

CHCS-ITH-3000S 系列高精度电流传感器 CHCS-ITH-3000S series ultra high precision current sensor

产品介绍 Product introduction

用于电流的超高精度测量: DC, AC, 脉冲....., 初级和次级之间采用电流隔离.

For ultra-high precision measurement of current:DC,AC,pulsed...,with galvanic separation between primary and secondary.

Current transducer uses Fluxgate principle to measure any kinds of electric current. The output signal is small current that can be accepted by electronic circuit. The primary input current and the secondary output signal is highly electric isolated. This kind of transducer has a compact size but with a big hole aperture.

产品特性 Product characteristics	应用领域 application area
<ul style="list-style-type: none"> • 超高稳定性和准确度 High stability and accuracy • 优异的线性度: <2ppm Excellent linearity:<2ppm • 极低温度系数: 0.1ppm/K Very low temperature coefficient: 0.1ppm/K • 具有饱和检测及自恢复功能 Saturation detection and self recovery • 抗干扰能力强 Strong anti-interference ability • 无开机预热时间 No boot time 	<ul style="list-style-type: none"> • 医疗设备 Medical equipment • 特殊电源 Special power supply • 磁共振(MRI)单元 Magnetic resonance unit • 智能电网 Smart grid • 测试仪器仪表 Testing instruments and meters • BMS、EMS、PCS 管理系统 BMS、EMS、PCS management system



- ★ AC/DC/Pulsed and Mixed current
- ★ High accuracy
- ★ Optimized response time
- ★ Very good linearity
- ★ High immunity to external interference
- ★ Wide frequency bandwidth
- ★ Very low temperature drift

电气性能 Electrical date

参数 parameter	符号 Symbol s	测试条件 Test conditions	数值 Value			单位 Unit
			最小 Min	标称 Typ	最大 Max	
原边额定电流 Primary rated current	I_{PN}	--	--	±3000	--	Adc
原边过载电流 Primary overload current	I_{PM}	1 min	--	--	±3150	Adc
工作电压 Supply voltage	V_C	--	±18	--	±28	V
功耗电流 Current consumption	I_{Pwr}	@ $I_p=0-3000$	±30	±630	±630	mA
电流变比 Conversion ratio	K_N	--	5000:1			--
额定输出电流 Rated output current	I_{SN}	@ $I_{pn}=±3000$	--	±0.6	--	A
测量电阻 Measuring resistance	R_M	@ $V_C=±24V$			2	Ω
		@ $V_C=±28V$			6	

动态参数 Dynamic parameter:

参数 parameter	符号 Symbol s	测试条件 Test conditions	数值 Value			单位 Unit
			最小 Min	标称 Typ	最大 Max	
精度 Accuracy	X	$T_a = +25^{\circ}C$	--	--	10	ppm
比差 Ratio difference	X_G	@50Hz/60 Hz AC input, $25±10^{\circ}C$	--	--	100	ppm
角差 Angle difference	X_{Pe}		--	--	100	ppm
线性度 Linearity	ϵ_L	--	--	--	2	ppm
温度稳定性 temperature stability	TC	--	--	--	0.1	ppm/K
时间稳定性 Time stability	TT	--	--	--	0.2	ppm/month
供电抗干扰 Anti-interference	TV	--	--	--	1	ppm/V
零点失调电流 Zero offset current	I_o	@ $25^{\circ}C$	--	--	2	ppm

中霍® 传感 CHCS® Transducer 中霍® 传感 CHCS® Transducer

纹波电流 Ripple current	I_n	DC-10Hz	--	--	0.5	ppm
动态响应时间 Dynamic response time	t_r	di/dt=100A/us, 上升至 90% I_{PN}	--	--	1	us
电流变化率 Current change rate	di/d	--	100	--	--	A/us
频带宽度(-3 dB) Current change rate(-3 dB)	F	--	0	--	300	kHz
零点失调电流 Zero offset current	I_{OT}	全温度范围 Full temperature range	--	--	±10	uA

一般特性 General characteristics:

参数 parameter	符号 Symbols	测试条件 Test conditions	数值 Value			单位 Unit
			最小 Min	标称 Typ	最大 Max	
工作温度范围 working temperature	T_A	--	-10	--	+70	°C
储存温度范围 Storage temperature	T_s	--	-25	--	+85	°C
输出有效 Output effectiveness	--	--	LED 亮+低电平信号 (Max 2mA) LED bright+Low level signal (Max 2mA)			--
质量 weight	m	--	1200±10			g

安全特性 Safety characteristics:

参数 parameter	符号 Symbols	测试条件 Test conditions	数值 Value	单位 Unit	
隔离电压 Isolation voltage	原、副边之间 Primary and secondary	V_d	50Hz,1min	5	KV
瞬态隔离耐压 Transient isolation withstand voltage	原、副边之间 Primary and secondary	V_w	50us	8	KV
隔离电压 Isolation voltage	副边对外壳 secondary and shell	V_d	50Hz,1min	5	KV
输出阻抗 Output impedance	500Vdc	R_o	--	--	MΩ
相比漏电起痕指数 Compared with leakage index	CTI	IEC-60112	600	V	

外形尺寸及端子定义(单位: mm):

Outline size and terminal definition(Unit: mm)

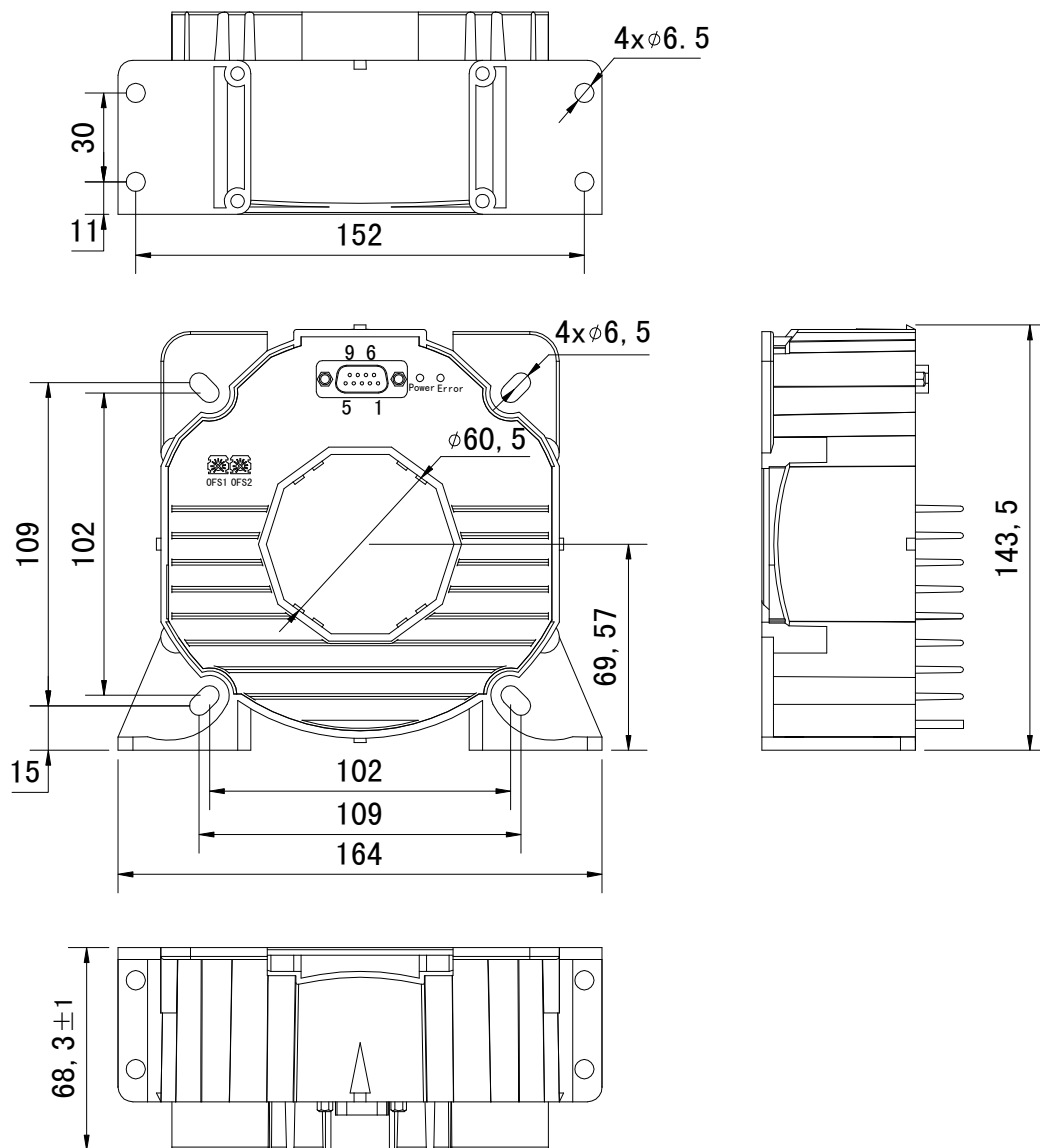


图 1 外形图

Figure 1 Size diagram

机械特性 Mechanical properties:

- 公差:外形尺寸、安装定位尺寸公差按照 GB/T1804-2000 C 级标准执行。

Tolerance: Shape size and Installation location dimensions are carried out according to GB/T1804-2000 C standard.

- 紧固点:垂直及水平方向各 4 孔, 见图 2。

Fastening points: 4 holes in the vertical and horizontal directions, as shown in Figure 2.

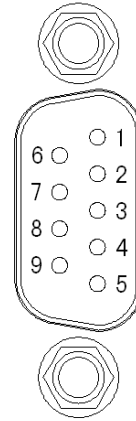
- 原边穿孔直径:Ø60.5。

Primary perforation diameter:Ø 60.5.

- 连接端子型号: DB9。
Connection terminal type: DB9.

端子定义 Terminal definition:

Pin	Definition	Pin	Definition
1	0 supply GND	6	M signal output
2	Nc	7	Nc
3	0 supply GND	8	Valid signal output
4	0 supply GND	9	+ Supply voltage
5	- Supply voltage		



应用连接及说明 Application connection and description:

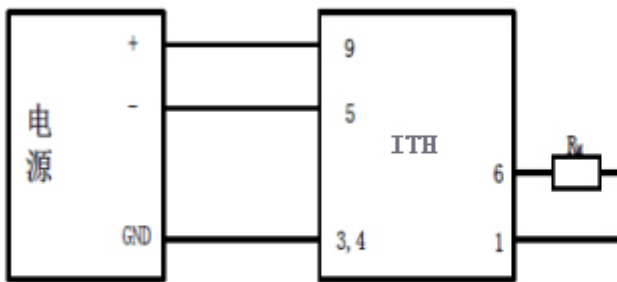


图3 电气连接图

Figure 3 Electrical connection diagram

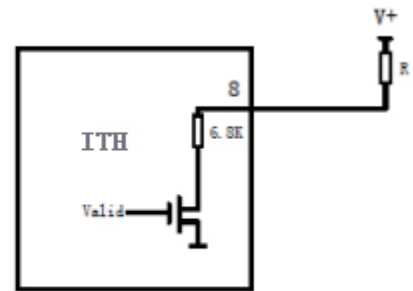


图4 有效指示信号

Figure 4 Effective indication signal

1. 测试说明 Test instructions:

通过测量流过 R_M 的测试电流 I_S, 或者 R_M 两端的电压 U_R, 可以得到原边电流 I_P:

By measuring the test current I_S flowing through the R_M, or the voltage U_R at both ends of the R_M, the original side current I_P can be obtained:

$$I_P = K_N * I_S = K_N * (U_R / R_M)$$

2. 指示灯和指示信号说明 Indication lights and indication signals:

在正常工作情况下, 有效指示灯处于常亮状态。如果指示灯熄灭, 说明电流传感器处于非零磁通状态, 如母线电流超过量程等。此时, 传感器内部进入扫描状态, 输出电流不再与输入电流信号等比例, 一旦母线电流回落到量程之内, 传感器即恢复正常工作。有效指示信号与指示灯是同一信号驱动的, 它为 OD 门输出形式, 有效时输出对应为低电平。

Under normal working condition, the effective indicating lamp is working. If the indicator lights out, It indicates that the current sensor is in a non zero flux state, for example, bus current exceeds range. At this time, the sensor enters the scanning state, and the output current is no longer proportional to the input current signal. Once the bus current falls back within the range, the sensor will resume normal operation. The valid indicator signal and the indicator lamp are driven by the same signal. It is the output form of OD gate. When valid, the output corresponds to the low level.