
Mini precision Current transformer

Product Datasheet

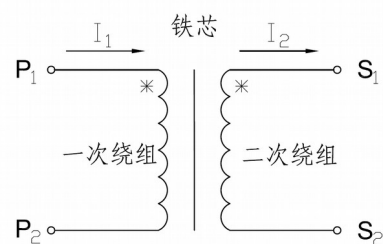
Hebei Kingdo Electronics Ltc,Co

一、Work principle

The basic structure of current transformer(CT) is comprised by primary winding, secondary winding and iron core, among which strong insulation is set between the primary ,secondary and iron core.

The function of CT in Energy Meter is to transfer the large current I_1 (A) in metering circuit to the small current I_2 (mA), then I_2 in series with the sample resistor R is converted to voltage signal($I_2 \cdot R$) which is connected to chip in Energy Meter.

The schematic of CT and its work principle illustration as follows:



(fig.1 schematic of current transformer)

二、Technical characteristics

Our miniature CT is produced in comply with JB/T10665-2006 《Miniature current transformer》、GB 1208-2006 《current transformer》 standard and JJG 313-2010 《current transformer for measurement》 requirement.

1.dielectric strength at power frequency: the rated power frequency withstand voltage between the primary and the secondary is 3kV (root-mean-square value) ,especially 4kV (root-mean-square value) when the insulation requirement is Class II, under the test condition according to GB/T17215.

2.interturn dielectric strength: when the secondary winding open, the primary winding is stimulated by 40~60Hz true sine wave current, whose root-mean-square value equals the rated primary current, the interturn insulation is free of damage during 60s continuous stimulus.

3.insulation resistance: the insulation resistance between the primary versus the secondary versus the ground is larger than 600M Ω ;

4.polarity: the CT has subtractive polarity, that is, when the current in the primary flow in from Port P1, the current in the secondary flow out from Port S1, as illustrated in fig.1;

5. overload capacity: with the rated load, CT who survives after current strike of a $30 \times I_{max}$ for one half period, shows his error not more than the required limit by 1.3 times stimulated by rated current, and satisfies the accuracy class requirement after degaussing.

6. error limit

With the rated load or with the listed value load, the current error (ratio error) and phase error (angular difference) should not exceed the regulated limit.

accuracy class	the current error (ratio error) \pm (%) under the current of		phase error (angular difference) \pm (') under the current of						
	0.01In	$\geq 0.05In$	0.01In	0.05In	0.2In	In	2In	3In	I _{max}
0.5	1.0	0.5	90	45	30	30	30	30	30
0.2	0.4	0.2	30	15	10	10	10	10	10
0.1	0.2	0.1	15	8	5	5	5	5	5
0.05	0.1	0.05	8	4	2	2	2	2	2

Note 1: $0.2I_n < I < I_{max}$, Take, for point i, its phase error is defined as the difference between phase error @working current and δ_e , $\Delta \delta_i = \delta_i - \delta_e$, among which, δ_e demotes the mean of the maximum (δ_{max}) and the minimum (δ_{min}) phase error.

Note 2: 电流互感器的实际误差曲线不应超过表里所列误差限值连线所形成的折线范围。

三、Environment requirement

1. temperature $-25^\circ\text{C} \sim +75^\circ\text{C}$, relative humidity not more than 95% (25°C), attitude not higher than 1000m;
2. rated voltage 600V, sine wave distortion factor less than 5%;
3. not serious polluton in the air;
4. not serious shake;
5. far away from the irrelative strong electromagnetic field

四、store requirement

Stored indoor at temperature $-25^\circ\text{C} \sim +60^\circ\text{C}$, relative humidity not more than 95% (25°C).

Far away from corrosive hazardous substance and rain and snow.

五、 Select and use

CT should run at rated current long time, and the maxim work current should not be more than the nominal maximum current.

rated load is the maxim load at this accuracy class.

六、 product catalog

1. KD-CT01

1.1 design for single-phase intelligence Energy Meter

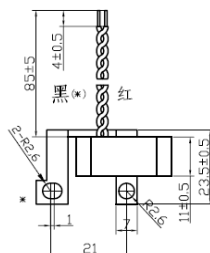
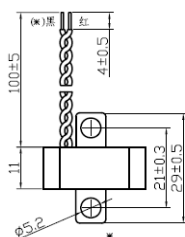
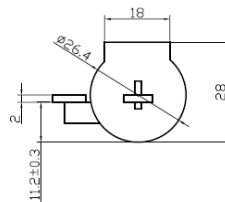
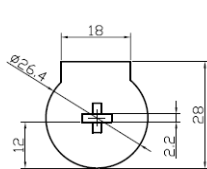
Linear output current, good consistency, small in size, high precision.

Casted by flam retardant plastic,packaged by epoxy resin, moistureproof and quakeproof

Easy fixing inside, there are standard orifices at the primary winding, screwed on the bottom case

1.2regular P/N and dimensions

P/N	current ratio	dimensions	rated load (Ω)	accuracy class
KD-CT01	5 (60)A/5mA	CT1-1 CT1-2	10	0.2
	10 (60)A/10mA			
	5 (60)A/2.5mA	CT8	20	
	10(60)A/5mA			
	10(100)A/5mA	CT8-1	10	



CT1-2

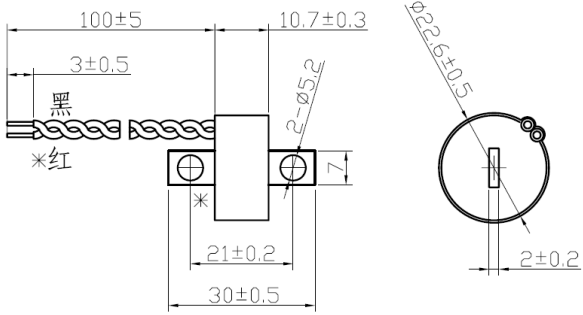
CT1-1



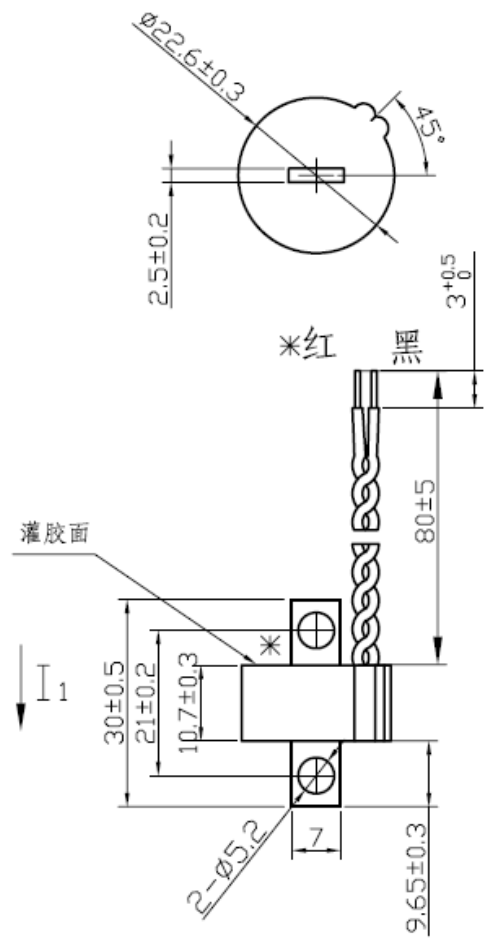
CT1-1



CT1-2



CT8



CT8-1



CT8



CT8-1

2.KD-CT02

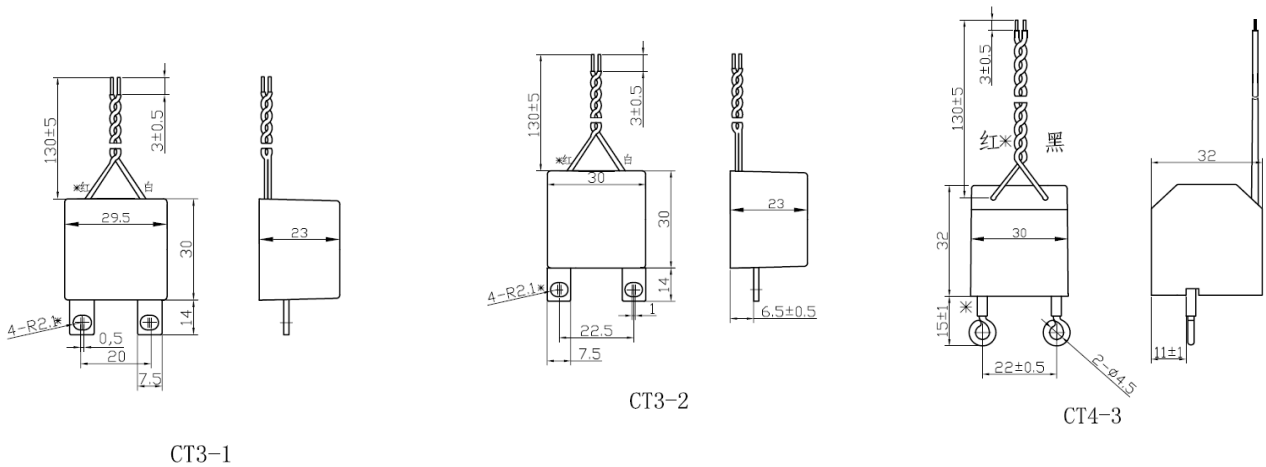
2.1 design for three phase intelligent electric meter connected by mutual inductor and concentrator

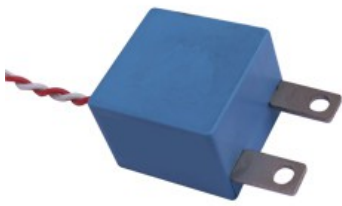
Linear output current, good consistency, small in size, high precision.

Casted by flam retardant plastic,packaged by epoxy resin, moistureproof and quakeproof

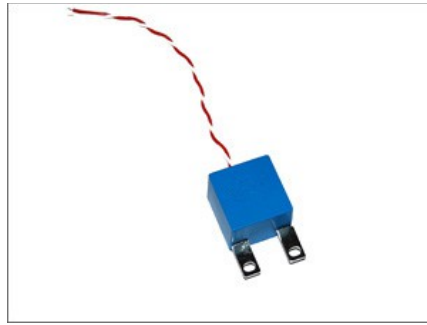
2.2 regular P/N and dimensions

P/N	current ratio	dimensions	rated load (Ω)	accuracy class
KD-CT02	0.3(1.2)A/5mA	CT3-1	5	0.1
	1(5)A/2.5mA	CT3-2	10	
	1.5 (6)A/5mA	CT4-3	20	0.2
	1.5(6)A/7.5mA			

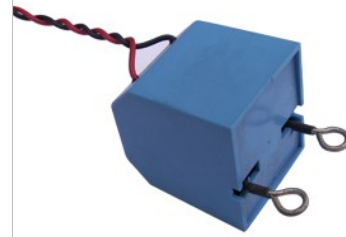




CT3-1



CT3-2



CT4-3

3.KD-CT03

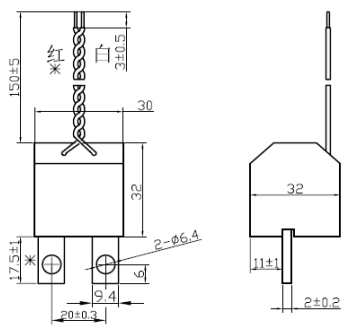
3.1 design for three phase intelligent electric meter connected directly

Linear output current, good consistency, small in size, high precision.

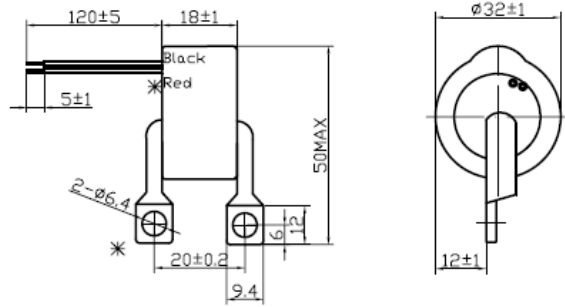
Casted by flame retardant plastic, packaged by epoxy resin, moistureproof and quakeproof

3.2 regular P/N and dimensions

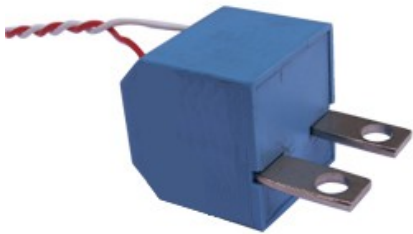
P/N	current ratio	dimensions	rated load (Ω)	accuracy class
KD-CT03	5 (60)A/5mA	CT4-1 CT4-2 CT7	5	0.1
	5 (60)A/2.5mA			
	5 (60)A/2mA			
	10(60)A/5mA	CT10 CT12	10	0.2
	10 (60)A/10mA			
	10(80)A/5mA	CT9	20	
	10(100)A/5mA			
	10(120)A/10mA	CT11-1		
10(120)A/4mA				



CT4-1



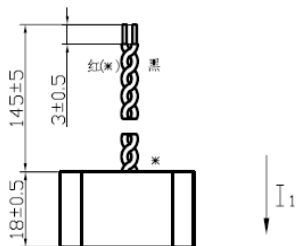
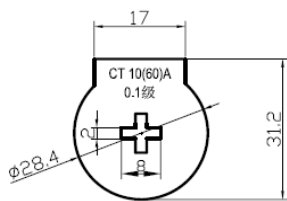
CT4-2



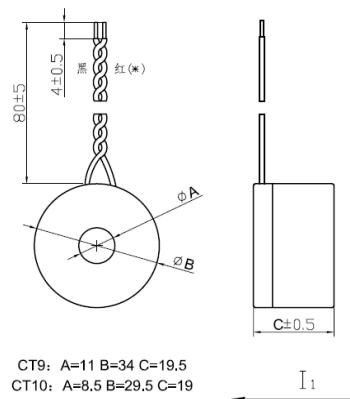
CT4-1



CT4-2

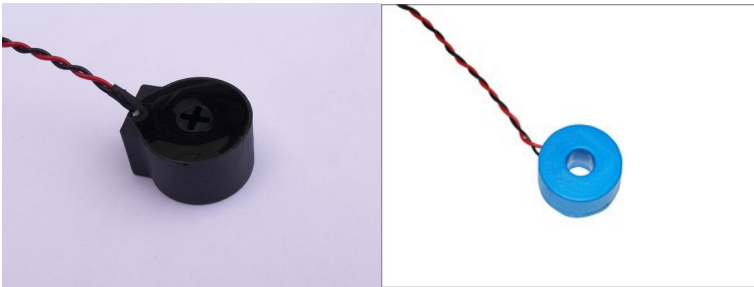
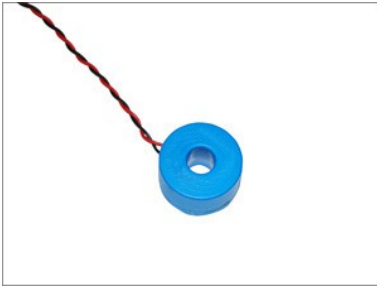


CT7



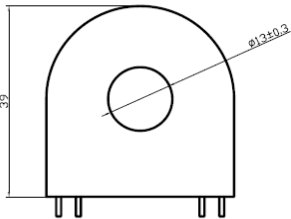
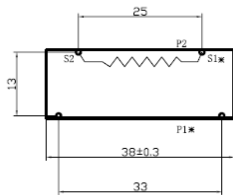
CT9: A=11 B=34 C=19.5
CT10: A=8.5 B=29.5 C=19

CT9/CT10



CT7

CT9/CT10



CT11-1



CT11-1

4.KD-CT04

4.1 design for relay measurement and digital display instrument

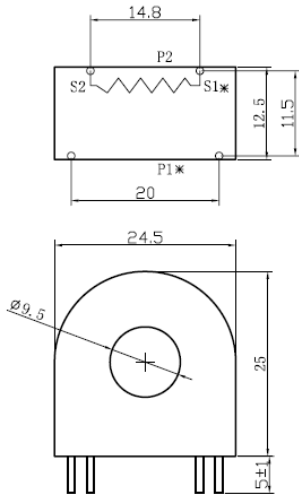
Linear output current, good consistency, small in size, high precision.

Casted by flam retardant plastic,packaged by epoxy resin, moisture proof and quakeproof

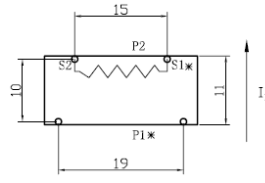
The secondary could be draw out by the lead or the stitch, easy to fix

4.2regular P/N and dimensions

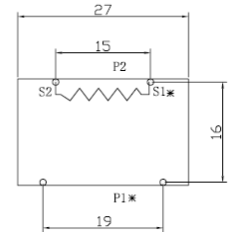
P/N	current ratio	dimensions	rated load (Ω)	accuracy class
KDCT-04	5 (20)A/2mA	CT6-1	10	0.1
	5(30)A/5mA	CT6-2	20	
	5(20)A/2.5mA	CT6-3	50	0.2
	5(50)A/4mA			



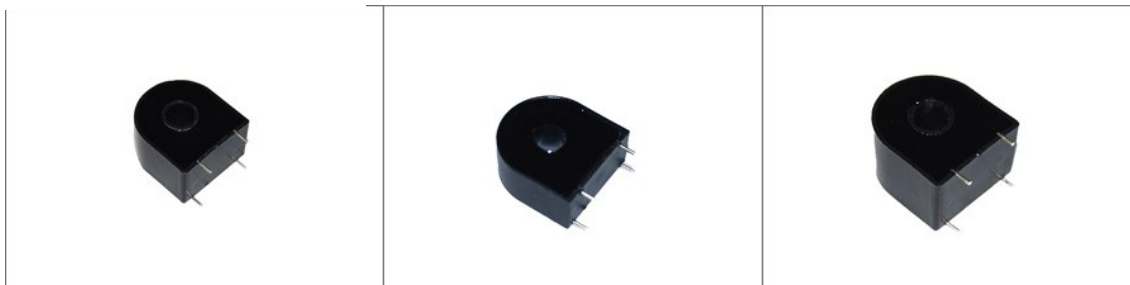
CT6-1



CT6-2



CT6-3



CT6-1

CT6-2

CT6-3

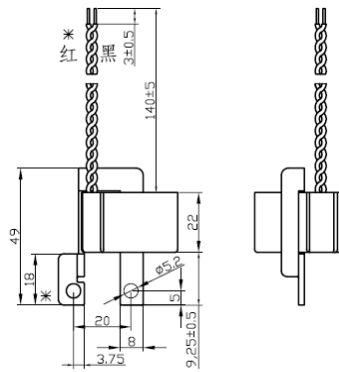
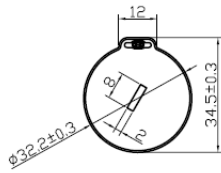
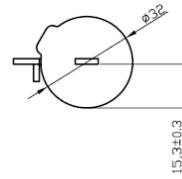
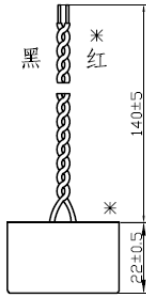
5. KD-CT05

5.1 design for anti-magnetic shielding three phase intelligent electric meter
Linear output current, good consistency, small in size, high precision.

Work properly at 300mT constant magnetic field.

5.2 regular P/N and dimensions

P/N	current ratio	dimensions	rated load (Ω)	accuracy class	anti-DC compoment
KD-CT05	1.5(6)A/5mA	CT16	5	0.1	NO
	5(60)A/5mA	CT5-1			NO
	5 (60)A/2mA	CT5-1	10	0.2	YES
	10 (60)A/4mA	CT15 CT15-1			YES
	10(100)A/4mA	CT17	20	YES	



CT15-1

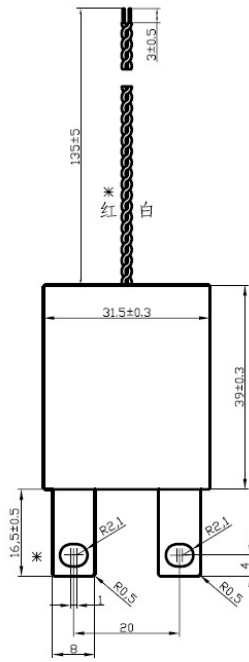
CT15



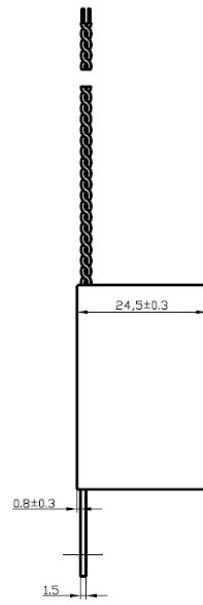
CT15



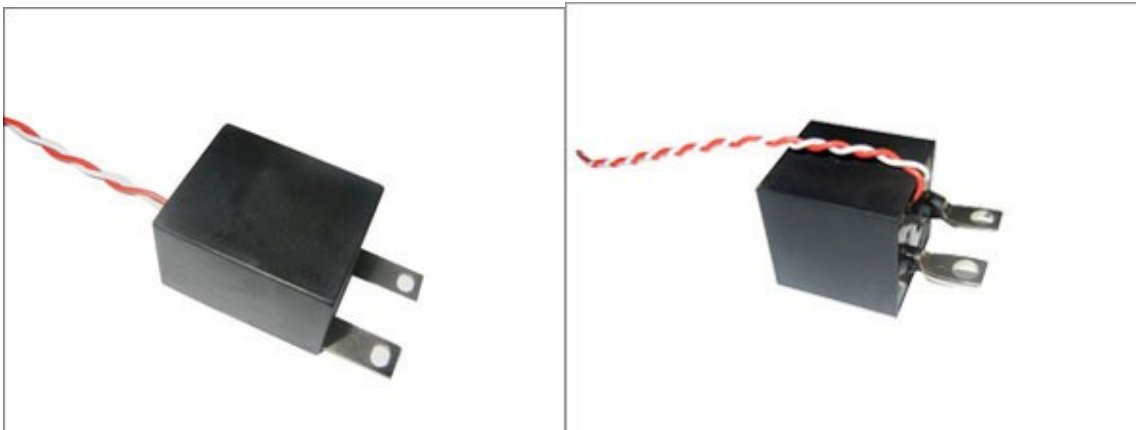
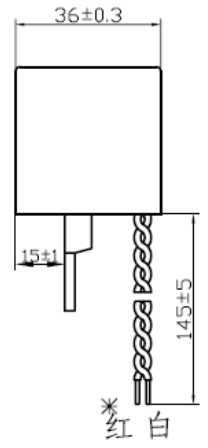
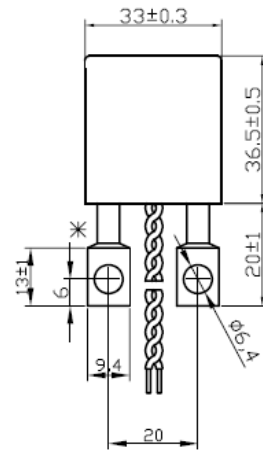
CT15-1



CT16

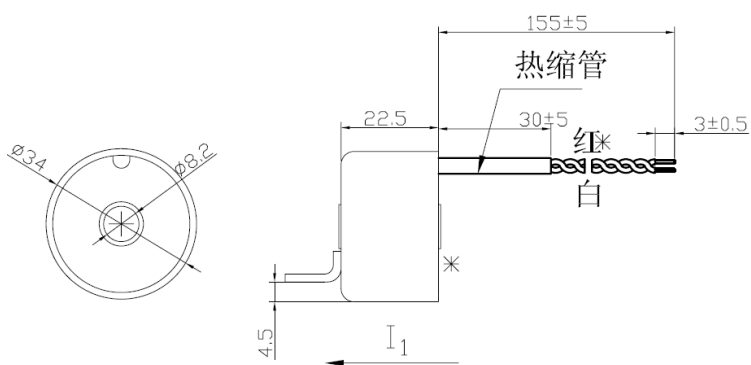


CT17



CT16

CT17



CT5-1



CT5-1

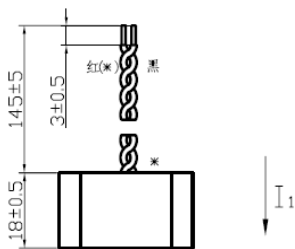
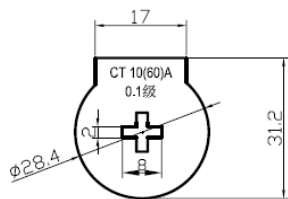
6.1 Single core CT with DC immunity

Small in size ,high precision,linear output current,and good consistency.

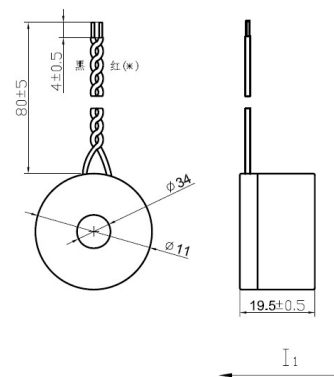
Comply with GB/T 17215 standard: the measurement error change is kept in the range of $\pm 3\%$,affected by DC component and even-order harmonics.

6.2 regular P/N and dimensions

P/N	the current ratio	installation dimension	rated load (Ω)	accuracy class
KDCT-06	5 (60)A/2mA	CT7	5	0.1
	10 (60)A/4mA	CT4-1 CT12 CT24		
	10 (80)A/4mA	CT9		
	5(100)A/2mA	5(100)A/2.5mA	10	0.2
	5(100)A/2.5mA			
	5(120)A/2mA	CT11 CT11-1	20	0.5
	5(120)A/2mA 5(120)A/2.5mA	CT22		
	10(100)A/4mA	CTL-1		

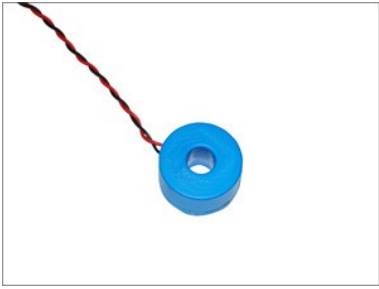


CT7



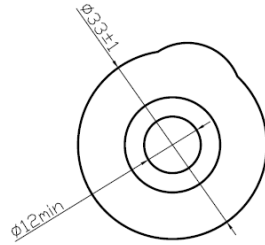
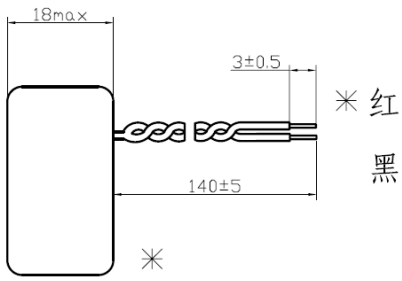
CT9





CT7

CT9

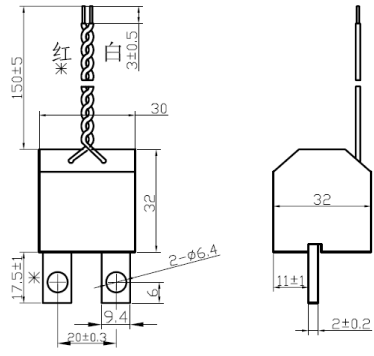


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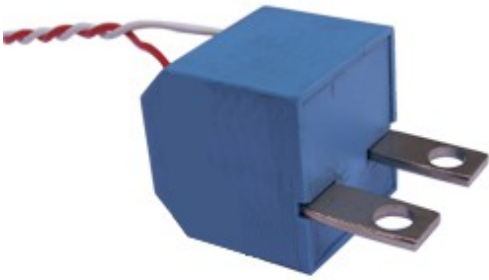
CTL-1



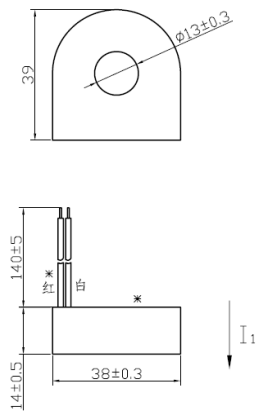
CTL-1



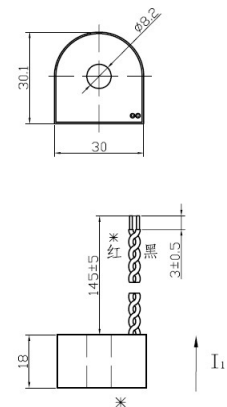
CT4-1



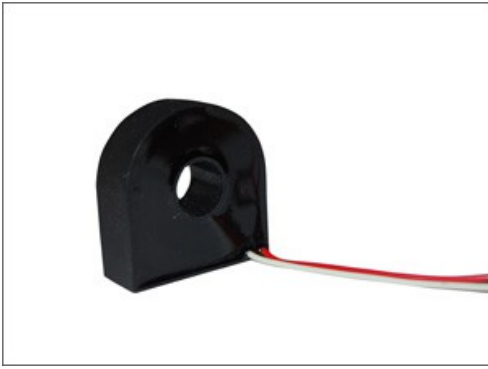
CT4-1



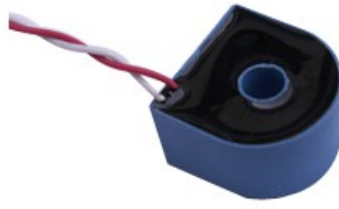
CT11



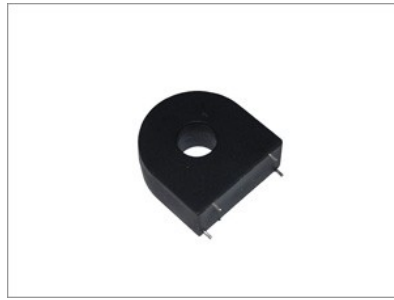
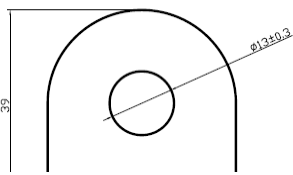
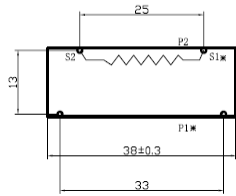
CT12



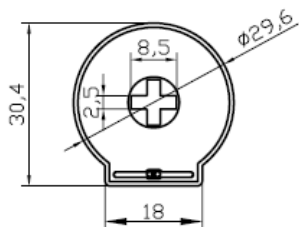
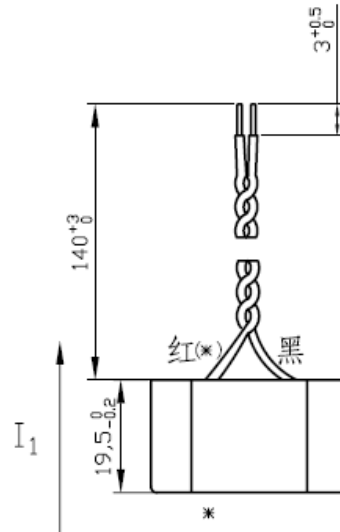
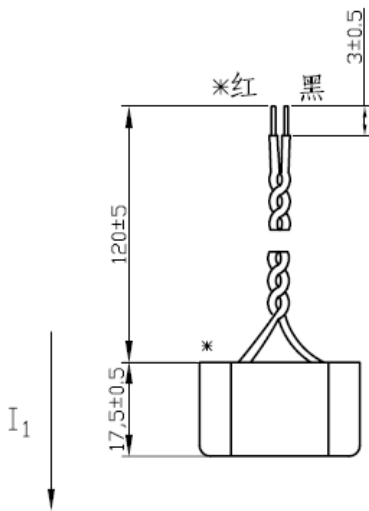
CT11



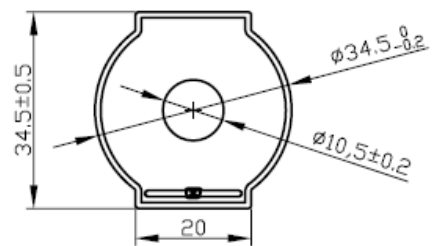
CT12



CT11-1



CT24



CT22

7.KD-CT07

7.1 design for negative control terminal

Small in size ,high precision,linear output current,and good consistency.

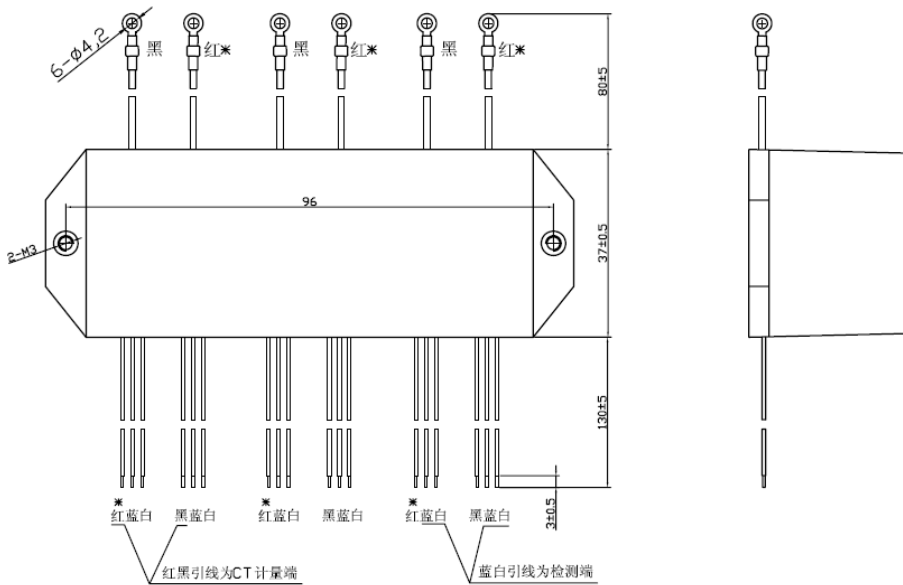
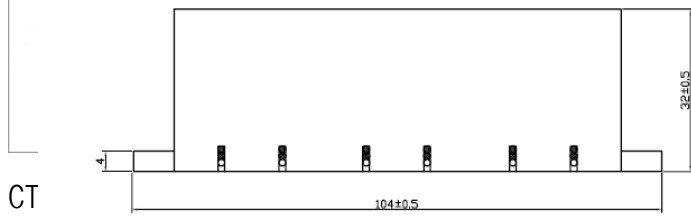
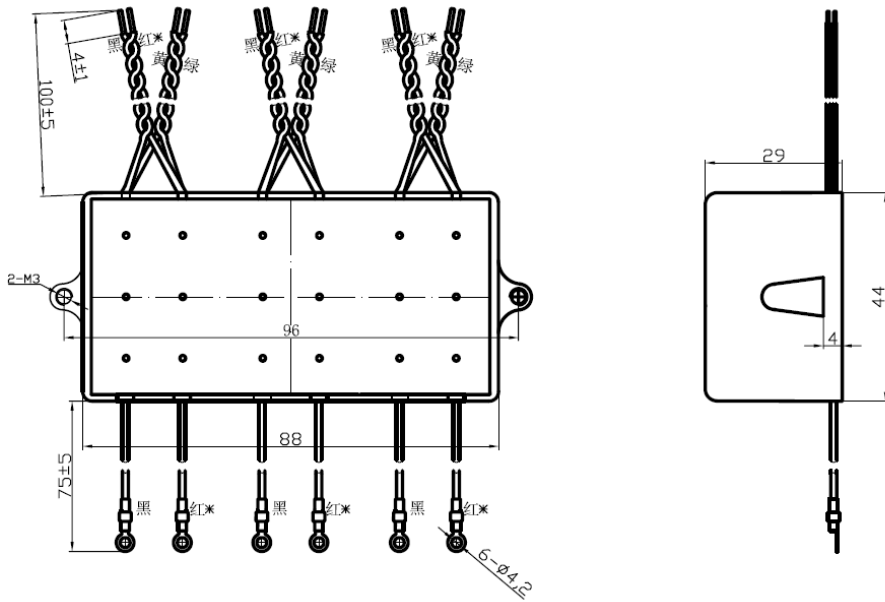
Casted by flam retardant plastic,packaged by epoxy resin, moisture proof and quakeproof

Easy fixing inside meter, screwed at the bottom case

7.2regular P/N and dimensions

P/N	current ratio	dimensions	rated load (Ω)	accuracy class
	5 (10)A/5mA	CT2-1		

KD-CT07	1.5 (6)A/5mA		5	0.1
	1(10)A/2.5mA		10	0.2
	CT30		20	0.5



CT30

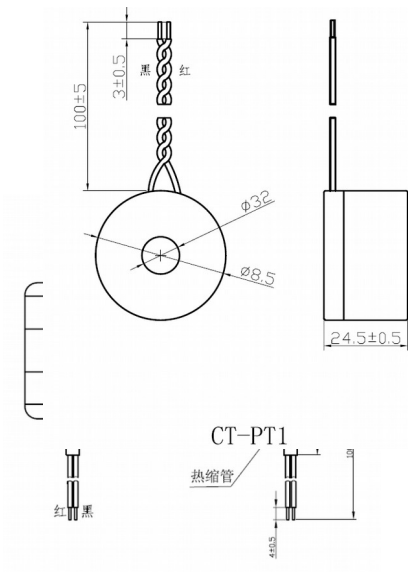
8.KD-CT-PT

8.1 power transformer, applied for electricity larceny prevention single phase meter

When the current balanced between phase line(inlet wire)and null line(return wire),the CT outputs 0;when null line brokes and the primary current reaches the rated value, CT starts to work and provides power for chip in meter by three terminal regulator.

8.2regular P/N and dimensions

P/N	specification	dimensions	Note
KD-CT-PT	1(60)A/3.7V 1KΩ	CT-PT1	primary 1 turn
	2(200)A/5V 1KΩ	CT-PT011	primary 1 turn



CT-PT1



CT-PT011

9. KD-PT

9.1 current type voltage transformer

Small in size ,high precision,linear output current,and good consistency.

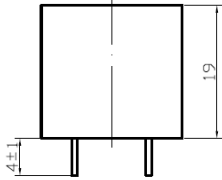
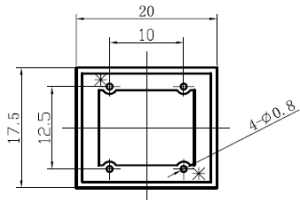
Casted by flam retardant plastic,packaged by epoxy resin, moisture proof and quakeproof

Can be installed on PCB 。

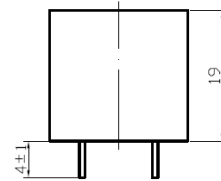
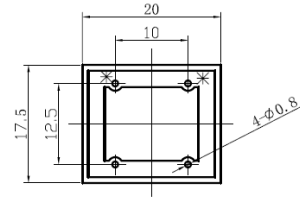
9.2 regular P/N and dimensions

P/N	current ratio	dimensions	rated	accuracy	note
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			load (Ω)	class	
KDPT	2mA/2mA	PT1	5 10 20	0.1 0.2 0.5	across corners of dotted terminals has blue shell; homolateral dotted terminals has black shell.
	1mA/1mA				



对角同名端



同侧同名端

