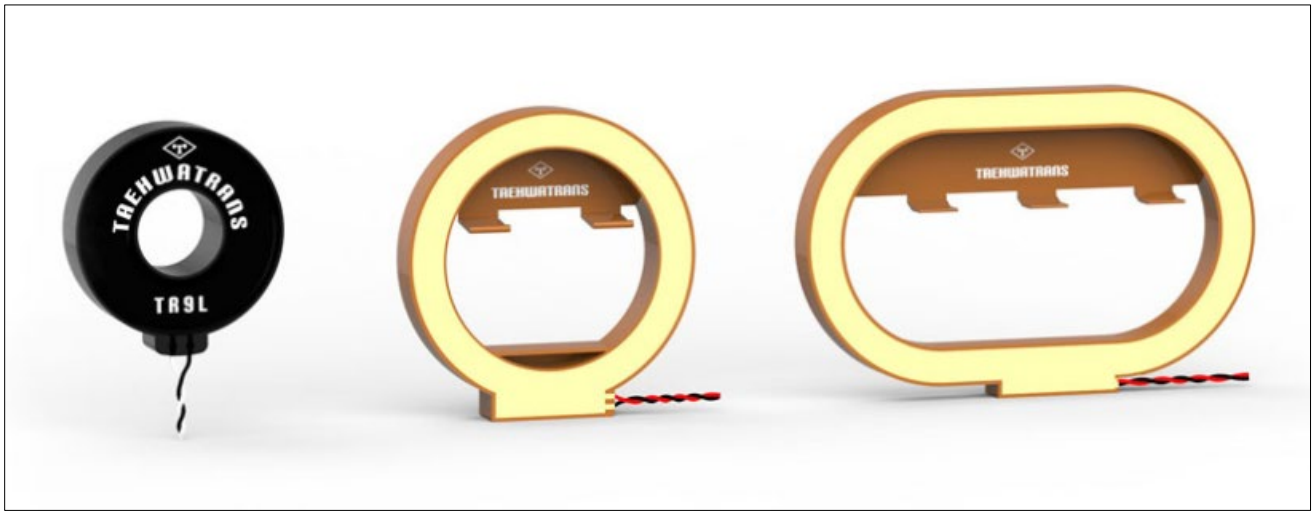
Rigid Rogowski Coils



Taehwatrans rigid Rogowski coils are an air cored (non-magnetic) toroidal windings positioned round the conductor. An alternating magnetic field generated by the current in the primary conductor induces a voltage in the coil. Thanks to low inductance and its non-magnetic core, Rogowski coils have the output voltage linearity proportional to the frequency increase and the output of the coil does not saturate for a high primary current more than 1kA and, leading to achieve a great accuracy on high current range. Traditional current transformers for high current measurement are bulky and heavy so that they seriously limit the design flexibility of systems. However, Rogowski coils with compact and light weight design, can provide great advantage for system design to be smarter and more compact.

Application

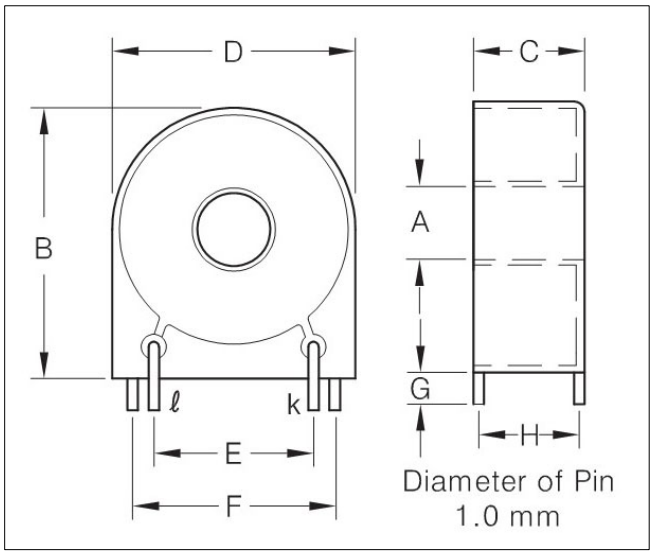
- Smart reclosure in distribution grid
- Air circuit breakers (ACB)
- Gas insulation switchgear (GIS)
- Electronic sectionalizer
- Load balancing
- Power monitoring & Energy metering

Features

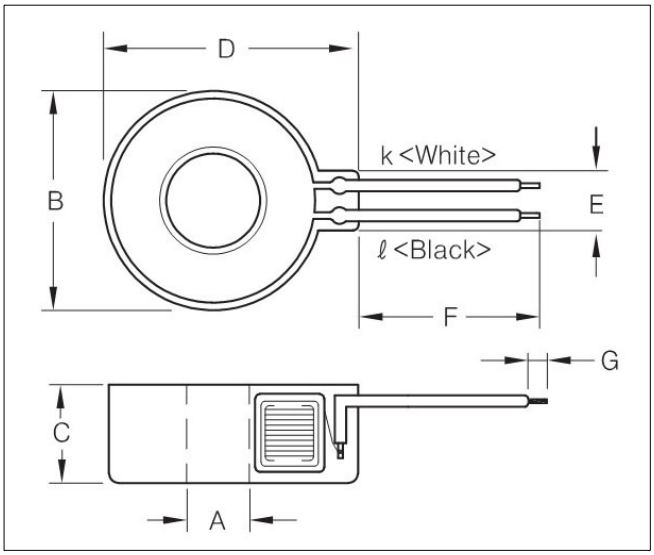
- Excellent accuracy
- Wider frequency up to 1 MHz
- High current measurement without saturation

I. Miniature Rogowski Coils

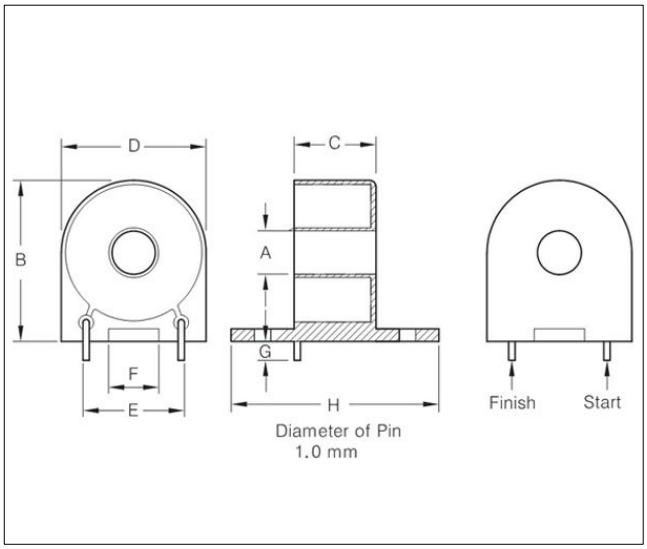
Drawing



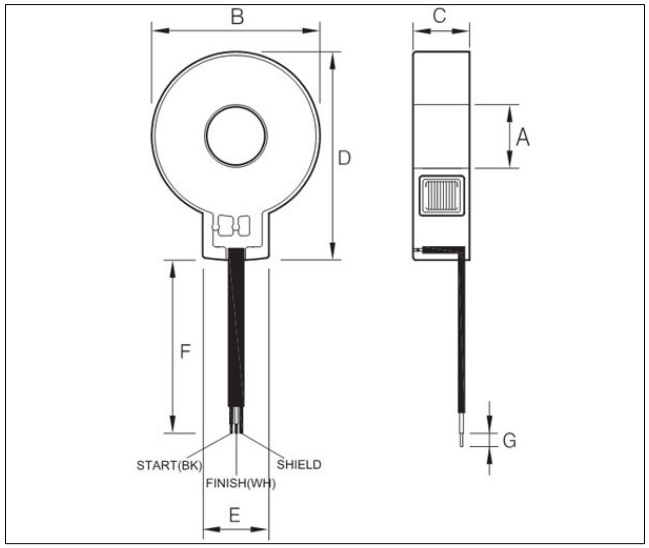
PCB Mountable Type



Lead Wire Type



TR71VA



TRIOLSC (Shield Cable)

Electrical Property & Dimension

Dimension

F : 50Hz

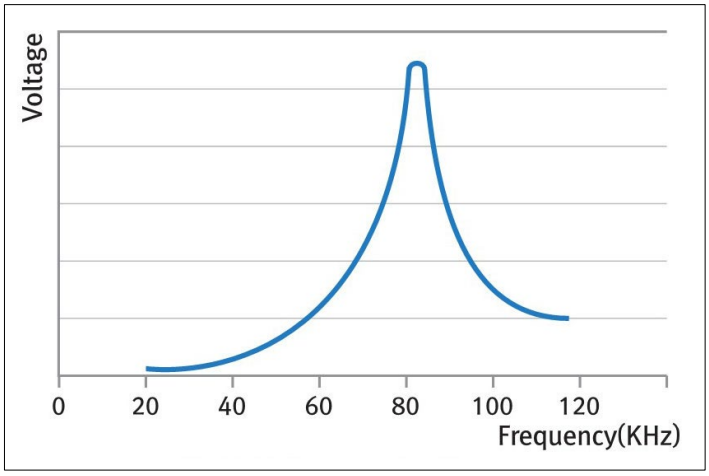
Model NO	DCR(Ω) ±6%	Rated Current(A)	Max Current(KA)	Self Current(KA)	Mutual Inductance	Max Stray Noise Vo	Max Multual Inductance Erro(%)	Output Voltage at 100A	Instant Peak Amp(KA)
TR77V/L	100Ω	1,000A	10kA	0.7mH	0.69μH	1.3mV	0.60%	21.6mV	64kA
TR71V/L	181Ω		9kA	7.6mH	3.25μH	0.3mV	0.03%	102.2mV	54kA
TR71VA	13.5Ω		13kA	0.4mH	0.80μH	0.3mV	0.12%	25.0mV	81kA
TR10VSH	173Ω		6kA	5.8mH	2.13μH	0.6mV	0.09%	66.9mV	39kA
TR10LSH									
TR10LSC									
TR9L	200Ω		6kA	20.9mH	4.48μH	4.0mV	0.28%	140.8mV	40kA

Dimension

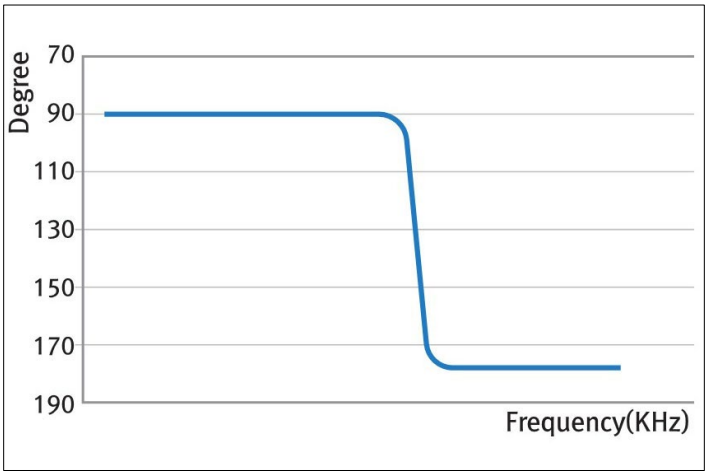
unit:mm

Model NO	A(min)	B(max)	C(max)	D(max)	E(±0.3)	F(±0.3)	G(±0.5)	H(±0.3)
TR77V	6.8	25.0	11.0	23.5	15.1	19.1	3.0	9.1
TR77L	6.9	23.6	11.0	26.8	7.1	71.0	3.0	
TR71V	8.9	27.5	17.0	25.3	15.1	19.1	3.0	15.1
TR71L	8.9	24.8	17.0	28.4	7.6	65.0	3.0	
TR71VA	8.9	27.7	20.3	25.3	15.1	9.0	3.0	4.0
TR10VSH	12.9	39.3	14.0	38.0	25.2	32.8	3.0	12.1
TR10LSH	12.9	37.5	14.0	41.3	10.3	240.0	5.0	
TR10LSC	12.9	37.5	14.0	46.8	14.9	381.0	5.0	
TR9L	19.6	48.2	19.2	52.0	13.2	270.0	5.0	

Frequency Vs Typical Output Gain Diagram



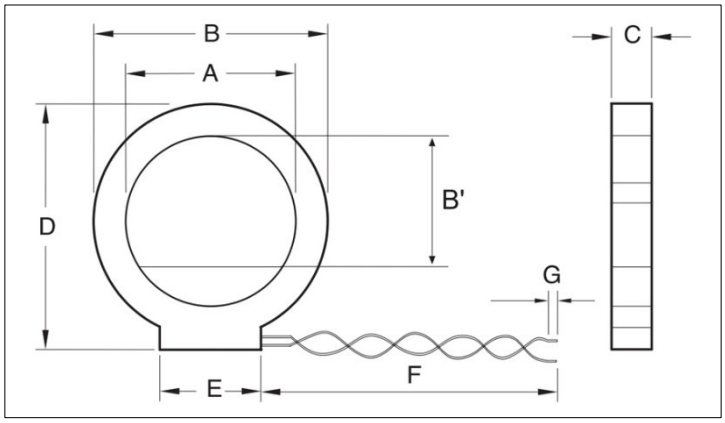
TR10LSC Frequency Response



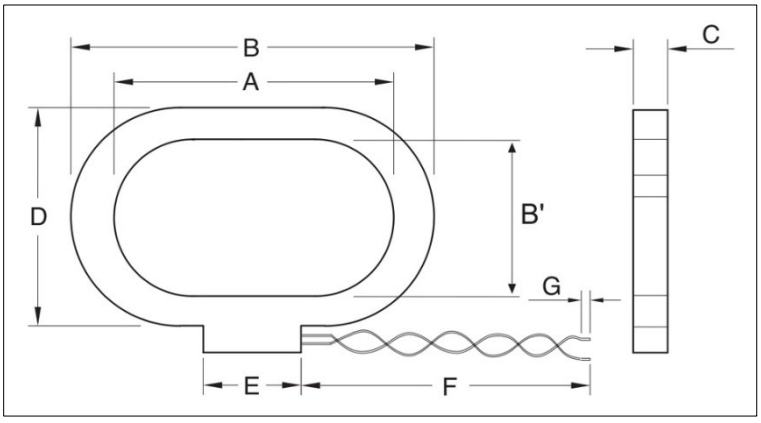
TR10LSC Phase Curve

II. ACB & GIS Application Rogowski Coils

Drawing



Round Type (TR1L ~ TR4L)



Track Type (TR5L ~ TR8L)

Electrical Property & Dimension

Dimension

F : 50Hz

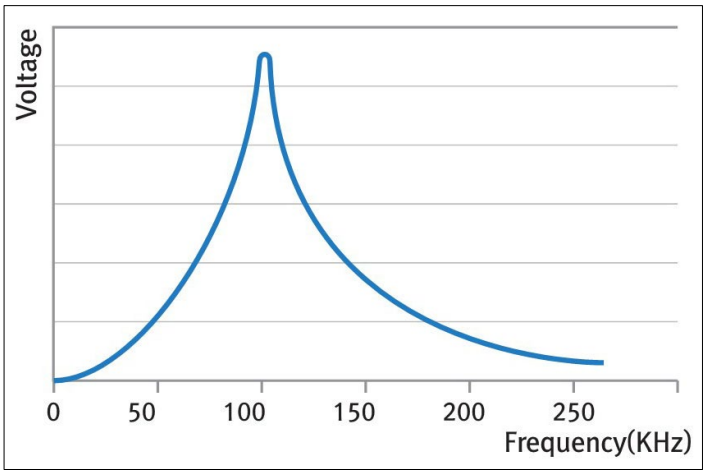
Model NO	Current Rating(A)	Output V at Primary	Max Current(kA)	Self Inductance	Mutual Inductance	Max Stray Noise Voltage	Max Mutual Inductance Error(%)
TR1L	630A	16.97mV	55kA	1.72mH	0.856μ	0.3mV	0.18%
TR2L	1000A		44kA	0.69mH	0.54μ		
TR3L	1250A		51kA	0.43mH	0.543μ		
TR4L	1600A		60kA	0.26mH	0.34μ		
TR5L	2000A		90kA	0.32mH	0.27μ		
TR6L	2500A		120kA	0.2mH	0.22μ		
TR7L	3200A		120kA	0.13mH	0.17μ		
TR8L	4000A		90kA	0.33mH	0.14μ		

Dimension

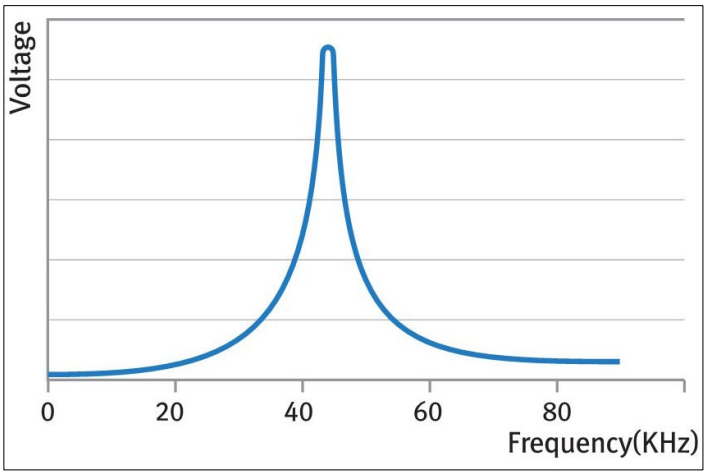
unit : mm

Model NO	A(min)	B(max)	B'(max)	C(max)	D(max)	E(max)	F(±7)	G(±1)
TR1L	53.0	75.0	48.9	12.5	76.5	31.5	300.0	5.0
TR2L								
TR3L								
TR4L								
TR5L	98.0	119.0	54.4	11.0	76.0			
TR6L								
TR7L								
TR8L								

Frequency Vs Typical Output Gain Diagram



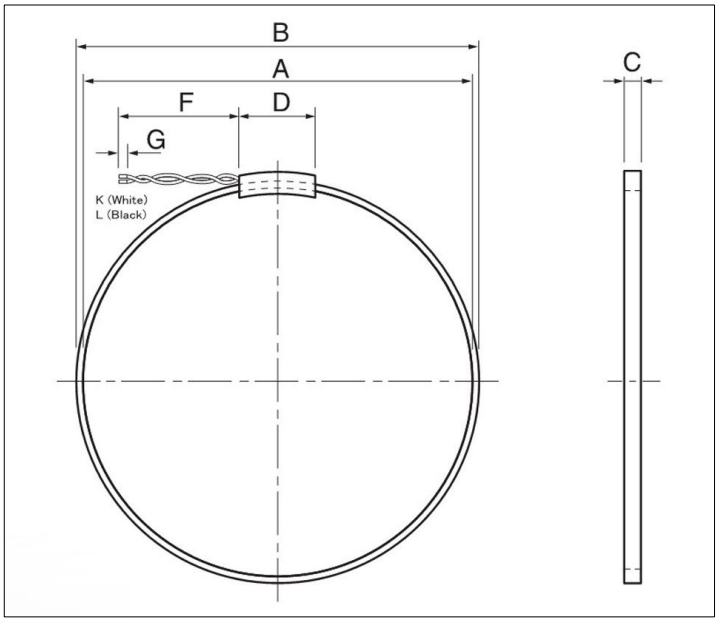
TR1L Frequency Response



TR9L Frequency Response

Ⅲ. Switch Gear Application Rogowski Coils (Model : TFR610)

Drawing



Electrical Property & Dimension

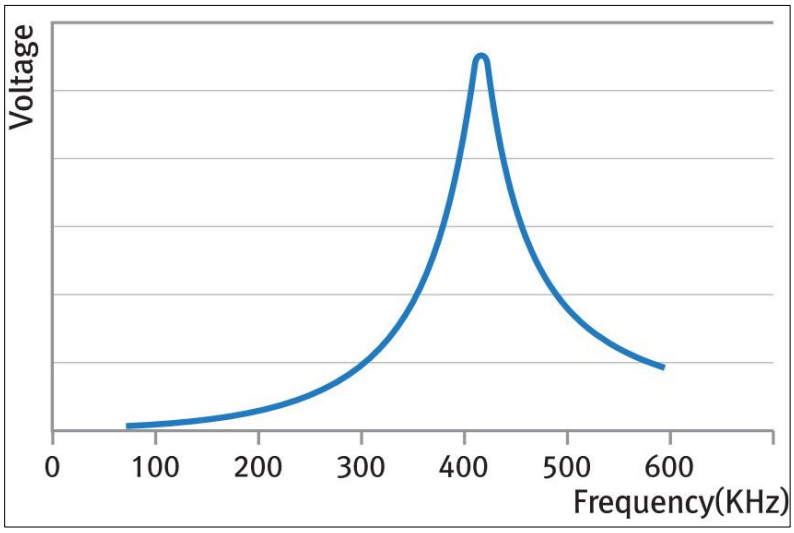
Dimension unit : mm

A(min)	B(max)	C(max)	D(max)	F(±5)	G(±1)
190	200	10	50	200	10
7.48"	7.87"	0.39"	1.97"	7.87"	0.38"

Electrical Property

Output (1000A, 60Hz)	400mV	Operating Frequency	20Hz~20KHz
Standard Accuracy	Class 0.5	Dynamic Current Range	72KA
Phase displacement	0.5°	High Potential Volatge	a.c.2500V
Reading Error (20% Rating)	≤ 0.75%	Temp Range	-40°C ~ +80°C
Max Positioning Error	Avr.± 0.5%(max 1%)	Insulation Resistance	DC500V/100MΩ Min
Max External Stray Mutual Inductance Error (1000A, AC0.5mT)	< 0.1%		

Frequency Vs Typical Output Gain Diagram



TFR610 Frequency Response

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