FSP-OB 高准确度板载电流传感器

高准确度电流测试解决方案/Highly Accurate Current Test Solutions

In many industrial/laboratory applications, non-contact current sensors are widely used to measure AC/DC currents with high accuracy. Syscan's fluxgate current sensors are characterized by high accuracy, high bandwidth and high stability. At the same time, we can provide customized services for different application scenarios.

In the field of high-precision current measurement, FreesorTechnologies, an excellent sensor supplier in China, has provided high-quality solutions for the medical industry, electric power testing industry, rail transportation, and scientific research laboratory current measurement, etc. Freesor Technologies is a leading supplier in the field of current measurement in China. Differing from the traditional Hall type current sensors, Freesor Technologies' fluxgate series current sensors adopt fluxgate technology, which is mainly oriented to the field of high-precision AC/DC current and pulse current testing and measurement; the primary and secondary currents are electrically isolated, and have high safety and reliability with the indication of normal operation and the function of self-recovery from overload. High-performance, cost-effective products to meet the needs of users, to provide sensors ranging from 5A to 24000A, accuracy from 1ppm to 1000ppm AC/DC current sensor.

应用领域/Areas of application

- New energy field: lithium battery chemical composition, battery charging and discharging test system feedback devices, motor testing, etc.
- Particle acceleration field: high accuracy power sampling feedback device.
- Medical industry: MRI power sampling and feedback.
- Railway transportation field: high accuracy and high current testing of converters, etc.
- Laboratory applications: high-accuracy power measurement with power analyzers, reliable testing of metering level current
- Instrumentation: feedback devices for current measurement in instrumentation.

产品特性/Product Characteristics

- Fluxgate technology for high accuracy and stability of current measurement.
- Easy to install for non-contact applications
- Low temperature coefficient
- Low bias current
- Saturation detection and self-recovery
- High bandwidth up to DC~800kHz (@±3dB)

安全特性/Safety Features

参数 (Parameter)	符号 (Symbol)	单位 (Unit)	最小 (Min)	标称 (Type)	最大 (Max)	备注 (Comment)
耐受电压 withstand voltage	*U*d	kV	--	2.5	--	50/60Hz,1min
瞬态隔离电压 Transient isolation voltage	*T*S	kV	--	5	--	
相对漏电起痕指数 Relative Leakage Trace Index	*CTI*	V	--	600	--	无冷凝 non-condensing

一般特性/General Characteristics

参数 (Parameter)	符号 (Symbol)	单位 (Unit)	最小 (Min)	标称 (Type)	最大 (Max)	备注 (Comment)
工作温度范围 Operating Temperature Range	*T*A	℃	-25	--	60	
储存温度范围 Storage temperature range	*T*S	℃	-40	--	85	
相对湿度 relative humidity	*RH*	%	10	--	80	无冷凝 non-condensing

电气特性 /Electrical Characteristics

Test conditions (ambient temperature 25°C, supply voltage 5V)

参数 (Parameter)	符号 (Symbol)	单位 (Unit)	最小 (Min)	标称 (Type)	最大 (Max)	备注 (Comment)
额定原边直流电流 Rated primary DC current	IPN DC	A	-100	--	100	
额定原边交流电流 Rated primary AC current	IPN	A	--	--	71	
测量范围 Measurement range	IPM	A	-100	--	100	
测量电阻 Measurement of resistance	RM	Ω	0	--	5	
副边电流 Side current	IS	mA	-100	--	100	
过载能力① overload capacity	$\hat{I}_P$	A	-600	--	600	@100ms 脉冲
电流变比 current ratio	KN		--	1:1000	--	
供电电压 Supply Voltage	UC	V	4.90	5.0	5.10	
电流消耗 current consumption	IC	mA	--	--	50	总消耗需累计 *IS*
输出噪声 0…10Hz②】 Output noise 0...10Hz②	Vno	ppm	--	--	1	
输出噪声 0…100Hz②			--	--	3	

Output noise 0...100Hz②						
输出噪声 0…1kHz② Output noise 0...1kHz②			--	--	5	
零点失调电流② Zero misalignment current②	IOE	ppm	-20	--	20	
温度漂移系数② Temperature Drift Coefficient	TCIOE	ppm/K	-1	--	1	
零点偏置稳定性② Zero Bias Stability②		ppm/month	-5	--	5	
线性度② linearity	εL	ppm	-20	--	20	
总体准确度② Overall accuracy	XG	ppm	-100	--	100	
电流跟随速度 Current following speed	di/dt	A/μs	100	--	--	
带宽 （±3dB） Bandwidth (±3dB)	BW	kHz	--	100	--	小信号带宽，@0.5%IPM Small signal bandwidth @ 0.5% IPM

Note ①: The test signal is a single pulse, after overshooting, the sensor will enter the self-recovery state, the status indicator will go out, and it will take about 50ms to return to the normal working state.

Note ②: The ppm data refer to the IPN corresponding to the fullness of the secondary output signal.

插针接口定义/Pin Interface Definitions

Elucidation	1	2	3	4	5	6	7	8
定义 define	OK-，状态监控引脚 status monitor pin	OK+，状态监控引脚 status monitor pin	EN+，传感器工作使能，低电平关闭 sensor operation enable, low level shutdown	EN-，传感器工作使能参考点 Sensor Operational Enable Reference Point	+5V，传感器供电电源 Sensor Power Supply	GND，传感器供电参考地 sensor power reference ground	Iout，二次电流输出高端 Secondary current output high end	Iout Return，二次电流输出低端 Secondary Current Output Low Side

使用注意事项/Precautions for use

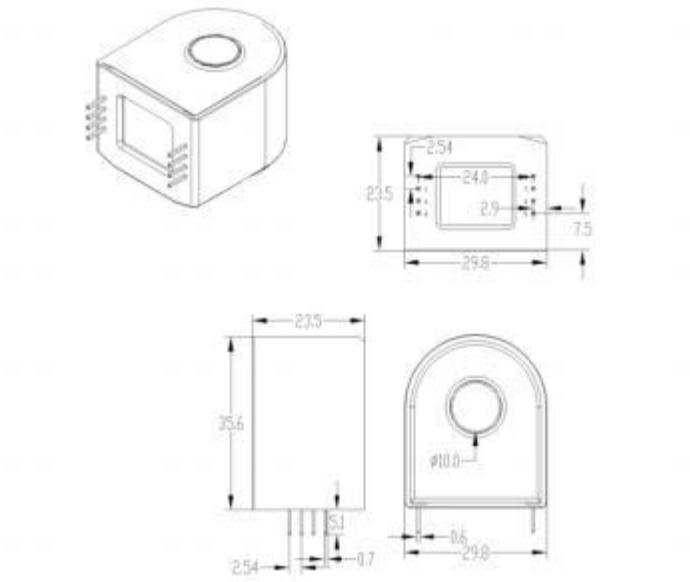
1. 原边电流与机身箭头指示方向一致时，输出为正；

The output is positive when the primary side current is in the same direction as indicated by the body arrow;

2.测量小电流时，原边导体尽量置于线孔的中心位置；

When measuring small currents, the primary side conductor is placed as close to the center of the wire hole as possible;

外形尺寸(㎜)/Dimensions of drawing(mm)



Maximum allowable error for mechanical dimension drawings:±1mm