2012 OCTOBER NEW HOW TO CHOOSE BETWEEN SPLIT-CORE CT AND RCT FOR POWER AND ENERGY MONITORING

iSAST OPEN CT

Engineers of power and energy monitoring systems are concerned about choosing split core current transformers (CTs) for high quality measurement without disconnection of the power line and problems pertaining to temperature change or vibration and installation safety. J&D's split core CTs are available as iSAST OPEN CTs with a magnetic core and iSAST OPEN RCT with an air core as advanced technology. Here, we introduce their individual characteristics to provide the best solution for engineers and the power system.

ISAST OPEN CT

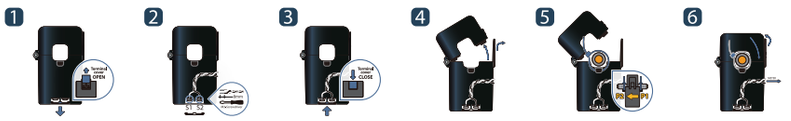
SHOCK and VIBRATION TEST REPORT(JS24F)

No	Before Test		After Test	
	50A(1Ω)		50A(1Ω)	
	Phase error(')	Linearity Error(%)	Phase error(')	Linearity Error(%)
1	0.41	-0.29	0.48	-0.32
2	0.46	-0.29	0.51	-0.34

CORE AIR GAP TEST REPORT(JS24F)

No	Before Test		After Test	
	50A(1Ω)		50A(1Ω)	
	Air gap : 5microns		Air gap : 10microns	
	Phase error(')	Linearity Error(%)	Phase error(')	Linearity Error(%)
1	0.47	-0.31	0.72	-0.67

How to use ››››



The iSAST OPEN CT is comprised of two separated magnetic cores, which can be split. Imprecision of the cores occurs in assembly because only one of the two cores is wound at the secondary. To compensate for this weakness, the split core CT is required to be accurately designed, taking account of the core's physical property and its housing material. Also, it is necessary to consider influences from vibration and shock and an over-voltage protection circuit is included.

Split core CTs are composed mainly of either ferrite, silicon steel or nickel cores to cover various applications, but the material type is not the only factor to impact on accuracy such as phase shift and ratio error. It also depends on how much the air gap between the two split magnetic cores can be reduced and the characteristics due to vibration and shock. The JSC/JS/JC series CTs with 5A, 1A, 0.1A output for precise power and energy measuring are manufactured with precise core split cutting technology. They are designed for strong durability and both improved low current error and errors due to external vibration and shock due to minimized tolerance on the cutting cross section of the core. With a compact one-touch split structure and built in over-voltage protection circuit, this offers an optimum solution to connect on the primary current directly with secure and fast installation of the digital power meter instead of cutting the power line.
In particular the JC08W/JS10FL (mA output) for primary current CT (1 A/5 A output) to connect on the secondary can be led into the power meter together for measurement. The rated current is 5A - 2,400A, and it is satisfied with the IEC60044-1 0.5S/0.5/1.0/3.0 and ANSI 57.13 0.6/1.2 grades. The device also meets the IEC61010-1, UL 61010-1 and EN 61010-1 security accreditation.

iSAST OPEN RCT

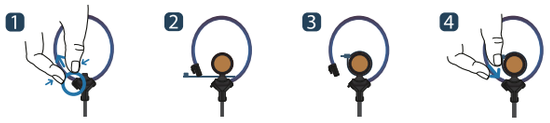
ISAST OPEN CT

The Rogowski loop circumference is 80mm

Conductor Position	Typical Error(%)
● Adjacent to the inside coil edge	< 1%
● Adjacent to the clip together mechanism	< 1%
● Central in the Rogowski loop	0.2%

Note that with a larger conductor the variation of error with conductor position will decrease and approach the calibrated value.

How to use ››››



Flexible rogowski coil CT has 2 output terminals at end of coils and constitutes a lead wired spiral coil which is wounded from one end to the other end back as flexible outfit. This technology supplies precise sensing about current change rate to induce output voltage from proportional input current.

You can choose each transformer length per current measuring range. When transforming proportional voltage signal to output signal, electro integrator circuit is required. In another words, Split Rogowki coil can be a current sensor which has outstanding linearity and deliberated structure as additional electric component and compensation. This Rogowski has lower inductance value since it doesn't use magnetic core and better frequency response. It shows highly precise output because saturation doesn't be occurred when measuring high current.

JRF Series which applies with high accuracy coil winding technology on air core that shows precise quality from low current to high current and provide optimizing solution to improve conductor positioning error and influence of external magnetic field in energy meter and protection measuring technology industry. As split clip flexible outfit, it is simply installed even at limitary space instead of cutting power line.

As main features per series, JRF55 / 80 / 105 are designed for compact split clip type and they are shielded on joint clip part to maintain less than 1% error by conductor position. JRF 1 / 2 / 3 are designed as clamp type for easy mobile installation and tighten up durability.
JRF 1S / 2S / 3S are designed with optimized shielding technology to block influence of external magnetic field completely from high current. Transducer type as Rogowski and integrator joint device is applied with advanced and optimized integration technology and shows high accurate characteristic. Rated current is 250A-6000A and it satisfies with IEC60044-8 0.5 / 1.0 grade and it certifies with security accreditation IEC61010-1, UL61010-1 and EN61010-1 as official document.

We found out how iSAST OPEN CT and iSAST OPEN RCT work as above. iSAST OPEN CT is designed as minimizing air gap between upper and bottom of magnetic core. Also, it improves durability by external vibration & shock and secures installation safety by integrating over voltage circuit. According to this, it solves main issued trouble of engineers when they make high quality measurement system.

iSAST OPEN RCT is designed to precise winding technology to minimize Rogowski's basic faults such as error by external magnetic field, low current or conductor positioning. Also, as a flexible split clip type, it can be easily installed on small space so it became a solution to solve installer's problem about crawlspace. In conclusion, most importantly, a developer should choose stable and perfect Split core CT and RCT to reduce management costs after all as considering all of available condition.