# Mini Loop, Split Rogowski Coil Current Sensor

The **JRF55-80-105** series of mini loop, split Rogowski Coil current sensors 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 provides for the safe, easy and portable measurement of current.

A current sensor that is based upon the Rogowski Coil principle 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.

## *Features:*

- Minimal sensitivity to primary conductor position within the sensor loop.
- Split core design for ease of installation on "live" primary conductors.
- Non-magnetic core eliminates core saturation and core stored energy concerns.

## *Specifications:*

- Rated Input: < 1A to 3kA.
- Frequency: 25 Hz to 5 kHz.
- Output Sensitivity Tolerance:
  - ± 5% maximum (uncalibrated).
  - ± 0.5% of reading @ +25°C (calibrated through the voltage integrator).
- Primary Conductor Position Sensitivity: ±1% maximum.
- Influence of External Field: ± 2.0% maximum.
- Working Voltage: $1000V_{RMS}$ or 1000 VDC.
- Dielectric Surge Withstand: $3.5kV_{RMS}$ for 1 minute (coil closed).
- Operating Temperature: -20°C to +60º C.
- Construction:
  - Coil - Thermoplastic rubber (available in red, blue or black).
  - Coupling - Thermoplastic rubber (Black), Polypropylene, flame retardant rating UL 94 V-0 (Black).
- Lead Wire: Shielded cable, 24 AWG, UL 2586, 600V, 1.0m/ 3.3FT.
- UL Certified (File #E344623)
- RoHS Compliant.

## *Performance:*

- Output:
  - JFR55: 0.100mV/ A @ 50Hz
    0.120mV/ A @ 60Hz
  - JFR80: 0.104mV/ A @ 50Hz
    0.125mV/ A @ 60Hz
  - JFR105: 0.068mV/ A @ 50Hz
    0.082mV/ A @ 60Hz
- Accuracy: < ± 1% error.
- Phase Shift: < 1° @ 50/60Hz (Typical: < 0.5°).

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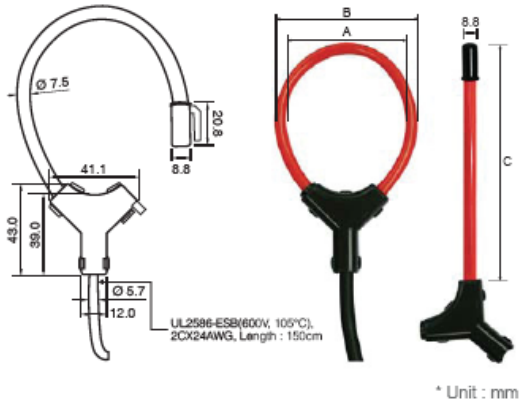
- Linearity: ± 0.2% of reading from 10% to 100% of range.

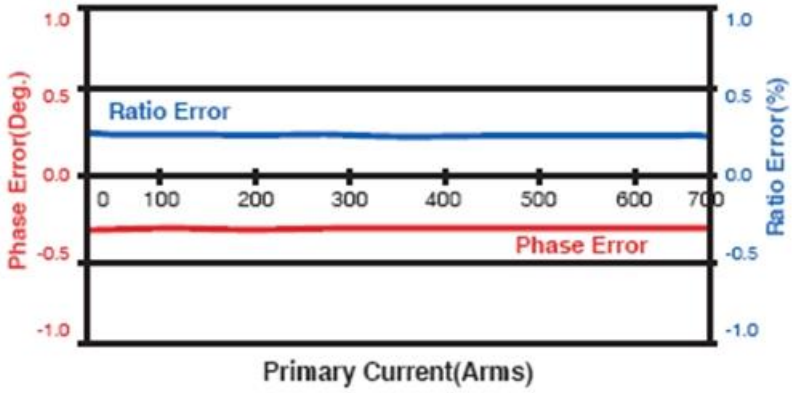
## *Outline Dimensions (mm):*




* Unit : mm

| | A | B | C |
|---|---|---|---|
| JRF-55 | 55.0 | 68.5 | 197.0 |
| JRF-80 | 80.0 | 93.5 | 300.0 |
| JRF-105 | 105.0 | 118.5 | 378.0 |

## *Typical Performance:*




Accuracy Relative to Primary Conductor Position:

| Conductor Position | Typical Error(%) |
|---|---|
| Adjacent to the inside coil edge | < 1% |
| Adjacent to the clip together mechanism | < 2% |
| Central in the Rogowski loop | 0.2% |

Note that as the outside diameter of the primary conductor approaches the inside diameter of the current sensor, the current sensor accuracy will 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 H or the address below.