



- High Accuracy
- Broad Bandwidth
- Low Zero-drift

Shenzhen Hangzhi Precision Electronics Co. Ltd.

Product Model: HIT1000-40mA
Measurement Range: DC±1000A
Accuracy: 0.1%

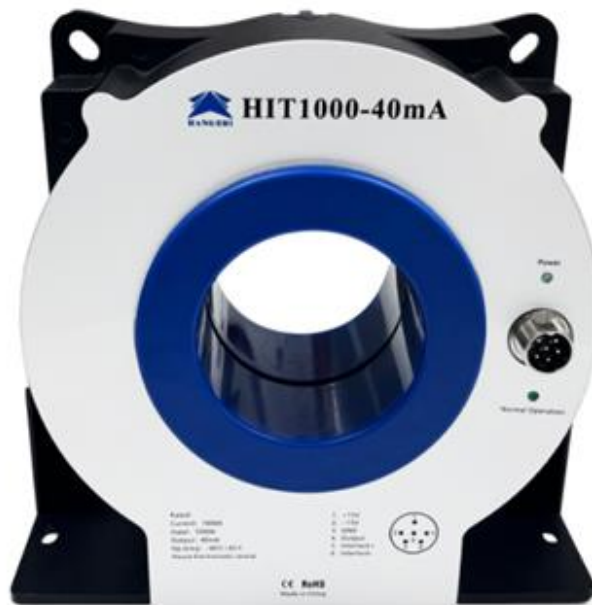
HIT1000-40mA Hall-replaced Current Transducer

$I_{PN}=1000A$

HIT1000-40mA has a high gain and measurement accuracy in the full bandwidth range, due to the application of the multi-point zero-flux technology system and high-frequency ripple sensing channel on top of currently existing DC sensor technology.

The multi-point zero-flux technology system secures the high accuracy by utilizing the technology combination of exciting magnetic flux closed-loop control, self-excited magnetic flux gate and multi-closed-loop control that realizes the closed-loop control between excitation magnetic flux and AC/DC magnetic flux generated by primary current, while the high-frequency ripple sensing channel allows the sensor to have the high performance over the full bandwidth range.

Product photo





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Key Technologies

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

Features

- ◇ Insulated measurement between 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 industry: Converter, Inverter
- ◇ Renewable Energy: Photovoltaic, Wind energy
- ◇ 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
- ◇ Rail Transit: EMU, Metro, Trolley car
- ◇ Ship: Electric driven ship
- ◇ Car: Electric car

Electrical Performance

Parameter	Symbol	Measuring Conditions	Min	Typ	Max	Unit
Primary nominal direct current	I _{PN_DC}	—	—	±1000	±1100	Adc
Primary nominal RMS current*	I _{PN_AC}	—	—	707	770	Aac
Primary overload current	I _{PM}	1 Minute	—	—	±1200	Adc
Power supply voltage DC	U _C	—	±14.2	±15	±15.8	V
Current consumption	I _{PWR}	Rated primary current	±70	±610	±670	mA
Conversion ratio	K _N	Primary:secondary	—	1000:40	—	A/mA
Secondary nominal output current	I _{SN}	Rated Primary current	—	±40	—	mA
Measuring resistance	R _M	V _C : ±15V; I _{PN_DC} : ±1000A	0	—	250	Ω

* refers to AC effective value



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Accuracy Measurement

Parameter	Symbol	Measuring Conditions	Min	Typ	Max	Unit
Accuracy	X _G	Input direct current, I _{PN} - 0.05I _{PN} , 25±10°C	—	—	0.1	%
Linearity error	ε _L	Full range	—	—	0.02	%
Offset temperature coefficient	T _C	—	—	—	25	ppm/K
Zero offset current	I ₀	@25°C	—	—	±1	μA
Response time	t _r	di/dt=100A/μs, rise to 90% I _{PN}	—	—	±20	μs

Safety Characteristics

Parameter	Symbol	Measuring Conditions	Value	Unit
Insulation voltage / Between primary and secondary	U _d	50Hz, 1min	5	KV
Impulse withstand voltage / Between primary and secondary	U _w	50μs	10	KV
Creepage distance / Between primary and shield	d _{Cp}	—	11	mm
Clearance distance / Between primary and shield	d _{ci}	—	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	—	+85	°C
Ambient storage temperature	T _S	—	-55	—	+95	°C
Relative humidity	RH	—	20	—	80	%
Mass	M	—	—	4000±200	—	g



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Safety



Cautions

This specifications documents provide users with relevant precautions for installation, commissioning, operation and maintenance. Please read carefully before installation and use. This manual is provided with the product, please keep it in a proper place for reference during maintenance.

The device must be used according to the manufacturer specifications, otherwise there are risks to damage the device, other equipment connected, and safety risks to operators.

Always inspect the device and its accessories, and confirm they are in good status before energize the device.

If you find any damage to the device housing, fixing, power cord, connecting cables, or connected equipment, immediately disconnect the device from the power source.

If you have concerns about the safe operation of the equipment, you should immediately shut down the equipment and the corresponding accessories, and get in touch with the technical support department of our company as soon as possible to communicate and solve the problem.



Danger

The current sensor is not allowed to be used when the secondary output is open-circuited, that is, when the primary has current or the sensor is powered on, the secondary output terminal is not allowed to be disconnected; only when the bus has no current and the sensor is not powered on, the current output terminal of the sensor can be disconnected . Otherwise, high voltage may be induced and there is a danger of electric shock or equipment damage.

When you need to move the product, please be sure to cut off the power first and unplug all the connecting cables connected to it.



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Operating Status Instructions

◇ Normal status :

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

After the device is powered on, the green indicator light is on when the device is running normally.

◇ Fault status :

The green light will be off when the transducer is in fault mode.

Trouble-shooting:

a) When the green light is off, the power supply should be checked as the first step;

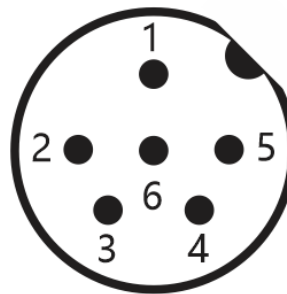
b) When the power supply is normal, if the green light is off, that the transducer is working in non-zero flux mode. At this time, if the primary current is over the specified measurement range, that the transducers will be in overload mode, the secondary and primary currents are not in proportional. In overload mode, the output current always remains at the maximum output state, the green light is off. When the input current returns to the specified measurement range, the transducer recover to normal condition, the green light return to be steady on.

Connection system

6-Pin aviation plug terminal pin function definition

Pin No.	1	2	3	4	5	6
Definition	+15V	-15V	GND	Output	Interlock+	Interlock-

- 1、 +15V
- 2、 -15V
- 3、 GND
- 4、 Output
- 5、 Interlock+
- 6、 Interlock-



Note:

- 5. Interlock+ : Internal signal, no need to connect
- 6. Interlock- : Internal signal, no need to connect

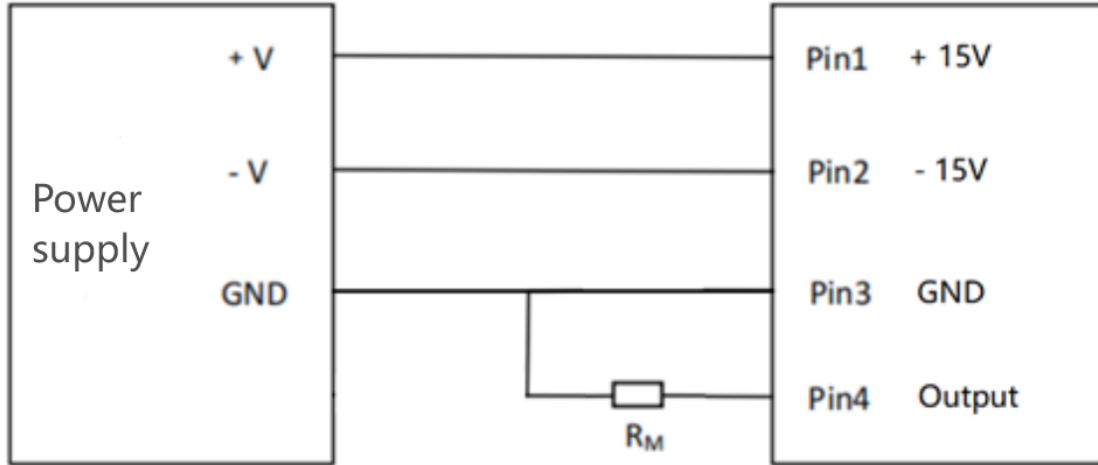


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Diagram for external terminal connection



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 :

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



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Dimensions

Unit: mm

