



- High Accuracy
- Broad Bandwidth
- Low Zero-drift

Shenzhen Hangzhi Precision Electronics Co. Ltd.

DIT Series

High-Precision Digital Current Transducer

User Manual

V1.7



Founded in 2017, Shenzhen Hangzhi Precision Electronics Co., Ltd. is a technology-leading enterprise dedicated to the development, production, sales and customization of high-precision current transducers and measuring instruments. We will strive to build a well-known brand of precision current transducers and precision instruments in the DC field, and become a leading international leader in precision electronics in the field of DC systems.

Based on multi-faceted technology integration and innovation, Shenzhen Hangzhi Precision Electronics Co., Ltd. has developed the industry's first high-precision digital current transducer and an analog current transducer featuring high precision, low costs, low zero drift and low temperature drift. This series of products reduce industry costs, improve industry efficiency, enhance user experience, and create value for customers. The company's products have won many achievements in the national innovation and entrepreneurial competition, and won wide attention and support from all walks of life.

As a company with strong sense of responsibility and mission, we adhere to multi-point zero-flux technology-led approach, with client-oriented service and customized products, and improve the operating quality by successful capital financing. We are making our efforts to build an innovative sharing enterprise.

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1 Preface



Thank you for choosing HANGZHI High-Precision Digital Current Transducer (DIT Series). In order to make full and lasting use of this product, please keep the manual properly. The DIT series current transducer is referred as "this instrument" below.

1.1 Packing Checklist

When this instrument is delivered to you, please check if any abnormalities or damages occur during transportation before using it. In particular, please pay attention to accessories, panel, keys and other items. In case of damage or failure to work, please contact the agent or HANGZHI service center.

Please keep the packaging material for delivery properly for future transportation.

Please make sure that the contents of the packing are correct.

| Packing checklist | | | |
|--|---|------------------------|--|
| Description | Product photo | Specifications | Description |
| <input type="checkbox"/> This instrument |  | See Part 3 | High-precision digital current transducer |
| <input type="checkbox"/> User manual (This manual) |  | Soft copy or hard copy | To describe the operational method, specifications, etc. |

Remarks:

- 1) This instrument has been programmed when it was manufactured, and the latest version can be downloaded from the homepage of our company
- 2) Instructions for use in other languages are available at our website : <http://www.hangzhicn.com/>

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1.2 Accessories

This instrument has the following options (to be sold separately) . Please contact the agent or sales center if you need purchase.

| Option list | | | |
|---|---|---|---|
| Item | Product photo | Specifications | Description |
| <input type="checkbox"/> DB9 connection line |  | 5 m/6*0.3mm ² DB9 Male to female | It can be used to connect between DB9 power supply interface and HANGZHI power box. |
| <input type="checkbox"/> USB to RS232 connection line |  | 1.8 m/USB2.0 /RS232 | It can be used to transfer PC interface from USB2.0 to RS232. |
| <input type="checkbox"/> RS232 connection line |  | 1 m/3*0.3mm ² DB9 to Phoenix terminal | It can be used to connect between RS232 and communication interface of this device. |
| <input type="checkbox"/> USB to RS485 connection line |  | 1.5 m/USB2.0/RS485 | It can be used to transfer PC interface from USB2.0 to RS485. |
| <input type="checkbox"/> RS485 connection line |  | 1 m/2*0.3mm ² DB9 to Phoenix terminal | It can be used to connect between RS485 and communication interface of this device. |

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2 Summary

2.1 Product Summary

As a new generation digital transducer, the products use a brand-new software and hardware design, which can simultaneously measure single-phase AC and DC current, frequency and so on. The products can be widely used in metrology institutes, government inspection agencies and other metering areas.

The multi-point zero-flux technology system 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.

2.2 Key Technologies

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

2.3 Features

- Advanced zero-flux closed-loop transducer
- 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

2.4 Application Domain

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

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3 Product Selection Guide and Technical Parameters

3.1 Product Selection

| DIT series product selection | | | | |
|------------------------------|------------|------------|-------------|-------------|
| | AC current | DC current | AC accuracy | DC accuracy |
| DIT60SG | 42A | ±60A | 0.05% | 0.02% |
| DIT200SG | 141A | ±200A | 0.05% | 0.02% |
| DIT300SG | 212A | ±300A | 0.05% | 0.02% |
| DIT400SG | 282A | ±400A | 0.05% | 0.02% |
| DIT600SG | 424A | ±600A | 0.05% | 0.02% |
| DIT1000SG | 707A | ±1000A | 0.05% | 0.02% |

3.2 Technical Parameters (RG-Measuring Range)

| DIT series product technical parameters | | | | | | | |
|---|-----------------------------|-------------------------|--------|--------|--------|--------|---------|
| | | DIT60 | DIT200 | DIT300 | DIT400 | DIT600 | DIT1000 |
| AC current measurement | Measuring limit | 42A | 141A | 212A | 282A | 424A | 707A |
| | Measuring range | (0~110%)RG | | | | | |
| | Accuracy | ±0.05%RG | | | | | |
| | Resolution | 0.01%RG | | | | | |
| DC current measurement | Measuring limit | ±60A | ±200A | ±300A | ±400A | ±600A | ±1000A |
| | Measuring range | (0~110%)RG | | | | | |
| | Accuracy | ±0.02%RG | | | | | |
| | Resolution | 0.005%RG | | | | | |
| Frequency measurement | Measuring range | 40Hz~70Hz | | | | | |
| | Accuracy | ±0.01Hz | | | | | |
| | Resolution | 0.001Hz | | | | | |
| Other parameters | Working power voltage range | ±15VDC | | | | | |
| | Working temperature | 10°C~35°C | | | | | |
| | Relative humidity | ≤85%, Non-corrosive gas | | | | | |

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4 Connector Information

4.1 DB9 Terminal Definition (DB9 Male)

| Pin | Definition | Description | Connector picture |
|-----|-------------|-------------------|-------------------|
| 1 | N.C | Not connected | |
| 2 | N.C | Not connected | |
| 3 | N.C | Not connected | |
| 4 | GND | Ground | |
| 5 | -15V Supply | Power supply -15V | |
| 6 | N.C | Not connected | |
| 7 | N.C | Not connected | |
| 8 | N.C | Not connected | |
| 9 | +15V Supply | Power supply +15V | |

4.2 Phoenix Terminal Definition

| Pin No. | Definition | Description | Connector picture |
|---------|------------|--------------------|-------------------|
| 1 | +5V Output | Power supply 5V | |
| 2 | RS232_TX | RS232 transmission | |
| 3 | RS232_RX | RS232 reception | |
| 4 | GND | Signal isolation | |
| 5 | RS485_A | RS485A | |
| 6 | RS485_B | RS485B | |

Remarks: +5V power is for the module to provide power to external devices.

4.3 Running Lights

| Running lights | Description |
|-----------------------|--|
| Running lights (LED1) | When the transducer is running normally, the green indicator light is on. When the transducer is working abnormally, the green indicator is off. |
| Running lights | The green indicator is blinking while the device is running normally. |
| Communication lights | When the device is communicating normally, the yellow indicator is blinking. |



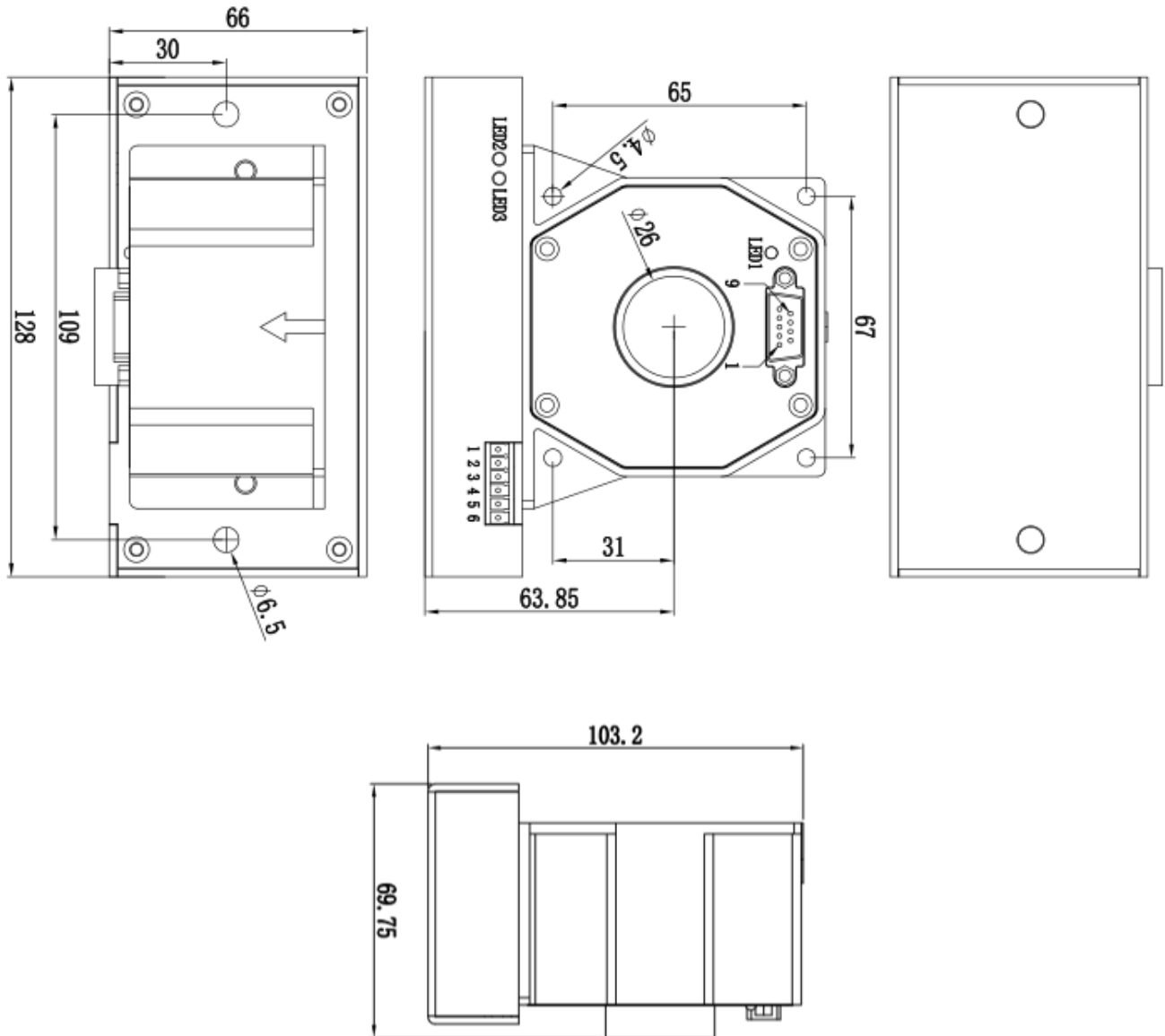
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5 Dimensions

Unit: mm, if not specified, the dimensional deviation is $\pm 2\text{mm}$ or 1%, whichever is greater.

5.1 DIT60-SG、DIT200-SG、DIT300-SG、DIT400-SG Model



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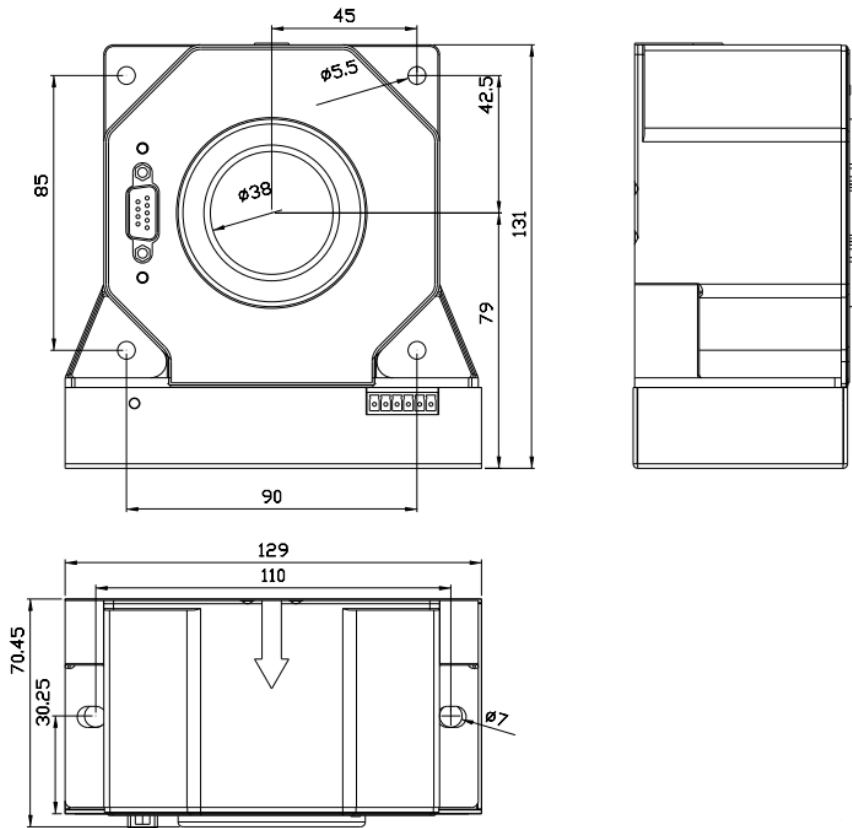
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5.2 DIT600-SG、DIT1000-SG Model



Attachment1 Communication Agreement

Please refer to 《HZP communication agreement》.

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