

Rogowski Tores

Description

Flexible Rogowski coil Fixed



- High linearity from 10A to 500kA
- Wide dynamic range
- Very useful with large size or awkward shaped conductors or in places with limited access
- Not damaged by large overloads Non-intrusive, no power drawn from the main
- Measurement uniformity at any position of the conductor inside the coil
- Excellent degree of rejection to the external current conductor
- Thanks to its light weight, it can be changed on the measured conductor
- Totally shielded

Description

ESCT-RC series are flexible current transducers based on Rogowski principle, particularly suitable for measurement in combination with portable devices. ESCT-RC coils are available in different sizes and can be supplied according to consumer's design, therefore they can be used in all those applications, in which traditional transducers are not fitting due to its size and/or weight. Due to its specific features, flexible Rogowski coil is an extremely comfortable solution for current measurement and can be used in a number of cases where traditional current transducer is not the adequate solution. ESCT-RC series provided with a shield against the influence of external magnetic fields, therefore it grants a stable measurement from low currents to hundred of kA. The Rogowski coils must be connected to an electronic integrator for 90° phase shift compensation and frequency equalization. Our portable and panel meters can interface Rogowski coils directly without the need of the external integrators. This is an advantage because there is no external boxes or any power supply with consequent ease of use. The particular features of the Rogowski coils combined with the extremely flexible input programming of our portable meters, allow to carry out measurement by all applications.

Feature

- Very thin coil diameter
- calibrated to 0.5%
- Measurement uniformity at any position of the conductor inside the coil
- Excellent degree of rejection to the external current conductor
- Delivered already calibrated

Applications

- Measuring devices, lab instrumentation
- Power monitoring & control systems
- DC ripple measurement
- Harmonics and transients monitoring
- Power meter, Power analyzer sensor

Related Products

- Integrator S10, S9.1 D1, S1, DA01/05, 01/03

Benefits

- Due to its structure, flexible Rogowski coils allows to embrace conductors or grouped cables, which are large and difficult to reach, without any hazard.

- The coil output gives a low voltage signal, therefore there is no danger from open-circuited secondary. This makes Rogowski transducers extremely suitable for temporary measurements, for example in combination with portable analysers
- Unlike traditional current transformer with magnetic core, the Rogowski coil is a non-intrusive transducer. Since it has no hard core, it draws no power from the main circuit carrying the current to be measured.

What is a Rogowski Coil

Rogowski coils have been used for the detection and measurement of electric currents for decades. They are based on a simple principle : an “air-cored” coil is placed around the conductor in a toroidal fashion and the magnetic field produced by the current induces a voltage in the coil. The voltage output is proportional to the rate of change of current. This voltage is integrated, thus producing an output proportional to the current. By using precision winding techniques, especially developed for the purpose, the coils are manufactured so that their output is not influenced by the position of the conductor within the toroid, and to reject interference from external magnetic fields caused, for example, from nearby conductors. Basically, a Rogowski coil current measuring system consists of a combination of a coil and conditioning electronics. Rogowski coil current transducers are used for the AC measurement. They can be used in similar circumstances to current transformers but for many applications they have considerable advantages :

- Widedynamic range.
- High linearity.
- Very useful with large size or awkward shaped conductors or in places with limited access. Thanks to the structure without hard core, the coil can be easily manufactured according to the application or to the available space.
- Unlike traditional current transducers, there is no danger from open-circuited secondaries.
- They cannot be damaged by large overloads.
- They are non-intrusive. They draw no power from the main circuit carrying the current to be measured.
- They are also light weighted and in some applications are light enough to be suspended on the conductor being measured.

The transducer does not measure direct currents but, unlike a current transformer, it can carry out accurate measurements of AC component even if there is a large superimposed DC component, since there is no iron core causing saturation. This feature is particularly useful for measuring ripple currents for example in battery charging systems.

Specifications

Transducer

Coil length:	from 20 cm to 1000 cm
Coil diameter:	Ø8, Ø6, Ø12 mm

Transducer

Fastening:	bayonet holder
Weight:	150 g
Material:	thermoplastic UL94-V0
Output level (RMS):	ESCT-RC Series: 50 mV/kA @50Hz, 85 mV/kA @50Hz / 80mV/kA @60Hz, 100mV/kA @60Hz ESCT-SRC Series: 120 mV/kA @50Hz, 240 mV/kA @50Hz / 200V/kA @60Hz, 333mV/kA @60Hz
Current Range:	10A to 500 kA
Output sensitivity tolerance:	±5% (not calibrated)
Output sensitivity tolerance:	±5%, 25°C (calibrated)
Position error:	±1
Coil resistance:	from 70 to 900 ?
Positioning error:	better than ±1% of reading (with 15 mm diameter cable)
Frequency range:	approx 40 Hz to 20 kHz
Working voltage:	1000 VRMS CAT III / 600 VRMS CAT IV pollution degree 2
Test voltage:	7400 VRMS / 1 min
Connection Cable	
Type:	2 x 0.15 mm + shield
Length:	on request
Environmental Conditions	
Operating temperature:	from -30°C to +80°C
Storage temperature:	from -40°C to +80°C
Protection degree:	IP68 Type A B D IP65 Type E (ESCT-SRC Series) IP54 Type C (ESCT-RC16/24/36)
Standards Compliance	
Safety:	EN61010-1, EN61010-031, EN61010-2-031, EN61010-2-032

Model Table

Coil code	Window Size (mm)		Coil Length (mm)	Lead Length (mm)	Ratio	Type No.	Remark
	A	B					

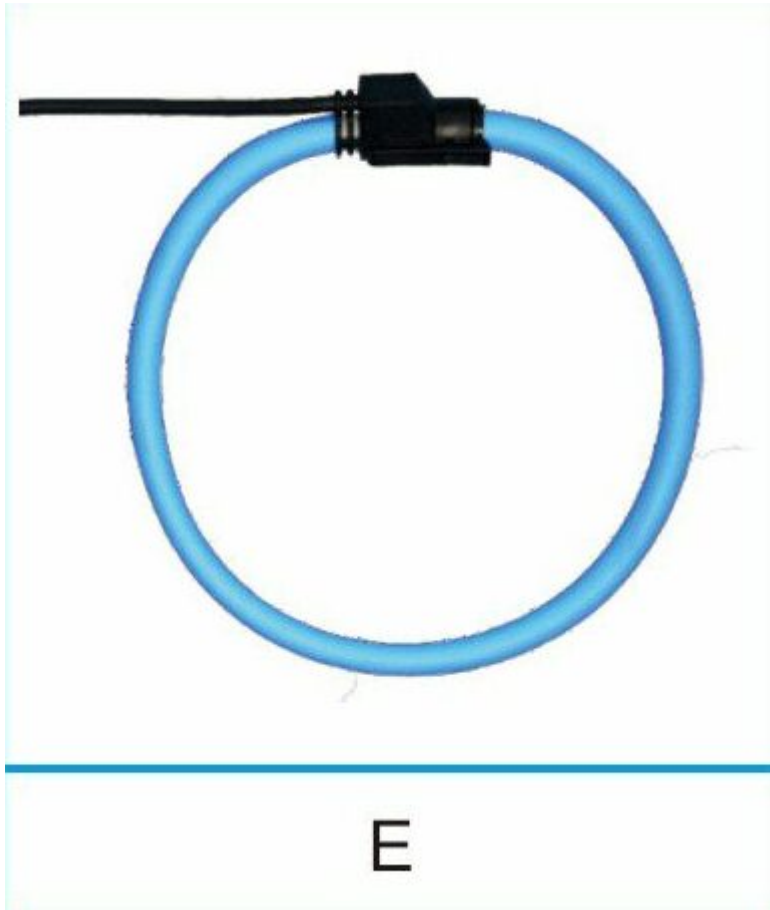
ESCT-RC60	60	50	200	2000	85 mV/kA @50Hz	A	<p>1. Different coil color Black, Yellow, Red, Green, Blue (MOQ required)</p> <p>2. Other cable lenght longer than standard (2m), up to 15m</p> <p>3. Other coil lenght than these listed, up to 1000cm.</p> <p>4. Product code: ESCT-RC-xxx (window size)</p>
ESCT-RC100	135	100	395	2000	85 mV/kA @50Hz	B	
ESCT-RC105	105	100	350	2000	85 mV/kA @50Hz	A	
ESCT-RC150	165	150	525	2000	85 mV/kA @50Hz	B	
ESCT-RC200	240	200	665	2000	85 mV/kA @50Hz	B	
ESCT-RC240	245	240	800	2000	85 mV/kA @50Hz	A	
ESCT-RC16	22	16	80	2000	50 mV/kA @50Hz	C	
ESCT-RC24	27,5	24	97	2000	50 mV/kA @50Hz	C	
ESCT-RC36	36	37	130	2000	50 mV/kA @50Hz	C	
ESCT-RC45	65	45	205	2000	85 mV/kA @50Hz	D	
ESCT-SRC100	115	100	380	2000	240 mV/kA @60Hz	E	
ESCT-SRC150	175	150	555	2000	240 mV/kA @60Hz	E	
ESCT-SRC300	315	300	1000	2000	240 mV/kA @60Hz	E	











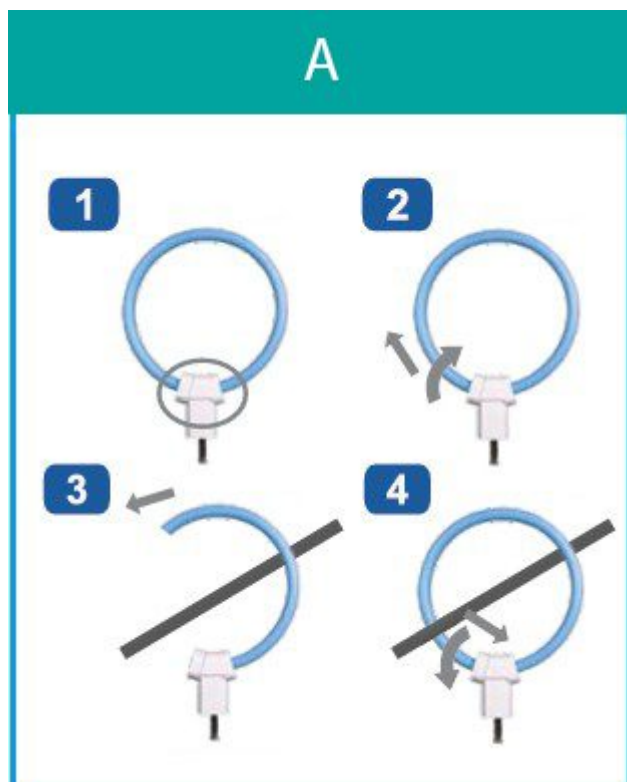
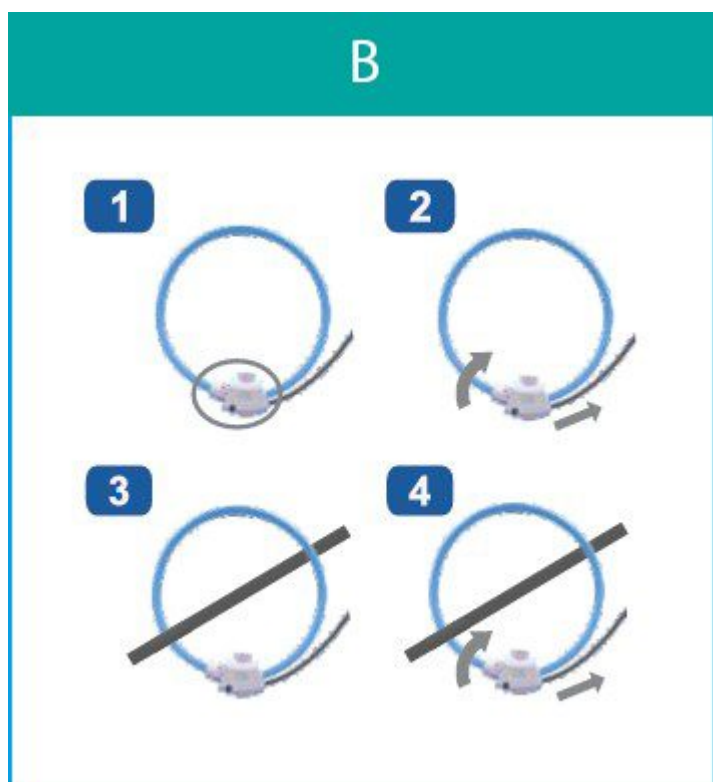
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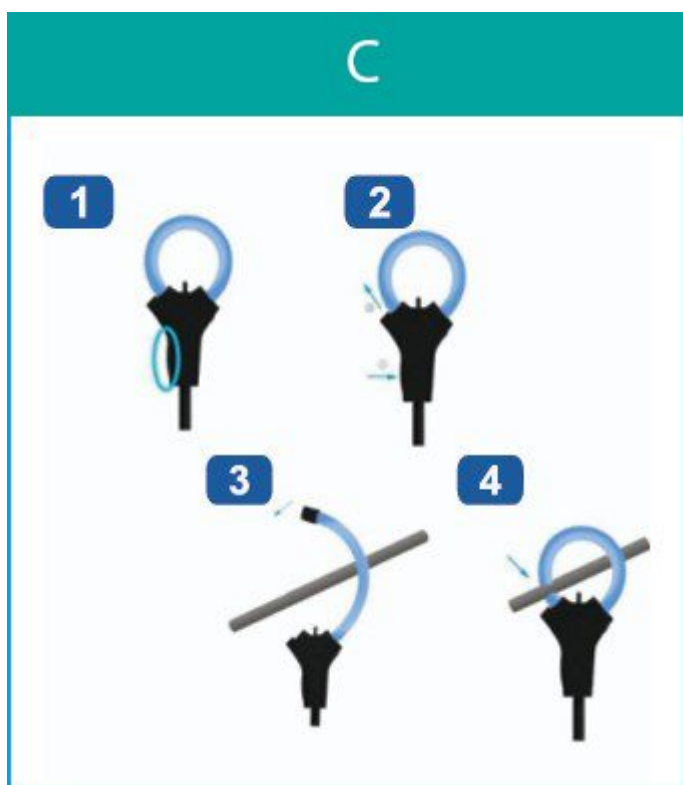
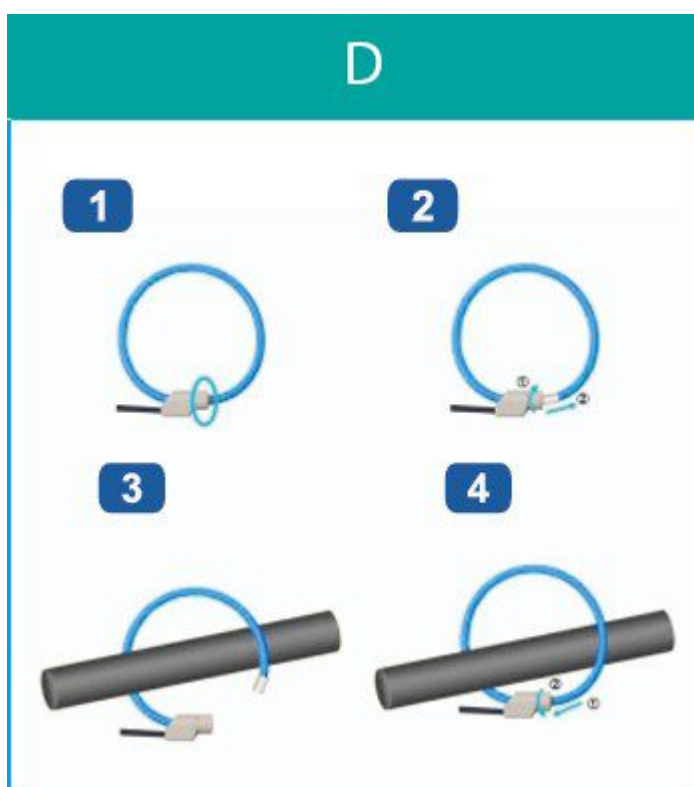
ESCT-RC60-2M-85-B

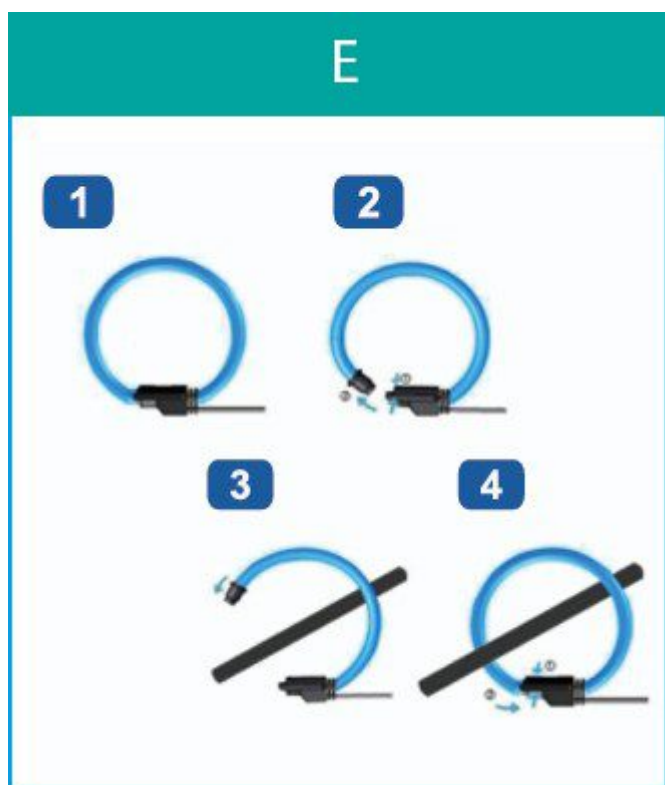
- RC: < 120 mV/kA
- SRC: ? 120 mV/kA
- Cable length (Customizable)
- Ratio: 85 mV/kA (Customizable)
- Color (R: Red, B: Blue, O: Orange, Y: Yellow, G: Green)

ESCT-RC60-2M-85-B means window size at 60 mm, cable length 2 meters, rated ratio 85 mV/kA, and blue color.

All the parameters can be customized, please contact for more details.



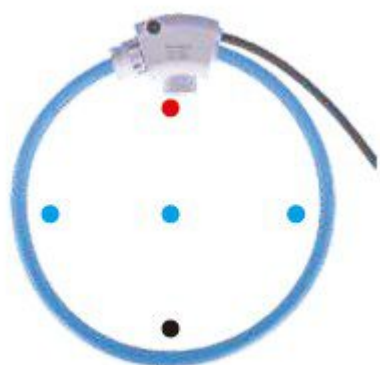




Position sensitivity



Conductor Position	Typical Error (%)
Adjacent to the clip together mechanism	< 0.5%
Adjacent to the inside coil edge	< 0.8%
Adjacent to the opposite clip	< 1%

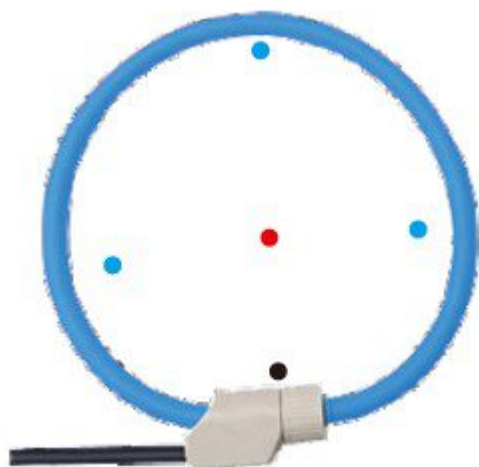


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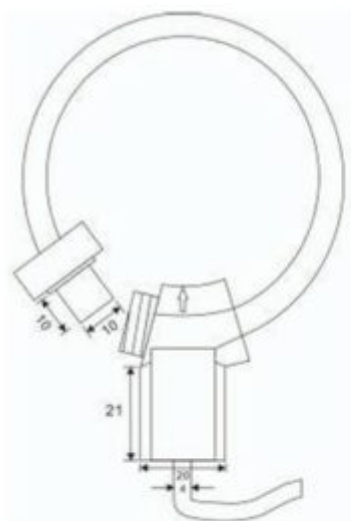
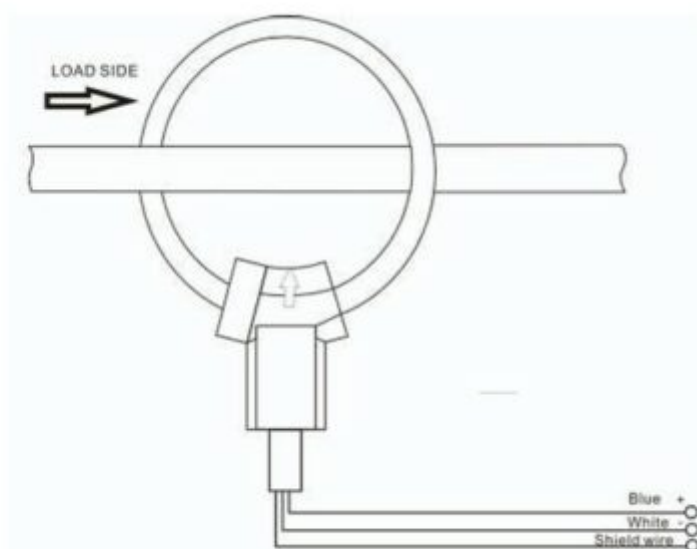
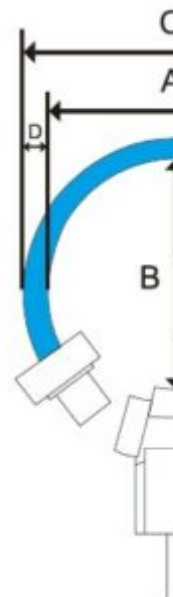
Conductor Position	Typical Error (%)
Adjacent to the clip together mechanism	< 0.5%
Adjacent to the inside coil edge	< 0.8%
Adjacent to the opposite clip	< 1%

Dimensions

Dimension tolerance A, B, C, F: ± 5 mm, D: ± 0.2 mm, E: ± 10 mm

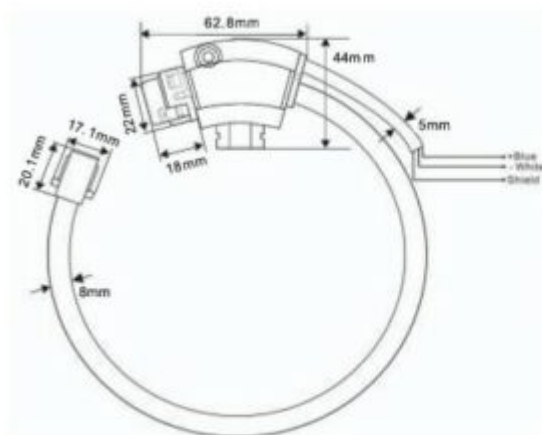
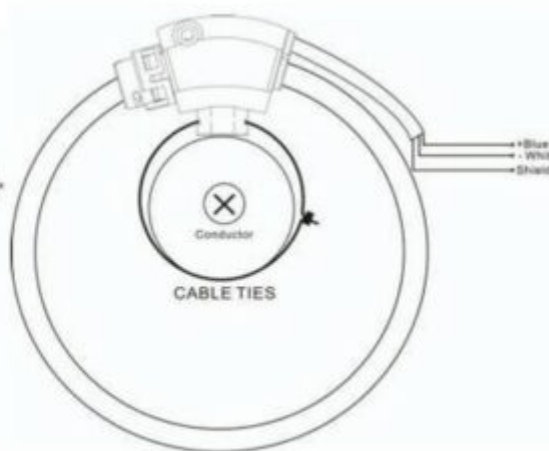
Type A: RC60, RC105, RC240

Type A:		RC60	RC105	RC240
A. Window Size A	60		105	245
B. Window Size B	50		100	240
C. Coil O.D.	66		121	261
D. Coil Section	8			
E. Lead Cable Total Length	2000			
F. Coil Length	200		350	800
Ratio (Calibrated)	80 mV/kA @50Hz, 85 mV/kA @50Hz, 100 mV/kA @50Hz			
Bandwidth	1 Hz to 50 kHz (-3dB)			



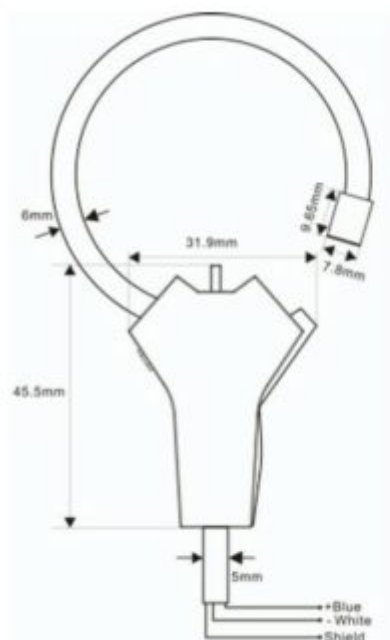
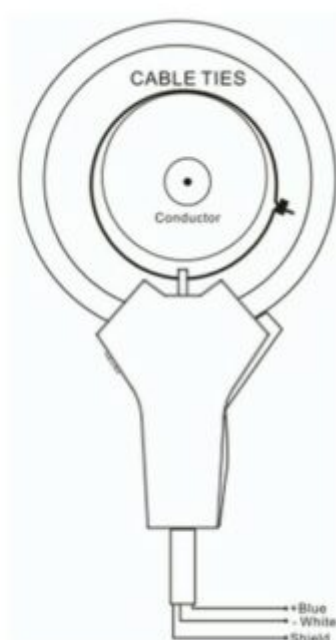
17 page 5 dimension 1

Type B:		RC100	RC150	RC200	RC300
A. Window Size A	135		165	210	325
B. Window Size B	100		150	200	300
C. Coil O.D.	151		181	226	340
D. Coil Section	8				
E. Lead Cable Total Length	2000				
F. Coil Length	395		525	665	1050
Ratio (Calibrated)	80 mV/kA @50Hz, 85 mV/kA @50Hz, 100 mV/kA @50Hz				
Bandwidth	1 Hz to 50 kHz (-3dB)				



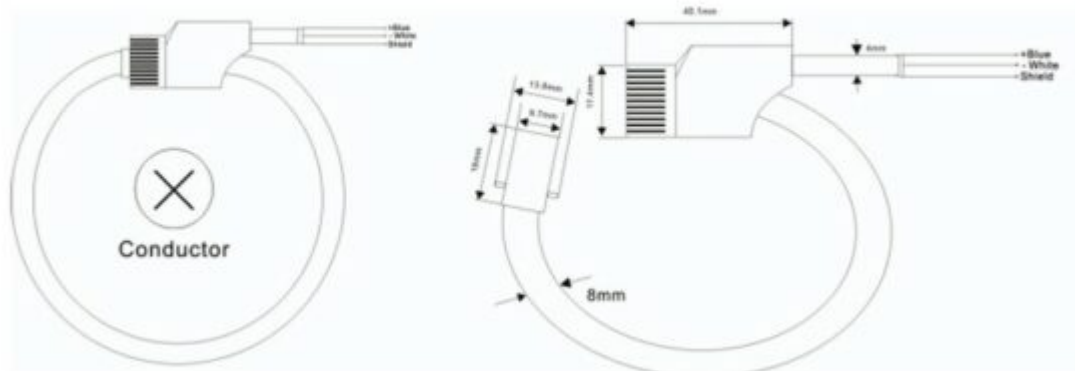
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Type C:		RC16	RC24	RC36
A. Window Size A	22		27.5	36
B. Window Size B	16		24	37
C. Coil O.D.	34		39.5	48
D. Coil Section	6			
E. Lead Cable Total Length	2000			
F. Coil Length	80		97	130
Ratio (Calibrated)	50 mV/kA @50Hz			
Bandwidth	1 Hz to 20 kHz (-3dB)			



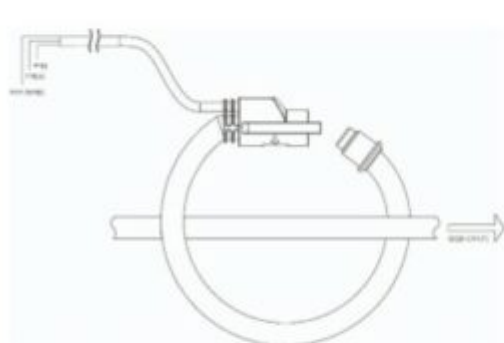
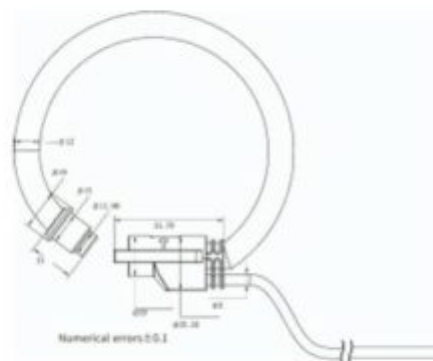
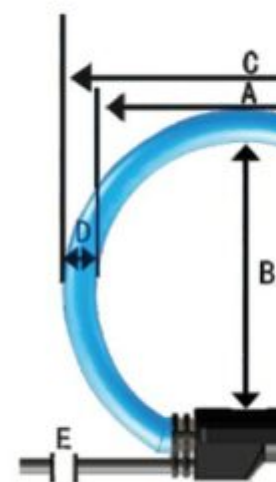
19 page 6 dimension 3

Type D:		RC45
A. Window Size A	65	
B. Window Size B	45	
C. Coil O.D.	81	
D. Coil Section	8	
E. Lead Cable Total Length	2000	
F. Coil Length	205	
Ratio (Calibrated)	50 mV/kA @50Hz, 85 mV/kA @50Hz, 100 mV/kA @50Hz	
Bandwidth	1 Hz to 50 kHz (-3dB)	



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Type E:	SRC100	SRC150	SRC300
A. Window Size A	115	175	315
B. Window Size B	100	150	300
C. Coil O.D.	139	199	399
D. Coil Section	12		
E. Lead Cable Total Length	2000		
F. Coil Length	380	555	1000
Ratio (Calibrated)	240 mV/kA @60Hz		
Bandwidth	1 Hz to 10 kHz (-3dB)		



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