

Split Rogowski Coil Current Sensor Loop with Voltage Integrator

The JRF333MB-55/80/105 series of split Rogowski Coil current sensors loop are designed for fast and easy installation on existing primary conductors/ BUS bars. The split design permits non-contact AC current or current pulse measurement without requiring that the primary conductor be taken offline and disconnected for the current sensor installation. This method facilitates the safe, easy and portable measurement of current.



The current sensor is based upon the Rogowski Coil principle which offers significant advantages over the standard magnetic core current transformer products. Specifically, since the sensor does not incorporate a magnetic core, magnetic core saturation (the point where incremental increases in magnetic flux are not reflected in proportional increases in secondary signal outputs) is avoided.

A Rogowski Coil sensor is able to measure a very wide range of AC current and/ or DC current pulse inputs with excellent accuracy and linearity.

JRF333MB Features:

- Conforms to IP65 standard for outdoor use.
- Suitable for high temperature environments.

- Coupling - Thermoplastic rubber (Black), Polypropylene, flame retardant rating UL 94 V-0 (Black).
- Lead Wire: Shielded cable, 24 AWG (White/ Black), UL 2586, 600V, 1.0m (3.3 FT).
- CAT III, 600V
- UL Certified (File #E344623)
- CE Certified
- RoHS Compliant.

Specifications:

- Current Range: 250A to 5,000A @ 50/60HZ
- Primary Conductor Position Sensitivity: ±2% maximum.
- Influence of External Field: ±1.5% maximum
- Coil Working Voltage: 1000V_{RMS} or 1000 VDC.
- Coil Dielectric Surge Withstand: 5kV_{RMS} for 1 minute (coil closed).
- Operating Temperature: -20°C to +60° C.
- Coil - Thermoplastic rubber (Optional colors: Red, Black, or Green).



Performance:

- Rated Primary Currents:

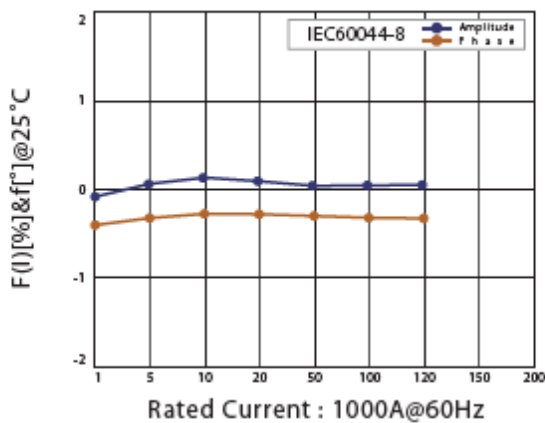
250A	400A	500A
800A	1,000A	1,500A
2,000A	2,500A	3,000A
4,000A	5,000A	

- Output: 0.333V @ Rated Primary Current.
Maximum Output: 1.3VAC

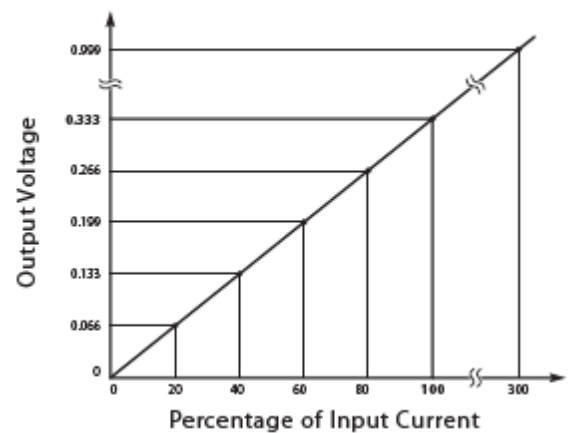
- Accuracy: < 1% error typical @ 2% to 120% of Rated Primary Current.
 - Phase Shift: < 1° @ Rated Primary Current.
- Linearity: ± 0.2% .
 - Influence of External Field: ± 1.5% maximum.
 - Power Requirement: +10 to 30VDC, 60mA maximum.

Typical Performance:

■ Linearity & Phase angle error graph

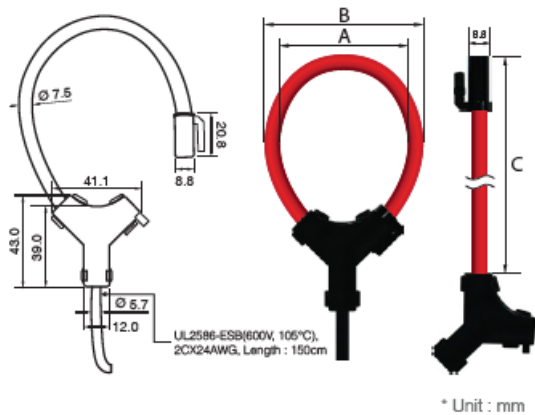


Output voltage graph

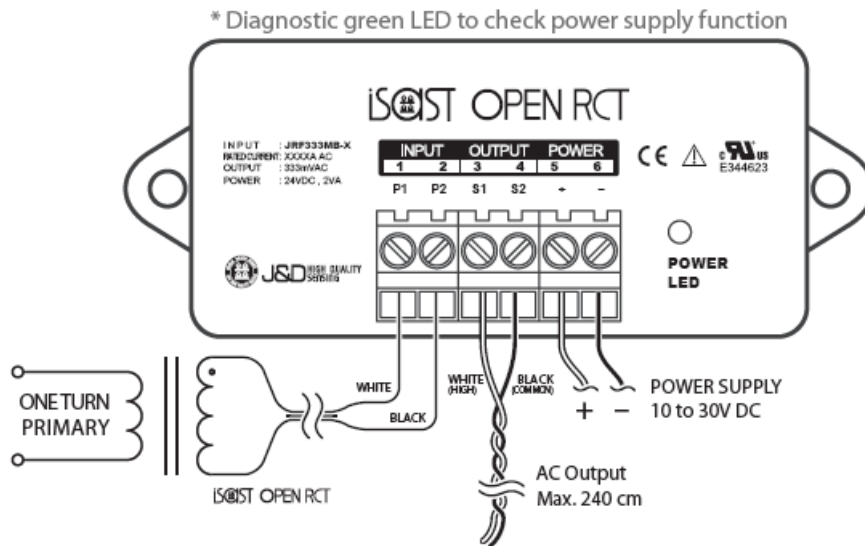


Outline Dimensions:

Model	Opening ID (A)	OD (B)	Coil Length (C)	Locking Connector OD	Rogowski Coil OD
JRF333MB-55	55.0mm (2.2")	68.5mm (2.7")	197mm (7.8")	8.8mm (0.35")	7.5mm (0.30")
JRF333MB-80	80.0mm (3.1")	93.5mm (3.7")	300mm (11.8")		
JRF333MB-105	105.0mm (4.1")	118.5mm (4.7")	378mm (14.9")		



Voltage Integrator:



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.

Technical Support: For a no obligation technical evaluation of specific performance requirements, please provide the specific requirements to ApplicationEngineering@tichenassociates.com or the address below.