

Product introduction

ER-F-01 is the dynamic and static dual-mode dip sensor of MODBUS output, integrated dynamic and static dual-mode combination algorithm, launched by the RION company 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. RS485 hardware differential bus is used to transmit data. A high-precision 16bit A/D differential converter is built in, and the sensor output tilt and pitch Angle relative to the horizontal surface can be measured through the 5-order filtering algorithm. 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 18Hz. 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 MODBUS
- DC 9~36V Wide voltage input
- Wide working temperature-40~+8
- resolution ratio 0.01°
- IP67 Protection grade
- High vibration resistance>2000g
- Direct lead interface
- Size: 72.62×42×23.1mm (can be customized)

Product application

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

- Petroleum drilling equipment
- Radar vehicle platform detection
- Attitude navigation of underground drill
- 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-01-10	ER-F-01-30	ER-F-01-60	ER-F-01-90	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	°
Static accuracy	@25°C	0.02	0.05	0.08	0.1	°
Dynamic accuracy	@25°C	0.3	0.3	0.3	0.5	°
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	°/°C
Temperature coefficient of flexibility	-40~85°C	≤100	≤100	≤100	≤100	ppm/°C
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	10Hz、25Hz、50Hz Can be set up					
Output signal	MODBUS					

Electromagnetic compatibility	According to EN61000 and GBT17626
MTBF	≥50000 H/T
Insulation resistance	≥100 M
Impact resistant	100g@11ms、 Three axis and with(A half sine wave)
Anti-Vibration	10~1000Hz 10grms、
Waterproof level	IP67
Cable	Standard 1 m length, wear - resistant, oil - proof, wide temperature, shielded cable 4*0.4mm ²
Weight	120g(not include cable)

Electrical parameters of products

Parameter	Conditions	Minimum	Typical values	Maximum	Unit
The power supply voltage	Standard	9	12、 24	36	V
	Options		5		V
Working current	No load		40		mA
Working temperature		-40		+85	°C

Storage temperature		-55		+125	°C
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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.