

◆ 产品介绍

KIN-70MA 光纤陀螺航姿参考系统是一款高性价比的惯性测量产品，可用于测量载体的三维姿态、角速度和加速度等运动参数，按照军用标准设计。KIN-70MA 采用 70 型光纤陀螺和石英挠性加速度计，并通过高精度的误差标定和补偿技术保证系统精度。电磁屏蔽设计、热平衡设计、振动模态设计、密封设计和严格的制造工艺保证系统优良的环境适应性。

◆ 产品特点

- 高性价比 70 型光纤陀螺
- 系统级误差参数标定与补偿
- 全温域温度补偿
- 抗扰动自对准和动基座自对准
- 可接入卫星导航/里程计/计程仪/高度计
- 可配置为组合导航/阻尼导航模式
- 优良的环境适应性
- 军用标准

◆ 应用领域

- 船用中低精度罗经
- 车辆导航与控制
- 天线稳定控制
- 工业无人机导航与控制
- 姿态航向参考



◆ 性能指标

陀螺	零偏稳定性	0.1deg/h, 1 σ
	零偏重复性	0.1deg/h, 1 σ
	比例因子非线性度	50ppm, 1 σ
加速度计	零偏稳定性	100ug, 1 σ
	零偏重复性	100ug, 1 σ
	比例因子稳定性	100ppm, 1 σ
工作性能	启动时间	1min
	姿态精度	0.05deg, 1 σ
	航向精度	0.5 \times sec(Lat) deg, 1 σ
测量范围	角速度	± 400 deg/s
	加速度	± 20 g
工作环境	工作温度	-40 $^{\circ}$ C~+70 $^{\circ}$ C
	存储温度	-55 $^{\circ}$ C~+85 $^{\circ}$ C
	振动	0.04g ² /hz @ 20~2000hz
	冲击下正常工作/无损坏	30g @ 6ms/50g @ 11ms
电气特性	工作电压	28VDC
	功耗	≤ 20 W
	通讯接口	RS422/RS232/CAN/Ethernet
物理特性	尺寸 (W x D x H)	140 x 100 x 82 mm
	重量	≤ 2 kg

◆ Introduction

KIN-70MA attitude and heading reference system is a cost-effective inertial measurement product used to measure the 3-dimension attitude, angular rate, and acceleration of the carrier, which is designed according to military standards. KIN-70MA is developed using Model 70 fiber optic gyro and flexible quartz accelerometer, and its high performance is guaranteed by high accuracy error calibration and compensation of the system. The design considerations for electromagnetic shielding, thermo-balance, vibration mode, and sealing, and the strict fabrication process ensure the excellent environmental suitability of the system.

◆ Features

- Cost-effective Model 70 fiber optic gyro
- Systematic calibration and compensation of the error parameters
- Full scale temperature compensation
- Swaying insensitive self-alignment and self-alignment on moving base
- Diverse input interfaces for GNSS/Odometer/DVL/Altimeter
- Multiple work modes including Integrated Navigation/Damped INS
- Excellent environmental suitability
- Military standards

◆ Applications

- Lower intermediate gyrocompass for ship
- Navigation and control for land vehicle
- Antenna stabilization and control
- Navigation and control for industrial UAV
- Attitude and heading reference



◆ Specification

Gyro	Bias instability	0.1deg/h, 1 σ
	Bias repeatability	0.1deg/h, 1 σ
	Scale factor non-linearity	50ppm, 1 σ
Accelerometer	Bias instability	100ug, 1 σ
	Bias repeatability	100ug, 1 σ
	Scale factor instability	100ppm, 1 σ
Performances	Start-Up Time	1min
	Attitude Accuracy	0.05deg, 1 σ
	Heading Accuracy	0.5 \times sec(Lat) deg, 1 σ
Input Ranges	Angular Rate	± 400 deg/s
	Acceleration	± 20 g
Work Environment	Work Temperature	-40 $^{\circ}$ C~+70 $^{\circ}$ C
	Storage Temperature	-55 $^{\circ}$ C~+85 $^{\circ}$ C
	Vibration	0.04g ² /hz @ 20~2000hz
	Shock with normal work / without damage	30g @ 6ms/50g @ 11ms
Electrical Characteristics	Work Voltage	28VDC
	Consumption	≤ 20 W
	Communication	RS422/RS232/CAN/Ethernet
Physical Characteristics	Size (W x D x H)	140 x 100 x 82 mm
	Weight	≤ 2 kg

◆ 产品介绍

KIN-98MA 光纤陀螺惯导是一款高性价比的惯性测量产品,按照军用标准设计。KIN-98MA 采用 98 型光纤陀螺和石英挠性加速度计,并通过高精度的误差标定和补偿技术保证系统精度。电磁屏蔽设计、热平衡设计、振动模态设计、密封设计和严格的制造工艺保证系统优良的环境适应性。

◆ 产品特点

- 高性价比 98 型光纤陀螺
- 系统级误差参数标定与补偿
- 全温域温度补偿
- 抗扰动自对准和动基座自对准
- 输入接口丰富,可接入卫星导航/里程计/计程仪/高度计数据
- 工作模式多样,可配置为纯惯性导航/组合导航/阻尼导航模式
- 优良的环境适应性
- 军用标准

◆ 应用领域

- 船用罗经
- 车载定位定向
- 机载/弹载导航
- 姿态参考



◆ 性能指标

工作性能	启动时间	5min
	纯惯性位置	1nm/h, CEP 50
	纯惯性速度	1m/s, 1 σ
	纯惯性姿态	0.01deg, 1 σ
	纯惯性航向	$0.06 \times \sec(\text{Lat}) \text{ deg}, 1 \sigma$
	角速度精度	0.01deg/h, 1 σ
	加速度精度	50ug, 1 σ
测量范围	角速度	$\pm 400 \text{ deg/s}$
	加速度	$\pm 20 \text{ g}$
工作环境	工作温度	-40℃~+70℃
	存储温度	-55℃~+85℃
	振动	0.04g ² /hz @ 20~2000hz
	冲击下正常工作/无损坏	30g @ 6ms/50g @ 11ms
电气特性	工作电压	28VDC
	功耗	$\leq 20 \text{ W}$
	通讯接口	RS422/RS232/CAN/Ethernet
物理特性	尺寸 (W x D x H)	180 x 160 x 100 mm
	重量	$\leq 5 \text{ kg}$

◆ Introduction

KIN-98MA fiber optic gyro inertial navigation device is a cost-effective inertial measurement product, which is designed according to military standards. KIN-98MA is developed using Model 98 fiber optic gyro and flexible quartz accelerometer, and its high performance is guaranteed by high accuracy error calibration and compensation of the system. The design considerations for electromagnetic shielding, thermo-balance, vibration mode, and sealing, and the strict fabrication process ensure the excellent environmental suitability of the system.

◆ Features

- Cost-effective Model 98 fiber optic gyro
- Systematic calibration and compensation of the error parameters
- Full scale temperature compensation
- Swaying insensitive self-alignment and self-alignment on moving base
- Diverse input interfaces for GNSS/Odometer/DVL/Altimeter
- Multiple work modes including Pure INS/Integrated Navigation/Damped INS
- Excellent environmental suitability
- Military standards

◆ Applications

- Gyrocompass for ship
- Position and orientation system for land vehicle
- Aircraft/Missile navigation
- Attitude reference



◆ Specification

Performances	Start-Up Time	5min
	Inertial Position	1nm/h, CEP 50
	Inertial Velocity	1m/s, 1 σ
	Inertial Attitude	0.01deg, 1 σ
	Inertial Heading	$0.06 \times \sec(\text{Lat})$ deg, 1 σ
	Angular Rate	0.01deg/h, 1 σ
	Acceleration	50ug, 1 σ
Input Ranges	Angular Rate	$\pm 400\text{deg/s}$
	Acceleration	$\pm 20\text{g}$
Work Environment	Work Temperature	-40℃~+70℃
	Storage Temperature	-55℃~+85℃
	Vibration	0.04g ² /hz @ 20~2000hz
	Shock with normal work / without damage	30g @ 6ms/50g @ 11ms
Electrical Characteristics	Work Voltage	28VDC
	Consumption	$\leq 20\text{W}$
	Communication	RS422/RS232/CAN/Ethernet
Physical Characteristics	Size (W x D x H)	180 x 160 x 100 mm
	Weight	$\leq 5\text{kg}$

◆ 产品介绍

KIN-50A 激光陀螺惯导是一款高性价比的惯性测量产品。KIN-50A 采用 50 型激光陀螺和石英挠性加速度计，并通过高精度的误差标定和补偿技术保证系统精度。电磁屏蔽设计、热平衡设计、振动模态设计、密封设计和严格的制造工艺保证系统优良的环境适应性。

◆ 产品特点

- 高性价比 50 型激光陀螺
- 系统级误差参数标定与补偿
- 全温域温度补偿
- 抗扰动自对准和动基座自对准
- 输入接口丰富，可接入卫星导航/里程计/计程仪/高度计数据
- 工作模式多样，可配置为纯惯性导航/组合导航/阻尼导航模式
- 优良的环境适应性
- 军用标准

◆ 应用领域

- 船用罗经
- 车载定位定向
- 机载/弹载导航
- 姿态参考



◆ 性能指标

工作性能	启动时间	5min
	纯惯性位置	1nm/h, CEP 50
	纯惯性速度	1m/s, 1 σ
	纯惯性姿态	0.01deg, 1 σ
	纯惯性航向	0.06 \times sec(Lat) deg, 1 σ
	角速度精度	0.01deg/h, 1 σ
	加速度精度	50ug, 1 σ
测量范围	角速度	± 400 deg/s
	加速度	± 20 g
工作环境	工作温度	-40℃~+70℃
	存储温度	-55℃~+85℃
	振动	0.04g ² /hz @ 20~2000hz
	冲击下正常工作/无损坏	30g @ 6ms/50g @ 11ms
电气特性	工作电压	28VDC
	功耗	≤ 20 W
	通讯接口	RS422/RS232/CAN/Ethernet
物理特性	尺寸 (W x D x H)	242 x 202 x 170 mm
	重量	≤ 9 kg

◆ Introduction

KIN-50A ring laser gyro inertial navigation device is a cost-effective inertial measurement product. KIN-50A is developed using Model 50 ring laser gyro and flexible quartz accelerometer, and its high performance is guaranteed by high accuracy error calibration and compensation of the system. The design considerations for electromagnetic shielding, thermo-balance, vibration mode, and sealing, and the strict fabrication process ensure the excellent environmental suitability of the system.

◆ Features

- Cost-effective Model 50 ring laser gyro
- Systematic calibration and compensation of the error parameters
- Full scale temperature compensation
- Swaying insensitive self-alignment and self-alignment on moving base
- Diverse input interfaces for GNSS/Odometer/DVL/Altimeter
- Multiple work modes including Pure INS/Integrated Navigation/Damped INS
- Excellent environmental suitability
- Military standards

◆ Applications

- Gyrocompass for ship
- Position and orientation system for land vehicle
- Aircraft/Missile navigation
- Attitude reference



◆ Specification

Performances	Start-Up Time	5min
	Inertial Position	1nm/h, CEP 50
	Inertial Velocity	1m/s, 1 σ
	Inertial Attitude	0.01deg, 1 σ
	Inertial Heading	0.06 \times sec(Lat) deg, 1 σ
	Angular Rate	0.01deg/h, 1 σ
	Acceleration	50ug, 1 σ
Input Ranges	Angular Rate	± 400 deg/s
	Acceleration	± 20 g
Work Environment	Work Temperature	-40 $^{\circ}$ C~+70 $^{\circ}$ C
	Storage Temperature	-55 $^{\circ}$ C~+85 $^{\circ}$ C
	Vibration	0.04g ² /hz @ 20~2000hz
	Shock with normal work / without damage	30g @ 6ms/50g @ 11ms
Electrical Characteristics	Work Voltage	28VDC
	Consumption	≤ 20 W
	Communication	RS422/RS232/CAN/Ethernet
Physical Characteristics	Size (W x D x H)	242 x 202 x 170 mm
	Weight	≤ 9 kg

◆ 产品介绍

KIN-90A 激光陀螺惯导是一款高性能的惯性测量产品。KIN-90A 采用 90 型激光陀螺和石英挠性加速度计，并通过高精度的误差标定和补偿技术保证系统精度。电磁屏蔽设计、热平衡设计、振动模态设计、密封设计和严格的制造工艺保证系统优良的环境适应性。

◆ 产品特点

- 高精度 90 型激光陀螺
- 系统级误差参数标定与补偿
- 全温域温度补偿
- 抗扰动自对准和动基座自对准
- 输入接口丰富，可接入卫星导航/里程计/计程仪/高度计数据
- 工作模式多样，可配置为纯惯性导航/组合导航/阻尼导航模式
- 优良的环境适应性
- 军用标准

◆ 应用领域

- 船用中精度惯导
- 车载定位定向
- 机载/弹载导航
- 姿态参考

◆ 性能指标



工作性能	启动时间	30min
	纯惯性位置	1nm/4h, CEP 50
	纯惯性速度	0.8m/s, 1 σ
	纯惯性姿态	0.005deg, 1 σ
	纯惯性航向	0.01 \times sec(Lat) deg, 1 σ
	角速度精度	0.002deg/h, 1 σ
	加速度精度	10ug, 1 σ
测量范围	角速度	± 400 deg/s
	加速度	± 15 g
工作环境	工作温度	-40℃~+70℃
	存储温度	-55℃~+85℃
	振动	0.04g ² /hz @ 20~2000hz
	冲击下正常工作/无损坏	30g @ 6ms/50g @ 11ms
电气特性	工作电压	28VDC
	功耗	≤ 24 W
	通讯接口	RS422/RS232/CAN/Ethernet
物理特性	尺寸（W x D x H）	328 x 280 x 225 mm
	重量	≤ 23 kg

◆ Introduction

KIN-90A ring laser gyro inertial navigation device is a high performance inertial measurement product. KIN-90A is developed using Model 90 ring laser gyro and flexible quartz accelerometer, and its high performance is guaranteed by high accuracy error calibration and compensation of the system. The design considerations for electromagnetic shielding, thermo-balance, vibration mode, and sealing, and the strict fabrication process ensure the excellent environmental suitability of the system.

◆ Features

- High performance Model 90 ring laser gyro
- Systematic calibration and compensation of the error parameters
- Full scale temperature compensation
- Swaying insensitive self-alignment and self-alignment on moving base
- Diverse input interfaces for GNSS/Odometer/DVL/Altimeter
- Multiple work modes including Pure INS/Integrated Navigation/Damped INS
- Excellent environmental suitability
- Military standards

◆ Applications

- Intermediate grade inertial navigation system for Ship
- Position and orientation system for land vehicle
- Aircraft/Missile navigation
- Attitude reference



◆ Specification

Performances	Start-Up Time	5min
	Inertial Position	1nm/4h, CEP 50
	Inertial Velocity	0.8m/s, 1 σ
	Inertial Attitude	0.005deg, 1 σ
	Inertial Heading	0.01 \times sec(Lat) deg, 1 σ
	Angular Rate	0.002deg/h, 1 σ
	Acceleration	10ug, 1 σ
Input Ranges	Angular Rate	± 400 deg/s
	Acceleration	± 15 g
Work Environment	Work Temperature	-40 $^{\circ}$ C~+70 $^{\circ}$ C
	Storage Temperature	-55 $^{\circ}$ C~+85 $^{\circ}$ C
	Vibration	0.04g ² /hz @ 20~2000hz
	Shock with normal work / without damage	30g @ 6ms/50g @ 11ms
Electrical Characteristics	Work Voltage	28VDC
	Consumption	≤ 24 W
	Communication	RS422/RS232/CAN/Ethernet
Physical Characteristics	Size (W x D x H)	328 x 280 x 225 mm
	Weight	≤ 23 kg

◆ 产品介绍

KIN-90SIA 单轴旋转式激光陀螺惯导是一款高性能的惯性测量产品。KIN-90SIA 采用 90 型激光陀螺和石英挠性加速度计，并通过高精度的误差标定和补偿技术保证系统精度，同时通过采用单轴旋转技术进一步提升系统性能。电磁屏蔽设计、热平衡设计、振动模态设计、密封设计和严格的制造工艺保证系统优良的环境适应性。

◆ 产品特点

- 高精度 90 型激光陀螺
- 采用单轴旋转技术调制水平陀螺和加速度计误差
- 系统级误差参数标定与补偿
- 全温域温度补偿
- 抗扰动自对准和动基座自对准
- 输入接口丰富，可接入卫星导航/里程计/计程仪/高度计数据
- 工作模式多样，可配置为纯惯性导航/组合导航/阻尼导航模式
- 优良的环境适应性
- 军用标准

◆ 应用领域

- 船用中高精度惯导
- 车载定位定向
- 机载/弹载导航
- 姿态参考

◆ 性能指标

工作性能	启动时间	12hr
	纯惯性位置	1.5nm/48h, CEP 50
	纯惯性速度	0.5m/s, 1 σ
	纯惯性姿态	0.005deg, 1 σ
	纯惯性航向	0.01 \times sec(Lat) deg, 1 σ
	角速度精度	0.002deg/h, 1 σ
	加速度精度	10ug, 1 σ
测量范围	角速度	± 400 deg/s
	加速度	± 15 g
工作环境	工作温度	-40℃~+70℃
	存储温度	-55℃~+85℃
	振动	0.04g ² /hz @ 20~2000hz
	冲击下正常工作/无损坏	30g @ 6ms/50g @ 11ms
电气特性	工作电压	28VDC
	功耗	≤ 30 W
	通讯接口	RS422/RS232/CAN/Ethernet
物理特性	尺寸（ $\Phi \times H$ ） （不含缓冲基座）	400 x 350 mm
	重量 （不含缓冲基座）	≤ 50 kg



◆ Introduction

KIN-90SIA single-axis-indexing ring laser gyro inertial navigation device is a high performance inertial measurement product. KIN-90SIA is developed using Model 90 ring laser gyro and flexible quartz accelerometer, and its high performance is guaranteed by high accuracy error calibration and compensation of the system. Meanwhile, single-axis-indexing technique is utilized to further promote the performances of KIN-90SIA. The design considerations for electromagnetic shielding, thermo-balance, vibration mode, and sealing, and the strict fabrication process ensure the excellent environmental suitability of the system.

◆ Features

- High performance Model 90 ring laser gyro
- Using single-axis-indexing technique to modulate the errors of the horizontal gyros and accelerometers.
- Systematic calibration and compensation of the error parameters
- Full scale temperature compensation
- Swaying insensitive self-alignment and self-alignment on moving base
- Diverse input interfaces for GNSS/Odometer/DVL/Altimeter
- Multiple work modes including Pure INS/Integrated Navigation/Damped INS
- Excellent environmental suitability
- Military standards

◆ Applications

- Upper intermediate grade inertial navigation system for Ship
- Position and orientation system for land vehicle
- Aircraft/Missile navigation
- Attitude reference

◆ Specification

Performances	Start-Up Time	12hr
	Inertial Position	1.5nm/48h, CEP 50
	Inertial Velocity	0.5m/s, 1 σ
	Inertial Attitude	0.005deg, 1 σ
	Inertial Heading	0.01 \times sec(Lat) deg, 1 σ
	Angular Rate	0.002deg/h , 1 σ
	Acceleration	10ug, 1 σ
Input Ranges	Angular Rate	± 400 deg/s
	Acceleration	± 15 g
Work Environment	Work Temperature	-40 $^{\circ}$ C~+70 $^{\circ}$ C
	Storage Temperature	-55 $^{\circ}$ C~+85 $^{\circ}$ C
	Vibration	0.04g ² /hz @ 20~2000hz
	Shock with normal work / without damage	30g @ 6ms/50g @ 11ms
Electrical Characteristics	Work Voltage	28VDC
	Consumption	≤ 30 W
	Communication	RS422/RS232/CAN/Ethernet
Physical Characteristics	Size ($\Phi \times H$) (without anti-shock base)	400 x 350 mm
	Weight (without anti-shock base)	≤ 50 kg



◆ 产品介绍

KIN-90DIA 双轴旋转式激光陀螺惯导是一款高性能的惯性测量产品。KIN-90DIA 采用 90 型激光陀螺和石英挠性加速度计，并通过高精度的误差标定和补偿技术保证系统精度，同时通过采用双轴旋转技术使系统性能获得显著提升。电磁屏蔽设计、热平衡设计、振动模态设计、密封设计和严格的制造工艺保证系统优良的环境适应性。

◆ 产品特点

- 高精度 90 型激光陀螺
- 采用双轴旋转技术调制陀螺和加速度计误差
- 系统级误差参数标定与补偿
- 全温域温度补偿
- 抗扰动自对准和动基座自对准
- 输入接口丰富，可接入卫星导航/里程计/计程仪/高度计数据
- 工作模式多样，可配置为纯惯性导航/组合导航/阻尼导航模式
- 优良的环境适应性
- 军用标准

◆ 应用领域

- 船用高精度惯导
- 车载定位定向
- 机载/弹载导航
- 姿态参考

◆ 性能指标

工作性能	启动时间	6hr
	纯惯性位置	2nm/120h, CEP 50
	纯惯性速度	0.5m/s, 1 σ
	纯惯性姿态	0.005deg, 1 σ
	纯惯性航向	0.01 \times sec(Lat) deg, 1 σ
	角速度精度	0.002deg/h, 1 σ
	加速度精度	10ug, 1 σ
测量范围	角速度	± 400 deg/s
	加速度	± 15 g
工作环境	工作温度	-40℃~+70℃
	存储温度	-55℃~+85℃
	振动	0.04g ² /hz @ 20~2000hz
	冲击下正常工作/无损坏	30g @ 6ms/50g @ 11ms
电气特性	工作电压	28VDC
	功耗	≤ 40 W
	通讯接口	RS422/RS232/CAN/Ethernet
物理特性	尺寸（W x D x H） （不含缓冲基座）	500 x 480 x 460 mm
	重量 （不含缓冲基座）	≤ 70 kg



◆ Introduction

KIN-90DIA double-axis-indexing ring laser gyro inertial navigation device is a high performance inertial measurement product. KIN-90DIA is developed using Model 90 ring laser gyro and flexible quartz accelerometer, and its high performance is guaranteed by high accuracy error calibration and compensation of the system. Meanwhile, double-axis-indexing technique is utilized to further promote the performances of KIN-90DIA. The design considerations for electromagnetic shielding, thermo-balance, vibration mode, and sealing, and the strict fabrication process ensure the excellent environmental suitability of the system.

◆ Features

- High performance Model 90 ring laser gyro
- Using double-axis-indexing technique to modulate the errors of the gyros and accelerometers.
- Systematic calibration and compensation of the error parameters
- Full scale temperature compensation
- Swaying insensitive self-alignment and self-alignment on moving base
- Diverse input interfaces for GNSS/Odometer/DVL/Altimeter
- Multiple work modes including Pure INS/Integrated Navigation/Damped INS
- Excellent environmental suitability
- Military standards

◆ Applications

- High grade inertial navigation system for Ship
- Position and orientation system for land vehicle
- Aircraft/Missile navigation
- Attitude reference



◆ Specification

Performances	Start-Up Time	6hr
	Inertial Position	2nm/120h, CEP 50
	Inertial Velocity	0.5m/s, 1 σ
	Inertial Attitude	0.005deg, 1 σ
	Inertial Heading	$0.01 \times \sec(\text{Lat})$ deg, 1 σ
	Angular Rate	0.002deg/h, 1 σ
	Acceleration	10ug, 1 σ
Input Ranges	Angular Rate	$\pm 400\text{deg/s}$
	Acceleration	$\pm 15\text{g}$
Work Environment	Work Temperature	-40℃~+70℃
	Storage Temperature	-55℃~+85℃
	Vibration	0.04g ² /hz @ 20~2000hz
	Shock with normal work / without damage	30g @ 6ms/50g @ 11ms
Electrical Characteristics	Work Voltage	28VDC
	Consumption	$\leq 40\text{W}$
	Communication	RS422/RS232/CAN/Ethernet
Physical Characteristics	Size (W x D x H) (without anti-shock base)	500 x 480 x 460 mm
	Weight(without anti-shock base)	$\leq 70\text{kg}$