KG Technologies™

CURRENT SENSING PRODUCTS

www.kgtechnologies.net

INTRODUCTION

KG Technologies, Inc., founded in 1999, is dedicated to innovative development and high-quality / high-volume manufacturing switching solutions for the Global Energy Market. We are a preferred supplier due to our ability to provide value-add, cost effective solutions to our customers with the highest quality global standards, and flexible delivery. For our customers, this translates into a significant savings in cost.

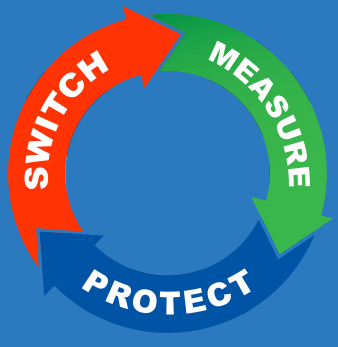
KG provides product to Energy Storage, Electric Vehicle (EV), EV Charging and the Metering Markets.

In 2015, Hongfa Group, the largest relay manufacturer in the world, acquired KG Technologies broadening our KG product line with a variety of relays including power, latching and industrial as well as Current Transformers, Hall-Effect Transducers, Fluxgate Sensors, HVDC Contactors and Low Voltage Products.

The combined companies have become the largest producer of latching relays in the world.

Hongfa (Shanghai Stock Exchange: 600885) is one of the leading relay manufacturers in the world. Founded in 1984, Hongfa is currently a top relay R&D and production center globally. Their products include relays, high and low voltage devices, precision parts, and automatic production. Relays are their main business; producing more than 160 different series and more than 40,000 part numbers, with an annual production capacity of 2.7 billion pieces.

Hongfa products are widely used in a range of applications, including industrial, energy, transportation, telecommunication, home appliance, medical.



APPLICATIONS

Metering

Energy Management

EV & EV Charging

CONTENT

Content List

Product Overview

NOTE:
The contents and data in this catalogue are not binding. We reserve the right to modify the contents of this document on the basis of technical development of the products, without prior notice. The real order requirements and technical agreements shall prevail.

Product Overview

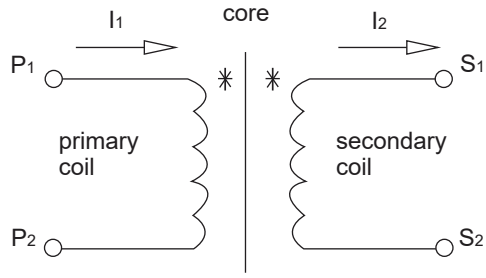
The wide-measuring-range micro Current Transformers (CTs), PTs and current/voltage transformers, grade S CTs, high-saturation-high-linearity DC immune CTs are specially designed for wide measuring-range electricity meters (such as the wide-measuring-range three-phase-three wire, three-phase-four wire electricity meters, anti-tampering electricity meters). Hongfa designs and produces CTs according to IEC61869/IEC62053 standards.

Operating conditions

- Relative Humidity: < 90% at 25°C
- Altitude: 2000m
- Rated voltage: 500Vac with harmonic <5%
- There should be no gases, steam, chemical sediments, dust and any other harmful elements that might affect the insulation of the CTs
- No severe shock and vibration
- No strong external electromagnetic field

Key performances

- Dielectric strength at 50Hz: 3kV 1min between primary coil and secondary coil, and also the earth
- Dielectric strength between turns: open circuit at the secondary coil, there's no damage when the primary coil is applied with rated voltage during 1 minute
- Insulation resistance: the insulation resistance of the primary coil to the secondary coil and to the earth should be higher than 500MΩ
- Polarity: primary and secondary coil has the same polarity



- Errors: a CT has two different errors, current error (ratio error) and phase shift error, which can be measured with CTs testing equipment
- Accuracy Class:

$$\text{Transformation Ratio} = \frac{\text{nominal primary current}}{\text{nominal secondary current}}$$

IEC61869 Error limits

Accuracy class	Ratio error ±%				Phase displacement							
					± Minutes				± Centiradians			
	at current (% of rated)				at current (% of rated)				at current (% of rated)			
	5	20	100	120	5	20	100	120	5	20	100	120
0.1	0.4	0.2	0.1	0.1	15	8	5	5	0.45	0.24	0.15	0.15
0.2	0.75	0.35	0.2	0.2	30	15	10	10	0.9	0.45	0.3	0.3
0.5	1.5	0.75	0.5	0.5	90	45	30	30	2.7	1.35	0.9	0.9
1	3.0	1.5	1.0	1.0	180	90	60	60	5.4	2.7	1.8	1.8

Remark: DC immune products do not apply to the above table.

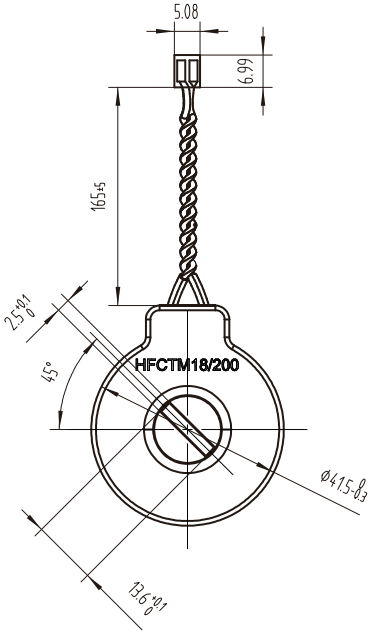
Mini Current Transformer

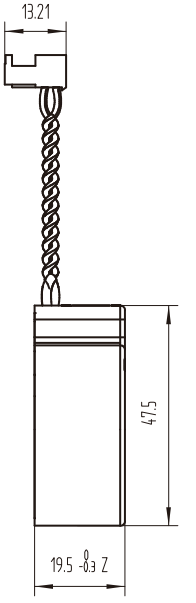
Bus-bar type Current Transformer

- Various mechanical dimensions and different forms available
- Linear output current, high precision
- Compact size, light weight, easy for installation
- PBT flame retardant plastic casing
- Encapsulated with epoxy resin to ensure high dielectric strength

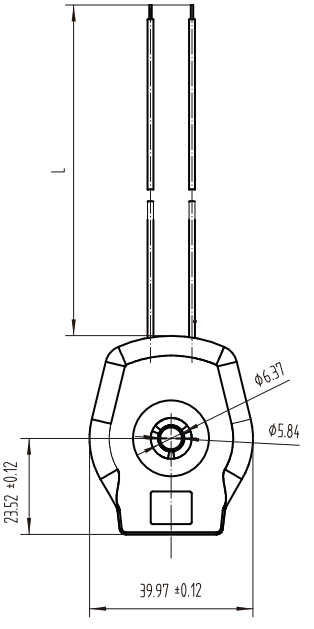
Product and Outline dimensions

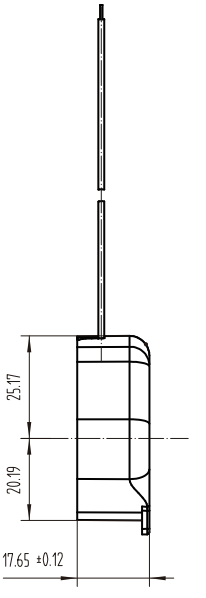
HMCT2



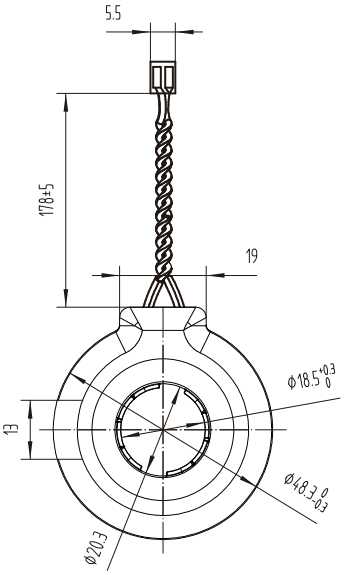


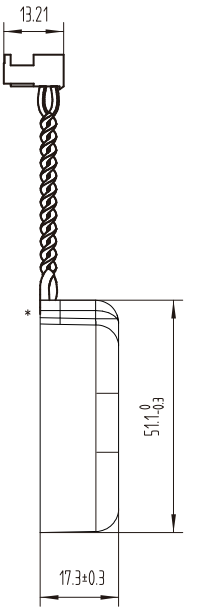
HMCT3





HMCT061





Characteristics

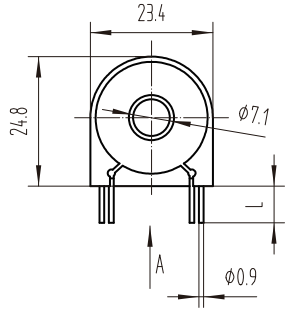
Model	Type	Rated primary current (A)	Max primary current (A)	Rated secondary current (mA)	Rated sampling voltage (mV)	Load Resistance (Ω)	Accuracy Class
HMCT2	30-120A/15mA	30A	120A	15mA	75mV	5Ω	0.1
	30-200A/15mA	30A	200A	15mA	75mV	5Ω	0.1
HMCT3	50-200A/16.7mA	50A	200A	25.0mA	37.5mV	1.5Ω	0.1
	50-320A/16.7mA	50A	320A	16.7mA	25.0mV	1.5Ω	0.1
HMCT061	50-200A/25mA	50A	200A	25mA	41mV	1.64Ω	0.1
	60-320A/30mA	60A	320A	30mA	49.2mV	1.64Ω	0.1
	60-400A/30mA	60A	400A	30mA	49.2mV	1.64Ω	0.1

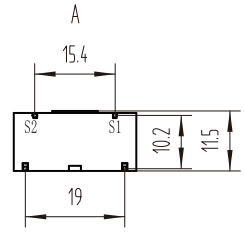
PCB-mount type Current Transformer

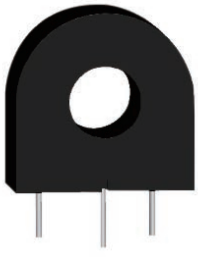
- Fully encapsulated with epoxy resin, resistant to harsh environments, high dielectric strength
- PCB-mount type
- The primary inputs could be PCB mounted, soft wire and tin-plated-copper-core wire
- Linear output current, high precision
- Compact size, light weight, easy for installation
- PBT flame retardant plastic casing

Product and Outline dimensions

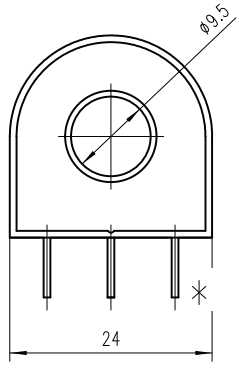
HMCT406

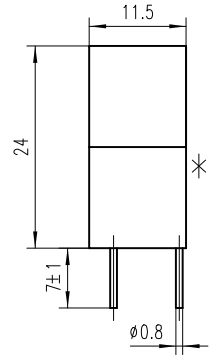


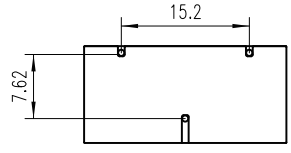




HMCT221







Characteristics

Model	Type	Rated primary current (A)	Max primary current (A)	Rated secondary current(mA)	Rated sampling voltage(mV)	Load Resistance(Ω)	Accuracy Class
HMCT406	5A/2.5mA	5A	40A	2.5mA	50mV	20Ω	0.2
	5A/5mA	5A	20A	5.0mA	100mV	20Ω	0.2
	10A/4mA	10A	40A	4.0mA	80mV	20Ω	0.1
	20A/20mA	20A	48A	20mA	400mV	20Ω	0.2
HMCT221	50A/20mA	50A	60A	20mA	400mV	20Ω	0.1

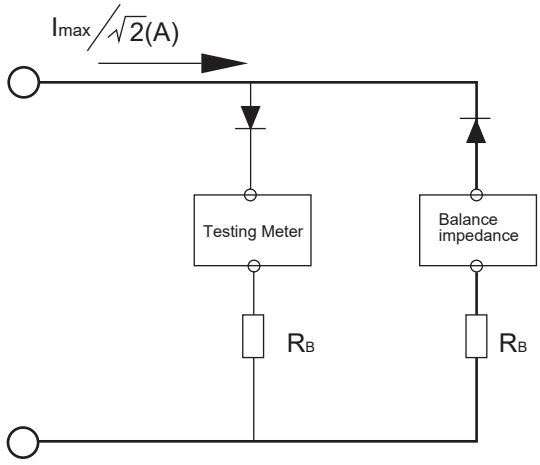
DC immune Current Transformer

- Low DC tolerance
- Suitable for a wide range of current (from 1.5 to 100A)
- Linear output current, high precision
- Compact size, delicate appearance
- Fully encapsulated with epoxy resin, high dielectric strength

DC Tolerance

-In normal condition, the power net is pure sinusoidal AC signal. But in special cases, the circuit have DC composition. Standard current transformer would be saturated under this condition, and cause huge error rate in the meter measurements. DC immune CT can solve this problem.

-DC tolerance measurement circuit: use half rectified AC signal at input side, and connect meter and balance impedance at output side. Accuracy class 1.0 CTs the DC tolerance is within ±3.0%, and ±6.0% for accuracy class 2.0 CTs.

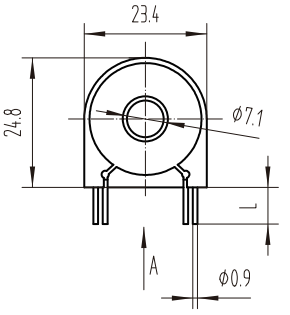


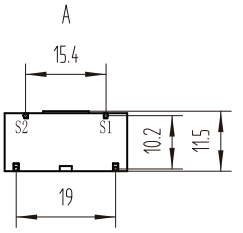
Double iron core DC immune Current Transformer

- Power factor COSΦ=1.0

Product and Outline dimensions

HDCT406





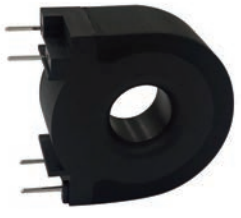
Characteristics

Model	Type	Rated primary current (A)	Max primary current (A)	Rated secondary current (mA)	DC immune peak current(A)	Load Resistance (Ω)	AC Accuracy class	Power factor
HDCT406	5-80A/2.5mA	5A	80A	2.5mA	40A	10Ω	0.2	1.0

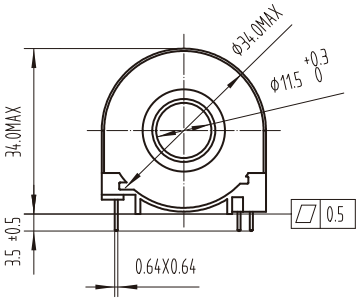
Single iron core DC immune Current Transformer

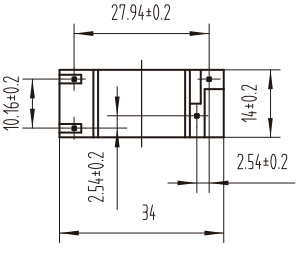
- Power factor COSΦ=0.5/1.0

Product and Outline dimensions



HDCT2-2





Characteristics

Type	Model	Rated primary current(A)	Max primary current(A)	Rated secondary current(mA)	DC immune peak current(A)	Load Resistance (Ω)	AC Accuracy class	Power factor
HDCT2-2	5-100A/2mA	5A	100A	2mA	100A	7.5Ω	0.1/0.2	0.5/1.0

Split-Core Current Transformer

Main features

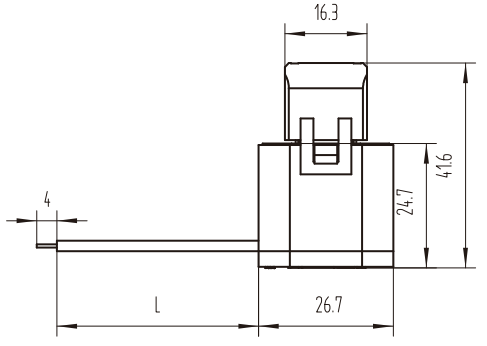
- Divisible iron core, with high accuracy and low magnetic loss
- Elegant appearance, compact size, light weight, easy installation

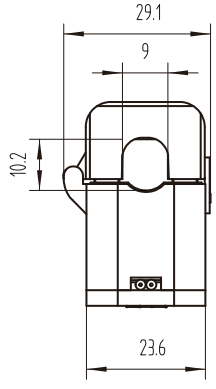
Typical applications:

- Electronic multifunction meter and field calibrator, measurements with instruments and protection functions
- General measurement and protection for power or electric systems that have rather requires motility or dispose limited space

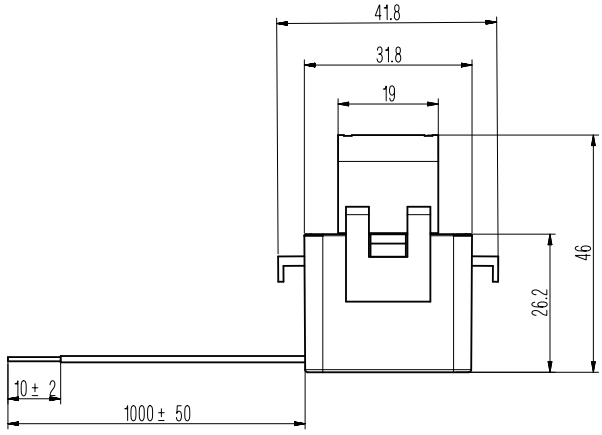
Product and Outline dimensions

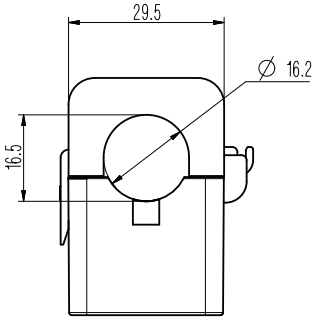
HKCT10





HKCT16





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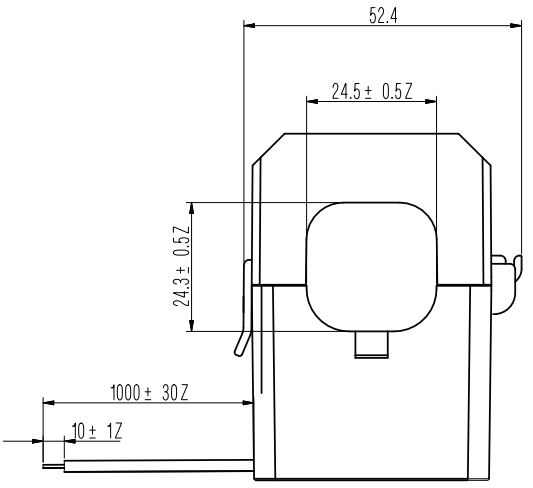
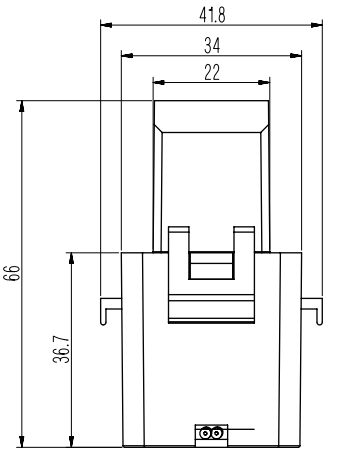




Characteristics

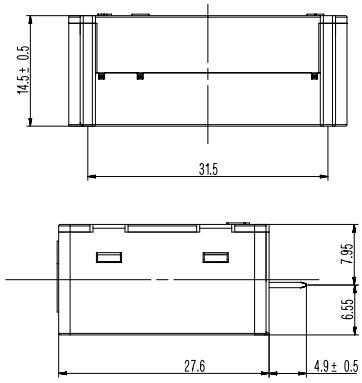
Model	Type	Rated primary current (A)	Max primary current (A)	Rated secondary current (mA)	Rated sampling voltage (mV)	Load Resistance(Ω)	Accuracy Class
HKCT10	5A/2.5mA	5A	60A	2.5mA	125mV	50Ω	0.5/1.0
	6A/2.0mA	6A	60A	2.0mA	100mV	50Ω	0.5/1.0
	60A/20mA	60A	60A	20mA	1000mV	50Ω	0.5/1.0
HKCT16	5A/2.5mA	5A	80A	2.5mA	125mV	50Ω	0.5/1.0
	6A/2.0mA	6A	100A	2.0mA	100mV	50Ω	0.5/1.0
	100A/40.0	100A	120A	40.0mA	2000mV	50Ω	0.5/1.0
	200A/66.7	200A	240A	66.7mA	1500mV	22.5Ω	1.0
HKCT24	50A/25mA	50A	60A	25mA	1250mV	50Ω	1.0
	100A/20mA	100A	120A	20mA	1000mV	50Ω	0.5/1.0
	200A/40mA	200A	240A	40mA	2000mV	50Ω	0.5/1.0
	400A/80mA	400A	480A	80mA	2000mV	25Ω	1.0
	100A/1A	100A	120A	1000mA	500mV	0.5Ω	1.0
	200A/1A	200A	240A	1000mA	600mV	0.6Ω	1.0
	400A/1A	400A	480A	1000mA	1000mV	1.0Ω	1.0

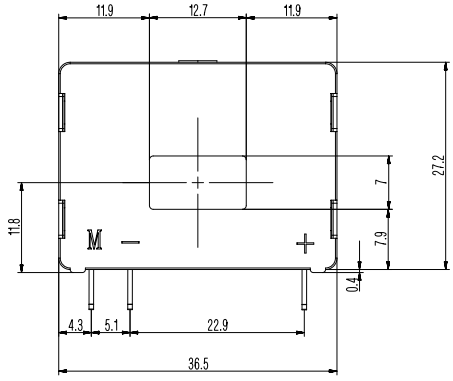
Hall Effect Current Sensor

DC, AC and pulsating currents, as well as using these measurements to display, the control system can be used. For example: communication base station, electric locomotive, subway, trolley bus, railway, wind power, DC flexible transmission, charging pile, DC screen, UPS power supply, inverter, rectifier, frequency conversion governor, inverter welding machine, electrolytic electroplating, numerical control machine, Microcomputer and power network monitoring system are widely used.

Product and Outline dimensions

HFCA-L01





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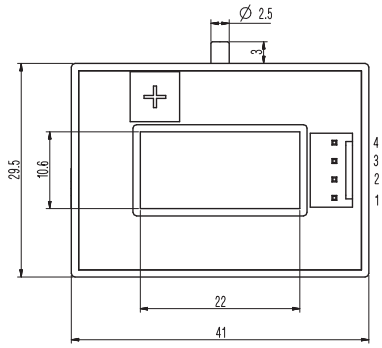
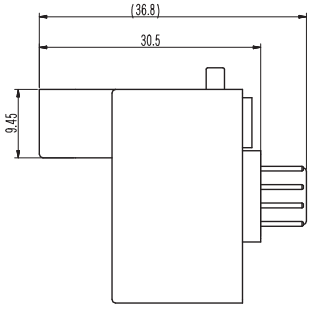
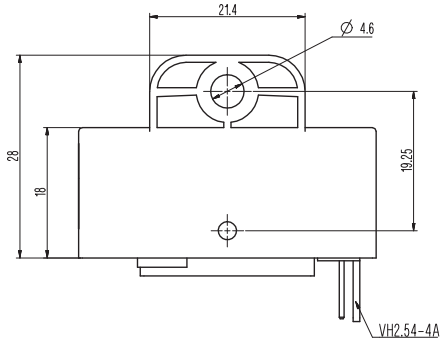




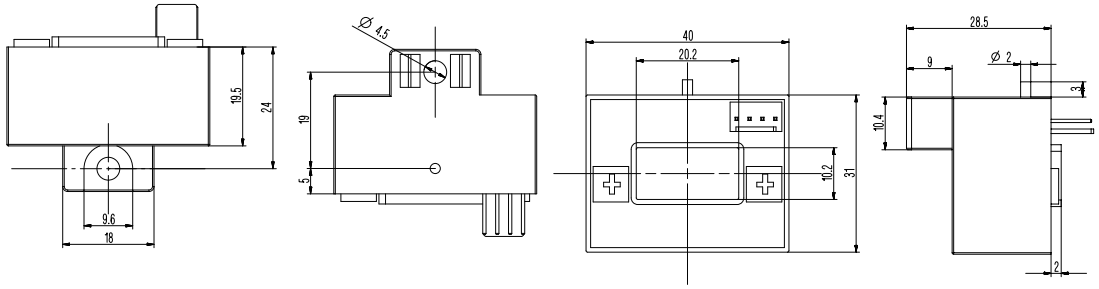


Characteristics

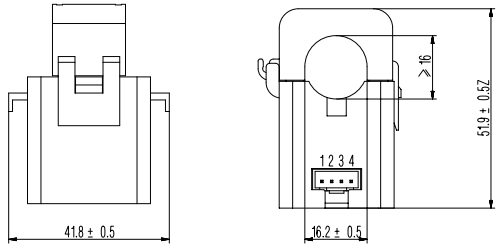
Model	Rated Input current (A)	Rated output current (mA)	Zero point detuning current (mA)	Accuracy
HFCA-L01/25-D	25A	25mA	⩽±0.2mA	⩽±0.4%
HFCA-L01/50-D	50A	50mA		
HFCA-L01/75-D	75A	50mA		
HFCA-L01/100-D	100A	50mA		
HFCA-L02/25-D	25A	25mA	⩽±0.2mA	⩽±0.4%
HFCA-L02/50-D	50A	50mA		
HFCA-L02/100-D	100A	50mA		
HFCA-L02/200-D	200A	100mA		
HFCA-L02/300-D	300A	100mA		

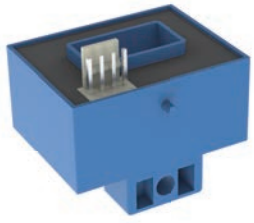
Product and Outline dimensions

HFCA-P01



HFCA-P03





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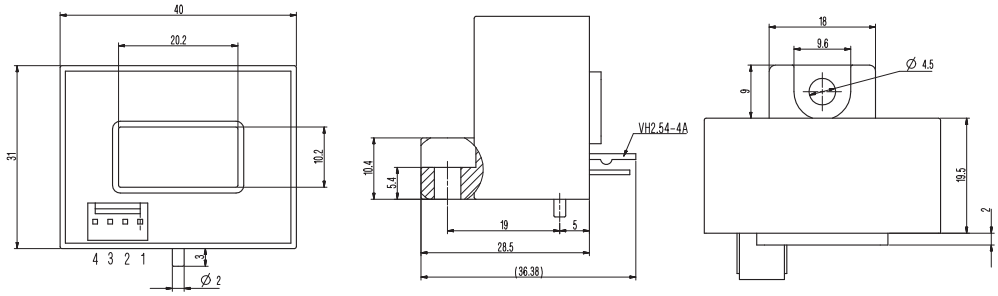

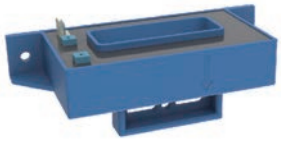

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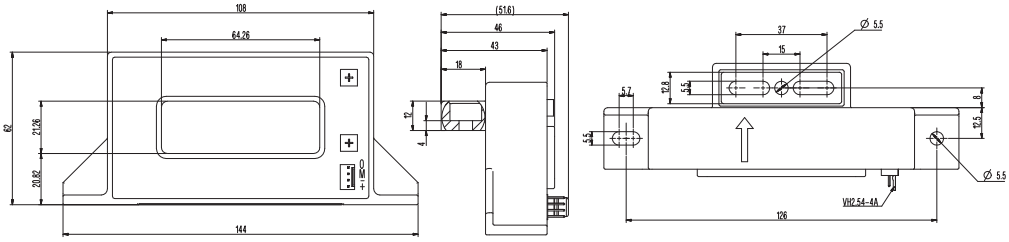


Characteristics

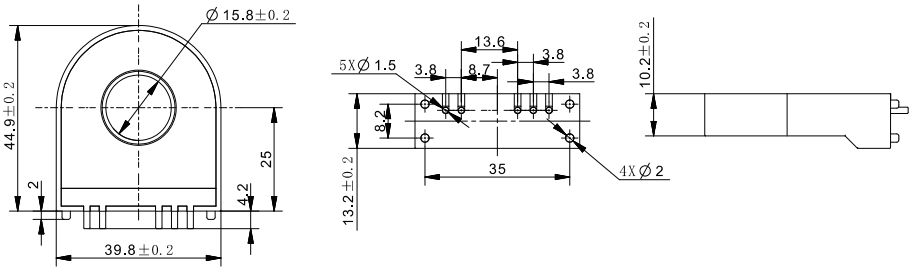
Model	Rated Input current (A)	Rated output Voltage (V)	Zero point detuning volt(V)	Accuracy
HFCA-P01/50-S	50A	0.625V	2.5±0.015V	⩽±1%
HFCA-P01/100-S	100A			
HFCA-P01/150-S	150A			
HFCA-P01/200-S	200A			
HFCA-P01/300-S	300A			
HFCA-P01/500-S	500A			
HFCA-P01/600-S	600A			
HFCA-P03/100-S	100A	1V	2±0.015V	⩽±1%
HFCA-P11/50-D	50A	4±0.04V	⩽±20mV	⩽±1%
HFCA-P11/100-D	100A			
HFCA-P11/150-D	150A			
HFCA-P11/200-D	200A			
HFCA-P11/300-D	300A			
HFCA-P11/500-D	500A			
HFCA-P11/600-D	600A			
HFCA-P19/500-D	500A	4±0.04V	⩽±20mV	⩽±1%
HFCA-P19/600-D	600A			
HFCA-P19/850-D	850A			
HFCA-P19/1000-D	1000A			
HFCA-P19/1500-D	1500A			
HFCA-P19/2000-D	2000A			
HFCA-P19/2500-D	2500A			

Fluxgate Current Sensor

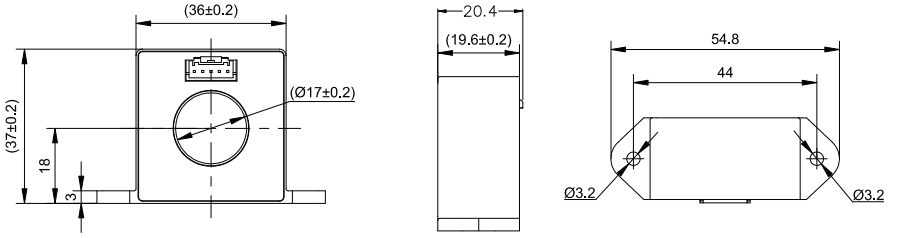
Leakage current measurement in an IC-CPD in-cable (mode 2) and for wall boxes (mode 3) contact and protection device. Meet the remaining current test requirements related to IEC62955 charging mode three.

Product and Outline dimensions

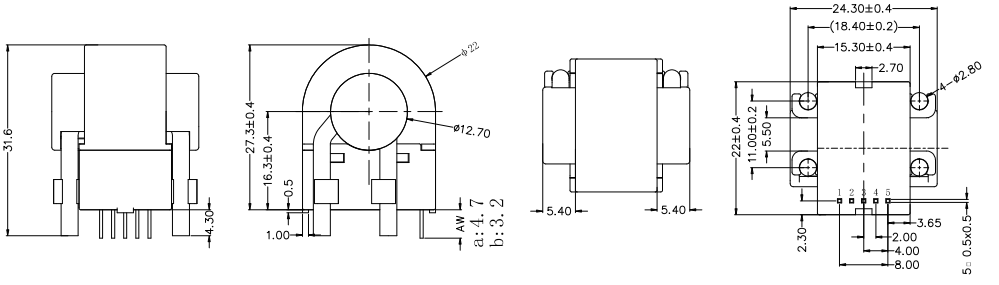
HFCA-F06



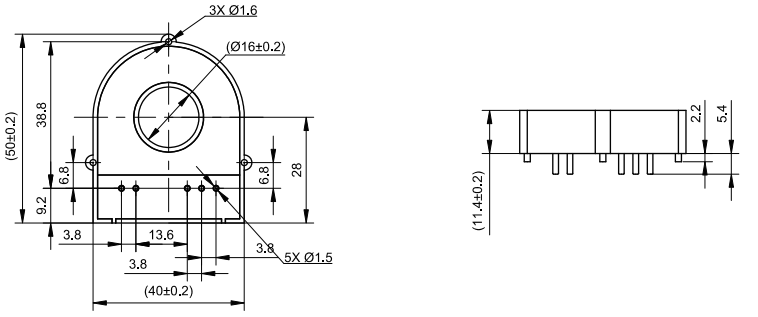
HFCA-F09



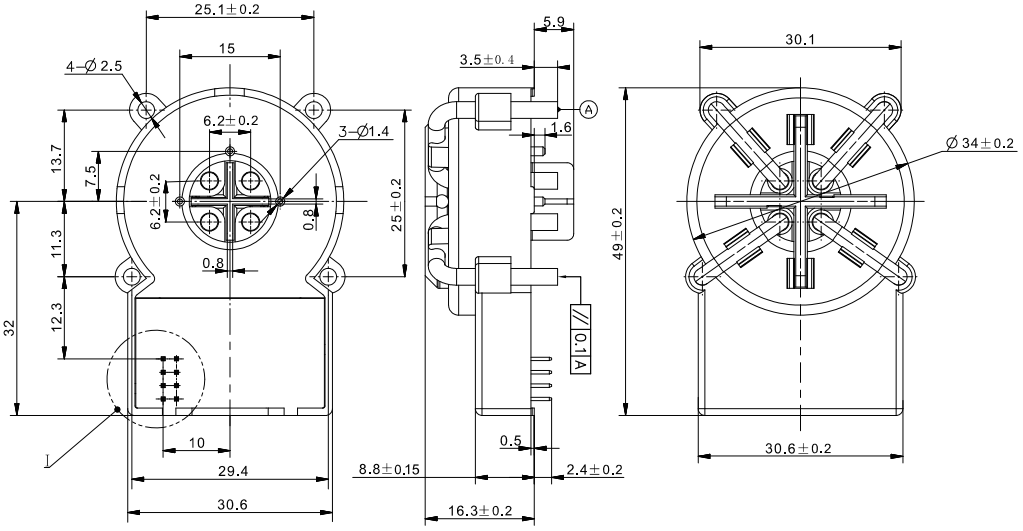
HFCA-F10



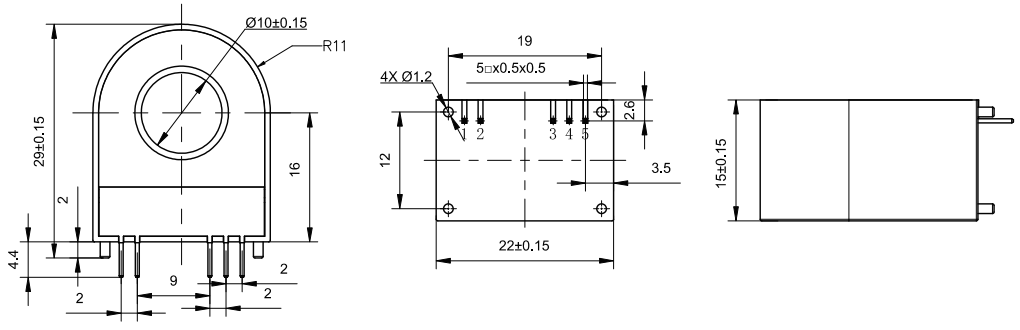
HFCA-F11



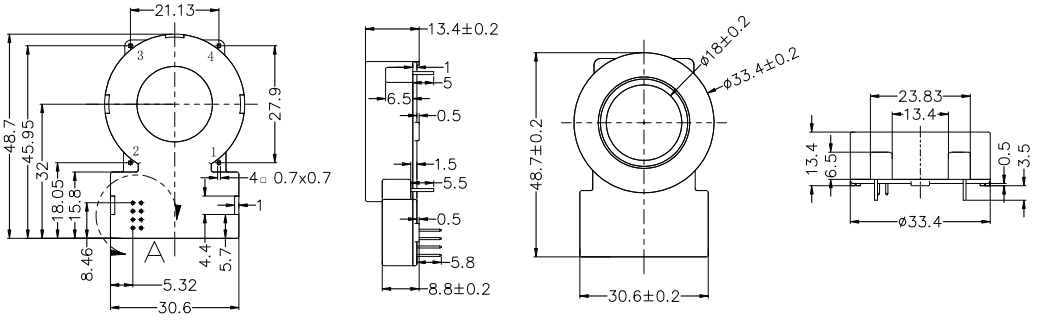
HFCA-F12



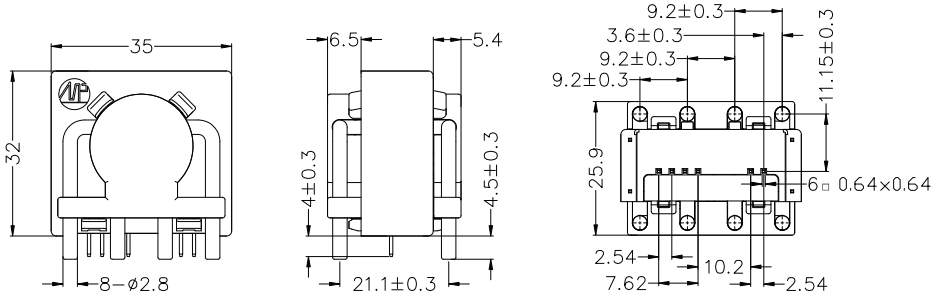
HFCA-F13



HFCA-F16

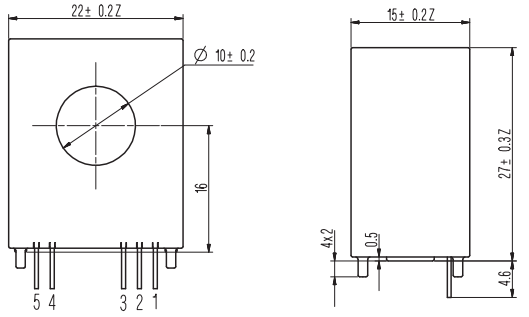


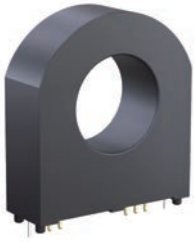
HFCA-F19



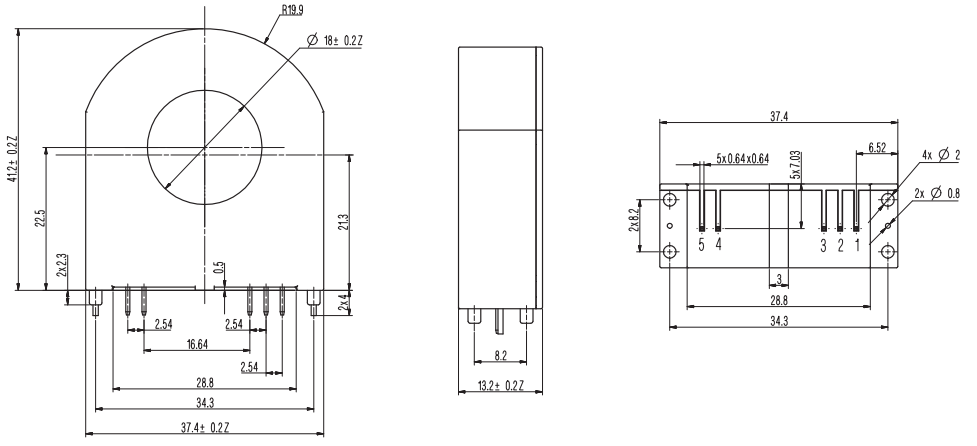
Product and Outline dimensions

HFCA-F21

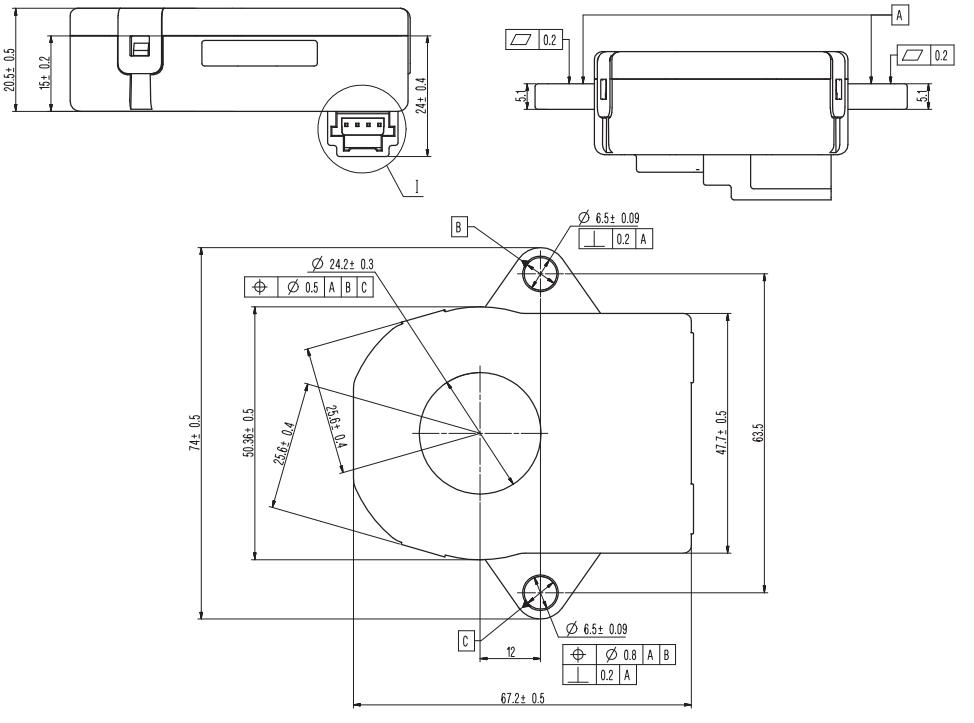


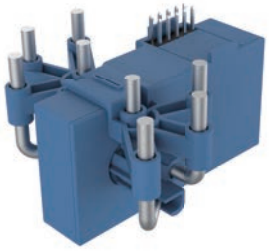


HFCA-F22

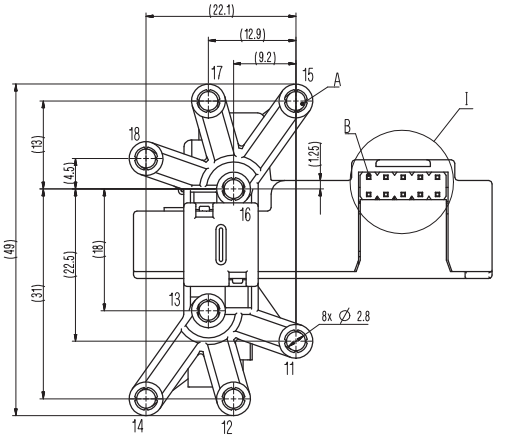


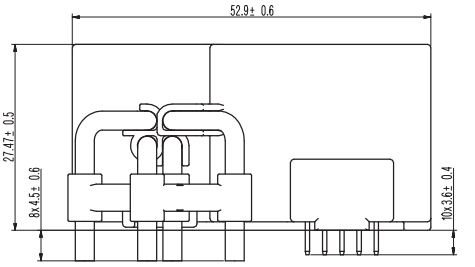
HFCA-M08





HFCA-F15





Characteristics

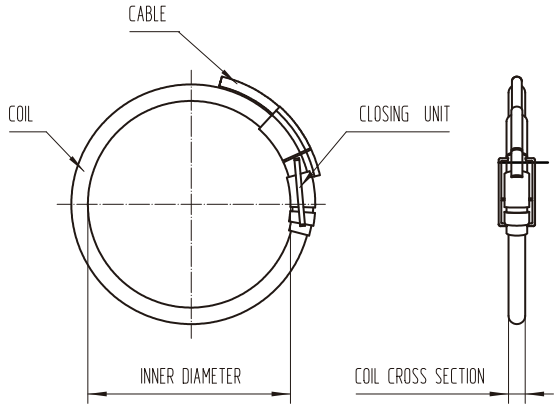
Model	Rated Input current (A)	Monitoring current (A)	Output method	Comply to
HFCA-F06-02	—	DC 6mA, AC 30mA	Switch output	IEC62955
HFCA-F09	—	DC 6mA, AC 30mA	Switch output	IEC62955
HFCA-F10	63/32A	DC 6mA, AC 30mA	Switch output	IEC62955, IEC62752
HFCA-F11	—	DC 6mA	Switch output	IEC62955
HFCA-F12-2	63/32A	DC 6mA	Switch output	IEC62955
HFCA-F13	—	DC 6mA, AC 30mA	Switch output	IEC62955, IEC62752
HFCA-F16	—	DC 6mA, AC 30mA	Switch output	IEC62955, IEC62752
HFCA-F19	63/32A	DC 6mA, AC 30mA	Switch output	IEC62955
HFCA-F21	—	DC 6mA, AC 30mA	Switch output	IEC62955
HFCA-F22	—	DC 6mA, AC 30mA	Switch output	IEC62955

Model	Rated Input current (A)	Rated output	Accuracy
HFCA-M08	500A	CAB2.0	⩽±0.3%

Model	Rated Input current (A)	Output method	Comply to
HFCA-F15	70mA	Voltage and SPI digital output	IEC 61851-1 IEC 62752 IEC 62955 UL 2231-1 UL 2231-2 UL 2594

Rogowski Coils

Main applications: measuring instruments, laboratory instrumentations, harmonic and transient signal monitoring, high current measurement and monitoring, energy control system, DC ripple measurement, electromagnetic relay protection.



Model	Coil inner diameter (mm)	Coil cross-sectional area thickness (mm)	Secondary output (RMS)
FRC135-001 1KA/100mV	135±10	10±0.5	100mv±2%/1000A@50Hz

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