB2-01	MOPKT-JB2-02	MOPKT-JB2-03
1	Range	$\pm 70\text{g}$ 、 $\pm 100\text{g}$	$\pm 70\text{g}$ 、 $\pm 100\text{g}$	$\pm 70\text{g}$ 、 $\pm 100\text{g}$
2	Threshold	$5\mu\text{g}$	$5\mu\text{g}$	$5\mu\text{g}$
3	Bias k_0/K_1	$\leq \pm 3\text{ mg}$	$\leq \pm 3\text{ mg}$	$\leq \pm 5\text{ mg}$
4	Scale factor K_1	$0.8\sim 1.2\text{ mA/g}$	$0.8\sim 1.2\text{ mA/g}$	$0.8\sim 1.2\text{ mA/g}$
5	Second-order nonlinear coefficient K_2	$\leq \pm 10\mu\text{g} / \text{g}^2$	$\leq \pm 15\mu\text{g} / \text{g}^2$	$\leq \pm 20\mu\text{g} / \text{g}^2$
6	0 G 4 hour short term stability	$\leq 10\text{ }\mu\text{g}$	$\leq 10\mu\text{g}$	$\leq 10\text{ }\mu\text{g}$
7	1G 4-hour short-term stability	$\leq 10\text{ ppm}$	$\leq 10\text{ ppm}$	$\leq 10\text{ ppm}$
8	Biased value comprehensive repeatability $\sigma K_0(1\sigma, 1\text{ month})$	$\leq 10\text{ }\mu\text{g}$	$\leq 15\mu\text{g}$	$\leq 25\mu\text{g}$
9	Scale factor integrated repeatability $\sigma K_1/K_1(1\sigma, 1\text{ month})$	$\leq 15\text{ppm}$	$\leq 20\text{ ppm}$	$\leq 30\text{ ppm}$
10	Nonlinear coefficient comprehensive repeatability $K_2/K_1(1\sigma, 1\text{ month})$	$\leq \pm 10\text{ }\mu\text{g} / \text{g}^2$	$\leq \pm 10\text{ }\mu\text{g} / \text{g}^2$	$\leq \pm 10\text{ }\mu\text{g} / \text{g}^2$
11	Partial temperature coefficient (full temperature average value)	$\leq \pm 10\text{ }\mu\text{g} / ^\circ\text{C}$	$\leq \pm 20\text{ }\mu\text{g} / ^\circ\text{C}$	$\leq \pm 30\text{ }\mu\text{g} / ^\circ\text{C}$
12	Scale Factor Temperature Coefficient (Averaged Over Temperature)	$\leq \pm 20\text{ ppm} / ^\circ\text{C}$	$\leq \pm 30\text{ ppm} / ^\circ\text{C}$	$\leq \pm 50\text{ ppm} / ^\circ\text{C}$
13	Noise (840 Ω sampling resistor)	$\leq 5\text{mv}$	$\leq 5\text{mv}$	$\leq 5\text{mv}$
14	Natural frequency	$400\sim 800\text{ Hz}$	$400\sim 800\text{ Hz}$	$400\sim 800\text{ Hz}$
15	Bandwidth	$800\sim 2500\text{ Hz}$	$800\sim 2500\text{ Hz}$	$800\sim 2500\text{ Hz}$
16	Random vibration	$6\text{g}(20\sim 2000\text{Hz})$	$6\text{g}(20\sim 2000\text{Hz})$	$6\text{g}(20\sim 2000\text{Hz})$
17	Impact	$100\text{g}, 8\text{ms}, 1/2\sin$	$100\text{g}, 8\text{ms}, 1/2\sin$	$100\text{g}, 8\text{ms}, 1/2\sin$
18	Operating temperature range	$-55 \sim +85^\circ\text{C}$	$-55 \sim +85^\circ\text{C}$	$-55 \sim +85^\circ\text{C}$
19	Storage temperature range	$-60\sim +120^\circ\text{C}$	$-60\sim +120^\circ\text{C}$	$60\sim +120^\circ\text{C}$
20	Power supply	$\pm 12\sim \pm 15\text{V}$	$\pm 12\sim \pm 15\text{V}$	$\pm 12\sim \pm 15\text{V}$
21	Current consumption	$\leq \pm 20\text{mA}$	$\leq \pm 20\text{mA}$	$\leq \pm 20\text{mA}$
22	Temperature sensor	User-customizable	User-customizable	User-customizable
23	Size	$\Phi 25.4 \times 30\text{mm}$	$\Phi 25.4 \times 30\text{mm}$	$\Phi 25.4 \times 30\text{mm}$
24	Weight	$\leq 80\text{g}$	$\leq 80\text{g}$	$\leq 80\text{g}$

Note:

1. The measuring range and scale factor shall be adjusted according to the user's requirements, and the maximum can reach 100g;
2. Temperature sensor: AD590, pt1000, 18B20;
3. Test cycle: divided into 1 month, 3 months, 6 months, 12 months, according to user requirements for testing;
4. According to the user's installation requirements; The overall dimensions can be slightly adjusted according to the user's requirements, and other test requirements can be carried out according to the customer's requirements. Disclaimer: Specifications are subject to change without notice. Baoding Kaituo Precision Instrument Company reserves the right to modify any product or technology of this Agreement.

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MOPKT-JB3 Series Quartz Flexible Accelerometer

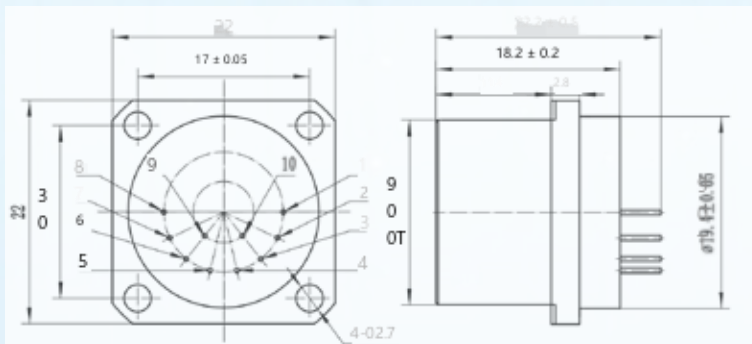
MOPKT-JB3 series quartz flexible accelerometer is a miniaturized, high-precision, large-range military inertial navigation grade accelerometer. The product has excellent long-term stability, repeatability, start-up performance, environmental adaptability and high reliability. It can be used for both static and dynamic tests. It is also a standard vibration sensor and tilt sensor.

The product adopts a unique miniaturization design and packaging process. The output current is linearly related to the force or acceleration. Users can select the appropriate sampling resistance through calculation to achieve high-precision output. The built-in temperature sensor can be used to compensate the bias and scale factor and reduce the influence of ambient temperature according to the user's requirements.

Application: Inertial measurement of military inertial navigation system and vibration isolation test and inclination test of precision instruments and equipment in aerospace, aviation, shipping, weapons and other fields.



1. Square flange boundary dimension



Pin definition:

- (1) Signal output
- (5) Power supply and signal ground
- (9) -9V or pt1000

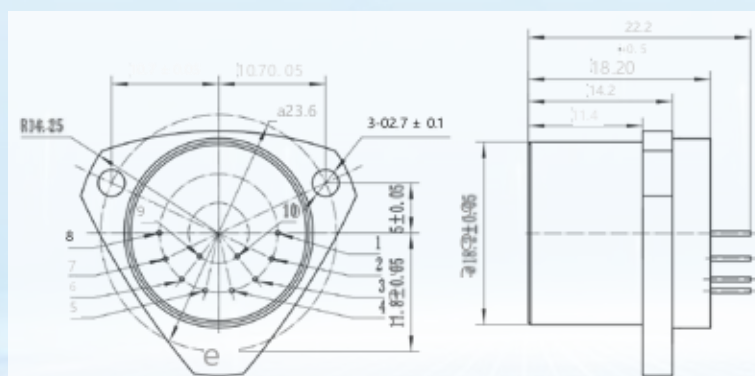
2. Triangular flange boundary dimension

- (2) Empty
- (6) Empty

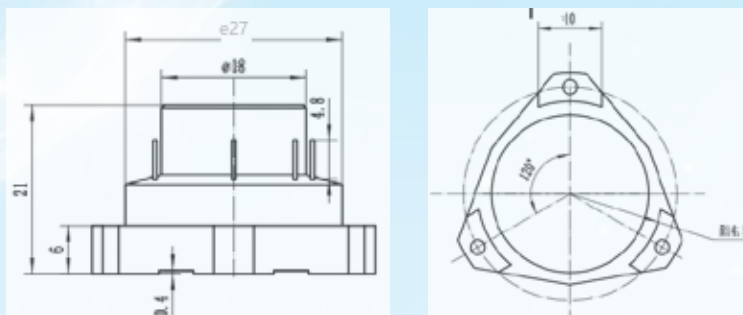
- (3) Power supply - 15V
- (7) Empty

- (4) Power supply + 15V
- (8) Empty

- (10) + 9V or pt1000



3.Overall dimension of inverted triangular flange



Technical Parameters

Serial number	Parameter	MOPKT-JB3-01	MOPKT-JB3-02	MOPKT-JB3-03
1	Range	±60g	±60g	±70g、±100g
2	Threshold	5μg	5μg	5μg
3	Bias K0/K1	≤ ±5 mg	≤ ±7 mg	≤ ±5 mg
4	Scale factor K1	1.0±0.2 mA/g	1.0±0.2 mA/g	0.6±0.2 mA/g
5	Second-order nonlinear coefficient K2	≤ ±20μg /g ²	≤ ±30μg /g ²	≤ ±20μg /g ²
6	0 G 4 hour short term stability	≤ 10 μg	≤ 20 μg	≤ 20 μg
7	1G 4-hour short-term stability	≤ 10 ppm	≤ 20 ppm	≤ 20 ppm
8	Comprehensive repeatability of bias value σk0 (1σ, 1 month)	≤ 15 μg	≤ 50 μg	≤ 50 μg
9	Scale factor integrated repeatability σk1/K1 (1σ, January)	≤ 15ppm	≤ 50 ppm	≤ 50ppm
10	Nonlinear coefficient comprehensive repeatability K2/K1 (1σ, January)	≤ ±20 μg /g ²	≤ ±30 μg /g ²	≤ ±30 μg /g ²
11	Partial temperature coefficient (full temperature average value)	≤ ±15 μg /°C	≤ ±50 μg /°C	≤ ±50 μg /°C
12	Scale Factor Temperature Coefficient (Averaged Over Temperature)	≤ ±15 ppm /°C	≤ ±80 ppm /°C	≤ ±50 ppm /°C
13	Noise (840 Ω sampling resistor)	≤ 5mv	≤ 8.4mv	≤ 8.4mv
14	Natural frequency	350~800 Hz	350~800 Hz	350~800 Hz
15	Bandwidth	800~2500 Hz	800~2500 Hz	800~2500 Hz
16	Random vibration	10g(20-2000Hz)	10g(20-2000Hz)	10g(20-2000Hz)
17	Impact	150g,4.5ms,1/2sin	150g,4.5ms,1/2sin	150g,4.5ms,1/2sin
18	Operating temperature range	-55 ~ +85°C	-55 ~ +85°C	-55 ~ +85°C
19	Storage temperature range	-60~+120°C	-60~+120°C	60~+120°C
20	Power supply	±12~±15V	±12~±15V	±12~±15V
21	Current consumption	≤ ±20mA	≤ ±20mA	≤ ±20mA
22	Temperature sensor	User-customizable	User-customizable	User-customizable
23	Size	Φ18.2X23mm	Φ18.2X23mm	Φ18.2X23mm
24	Weight	≤ 30g	≤ 30g	≤ 30g

Note:

1. The scale factor shall be adjusted according to the user's requirements;
2. Temperature sensor: AD590, pt1000, 18B20;
3. Test cycle: divided into 1 month, 3 months, 6 months, 12 months, according to user requirements for testing;
4. According to the user's installation requirements; The overall dimensions can be slightly adjusted according to the user's requirements, and other test requirements can be carried out according to the customer's requirements. Disclaimer: Specifications are subject to change without notice. Baoding Kaituo Precision Instrument Company reserves the right to modify any product or technology of this Agreement.

Rights to improve reliability, functionality, or design while providing consultation and explanation.

MOPKT-JB4 Series Quartz Flexible Accelerometer

MOPKT-JB4 series quartz flexible accelerometer is a dynamic accelerometer with high temperature and vibration resistance. The product has the characteristics of excellent repeatability, starting performance, high temperature and vibration resistance and high reliability. It can be used for both static and dynamic tests. It is also a standard vibration sensor.

The product adopts unique high temperature and anti-seismic design, packaging process and dedicated circuit. The output current of the product is proportional to the measured acceleration.

For the measurement of static and dynamic acceleration, the user can select the appropriate sampling resistor through calculation to achieve high-precision output, and the built-in temperature sensor can be used to compensate the bias and scale factor according to the user's needs to reduce the impact of ambient temperature. QA650, T185, T160, JAE series products can be replaced in situ, but we use a dual-torquer structure, which is different from other companies' products, and can make the accelerometer bias and scale factor more stable, with independent intellectual property rights. This product has been launched since 2010, and the number of deliveries has reached thousands. After years of application, it has become a mature product, especially widely used in oil drilling measurement while drilling.

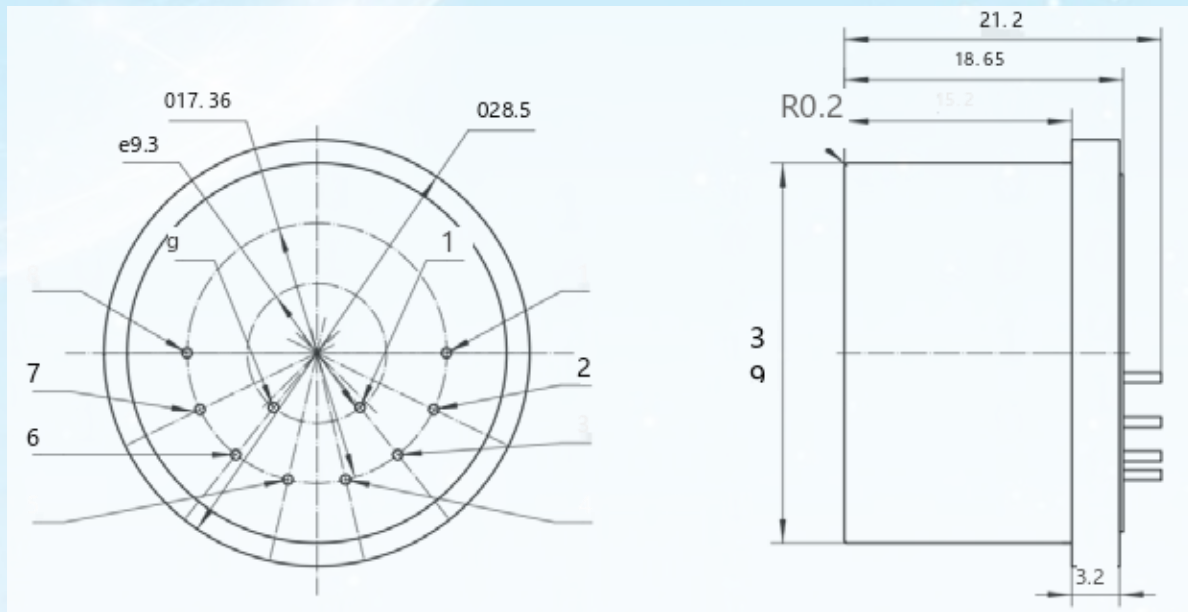


Application fields: Inclination test of bridges, dams, oil wells, coal mines, etc., high-speed railway control, stability control of ships, etc.

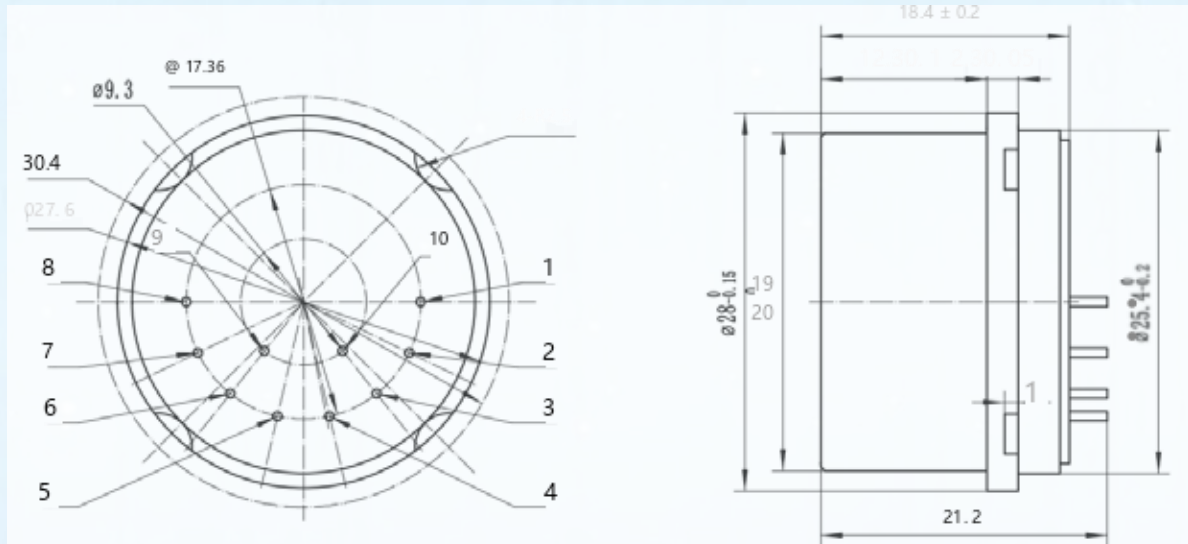


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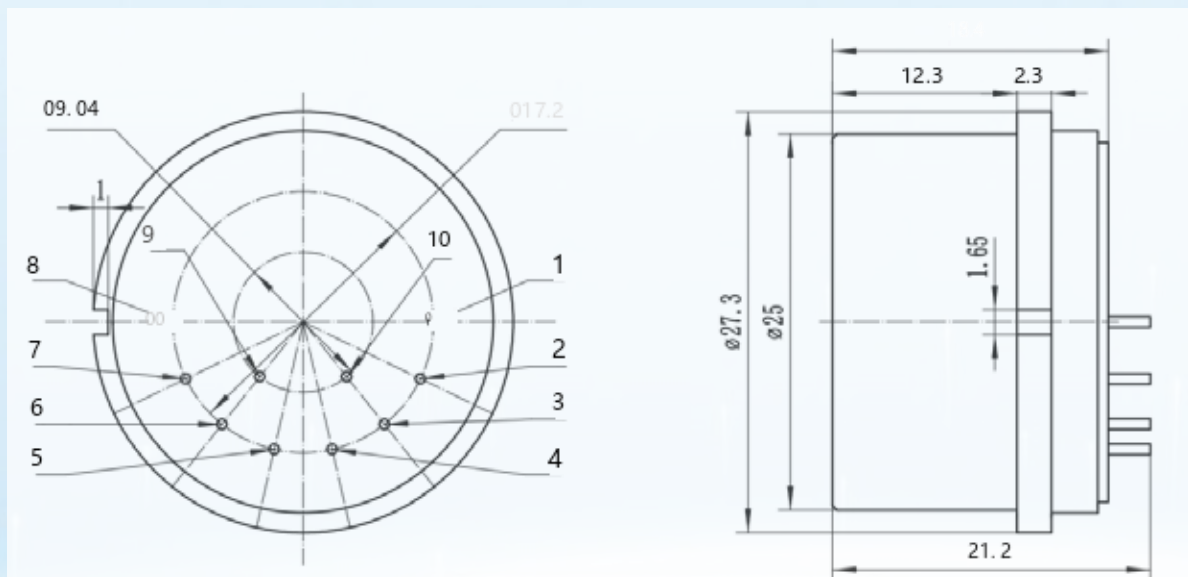
1.MOPJB4-01structure size and pin definition



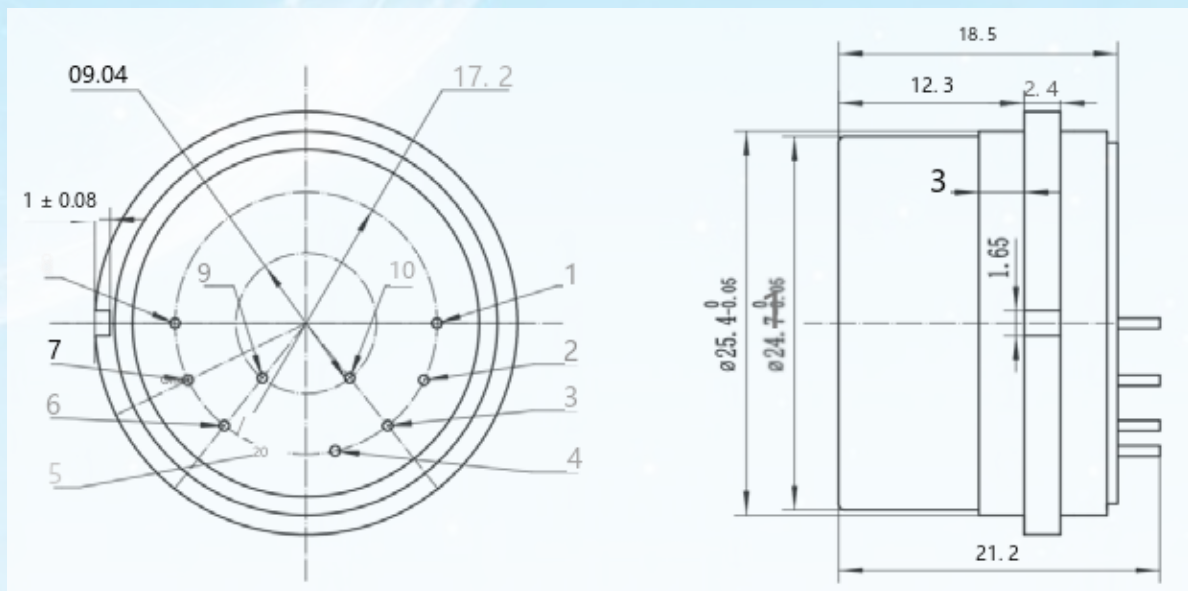
2.MOPJB4-02 A and MOPJB4-03 A Structural Dimensions and Stitch Definitions



3.MOPJB4-02B and MOPJB4-03B Structural Dimensions and Pin Definitions

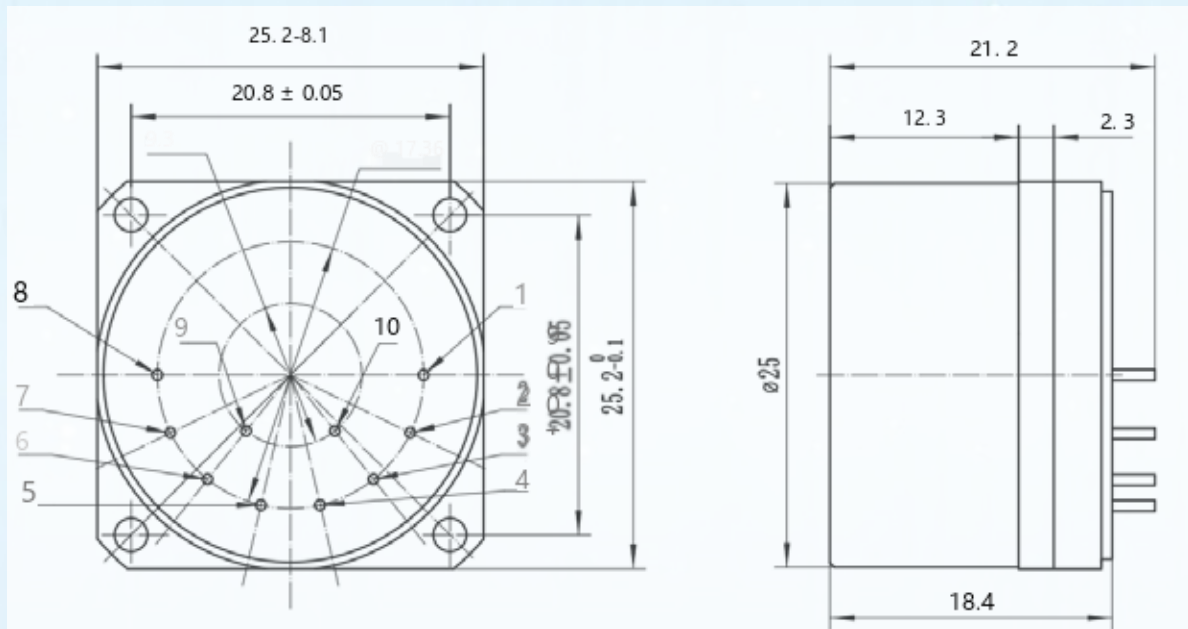


(Type B product outline drawing I)

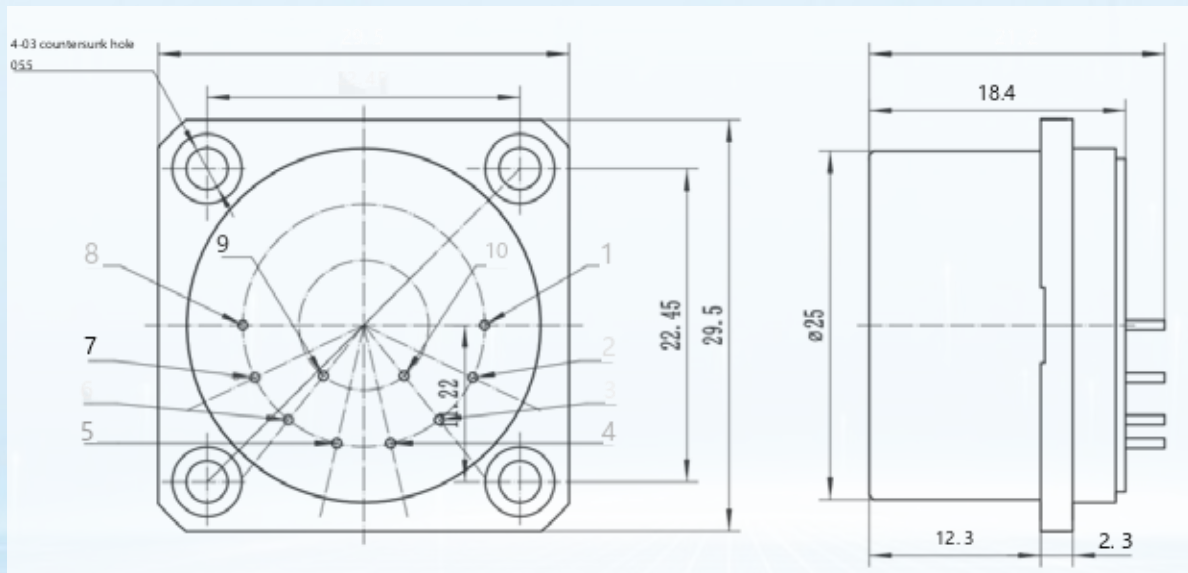


(Type B Product Outline
Drawing II)

4.MOPJB4-02C and MOPJB4-03C Structural Dimensions and Pin Definitions



MOPJB4-02D and MOPJB4-03D Structural Dimensions and Pin Definitions



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Technical Parameters

Serial number	Parameter	MOPKT-JB4-01	MOPKT-JB4-02	MOPKT-JB4-03
1	Output range	±30g	±30g	±30g
2	Bias K0/K1	< 10mg	< 15mg	< 15mg
3	Monthly comprehensive repeatability of partial value σ_0 (1 σ , January)	< 50 μ g	< 200 μ g	< 200 μ g
4	Temperature coefficient	< 50 μ g/°C	< 100 μ g/°C	< 100 μ g/°C
5	Scale factor K1	1.1 ~ 1.3 mA/g	1.1 ~ 1.3 mA/g	1.1 ~ 1.3mA/g
6	Comprehensive repeatability of scale factor in months σ_1 /K1 (1 σ , January)	< 80 ppm	< 150 ppm	< 150 ppm
7	Partial temperature coefficient (full temperature average value)	< 100ppm	< 200ppm	< 200ppm
8	Installation error	< 1500 μ rad	< 1500 μ rad	< 1500 μ rad
9	Vibration rectification error	< 30 μ g/g 2rms (50-500Hz)	< 100 μ g/g 2rms (50-500Hz)	< 100 μ g/g 2rms (50-500Hz)
10	Noise	< 3000 μ g-rms (0-10000Hz)	< 3000 μ g-rms (0-10000Hz)	< 3000 μ g-rms (0-10000Hz)
11	Operating temperature range	-55 ~ 96°C	-55 ~ 155°C	-55 ~ 180°C
12	Impact	500 g 0.5ms	1000 g 0.5ms	1000 g 0.5ms
13	Vibration	25 g @30-500Hz	25 g @30-500Hz	25 g @30-500Hz
14	Resolution	< 10 μ g	< 10 μ g	< 10 μ g
15	Bandwidth	> 300 Hz	> 300 Hz	> 300 Hz
16	Current consumption	< 20 mA	< 20 mA	< 20 mA
17	Power consumption @ ± 15VDC	< 480 mW	< 480 mW	< 480 mW
18	Input voltage	±13 to ±18V	±13 to ±18V	±13 to ±18V
19	Weight	< 55g	< 55g	< 55g
20	Installation diameter	Φ25mm	Φ25mm	Φ25mm
21	Height	< 21.5mm	< 21.5mm	< 21.5mm
22	Shell material	300 series stainless steel	300 series stainless steel	300 series stainless steel

Note

1. The scale factor shall be adjusted according to the user's requirements;
2. Temperature sensor: AD590, pt1000;
3. Test cycle: divided into 1 month, 3 months, 6 months, 12 months, according to user requirements for testing;
4. Install according to the user's requirements; The overall dimensions can be slightly adjusted according to the user's requirements, and other test requirements can be carried out according to the customer's requirements. Disclaimer: Specifications are subject to change without notice. Baoding Kaituo Precision Instrument Company reserves the right to modify any product or technology of this Agreement.

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MOPKT-JB5 Series Quartz Flexible Accelerometer

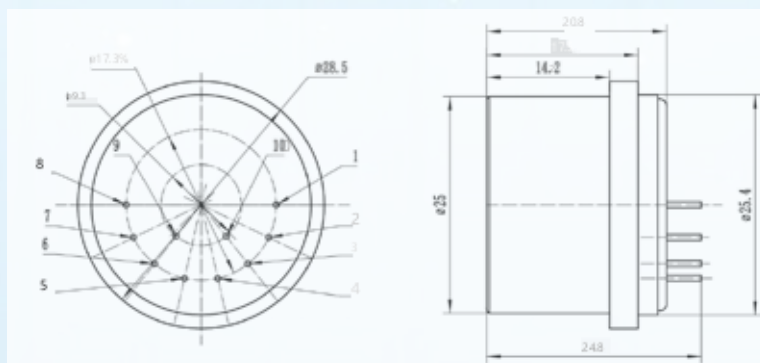
The MOPKT-JB5 series quartz flex accelerometer is a medium precision accelerometer with a unique structural size (short) design. The product has the characteristics of excellent long-term stability, repeatability, dynamic response performance, good anti-vibration impact performance, high reliability and the like, can be used for static test and dynamic test, and is also a standard vibration sensor and tilt sensor.

The product adopts unique structure design and special circuit. The output current of the product is linear with the force or acceleration. Users can select the appropriate sampling resistance through calculation to achieve high-precision output. The built-in temperature sensor can be used to compensate the bias and scale factor and reduce the influence of ambient temperature according to the user's requirements.

Application fields: Inclination test of bridges, dams, oil wells, coal mines, etc., high-speed railway control, stability control of ships, etc.

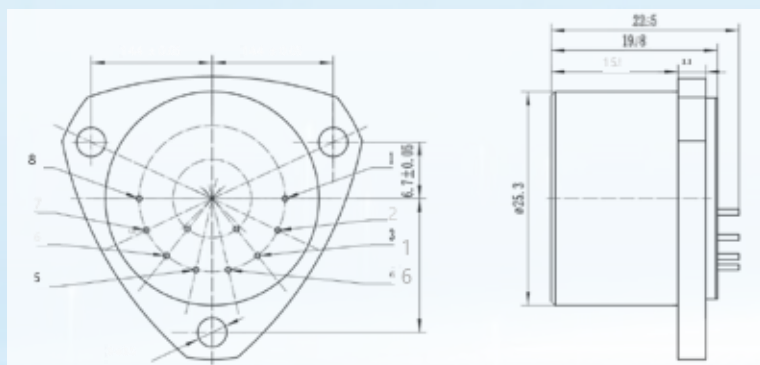


Figure 1. Dimensions and Pin Definitions of MOPJB5-A



- Pin definition:
- | | | |
|-----------------------|-----------------------------------|-----------------------|
| 1. Signal output | 2. Empty | 3. Power supply -15 V |
| 4. Power supply +15 V | 5. Power supply and signal ground | 6. Empty |
| 7. Empty | 8. Empty | 9. -9V |
| 10. +9V | | |

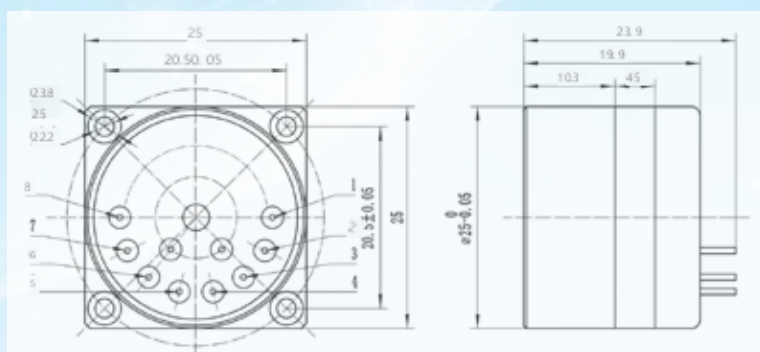
Figure 2. Dimensions and Pin Definitions of MOPJB5-B



- Pin definition:
- | | | |
|-----------------------|-----------------------------------|-----------------------|
| 1. Signal output | 2. Empty | 3. Power supply -15 V |
| 4. Power supply +15 V | 5. Power supply and signal ground | 6. Empty |
| 7. Empty | 8. Empty | 9. -9V |
| 10. +9V | | |

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Figure 3. Dimensions and Pin Definitions of MOPJB5-C



Pin definition:

- | | | |
|------------------------|-----------------------------------|-----------------------|
| 1. Signal output | 2. Empty | 3. Power supply -15 V |
| 4. Power supply + 15 V | 5. Power supply and signal ground | |
| 6. Empty | 7. Empty | 8. Empty |
| 9. -9V | 10. +9V | |

Technical Parameters

Serial number	Parameter	MOPKT-JB5-01	MOPKT-JB5-02	MOPKT-JB5-03
1	Output range	±50g	±50g	±50g
2	Resolution	< 5μg	< 5μg	< 5μg
3	Bias K0/K1	< 5mg	< 7mg	< 10mg
4	Scale factor K1	1.1 ~ 1.3 mA/g	1.1 ~ 1.3 mA/g	1.1 ~ 1.3 mA/g
5	Second-order nonlinear coefficient K2	≤ ±20μg /g ²	≤ ±20μg /g ²	≤ ±20μg /g ²
6	Comprehensive repeatability of bias value σk0 (1σ, 1 month)	< 15μg	< 30μg	< 50μg
7	Scale factor integrated repeatability σk1/K1 (1σ, January)	< 30 ppm	< 50 ppm	< 80 ppm
8	Nonlinear coefficient comprehensive repeatability K2/K1 (1σ, 1 month)	≤ ±20 μg /g ²	≤ ±20 μg /g ²	≤ ±20 μg /g ²
9	Partial temperature coefficient (full temperature average value)	< 20μg/°C	< 30μg/°C	< 40μg/°C
10	Scale temperature coefficient (full temperature average)	< 40ppm	< 50ppm	< 80ppm
11	Noise (840 Ω sampling resistor)	≤ 5mv	≤ 5mv	≤ 5mv
12	Bandwidth	> 300 Hz	> 300 Hz	> 300 Hz
13	Vibration rectification error	< 30μg/g2rms (50-500Hz)	< 30μg/g2rms (50-500Hz)	< 30μg/g2rms (50-500Hz)
14	Random vibration	20g@20-2000Hz	20g@20-2000Hz	20g@20-2000Hz
15	Impact	250g 4.5ms	250g 4.5ms	250g 4.5ms
16	Installation error	< 1500μrad	< 1500μrad	< 1500μrad
17	Operating temperature range	-55 ~ 96°C	-55 ~ 96°C	-55 ~ 96°C
18	Input voltage	±13 ~ ±18V	±13 ~ ±18V	±13 ~ ±18V
19	Current consumption	< 20 mA	< 20 mA	< 20 mA
20	Temperature sensor	User-customizable	User-customizable	User-customizable
21	Weight	< 55g	< 55g	< 55g
22	Installation diameter	Φ25mm	Φ25.3mm	Φ25mm
23	Shell material	300 series stainless steel	300 series stainless steel	300 series stainless steel

Note:

1. The scale factor shall be adjusted according to the user's requirements;
2. Temperature sensor: AD590, pt1000, 18B20;
3. Test cycle: divided into 1 month, 3 months, 6 months, 12 months, according to user requirements for testing;
4. Install according to the user's requirements; The overall dimensions can be slightly adjusted according to the user's requirements, and other test requirements can be carried out according to the customer's requirements. Disclaimer: Specifications are subject to change without notice. Baoding Kaituo Precision Instrument Company reserves the right to modify any product or technology of this Agreement.

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MOPKT-JB6 Series Quartz Flexible Accelerometer

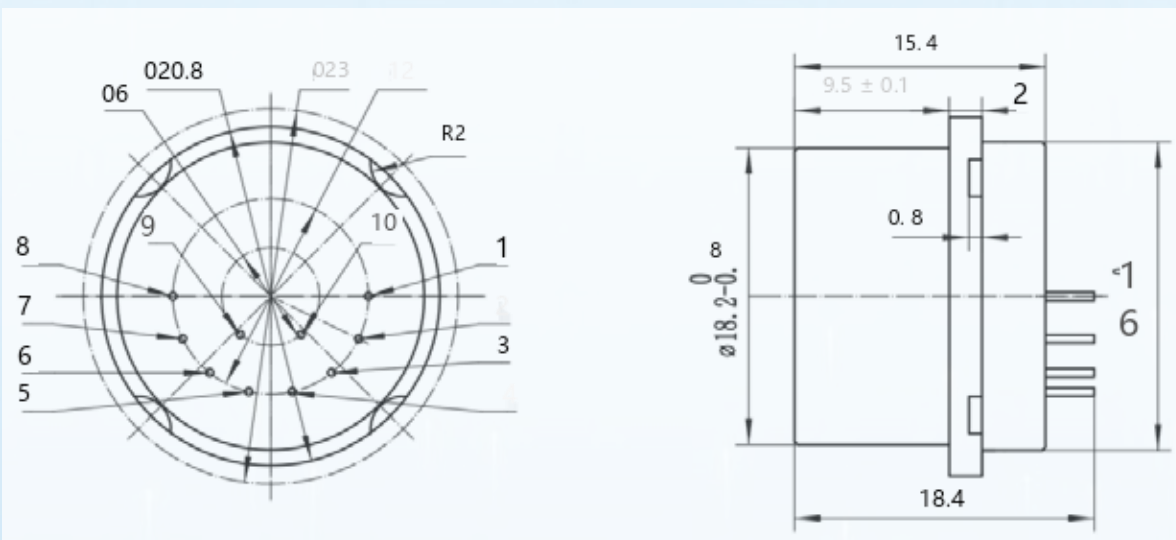
MOPKT-JB6 series quartz flexible accelerometer is a miniaturized, high-temperature and shock-resistant accelerometer. The product has excellent repeatability, start-up performance, high temperature resistance, seismic performance and high reliability. It can be used for both static and dynamic tests. It is also a standard vibration sensor.

The product adopts unique miniaturization, high temperature and anti-seismic design, advanced packaging process and special circuit. The output current of the product is proportional to the input acceleration. Users can select the appropriate sampling resistance through calculation to achieve high-precision output. The built-in temperature sensor can be used to compensate the bias and scale factor and reduce the influence of ambient temperature according to the user's needs. This product has been launched since 2012, and the number of deliveries has reached thousands. After years of application, it has become a mature product, especially widely used in the measurement while drilling of oil drilling.

Application: Oil drilling inclination measurement and vibration isolation test of precision instruments and equipment.

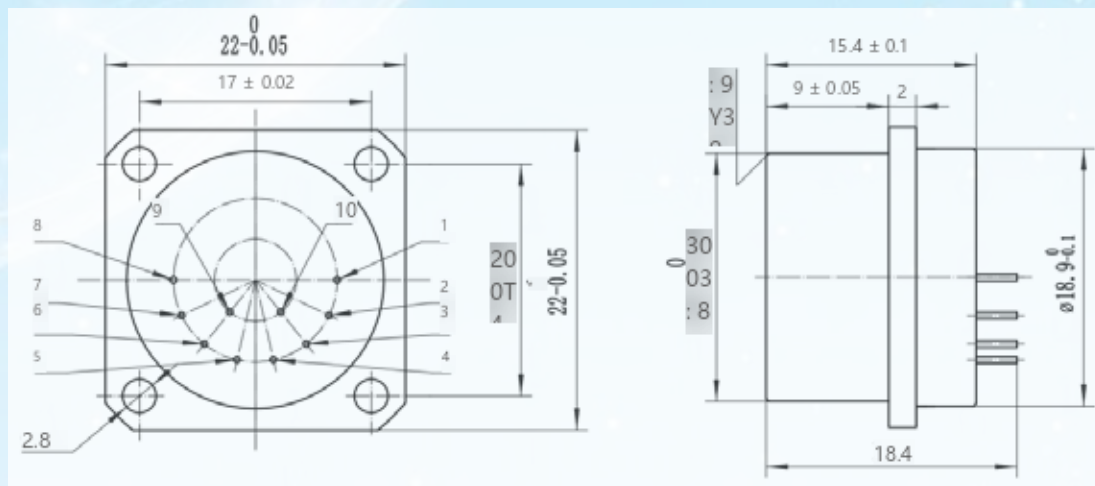


MOPJB6-01 A and MOPJB6-02 A Dimensions



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MOPJB6-01B and MOPJB6-02 B Dimensions



Technical Parameters

Serial number	Parameter	MOPKT-JB6-01	MOPKT-JB6-02
1	Range	±30g	±30g
2	Threshold	30μg	30μg
3	Bias k0/K1	≤ (±20 mg)	≤ (±20 mg)
4	Scale factor K1	1.9 ~ 2.1mA/g	1.9 ~ 2.1mA/g
5	Second-order nonlinear coefficient K2	≤ ±20μg /g ²	≤ ±50μg /g ²
6	0 G 4 hour short term stability	≤ 30 μg	≤ 40 μg
7	1G 4-hour short-term stability	≤ 30 ppm	≤ 40 ppm
8	Partial value comprehensive repeatability σk0 (1σ, one month)	≤ 150 μg	≤ 220 μg
9	Scale factor integrated repeatability σk1/K1 (1σ, one month)	≤ 150ppm	≤ 220 ppm
10	Comprehensive repeatability of nonlinear coefficient K2/K1 (1σ, one month)	≤ ±40 μg /g ²	≤ ±50 μg /g ²
11	Biased temperature coefficient	≤ ±80 μg /°C	≤ ±150 μg /°C
12	Scale factor temperature coefficient	≤ ±100 ppm /°C	≤ ±200 ppm /°C
13	Noise (840 Ω sampling resistor)	≤ 8mv	≤ 8.4mv
14	Natural frequency	350~800 Hz	350~800 Hz
15	Bandwidth	800~2500 Hz	800~2500 Hz
16	Vibration	25g(20-2000Hz)	25g(20-2000Hz)
17	Impact	1000g,0.5ms,1/2sin	1000g,0.5ms,1/2sin
18	Operating temperature range	-40°C +150°C	-40+180°C
19	Storage temperature range	-60-+180°C	-60-+200°C
20	Power supply	±12~±15V	±12~±15V
21	Current consumption	±20mA	±20mA
22	Size	Φ18.2X16mm	Φ18.2X16mm
23	Weight	25g	25g

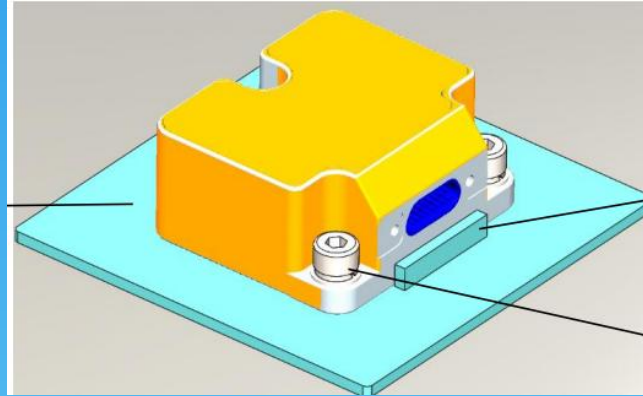
Note:

1. The scale factor shall be adjusted according to the user's requirements;
2. Temperature sensor: AD590, pt1000;
3. Install according to the user's requirements; The overall dimensions can be slightly adjusted according to the user's requirements, and other test requirements can be carried out according to the customer's requirements. Disclaimer: Specifications are subject to change without notice. Baoding Kaituo Precision Instrument Company reserves the right to modify any product or technology of this Agreement.

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MOPG3010 3-Axis Angular Rate Sensor Module

Product Brief



MOPG3010 is a high-performance triaxial MEMS gyro module integrating 3-axis MEMS gyros, temperature sensors, signal processing circuit and embedded compensation software. It fully calibrates temperature drift, misalignment and nonlinear errors in factory, and outputs compensated angular rate data via RS-422 serial port. Dual-axis/triaxial output is configurable on demand for attitude measurement and stabilization control systems.

Key Advantages

1. Navigation-grade precision: $\pm 400^\circ/\text{s}$ measurement range, bias instability $1^\circ/\text{h}$, angle random walk $0.15^\circ/\sqrt{\text{h}}$, low cross-coupling (0.2%).
2. Wide temperature adaptability: Operating range $-45^\circ\text{C} \sim +85^\circ\text{C}$, storage $-55^\circ\text{C} \sim 105^\circ\text{C}$, stable output under harsh ambient conditions.
3. Flexible digital interface: Standard 15-pin J30 aviation connector, configurable baud rate, data update rate (up to 2000Hz), filter bandwidth and multi data frame formats. Support external trigger, synchronization signal and hardware reset functions. Built-in self-test and CRC-8 data check.
4. Compact & reliable structure: Aluminum housing with precise mounting reference planes, $52 \pm 5\text{g}$ lightweight design, easy integration for limited-space equipment.

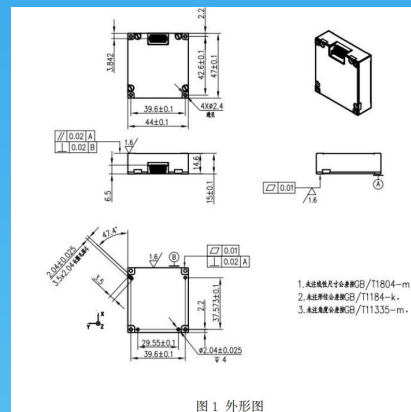
Typical Applications

UAV flight control, unmanned vehicle/vessel attitude stabilization, EO gimbal servo, industrial robot, survey & mapping orientation, inertial navigation systems for airborne & vehicle platforms.

MOPM6010 6-Axis Inertial Measurement Module | English Brief

Introduction

Product Overview



MOPM6010 is a high-performance 6-axis MEMS IMU launched by MoneyPro. It integrates 3 single-axis MEMS gyros and 2 dual-axis MEMS accelerometers. Full factory calibration including temperature drift, mounting misalignment and nonlinear error compensation is implemented. High-precision triaxial angular rate, triaxial acceleration and internal temperature data are output via high-speed 4-wire SPI interface. Compact and lightweight, it is widely used for attitude calculation and stabilization control of various carriers.

Core Advantages

1. Navigation-grade Precision
 - Gyro measurement range $\pm 480^\circ/\text{s}$, bias instability $\leq 1^\circ/\text{h}$, angle random walk $\leq 0.15^\circ/\sqrt{\text{h}}$, cross-coupling only 0.1%~0.2%.
 - Accelerometer range $\pm 30\text{g}$, ultra-low zero drift under full temperature range, suitable for high-g dynamic movement.
 - Gyro bandwidth $\geq 250\text{Hz}$, accelerometer bandwidth $\geq 200\text{Hz}$, max data update rate up to 3.2kHz.
2. Miniature & Low Power Design
 - Light weight $48\pm 2\text{g}$, metal housing with precise mounting reference planes, easy mechanical integration.
 - 3.3V power supply, steady power consumption $< 1.5\text{W}$; operating temperature

range -45°C~+85°C.

3. High-speed SPI & Strong Expandability

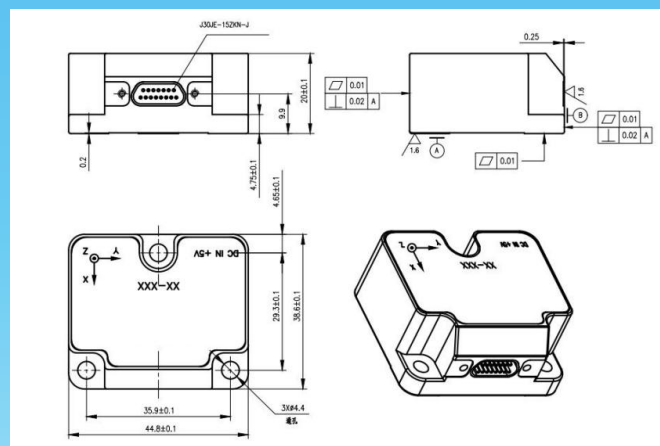
- Max SPI communication speed 15Mbps, complete register mapping with 32-bit high-resolution raw data output.
- 4 configurable general DIO pins for external trigger and control signals, convenient for secondary development.

Typical Applications

UAV flight control, unmanned vehicle/vessel stabilization, EO gimbal servo, survey & mapping equipment, industrial robot, inertial navigation, camera gimbal anti-shake system.

MOPM6040 6-DOF High Precision IMU

Product Overview



MOPM6040 is a high-performance 6-axis MEMS inertial measurement unit developed by MoneyPro. It integrates 3-axis gyros, 3-axis accelerometers, optional 3-axis tilt sensors and temperature sensing circuit. Full factory calibration including temperature drift, mounting misalignment and nonlinear error is completed. It outputs full inertial data via industrial RS-422 differential serial port, with customizable data frames, sync trigger and hardware reset pins, widely used for UAV, vehicle, EO gimbal and survey navigation attitude calculation.

Key Technical Specifications

1. Gyroscope Range $\pm 400^\circ/\text{s}$, bias instability $\leq 0.3^\circ/\text{h}$, angle random walk

$\leq 0.15^\circ/\text{h}$, scale factor error $\leq 100\text{ppm}$, max bandwidth 250Hz.

2. Accelerometer Range $\pm 40\text{g}$, zero bias stability $\leq 0.3\text{mg}$, resolution 0.1mg , max bandwidth 500Hz.
3. Electrical & Environmental $5\text{V} \pm 0.5\text{V}$ power, steady power $< 1.2\text{W}$, warm-up time 1s, weight $55 \pm 5\text{g}$. Operating temperature $-45^\circ\text{C} \sim 85^\circ\text{C}$, storage $-55^\circ\text{C} \sim 105^\circ\text{C}$.

Interface & Expansion

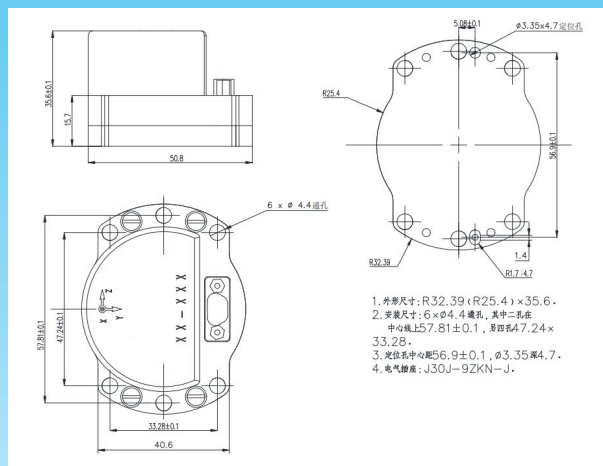
- RS-422 communication up to 921600bps, max 1000Hz update rate, 8 configurable data frames with CRC32 check;
- Independent NRST reset, ExtTrig external trigger, TOV sync output pins;
- Built-in self-test function for real-time fault reporting.

Applications

UAV flight control, vehicle inertial navigation, EO gimbal stabilization, survey equipment, unmanned surface vehicles, industrial robots, high-precision camera gimbal.

MOPM6060 Ultra-High Precision 6-DOF IMU

Product Overview



MOPM6060 is MoneyPro flagship high-precision 6-axis MEMS inertial measurement unit. It integrates 3-axis gyroscopes, 3-axis accelerometers and multi-channel temperature sensors. Full factory calibration for temperature drift, mounting misalignment and nonlinearity is finished. Custom range & precision are available. It outputs complete inertial data via industrial RS-422 port with external trigger pin, ideal

MOPM9020 is a fully integrated 9-axis IMU from MoneyPro, combining 3-axis

gyroscope, 3-axis accelerometer, 3-axis magnetometer and barometer. Full factory calibration for temperature, misalignment and nonlinear errors. Dual SPI & UART communication, outstanding shock & vibration resistance, perfect for attitude, heading and altitude measurement.

Key Technical Specifications

1. Gyro Range $\pm 480^\circ/\text{s}$, bandwidth 330Hz, bias instability $\leq 4.0^\circ/\text{h}$, angle random walk $\leq 0.26^\circ/\sqrt{\text{h}}$.
2. Accelerometer Range $\pm 20\text{g}$, bandwidth 330Hz, zero bias stability $\leq 1\text{mg}$, random walk $\leq 0.007 \text{ m/s}/\sqrt{\text{h}}$.
3. Magnetometer ± 2.5 gauss range, sensitivity 0.1mgauss/LSB.
4. Barometer 300~1100mbar, total error $\leq 4.5\text{mbar}$.
5. Electrical & Mechanical 3.3V supply, power 0.6~1W, weight $48\pm 2\text{g}$. Operating temp $-40\sim 85^\circ\text{C}$, shock resistance 500g (0.5ms).

Interface Features

- SPI up to 15MHz, max 2.4kHz data update rate;
- Independent UART port for easy host connection;
- 4 configurable DIO pins for external trigger & control.

Applications

UAV flight controller, industrial robot, unmanned vehicle, survey equipment, gimbal stabilization, underwater vehicle, inertial positioning.

Fiber Optic IMU

MoneyPro MOPAB11G Fiber Optic IMU Datasheet

Product Overview

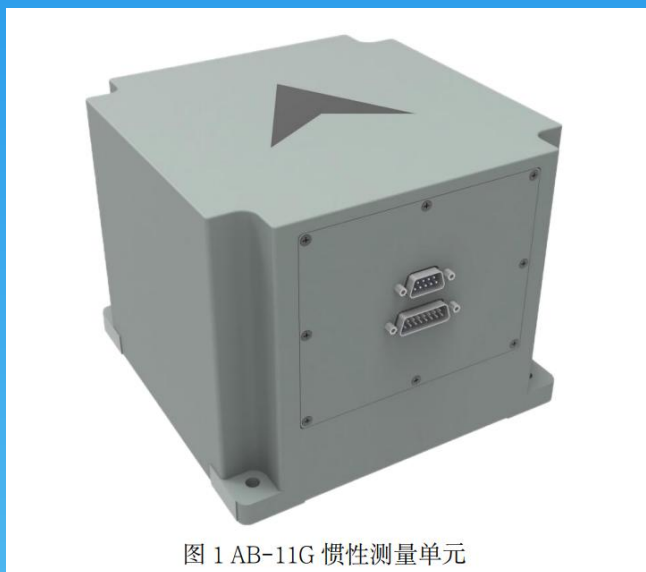


图 1 AB-11G 惯性测量单元

MOPAB11G is a high-grade three-axis fiber optic inertial measurement unit from MoneyPro. Equipped with high-precision fiber optic gyros, quartz flexure accelerometers and ARM signal processing circuit, it outputs triaxial angular rate and acceleration data simultaneously. It supports RS232 parameter configuration and high-speed RS422 data transmission, featuring military-grade temperature stability and vibration resistance, ideal for airborne, vehicle-borne, guidance and high-precision survey applications.

Core Technical Specifications

1. Fiber Optic Gyro Measurement range: $\pm 1000^\circ/\text{s}$; Bias stability $\leq 0.015^\circ/\text{h}$; Full-temperature bias stability $\leq 0.007^\circ/\text{h}$; Angle random walk $\leq 0.0015^\circ/\sqrt{\text{h}}$; Scale factor nonlinearity $\leq 30\text{ppm}$; Bandwidth $\geq 200\text{Hz}$.
2. Accelerometer Range: $\pm 10\text{g}$; Room & full-temperature bias stability $\leq 20\mu\text{g}$; Scale factor nonlinearity $\leq 50\text{ppm}$.
3. Electrical & Communication Power supply: DC 18~36V; Peak power $\leq 25\text{W}$, steady-state power $\leq 20\text{W}$; Warm-up time $\leq 3\text{s}$; Max data output rate 200Hz @ 460.8Kbps via RS422; DB15 & DB9 dual connectors.
4. Mechanical & Environmental Dimension: 179.6×179.6×145mm, weight approx. 6kg; Four $\Phi 6.5$ mounting holes; Operating temp: $-45^\circ\text{C} \sim +70^\circ\text{C}$, storage temp: $-55^\circ\text{C} \sim +85^\circ\text{C}$; Withstands 20~2000Hz random vibration and 40g/11ms trailing-edge sawtooth shock, compliant with military environmental standards.

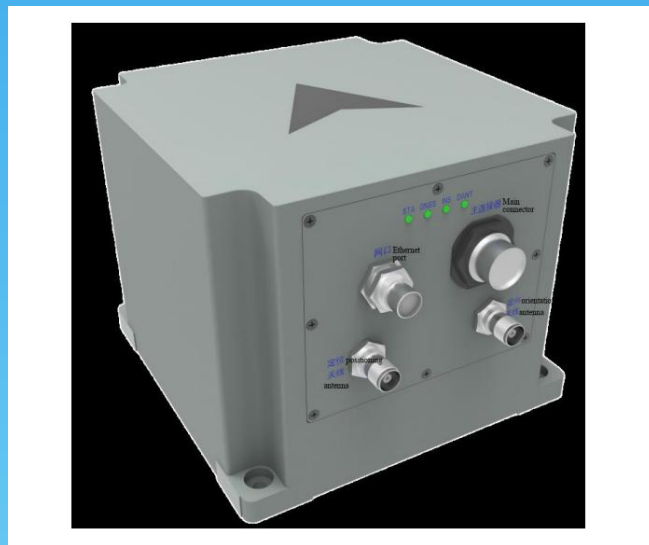
Communication & Operation

Standard data frame header 0x5A, tail 0x55, including 3-axis angular rate, acceleration, axis temperature and CRC checksum. The unit is hermetically sealed and disassembly

on-site is forbidden. Periodic power-on maintenance required. Mounting surface flatness $\leq 0.01\text{mm}$, ambient magnetic field $\leq 1\text{Gs}$. Package includes IMU host, connectors, test report and certificate of conformity.

MoneyPro MOPAB12G Integrated Navigation System (Condensed Datasheet)

Product Overview



MOPAB12G is a high-performance INS/GNSS integrated navigation unit developed by MoneyPro, built with three-axis fiber optic gyros, quartz accelerometers and multi-system GNSS receiver. It supports dual-antenna heading, ZUPT/NHC wheel speed fusion, Kalman filtering, and maintains stable positioning under GNSS outages, suitable for vehicles, ships, robots and marine equipment.

Core Technical Specifications

GNSS Module

Full constellation support (BDS/GPS/GLONASS/Galileo); RTK horizontal accuracy $1\text{cm}+1\text{ppm}$, vertical $1.5\text{cm}+1\text{ppm}$; single-point horizontal 1.5m RMS , heading precision $0.1^\circ/1\text{m}$ baseline; max update rate 20Hz , cold start $\leq 30\text{s}$.

Integrated Navigation Performance

Static pitch/roll accuracy 0.01° RMS , dynamic 0.02° RMS ; static heading 0.1° RMS , dynamic 0.2° RMS ; self-alignment time $\leq 5\text{min}$; velocity error $\leq 0.01\text{m/s}$.

Electrical & Interface

Power supply DC18–36V; peak power $\leq 30\text{W}$, steady-state $\leq 20\text{W}$; RS232/RS422/CAN ports, max IMU data output 200Hz.

Mechanical & Environmental

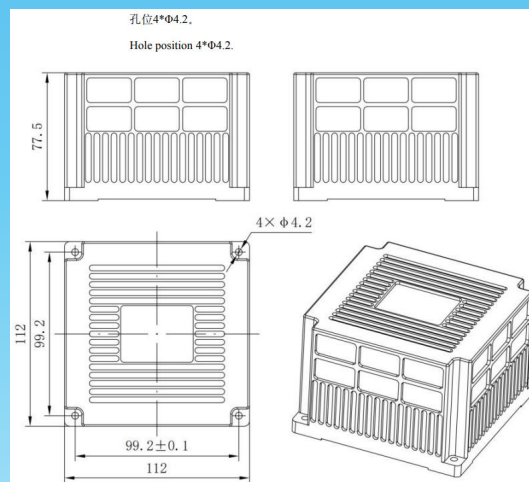
Dimension: 179.6×179.6×145mm, weight $\approx 6\text{kg}$; 4× $\Phi 6$ mounting holes. Operating temp $-40^{\circ}\text{C}\sim +60^{\circ}\text{C}$, storage $-55^{\circ}\text{C}\sim +85^{\circ}\text{C}$; withstand 20–2000Hz random vibration and 40g/11ms shock.

Key Functions

Supports INS/GNSS/odometer fusion, heave measurement, real-time self-check, raw data logging, Ethernet firmware upgrade. Requires rigid mounting with magnetic field $\leq 1\text{Gs}$ around installation area.

MoneyPro MOPTG40 Three-Axis Integrated Fiber Optic Gyro Condensed Datasheet

Product Overview



MOPTG40 is a compact triaxial fiber optic gyroscope developed by MoneyPro, based on Sagnac optical effect. It integrates SLD light source, fiber coil and closed-loop signal processing circuit, outputting 3-axis angular increment and internal temperature data, widely applied in medium & high precision inertial navigation, positioning orientation and servo stabilization systems.

Core Technical Parameters

1. Sensing Performance Measuring range: $\pm 1000^{\circ}/\text{s}$; Constant-temperature zero

bias stability $\leq 0.2^\circ/\text{h}$; Angle random walk $\leq 0.01^\circ/\sqrt{\text{h}}$; Scale factor nonlinearity $\leq 20\text{ppm}$; Bandwidth $>200\text{Hz}$; Startup time $\leq 3\text{s}$.

2. Electrical Specs Power supply DC18–36V; Max startup power $\leq 12\text{W}$, steady-state power $\leq 7\text{W}$; RS422 trigger output, baud rate 460800bps, configurable data update rate 200–500Hz.
3. Mechanical & Environmental Dimension: $112\times 112\times 77.5\text{mm}$, weight $\leq 1.18\text{kg}$; $4\times \Phi 4.2$ mounting holes, J30J-15ZKP 15-pin connector, IP62 anodized aluminum shell. Operating temp $-45^\circ\text{C}\sim +70^\circ\text{C}$, storage $-55^\circ\text{C}\sim +85^\circ\text{C}$; Resists 20–2000Hz random vibration & 200g/2ms shock.

Operation Notes

Mounting surface flatness better than 0.02mm, ambient magnetic field $\leq 1\text{Gs}$ required. Avoid frequent power cycling; internal optical components are moisture-sensitive, sealed unit cannot be disassembled on-site, return to factory for maintenance if faulty.

MoneyPro MOPS40 Low-Cost Fiber Optic Gyro Datasheet

Product Overview



MOPS40 is MoneyPro low-cost single-axis fiber optic gyro, featuring compact size, low power consumption and stable precision. It adopts mature fiber optic sensing scheme, ideal for cost-sensitive attitude reference, unmanned equipment and opto-electrical gimbal projects.

Core Technical Specifications

1. Sensing Performance Measuring range: $\pm 300^\circ/\text{h}$; Bias stability $0.3\sim 0.5^\circ/\text{h}$

(10s,1 σ); Bias repeatability 0.3~0.8°/h; Full-temperature drift $\leq$ 1.5°/h; Angle random walk 0.01~0.02°/ $\sqrt{h}$; Scale factor nonlinearity 200~500ppm, asymmetry 100~500ppm; Bandwidth $\geq$ 300Hz; Warm-up time $\leq$ 2s; Scale factor: 3600 LSB/°/s.

2. Electrical Interface Power supply DC5 $\pm$ 0.15V, max power $\leq$ 1.5W; RS422 output, baud rate 921600bps, fixed 2000Hz data refresh rate.
3. Mechanical & Environmental Dimension Φ 40 $\times$ 20mm; Two shell options: 45g aluminum alloy / 66g permalloy (25cm cable without connector). Operating temp -40°C~+70°C, storage -55°C~+85°C; Withstands 20~2000Hz random vibration (0.04g²/Hz) and 30g/11ms shock.

Typical Applications

Attitude reference system(AHRS), POS positioning & orientation system, industrial robots, unmanned ships, high-precision EO gimbals, autonomous vehicles.

MoneyPro MOPZ1 3-Axis Fiber Optic IMU Condensed Datasheet

Overview

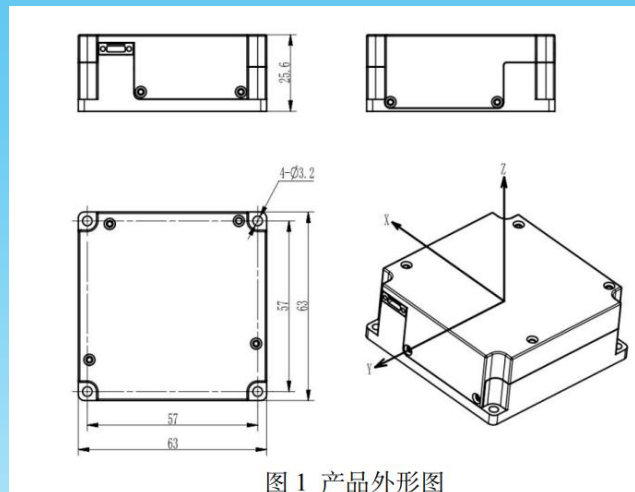


图 1 产品外形图

MOPZ1 is a compact 3-axis fiber optic IMU by MoneyPro, integrated with triaxial FOG and accelerometer. It outputs angular rate, acceleration and multi-axis temperature data, applied for airborne/vehicle attitude measurement and EO stabilization platforms.

Key Specifications

1. Gyro: $\pm$ 800°/s range, bandwidth $\geq$ 400Hz, warm-up $\leq$ 3s; full temp bias $\leq$ 2.0°/h, random walk $\leq$ 0.10°/ $\sqrt{h}$, scale factor error $\leq$ 50ppm.

2. Accelerometer: $\pm 30g$ range, zero bias $\leq 1mg$ across full temperature, scale nonlinearity $\leq 300ppm$.
3. Electrical: $DC5V \pm 0.3V$ power, max power $\leq 9W$; RS422, baud rate 921.6Kbps, max 1kHz update rate.
4. Mechanical & Env: $63 \times 63 \times 25mm$, weight $200 \pm 20g$; $4 \times \Phi 3.2$ mounting holes, operating temp $-45^{\circ}C \sim +70^{\circ}C$.

Operation Notes

Sealed structure, no on-site maintenance. Annual 1-hour power-on maintenance required, storage life 15 years, ESD protection needed during unpacking.

Export Control Compliance Statement

Our company strictly complies with all laws and regulations of the People's Republic of China governing the export of dual-use items. All inertial measurement units, fiber optic gyroscopes and related products are subject to export control, and the compliance rules we implement are as follows:

1. Delivery Restriction: We only provide domestic delivery within Chinese mainland and do not supply goods for direct overseas export.
2. Export Procedure: If overseas buyers need to ship the products abroad, they must entrust qualified domestic enterprises holding valid Dual-Use Item Export Licenses to complete full customs and licensing formalities in full compliance with regulatory requirements.
3. Usage Restriction: Products without legal export approval can only be purchased and used legally within Chinese mainland. Unauthorized transshipment or smuggling out of the country is strictly prohibited.
4. Liability Clause: Any act of evading supervision such as unauthorized export or order splitting shall incur full legal liabilities borne solely by the buyer. Our company reserves the right to suspend or reject such orders.

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