

High Accuracy Current Sensor

CTV Series

CTV60 60A/DC~2MHz

CTV200 200A/DC~1.5MHz

CTV1000 1000A/DC~1MHz

CTV2000 2000A/DC~500kHz



产品说明书

Product User Manual

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.

Warn

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.

Notice

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

Note

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.

1. Summary

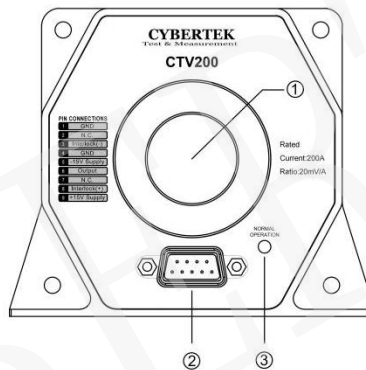
CTV series is the ultra-accuracy sensor that can measure both DC and AC. Its current range covers from 60A to 2000A and 2MHz bandwidth. By using Flux-gate technic, the CTV series realized high accurate measurement, excellent linearity, low DC offset, lower temperature drift, low insertion loss, high immunity to external field and low noise.

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

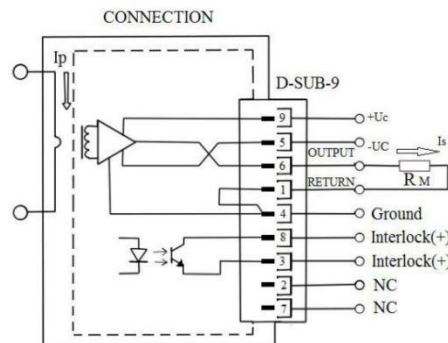
Take CTV200 as example:



✧ Sensor PTH (Primary Through Hole) :

The input interface of the conductor under test, measuring the current under test. CTV60, CTV200 PTH Diameter: 25mm; CTV1000 PTH Diameter: 30mm; CTV2000 PTH Diameter: 80mm.

✧ **Communication Port: including current output, power supply interface, and status indicator function.** The diagram below represents the pin configuration.



✧ **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))

Cable (CK-331): Connecting sensor, power supply and current output port

Note

- ✧ **Cable CK-331:** Standard Length is 2 meter. Standard configuration.
- ✧ **Power Supply PS200 Series:** PS201: one channels; PS202: two channels; PS204: four Channels; PS208: eight Channels; every channel with $\pm 15/1.5A$ of Voltage Output. Accessories are sold separately.

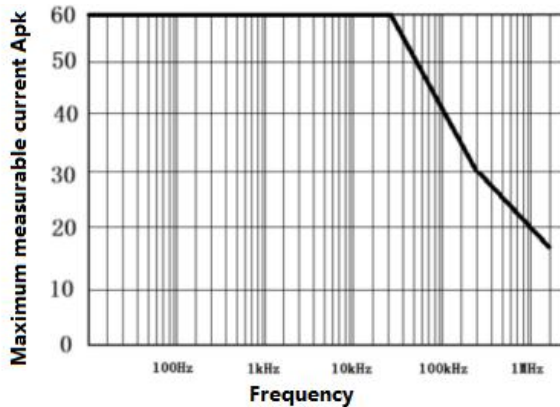
4. Specification

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

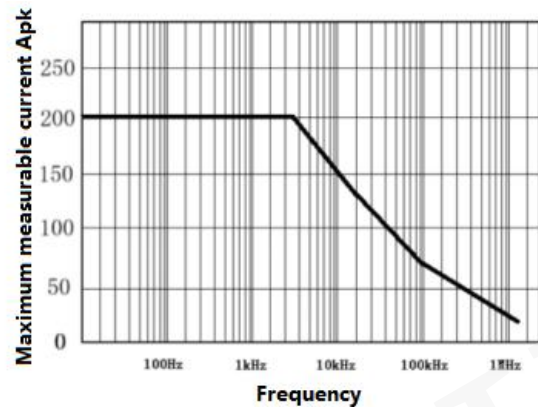
Type		CTV60	CTV200	CTV1000	CTV2000
Primary nominal continuous Direct current (IPN DC)		60A	200A	1000A	2000A
Primary nominal rms current (IPN)		42A	141A	707A	2000A
Primary current, measuring range (IPM)		$\pm 60A$	$\pm 200A$	$\pm 1000A$	$\pm 2000A$
Conversion ratio KN		50mV/A	20mV/A	4mV/A	2mV/A
Accuracy (DC)*		$\leq \pm(0.03\% \pm 0.2mV)$			
Bandwidth($\pm 3dB$)		2MHz	1.5MHz	1MHz	500kHz
Continuous maximum input range		Refer to the current rated value vs. frequency curve			
Overload capability @ pulse of 100ms		$\pm 200A$	$\pm 600A$	$\pm 3000A$	$\pm 6000A$
Supply voltage		$\pm 15V(\pm 5\%)$			
Rated operational voltage RMS (IEC61010-1)	Basic insulation	2000V	2000V	300V	1000V
	Reinforced insulation	600V	600V	150V	300V
Max measurement aperture		25mm		30mm	80mm
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	M5 steel screw *4; 3.7Nm;

Current rated value vs. frequency curve

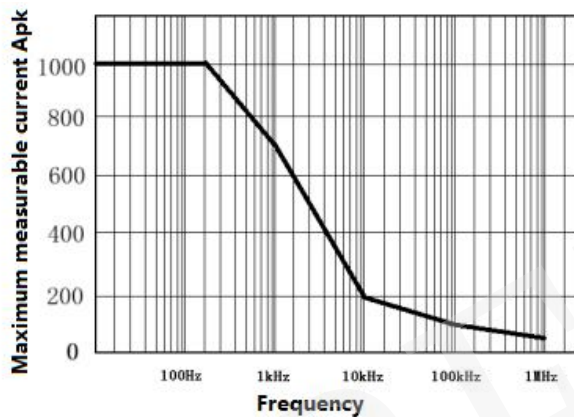
CTV60



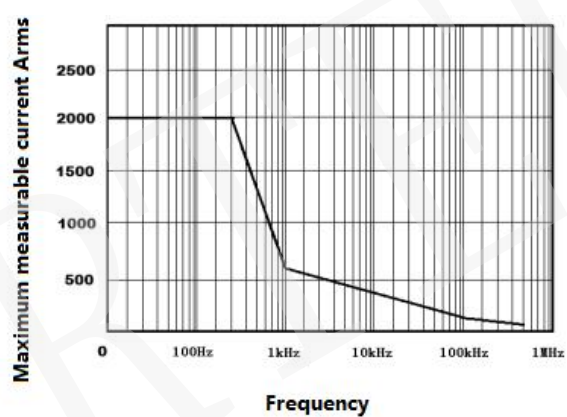
CTV200



CTV1000



CTV2000



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 sensor 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 working condition.

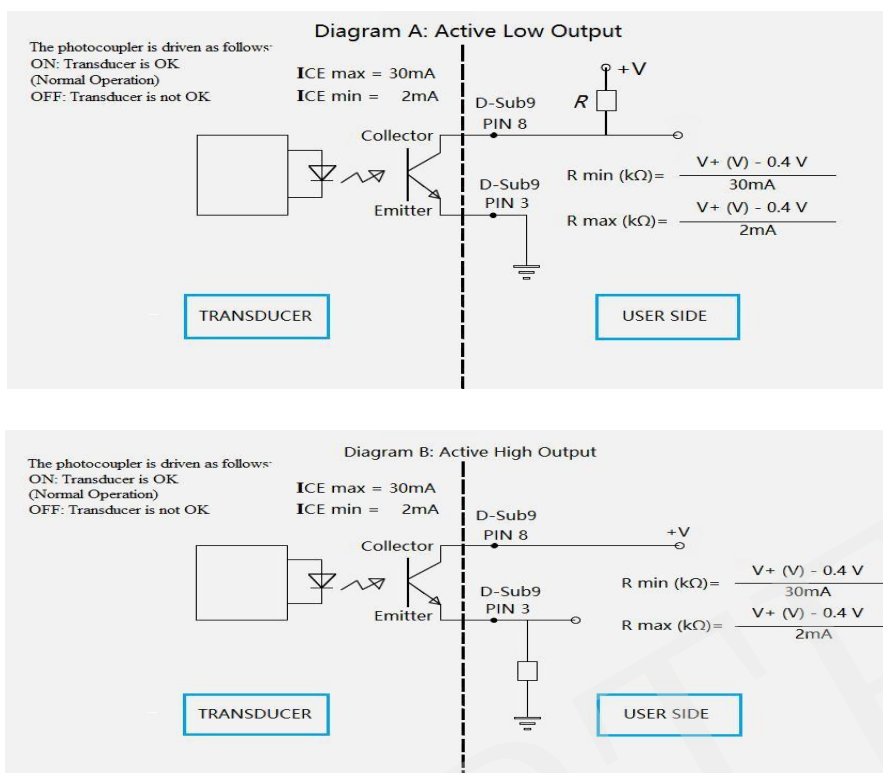
After the overload, the sensor will enter park mode. The sensor will automatically recover to normal status, when the primary current reduces into normal range ($\pm$ Primary DC), Probably need to take a few seconds.

In the overload mode:

- ✧ Output port pin 3 and 8 disconnected
- ✧ Status Indicator will be off.

5.2 Status/Interlock Interface summary

① CTV60,CTV200,CTV1000,CTV2000 Operating instruction:



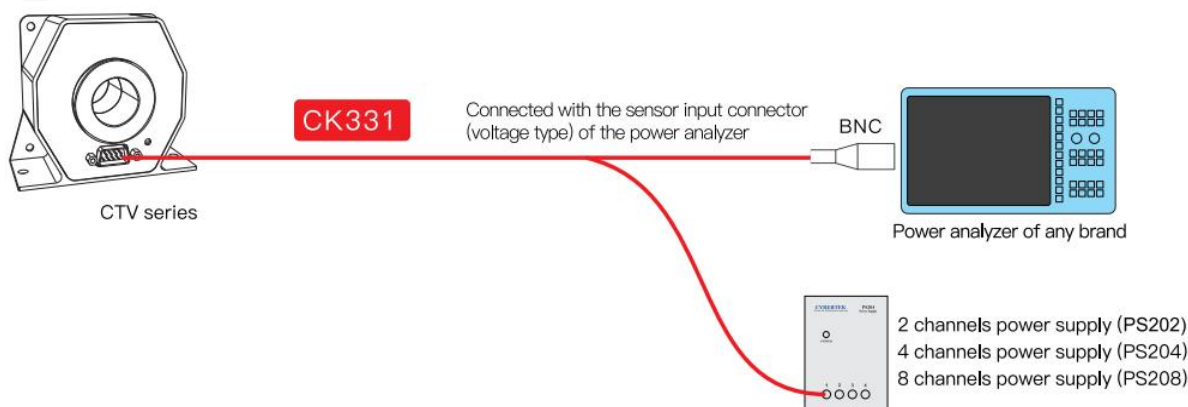
5.3 Operating Method

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

Attention

1. While measuring, to make the measurement result right, please turn on the power of the sensor and then connect the current under test and measure it.
2. When the conductor passes through the center of the clamp, the accuracy reaches the peak value.
3. Please wait for ten seconds, if you're trying to restart the machine immediately after shutting down.

5.4 The sensor wiring sample diagram of the CTV series is shown below:



7. Environmental Characteristics

Operating Temperature & Humidity	-40~85℃, 20~80%RH
Storing Temperature & Humidity	-40~85℃, 20~80%RH

8. Packing List

Packing List	
Name	Quantity
Current Sensor	1
CK-331	1
Instruction Book	1
Warranty Card	1
Test Report	1

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