



- High Accuracy
- Broad Bandwidth
- Low Zero-drift

Shenzhen Hangzhi Precision Electronics Co., Ltd.

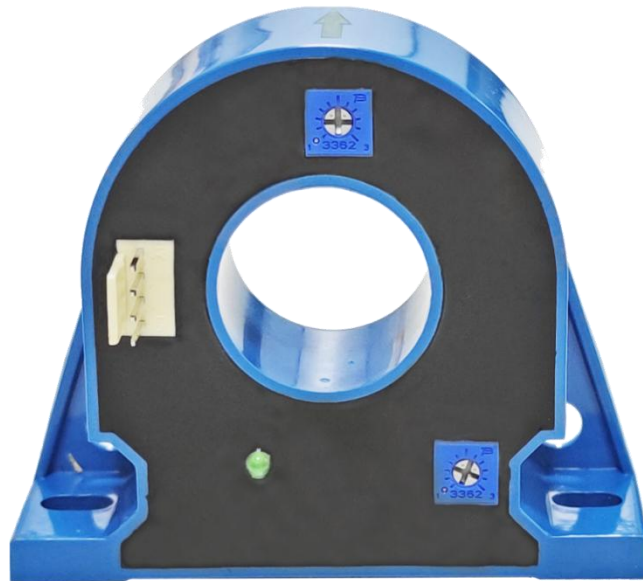
Product Model: RIT001M
Measurement Range: $\pm 0.01A$
Accuracy: 1.0%

RIT001M Residual Current Transducer

RIT001M 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

- ◇ Industry Control
- ◇ Railway
- ◇ Test instrumentation
- ◇ Medical Equipment
- ◇ Power and power grid
- ◇ New Energy

Electrical Performance

Parameter	Symbol	Measuring Conditions	Min	Typ	Max	Unit
Primary nominal current	I_{PN}	—	0	0.01	—	A
Primary overload current	I_P	—	—	200% I_{PN}	—	A
Power supply voltage DC	U_C	—	± 14.2	± 15	± 15.8	V
Current consumption	I_C	—	± 30	—	—	mA
Output voltage	U_{SN}	—	0	± 1	—	V

Accuracy Measurement

Parameter	Symbol	Measuring Conditions	Min	Typ	Max	Unit
Accuracy	X_G	Input direct current, rated range	—	—	1.0	%
Linearity error	ϵ_L	Full range	—	—	0.2	%
Zero offset voltage	I_{OT}	Full temperature range	—	—	± 10	mV
Dynamic response time	t_r	Rised to 90% I_{PN}	—	—	2	ms
Frequency bandwidth (-3dB)	BW	—	0	—	100	kHz



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Safety Characteristics

Parameter	Symbol	Measuring Condition	Value	Unit
Insulation voltage / Between primary and secondary	Ud	50Hz,1min	5	KV
Impulse withstand voltage / Between primary and secondary	Uw	50 μ s	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	—	—	80 \pm 10	—	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

◇ During normal operation, the green light is always on :

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

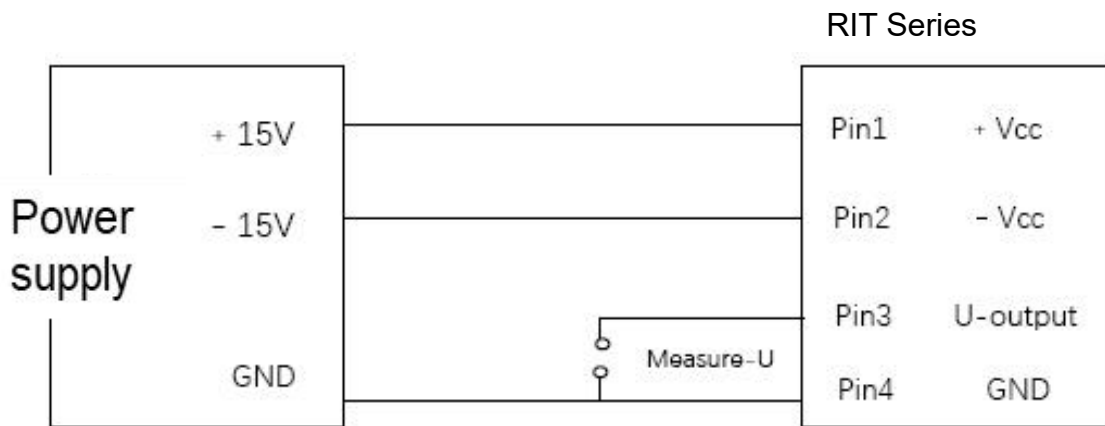
◇ When the current is overloaded or the power supply is abnormal, the green light is off:

When the green light is not on, you should first check whether the power supply of the current transducer is normal.

Connection system

1. Pin function definition

Pin No.	1	2	3	4
Definition	+15V Supply	-15V Supply	U_Output	GND



Test instruction :

After the current flows through the primary hole of the transducer, a voltage is directly outputted from the interface. The primary current I_P can be obtained by measuring the output voltage U_{OUTPUT} :

$$I_P = K_N * U_{OUTPUT}$$



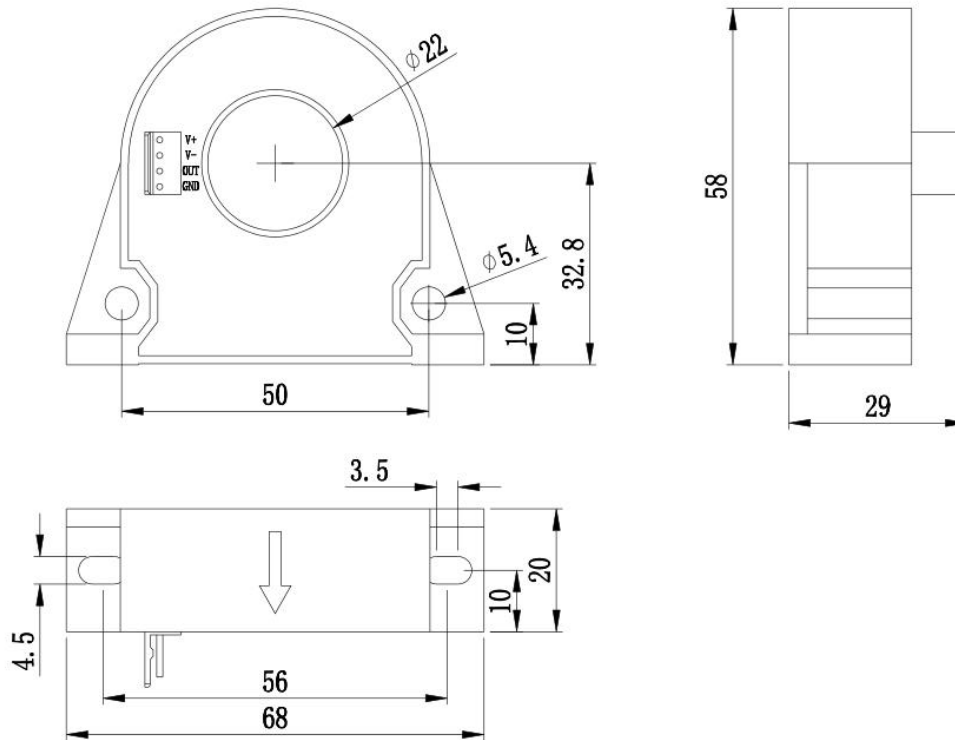
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Dimensions

Unit: mm



Packing List & Dimensions

Package dimensions (L x W x H): 120mm x 103mm x 96mm

Item	Description	Quantity	Comments
RIT001M	Current Transducer	1	/
	Terminal	2	/
	Plastic shell	2	/