

Flexible Rogowski coil Fixed

- High linearity from 10A to 500kA
- Wide dynamic range
- Very useful with large size or awkward shaped conductors or in places with limited access
- Not damaged by large overloads
- Non-intrusive, no power drawn from the main
- Measurement uniformity at any position of the conductor inside the coil
- Excellent degree of rejection to the external current conductor
- Thanks to its light weight, it can be changed on the measured conductor
- Totally shielded



Description

ESCT-RC series are flexible current transducers based on Rogowski principle, particularly suitable for measurement in combination with portable devices. ESCT-RC coils are available in different sizes and can be supplied according to customer's design, therefore they can be used in all those applications, in which traditional transducers are not fitting due to its size and/or weight. Due to its specific features, flexible Rogowski coil is an extremely comfortable solution for current measurement and can be used in a number of cases where traditional current transducer is not the adequate solution. ESCT-RC series provided with a shield against the influence of external magnetic fields, therefore it grants a stable measurement from low currents to hundreds of kA. The Rogowski coils must be connected to an electronic integrator for 90° phase shift compensation and frequency equalization. Our portable and panel meters can interface Rogowski coils directly without the need of the external integrators. This is an advantage because there is no external boxes or any power supply with consequent ease of use. The particular features of the Rogowski coils combined with the extremely flexible input programming of our portable meters, allow to carry out measurement by all applications.

Feature

- Very thin coil diameter
- Calibrated to 0.5%
- Measurement uniformity at any position of the conductor inside the coil
- Excellent degree of rejection to the external current conductor
- Delivered already calibrated

Applications

- Measuring devices, lab instrumentation
- Power monitoring & control systems
- DC ripple measurement
- Harmonics and transients monitoring
- Power meter, Power analyzer sensor

Related Products

- Integrator S10, S9.1, D1, S1, DA01/05, 01/03

Benefits

- Due to its structure, flexible Rogowski coils allows to embrace conductors or grouped cables, which are large and difficult to reach, without any hazard.
- The coil output gives a low voltage signal, therefore there is no danger from open-circuited secondary. This makes Rogowski transducers extremely suitable for temporary measurements, for example in combination with portable analysers.
- Unlike traditional current transformer with magnetic core, the Rogowski coil is a non-intrusive transducer. Since it has no hard core, it draws no power from the main circuit carrying the current to be measured.

What is a Rogowski Coil

Rogowski coils have been used for the detection and measurement of electric currents for decades. They are based on a simple principle: an “air-cored” coil is placed around the conductor in a toroidal fashion and the magnetic field produced by the current induces a voltage in the coil. The voltage output is proportional to the rate of change of current. This voltage is integrated, thus producing an output proportional to the current. By using precision winding techniques, especially developed for the purpose, the coils are manufactured so that their output is not influenced by the position of the conductor within the toroid, and to reject interference from external magnetic fields caused, for example, from nearby conductors. Basically, a Rogowski coil current measuring system consists of a combination of a coil and conditioning electronics. Rogowski coil current transducers are used for the AC measurement. They can be used in similar circumstances to current transformers but for many applications they have considerable advantages:

- Widedynamic range.
- High linearity.
- Very useful with large size or awkward shaped conductors or in places with limited access. Thanks to the structure without hard core, the coil can be easily manufactured according to the application or to the available space.
- Unlike traditional current transducers, there is no danger from open-circuited secondaries.
- They cannot be damaged by large overloads.
- They are non-intrusive. They draw no power from the main circuit carrying the current to be measured.
- They are also light weighted and in some applications are light enough to be suspended on the conductor being measured.

The transducer does not measure direct currents but, unlike a current transformer, it can carry out accurate measurements of AC component even if there is a large superimposed DC component, since there is no iron core causing saturation. This feature is particularly useful for measuring ripple currents for example in battery charging systems.

Specifications

Transducer

Coil length:	from 20cm to 1000cm
Coil diameter:	Ø8, Ø6, Ø12mm
Fastening:	bayonet holder
Weight:	150g
Material:	thermoplastic UL94-V0

Electrical Characteristics:

Output level (RMS):	ESCT-RC Series: 50mV/kA @50Hz	80mV/kA @60Hz
	85mV/kA @50Hz	100mV/kA @60Hz
	ESCT-SRC Series: 120mV/kA@50Hz	200V/kA @60Hz
	240mV/kA@50Hz	333mV/kA @60Hz

Current Range:	10A to 500kA
Output sensitivity tolerance:	±5% (not calibrated)
Output sensitivity tolerance:	±5%, 25°C (calibrated)
Position error:	±1
Coil resistance:	from 70 to 900Ω
Positioning error:	better than ±1% of reading (with 15 mm diameter cable)
Frequency range:	approx 40Hz to 20kHz
Working voltage:	1000 V _{RMS} CAT III / 600 V _{RMS} CAT IV pollution degree 2
Test voltage:	7400 V _{RMS} / 1 min

Connection Cable

Type:	2 x 0.15 mm + shield
Length:	on request

Environmental Conditions

Operating temperature:	from -30°C to +80°C
Storage temperature:	from -40°C to +80°C
Protection degree:	IP68 Type A B D IP65 Type E (ESCT-SRC Series) IP54 Type C (ESCT-RC16/24/36)

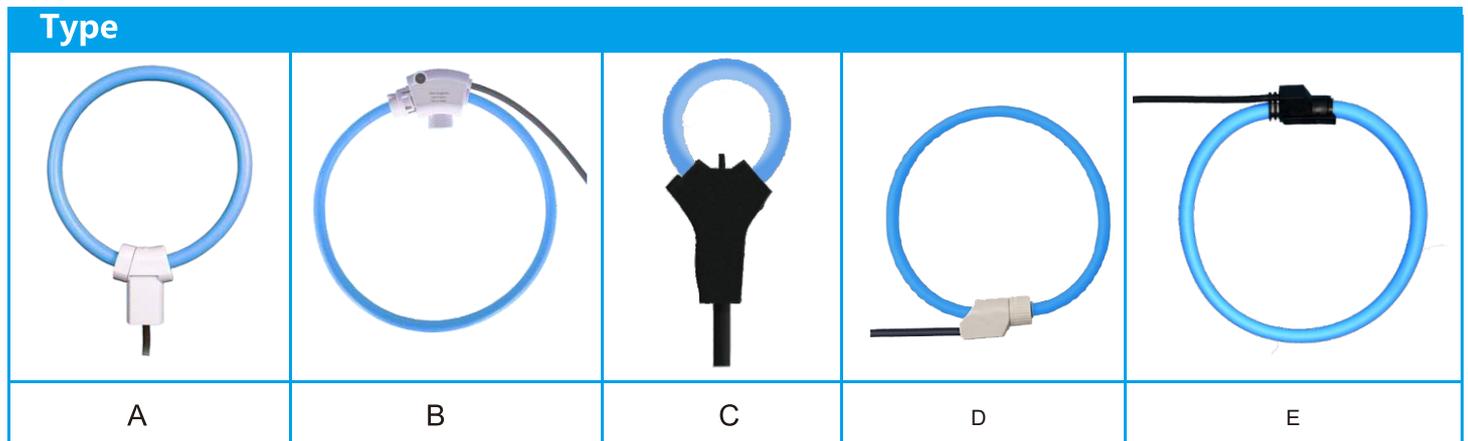
Standards Compliance

Safety:	EN61010-1, EN61010-031, EN61010-2-031, EN61010-2-032
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Other requirements, please contact us to OEM.

Model Table

Coil code	Window Size (mm)		Coil Length (mm)	Lead Length (mm)	Ratio	Type No.	Remark
	A	B					
ESCT-RC60	60	50	200	2000	85mV/kA@50Hz	A	1. Different coil color Black, Yellow, Red, Green, Blue (MOQ required) 2. Other cable length longer than standard (2m), up to 15m 3. Other coil length than these listed, up to 1000cm. 4. Product code: ESCT-RC-xxx (window zise)
ESCT-RC100	135	100	395	2000	85mV/kA@50Hz	B	
ESCT-RC105	105	100	350	2000	85mV/kA@50Hz	A	
ESCT-RC150	165	150	525	2000	85mV/kA@50Hz	B	
ESCT-RC200	240	200	665	2000	85mV/kA@50Hz	B	
ESCT-RC240	245	240	800	2000	85mV/kA@50Hz	A	
ESCT-RC16	22	16	80	2000	50mV/kA@50Hz	C	
ESCT-RC24	27.5	24	97	2000	50mV/kA@50Hz	C	
ESCT-RC36	36	37	130	2000	50mV/kA@50Hz	C	
ESCT-RC45	65	45	205	2000	85mV/kA@50Hz	D	
ESCT-SRC100	115	100	380	2000	240mV/kA@60Hz	E	
ESCT-SRC150	175	150	555	2000	240mV/kA@60Hz	E	
ESCT-SRC300	315	300	1000	2000	240mV/kA@60Hz	E	



Selection Reference

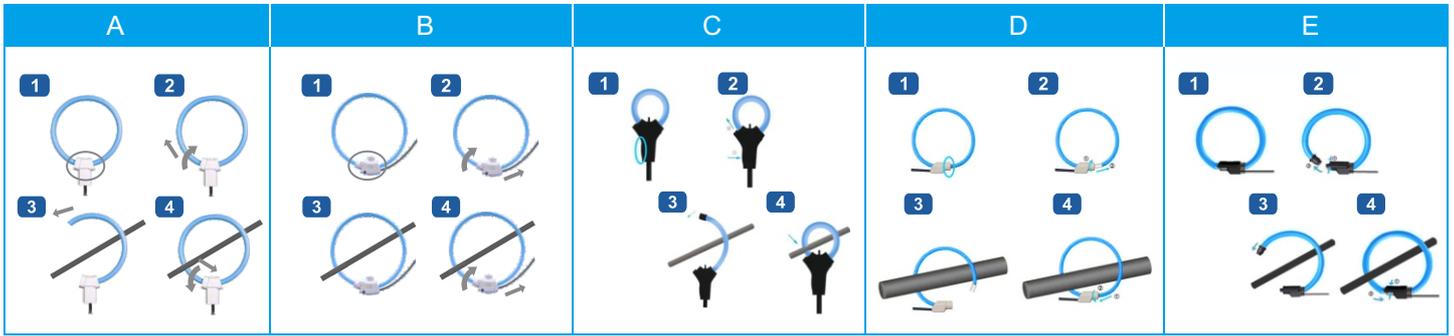
ESCT-RC60-2M-85-B



ESCT-RC60-2M-85-B means window size at 60mm, cable lenth 2 meters, rated ratio 85mV/kA and blue colour.

**All the parameters can be customized, please contact for more details.*

How to use



Position sensitivity



Conductor Position

Typical Error (%)

- Adjacent to the clip together mechanism < 0.5%
- Adjacent to the inside coil edge < 0.8%
- Adjacent to the opposite clip < 1%



Conductor Position

Typical Error (%)

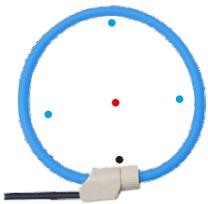
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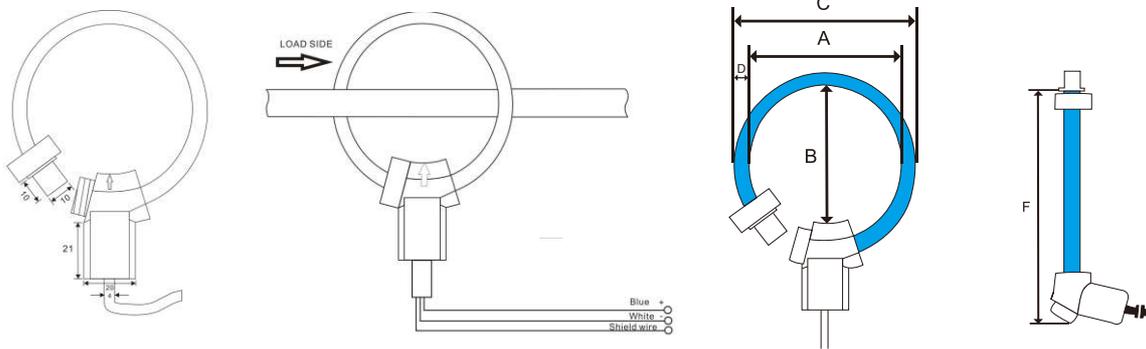
- Adjacent to the clip together mechanism < 0.5%
- Adjacent to the inside coil edge < 0.8%
- Adjacent to the opposite clip < 1%

Dimensions

Dimensions tolerance

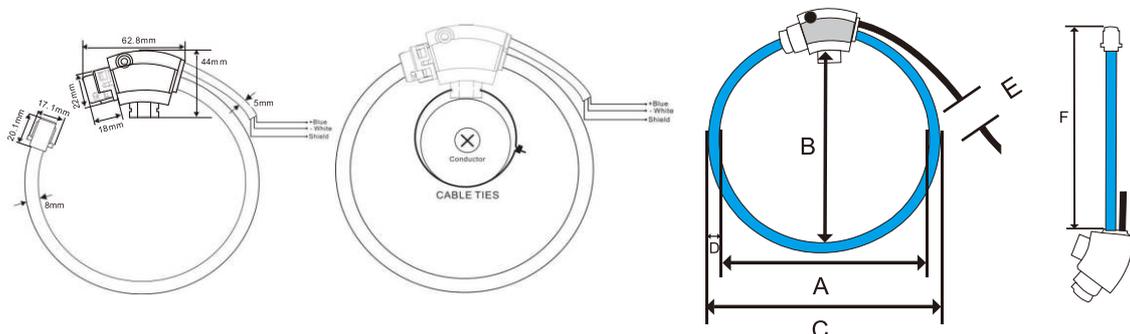
A,B,C,F: $\pm 5\text{mm}$, D: $\pm 0.2\text{mm}$, E: $\pm 10\text{mm}$

Type A:	RC60	RC105	RC240
A.Windows Size A	60	105	245
B.Windows Size B	50	100	240
C.Coil O.D.	66	121	261
D.Coil Section	8		
E.Lead Cable Total Length	2000		
F.Coil Length	200	350	800
Ratio (Calibrated)	80mV/KA@50Hz; 85mV/KA@50Hz; 100mV/KA@50Hz		
Bandwidth	1Hz to 50kHz(-3dB)		



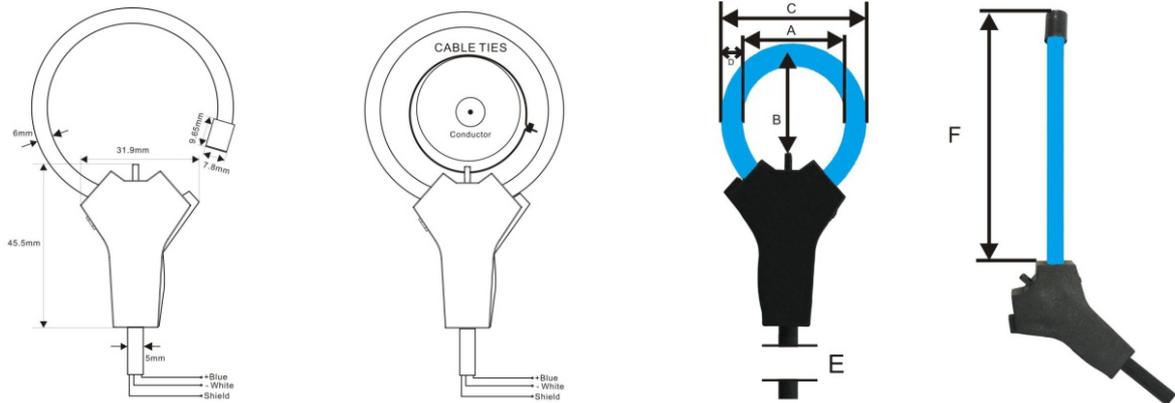
*If other size required, pls feel free to contact us for customization.

Type B:	RC100	RC150	RC200	RC300
A.Windows Size A	135	165	210	325
B.Windows Size B	100	150	200	300
C.Coil O.D.	151	181	226	340
D.Coil Section	8			
E.Lead Cable Total Length	2000			
F.Coil Length	395	525	665	1050
Ratio (Calibrated)	80mV/KA@50Hz;85mV/KA@50Hz;100mV/KA@50Hz			
Bandwidth	1Hz to 50kHz(-3dB)			



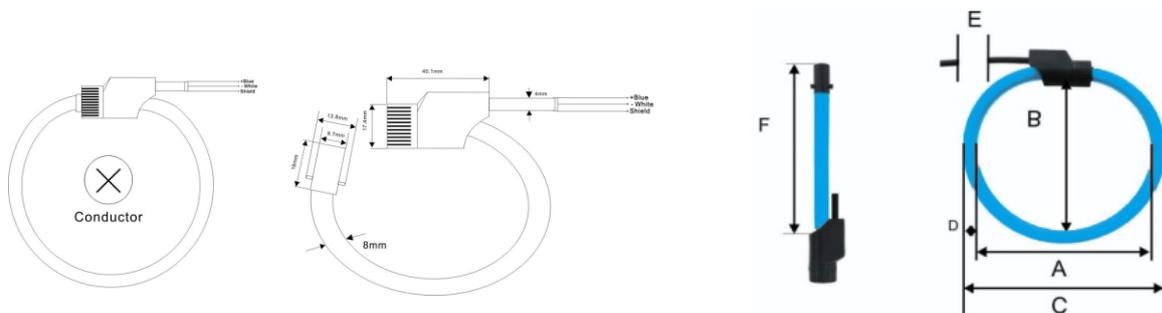
*If other size required, pls feel free to contact us for customization.

Type C:	RC16	RC24	RC36
A.Windows Size A	22	27.5	36
B.Windows Size B	16	24	37
C.Coil O.D.	34	39.5	48
D.Coil Section	6		
E.Lead Cable Total Length	2000		
F.Coil Length	80	97	130
Ratio (Calibrated)	50mV/KA@50Hz		
Bandwidth	1Hz to 20kHz(-3dB)		



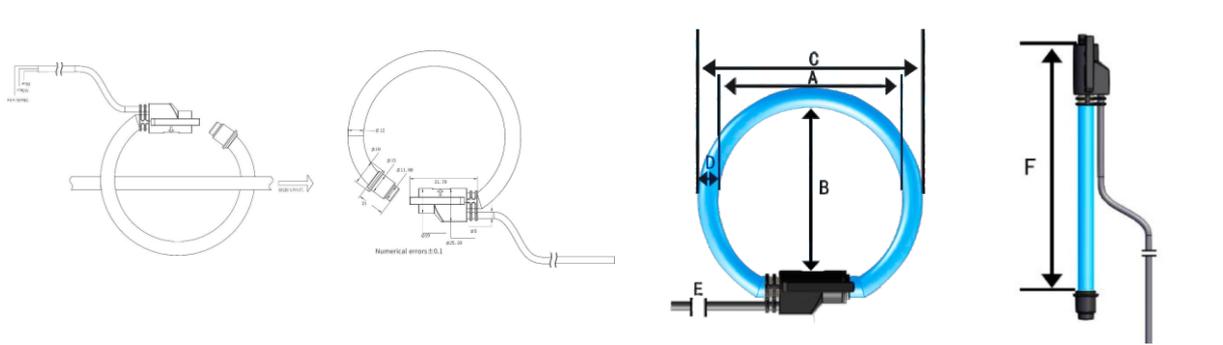
*If other size required, pls feel free to contact us for customization.

Type D:	RC45
A.Windows Size A	65
B.Windows Size B	45
C.Coil O.D.	81
D.Coil Section	8
E.Lead Cable Total Length	2000
F.Coil Length	205
Ratio (Calibrated)	50mV/KA@50Hz;85mV/KA@50Hz;100mV/KA@50Hz
Bandwidth	1Hz to 50kHz(-3dB)



*If other size required, pls feel free to contact us for customization.

Type E:	SRC100	SRC150	SRC300
A.Windows Size A	115	175	315
B.Windows Size B	100	150	300
C.Coil O.D.	139	199	399
D.Coil Section	12		
E.Lead Cable Total Length	2000		
F.Coil Length	380	555	1000
Ratio (Calibrated)	240mV/kA@60Hz		
Bandwidth	1Hz to 10kHz(-3dB)		



*If other size required, pls feel free to contact us for customization.

Single phase Integrator

ESCT-RCI-S10



ESCT-RCI-S9.1



ESCT-RCI-D1



ESCT-RCI-S1



ESCT-RCI-DA01



ESCT-RCI-DA05



Three phase Integrator

ESCT-RCI-01



ESCT-RCI-03



ESCT-RCI-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

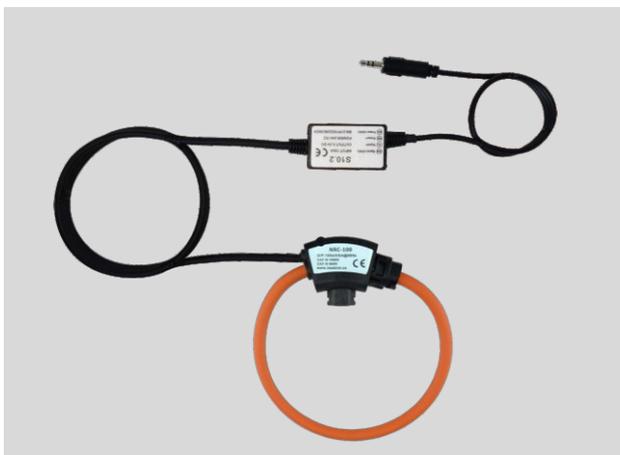
- Integrated with Rogowski coil, no wiring design
- Miniature type for flexible use
- Low power

TECHNICAL DATA

Rated input: Customized
 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	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

ESCT-RCI-S9.1 Mini Integrator

ESCT-RCI-S9.1 is a mini Rogowski coil integrator combine with power meter or PLC,in a plastic enclosure, powered directly from the mains.



CUSTOMER BENEFIT

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

TECHNICAL DATA

Rated input: Customized
Rated output: 333mV
Power supply: 5V DC or 6-12V DC
W×H×L: 19W X 11H X 62.5L mm

Model	Rated input	Rated output	Power supply	Article NO.
S9.1	1000A	333mV AC	5V DC	S10.1-1000-333-5

ESCT-RCI-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: Customized
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

ESCT-RCI-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: Customized
Rated output: 4-20mA
Power supply: 4-12V DC
W×H×L: 86W×90H×29L mm

Model	Rated input	Rated output	Power supply	Article NO.
S1	2000A	4-20mA	4-12V DC	S1-2000

ESCT-RCI-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: Customized
Rated output: 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

ESCT-RCI-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: Customized
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

ESCT-RCI-01 DIN-Rail 1A Integrator

ESCT-RCI-01 is a 1A output DIN-Rail Integrator.



CUSTOMER BENEFIT

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

TECHNICAL DATA

Rated input: Customized
Rated output: 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.
01	1000A	1A AC	12V DC	01-1000A-1A-12

ESCT-RCI-03 DIN-Rail Integrator

ESCT-RCI-03 is a Three Phase 333mV output DIN-Rail Integrator.



CUSTOMER BENEFIT

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

TECHNICAL DATA

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

Model	Rated input	Rated output	Power supply	Article NO.
03.1	1000A	333mV AC	12V DC	03.1-1000A-333-12
03.2	500A	4V DC	12V DC	03.2-500A-4-12
03.3	200A	4-20mA	24V DC	03.3-200A-/-24