F3X80-IMU type Fiber Optic Inertial Measurement Unit

Introduction

Fiber optic inertial measurement unit is an inertial product developed for navigation and guidance, attitude measurement and control of small missiles and guided bombs, which is composed of three all-solid-state fiber optic gyroscope instruments, three quartz accelerometers and data packing board, etc. It measures the angular velocity and linear acceleration of carrier movement, and provides information for carrier attitude and navigation control. The measurement results are output via RS422 serial port.

Application Scope

This manual is only applicable to F3X80-IMU type products, and contains performance indexes, technical conditions, external dimensions and installation and use. Among them, the technical conditions include the environmental range, electrical performance, and physical characteristics of the product.

Main Parameters

Table 1 Main performance indicators of the product

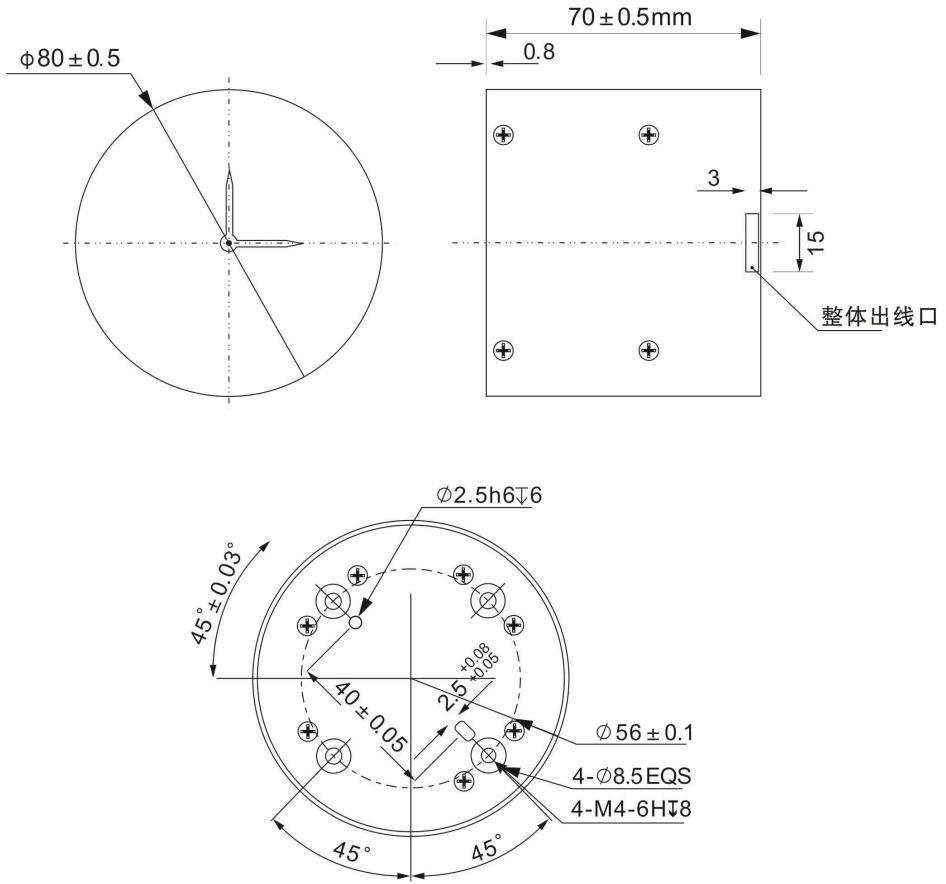
Main index Parameters	F3X80MI	F3X80LI
Room temperature zero drift repeatability(period by period, day by day)(°/h)	≤0.3	≤0.5
Zero stability at fixed temperature(°/h)	≤0.3	≤0.5
Room temperature scale factor repeatability(ppm) (1σ)	≤30	≤30
Scale factor asymmetry at constant temperature(ppm) (1σ)	≤30	≤30
Scale factor non-linearity at constant temperature(ppm) (1σ)	≤30	50
Threshold value(°/h)	≤0.5°/ h	
Angular rate range(°/s)	-500~+500°/s	
Bandwidth (Hz)	100	
Dimension (mm)	Φ80*70	
Weight (g)	780±20(including accelerometer)	
Operating temperature (℃)	-40 ~ +65	

Quartz accelerometer parameters

Item	Technical regulations
Range (g)	≥±40
scale factor temperature coefficient(ppm /℃)	≤100
scale factor monthly stability(ppm)	≤100
Bias value (mg)	≤±7
bias temperature factor (μg /℃)	≤100
Bias monthly stability (μg)	≤100
Second-order non-linearity factor (μg /g2)	≤20
Mounting angle (")	≤200
Appearance	No scratches, cracks, rusts
Insulation	≥20MΩ; (100V),25℃±5℃
	humidity≤80%

External Dimension Drawing

Horizontal dual -axis Fiber Optic Gyroscope instrument Dimensions: 70mm × 70mm × 43mm, installation size: four -hole 62mm × 62 mm, installation screw: 4 M3 screws, the shape and installation size are shown in Figure 2.



F3X80-IMU External Dimensions