

MV Flexible Rogowski coils



Taehwatrans Medium Voltage (MV) Flexible Rogowski coils are designed to meet the requirements of medium voltage grids. Their voltage insulation level covers max 24KV nominal rated voltage, which equals to 50KV rated power frequency withstand voltage per minute. Taehwatrans TFR series provide best-in-class accuracy for metering and monitoring purpose. They are designed in a way that their output is hardly influenced by the position of the conductor within the loop and that cross talk, interference from external magnetic fields caused by nearby conductors, is very low. They show accuracy class 0.5 compliant to IEC61869-10 and less than $\pm 0.5\%$ (max 1%) positioning error around 360 degree of coil loop. They are IP67 protection rating and UV protective so that they show excellent performance in outdoor applications.

They have wide dynamic range where the same coil can be used to measure currents from mA to hundreds of kA. Also they have excellent linearity less than 0.5%. By sophisticated engineering of coil winding and design process, the frequency bandwidth for -3dB ranges from hundreds of kHz and to Mhz. The coreless structure enables Rogowski coils to be used in limited space. Compared with the traditional current transformers, they do not require the power consumption along with an extremely light weight. In the safety aspect, the safe secondary circuit block is not necessary to prevent the damage from the high instantaneous surge current due to an air core usage. In regards to applications, they have the AC accurate measurement, what is more, including the measurement of AC components, ripple current, and DC components.

They are available in different sizes and can be engineered according to customers' requests, therefore they can be used in all those applications where traditional transducers are not fitting due to its size and/ or weight. TFR series are designed to have strong tolerance against the influence of external magnetic fields, therefore it is capable of an excellent measurement from low currents to hundreds of kA. The Rogowski coils must be connected to an electronic integrator for 90° phase shift compensation and frequency equalization. Integrators sold separately.

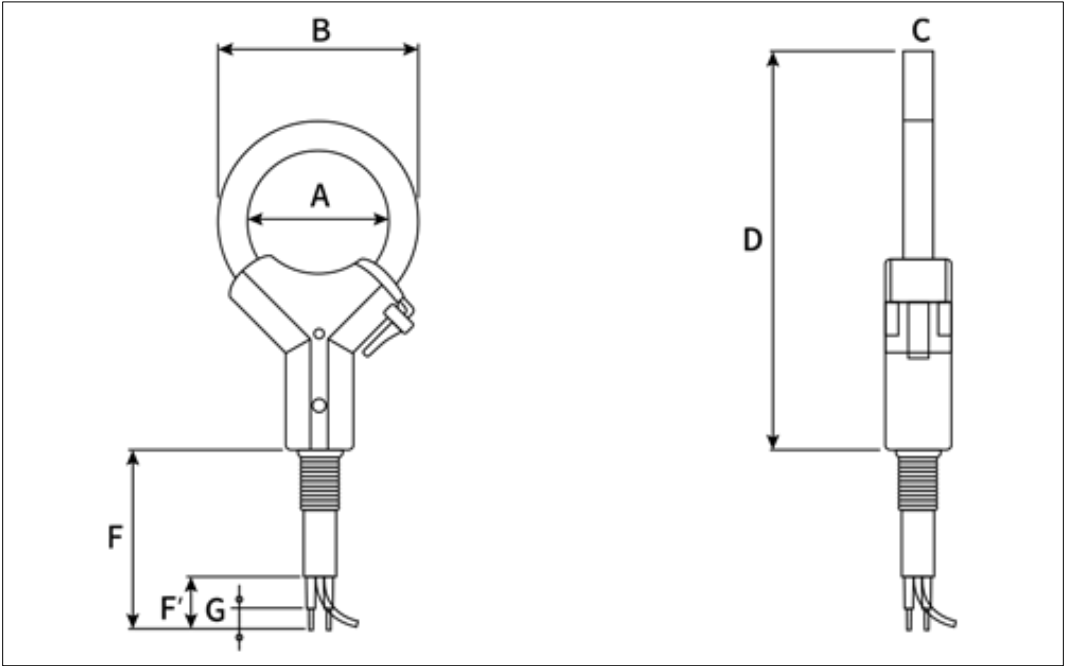
Application

- Revenue-Grade distribution transformer monitoring
- Energy sub-meters
- Pole-top transformer monitoring
- Power quality monitoring
- Condition monitoring
- Distributed measurement systems

Features

- Voltage insulation: max 24KV nominal rated voltage (50KV rated power frequency withstand voltage per minute)
- Accuracy class 0.5 by IEC61869-10
- Protection Degree IP67 & UV Protective
- Very low positioning errors & excellent orthogonality
- Easy & quick installation in uninterruptible power line
- Adaptable for a large range of coil diameter

Drawing



Electrical Property & Dimension

Dimension

unit : mm/inch

Model	TFR240LM	TFR300LM	TFR400LM	TFR620LM
Rope Length	258 10.2"	33 13.3"	17.2"	638 25.1"
A Window	64 2.5"	78 3.1"	103 4.1"	158 6.2"
B Outer Diameter	88 3.5"	102 4.0"	127 5.0"	182 7.2"

Electrical Property

Accuracy Class (IEC61869-10)	Class 0.5	Operating Frequency	20Hz~20KHz
Output Voltage @1000A,60Hz	120mV	Nominal Measurement Current	5A to 6000A
Output Voltage @1000A,50Hz	100mV	Hi-Potential Voltage per min.	a.c. 24KV
Reading Error (20% Rating)	$\leq 0.75\%$	Full Scale Error (Whole Range)	$\leq 0.5\%$
Phase Displacement	$< 0.5^\circ$	Connected Cable	Insulated
Max Position Error ($0^\circ \sim 360^\circ$)	Avr. $\pm 0.5\%$ (max 1%)	IP Rating & UV Resistance	IP67 & UV Resistive
Max External Stray Mutual Inductance Error (1000A, AC0.5mT)	$< 0.1\%$	Temperature Drift	$\pm 0.15\%$ per 10°C ($-40^\circ\text{C} \sim +70^\circ\text{C}$)
Ambient Operating Temp.	$-40^\circ\text{C} \sim +70^\circ\text{C}$	Storage Temperature	$-40^\circ\text{C} \sim +80^\circ\text{C}$

* Cable insulation may be required depending on field applications



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