

## Product Overview



# WELCOME TO MEATROL



MEATROL is the earliest and most professional manufacturer of Rogowski coils in China, specializing in manufacturing Rogowski coils with independent intellectual property rights, as well as supporting integrators, power quality analyzers, we also provide professional integrated solutions for power monitoring, IOT sensors and cloud platform technology services.

Our registered brands are "MEATROL®" and "ROGOWSKI®". MEATROL has accumulated rich experience in electric furnace, power quality analysis, lightning current detection, pulse current detection, industrial meters, power monitoring, relay protection, harmonic control, wind power generation, welding, electroplating, and other applications. Our products cover flexible Rogowski coils, rigid Rogowski coils, handheld integrators, rail integrators, smart meters, power quality analysis systems for cloud measurement, power take-off modules, etc.

We will spare no effort in the deep excavation of current detection field with professional and dedicated attitude.

Provide customers with excellent products and services and lead the new direction of industry development.



We have a strong R & D team, international leading automatic production equipment and high-end international brand precision instruments, more than 50 professional technical and management personnel of all kinds, with over 60% of bachelor's degree or above and over 10% of master's degree or above.



We have hundreds of world-class advanced testing and production equipment, covering three-phase current and voltage harmonic power generator, high current generator, oscilloscope, high level meter, lightning current generator, harmonic generator, medium frequency current generator, extruder, wire stripping machine, wire cutting machine and 24-hour automatic winding machine. Self-developed LabVIEW automatic calibration system with NI acquisition card as the core, accompanied by the 0.1% accuracy calibration certificate from Shanghai Academy of Electricity.



After years of efforts and the industry's reputation, Shanghai Pinyan has exported to more than 80 countries around the world, and has obtained CE, UL, IP68, and other world-wide certificates.



MEATROL is the global supplier of SIEMENS, Schneider, ETON, Lovato, 3M and other international famous companies. We have long-term cooperation with many express companies such as UPS, DHL, FEDEX to provide convenient import and export door-to-door services. In addition, we also provide customized solutions from one-off designs to bulk OEM products.

## OVERVIEW

**01** ROGOWSKI COIL

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**02** INTEGRATOR

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**03** PULSE & LIGHTNING

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**04** CURRENT TRANSFORMER

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**05** POWER METER

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**06** CERTIFICATES & KNOWLEDGE

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Rogowski coil, named after Walter Rogowski, is an electrical device for measuring alternating current (AC) or high-speed current pulses. It sometimes consists of a helical coil of wire with the lead from one end returning through the centre of the coil to the other end so that both terminals are at the same end of the coil.

The voltage output is proportional to the rate of change of current. Generally, the output of Rogowski coils is connected with the integrator circuit. So, the coil voltage is then integrated to provide an output voltage that is proportional to the input current signal.

Because it has no iron core to saturate, it is highly linear even when subjected to large currents, such as those used in electric power transmission, welding, or pulsed power applications. This linearity also enables a high-current Rogowski coil to be calibrated using much smaller reference currents. No danger of opening the secondary winding. Lower construction costs. Temperature compensation is simple. For larger currents conventional current transformers require an increase of the number of secondary turns, in order to keep the output current constant. Therefore, a Rogowski coil for large current is smaller than an equivalent rating current transformer.

**What qualities should a Rogowski coil have?**

**Low temperature - drift**

**Good anti - jamming ability**

**High IP protection level**

**Good bandwidth characteristic**

**Long time stability**

**Uniformity**

## CONTENT

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01-09	Rigid Rogowski Coil
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01-14	High voltage resistant Rogowski coil



Flexible Rogowski Coil

SRC Ø12  
01-3



ZRC Ø8  
01-4



NRC Ø8  
01-5



Y-FCT Ø8  
01-6



MRC Ø6  
01-7



TRC Ø6  
01-8



Rigid Rogowski Coil

KRC  
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RCT  
01-10



WCT  
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RCS  
01-12



High Sensitivity  
Rogowski Coil

S-MRC  
01-14



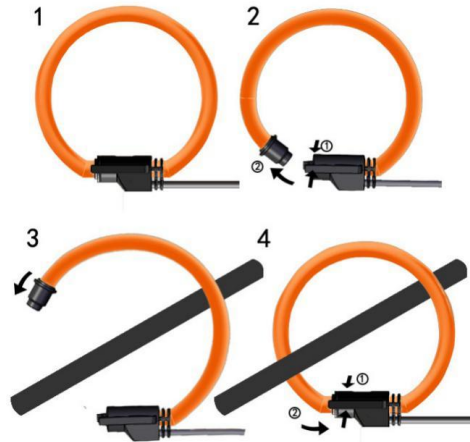
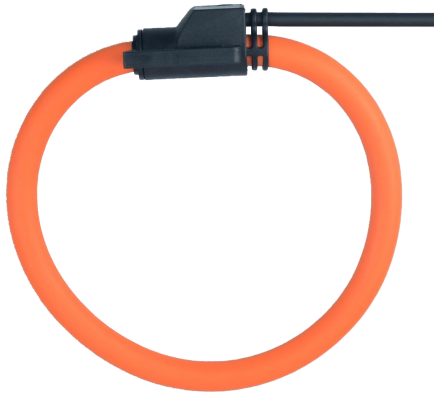
High voltage resistant  
Rogowski coil

T-ZRC  
01-15



T-FCT  
01-16





## SRC Ø12 Flexible Rogowski Coil

### TECHNICAL DATA

Measured current: 1A to 500KA  
 Output sensitivity tolerance:  $\pm 5\%$  (not calibrated)  
 Output sensitivity tolerance:  $\pm 0.5\%$ , 25° C (calibrated)  
 Position error:  $\pm 1\%$   
 Bandwidth: 1Hz to 10kHz (-3dB)

### CUSTOMER BENEFIT

Waterproof rating up to IP65  
 333mV  
 RoHs, CE certification  
 No power supply required

### STOCK VARIANTS<sup>①</sup>

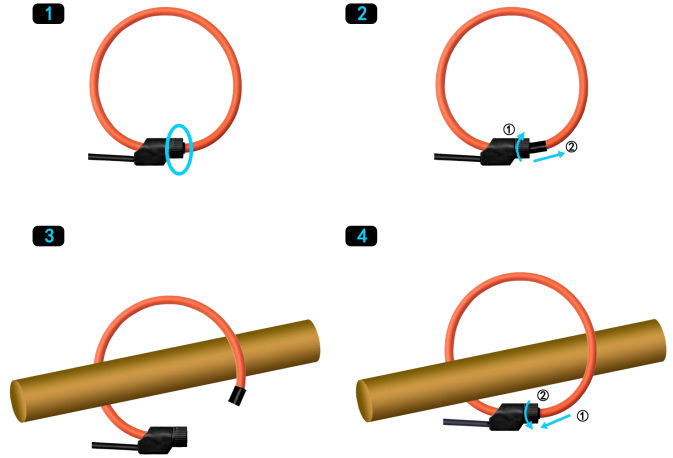
Image	Model	Coil diameter	Lead length	Ratio	Color (coil)	Article NO.
	SRC-50	50mm	2m	333mV/kA@50Hz	Orange	SRC-50-2M-333-OR
	SRC-50	50mm	5m	240mV/kA@50Hz	Blue	SRC-50-5M-240-BL
	SRC-100	100mm	2m	333mV/kA@50Hz	Orange	SRC-100-2M-333-OR
	SRC-100	100mm	8m	120mV/kA@50Hz	Green	SRC-100-8M-120-GR
	SRC-150	150mm	2m	333mV/kA@50Hz	Orange	SRC-150-2M-333-OR
	SRC-150	150mm	10m	100mV/kA@50Hz	Red	SRC-150-10M-100-RE
	SRC-200	200mm	2m	333mV/kA@50Hz	Orange	SRC-200-2M-333-OR
	SRC-200	200mm	3m	85mV/kA@50Hz	Yellow	SRC-200-3M-85-YE

<sup>①</sup> All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



### How to use



## ZRC Ø8 Flexible Rogowski Coil

#### TECHNICAL DATA

Measured current: 1A to 500KA  
 Output sensitivity tolerance: ±5% (not calibrated)  
 Output sensitivity tolerance: ±0.5%, 25° C (calibrated)  
 Position error: ±1%  
 Bandwidth: 1Hz to 50kHz (-3dB)

#### CUSTOMER BENEFIT

Waterproof rating up to IP68  
 Easy installation  
 RoHs, CE certification  
 No power supply required

### STOCK VARIANTS ①

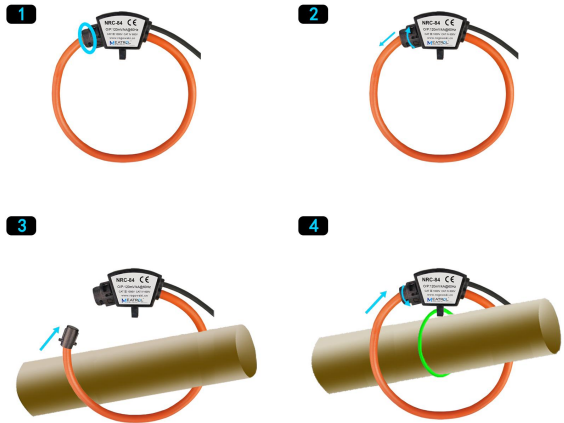
Image	Model	Coil diameter	Lead length	Ratio	Color (coil)	Article NO.
	ZRC-50	50mm	2m	85mV/kA@50Hz	Orange	ZRC-50-2M-85-OR
	ZRC-50	50mm	5m	100mV/kA@50Hz	Blue	ZRC-50-5M-100-BL
	ZRC-100	100mm	2m	85mV/kA@50Hz	Orange	ZRC-100-2M-85-OR
	ZRC-100	100mm	8m	50mV/kA@50Hz	Green	ZRC-100-8M-50-GR
	ZRC-150	150mm	2m	85mV/kA@50Hz	Orange	ZRC-150-2M-85-OR
	ZRC-150	150mm	10m	50mV/kA@50Hz	Red	ZRC-150-10M-50-RE
	ZRC-200	200mm	2m	85mV/kA@50Hz	Orange	ZRC-200-2M-85-OR
	ZRC-200	200mm	3m	25mV/kA@50Hz	Yellow	ZRC-200-3M-25-YE

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



### How to use



## NRC Ø8 Flexible Rogowski Coil

### TECHNICAL DATA

Measured current: 1A to 500KA  
 Output sensitivity tolerance:  $\pm 5\%$  (not calibrated)  
 Output sensitivity tolerance:  $\pm 0.5\%$ , 25° C (calibrated)  
 Position error:  $\pm 1\%$   
 Bandwidth: 1Hz to 50kHz (-3dB)

### CUSTOMER BENEFIT

Waterproof rating up to IP68  
 Short-time installation  
 RoHs, CE certification  
 No power supply required

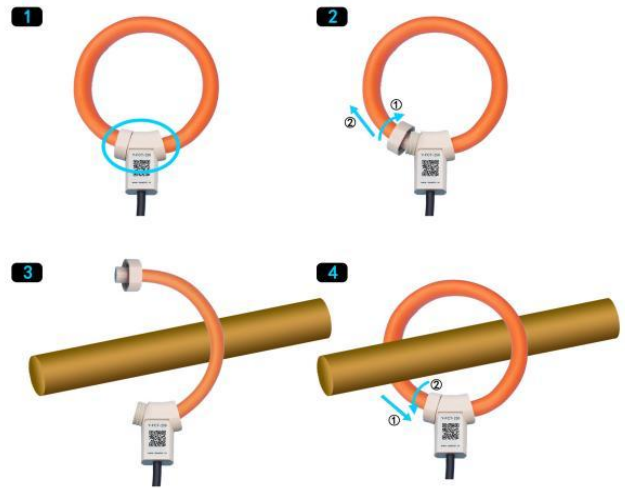
### STOCK VARIANTS ①

Image	Model	Coil diameter	Lead length	Ratio	Color (coil)	Article NO.
	NRC-100	100mm	2m	85mV/kA@50Hz	Orange	NRC-100-2M-85-OR
	NRC-100	100mm	8m	50mV/kA@50Hz	Blue	NRC-100-8M-50-GR
	NRC-150	150mm	2m	85mV/kA@50Hz	Orange	NRC-150-2M-85-OR
	NRC-150	150mm	10m	50mV/kA@50Hz	Green	NRC-150-10M-50-RE
	NRC-200	200mm	2m	85mV/kA@50Hz	Orange	NRC-200-2M-85-OR
	NRC-200	200mm	3m	25mV/kA@50Hz	Red	NRC-200-3M-25-YE
	NRC-300	300mm	2m	85mV/kA@50Hz	Orange	NRC-300-2M-85-OR
	NRC-300	300mm	3m	25mV/kA@50Hz	Yellow	NRC-300-3M-25-YE

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.





## Y-FCT Ø8 Flexible Rogowski Coil

### TECHNICAL DATA

Measured current: 1A to 500kA  
 Output sensitivity tolerance: ±5% (not calibrated)  
 Output sensitivity tolerance: ±0.5%, 25° C (calibrated)  
 Position error: ±1%  
 Bandwidth: 1Hz to 50kHz (-3dB)

### CUSTOMER BENEFIT

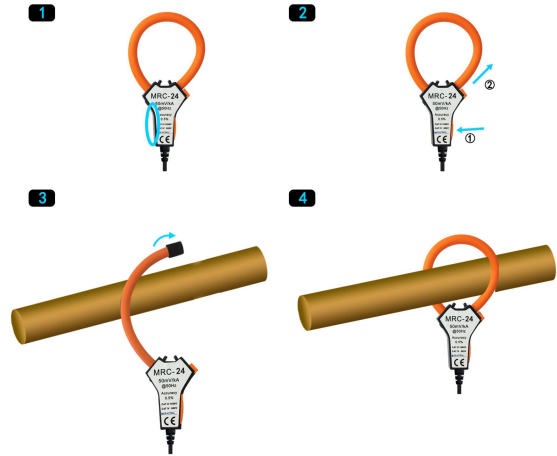
Waterproof rating up to IP68  
 Long-time installation  
 RoHs, CE certification  
 No power supply required

### STOCK VARIANTS ①

Image	Model	Coil length	Lead length	Ratio	Color (coil)	Article NO.
	Y-FCT-200	200mm	2m	85mV/kA@50Hz	Orange	Y-FCT-200-2M-85-OR
	Y-FCT-200	200mm	5m	100mV/kA@50Hz	Blue	Y-FCT-200-5M-100-BL
	Y-FCT-350	350mm	2m	85mV/kA@50Hz	Orange	Y-FCT-350-2M-85-OR
	Y-FCT-350	350mm	8m	50mV/kA@50Hz	Green	Y-FCT-350-8M-50-GR
	Y-FCT-420	420mm	2m	85mV/kA@50Hz	Orange	Y-FCT-420-2M-85-OR
	Y-FCT-420	420mm	10m	50mV/kA@50Hz	Red	Y-FCT-420-10M-50-RE
	Y-FCT-510	510mm	2m	85mV/kA@50Hz	Orange	Y-FCT-510-2M-85-OR
	Y-FCT-510	510mm	3m	25mV/kA@50Hz	Yellow	Y-FCT-510-3M-25-YE

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



### MRC Ø6 Flexible Rogowski Coil

#### TECHNICAL DATA

Measured current: 1A to 500KA  
 Output sensitivity tolerance: ±5% (not calibrated)  
 Output sensitivity tolerance: ±0.5%, 25° C (calibrated)  
 Position error: ±1%  
 Bandwidth: 1Hz to 20kHz (-3dB)

#### CUSTOMER BENEFIT

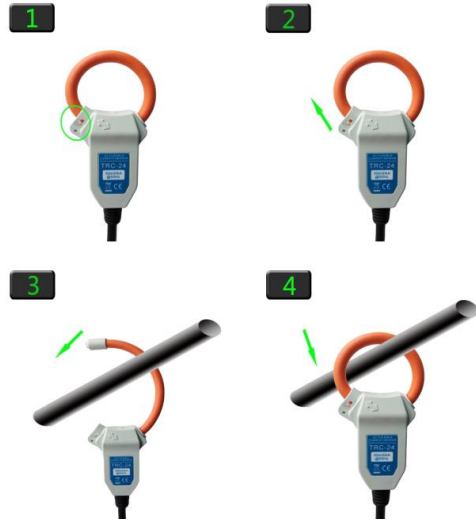
Waterproof rating up to IP53  
 Mini Size  
 RoHs, CE certification  
 No power supply required

### STOCK VARIANTS ①

Image	Model	Coil diameter	Lead length	Ratio	Color (coil)	Article NO.
	MRC-16	16mm	2m	50mV/kA@50Hz	Orange	MRC-16-2M-50-OR
	MRC-16	16mm	5m	25mV/kA@50Hz	Blue	MRC-16-5M-25-BL
	MRC-24	24mm	2m	50mV/kA@50Hz	Orange	MRC-24-2M-50-OR
	MRC-24	24mm	8m	50mV/kA@50Hz	Green	MRC-24-8M-50-GR
	MRC-36	36mm	2m	45mV/kA@50Hz	Orange	MRC-36-2M-45-OR
	MRC-36	36mm	10m	50mV/kA@50Hz	Red	MRC-36-10M-50-RE
	MRC-36D <sup>②</sup>	36mm	2m	100mV/kA@50Hz	Orange	MRC-36D-2M-100-OR
	MRC-36D	36mm	3m	50mV/kA@50Hz	Yellow	MRC-36D-3M-50-YE

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



### TRC Ø6 Flexible Rogowski Coil

#### TECHNICAL DATA

Measured current: 1A to 500KA  
 Output sensitivity tolerance: ±5% (not calibrated)  
 Output sensitivity tolerance: ±0.5%, 25° C (calibrated)  
 Position error: ±1%  
 Bandwidth: 1Hz to 20kHz (-3dB)

#### CUSTOMER BENEFIT

Waterproof rating up to IP53  
 Mini Size  
 RoHs, CE certification  
 No power supply required

### STOCK VARIANTS ①

Image	Model	Coil diameter	Lead length	Ratio	Color (coil)	Article NO.
	TRC-16	16mm	2m	50mV/kA@50Hz	Orange	TRC-16-2M-50-OR
	TRC-16	16mm	5m	25mV/kA@50Hz	Blue	TRC-16-5M-25-BL
	TRC-24	24mm	2m	50mV/kA@50Hz	Orange	TRC-24-2M-50-OR
	TRC-24	24mm	8m	50mV/kA@50Hz	Green	TRC-24-8M-50-GR
	TRC-36	36mm	2m	45mV/kA@50Hz	Orange	TRC-36-2M-45-OR
	TRC-36	36mm	10m	50mV/kA@50Hz	Red	TRC-36-10M-50-RE
	TRC-50	36mm	2m	45mV/kA@50Hz	Orange	TRC-50-2M-45-OR
	TRC-50	36mm	3m	50mV/kA@50Hz	Yellow	TRC-50-3M-50-YE

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



### KRC Split Rigid Rogowski Coil

#### TECHNICAL DATA

Measured current: 0.1A to 150KA  
 Output sensitivity tolerance:  $\pm 0.5\%$  , 25° C(calibrated)  
 Position error:  $\pm 1\%$   
 Bandwidth: 1Hz to 20kHz(-3dB)  
 Coil diameter: 51mm

#### CUSTOMER BENEFIT

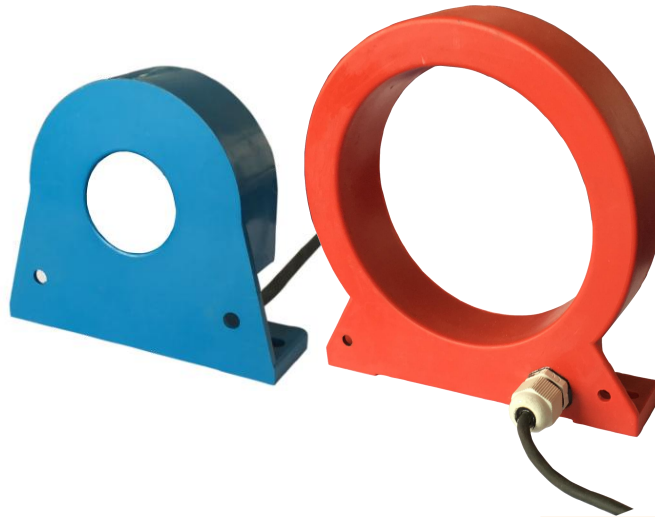
Rolled with holes for fixed installation  
 PCB type Rogowski coil  
 No power supply required

### STOCK VARIANTS ①

Model	Output Form	Lead length	Ratio	Article NO.
KRC.1	Terminal	/	1.025V/kA@50Hz	KRC.1
KRC.2	2 in 1	2m	1.025V/kA@50Hz	KRC.2-2M
KRC.3	SR	3m	1.025V/kA@50Hz	KRC.3-3M

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



## RCT Rigid Rogowski Coil

### TECHNICAL DATA

Measured current: 1A to 100KA  
 Output sensitivity tolerance:  $\pm 0.5\%$  , 25° C(calibrated)  
 Position error:  $\pm 1\%$   
 Bandwidth: 1Hz to 100kHz(-3dB)

### CUSTOMER BENEFIT

Waterproof rating up to IP68  
 More solid  
 RoHs, CE certification  
 No power supply required

### STOCK VARIANTS <sup>①</sup>

Image	Model	Coil diameter	Lead length	Ratio	Article NO.
	RCT-35	35mm	2m	85mV/kA@50Hz	RCT-35-2M-85
	RCT-35	35mm	5m	100mV/kA@50Hz	RCT-35-5M-100
	RCT-45	45mm	2m	100mV/kA@50Hz	RCT-45-2M-100
	RCT-45	45mm	10m	85mV/kA@50Hz	RCT-45-10M-85
	RCT-100	100mm	2m	150mV/kA@50Hz	RCT-100-2M-150
	RCT-100	100mm	5m	120mV/kA@50Hz	RCT-100-5M-120
	RCT-150	150mm	2m	150mV/kA@50Hz	RCT-150-2M-150
	RCT-150	150mm	3m	120mV/kA@50Hz	RCT-150-3M-120

<sup>①</sup> All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



## WCT Welding Rogowski Coil

### TECHNICAL DATA

Measured current: 1A to 100KA  
 Output sensitivity tolerance:  $\pm 0.5\%$  , 25° C(calibrated)  
 Position error:  $\pm 1\%$   
 Bandwidth: 1Hz to 1MHz(-3dB)

### CUSTOMER BENEFIT

For welding machine  
 Sensitivity up to 150mV  
 RoHs, CE certification  
 No power supply required

### STOCK VARIANTS ①

Image	Model	Coil diameter	Lead length	Ratio	Article NO.
	WCT-44	44mm	2m	150mV/kA@50Hz	WCT-44-2M-150
	WCT-44	44mm	5m	100mV/kA@50Hz	WCT-44-5M-100

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



## RCS Rigid Rogowski Coil

### TECHNICAL DATA

Measured current: 1A to 500KA  
 Output sensitivity tolerance:  $\pm 0.5\%$  , 25° C(calibrated)  
 Position error:  $\pm 2\%$   
 Bandwidth: 1Hz to 1MHz(-3dB)

### CUSTOMER BENEFIT

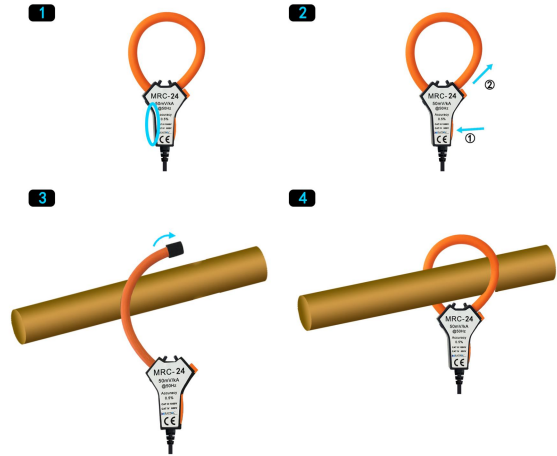
RoHs, CE certification  
 No power supply required

### STOCK VARIANTS <sup>①</sup>

Image	Model	Coil diameter	Lead length	Ratio	Article NO.
	RCS-54	54mm	2m	85mV/kA@50Hz	RCS-54-2M-85
	RCS-54	54mm	5m	100mV/kA@50Hz	RCS-54-5M-100

<sup>①</sup> All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



## S-MRC High Sensitivity Rogowski Coil

### TECHNICAL DATA

Measured current: 1A to 500KA  
 Output sensitivity tolerance:  $\pm 5\%$  , 25° C  
 Position error:  $\pm 1\%$   
 Bandwidth: 1Hz to 20MHz(-3dB)

### CUSTOMER BENEFIT

Waterproof rating up to IP67  
 Sensitivity up to 700mV  
 RoHs CE certification  
 No power supply required

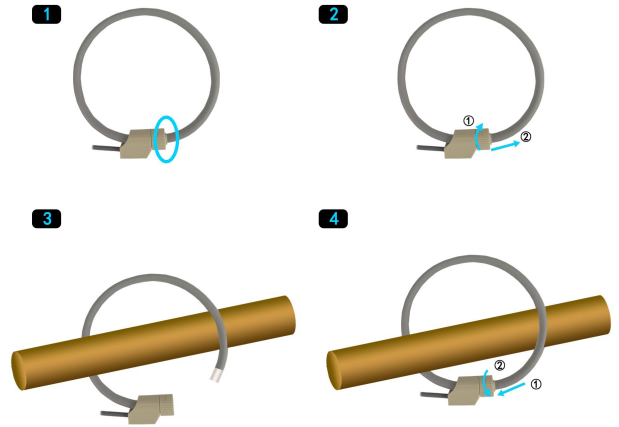
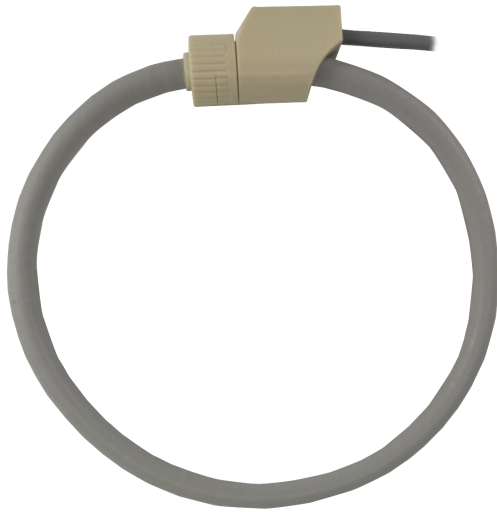
### STOCK VARIANTS ①

Image	Model	Coil diameter	Lead length	Ratio	Color (coil)	Article NO.
	S-MRC-16	16mm	2m	700mV/kA@50Hz	Orange	S-MRC-16-2M-700-OR
	S-MRC-16	16mm	5m	600mV/kA@50Hz	Blue	S-MRC-16-5M-600-BL
	S-MRC-24	24mm	2m	500mV/kA@50Hz	Orange	S-MRC-24-2M-500-OR
	S-MRC-24	24mm	8m	555mV/kA@50Hz	Green	S-MRC-24-8M-555-GR
	S-MRC-36	36mm	2m	600mV/kA@50Hz	Orange	S-MRC-36-2M-600-OR
	S-MRC-36	36mm	10m	700mV/kA@50Hz	Red	S-MRC-36-10M-700-RE
	S-MRC-36D <sup>②</sup>	36mm	2m	700mV/kA@50Hz	Orange	S-MRC-36D-2M-700-OR
	S-MRC-36D	36mm	3m	650mV/kA@50Hz	Yellow	S-MRC-36D-3M-650-YE

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.





### T-ZRC High voltage resistant Rogowski coil

#### TECHNICAL DATA

Measured current: 1A to 150KA  
 Output sensitivity tolerance:  $\pm 5\%$  , 25° C  
 Position error:  $\pm 2\%$   
 Bandwidth: 1Hz to 20kHz(-3dB)

#### CUSTOMER BENEFIT

Waterproof up to IP68  
 High voltage resistance 36kV  
 RoHs CE certification  
 No power supply required

#### STOCK VARIANTS ①

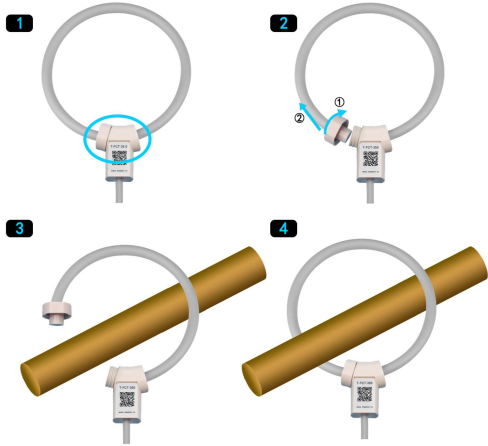
Image	Model	Coil diameter	Lead length	Ratio	Article NO.
	T-ZRC-50	50mm	2m	85mV/kA@50Hz	D-ZRC-50-2M-85
	T-ZRC-50	50mm	5m	100mV/kA@50Hz	D-ZRC-50-5M-100
	T-ZRC-100	100mm	2m	85mV/kA@50Hz	D-ZRC-100-2M-85
	T-ZRC-100	100mm	8m	50mV/kA@50Hz	D-ZRC-100-8M-50
	T-ZRC-150	150mm	2m	85mV/kA@50Hz	D-ZRC-150-2M-85
	T-ZRC-150	150mm	10m	50mV/kA@50Hz	D-ZRC-150-10M-50
	T-ZRC-200	200mm	2m	85mV/kA@50Hz	D-ZRC-200-2M-85
	T-ZRC-200	200mm	3m	25mV/kA@50Hz	D-ZRC-200-3M-25

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



How to use



T-FCT High voltage resistant Rogowski coil

TECHNICAL DATA

Measured current: 1A to 150KA  
Output sensitivity tolerance: ±5% , 25° C  
Position error: ±2%  
Bandwidth: 1Hz to 20kHz(-3dB)

CUSTOMER BENEFIT

Waterproof up to IP68  
High voltage resistance 36kV  
RoHs CE certification  
No power supply required

STOCK VARIANTS ①

Image	Model	Coil length	Lead length	Ratio	Article NO.
	T-FCT-200	200mm	2m	85mV/kA@50Hz	T-FCT-200-2M-85
	T-FCT-200	200mm	5m	100mV/kA@50Hz	T-FCT-200-5M-100
	T-FCT-350	350mm	2m	85mV/kA@50Hz	T-FCT-350-2M-85
	T-FCT-350	350mm	8m	50mV/kA@50Hz	T-FCT-350-8M-50
	T-FCT-420	420mm	2m	85mV/kA@50Hz	T-FCT-420-2M-85
	T-FCT-420	420mm	10m	50mV/kA@50Hz	T-FCT-420-10M-50
	T-FCT-510	510mm	2m	85mV/kA@50Hz	T-FCT-510-2M-85
	T-FCT-510	510mm	3m	25mV/kA@50Hz	T-FCT-510-3M-25

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.

Rogowski coil output is weak voltage mV signal, Integrator has ability to amplify and convert it to standard signal which could be caught by multi-meter and scope.

Rogowski coil output is proportional to the frequency of the measured current, the signal equalization ensure a linear response on a wide frequency range. Integrator allows to use coils on different electrical network frequencies, keeping the same output level over the frequencies.

An integrator is essential to equalize and shift by  $90^\circ$  the output signal from the Rogowski coils. It consists of an active electronic circuit with negligible offset and a good linearity.

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02-7	Three phase Integrator
02-9	Integrator Module



Single phase Integrator

S10  
02-3



D1  
02-4



S1  
02-4



S2.1  
02-5



DA01  
02-6



DA05-1  
02-6



Three phase Integrator

ATP-01  
02-7



DTP  
02-7



STP  
02-8



Integrator Module

M6(LP)  
02-9





## S10 Mini Integrator

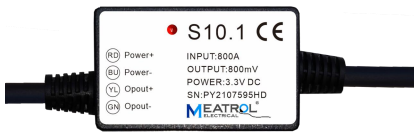
The S10 is a mini Rogowski coil integrator with output connectors such as 4 pole terminal type, multicore cable, RJ45, etc.

### CUSTOMER BENEFIT

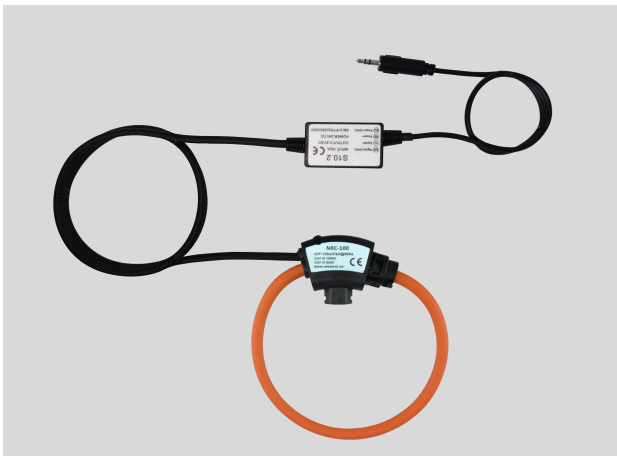
- Integrated with Rogowski coil, no wiring design
- Miniature type for flexible use
- Low power

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 0-3V AC, 0-4V DC, 4-20mA  
 Power supply: 5V DC only 333mV;  
 6-12V Dc or 24V DC  
 W×H×L: 28W×17H×48L mm



Model	Rated input	Output Form	Rated output	Power supply	Article NO.
S10.1	1000A		333mV AC	5V DC	S10.1-1000-333-5
S10.2	500A		3V DC	6-12V DC	S10.2-500-3-12
S10.3	2000A		4-20mA	24V DC	S10.3-2000-/-24



### Special Notes

Input lead length: according to the lead line of the Rogowski coil, Output signal line length: Customised



## D1 DIN-Rail Integrator

The D1 is a standard DIN rail design mountable Rogowski coil integrator.



### CUSTOMER BENEFIT

- Compact design
- Easy-to-install rail-mounted
- Easy to integrate installation

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 0-10V AC, 0-4V DC, 4-20mA  
 Power supply : 12V DC or 24V DC  
 W×H×L : 90W×61H×18L mm

Model	Rated input	Rated output	Power supply	Article NO.
D.1	1000A	333mV AC	12V DC	D.1-1000-333-12
D.2	500A	3V DC	12V DC	D.2-500-3-12
D.3	2000A	4-20mA	24V DC	D.3-2000-/24

## S1 High precision integrator

The S1 is a high precision Rogowski coil integrator with a shielded aluminum housing.



### CUSTOMER BENEFIT

- Built-in low ripple DC power supply module
- With mounting holes
- Wide power supply

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 0-10V AC, 0-10V DC, 4-20mA  
 Power supply : 4-12V DC  
 W×H×L : 86W×90H×29L mm

Model	Rated input	Rated output	Power supply	Article NO.
S1.1	1000A	10V AC	4-12V DC	S10.1-1000-10
S1.2	500A	10V DC	4-12V DC	S10.2-500-10
S1.3	2000A	4-20mA	4-12V DC	S10.3-2000



## S2.1 Handheld Integrator

The S2.1 is a handheld current switchable two-step Rogowski coil integrator.



### CUSTOMER BENEFIT

- Handheld
- BNC Rated output Type
- Battery-powered

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 0-12V AC  
 Power supply: No. 5 alkaline battery(LR6)×2 or 5-12V DC  
 W×H×D : 32W×144H×34Dmm  
 Bandwidth: 5Hz~100kHz(±3dB)

Model	Rated input	Rated output	Power supply	Article NO.
S2.1	3000A/300A	3V AC	5-12V DC	S2.1-3000A/300A-3
S2.1	6000A/600A	5V AC	5-12V DC	S2.1-6000A/600A-5
S2.1	1000A/100A	4V AC	5-12V DC	S2.1-1000A/100A-4

### Special Notes

Input lead length: according to the lead line of the Rogowski coil  
 Output signal line length: Customised



## DA01 DIN-Rail 1A Integrator

DA01 is a 1A output DIN-Rail Integrator.



### CUSTOMER BENEFIT

- Easy-to-install rail-mounted
- Easy to integrate

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 0-1A AC  
 Power supply: 12V DC or 24V DC  
 W×H×L : 114W×100H×22.5L mm

Model	Rated input	Rated output	Power supply	Article NO.
DA01	1000A	1A AC	12V DC	DA01-1000A-1A-12
DA01	3000A	20mA AC	12V DC	DA01-3000A-20mA-12
DA01	6000A	50mA AC	24V DC	DA01-6000A-50mA-24

## DA05-1 DIN-Rail 5A Integrator

DA05-1 is a 5A output DIN-Rail Integrator.



### CUSTOMER BENEFIT

- Rated output 5A rms
- Easy-to-install rail-mounted
- Easy to integrate

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 0-5A AC  
 Power supply: 24V DC  
 W×H×L : 105W×75H×45L mm

Model	Rated input	Rated output	Power supply	Article NO.
DA05-1	1000A	5A AC	24V DC	DA05-1-1000A-5A-24





## ATP-01 DIN-Rail 1A Integrator

ATP-01 is a 1A output three phase DIN-Rail Integrator.



### CUSTOMER BENEFIT

- Three phase Integrator
- Easy-to-install rail-mounted
- Easy to integrate

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 0-1A AC  
 Power supply: 12V DC or 24V DC  
 W×H×L : 114W×100H×22.5L mm

Model	Rated input	Rated output	Power supply	Article NO.
ATP-01	1000A	1A AC	12V DC	ATP-01-1000-1A-12
ATP-01	500A	20mA AC	12V DC	ATP-01-500-20mA-12
ATP-01	200A	50mA AC	24V DC	ATP-01-200-50mA-24

## DTP DIN-Rail Integrator

DTP is a three phase DIN-Rail Integrator.



### CUSTOMER BENEFIT

- Three phase Integrator
- Easy-to-install rail-mounted
- Easy to integrate

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 0-10V AC, 0-4V DC, 4-20mA  
 Power supply: 12V DC or 24V DC  
 W×H×L : 114W×100H×22.5L mm

Model	Rated input	Rated output	Power supply	Article NO.
DTP.1	1000A	333mV AC	12V DC	DTP.1-1000A-333-12
DTP.2	500A	4V DC	12V DC	DTP.2-500A-4-12
DTP.3	200A	4-20mA	24V DC	DTP.3-200A-J-24



## STP 3 IN 1 Integrator



### CUSTOMER BENEFIT

- No wiring design
- Different connector types are available
- Easy to operate

### TECHNICAL DATA

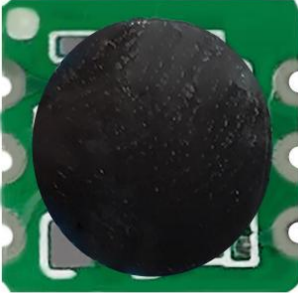
Rated input: Customised  
Rated output: 0-3V AC  
Power supply: 5V DC  
W×H×L : 32.8W×71.6H×16L mm  
Lead length: 0.5m

Model	Rated input	Rated output	Power supply	Article NO.
STP	100A	333mV AC	5V DC	STP-1000-333
STP	500A	3V AC	5V DC	STP-500-3
STP	1000A	3V AC	5V DC	STP-1000-3



## M6LP Integrator Module

M6LP is a low power Integrator Module.



### CUSTOMER BENEFIT

- Static power consumption less than 10uA
- Compact size like a chip
- Customizable magnification

### TECHNICAL DATA

Rated input: Customised

Rated output: 0-3V AC

Power supply: 3.3V DC

W×H : 10mm\*10mm

Model	Rated input	Rated output	Power supply	Article NO.
M6LP	1000A	3V AC	3.3V DC	M6LP-1000-3
M6LP	500A	0.8V AC	3.3V DC	M6LP-500-0.8
M6LP	200A	0.5V AC	3.3V DC	M6LP-200-0.5

Lightning is a common natural phenomenon, but the instantaneous large currents and high voltages that it generates will have serious harm to electronic equipment, buildings, and humans. The lightning current discharges the very large current, the amplitude is as high as tens to hundreds of kiloamps; also the discharge time is extremely short, only about 50-100 $\mu$ s; the steepness of the wave-head is high, up to 50kA/s, which is a high-frequency shock wave. The Rogowski coil means that evenly wind the wire on a non-ferromagnetic structure of uniform size, and the electromotive force is induced through the wire wrapping coil. The output signal is the differential voltage signal of the measured current, and we need to use the integrator to restore it. With the characteristics of high bandwidth and the difficult saturation, which have overcome many shortages of the traditional CT, it is very suitable for the measurement of lightning current.

Through technological innovation, Meatrol has developed a series of the special sensor for high lightning current, which can accurately restore 8/20 $\mu$ s and other high-frequency lightning current waveform. According to the needs of different scenarios, customers can select a multi-channel acquisition management system as well as the products of real-time waveform output, peak holding, digital output, and so on.

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- 03-3 High Frequency Broadband Current Transformer
- 03-7 High frequency Integrator
- 03-9 High Frequency Integrator Module
- 03-10 Lightning recorder
- 03-11 Multiplex Lightning Current Digital Display System
- 03-12 High-frequency lightning current generator



High Frequency Broadband Current Transformer

H-ZRC Ø8  
03-3



H-FCT Ø8  
03-4



H-MRC Ø6  
03-5



HCT  
03-6



High frequency Integrator

HF  
03-7



S2-HF  
03-7



S9.5  
03-8



S9.6  
03-8



High Frequency Integrator Module

M-FT  
03-9



Lightning recorder  
Multiplex Lightning  
Current Digital Display  
System

LD100  
03-10



LD300  
03-10

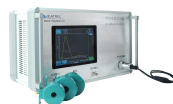


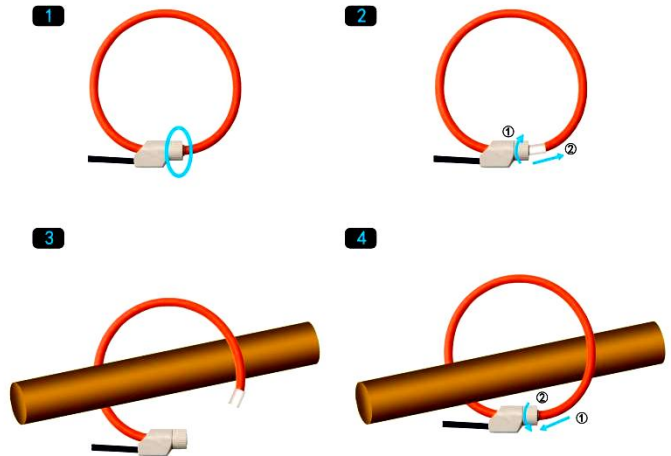
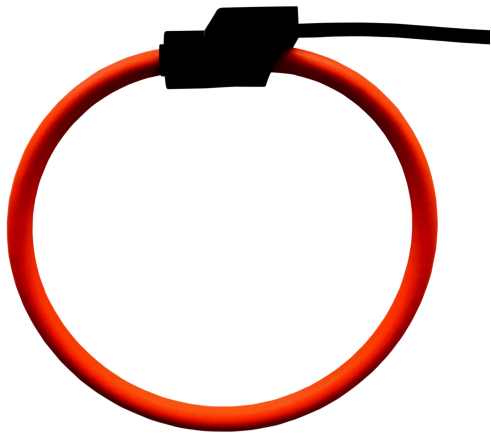
AX070  
03-11



High-frequency lightning  
current generator

ZL  
03-12





## H-ZRC Ø8 High Frequency Rogowski Coil

### TECHNICAL DATA

Measured current: 1A to 1000KA  
 Output sensitivity tolerance:  $\pm 5\%$  , 25° C  
 Position error:  $\pm 2\%$   
 Bandwidth: 1Hz to 50MHz(-3dB)

### CUSTOMER BENEFIT

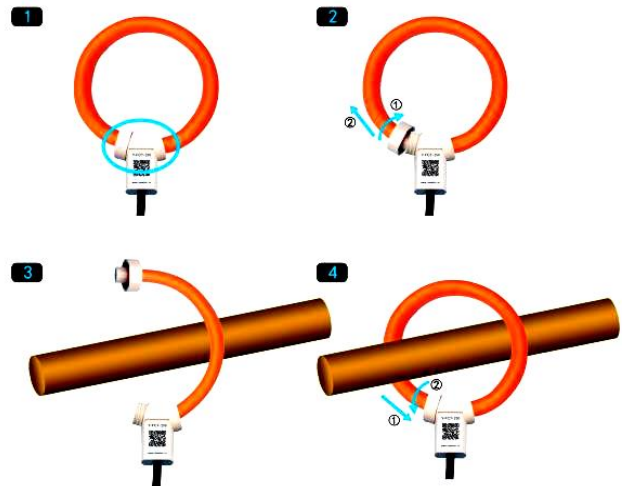
Waterproof rating up to IP68  
 Easy installation  
 RoHs, CE certification  
 No power supply required

### STOCK VARIANTS ①

Image	Model	Coil diameter	Lead length	Ratio	Article NO.
	H-ZRC-50	50mm	2m	6.8mV/kA@50Hz	H-ZRC-50-2M-6.8
	H-ZRC-50	50mm	5m	1.1mV/kA@50Hz	H-ZRC-50-5M-1.1
	H-ZRC-100	100mm	2m	6.8mV/kA@50Hz	H-ZRC-100-2M-6.8
	H-ZRC-100	100mm	8m	10mV/kA@50Hz	H-ZRC-100-8M-10
	H-ZRC-150	150mm	2m	6.8mV/kA@50Hz	H-ZRC-150-2M-6.8
	H-ZRC-150	150mm	10m	1.1mV/kA@50Hz	H-ZRC-150-10M-1.1
	H-ZRC-200	200mm	2m	6.8mV/kA@50Hz	H-ZRC-200-2M-6.8
	H-ZRC-200	200mm	3m	10mV/kA@50Hz	H-ZRC-200-3M-10

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



## H-FCT Ø8 High Frequency Rogowski Coil

### TECHNICAL DATA

Measured current: 1A to 1000KA  
 Output sensitivity tolerance:  $\pm 5\%$  , 25° C  
 Position error:  $\pm 2\%$   
 Bandwidth: 1Hz to 50MHz(-3dB)

### CUSTOMER BENEFIT

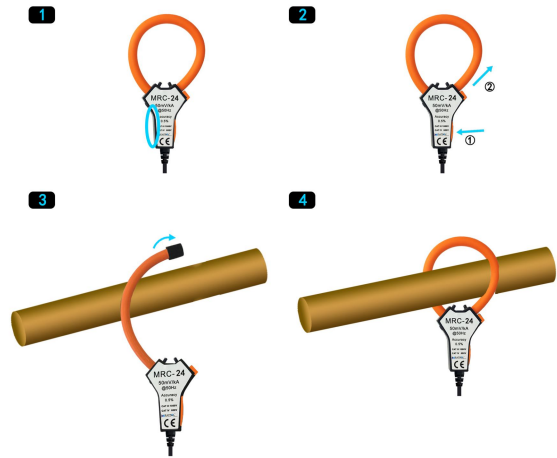
Waterproof rating up to IP68  
 Long-time installation  
 RoHs, CE certification  
 No power supply required

### STOCK VARIANTS ①

Image	Model	Coil diameter	Lead length	Ratio	Article NO.
	H-FCT-200	200mm	2m	6.8mV/kA@50Hz	H-FCT-200-2M-6.8
	H-FCT-200	200mm	5m	1.1mV/kA@50Hz	H-FCT-200-5M-1.1
	H-FCT-350	350mm	2m	6.8mV/kA@50Hz	H-FCT-350-2M-6.8
	H-FCT-350	350mm	8m	1.1mV/kA@50Hz	H-FCT-350-8M-1.1
	H-FCT-420	420mm	2m	6.8mV/kA@50Hz	H-FCT-420-2M-6.8
	H-FCT-420	420mm	10m	10mV/kA@50Hz	H-FCT-420-10M-10
	H-FCT-510	510mm	2m	6.8mV/kA@50Hz	H-FCT-510-2M-6.8
	H-FCT-510	510mm	3m	10mV/kA@50Hz	H-FCT-510-3M-10

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



### H-MRC Ø6 High Frequency Rogowski Coil

#### TECHNICAL DATA

Measured current: 1A to 500KA  
Output sensitivity tolerance: ±5% , 25° C  
Position error: ±2%  
Bandwidth: 1Hz to 20MHz(-3dB)

#### CUSTOMER BENEFIT

Waterproof rating up to IP67  
Mini Size  
RoHs, CE certification  
No power supply required

#### STOCK VARIANTS ①

Image	Model	Coil diameter	Lead length	Ratio	Article NO.
	H-MRC-16	16mm	2m	6.8mV/kA@50Hz	H-MRC-16-2M-6.8
	H-MRC-16	16mm	5m	1.1mV/kA@50Hz	H-MRC-16-5M-1.1
	H-MRC-24	24mm	2m	6.8mV/kA@50Hz	H-MRC-24-2M-6.8
	H-MRC-24	24mm	8m	1.1mV/kA@50Hz	H-MRC-24-8M-1.1
	H-MRC-36	36mm	2m	6.8mV/kA@50Hz	H-MRC-36-2M-6.8
	H-MRC-36	36mm	10m	10mV/kA@50Hz	H-MRC-36-10M-10
	H-MRC-50	50mm	2m	6.8mV/kA@50Hz	H-MRC-50-2M-6.8
	H-MRC-50	50mm	3m	10mV/kA@50Hz	H-MRC-50-3M-10

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



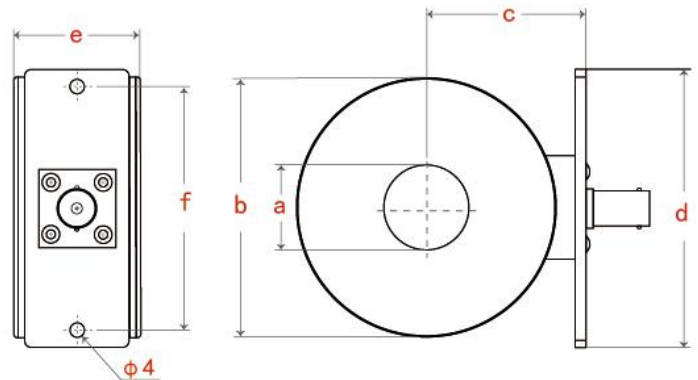


## HCT series sensors

- High voltage pulse currents
- Current transients and harmonics in power systems
- Lightning strike currents
- Pulsed charged particle beam currents
- Electrolyte and plasma currents



HCT series sensors are based on Faraday's electromagnetic induction principle and are self-integrating, enabling current detection over an ultra-wide frequency range without additional power supply. The sensors are connected to voltage measurement instruments such as oscilloscopes, spectrum/network analyzers, volt meters and digitizers using 50Ω coaxial cables. Standard connector forms are BNC, SMA, UHF or N-type connectors.



## STOCK VARIANTS ①

Model	Default Ratio (V/kA)	Max Rated output	Geometric dimensions (unit: mm)					
			a	b	c	d	e	f
HCT5514	1、10、100	10V	14	55	36.50	60	27	50
HCT6519	1、10、100	50V	19	65	41	70	36	60
HCT7524	0.5、1、10	100V	24	75	46	80	36	70
HCT9534	05、1、5	150V	34	95	57	95	36	80

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



## HF High frequency Integrator

HF is a high frequency Rogowski coil integrator with a compact shielded aluminum alloy housing that can measure various high frequency current signals such as  $3/5\mu\text{s}$  and  $8/20\mu\text{s}$ .



### CUSTOMER BENEFIT

- Compact shielded aluminum alloy housing
- Can be directly connected to the oscilloscope
- Immediate response time  $\leq 1\mu\text{s}$

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 12V AC pp  
 Power supply: 4-12V DC (85-265 AC to 12V DC adapter)  
 W×H×L : 86W×90H×29L mm

Model	Rated input	Rated output	Power supply	Article NO.
HF	1000A	1V AC	/	HF-1000-1
HF	500A	5V AC	/	HF-500-5
HF	10000A	10V AC	/	HF-10000-10

## S2-HF Handheld Integrator

S2-HF is a handheld Rogowski coil integrator.



### CUSTOMER BENEFIT

- Handheld
- BNC Rated output Type
- Battery-powered

### TECHNICAL DATA

Rated input: Customised  
 Rated output: 10V AC pp  
 Power supply: No. 5 alkaline battery(LR6)×2 or 5-12V DC  
 W×H×L : 32W×144H×34Dmm

Model	Rated input	Rated output	Power supply	Article NO.
S2-HF	1000A	1V AC	/	S2-HF-1000-1
S2-HF	500A	5V AC	/	S2-HF-500-5
S2-HF	10000A	10V AC	/	S2-HF-10000-10



## S9.5 Self integrating high frequency current transformer

S9.5 is a simple measurement of high-frequency current sensor, because of the use of self-integration, no power supply.

### CUSTOMER BENEFIT

- Economic and practical
- Without the power supply
- Anti-aging, can be used outdoors



### TECHNICAL DATA

Rated input: Customised  
 Rated output: Customised  
 W×H×L : 19W×62.5H×11L mm

Model	Rated input	Rated output	Output length	Article NO.
S9.5	10kA	5V AC	1m	S9.5-1m-10kA-5
S9.5	50kA	5V AC	2m	S9.5-2m-50kA-5
S9.5	60kA	5V AC	10m	S9.5-10m-60kA-5

## S9.6 Lightning current peak detection sensor

S9.6 is a high frequency current transformer with peak hold and 5V (5%) power supply.

### CUSTOMER BENEFIT

- Anti-aging, can be used outdoors
- Variable ratio can be set freely, such as 50KA/V
- Peak hold output



### TECHNICAL DATA

Rated input: Customised  
 Rated output: Customised  
 Power supply: 3-5V DC  
 W×H×L : 19W×62.5H×11L mm

Model	Rated input	Rated output	Output length	Article NO.
S9.6	10kA	5V AC	1m	S9.6-1m-10kA-5
S9.6	50kA	5V AC	2m	S9.6-2m-50kA-5
S9.6	60kA	5V AC	10m	S9.6-10m-60kA-5



## M-FT High Frequency Integrator Module

M-FT is an embedded high frequency current integration module specially designed for distributed fault location.



### CUSTOMER BENEFIT

- Special for embedded signal acquisition system
- Detect power frequency current and high frequency current signal
- Can measure a variety of high-frequency pulse current signals
- At the same time, three signals are output
- Can be directly connected the ADC

### TECHNICAL DATA

Dual power supply version: M-FT-D ( $\pm 3V \sim \pm 15V$ )

Single power supply version: M-FT-S ( $+3V \sim +5V$ )

W×H×L : 64.54W×27H×6.4L mm

### Special Notes

Consult engineer for specific product functions

### WHY CHOOSE M-FT

In the current detection of power transmission and distribution lines, start-stop of large motors and other occasions, it is often necessary to detect the steady-state current, fault current and traveling wave current at the same time. Traditionally, different sensors are used to detect different current signals. As a result, the system has complex redundancy, which not only wastes a lot of installation time, but also has poor reliability.

In order to solve the above problems, THE M-FT integrator set came into being after years of technical research by Shanghai PRODUCT Research Measurement and Control Technology Co., LTD. It is equipped with a broadband Rogowski® coil and an M-FT-TS integrator for power frequency current and high frequency current signal detection and is designed for built-in installation of user integration. Its compact shape, simple application, can be directly installed on the application motherboard, quickly shorten the development cycle.

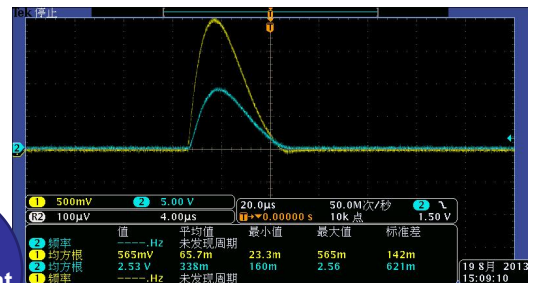
### Application Range

waves  
measurement

Discharge current  
measurement

lightning  
monitoring

The fault  
positioning





## LD100 Lightning recorder

LD100 is a new type of lightning waveform recording instrument, using open Rogowski coil as a sensor, to achieve wire-free installation, saving construction costs.



### CUSTOMER BENEFIT

- 12-bit ADC with a maximum sampling rate of 1MHZ
- Real-time recording of various lightning parameters: peak, polarity, specific energy, etc
- RS485, SD storage

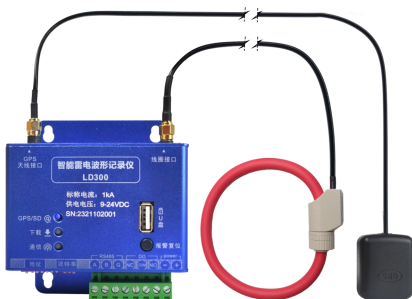
### TECHNICAL DATA

Rated input:  $\leq 100\text{kA}$   
 Rated output: RS485 Modbus RTU  
 Power supply: 6.5V~12V DC  
 W×H×L : 90W×84H×23L mm

Model	Rated input	Article NO.
LD100	10kA	LD100-10kA
LD100	50kA	LD100-50kA

## LD300 Intelligent lightning recorder

The LD300 is an upgraded version of the LD100



### CUSTOMER BENEFIT

- The length of recorded waveform is 25ms
- The 16-bit ADC has a maximum sampling rate of 2MHZ
- RS485, USB storage, optional GPS, Relay alarm

### TECHNICAL DATA

Rated input:  $\leq 300\text{kA}$   
 Rated output: USB storage, optional GPS, Relay alarm  
 Power supply: 9V~24VDC  
 W×H×L : 90W×84H×23L mm

Model	Rated input	GPS	Article NO.
LD300	10kA	YES	LD300-10kA-GPS
LD300	50kA	NO	LD300-50kA



# AX070 Multiplex Lightning Current Digital Display System

AX070 is a Multiplex Lightning Current Digital Display System.



### CUSTOMER BENEFIT

- 7 inch touch screen
- Waveform replication
- RS485, Ethernet, 4G communication, Alarm Output
- Wide application field

### Special Notes

Consult engineer for specific product functions

### Advantage

1. Improve the availability of wind turbines for extreme environments.
2. Perform remote maintenance and adjust operating parameters.
3. Through continuous monitoring, early detection of rotor blade damage, optimize the maintenance interval.
4. Through continuous condition monitoring, early warning of mechanical component damage, reduce failure rate and maintenance cost, improve efficiency.

### Application Range

load monitoring

ice detection

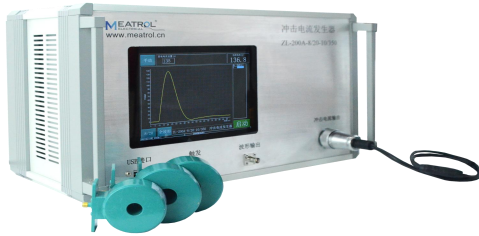
lightning monitoring

vibration monitoring



## ZL High-frequency lightning current generator

ZL is a benchtop high energy impulse current generator with high energy density.



### CUSTOMER BENEFIT

- Embedded industrial tablet computer with touch screen
- Built-in oscilloscope, waveform reproduction
- Standard 8/20, 10/350 impulse current generators
- BNC interface, a wide range of applications

### Selection table

High energy impulse current generator

Model	waveform parameter	Nominal peak	Article NO.	Model explain
ZL	10	50K	ZL—10—50K	10us rising edge attenuation oscillation waveform, rated peak current 50kA
ZL	8/20	5K	ZL—8/20—5K	8/20Waveform, rated peak current 5kA
ZL	10/350	1K	ZL—10/350—1K	10/350 Waveform, rated peak current 1kA

High speed and multi - channel gate type impulse current generator<sup>①</sup>

Model	waveform parameter (1)	Nominal peak	waveform parameter (2)	Nominal peak	waveform parameter (3)	Nominal peak	waveform parameter (4)	Nominal peak	Article NO.
ZL2	8/20	800A	10/350	200A	/	/	/	/	ZL2—8/20 (800A) —10/350 (200A)
ZL3	8/20	600A	10/350	200A	100n	200A	/	/	ZL3—8/20 (600A) —10/350 (200A) —100n (200A)
ZL3	100n	200A	300n	500A	500n	800A	/	/	ZL3—100n (200A) —300n (500A) —500n (800A)

<sup>①</sup>The number of channels of multi-gear impulse current generator is not more than 4; The rated peak current of 8/20 waveform is not more than 800A, and the rated peak current of 10/350 waveform is not more than 300A. .

In addition to Rogowski coils and supporting products, Shanghai Pinyan also sells open and close current transformers, clamp current transformers, waterproof current transformers, etc.

The product has high precision, good linearity, good interchangeability and consistency.

## CONTENT

### CHAPTER-PAGE

04-3	<b>Split Core Current Transformer</b>
04-5	<b>Waterproof Split Core Current Transformer</b>
04-6	<b>Current Clamp</b>





**Split Core Current Transformer**

SCT-BLACK  
04-3



**Waterproof Split Core Current Transformer**

FSCT  
04-5



**Current Clamp**

ST  
04-6





## SCT-B Split Core Current Transformer

SCT-B free open and close type, can be installed and disassembled quickly without power failure and continuous line, easy to operate.

### ADVANTAGES:

- No measuring cable interruption
- Primary currents 60 to 1000 A / secondary currents 1 or 5 A
- Compact, dividable housing means fast and easy mounting for retrofits
- Transformer leg (855-5xxx) can be completely removed if space is tight
- Easy, cost-effective installation via cable ties (included)



**STOCK VARIANTS** ①

Image	Coil diameter	Rated input	Rated output	Accuracy Class	Lead length	Article NO.
<b>SCT-010-B</b>						
	10mm	5A	333mV	1S	1m	SCT-010-B-5A-333mV
	10mm	20A	333mV	1S	1m	SCT-010-B-20A-333mV
	10mm	50A	333mV	1S	1m	SCT-010-B-50A-333mV
	10mm	75A	333mV	1S	1m	SCT-010-B-75A-333mV
<b>SCT-016-B</b>						
	16mm	5A	333mV	1S	1m	SCT-016-B-5A-333mV
	16mm	20A	333mV	1S	1m	SCT-016-B-20A-333mV
	16mm	100A	333mV	1S	1m	SCT-016-B-100A-333mV
	16mm	150A	333mV	1S	1m	SCT-016-B-150A-333mV
<b>SCT-024-B</b>						
	24mm	10A	333mV	1S	1m	SCT-024-B-10A-333mV
	24mm	20A	333mV	1S	1m	SCT-024-B-20A-333mV
	24mm	100A	5A	1S	1m	SCT-024-B-100A-5A
	24mm	250A	5A	1S	1m	SCT-024-B-250A-5A
<b>SCT-036-B</b>						
	36mm	10A	333mV	1S	1m	SCT-036-B-10A-333mV
	36mm	20A	333mV	1S	1m	SCT-036-B-20A-333mV
	36mm	100A	5A	1S	1m	SCT-036-B-100A-5A
	36mm	650A	5A	1S	1m	SCT-036-B-650A-5A
<b>SCT-050-B</b>						
	50mm	100A	5A	1S	1m	SCT-050-B-100A-5A
	50mm	500A	5A	1S	1m	SCT-050-B-500A-5A
	50mm	600A	5A	1S	1m	SCT-050-B-600A-5A
	50mm	800A	5A	1S	1m	SCT-050-B-800A-5A

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



## FSCT Waterproof Split Core Current Transformer

### TECHNICAL DATA

Rated current:	100A to 3000A
Rated frequency:	50 / 60HZ
Rated output:	5A/1A
Applicable standards:	GB/T 20840.1+.2
Diameter:	36mm/60mm

### CUSTOMER BENEFIT

Outdoor use  
waterproof  
Protection level up to IP6

### STOCK VARIANTS <sup>①</sup>

Model	Coil diameter	Rated input	Rated output	Lead length	Article NO.
FSCT36	36mm	100A	1A	5M	FSCT36-100-1-5M
FSCT36	36mm	1000A	1A	2M	FSCT36-1000-1-2M
FSCT60	60mm	3000A	5A	10M	FSCT60-3000-5-10M

<sup>①</sup> All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.



## ST Current Clamp

### TECHNICAL DATA

Rated current:	5A/10A
Rated frequency:	30Hz~5kHz
Rated ratio:	10A/4mA or 5A/320mV Customised
Applicable standards:	GB1208 and IEC60044-1
Diameter:	8mm

### CUSTOMER BENEFIT

Installation: clamp type  
 Load capacity:  $\leq 4 \omega$   
 Insulation grade: 2KV  
 Connector: BNC,

## STOCK VARIANTS ①

Model	Coil diameter	Rated input	Rated output	Lead length	Article NO.
ST08	8mm	10A	4mA	2M	ST08-10-4mA-2M
ST08	8mm	5A	2mA	2M	ST08-5-2mA-2M
ST13	13mm	5A	320mV	2M	ST13-5-320mV-2M

① All the parameters can be customized, please email or call for details

Please take further technical specification from the data sheets.

MEATROL meter has built-in integral function, which can obtain current information directly through roche coil.

The rated current of Rogowski coil has nothing to do with the inner diameter. It can be based on the field wiring situation, cable size, Select the corresponding Rogowski coil Model.

Rogowski coil diameter, color, signal wire, can be customized.

## CONTENT

### CHAPTER-PAGE

- 05-4 DIN rail power meter
- 05-7 Panel electric meter
- 05-11 Power quality analyzer
- 05-15 Power quality inspection system



DIN rail power meter

ME631SD  
05-4



ME531SD  
05-4



ME231  
05-5



ME131  
05-6



Panel power meter

ME437  
05-7



ME337  
05-8



Power quality analyzer

ME440  
05-11



Mi550  
05-12



MQ21  
05-13



MQ31  
05-14



Mi330



Power quality inspection system

Ga Gateway  
05-15



EQMP  
05-16





## ME631SD

### TECHNICAL DATA

<b>Supported sensor</b>	<b>333mV CT/Rogowski coil</b>
The power supply	85 ~ 264VAC/100 ~ 370VDC
Display	2.0 inch TFT color screen display
Harmonic	52th Max, 3 times meanwhile
Parameter record	1GB (default) Can record for three consecutive years
Stored storage	Voltage(V), Voltage total harmonic (%), current (A), current total harmonic (%), frequency (Hz), PF (power factor), active power (W), reactive power (Var), apparent power (Va), active energy (Wh), reactive energy (Varh), apparent energy (Vah)
Communication protocol	MODBUS RTU
Reference rated current	500A(0.5% from 10A to 600A) 10kA(0.5% from 100A to 12kA) Accept OEM

### CUSTOMER BENEFIT

- Direct support for Rogowski coil access
- Tape storage function
- Harmonic measurement
- 2.0-inch TFT screen



## ME531

### TECHNICAL DATA

<b>Supported sensor</b>	<b>333mV CT/Rogowski coil</b>
The power supply	85~264VAC/100~370VDC/24VDC
Display	None
Harmonic	52th Max, 3 times meanwhile
Parameter record	NO
Stored storage	MODBUS RTU
Communication protocol	100A(0.5% from 1A to 120A) 600A(0.5% from 6A to 720A) 1000A(0.5% from 10A to 1200A) 3000A(0.5% from 30A to 3600A) 6000A(0.5% from 60A to 7200A)
Reference rated current	100A(50mV/kA@50Hz) 600A(50mV/kA@50Hz) 1000A(85mV/kA@50Hz) 3000A(85mV/kA@50Hz) 6000A(50mV/kA@50Hz)

### CUSTOMER BENEFIT

- Direct support for Rogowski coil access
- Rated current switching between 5 grades
- High cost performance
- Wide application field







# ME231

## TECHNICAL DATA

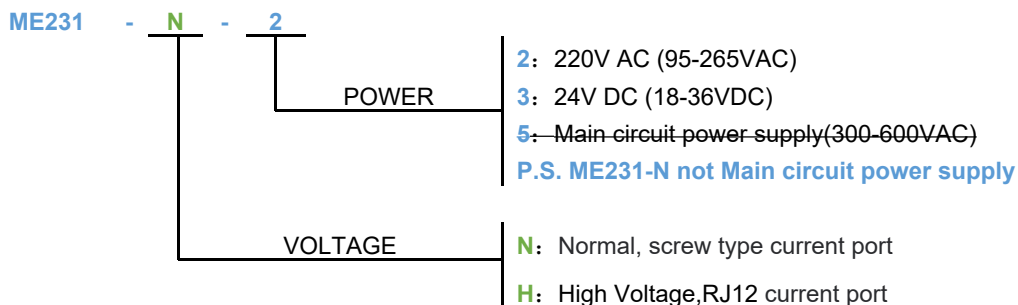
Current sensor type	Rogowski coil Voltage-output current clamp
Advantage	Suitable for wide current range, no dismantling measurement
Wiring system	3P4W 4CT, 3P4W 3CT, 3P3W 3CT, 3P3W 2CT, 1P3W, 1P2W
Application field	Power analysis Tariff meter
Display screen	1.77 inch TFT screen display
Weight	259g
Dimension	L*W*D: 9.45*7.25*6.6CM
Channel input voltage range	0-900mVAC peak, 636 mV RMS
Measurement range	Different current sensors have different ranges
Channel input voltage range	0~600VAC Phase Voltage
Maximum range	720VAC Phase Voltage
RS485 communication	One way RS485 communication interface Interface type: two wire half duplex Communication baudrate: 2400bps ~ 38400bps Protocol: Modbus RTU

## CUSTOMER BENEFIT

- Direct connection with open Rogowski coils
- Three-phase/ Single-phase
- Phase N Current measurement
- 6-Tariff (Manual or RTC)
- 1-50 harmonic values display
- Touch Mode Button
- Backlight Brightness & Time



## ME231 Model naming Rules





## ME131

### TECHNICAL DATA

Master meter	ME131M
Submeter	ME131S
Accuracy	0.5S
Sensor	CT or Rogowski coil, with RJ12 port * Monitor up to 32 circuits (Single phase/Three phase)
Power supply	Integrated power supply for master meter and submeter
Communication	Modbus-RTU, RS485
Max baud rate	38.4 kbps
Accessories	Test version software

### CUSTOMER BENEFIT

- Compact and space-saving
- Plug design
- Centralized installation
- Easy maintenance
- Excellent function
- Economical cost



ME131 multi-circuit smart energy meter is compatible with both Rogowski coil and voltage-output split core current transformer, which could realize dismantling-free conductor test, simplify test procedures and save construction costs



## ME437SD

### TECHNICAL DATA

<b>Supported sensor</b>	333mV CT/Rogowski coil
<b>The power supply</b>	85~265V AC/DC
<b>Display</b>	3.5 inch TFT color screen display
<b>Harmonic</b>	52th Max, 3 times meanwhile
<b>Parameter record</b>	1GB (default) Can record for three consecutive years Date and time, Voltage (V), UTHD (%), Current (A), ITHD (%), ITHD3 (%), ITHD5 (%), ITHD7 (%), ITHD11 (%), ITHD13 (%), ITHD3 (A), ITHD5 (A), ITHD7 (A), ITHD11 (A), ITHD13 (A), Frequency (Hz), PF (power factor), active power (W), reactive power (Var), apparent power (Va),
<b>Stored storage</b>	Active energy (Wh), reactive energy (Varh), apparent energy (Vah) Current demand (A), maximum current demand (A) and date Total active power demand (W) total active power peak demand (W) & date Total reactive power demand (W) total reactive power peak demand (W) & date Total apparent power demand (W) total apparent power peak demand (W) & date
<b>Communication protocol</b>	MODBUS RTU
<b>Reference rated current</b>	100A/600A/1000A/3000A/6000A

### CUSTOMER BENEFIT

- 3.8 -inch LCD screen
- Power pulse output
- Output control
- Diverse styles





## ME337

### TECHNICAL DATA

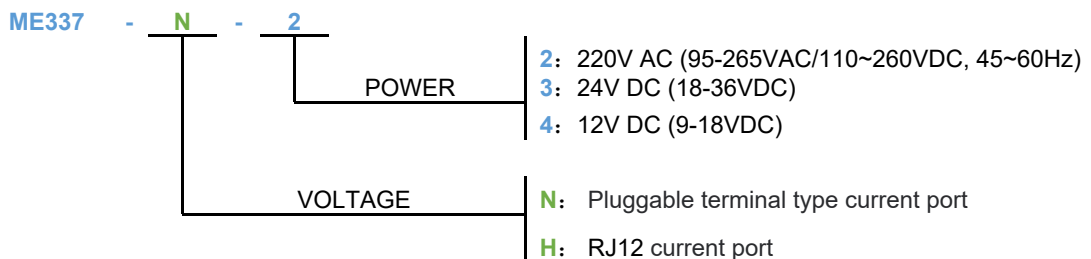
Type	96*96 Panel Meter
Current sensor type	Rogowski coil, Voltage-output current clamp
Advantage	Suitable for wide current range, no dismantling measurement
Wiring system	3P4W 4CT, 3P4W 3CT, 3P3W 3CT, 3P3W 2CT, 1P3W, 1P2W
Application field	Power analysis
Display screen	3.8 inch LCD segment code display screen
Weight	259g
Dimension	L*W*D: 8.1*8.1*3CM
Channel input voltage range	0-900mVAC peak, 636 mV RMS
Measurement range	Different current sensors have different ranges
Channel input voltage range	0~600VAC Phase Voltage
Maximum range	720VAC Phase Voltage
RS485 communication	One way RS485 communication interface Interface type: two wire half duplex Communication baudrate: 2400bps ~ 38400bps Protocol: Modbus RTU

### CUSTOMER BENEFIT

- Direct connection with open Rogowski coils
- Three-phase/ Single-phase
- Phase N Current measurement
- 6-Tariff (Manual or RTC)
- 1-50 harmonic values display



### ME337 Model naming Rules





## FUNCTION LIST



FUNCTION		PARAMETER	ME440	Mi550	MQ21	MQ31
5 Rated Current Selectable	100A/600A/1kA/3kA/6kA	100A/600A/6kA: Default connecting 50mV/kA rogowski coil 1kA/3kA: Default connecting 85mV/kA rogowski coil				
	600A/3kA/6kA	600A/6kA: Default connecting 50mV/kA rogowski coil 3kA: Default connecting 85mV/kA rogowski coil	●	●	●	●
Installation style	Handheld		●	●		
	Din Rail				●	
	Portable					●
Power supply	Lithium battery		●	●		
	Electricity from major loop,90~528VAC				●	●
	85-265V					
	24V					
	5V adaptor		●	●		
Current Unbalance	Each phase, The most unbalanced phase	Ubl(la,lb,lc,lwst)	●	●	●	●
Voltage Unbalance	Each phase, The most unbalanced phase	Ubl(Ua,Ub,Uc,Uwst)	●	●	●	●
Line Voltage		Uab Ubc Uac	●	●	●	●
Voltage Angle		Uab Ubc Uac	●	●	●	●
Current Angle		Uab Ubc Uac	●	●	●	●
Displacement Power Factor	Each phase,Total	DPFa,DPFb,DPFc,TOT	●	●	●	●
Instantaneous maximum RMS	Current	la lb lc,avg	●	●	●	●
	Voltage	Ua Ub Uc,avg	●	●	●	●
	Power	Pa,Pb,Pc,Qa,Qb,Qc,Sa,Sb,Sc,Psum,Qsum,Ssum	●	●	●	●
Instantaneous minimum RMS	Current	la lb lc,avg	●	●	●	●
	Voltage	Ua Ub Uc,avg	●	●	●	●
	Power	Pa,Pb,Pc,Qa,Qb,Qc,Sa,Sb,Sc,Psum,Qsum,Ssum	●	●	●	●
Harmonic	Current total harmonic percentage	ITHDa(%), ITHDb(%),ITHDc(%),ITHD avg(%)	●	●	●	●
	Voltage total harmonic percentage	UTHDa(%), UTHDb(%),UTHDc(%),UTHD avg(%)	●	●	●	●
	Current subharmonic percentage	ITHDa(%), ITHDb(%),ITHDc(%)	●	●	●	●
	Current subharmonic value	ITHDa(A), ITHDb(A),ITHDc(A)	●	●	●	●
	Voltage subharmonic percentage	UTHDa(%), UTHDb(%),UTHDc(%)	●	●	●	●
	Voltage subharmonic value	UTHDa(V), UTHDb(V),UTHDc(V)	●	●	●	●
Harmonic number display	51 times in the meantime		●	●	●	●

● Have this function, ◎ optional function, Blank: no this function



## FUNCTION LIST



FUNCTION		PARAMETER	ME440	MI550	MQ21	MQ31
Power quality	Voltage swell,dip	Record time, amplitude value, voltage RMS 1/2 value of each phase and voltage waveform of each phase		●	●	●
	Waveform display	Ua,Ub,Uc, Ia,Ib,Ic		●		●
Energy Measurement	Waveform reading (TCP protocol)	Ua,Ub,Uc, Ia,Ib,Ic			●	
	Active Energy	EPa,EPb,EPc,EPsum	●	●	●	●
	Reactive Energy	EQa,EQb,EQc,EQsum	●	●	●	●
Digital signal	Apparent Energy	ESa,ESb,ESc,ESSum	●	●	●	●
	Electric energy pulse output				●	●
	Digital input				●	●
Temperature and humidity	Relay output				●	●
	Temperature	Three channels			●	●
Time-sharing Measurement	Humidity	One channel			●	●
	3 Tariff	Controlled by modbus			●	●
Demand	Demand (some time ago)	Current Ia Ib Ic,avg	●	●	●	●
	Maximum Demand(Maximum value of Demand)	Active/Reactive/Apparent Power: Psum,Qsum,Ssum	●	●	●	●
				●	●	●
Real time parameters	Voltage	Ua Ub Uc,avg	●	●	●	●
	N line-to-earth voltage	Ue	●	●	●	●
	Current	Ia Ib Ic,avg	●	●	●	●
	N line current	In	●	●	●	●
	Active Power	Pa,Pb,Pc,Psum	●	●	●	●
	Reactive Power	Qa,Qb,Qc,Qsum	●	●	●	●
	Apparent Power	Sa,Sb,Sc,Ssum	●	●	●	●
	Power Factor	PFa,PFb,PFc,avg	●	●	●	●
	Frequency	Fa,Fb,Fc,avg	●	●	●	●
Full parameter record	16GB memory	USB flash disk download	●	●	●	●
	SD card	1GB				
Communication	Communication interface	RS485 port,Half duplex			●	●
		Ethernet port	●	●	●	
	Communication protocol	RJ45-Modbus-TCP	●	●	●	
		RS485-Modbus-RTU			●	●
Display	1.3 inch Color OLED				●	
	3.5 inch TFT Display		●			
	4.0 inch TFT Display			●		
	8.0 inch TFT Display					●

● Have this function, ◎optional function, Blank: no this function






## ME440

### TECHNICAL DATA

Model	ME440
Type	Handheld;poly-phase;data logger;power analyzer
Application Range	Power analysis Data log
Weight	850g
L*W*D	21.5*13*6CM
Display	3.5 inch TFT screen display
Storage	16GB Memory record 12 years (1min interval)
RFDC	Supports external 4G
Wireless spectrum	FDD:B1/B3/B5/B8 TDD:B34/B38/B39/B40/B41
Supported sensor	333mV CT Rogowski coil
Rated current(free switching of three currents)	600A 0.5A ~ 720A 3kA 0.5A ~ 3600A 6kA 0.5A ~ 7200A
Rated input voltage	1/225mV ~ 707mV
Overload capacity	2V, 10s/hours
Voltage sensor	Direct access, PT access
Wiring Method	3PH4W 3PH3W 1PH2W (L-N); 1PH2W(L-L);1PH3W(L-L-N)
Harmonic	51 times meanwhile
Current Terminal type	BNC
Voltage Terminal type	Banana plug
The power supply	2*2900mAh lithium battery (working time: 10 hours)/5V DC

### Accessories

Voltage wires 	5pcs voltage clamp wires with banana plug (2 meters,1.5mm <sup>2</sup> )
Adaptor 	85-265 AC to 5V DC adaptor
Lithium battery 	2*2900mAh lithium battery

### CUSTOMER BENEFIT





- handheld
- Tape storage function
- Built-in lithium battery
- Supports simultaneous display of 51 harmonics
- N phase voltage and current can be measured

### Typical application scenarios or solutions

- Quality inspection of electricity consumption
- Power quality monitoring
- Energy data collection and diagnosis



### Option

Rogowski coil		600A TRC-24/TRC-36
		3000A NRC-100/NRC-150
		6000A NRC-200
BOX		IP67 explosion-proof carrying case






## Mi550

### TECHNICAL DATA

Model	Mi550
Type	Hand-held waveform display power quality analyzer
Application Range	Power analysis Data log
Weight	850g
L*W*D	L*W*D: 21.5*13*6CM
Display	4 inch TFT screen display
Storage	16GB Memory record 12 years (1min interval)
RFDC	The voltage jumped and dropped sharply
Waveform	Waveform display Waveform Reading (UDP)
Supported sensor	333mV CT Rogowski coil
Rated current(free switching of three currents)	600A 0.5A ~ 720A 3kA 0.5A ~ 3600A 6kA 0.5A ~ 7200A
Rated input voltage	1/225mV ~ 707mV
Overload capacity	2V, 10s/hours
Voltage sensor	Direct access, PT access
Wiring Method	3PH4W 3PH3W 1PH2W (L-N); 1PH2W(L-L);1PH3W(L-L-N)
Harmonic	51 times meanwhile
Current Terminal type	BNC
Voltage Terminal type	Banana plug
The power supply	2*2900mAh lithium battery (working time: 10 hours)/5V DC

### Accessories

 <p>Voltage wires</p>	5pcs voltage clamp wires with banana plug (2 meters, 1.5mm <sup>2</sup> ) + Magnetic bar
 <p>Adaptor</p>	85-265 AC to 5V DC adaptor
 <p>Lithium battery</p>	2*2900mAh lithium battery

### CUSTOMER BENEFIT





- handheld
- Tape storage function
- Built-in lithium battery
- Supports recording voltage surge and sag
- Can display read current voltage waveform

### Typical application scenarios or solutions

- Quality inspection of electricity consumption
- Power quality monitoring
- Energy data collection and diagnosis



### Option

Rogowski coil		600A TRC-24/TRC-36
		3000A NRC-100/NRC-150
		6000A NRC-200
BOX		IP67 explosion-proof carrying case





## MQ21

### TECHNICAL DATA

Model	MQ21	
Type	Three phase power quality analyzer	
Application Range	power analysis, energy measurement	
Weight	400g	
L*W*D	L*W*D: 13*9.5*5.6CM	
Display	1.3-inch color OLED	
Storage	16GB Memory record 12 years (1min interval)	
RFDC	Supports external 4G	
Wireless spectrum	FDD:B1/B3/B5/B8 TDD:B34/B38/B39/B40/B41	
Supported sensor	333mV CT Rogowski coil	
Rated current(free switching of three currents)	600A	0.5A ~ 720A
	3kA	0.5A ~ 3600A
	6kA	0.5A ~ 7200A
Secondary side current range (ST08 current clamp or the same type)	1mA~6A	
Input voltage value	1/225mV ~ 707mV	
Overload capacity	2V, 10s/hours	
Voltage sensor	Direct access, PT access	
Wiring Method	3PH4W 3PH3W	
	1PH2W (L-N); 1PH2W(L-L);1PH3W(L-L-N)	
Harmonic	51 times meanwhile	
Electric source	Electricity from major loop, 90~528V	
External battery	External 18650 lithium battery	
ABC phase current input	SATA interface	
N-phase current input	5.08 terminal	
Voltage input	7.62 spacing terminals	

### CUSTOMER BENEFIT

- The main circuit is powered without additional power supply
- With storage function, USB port data export
- Fault recording event recording, voice prompt
- Measurable temperature and humidity
- High-speed Ethernet communication
- Support 4G module, high-speed cloud platform remote monitoring
- Sudden rise sudden drop interrupt flicker three phase unbalance record
- The hardware is highly integrated, and the core chip is ADE9000
- Rated output control
- Support roche coil and CT







### Typical application scenarios or solutions

Quality inspection of electricity consumption

Power quality event monitoring and diagnosis

Power quality monitoring of photovoltaic power supply side

### Option

Rogowski coil		600A TRC-24/TRC-36
		3000A NRC-100/NRC-150
		6000A NRC-200
Lithium battery		4pcs voltage clamp wires with banana plug (2 meters, 1.5mm <sup>2</sup> )







## MQ31

### TECHNICAL DATA

Model	MQ31	
Type	Three phase power quality analyzer	
Application Range	power analysis, energy measurement	
Weight	8kg	
L*W*D	L*W*D: 44*36*19.5CM	
Display	8 inch capacitive screen	
Storage	32GB Memory record 12 years (1min interval)	
RFDC	Supports external 4G	
Wireless spectrum	FDD:B1/B3/B5/B8 TDD:E34/B38/B39/B40/B41	
Supported sensor	333mV CT or Rogowski coil	
Rated current(free switching of three currents)	600A	0.5A ~ 720A
	3kA	0.5A ~ 3600A
	6kA	0.5A ~ 7200A
Secondary side current range (ST08 current clamp or the same type)	1mA~10A	
Input voltage value	1/225mV ~ 707mV	
Overload capacity	2V, 10s/hours	
Voltage sensor	Direct access, PT access	
Wiring Method	3PH4W 3PH3W	
	1PH2W (L-N); 1PH2W(L-L);1PH3W(L-L-N)	
Harmonic	51 times meanwhile	
Electric source	Electricity from major loop, 90~528V	
ABCN current input	3.5mm Earphone Jack	
Voltage input	4mm banana plug	
Max Power Dissipation	15W	

### Option

Rogowski coil		600A TRC-24/TRC-36
		3000A NRC-100/NRC-150
		6000A NRC-200
Lithium battery		4pcs voltage clamp wires with banana plug (2 meters, 1.5mm <sup>2</sup> )

### CUSTOMER BENEFIT

- With storage function, USB port data export
- Measurable temperature and humidity
- High-speed Ethernet communication
- Support 4G module, high-speed cloud platform remote monitoring
- Event record swell,dip
- Core chip is ADE9000



### Typical application field or solutions

Quality inspection of electricity consumption

Power quality event monitoring and diagnosis

Power quality monitoring of photovoltaic power supply side

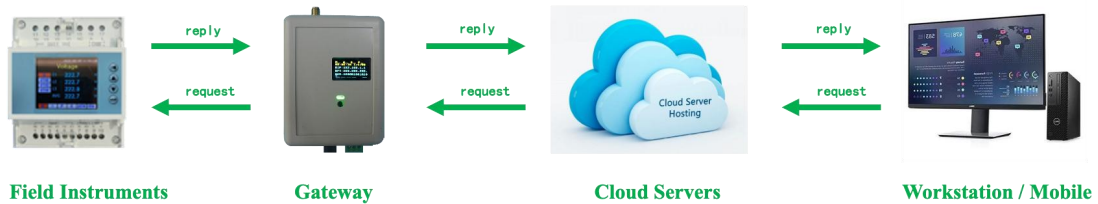


# Ga Series Gateway



Ga series gateway is a new generation of Internet of Things gateway, to realize connection of various meter data, and integrating data collection, edge processing, transmission, diagnosis and other functions.

With SaaS online power quality monitoring platform, Ga gateway can transmit energy monitoring data to the cloud server in real time, provide data support for energy quality analysis, enhance the intelligent operation and maintenance of equipment.



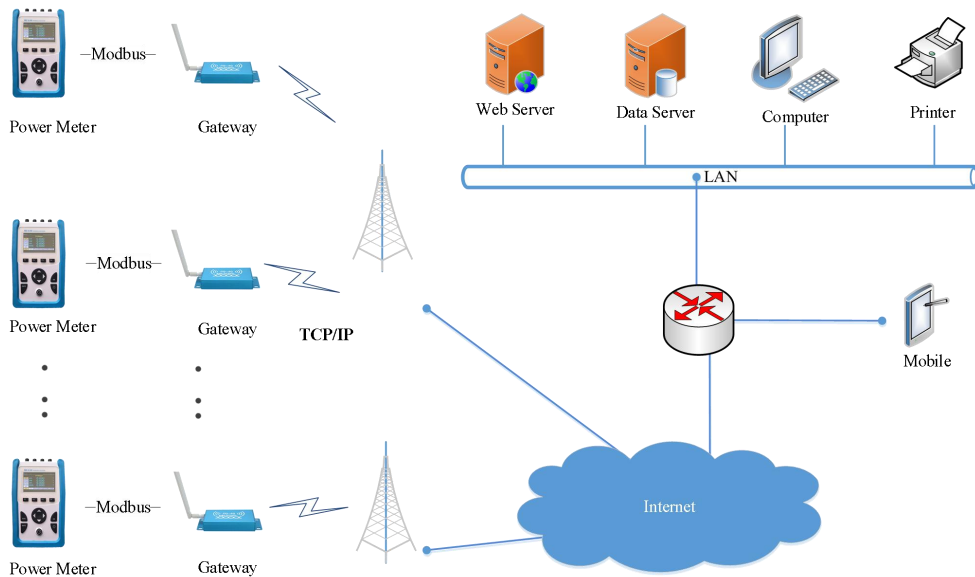
Summary				
Model	GaR	GaT	GaRW	GaTW
Application	energy monitoring, electric energy measurement			
Weight	199g			
Size	L*W*D: 9.0*7.0*2.4 CM			
Display	0.96 inch LED			
<b>Connection Mode</b>				
Meter Interface	RS485	Ethernet	RS485	Ethernet
Data Format	MODBUS	TCP/MODBUS	MODBUS	TCP/MODBUS
<b>Transmission mode</b>				
Transmission mode	4G		WIFI	
Supported Frequency Band	FDD:B1/B3/B5/B8TDD:B34/B38/B39/B40/B41		2.4GHz	
<b>Work Environment</b>				
Temperature Range	-40°C ~ 80°C			
<b>Power Supply</b>				
Power	DC 5V / 2A			
<b>Consumption</b>				
Consumption	8W			



# EQMP



**On-Line Energy Quality Monitoring Platform** Based on SaaS, using technologies of cloud computing, Internet of things, edge computing and others, service for power quality monitoring and maintenance scenarios. The real-time basic parameters, harmonic parameters and other data from the power consumption system can be collected and uploaded to platform by the monitoring terminal. Platform provides storage, early warning, alarm and many other services. Using the general and customized function module, we can realize remote online analysis and management. Also, we can judge the power quality problems by using the operation trend module.



MEATROL has many years of experience in the development of Rogowski coils which must work precisely under any external conditions. Our products excel in a maximum of safety for the operating staff and standard-compliant functioning under the most varied site and environmental conditions. Highly precise EMC and environmental tests are conducted at our own test laboratory. In addition, we regularly have the safety and quality of our instruments documented by external accredited test laboratories as well as independent international certification bodies. Depending on the individual requirements and tasks, we support you in the preparation of corresponding system solutions taking the site conditions into consideration.

## CONTENT

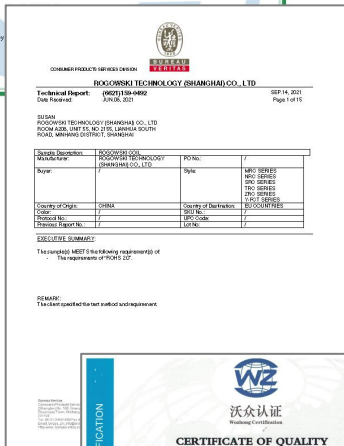
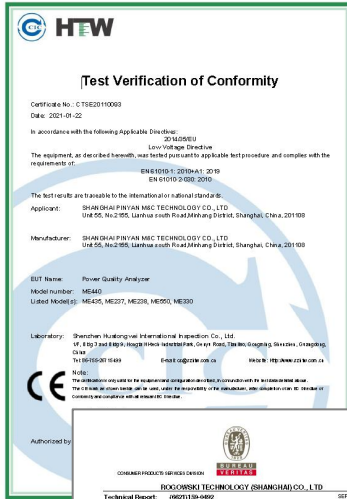
### CHAPTER-PAGE

06-2	Certification
06-4	TEST RECORDS
06-5	Operation instructions
06-6	Meter FAQs
06-7	Safety instruction



RELIABLE

MEATROL has long years of experience in the development of Rogowski coils which must operate precisely in all external conditions. Our products feature maximum safety for the operating staff and standard aligned functioning under different site and ambient conditions. It has been awarded national high-tech enterprise for 6 consecutive years.



CERTIFICATIONS:

- UL
- Rohs
- CE
- EMC
- IP68

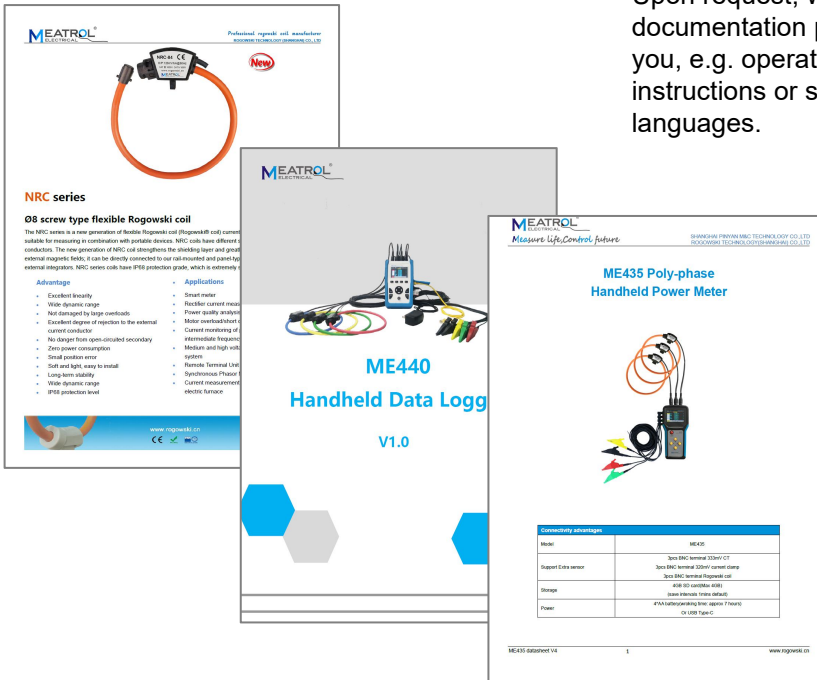
CAMILLE BAUER METRAWATT:

- Resource-optimised raw material management
- Permanent further development of products and services under efficiency aspects
- Meticulous quality and environment compatibility tests
- Certified according to ISO9001



# EXTRA DOCUMENTATION

Upon request, we will prepare separate documentation packages in printed form for you, e.g. operating instructions or service instructions in different languages.



# SERVICES

We will be pleased to support you in commissioning your plant on site taking the local and technical conditions into consideration.

Different rates result according to requirements:

- Head of technology and upper management functions based in China.

Our quality system corresponds to international standards for quality management and quality systems (ISO 9000 series) and has been confirmed with the certificate of level **ISO 9001**.



# Test report

## Manufacturer's certificate

Additional test documents  
(only of agreed with Quality Assurance in advance)

- Test instructions
- List of test equipment
- Details of measuring accuracy etc

**Calibration Report**

Manufacturer: SHANGHAI PINGYAN M&C TECHNOLOGY CO., LTD  
(MEATROL ELECTRIC) Co., Ltd  
Unit 505, No. 2150, Yuehong South Road,  
Mishang District, Shanghai, China, 201100  
www.meatrol.com

Instrument: MBE21 11801 AC  
Serial number: PF210797C  
Batch number: 001

Test conditions:  
Indicent temperature: 18...20 °C  
Ambient humidity: 30...60 % rH

Reference used:  
Equipment: Model: SN: Calibration item:  
Multifunctional calibration device: TFC2018 16020101 2020.01.21

Validation test results:

	Nominal value	Permissible Tolerance	Actual value	Evaluation
Voltage U <sub>IA</sub>	220 V	±0.5 %	220.1 V	OK
Voltage U <sub>IB</sub>	220 V	±0.5 %	220.0 V	OK
Voltage U <sub>IC</sub>	220 V	±0.5 %	220.1 V	OK
Power Factor A	0.9	±0.005	0.9999	OK
Power Factor B	0.9	±0.005	0.9999	OK
Power Factor C	0.9	±0.005	0.9999	OK
Current I <sub>A</sub>	100 A	±0.5 %	100.99 A	OK
Current I <sub>B</sub>	100 A	±0.5 %	100.0 A	OK
Current I <sub>C</sub>	100 A	±0.5 %	100.0 A	OK

罗仪科技(上海)有限公司  
ROGOWSKI TECHNOLOGY (SHANGHAI) CO., LTD  
Calibration Date: 2021.07.21  
*任小虎*

## Works inspection

- Random measurement on items of the customer's order at the in-production test stations according to a previously agreed schedule.
- Works inspection to customer's a particular requirements, special measurement:
- Random test measurements on items out of customers order in a previously agreed procedure on test stations in production or on specially installed test facilities.

## After-sales services

型号	序列号	保修期: 自购买日起 年
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本产品为出厂前已在我司通过严格检验程序检查过的合格产品。

如果在使用过程中发现问题, 请与向您出售本产品的经销商联系, 产品可根据本《保修证书》的相关规定获得免费维修。此保修自购买之日起(1)年内有效。如果无法确定购买日期, 则此保修视为自产品生产日期起(1)年有效。与经销商联系时请出示本《保修证书》。

另外, 精度以注明的精度保证期限为准。

- 如果保修期内产品符合《使用说明书》, 本机注意标志(包括盖印标志)和其他警示信息的规定在正常使用情况下发生故障, 可在原购买价标准范围内获得免费维修。另外, 因本产品生产日期时间过长、零部件停产或不可预见情况发生等原因, 我司可能会拒绝维修、校准等服务。
- 如果出现以下情况, 即使在保修期内的产品由我司判定, 也将被视为非保修对象:
  - 使用本产品的测量结果, 使被测物或由测量结果引起的二次或三次损坏
  - 采用不符合《使用说明书》规定的方式对产品进行不当处理或使用而引起的故障
  - 由未经我司认可的公司、组织或个人对产品进行维修、调整或改装而引起的故障或损坏
  - 产品零部件的损耗, 包括《使用说明书》所述的损耗情况
  - 由于产品购买后的运输、摔落或其他处理所导致的故障或损坏
  - 产品外观发生变化(外类划痕等)
    - 由于火灾、风暴或洪水破坏、地震、雷击、电源异常(电压、频率等)、战争或震动、辐射污染或其他不可抗力导致的故障或损坏
    - 产品连接网络而造成的损坏无法出示《保修证书》
    - 用于特殊的嵌入式应用(航天设备、航空设备、核电设备、生命攸关的医疗设备或车辆控制设备等)但未能提前通知我司。
    - 不属于我司责任范围的其他故障

\*要求

-《保修证书》不补发, 请注意妥善保管。

\* 请妥善保管并填写, 作为不可分割的附件。

购买单位	购买日期
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Product warranty period of **1 year**, such as product problems, can be returned to the factory quality inspection maintenance.





## What is the Rogowski coil?

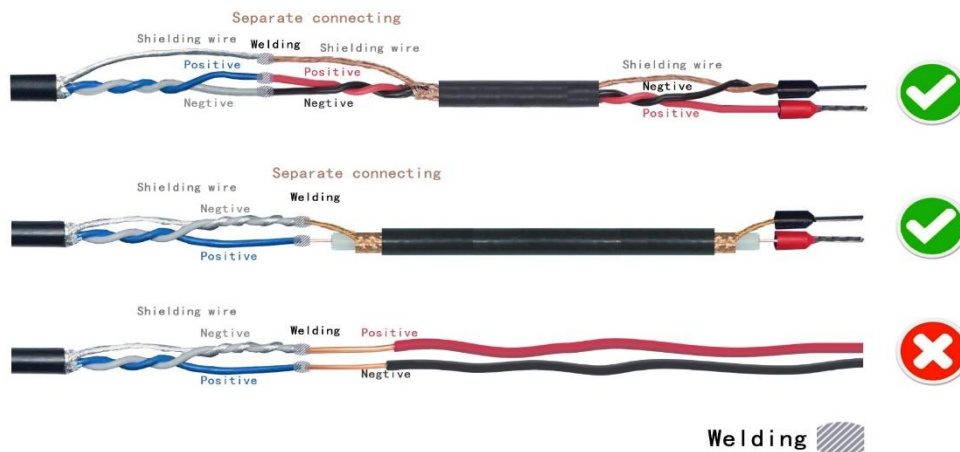
Rogowski® coil also named the differential current transformer, it is a toroidal coil uniformly enwound on the nonferromagnetic materials. The output signal is the differentiation of current with respect to time. Through a circuit that integrates the output voltage signal, the measured current can be truly restored. compared with the traditional current transformer with the iron core, the Rogowski coils have many advantages, such as the real time measurement of the current, quick response, no saturation, almost no phase error, safety, etc.

Generally, the output signal of the Rogowski coil is very weak and easily interfered. Therefore, it has the very high requirement for signal lines, and it must be used with the shielded twisted pair or coaxial cables. Considerations are as follows:

1. There is the indication of the direction of the current on the connector, please be sure to install it according to the actual direction;
2. The default shipment end head has E0508 type cold-pressed terminals, red is positive pole, black is negative pole;

Attention: if it is an inverting integrator that is connected behind the coil, the positive and negative definitions may be reversed when leaving the factory!

3. The shielding layer of the signal line cannot be cut off. Generally, it is connected with the negative terminal, or it can be connected to the analog ground of the device separately.
4. In principle, the signal line should not be extended by an external connection. If you want to extend it, please observe the following rules:



The nut cannot be screwed too heavily, just close it by hand, and it is strictly forbidden to use a power-assisted wrench.



## Frequently Asked Questions

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(Please read carefully before using)

1. Why is active power negative?

Answer: Active power is related to the coil direction and whether the voltage and current correspond. Please confirm whether the coil direction is correct and whether the current and voltage correspond.

2. Why is the power factor (PF) negative?

Answer: The positive and negative of power factor and active power are the same, which is related to the coil direction, voltage and current. Please confirm whether the coil direction is correct, and whether the current and voltage correspond.

3. Why is reactive power negative?

Answer: The negative value indicates a capacitive load, independent of the direction of the coil and will not affect the accumulation of active energy.

4. Will the negative value of active power affect active energy?

Answer: When the active power is negative, the active energy does not accumulate, and there will be no reduction in active energy.

5. Can measure frequency conversion?

Answer: You can only measure the power frequency of 45-65Hz, you can't directly measure the output end of the frequency converter. You can measure the input end of the frequency converter, but you should stay away from the frequency converter (the interference is relatively large).

6. How to measure the high voltage?

Answer: You're gonna use a transformer, reduce the voltage to 100-500V.



## Safety and warning notes

Rogowski coils can only be used within the proper parameters to ensure safety. Please read the following instructions carefully.

You can download the latest product manual from our company's website: [www.rogowski.cn](http://www.rogowski.cn).

### WARN!

Ignoring the warnings can lead to serious injury and/or cause damage!

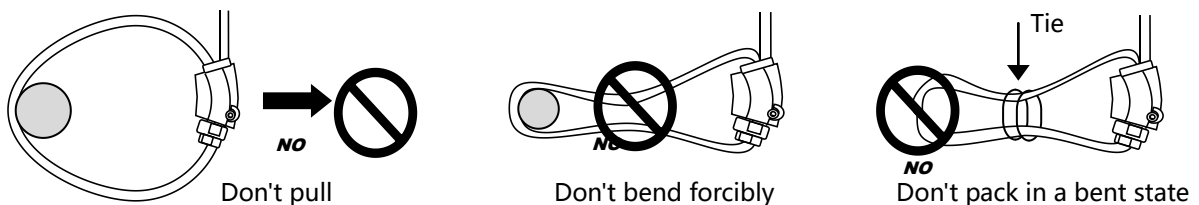
The electric measuring transducer may only be installed and put into operation by qualified personnel that have received an appropriate training, The corresponding national regulations shall be observed during installation and operation of the transducer and any electrical conductor. The transducer shall be used in electric/electronic equipment the respect to applicable standards and safety requirements and in accordance with all the related systems and components manufacturers' operating instructions.

### ELECTRIC SHOCK WARNING!

When operating the transducer, certain parts of the module may carry hazardous live voltage (e.g., Primary conductor). The user shall ensure to take all measures necessary to protect against electrical shock. The transducer is a build-in device containing conducting parts that shall not be accessible after installation. A protective enclosure or additional insulation barrier may be necessary. Installation and maintenance shall be done with the main power supply disconnected except if there are no hazardous live parts in or in close proximity to the system and if the applicable national regulations are fully observed.

### NOTICE!

Safe and trouble-free operation of this transducer can only be guaranteed if transport, storage and installation are carried out correctly and operation and maintenance are carried out with care. Do not stress the coil by applying any kind of mechanical force (transport, storage pressure, tight bending,) which will dramatically degrade the device' s accuracy.





MEASURE LIFE CONTROL FUTURE



ROGOWSKI TECHNOLOGY (SHANGHAI) CO., LTD.

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