

# High Accuracy Transducer

## CTA Series

CTA60 60A /DC ~800kHz

CTA200 200A/DC ~500kHz

CTA700 700A/DC ~100kHz

CTA1000 1000A/DC~500kHz



Shenzhen Zhiyong Electronics Co., Ltd

## Preface

First of all, thank you for purchasing our products, this instruction manual is the description about the function, usage, operation attention points, etc. Before use, please read the instructions carefully and use correctly.

Manual annotation will use the following symbols to distinguish.



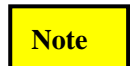
**This symbol means it is harmful to the machine and human body; you must strictly follow the instruction manual to operate.**



**In the case of wrong operation, the user risk injury. The content under this mark records the relevant matters needing attention to avoid such dangers.**



**The user may suffer minor injuries and material damage with the wrong operation. To avoid such situation, the matters under this mark need attention.**



**This symbolizes important note about how to use the machine.**

To the safely use the machine, you must abide by the following safety precautions strictly. The violation against the manual is likely to damage the protective function of the machine. In addition, the company is not responsible for any safety problem caused by the violation of matters needing attention in operation.



**Warning**

- Please do not continue testing if the machine or the user is wet, there could result in a deadly electric shock.
- Please be careful to get an electric shock, pay attention to the highest input voltage.



**Note**

- During transporting and operating, please avoid vibration and impact, especially the impact caused by fall.
- Please avoid storing and operating under bad condition such as, direct sunlight, high temperature, damp or frost environment, which will cause deformation and worsen insulation, thus cannot meet the requirement.
- Before using, please check if there are malfunctions caused by the bad storing condition and transportation. When malfunction is confirmed, please contact the commercial agent or operator nearby.
- Please do not use the machine in dusty and wet environment since it is neither waterproof nor dustproof.

**CTA Series Brief Summary**

Type	Max current		Bandwidth	Current transfer ratio
	DC	RMS		
CTA60	60A	42A	800kHz	1:600
CTA200	200A	141A	500kHz	1:1000
CTA700	700A	495A	100kHz	1:1750
CTA1000	1000A	707A	500kHz	1:1000

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## 1. Summary

CTA series is the ultra-accuracy transducer that can measure both DC and AC. Its current range covers from 60A to 1000A with precision of 0.03% and 800 kHz bandwidth. By using Flux-gate technic, the CTA series realized high accurate measurement, excellent linearity, low DC offset, lower temperature drift, low insertion loss, high immunity to external field and low noise.

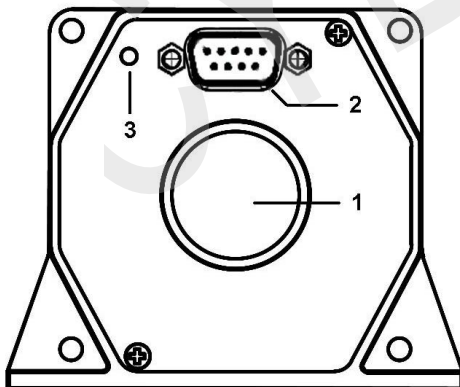
CTA series transducer includes CTA60(60A) , CTA200(200A) , CTA700(700A) and CTA1000(1000A). CTA60 and CTA200 have measurement aperture of 26mm; CTA700 and CTA1000 have measurement aperture of 30mm. CTA series transducers have standard 9 pin D-Sub male interface and LED Indicator, making the system not only easy to use but also reliable.

## 2. Application

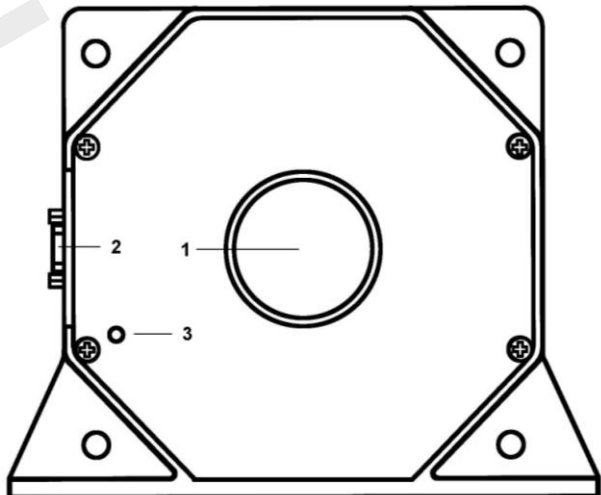
- ✧ High accuracy and highly stable current feedback unit.
- ✧ Current calibration unit.
- ✧ Energy measurement.
- ✧ Medical Equipment.
- ✧ New energy vehicle electronics.

## 3. Instruction about the product and accessories

### ■ Product

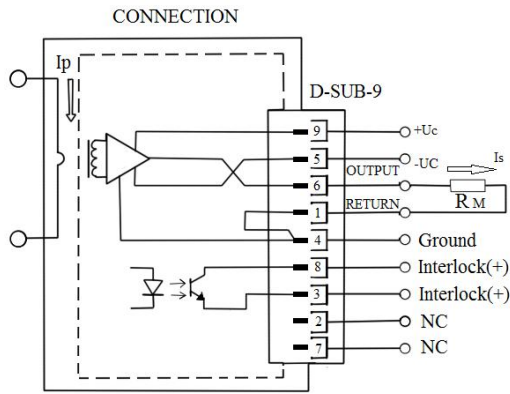


CTA60、 CTA200 Figure

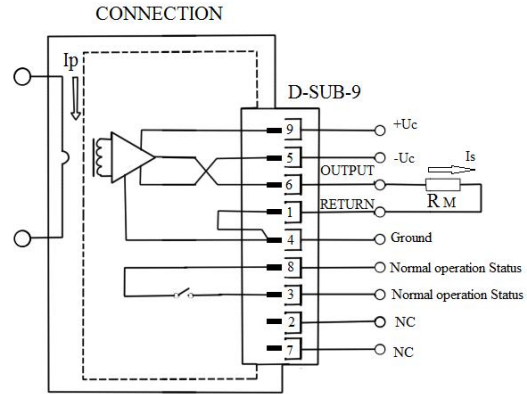


CTA700、 CTA1000 Figure

- ✧ **Transducer PTH (Primary Through Hole) :** The input interface of the conductor under test, measuring the current under test.  
CTA60, CTA200 PTH Diameter: 26mm; CTA700, CTA1000 PTH Diameter: 30mm
- ✧ **Communication Port:** including current output, power supply interface, and status indicator function. The diagram below represents the pin configuration.



CTA60, CTA200 Interface Diagram



CTA700, CTA1000 Interface Diagram

❖ **Status Indicator:** When the machine is working properly, the green light will on; when there's any situation, the light will be off.

■ **Accessories**



**Power supply ( PS200 Series (without cable) ): Transducer power supplying equipment**

**PS202: two channels; PS204: four channels**

**Cable (CK-330): Connecting transducer, power supply and current output port**

**Note**

❖ **Cable CK-330:** Standard Length is 2 meter, customization accepted. Accessories are sold separately.

❖ **Power Supply PS200 Series: PS202:** two channels; **PS204:** four Channels; every channel with  $\pm 15/1.5A$  of Voltage Output. Accessories are sold separately.

## 4. Specification

Test temperature: 25°C; Voltage Supplied:  $\pm U_c = \pm 15V$

Type	CTA60		CTA200		CTA700		CTA1000	
Primary nominal continuous Direct current ( $I_{PN DC}$ )	60A		200A		700A		1000A	
Primary nominal rms current ( $I_{PN}$ )	42A		141A		495A		707A	
Primary current, measuring range ( $I_{PM}$ )	$\pm 60A$		$\pm 200A$		$\pm 700A$		$\pm 1000A$	
Conversion ratio $K_N$	1:600		1:1000		1:1750		1:1000	
Secondary current ( $I_s$ )	$\pm 100mA$		$\pm 200mA$		$\pm 400mA$		$\pm 1000mA$	
Accuracy (DC,50/60Hz sine wave)	$\leq \pm(0.03\%$ of the readings $+30\mu A)$							
Bandwidth( $\pm 3dB$ )	800kHz		500kHz		100kHz		500kHz	
Measuring resistance over operating current temperature and supply voltage range	$R_{M min}$	$R_{M max}$	$R_{M min}$	$R_{M max}$	$R_{M min}$	$R_{M max}$	$R_{M min}$	$R_{M max}$
	0	60 $\Omega$	0	30 $\Omega$	0	2.5 $\Omega$	0	3 $\Omega$
	Figure 1		Figure 2		Figure 3		Figure 4	
Overload capability @ pulse of 100ms	$\pm 300A$		$\pm 1000A$		$\pm 3500A$		$\pm 4000A$	
Supply voltage	$\pm 15V(\pm 5\%)$							
Supply current	$\leq 80mA + I_s$							
Rated operational voltage RMS (IEC61010-1)	Basic insulation	2000V	2000V	1600V	300V			
	Reinforced insulation	600V	600V	300V	150V			
Max measurement aperture	26mm		26mm		30mm		30mm	
Second interface	D-Sub-9Pin							
Fastening screws and tightening torque	M4 steel screw *4; 2.8Nm M5 steel screw *2; 3.7Nm				M5 steel screw *4; 3.7Nm M6 steel screw *2; 4.4Nm			

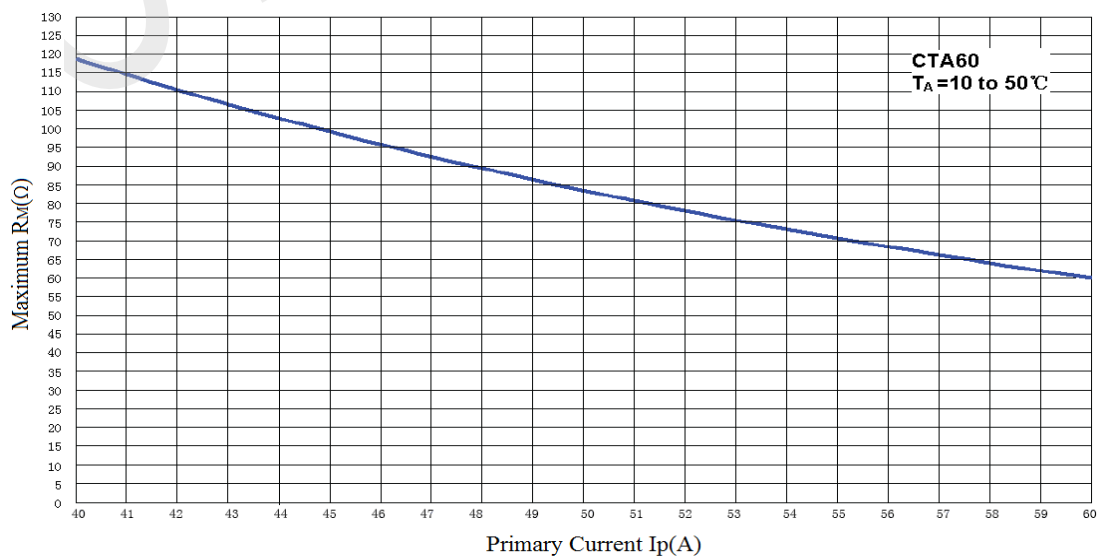


Figure 1 CTA60 Maximum measuring resistor versus primary current

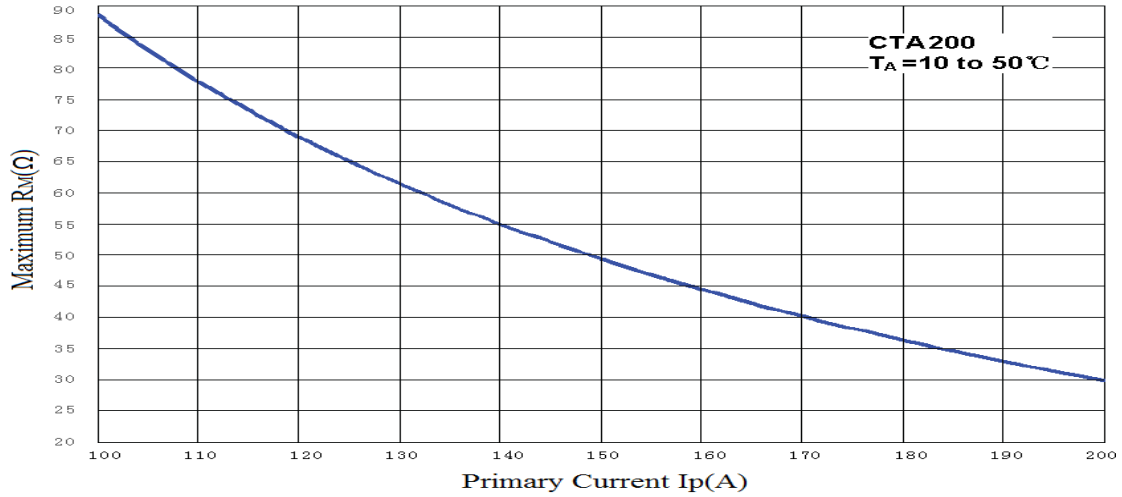


Figure 2 CTA200 Maximum measuring resistor versus primary current

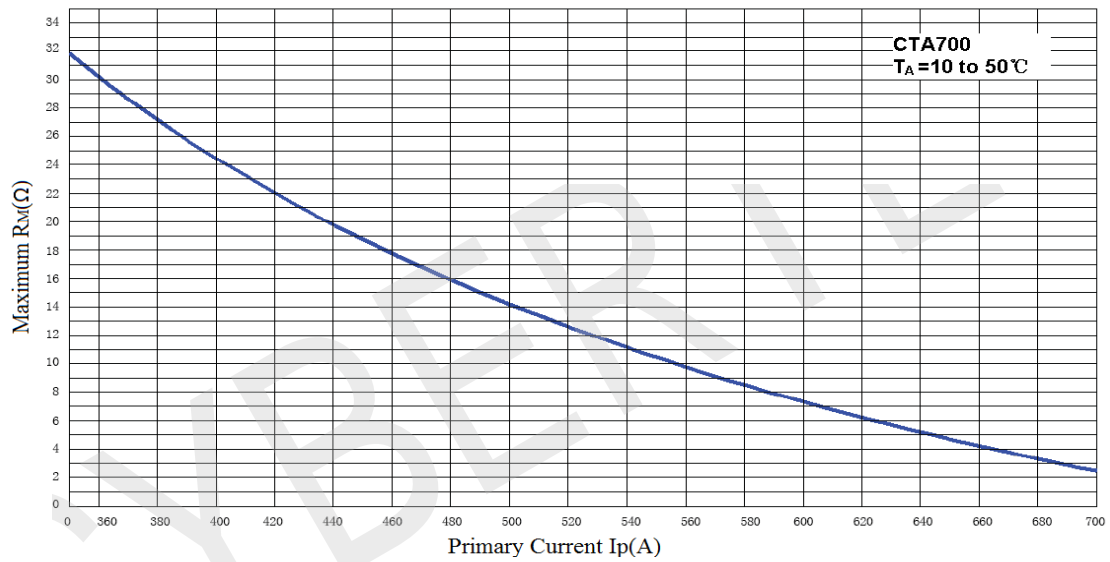


Figure 3 CTA700 Maximum measuring resistor versus primary current

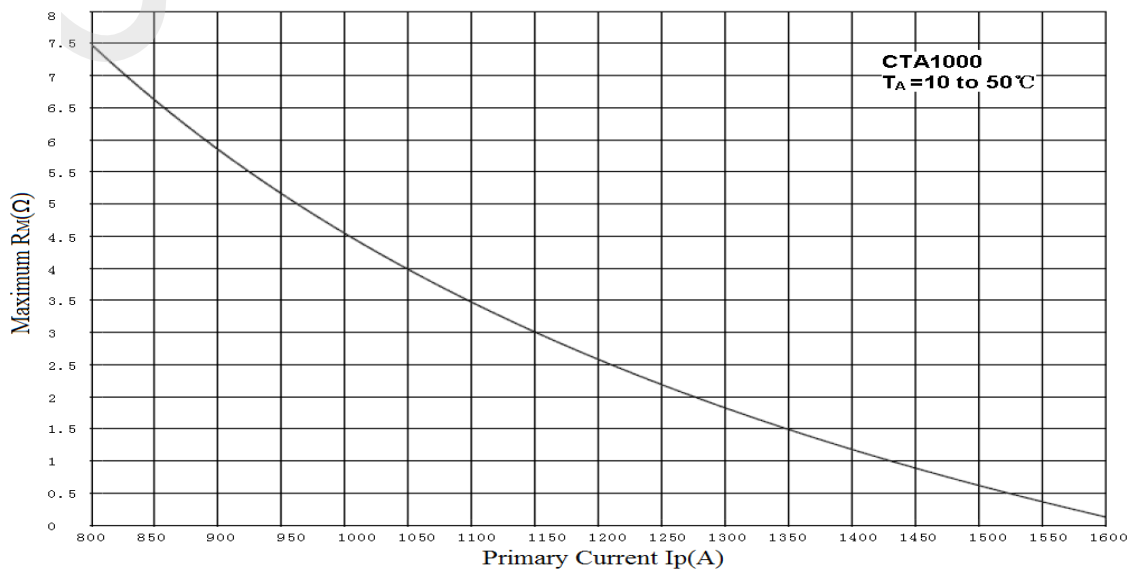


Figure 4 CTA1000 Maximum measuring resistor versus primary current



## 5. Operation Instruction

### 5.1 Overload Protection

When Primary Current surpassed the overload trigger point, the core flux-gate will be fully saturated, and then, the transducer will switch from the normal mode to overload mode.

The overload trigger point should be at least 1.1 times of Primary Nominal Continuous Direct Current. The actual overload point is related to overload resistor and working condition.

After the overload, the transducer will enter park mode. The transducer will automatically recover to normal status, when the primary current reduces into normal range ( $\pm$ Primary DC),

(Probably need to take a few seconds)

In the overload mode:

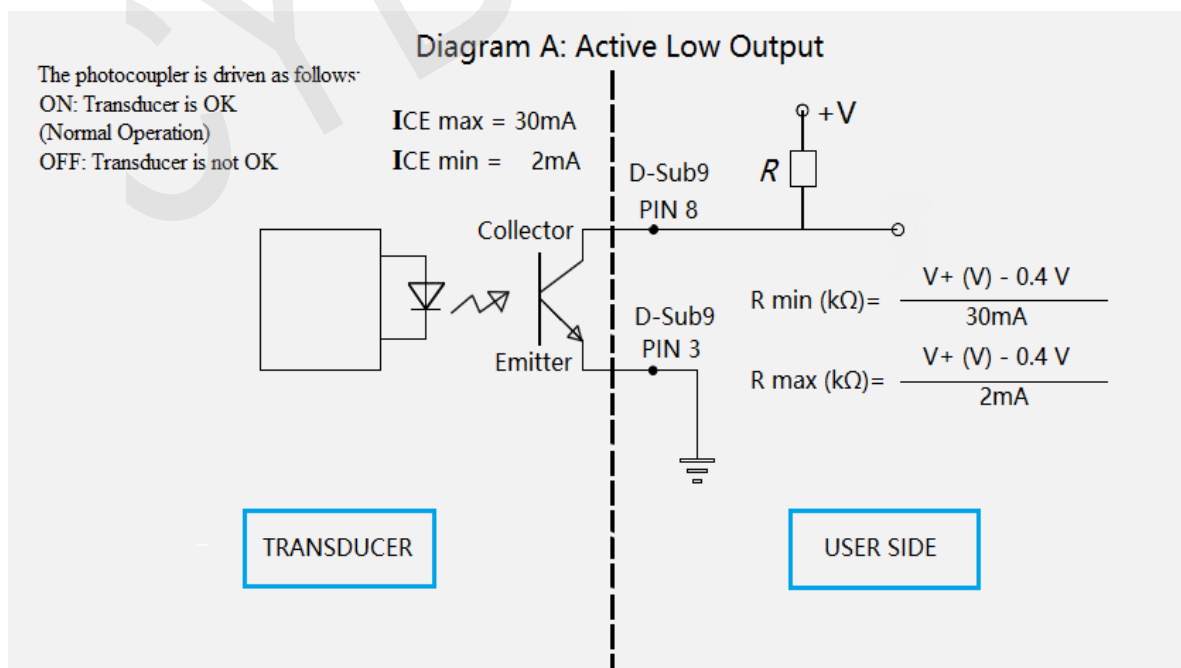
- ✧ Secondary Current output will be low frequency triangular wave, the output range of CTA60 will be  $\pm 100\text{mA}$ , the output range of CTA200 will be  $\pm 200\text{mA}$ , the output range of CTA700 will be  $\pm 400\text{mA}$ , and the output range of CTA1000 will be  $\pm 1000\text{mA}$ .
- ✧ Output port pin 3 and 8 disconnected
- ✧ Status Indicator will be off.

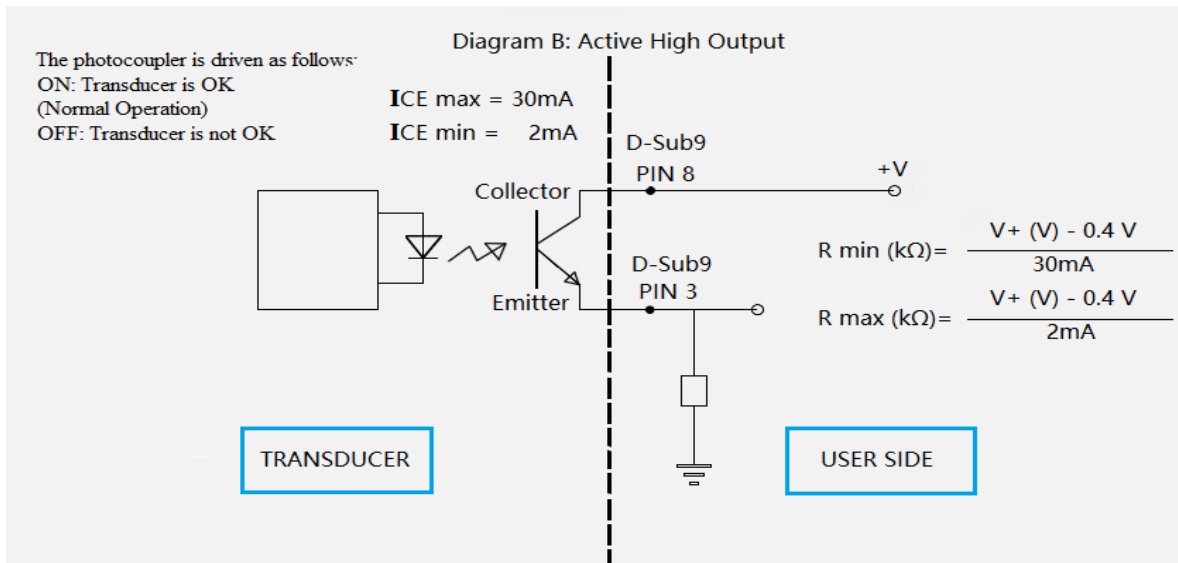
**Note**

To make sure recover from saturation state to normal state, the overload resistance must not surpass the value below: CTA60:60 $\Omega$ ; CTA200:30 $\Omega$ ; CTA700:2.5 $\Omega$ ; CTA1000:3 $\Omega$

### 5.2 Status/Interlock Interface summary

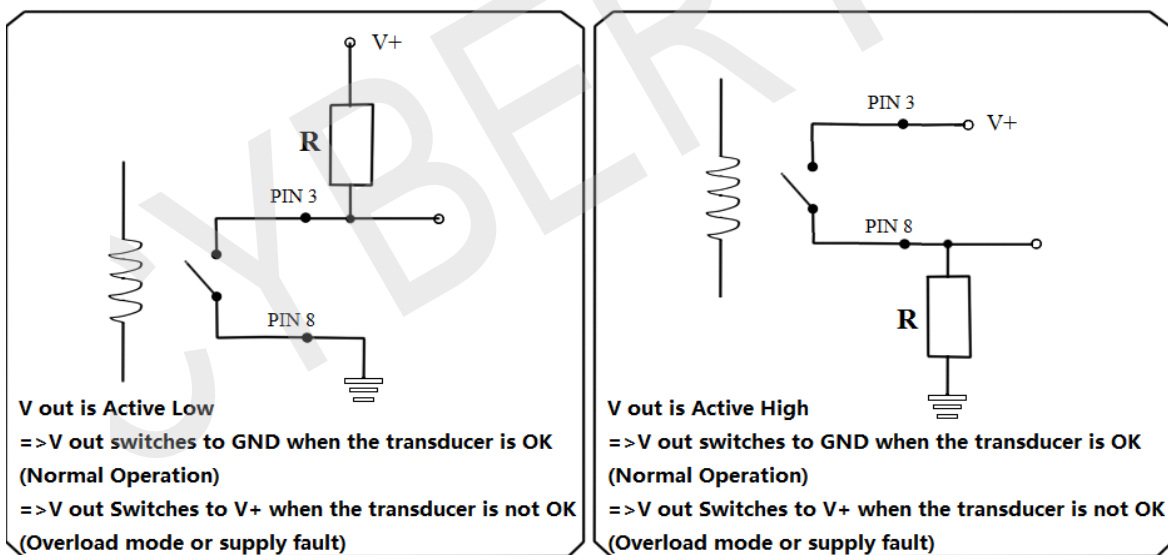
#### ① CTA60, CTA200 Operating instruction





② CTA700, CTA1000 Operating instruction:

Example of Application  
Status/Interlock Port Wiring



5.3 Operating Method

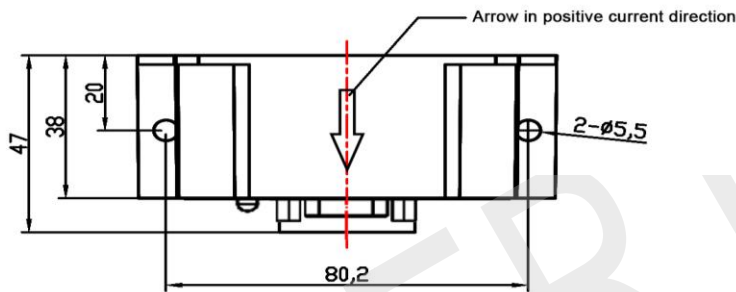
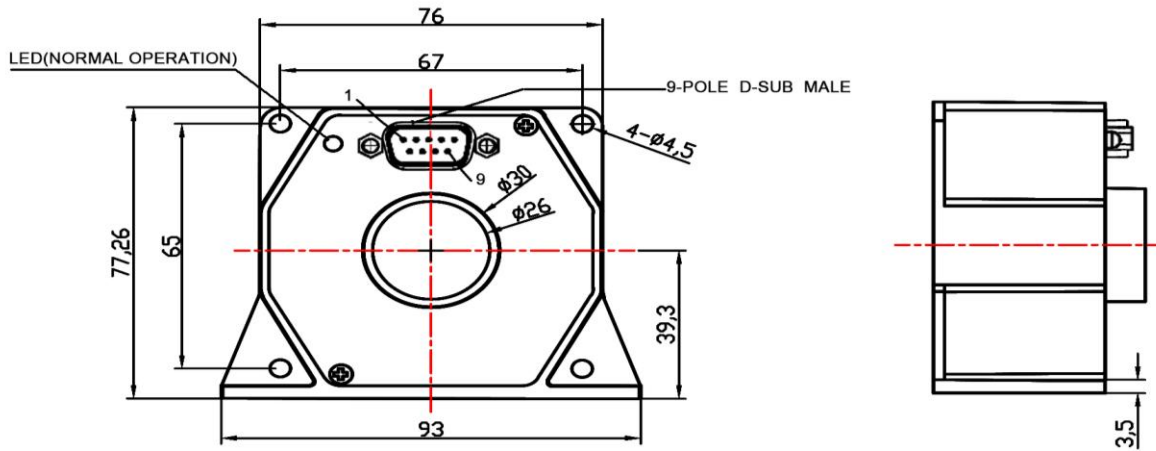
- ✧ Connect Transducer and Power Supply
- ✧ Connect Transducer and Measurement Device
- ✧ Turn on Transducer, power it up
- ✧ Connect the cable under test and measure it.

**Attention**

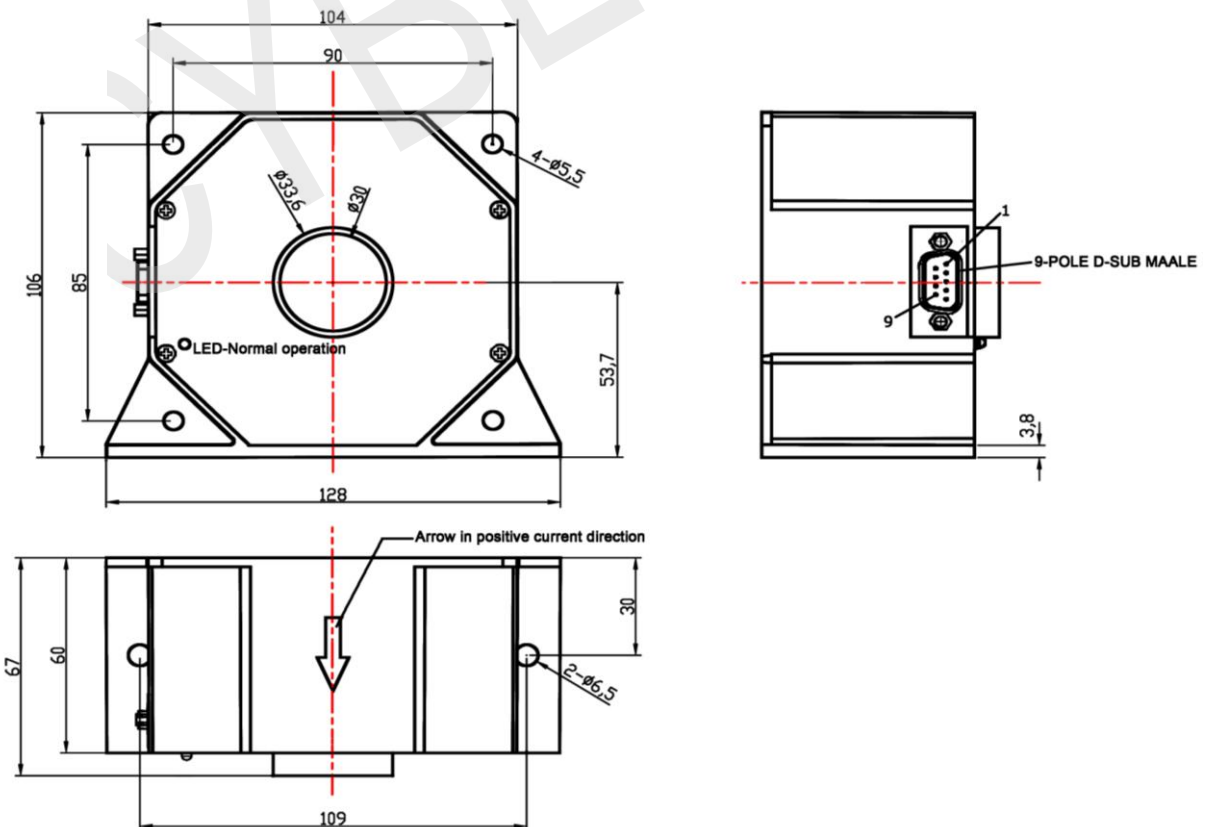
While measuring, to make the measurement result right, please turn on the power of the transducer and then connect the current under test and measure it.

## 6. Mechanic Specification

### ■ CTA60 CTA200 Mechanic Specification



### ■ CTA700 CTA1000 Mechanic Specification



## 7. Environmental Characteristics

Operating Temperature & Humidity	10~50°C, 20~80%RH
Storing Temperature & Humidity	-20~85°C, 20~80%RH

## 8. Packing List

Packing List	
Name	Quantity
Current Transducer	1
Tool Bag	1
Instruction Book	1
Warranty Card	1
Test Report	1

# CYBERTEK

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