IIT60 High Precision Current Transducer

The multi-point zero-flux technology system applied in this high-precision DC transducer combines closed-loop excitation flux control technology, self-excited flux gate technology, and multiple closed loop control technology. The combination of technologies enables zero-flux closed-loop control of excitation flux, DC flux and AC flux, and can detect high-frequency ripple by constructing a high-frequency ripple sensing channel, so that the transducer can achieve high gains and measuring accuracy over the full bandwidth.

Product photo

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Key Technologies

◇ Excitation closed-loop control technology
◇ Self-exciting demagnetization technology
◇ Multi-point zero-flux technology
◇ Temperature control compensation technology
◇ Multi-range automatic switching technology

Features

◇ Insulation measurement at primary and secondary side
◇ Excellent linearity and accuracy
◇ Extremely low temperature drift
◇ Extremely low zero drift
◇ Broad band and low response time
◇ Strong anti-electromagnetic interference

Application Domain

◇ Medical Equipment: Scanner, MRI
◇ Power: Converter, Inverter
◇ New Energy: Photovoltaic, Wind energy
◇ Rail Transit: EMU, Metro, Trolly car
◇ Ship: Electric driven ship
◇ Car: Electric car
◇ Testing Instrument: Power analyzer, High-precision power supply
◇ Smart Power Grid: Power generation and battery monitoring, Medium low voltage substation
◇ Industry Control: Industrial motor drive, UPS, Welding, Robot, Hoist, Elevator, Ski lift

Electrical Performance

Parameter	Symbol	Measuring Conditions	Min	Typ	Max	Unit
Primary nominal direct current	I_{PN_DC}	—	—	±60	—	Adc
Primary nominal alternating current*	I_{PN}	—	—	42.4	—	Aac
Primary overload current	I_{PM}	1 Minute	—	—	±90	Adc
Operating voltage	V_C	—	±14.2	±15	±15.8	V
Power consumption current	I_{PWR}	Rated primary current	±30	±130	±180	mA
Current ratio	K_N	Input : Output	600:1	600:1	600:1	—
Rated output current	I_{SN}	Rated Primary current	—	±0.2	—	A
Measuring resistance	R_M	See Fig. 1	0	10	55	Ω

* refers to AC effective value

Accuracy Measurement

Parameter	Symbol	Measuring Conditions	Min	Typ	Max	Unit
Accuracy	X_G	Input direct current, full temperature range	—	—	0.02	%
Linearity	ε_L	Full temperature range	—	—	15	ppm
Zero offset current	I_{OT}	@25℃	—	—	±5	μA
Zero offset current	I_O	Full temperature range	—	—	±10	μA
Response time	t_r	di/dt=100A/us, rised to 90%I_{PN}	—	—	1	us
Current change rate	di/dt	—	200	—	—	A/us
Frequency bandwidth (-3dB)	F	—	0	—	100	kHz

Safety Characteristics

Parameter	Symbol	Measuring Conditions	Value	Unit
Insulation voltage / Between primary and secondary sides	Vd	50Hz,1min	5	KV
Transient isolation withstand voltage / Between primary and secondary sides	Vw	50us	10	KV
Creepage distance / Between the primary and the outer shell	dCp	—	11	mm
Clearance distance / Between the primary and the outer shell	dCi	—	11	mm
Comparative tracking index	CTI	IEC-60112	275	V

General Characteristics

Parameter	Symbol	Measuring Condition	Min	Typ	Max	Unit
Ambient operating temperature	T_A	—	-40	—	+70	ºC
Ambient storage temperature	T_S	—	-55	—	+95	ºC
Relative humidity	RH	—	20		80	%
Mass	M	—		350±10		g

Operating Status Instructions

◇ The green indicator is on when the device is running normally:

After the device is powered on, the green indicator is on when the device is running normally. When the green light is off, you should check whether the power supply of the transducer is normal.

◇ The green light is blinking when the current overloads:

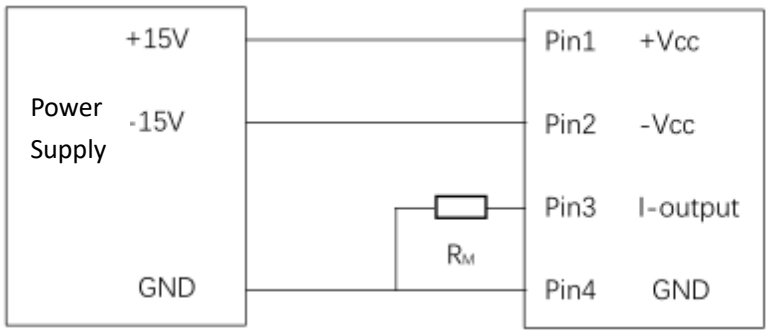
When the power supply is normal, if the green light is blinking, the current transducer is in a non-zero flux state. At this time, the input current amplitude of the bus exceeds the specified range, and the transducer enters the overload state. The output current is no longer proportional to the input current signal. In the overload mode, the output current of the transducer is kept in the maximum output state, and the green indicator is off. When the input current recovers within the specified current range, the transducer output current will return to normal and the green indicator will be normal on.

Connection system

1. Phoenix terminal pin function definition

Pin	1	2	3	4
Definition	**+15V Supply**	**-15V Supply**	**I_Output**	**GND**

IIT Series Transducer



Test instruction:

The primary current I_P can be obtained by measuring the test current I_s flowing through R_M or the voltage U_R across R_M:

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

Dimensions

Unit：mm