FSP10000 高准确度电流传感器 FSI10kA-N5

高准确度电流测试解决方案/High accuracy current testing solutions

在诸多工业/实验室应用场景中，广泛采用非接触 式电流传感器对交/直流电流进行高精度测量。上海飞轩推出的磁通门电流传感器具有高精度、高带宽及高 稳定性等特点。同时，可针对用户需求提供适用于不 同应用场景的产品定制化服务。

In many industrial/laboratory applications, non-contact current sensors are widely used to measure AC/DC current with high accuracy. The fluxgate current sensor from Freesorhas the characteristics of high precision, high bandwidth and high stability. At the same time, it can provide customized product services for different application scenarios according to user needs.

在高精度电流测试领域，上海飞轩作为国内优秀 的传感器供应商，为医疗行业、 电力测试行业、轨道 交通、科研实验室电流测量等提供了优质的解决方案。 区别于传统的霍尔式电流传感器，上海飞轩磁通门系 列电流传感器采用磁通门技术，主要面向高精度交/直 流电流及脉冲电流的测试和测量领域；一次、二次电 流实现电气隔离，带有工作正常指示及过载自恢复功 能，有较高的安全可靠性。高性能、高性价比的产品 很好的满足了用户的需求，提供的传感器量程从 5A 到 24000A ，准确度从 1ppm 到 1000ppm 的 AC/DC 电流 传感器。

In the field of high-precision current testing, as an excellent sensor supplier in China, Freesorprovides high-quality solutions for the medical industry, power testing industry, rail transit, scientific research laboratory current measurement, etc. Different from the traditional Hall type current sensor, Freesorfluxgate series current sensor adopts fluxgate technology, mainly for high-precision AC/DC current and pulse current testing and measurement field; The primary and secondary current realize electrical isolation, with normal working indication and overload self-recovery function, with high safety and reliability. High-performance, cost-effective products well meet the needs of users, providing sensor ranges from 5A to 24000A, accuracy from 1ppm to 1000ppm AC/DC current sensors.

产品特性/Product feature

磁通门技术，高精度、高稳定性电流测量	Fluxgate technology, high precision, high stability current measurement
应用于非接触式场合，易于安装	For non-contact applications, easy to install
极低的温度系数	Very low temperature coefficient
低偏置电流	Low bias current
具有饱和检测及自恢复功能	It has the function of saturation detection and self-recovery
高带宽，最高可达 DC~800kHz (@±3dB)	High bandwidth, up to DC~800kHz(@±3dB)

应用领域/Application fields

新能源领域：锂电池化成分容、电池充放电测试系统 反馈器件、电机测试等

粒子加速领域：高准确度电源的采样反馈器件

医疗行业：MRI 的电源采样反馈

轨道交通领域：变流器等高准确度、大电流的测试

实验室应用：配合功率分析仪进行高准确度功率测 量、对计量级别电流进行可靠测试

仪器仪表领域：仪器仪表中电流测量的反馈器件

New energy field: lithium battery components, battery charging and discharging test system feedback devices, motor testing, etc

Particle acceleration field: Sampling feedback devices for high accuracy power supplies

Medical industry: Power sampling feedback for MRI

Rail transit field: converters and other high accuracy, high current testing

Laboratory application: High accuracy power measurement with power analyzer, reliable testing of metering level current

Instrumentation field: Feedback devices for current measurement in instrumentation

安全特性/ Security feature

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 marking index	CTI	V	--	600	--	无冷凝

一般特性/General feature

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

电气特性 测试条件（环境温度 25℃，供电电压 220V）Electrical characteristics test conditions (ambient temperature 25℃, power supply voltage 220V)

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	$I_{PN\ DC}$	A	-10000	--	10000	
额定原边交流电流 Rated primary AC current	I_{PN}	A	--	--	7072	
测量范围	I_{PM}	A	-10000	--	10000	

Measuring range						
测量电阻 Measuring resistance	R_M	Ω	0	--	1	
副边电流 Secondary side current	I_S	A	-1	--	1	
过载能力① Overload capacity		kA	-18	--	18	@100ms 脉冲
电流变比 Current ratio	K_N		--	1:10000	--	
供电电压 Supply voltage	U_C	V	198	220	242	
输出噪声0… 10Hz② Output noise 0... 10Hz	V_{no}	ppm	--	--	10	
输出噪声0… 100Hz② Output noise 0... 100Hz			--	--	30	
输出噪声0… 1kHz② Output noise 0... 1kHz			--	--	50	
零点失调电流② Offset current	I_{OE}	ppm	-100	--	100	
温度漂移系数② Temperature drift coefficient	TCI_{OE}	ppm/K	-20	--	20	
零点偏置稳定性② Zero bias stability		ppm/month	-10	--	10	
线性度② Linearity	ε_L	ppm	-50	--	50	
总体准确度② Overall accuracy	X_G	ppm	-500	--	500	
电流跟随速度 Current following speed	di/dt	A/μs	100	--	--	
带宽 （±3dB） Frequency bandwidth(-3dB)	BW	kHz	--	100	--	小信号带宽，@0.5% I_{PM}

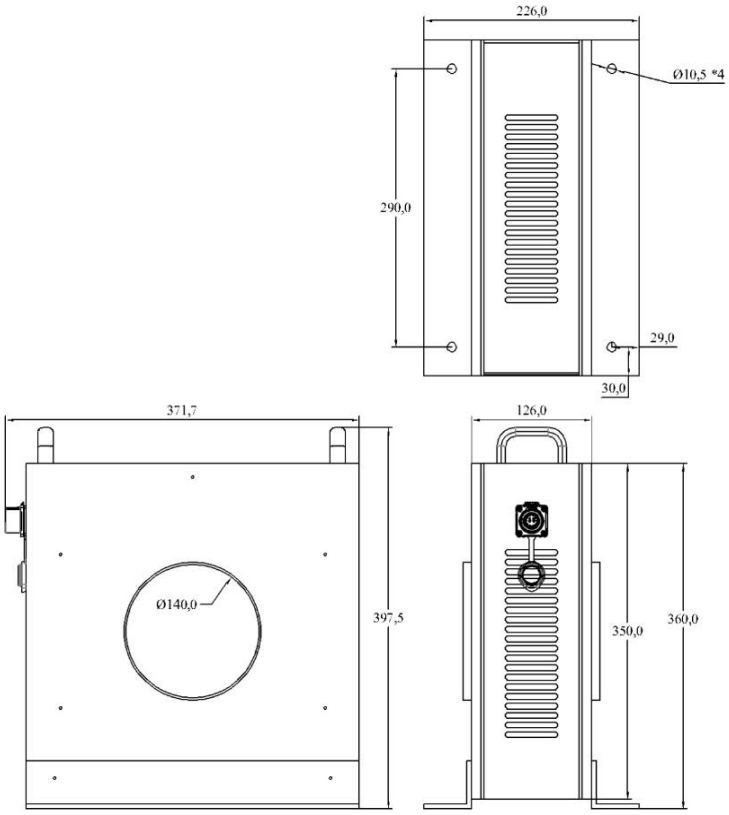
注①:测试信号为单脉冲，过冲后传感器会进入自恢复状态，状态指示灯灭，需要约 50ms 恢复到正常工作状态。

Note 1: The test signal is a single pulse. After overshooting, the sensor will enter the self-recovery state, and the status indicator will be off. It takes about 50ms to restore to the normal working state.

注②:ppm 数据均参考副边输出信号满度对应的 IPN。

Note 2 :ppm data refer to IPN corresponding to the subside output signal full degree.

外形尺寸/Dimensions of drawing(mm)



电气方式 Electrical mode

传感器分为控制主机及传感器探头，所有连接端子在主机背部，主机电源为 AC 220V 输入，传感器与 探头间为标准连接线，线长 1m ，传感器输出为 2 端 4mm 香蕉插座。

The sensor is divided into the control host and the sensor probe, all the connection terminals are on the back of the host, the host power supply is AC 220V input, the sensor and the probe is a standard connection line, the line length is 1m, the sensor output is 2 4mm banana sockets.

传感器使用注意事项 Precautions for using sensors

- 原边电流与机身箭头指示方向一致时，输出为正；
- 测量小电流时，原边导体尽量置于线孔的中心位置；
- 本产品为标准品，若需其他变比或技术指标请与厂家联系；
- 本公司保留对本手册修改的权利，恕不另行通知。
- When the current on the primary side is consistent with the direction indicated by the arrow on the fuselage, the output is positive;
- When measuring small current, the primary conductor should be placed in the center of the line hole as far as possible;
- This product is a standard product, if you need other ratios or technical indicators, please contact the manufacturer;
- The Company reserves the right to amend this manual without prior notice.

包装清单 Packing list

序号 S.N.	名称 Name	型号 Type	数量 Quantity	备注 Remark
1	电流传感器主机 Current sensor host	FSI10kA-N5-M	1	
2	电流传感器探头 Current sensor probe	FSI10kA-N5-S	1	
3	传感器专用连接线 Special connection cable for sensor	/	2	AC220V 连接线及探头连接线
4	说明书及合格证 Specification and certificate of qualification	/	1	