Product introduction

ER-F-02 is a CAN open output dynamic and static dual-mode dip sensor, integrated dynamic and static dual-mode combination algorithm, launched by rion in the field of industrial field control. According to different working environment, the product is automatically switched to dynamic and static measurement mode. Ensure high accuracy measurement in various working environments. When the working environment is in static mode, static algorithm will be adopted in the dipmeter; when the working environment is in dynamic mode, dynamic algorithm will be adopted in the dipmeter, which can not only maintain the static high precision, but also ensure the dynamic high precision measurement of objects. The industrial standard isolated CAN transceiver is adopted, and A high-precision A/D differential converter is built in. The 5-order filtering algorithm is adopted to measure the sensor output inclination and pitch Angle relative to the horizontal plane.

Due to the inbuilt ADI's high-precision digital temperature sensor, the temperature drift of the sensor can be corrected according to the change of the inbuilt temperature sensor to guarantee the high repeatability of the product in the low temperature and high temperature environment. The output response frequency standard can reach 100Hz. If higher response frequency is needed, our company can customize it according to users. The product is a real industrial grade product with reliable and stable performance and good expansibility. Suitable for all kinds of harsh industrial control environment.

Main features

●Dynamic dip measurement
●Range + 1 to + 90 ° for optional
●Output way:CANopen
●DC 9～36V Wide voltage input
●Wide working temperature-40～+85℃
●resolution ratio 0.01°
●IP67 Protection grade
●High vibration resistance>2000g
●Direct lead interface
●Size：L72.62×W42×H23.1mm

Product application

●Satellite dishes search the stars
●Railway locomotive monitoring
●All kinds of engineering machinery dip measurement

●Petroleum drilling equipment
●Radar vehicle platform detection
●Underground rig attitude navigation
●Measurement of initial firing Angle of gun barrel
●Directional measurement based on dip Angle
●Satellite communications vehicle attitude detection
●Measurement of navigation posture of ships
●Shield pipe jacking application
●Slope monitoring of geological equipment

Product performance index

Parameter	Conditions	ER-F-02-10	ER-F-02-30	ER-F-02-60	ER-F-02-90	Unit
Range of measurement		±10	±30	±60	±90	°
Measurement axis		X Y	X Y	X Y	X Y	
Resolution ratio		0.01	0.01	0.01	0.01	°
Dynamic accuracy	@25℃	0.2	0.3	0.4	0.5	°
static accuracy	@25℃	0.02	0.05	0.08	0.1	°
Long-time stability		0.05	0.05	0.05	0.05	
Zero temperature coefficient	-40～85°C	±0.006	±0.006	±0.006	±0.006	°/℃
Temperature coefficient of flexibility	-40～85°C	≤100	≤100	≤100	≤100	ppm/℃
Power on start time		0.5	0.5	0.5	0.5	S
Response time		0.02	0.02	0.02	0.02	S
Output rate	5Hz、15Hz、35Hz、50Hz、100HZ can be set up					
Output signal	CAN open					
Electromagnetic compatibility	According to EN61000 and GBT17626					

Mean time to work without failure MTBF	≥50000 h/t
Insulation resistance	≥100M
Impact resistant	100g@11ms、Three axis and with(A half sine wave)
Anti-Vibration	10grms、10～1000Hz
Waterproof level	IP67
Cable	Standard 1 m length, wear - resistant, oil - proof, wide temperature, shielded cable 4*0.4mm2
Weight	120g(not include cable)

Electrical parameters of products

Parameter	Conditions	Minimum value	Typical values	Maximum	Unit
Power supply voltage	Standard	9	12、24	36	V
	Can be customized		5		V
Working current	no load		40		mA
Working temperature		-40		+85	℃
Storage temperature		-55		+125	℃

Product mechanical parameters

Connectors: 1m straight leads (customizable)
Protection class: IP67
Material: aluminum alloy grinding sand oxidation
Installation: three M4 screws

Operating principle

The core control unit imported from Europe is adopted. Using the principle of earth gravity, when the inclined Angle unit is tilted, the earth gravity will produce the component of gravity in the corresponding pendulum hammer, and the corresponding capacitance will change. Through amplification, filtering and transformation of the capacitance, the inclination can be obtained.