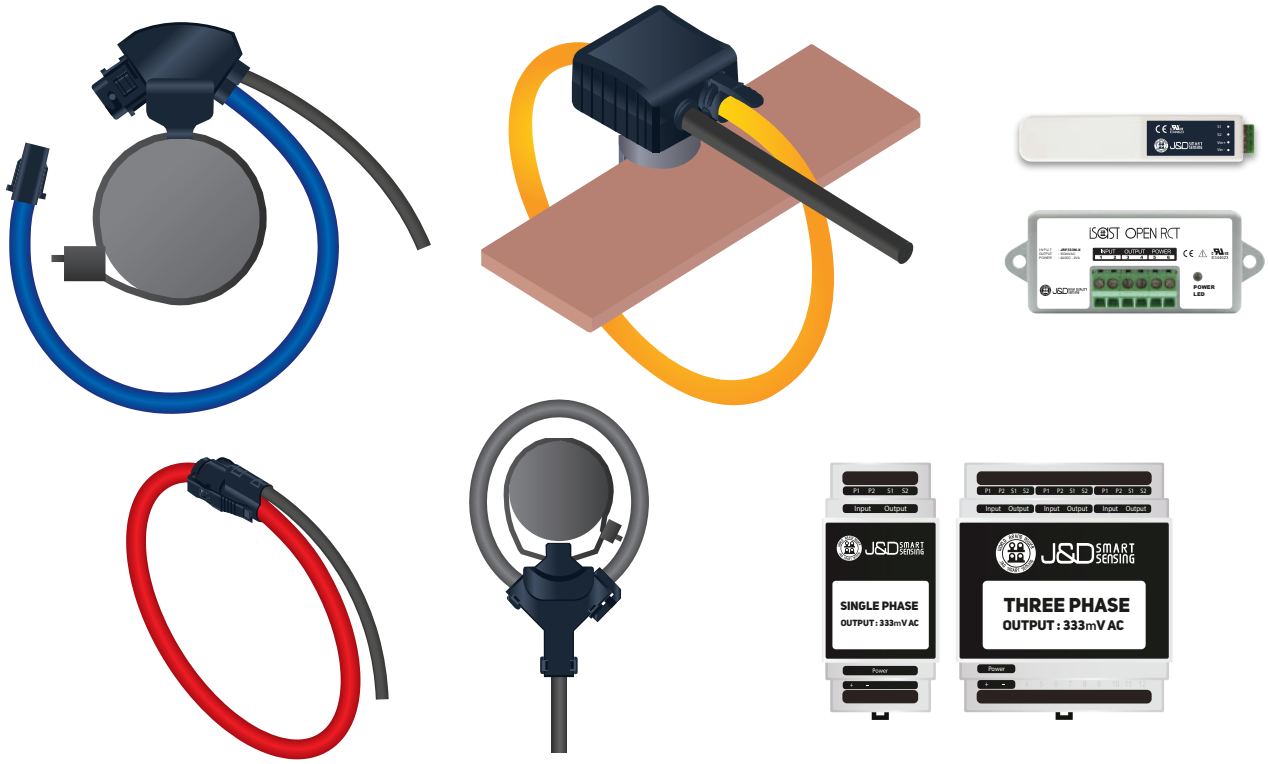
PRECISION CLAMP ON FLEXIBLE ROGOWSKI COIL CURRENT TRANSFORMER



iSAST OPEN RCT is made with high accurate coil winding technology on air core which shows precise quality from low current to high current and provides optimizing solution. It improves both conductor positioning error and influence by external magnetic field. As split clip flexible outfit, it can be easily installed even at limited space without cutting power lines. Main applications are power distribution monitoring, high current measuring, sub metering and etc.

*** Indoor / Outdoor**

Inner Diameter(mm)	35, 55, 75, 80, 105, 115, 120, 170, 180, 190, 295, 300, 305
Current Range	100 to 6,000A AC
Secondary Output	Instantaneous Voltage / 333mV AC

- Insulation CAT Ⅲ 1000V, CAT Ⅳ 600V AC
- Accuracy Class 0.5S / 1.0 complying with IEC 61869-2
- Certificated for UL & CE complying with IEC61010-1
- IP65 or IP67 (International Protection code)

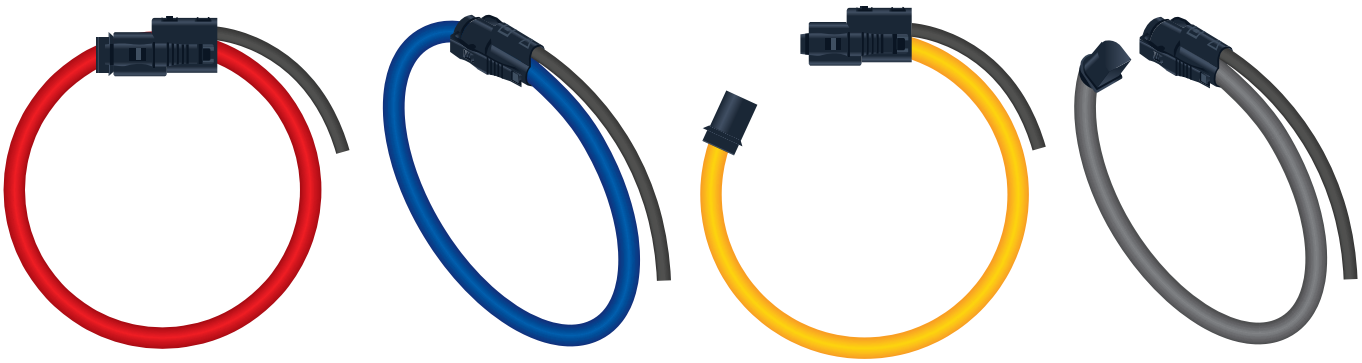
New JRF MOI (Including a voltage integrator) for outdoor metering, Class 0.5S

CONTENTS

PRECISION CLAMP ON FLEXIBLE ROGOWSKI COIL CURRENT TRANSFORMER

Precision Clamp on Flexible Rogowski coil CT

JRFS-XXXS/A(X-XXX) Series



Clamp-on Flexible Rogowski coil Current Transformer has been designed for accurate measurement of wide AC current, pulsed DC or distorted waveforms. It may be used to measure AC current over a wide dynamic range and from 10Hz to 20kHz.

APPLICATIONS

- Very high current monitoring
- DC ripple measurement
- Harmonics and transients monitoring
- Power monitoring & control systems
- Applicable in eletronic Watt-hour meter

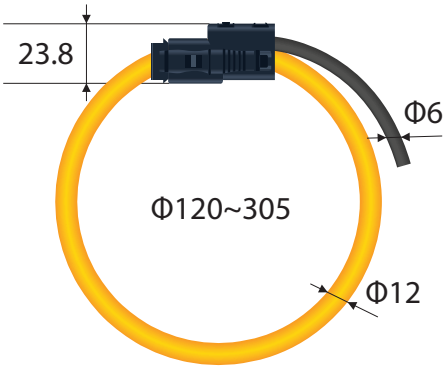
FEATURES

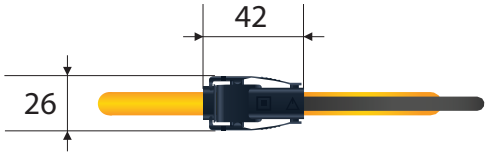
- AC current probe utility by the Rogowski principle
- Flexible and lightweight
- Easy & quick installation in uninterruptible power line
- Available shielding type on request
- No danger from open-circuited secondary
- High secondary output voltage & precise linearity error
- Isolated plastic case recognized according to UL94-V0

SPECIFICATION

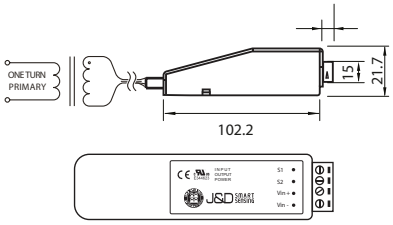
Model		JRFS-120X	JRFS-190X	JRFS-305X
Rated Current		500A ~ 2kA	1kA ~ 4kA	2kA ~ 6kA
Output Voltage	A Type	100mV(50Hz) [120mV(60Hz)] 1kA		
	S Type	333mV(50Hz) [399.6mV(60Hz)] 1kA		
Accuracy		< 1%		
Phase Shift		< 1° at 50/60Hz (typical < 0.5°)		
Frequency Range		10Hz to 20kHz		
Output Sensitivity Tolerance		±10% maximum(Uncalibrated)		
Output Sensitivity Tolerance		±0.5% of reading at 25°C (Calibrated)		
Linearity (10% to 100% of range)		±0.2% of reading		
Conductor Position Sensitivity		±2% maximum		
Influence of External Field		±2% maximum		
Working Temp.		-30˚C ~ + 60˚C		
Storage Temp.		-40˚C ~ + 60˚C		
Insulation Category		CATⅢ 1000V / CATⅣ 600V (PD2-Double Insulation)		
Safety Standards		EN/UL/cUL 61010-1, 61010-2-032		
Testing Voltage		7400V/1min		

DIMENSIONS

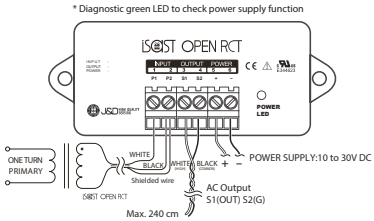




OPTION : INTERGRATOR C/M/S/T-XXX SERIES

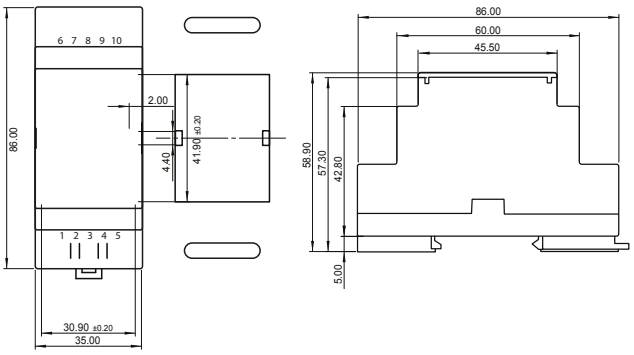


C Type 333mVAC



M Type 333mVAC

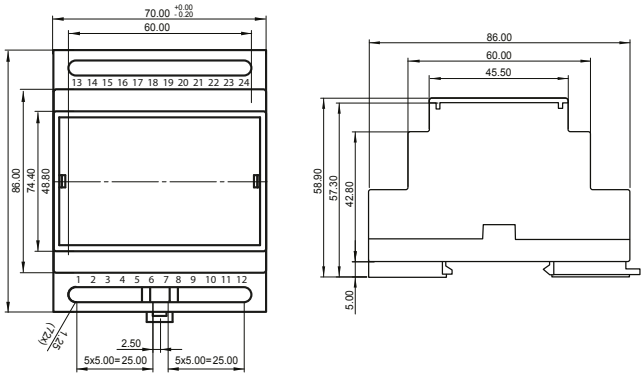
Output : 333mVAC



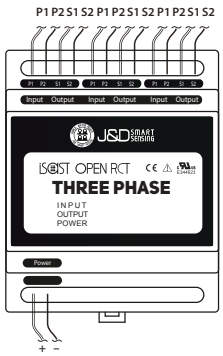
S Series Output : 333mVAC

Power supply : 24V DC

Output : 333mVAC



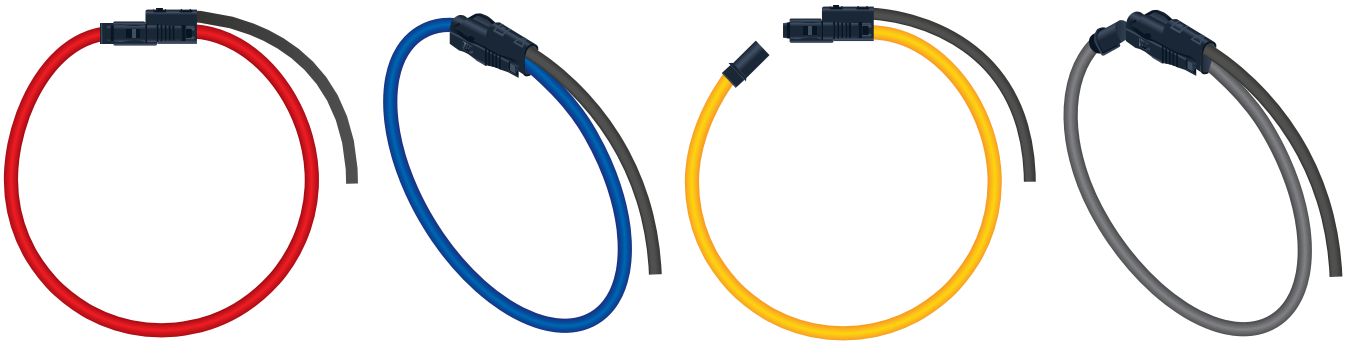
T Series Output: 333mVAC



Power supply : 24V DC

Precision Clamp on Flexible Rogowski coil CT

JRFS-XXX(X-XXX) Series



J&D's new Micro-accuracy flexible rogowski coil measures even sensitive error to use special magnetic winding technology with small size. It is very effective for small sized AC measuring utility since it reduces chronically affected errors on existed Rogowski coil by conductor's position.

APPLICATIONS

- Energy sub-meters
- Power meters
- Power quality monitoring
- Condition monitoring
- Distributed measurement systems

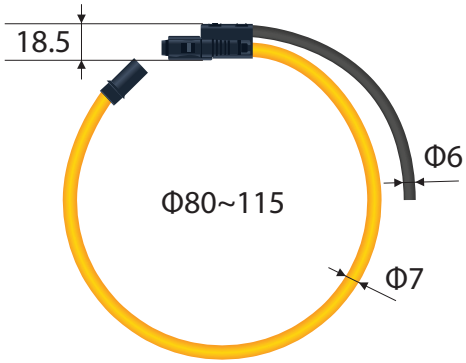
FEATURES

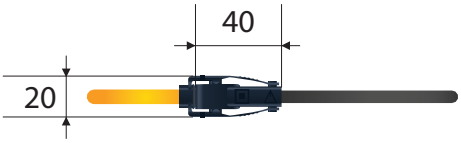
- Ø80, Ø115mm sensing aperture for non-contact measurement
- Very low position sensitivity
- No danger from open-circuited secondary
- High secondary output voltage & precise linearity error
- Isolated plastic case recognized according to UL94 -V0

SPECIFICATION

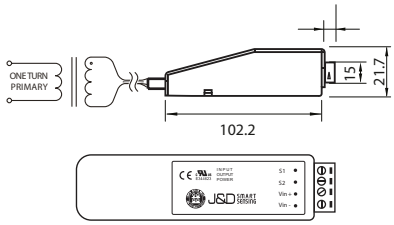
Model	JRFS-080	JRFS-115
Rated Current	1kA	1kA ~ 2kA
Output Voltage	104mV AC/1kA@50Hz 124.8mV AC/1kA@60Hz	136mV AC/2kA@50Hz 163.2mV AC/2kA@60Hz
Accuracy	< 1%	
Phase Shift	< 1° at 50/60Hz (typical < 0.5°)	
Frequency Range	10Hz to 20kHz	
Output Sensitivity Tolerance	±10% maximum(Uncalibrated)	
Output Sensitivity Tolerance	±0.5% of reading at 25°C (Calibrated)	
Linearity (10% to 100% of range)	±0.2% of reading	
Conductor Position Sensitivity	±2% maximum	
Influence of External Field	±2% maximum	
Working Temp.	-30˚C ~ + 60˚C	
Storage Temp.	-40˚C ~ + 60˚C	
Insulation Category	CATⅢ 1000V / CATⅣ 600V (PD2-Double Insulation)	
Safety Standards	EN/UL/cUL 61010-1, 61010-2-032	
Testing Voltage	7400V/1min	

DIMENSIONS

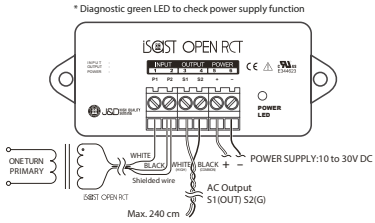




OPTION : INTERGRATOR C/M/S/T-XXX SERIES

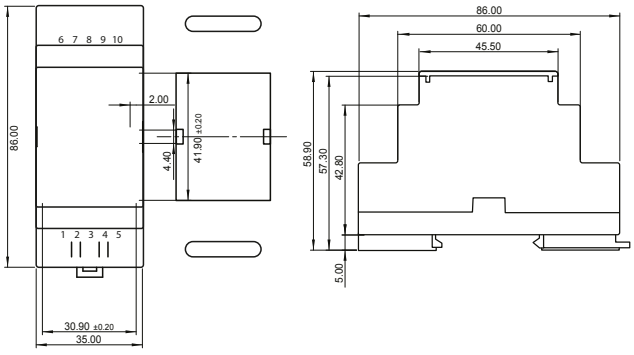


C Type 333mVAC



M Type 333mVAC

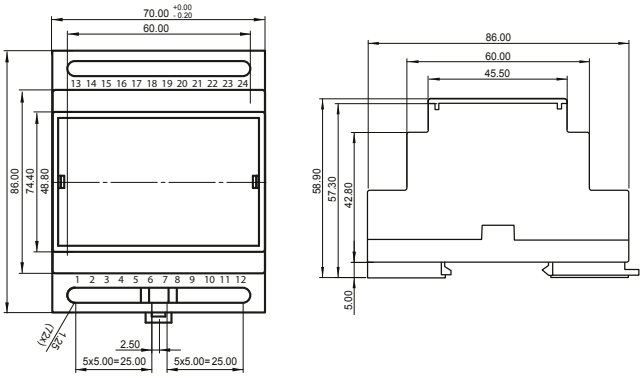
Output : 333mVAC



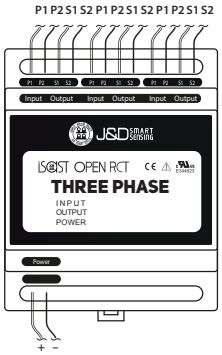
S Series Output : 333mVAC

Power supply : 24V DC

Output : 333mVAC



T Series Output: 333mVAC



Power supply : 24V DC

Precision Clamp on Flexible Rogowski coil CT

JRFS-XXXY(X-XXX) Series

J&D's new Micro-accuracy flexible rogowski coil measures even sensitive error to use special magnetic winding technology with small size. It is very effective for small sized AC measuring utility since it reduces chronically affected errors on existed Rogowski coil by conductor's position.

APPLICATIONS

- Very high current monitoring
- DC ripple measurement
- Harmonics and transients monitoring
- Power monitoring & control systems
- Applicable in eletronic Watt-hour meter

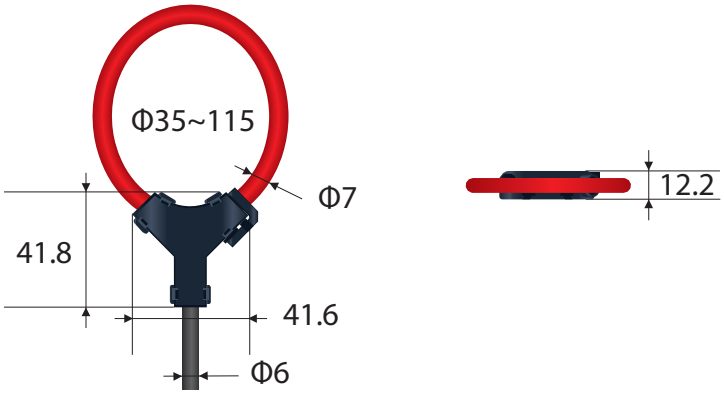
FEATURES

- Ø35 / Ø55 / Ø80 / Ø105mm sensing aperture for non-contact measurement
- Very low position sensitivity
- No danger from open-circuited secondary
- High secondary output voltage & precise linearity error
- Isolated plastic case recognized according to UL94-V0

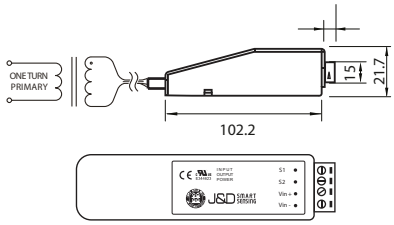
SPECIFICATION

Model	JRFS-035Y	JRFS-055Y	JRFS-080Y	JRFS-105Y
Current Ratio	250A ~ 500A	250A ~ 500A	250A ~ 1kA	1kA ~2kA
Output Voltage	48mV AC/500A@50Hz 57.6mV AC/500A@60Hz	50mV AC/500A@50Hz 60mV AC/500A@60Hz	104mV AC/1000A@50Hz 124.8mV AC/1000A@60Hz	208mV AC/2000A@50Hz 249.6mV AC/2000A@60Hz
Accuracy	< 1%			
Phase Shift	< 1° at 50/60Hz (typical < 0.5°)			
Frequency Range	10Hz to 20kHz			
Output Sensitivity Tolerance	±10% maximum(Uncalibrated)			
Output Sensitivity Tolerance	±0.5% of reading at 25°C (Calibrated)			
Linearity (10% to 100% of range)	±0.2% of reading			
Conductor Position Sensitivity	±2% maximum			
Influence of External Field	±2% maximum			
Working Temp.	-30˚C ~ + 60˚C			
Storage Temp.	-40˚C ~ + 60˚C			
Insulation Category	CATⅢ 1000V / CATⅣ 600V (PD2-Double Insulation)			
Safety Standards	EN/UL/cUL 61010-1, 61010-2-032			
Testing Voltage	7400V/1min			

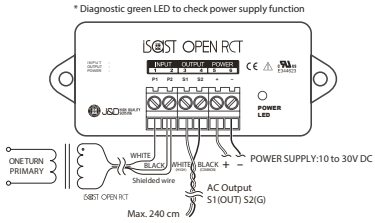
DIMENSIONS



OPTION : INTERGRATOR C/M/S/T-XXX SERIES

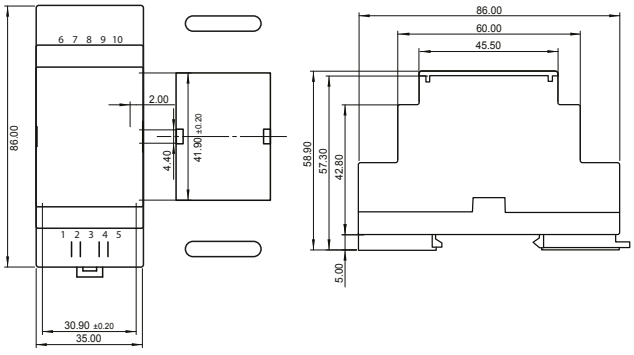


C Type 333mVAC



M Type 333mVAC

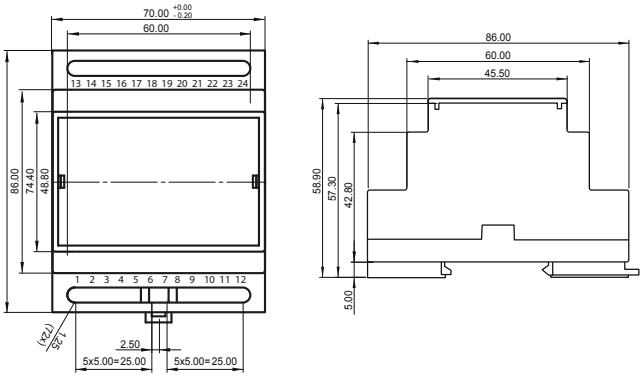
Output : 333mVAC



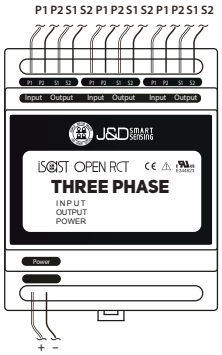
S Series Output : 333mVAC

Power supply : 24V DC

Output : 333mVAC



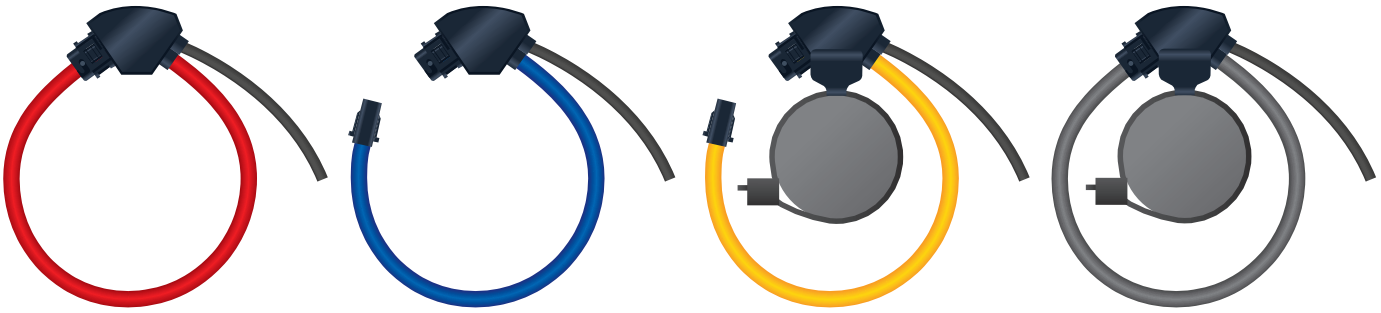
T Series Output: 333mVAC



Power supply : 24V DC

Precision Clamp on Flexible Rogowski coil CT

JRFS-XXX-M/P (X-XXX) Series



Clamp-on Flexible Rogowski coil Current Transformer has been designed for accurate measurement of AC current with a safe output voltage RMS. JRFS-XXX-M/P (X-XXX) series is the precision current probe for Revenue-Grade Distribution transformer monitoring. With voltage integrator configuration, it can replace the existing CT directly.

APPLICATIONS

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

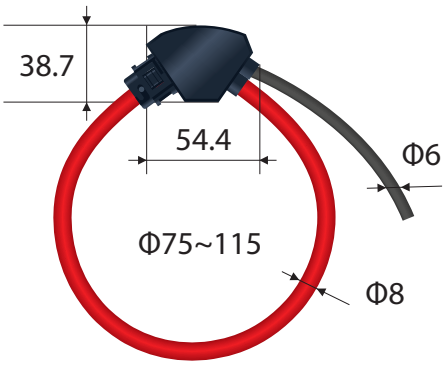
FEATURES

- AC current probe utility by the Rogowski principle
- Flexible and lightweight
- Easy & quick installation in uninterruptible power line
- Insulation CATⅢ 1000V, Ⅳ 600V
- Certificated for UL & CE complying with IEC 61010-1
- Optional size is available from ID 75 to 115mm. (ex. ID 80mm)

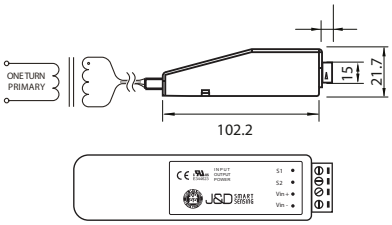
SPECIFICATION

Model		JRFS-080X JRFS-075X	JRFS-115X JRFS-105X
Rated Current		250A ~ 1kA	1kA ~ 2kA
Output Voltage	M Type	104mV(50Hz) [124.8mV(60Hz)] 1kA	
	P Type	35mV(50Hz) [42mV(60Hz)]1kA	
Accuracy		< 1%	
Phase Shift		< 1° at 50/60Hz (typical < 0.5°)	
Frequency Range		10Hz to 20kHz	
Output Sensitivity Tolerance		±10% maximum(Uncalibrated)	
Output Sensitivity Tolerance		±0.5% of reading at 25°C (Calibrated)	
Linearity (10% to 100% of range)		±0.2% of reading	
Conductor Position Sensitivity		±2% maximum	
Influence of External Field		±2% maximum	
Working Temp.		-30˚C ~ + 60˚C	
Storage Temp.		-40˚C ~ + 60˚C	
Insulation Category		CATⅢ 1000V / CATⅣ 600V (PD2-Double Insulation)	
Safety Standards		EN/UL/cUL 61010-1, 61010-2-032	
Testing Voltage		7400V/1min	

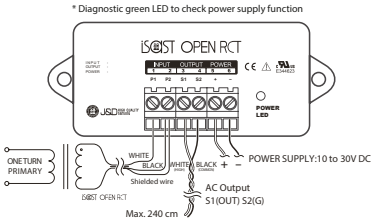
DIMENSIONS



OPTION : INTERGRATOR C/M/S/T-XXX SERIES

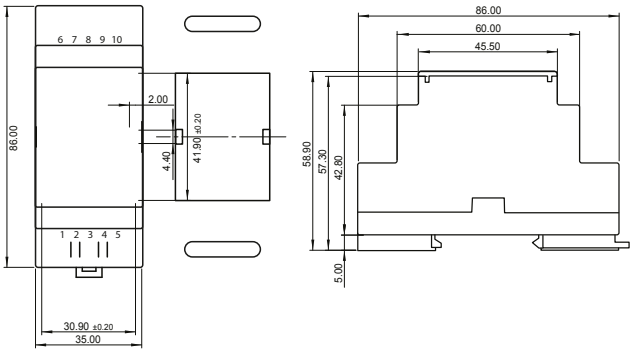


C Type 333mVAC



M Type 333mVAC

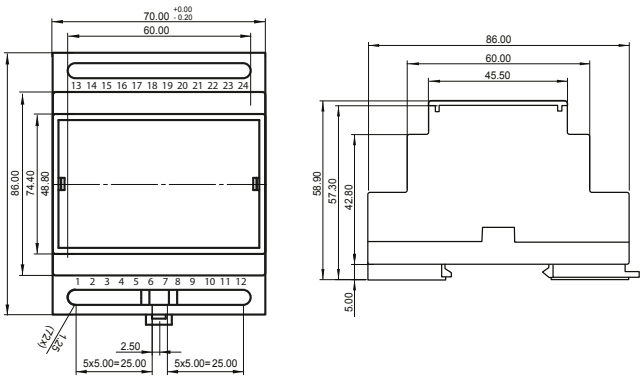
Output : 333mVAC



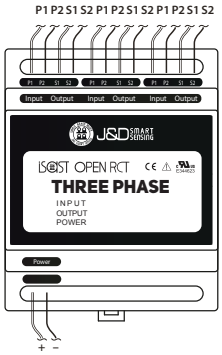
S Series Output : 333mVAC

Power supply : 24V DC

Output : 333mVAC



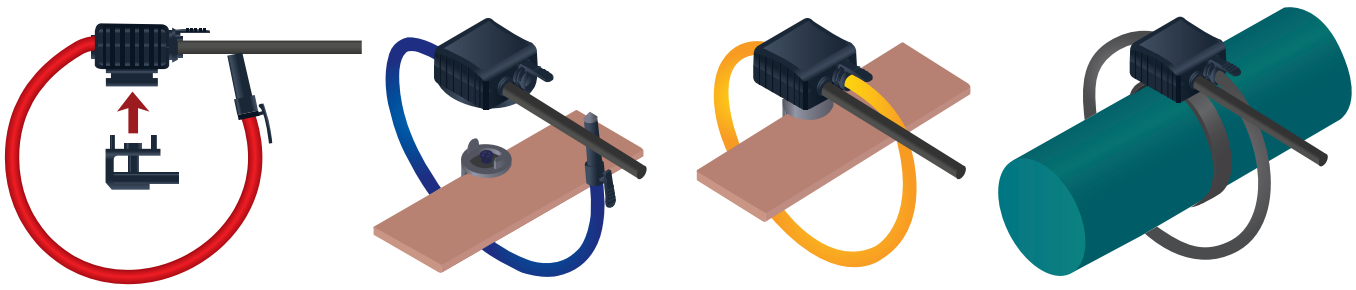
T Series Output: 333mVAC



Power supply : 24V DC

Precision Clamp on Flexible Rogowski coil CT

JRFS-XXX-R/U (X-XXX) Series



Clamp-on Flexible Rogowski coil Current Transformer has been designed for accurate measurement of AC current with a safe output voltage RMS. JRFS-XXX-R/U (X-XXX) series is the precision current probe for Revenue-Grade Distribution transformer monitoring. With voltage integrator configuration, it can replace the existing CT directly.

APPLICATIONS

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

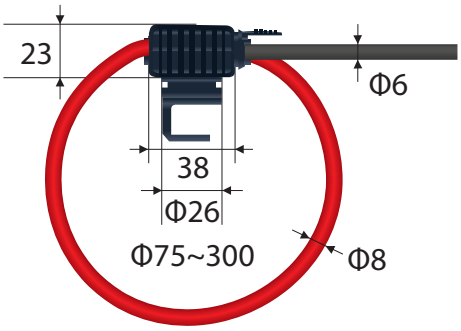
FEATURES

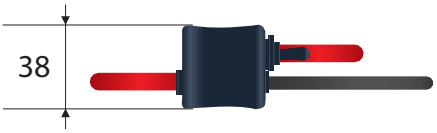
- AC current probe utility by the Rogowski principle
- Flexible and lightweight
- Easy & quick installation in uninterruptible power line
- Insulation CATⅢ 1000V, Ⅳ 600V
- Certificated for UL & CE complying with IEC 61010-1
- Optional size is available from ID 75 to 300mm. (ex. ID 80mm)

SPECIFICATION

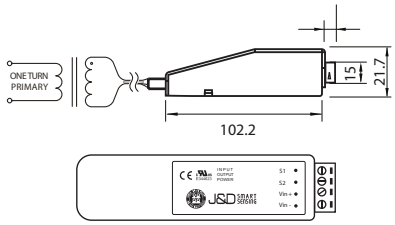
Model		JRFS-080X JRFS-075X	JRFS-115X JRFS-105X	JRFS-180X JRFS-170X	JRFS-300X JRFS-295X
Rated Current		500A ~ 6kA			
Output Voltage	R Type	104mV(50Hz) [124.8mV(60Hz)] 1kA			
	U Type	35mV(50Hz) [42mV(60Hz)]1kA			
Accuracy		< 1%			
Phase Shift		< 1° at 50/60Hz (typical < 0.5°)			
Frequency Range		10Hz to 20kHz			
Output Sensitivity Tolerance		±10% maximum(Uncalibrated)			
Output Sensitivity Tolerance		±0.5% of reading at 25°C (Calibrated)			
Linearity (10% to 100% of range)		±0.2% of reading			
Conductor Position Sensitivity		±2% maximum			
Influence of External Field		±2% maximum			
Working Temp.		-30˚C ~ + 80˚C			
Storage Temp.		-40˚C ~ + 80˚C			
Insulation Category		CATⅢ 1000V / CATⅣ 600V (PD2-Double Insulation)			
Safety Standards		EN/UL/cUL 61010-1, 61010-2-032			
Testing Voltage		7400V/1min			

DIMENSIONS

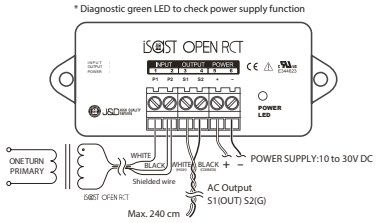




OPTION : INTERGRATOR C/M/S/T-XXX SERIES

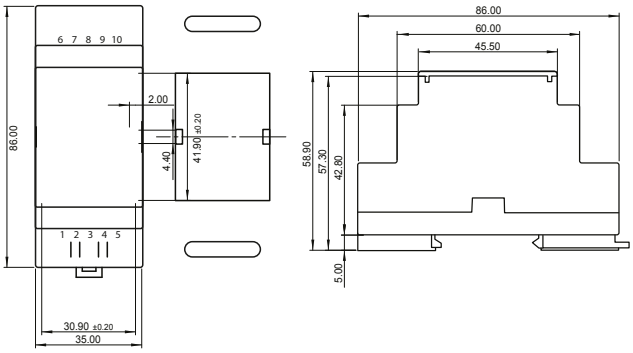


C Type 333mVAC



M Type 333mVAC

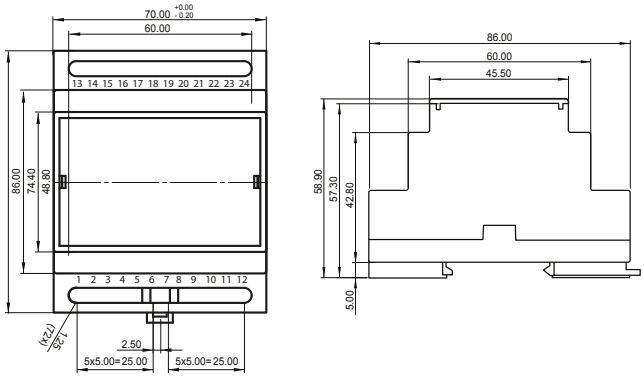
Output : 333mVAC



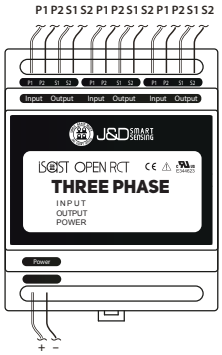
S Series Output : 333mVAC

Power supply : 24V DC

Output : 333mVAC



T Series Output: 333mVAC

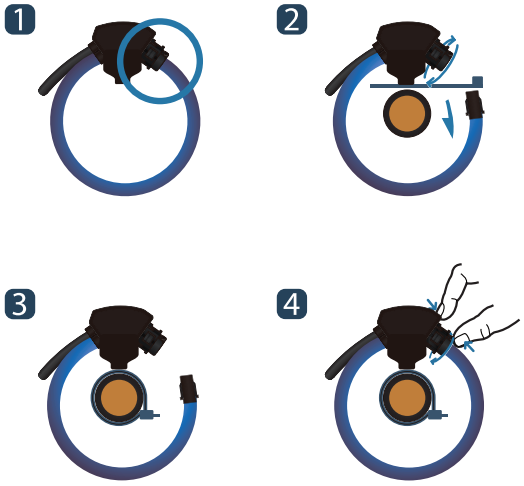


Power supply : 24V DC

Precision Clamp on Flexible Rogowski coil CT

JRF MOI 333M Series

HOW TO USE



Clamp-on Flexible Rogowski coil Current Transducer has been designed for accurate measurement of AC current with a safe output voltage RMS. JRF MOI series is the precision current probe for Revenue-Grade Distribution transformer monitoring. With voltage integrator configuration, it can replace the existing CT directly.

APPLICATIONS

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

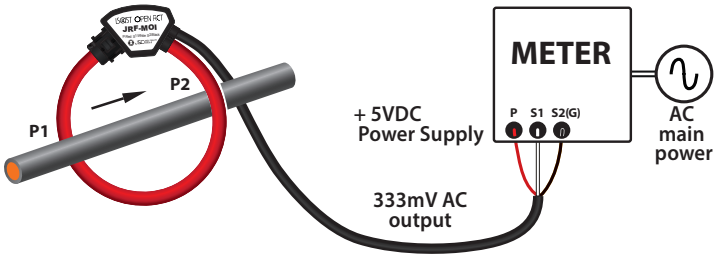
FEATURES

- AC current probe utility by the Rogowski principle
- Flexible and lightweight
- Easy & quick installation in uninterruptible power line
- Insulation CATⅢ 1000V, Ⅳ 600V
- Accuracy Class 0.5/1.0 complying with IEC61869-2
- Certificated for & CE complying with IEC 61010-1
- Optional size is available from ID 80 to 115mm.

SPECIFICATION

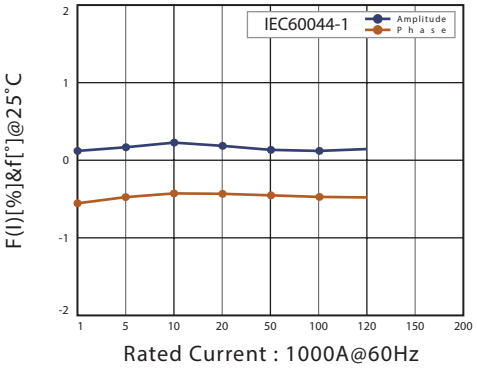
Model	JRF MOI 333M-80	JRF MOI 333M-115
Current Ratio	Input from 250 Amp to 6,000 Amp	
Rated Current	100, 150, 200, 250, 300, 400, 500, 600, 800, 1k, 1.2k, 1.5k, 2k, 2.4k, 2.5k, 3k, 4k, 5k, 6k	
Accuracy	<1% typical at 2% to 120% of rated current	
Output Signal	333mVAC	
Power Requirement	+ 5 VDC , 30mA Maximum	
Phase Shift	<1° at rated current	
Frequency	50/60Hz	
Linearity	±0.2%	
Conductor Position Sensitivity	±1% maximum	
Influence of External Field	±1.5% maximum	
Operating Temp.	-30°C ~ +80°C	
Insulation Category	CATⅢ 1000V, Ⅳ 600V	

OUTDOOR POWER & INDOOR POWER LOAD

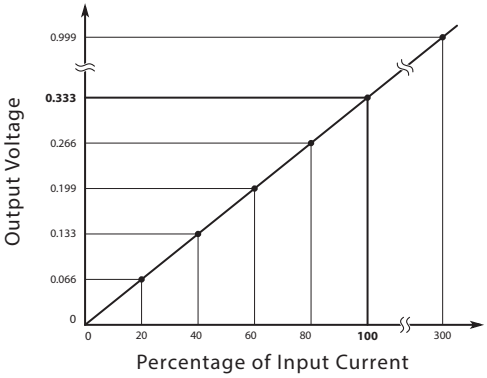


- Power source (P) : +5VDC (±5%), connected to S2 (Ground) (Keep (P) should be under ±5% of +5VDC to avoid a damage on power supply)
- Output : S1, connected to S2 (Ground)
- **P : Red OUTPUT : White S2(G) : Black**

LINEARITY & PHASE ANGLE ERROR GRAPH



OUTPUT VOLTAGE GRAPH

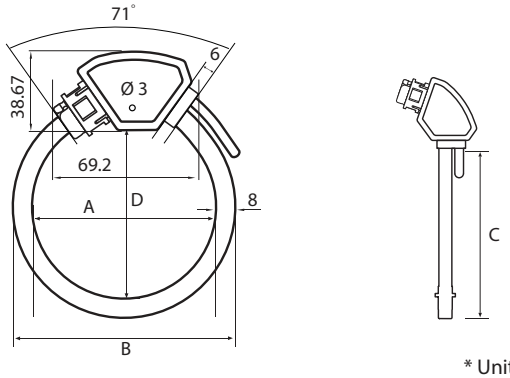


THE ROGOWSKI LOOP CIRCUMFERENCE IS 19CM

Conductor Position	Typical Error(%)
Adjacent to the inside coil edge	< 0.5%
Adjacent to the clip together mechanism	< 0.5%
Central in the Rogowski loop	0.1%

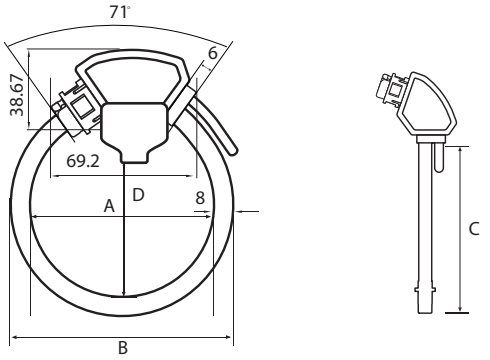
Note that with a larger conductor the variation of error with conductor position will decrease and approach the calivrated value.

DIMENSION(CHOOSE JRF-MOI-XXC IF YOU REQUIRE TIES FOR ATTACHING TO THE CONDUCTOR)



* Unit : mm

Model	A	B	C	D
JRF MOI 333M-40	58	66	185	40
JRF MOI 333M-80	80	96	285	80
JRF MOI 333M-115	115	141	385	115

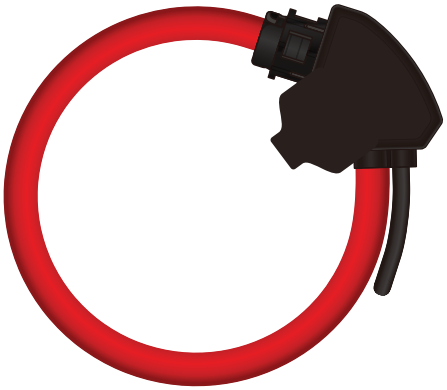


* Unit : mm

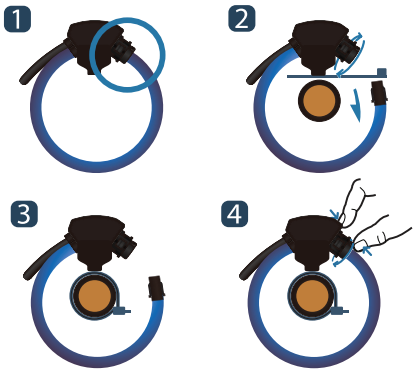
Model	A	B	C	D
JRF MOI 333M-40C	58	66	185	30
JRF MOI 333M-80C	80	96	285	70
JRF MOI 333M-115C	115	141	385	105

Precision Clamp on Flexible Rogowski coil CT

JRF MOI XXXXPU Series



HOW TO USE



JRF-MOI-PU Rogowski coil current transformer are accurate, flexible, rope style air coils that can be connected around conductors while the conductor is "lives". They are easier to install and measure than traditional split and solid core CT.
With their flexible design and light weight, they are ideal for bus bars and irregular-shaped bundles of multiple conductors.
The Rogowski coil technology offers low phase shift error, inductance and excellent linearity while largely immune to electromagnetic interference and pulsed DC, providing a high rate of accuracy.
JRF-MOI-PU coils can be used in single and three-phase measurement applications. The output of the built-in voltage integrator provides an AC voltage of 333mV at the rated input current. There is an option to choose a different output voltage between 100-500mV AC at up to 6,000 Amps.
The built-in integrator and DC power supply allows simple wiring installation.
Multiple rogowski coils can be powered by one AC/DC power supply.
※ Choose JRF-MOI-PUC if you require ties for fixing to the conductor

APPLICATIONS

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

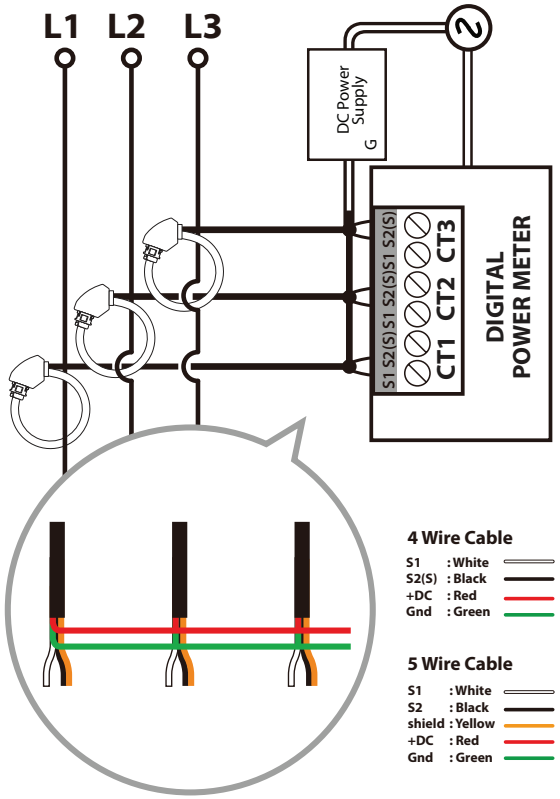
FEATURES

- AC current probe
- Flexible and lightweight
- Easy & quick installation on uninterruptible power lines
- Insulation CATⅢ 1,000V AC, Ⅳ 600V AC.
- Accuracy Class 0.5/1.0 complying with IEC61869-2, ANSI C57.13
- In progress of certification for & CE complying with IEC61010-1
- IP65, IP67, IP68 (International Protection code)
- Several size are available from coil length from 285 to 385mm (aperture from 80 to 115 mm)

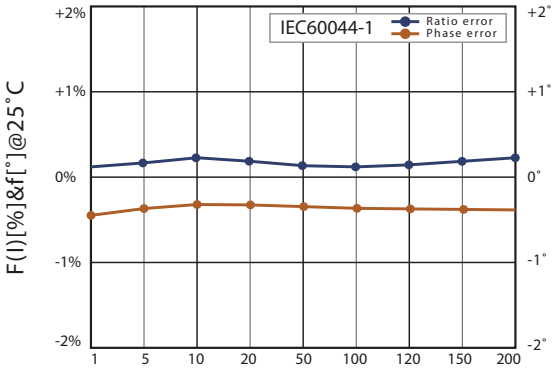
SPECIFICATION

Model	JRF MOI XXXPU-80	JRF MOI XXXPU-115
Current Range	250 Amp to 6,000 Amp	
Rated Currents	250, 300, 400, 500, 600, 800, 1k, 1.2k, 1.5k, 2k, 2.4k, 2.5k, 3k, 4k, 5k, 6k	
Max Output	1.3VAC	
Accuracy	<1% typical at 2% to 120% of rated current	
Rated Output Voltage	333 mV AC	
Power Requirement	+24V DC, ±5%, 70mA Maximum	
Phase Shift	<0.5° at rated current	
Frequency	50/60Hz	
Linearity	±0.2%	
Conductor Position Sensitivity	±1% maximum	
Influence of External Fields	±1.5% maximum	
Operating Temperature Range	-25°C ~ +65°C	
Coil length	From 285 to 385mm	
Connection Cable Type	4 x AWG24	
Connection Cable length	on request	

OUTDOOR POWER & INDOOR POWER LOAD

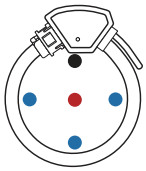


RATIO & PHASE ERROR GRAPH



Rated Current : 1000A@60Hz

POSITIONING ERROR



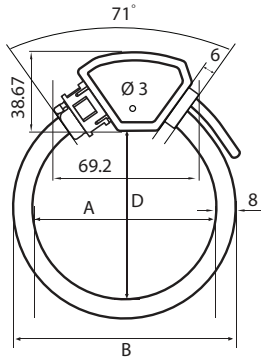
Conductor Position	Typical Error(%)
Adjacent to the coil edge	< 0.5%
Adjacent to the clip together mechanism	< 0.5%
Central in the Rogowski loop	0.1%

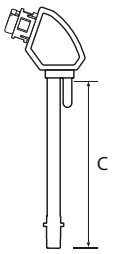
Note that with a larger conductor the variation of error with conductor position will decrease and approach the calibrated value.

AC/DC POWER SUPPLY

Models	Application	AC Input Voltage (Nominal)	Nominal Weight
FWA020012A-10B	Desktop power supply, For up to 24 pcs JRF-MOI xxxPU Conditioning Circuits	85-264 Vac (100-240)@1.67 amps	11.5 oz (326 grams)
MDR-10-12	DIN-rail power supply, For up to 12 pcs JRF-MOI xxxPU Conditioning Circuits	85-264 Vac (100-240)@0.84amps	6 oz (170 grams)

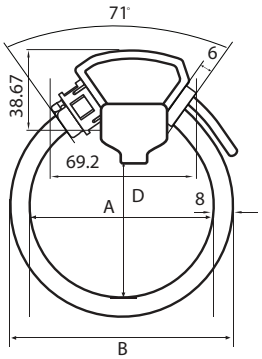
DIMENSIONS (CHOOSE JRF-MOI-PUC IF YOU REQUIRE TIES FOR ATTACHING TO THE CONDUCTOR)

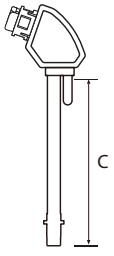




* Unit : mm

Model	A	B	C	D
JRF MOI xxxPU-80	80	96	285	80
JRF MOI xxxPU-115	115	131	385	115





* Unit : mm

Model	A	B	C	D
JRF MOI xxxPUC-80	80	96	285	70
JRF MOI xxxPUC-115	115	131	385	105