



## AIT5000-10V High-Precision Current Transducer

AIT5000-10V 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



#### SHENZHEN HANGZHI PRECISION ELECTRONICS CO.,LTD

Add: Rm 531, Building B, Huayuan Hi-Tech Innovation Park,  
Baoyuan Rd, Bao'an District, Shenzhen, China P.R.

Email: [sales@hangzhiprecision.com](mailto:sales@hangzhiprecision.com)

Tel: +86 (0)755 8259 3440

Technical Support: [support@hangzhiprecision.com](mailto:support@hangzhiprecision.com)

Website: [www.hangzhiprecision.com](http://www.hangzhiprecision.com)





## 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	$I_{PN\_DC}$	—	—	±5000	—	Adc
Primary nominal alternating current*	$I_{PN}$	—	—	3536	—	Aac
Primary overload current	$I_{PM}$	1 Minute	—	—	±5500	Adc
Operating Voltage	$V_C$	—	—	220	—	Vac
Rated output voltage	$U_{PN\_DC}$	Rated primary voltage (DC)	—	±10	—	V
Conversion ratio	$K_N$	—	—	2	—	mV/A
Output load current	—	—	—	—	5	mA
Output impedance	$R_M$	—	—	—	10	mΩ

\* refers to AC effective value

### SHENZHEN HANGZHI PRECISION ELECTRONICS CO.,LTD

Add: Rm 531, Building B, Huayuan Hi-Tech Innovation Park, Baoyuan Rd, Bao'an District, Shenzhen, China P.R.

Email: [sales@hangzhiprecision.com](mailto:sales@hangzhiprecision.com)

Tel: +86 (0)755 8259 3440

Technical Support: [support@hangzhiprecision.com](mailto:support@hangzhiprecision.com)

Website: [www.hangzhiprecision.com](http://www.hangzhiprecision.com)





## Accuracy Measurement

Parameter	Symbol	Measuring Conditions	Min	Typ	Max	Unit
Accuracy	$X_G$	Input direct current, $25\pm 10^\circ\text{C}$	—	—	50	ppm
Linearity	$\epsilon_L$	—	—	—	30	ppm
Temperature stability	$T_C$	—	—	—	0.5	ppm/K
Time stability	$T_T$	—	—	—	0.5	ppm/month
Power supply interference	$T_V$	—	—	—	1	ppm/V
Dynamic response time	$t_r$	$di/dt=1.5/\mu\text{s}$ , rised to $90\%I_{PN}$	—	—	7	$\mu\text{s}$
Voltage change rate	$dv/dt$	—	1.5	—	—	V/ $\mu\text{s}$
Frequency bandwidth (-3dB)	F	—	0	—	300	kHz
Zero offset voltage	$V_{OT}$	Full temperature range	—	—	$\pm 5$	$\mu\text{V}$

## 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	50 $\mu\text{s}$	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	600	V

## General Characteristics

Parameter	Symbol	Measuring Conditions	Min	Typ	Max	Unit
-----------	--------	----------------------	-----	-----	-----	------

### SHENZHEN HANGZHI PRECISION ELECTRONICS CO.,LTD

Add: Rm 531, Building B, Huayuan Hi-Tech Innovation Park,

Baoyuan Rd, Bao'an District, Shenzhen, China P.R.

Email: [sales@hangzhiprecision.com](mailto:sales@hangzhiprecision.com)

Tel: +86 (0)755 8259 3440

Technical Support: [support@hangzhiprecision.com](mailto:support@hangzhiprecision.com)

Website: [www.hangzhiprecision.com](http://www.hangzhiprecision.com)





Ambient operating temperature	T <sub>A</sub>	—	-40	—	+85	°C
Mass	M	—		17500±200		g

## Indicator light description of transducer

### ◇ Normal status:

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

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

### ◇ Fault status:

The green light will not 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) If the power supply is normal, then the primary current is over the specified measurement range and the transducers will be in overload mode.

In this mode, the transducers will be working in non-zero flux mode, that the secondary current remains at specified maximum output, the secondary voltage and primary currents are not in proportion.

## Usage

The using steps are as follows:

Step 1: Connect the transducer to the control box by a special connection wire.

Step 2: Insert the AC 220V power plug into the control box and turn on the power supply switch.



Step 3: Pass the current cable through the transducer aperture, and pay attention to the current direction.

Step 4: The voltage output interface is connected to a voltage measuring instrument or a voltage sampling circuit, and attention that the voltage output interface should not be short-circuited.

## Application connections and instructions

1. Control box power supply wiring:

The power interface of the control box is directly connected to the 220V power supply;

Red terminal: secondary voltage output positive end;

Black terminal: secondary voltage output negative end;

2. Connection between control box and winding coil

Insert the D-Sub9 male head on the winding coil directly into the D-Sub9 female head of the control box and fix it with screws.

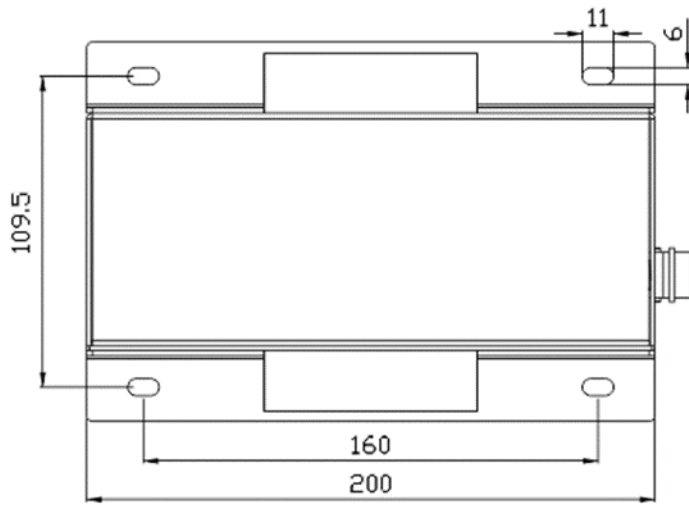
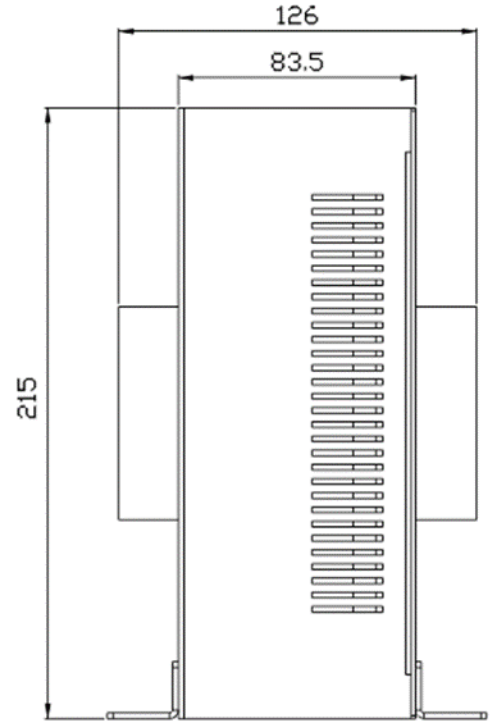
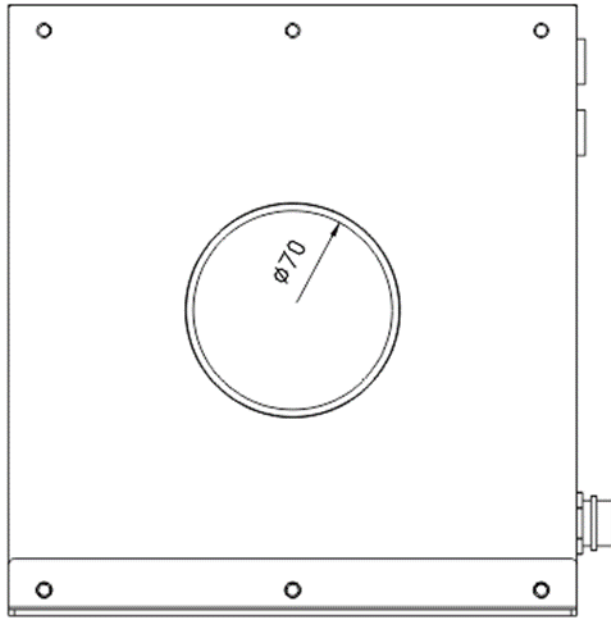
3. Test specification:

By measuring the voltage value  $U_M$  of the output port, the primary current  $I_P$  can be calculated:

$$I_P = K_N * U_M$$

## Dimensions

Unit: mm



**SHENZHEN HANGZHI PRECISION ELECTRONICS CO.,LTD**

Add: Rm 531, Building B, Huayuan Hi-Tech Innovation Park,  
Baoyuan Rd, Bao'an District, Shenzhen, China P.R.

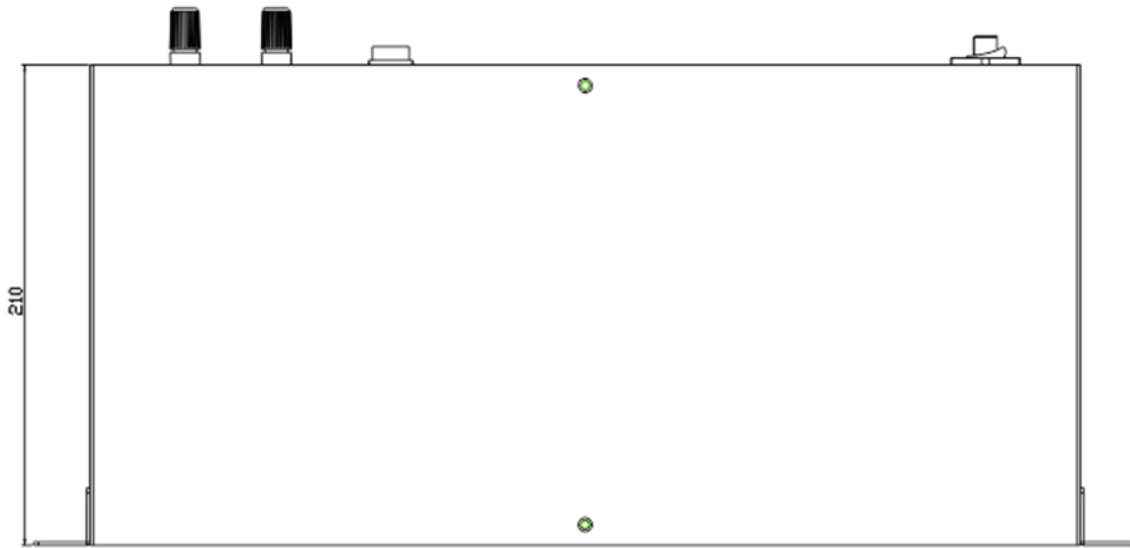
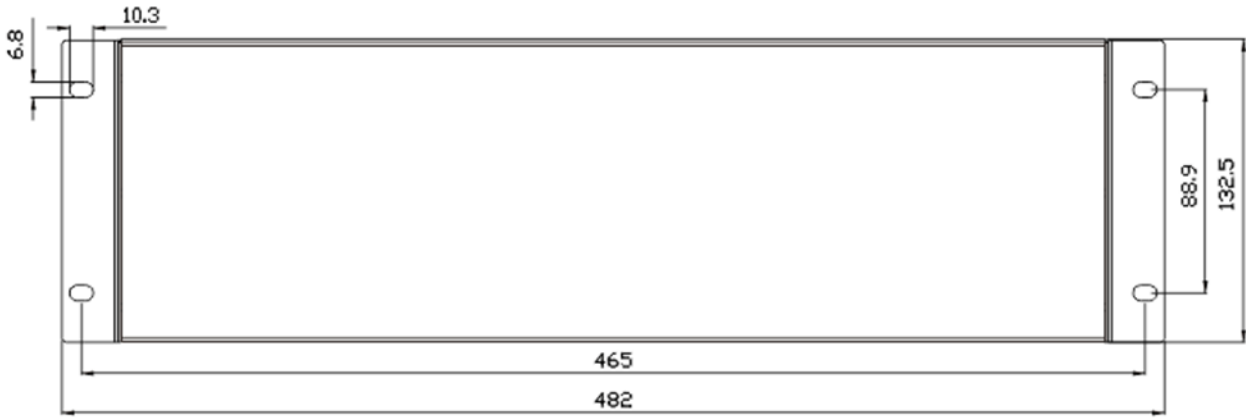
Email: [sales@hangzhiprecision.com](mailto:sales@hangzhiprecision.com)

Technical Support: [support@hangzhiprecision.com](mailto:support@hangzhiprecision.com)

Tel: +86 (0)755 8259 3440

Website: [www.hangzhiprecision.com](http://www.hangzhiprecision.com)





**SHENZHEN HANGZHI PRECISION ELECTRONICS CO.,LTD**

Add: Rm 531, Building B, Huayuan Hi-Tech Innovation Park,  
Baoyuan Rd, Bao'an District, Shenzhen, China P.R.

Email: [sales@hangzhiprecision.com](mailto:sales@hangzhiprecision.com)

Technical Support: [support@hangzhiprecision.com](mailto:support@hangzhiprecision.com)

Tel: +86 (0)755 8259 3440

Website: [www.hangzhiprecision.com](http://www.hangzhiprecision.com)

