

## RIT002 Residual Current Transducer

RIT002 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     | 0.02          | —     | A    |
| Primary overload current  | $I_P$     | —                    | —     | 200% $I_{PN}$ | —     | A    |
| Operating voltage         | $V_C$     | —                    | ±14.2 | ±15           | ±15.8 | V    |
| Power consumption current | $I_{PWR}$ | —                    | ±30   |               |       | mA   |
| Output voltage            | $V_{SN}$  |                      | 0     | ±1            | —     | V    |

## Accuracy Measurement

| Parameter                  | Symbol       | Measuring Conditions              | Min | Typ | Max | Unit |
|----------------------------|--------------|-----------------------------------|-----|-----|-----|------|
| Accuracy                   | $X_G$        | Input direct current, rated range | —   | —   | 1.0 | %    |
| Linearity                  | $\epsilon_L$ | 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) | F            | —                                 | 0   | —   | 100 | kHz  |

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## Safety Characteristics

| Parameter   | Symbol | Measuring Condition | 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 <sub>A</sub> | —                   | -40 | —      | +85 | °C   |
| Ambient storage temperature   | T <sub>S</sub> | —                   | -55 | —      | +95 | °C   |
| Relative humidity             | RH             | —                   | 20  | —      | 80  | %    |
| Mass                          | M              | —                   | —   | 370±50 | —   | g    |

## Operating Status Instructions

### ◇ Normal status:

The green light 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 as the first step.

### ◇ Fault status:

The green light is blinking when the current overloads.

Trouble-shooting:

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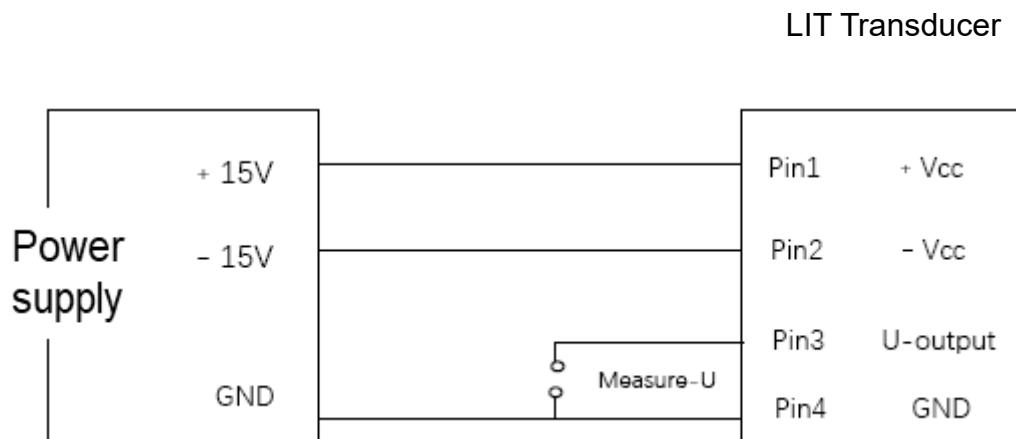


If the power supply is normal, the green light indicator keeps on blinking, then the primary current is over the specified measurement range and the transducer will be in overload mode. In this mode, the transducer will be working in non-zero flux mode, the secondary and primary currents are not in proportion. When the current recovers to the specified measurement current range, the current transducer returns to normal, green light indicator will be on.

## Connection system

### 1. Phoenix terminal 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  $U_{OUTPUT}$ :

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





## Dimensions

Unit: mm

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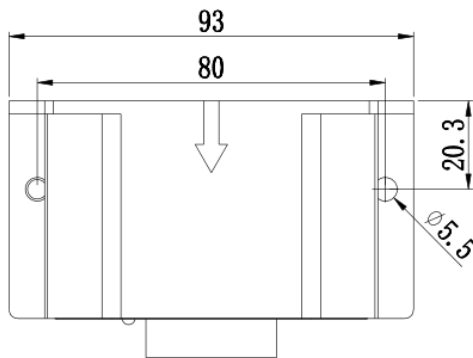
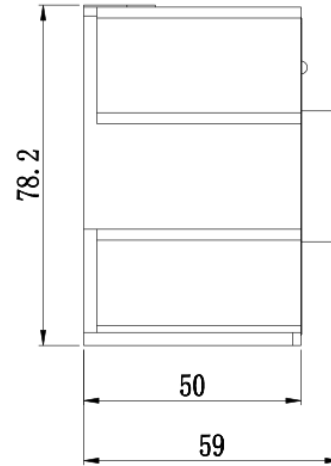
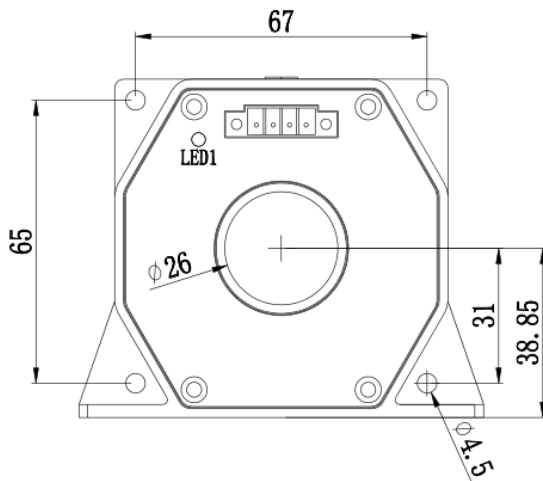
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