

Residual Current Circuit Breaker With Overcurrent Protection

ESRO Series RCBO

Leading Manufacturer Protects Solar Power Safety

Rev2.0 2022/05/19



RESIDUAL CURRENT CIRCUIT BREAKER WITH OVERCURRENT PROTECTION

ESRO1-50 RCBO

RoHS ENEC S CB A SAA CE

- Comply with standard IEC61009-1



Detail features

IP 20 Degree Protection



Terminals are finger touch proof.
Prevent electrical shock by accidental touch

Red/Green indication



Clear indication for the ON/OFF operational status of device

Select Code

E S RO 1 - 50 / □ □ / □ / □
1 2 3 4 5 6 7 8 9

Electrical Features		
Code	Name	Description
1	ASwitch brand	E
2	AC	S
3	RCBO	RO
4	Series	1:Series1
5	Frame Current	50
6	Tripping curve	B / C / D
7	Rated current	6:6A 10:10A 16:16A 20:20A 25:25A 32:32A 40:40A 50:50A
8	Poles	1P+N
9	Type	A:A type AC:AC type

Technical Data

Electrical Features			
Mode	Electronic	Rated current	6-50A
Type	A / AC	Rated residual operating current(IΔn)	30.100.300mA
Tripping curve	B C D	Residual operating current range	0.5 IΔn~IΔn
Pole No.	1P+N	Rated conditional short-circuit current(Inc)	10000A
Rated voltage	240V~	Energy limiting	class 3
Rated frequency	50/60Hz	Electrical and Mechanical life	20000

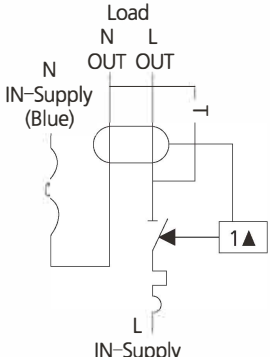
ESRO1-50 RCBO

Standard: IEC61009-1

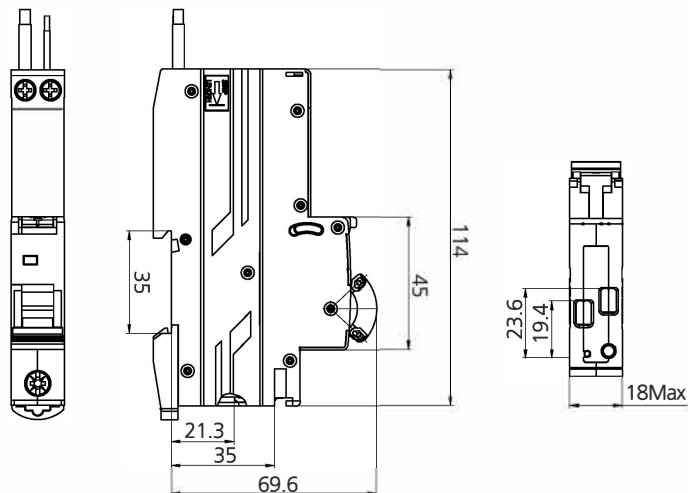
Overload Current Protection Characteristics						
Test Procedure	Type	Test Current	Initial State	Tripping or Non-tripping Time Limit	Expected Result	Remark
A	B.C.D	1.13In	Cold	$t \leq 1h$	no tripping	
B	B.C.D	1.45In	After test A	$t \leq 1h$	tripping	The current steadily rises to the specified value within 5s
C	B.C.D	2.55In	Cold	$1s < t < 60s$	tripping	
D	B	3In	Cold	$t \leq 0.1s$	no tripping	Turn on the auxiliary switch to close the current
	C	5In				
	D	10In				
E	B	5In	Cold	$t \leq 0.1s$	tripping	Turn on the auxiliary switch to close the current
	C	10In				
	D	20In				

Residual Current Operating Breaking Time						
Type	In/A	I Δ n/A	Residual Current(I Δ)Is Corresponding To The Following Breaking Time(S)			
AC type	Any value	Any value	In	2In	5In	5A.10A.20A.50A.100A.200A.500A
A type		> 0.01	1.4In	2.8In	7In	
			0.3	0.15	0.04	0.04 Max breaking time

The general type RCBO whose current I Δ n is 0.03mA or less can use 0.25A instead of 5I Δ n.

Installation		The wiring diagram	
Fault current indicator window	Yes		
Protection degree	IP20		
Ambient temperature	-5~+40°C and its average over a period of 24h does not exceed +35°C		
Storage temperature	-25~+ 70°C		
Terminal connection type	Cable / U-type busbar / Pin-type busbar		
Terminal size top for cable	10mm ²		
Terminal size bottom for cable	25mm ²		
Tightening torque	2.5N·m/1.2N·m		
Mounting	On DIN rail FN 60715 (35mm) by means of fast clip device		
Connection	Top and bottom		

Dimensions(mm)

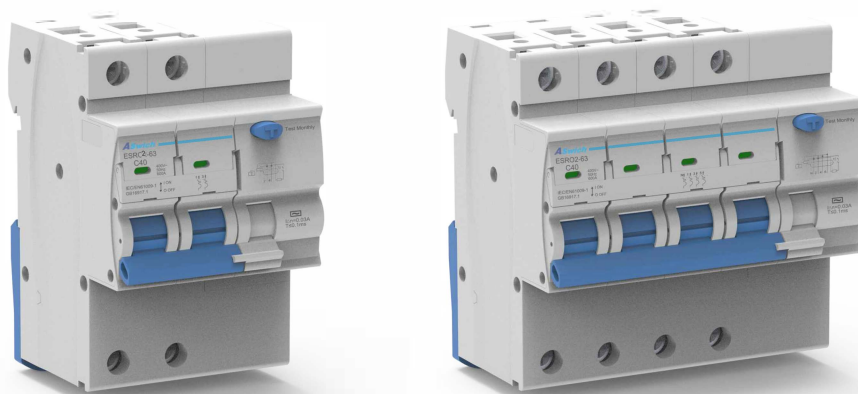


RESIDUAL CURRENT CIRCUIT BREAKER WITH OVERCURRENT PROTECTION

ESRO2-63 RCBO

RoHS ENEC S CB A SAA CE

- Adopt integrated circuits
- Breaking capacity 6kA/10kA
- Comply with standard IEC61009-1



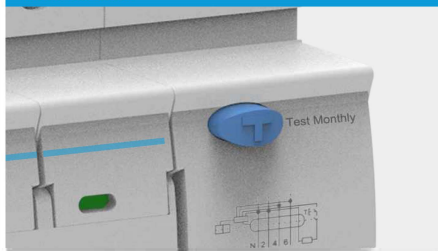
Detail features

Fit for various connection terminal



Choice to use Busbar or cable in the same terminal cage, provides reliable termination

Test button



T: press test button monthly

Select Code

E S RO 2 - 63 / □ □ / □ □ / □ □
1 2 3 4 5 6 7 8 9 10

Electrical Features

Code	Name	Description
1	ASwch brand	E
2	AC	S
3	RCBO	RO
4	Series	2:Series2
5	Frame Current	63
6	Tripping curve	B / C / D
7	Rated current	6:6A 10:10A 16:16A 20:20A 25:25A 32:32A 40:40A 50:50A 63:63A
8	Poles	2:2P 4:4P
9	Type	A:A type AC:AC type B:B type
10	Mode	E:Electronic M:Electromagnetic

Technical Data

Electrical Features			
Mode	Electronic / Electromagnetic	Rated current	6-63A
Type	A / AC / B	Rated residual operating current(I Δ n)	30.100.300mA
Tripping curve	B C D	Residual operating current range	0.5 I Δ n~I Δ n
Pole No.	2P / 4P	Rated conditional short-circuit current(I α nc)	6000A / 10000A
Rated voltage	230/400V~	Energy limiting	class 3
Rated frequency	50/60Hz	Electrical and Mechanical life	20000

ESRO2-63 RCBO

Standard: IEC61009-1

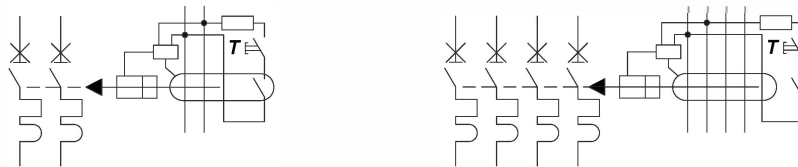
Overload Current Protection Characteristics						
Test Procedure	Type	Test Current	Initial State	Tripping or Non-tripping Time Limit	Expected Result	Remark
A	B.C.D	1.13I _n	Cold	$t \leq 1h$	no tripping	
B	B.C.D	1.45I _n	After test A	$t \leq 1h$	tripping	The current steadily rises to the specified value within 5s
C	B.C.D	2.55I _n	Cold	$1s < t < 60s$	tripping	
D	B	3I _n	Cold	$t \leq 0.1s$	no tripping	Turn on the auxiliary switch to close the current
	C	5I _n				
	D	10I _n				
E	B	5I _n	Cold	$t \leq 0.1s$	tripping	Turn on the auxiliary switch to close the current
	C	10I _n				
	D	20I _n				

Residual Current Operating Breaking Time						
Type	I _n /A	I Δ _n /A	Residual Current(I Δ)Is Corresponding To The Following Breaking Time(S)			
AC type	Any value	Any value	I _n	2I _n	5I _n	5A.10A.20A.50A.100A.200A.500A
A type		> 0.01	1.4I _n	2.8I _n	7I _n	
			0.3	0.15	0.04	0.04 Max breaking time

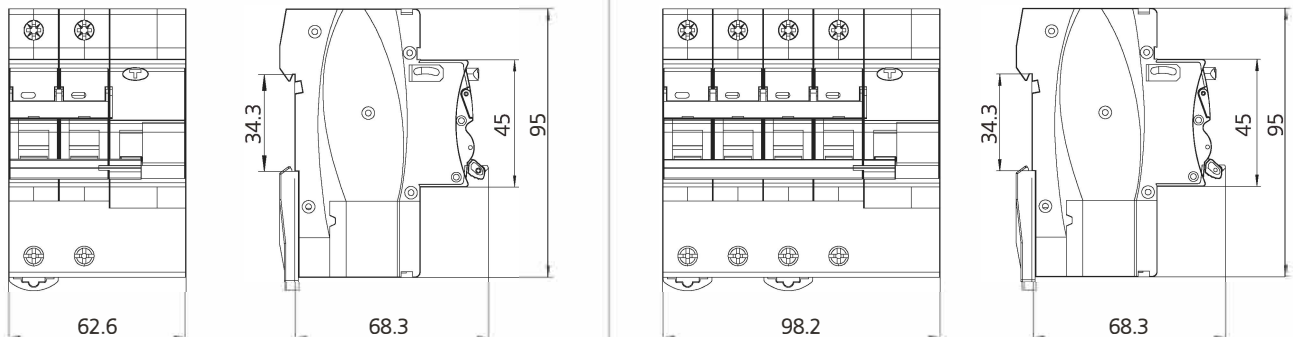
The general type RCBO whose current I Δ _n is 0.03mA or less can use 0.25A instead of 5I Δ _n.

Installation			
Fault current indicator window	Yes	Terminal connection type	Cable / U-type busbar / Pin-type busbar
Protection degree	IP20	Terminal size top for cable	25mm ²
Ambient temperature	-5~+40°C and its average over a period of 24h does not exceed +35°C	Tightening torque	2.5N·m
Storage temperature	-25~+ 70°C	Mounting	On DIN rail FN 60715 (35mm)
		Connection	Top and bottom

The wiring diagram



Dimensions(mm)



2P

4P

RESIDUAL CURRENT CIRCUIT BREAKER WITH OVERCURRENT PROTECTION

ESRO3-40 RCBO

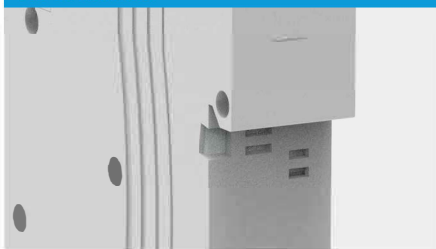
RoHS ENEC S CB A SAA CE

- Comply with standard IEC61009-1



Detail features

Air circulation



When two poles are placed adjacent to each other, these channels form a tunnel resulting in effective air circulation around individual poles

Bi-connect Termination Possible



Choice to use Busbar and/or cable in the same terminal, provides reliable termination

Select Code

E S RO 3 - 40 / □ □ / □ / □
1 2 3 4 5 6 7 8 9

Electrical Features

Code	Name	Description
1	ASwitch brand	E
2	AC	S
3	RCBO	RO
4	Series	3:Series3
5	Frame Current	40
6	Tripping curve	B / C / D
7	Rated current	6:6A 10:10A 16:16A 20:20A 25:25A 32:32A 40:40A
8	Poles	1P+N
9	Type	A:A type AC:AC type

Technical Data

Electrical Features

Mode	Electronic
Type	A / AC
Tripping curve	B C D
Pole No.	1P+N
Rated voltage	240V~
Rated frequency	50/60Hz

Rated current	6-40A
Rated residual operating current(I _{Δn})	30.100.300mA
Residual operating current range	0.5 I _{Δn} ~I _{Δn}
Rated conditional short-circuit current(I _{nc})	6000A
Energy limiting	class 3
Electrical and Mechanical life	20000

ESRO3-40 RCBO

Standard: IEC61009-1

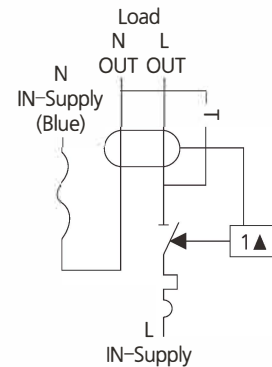
Overload Current Protection Characteristics						
Test Procedure	Type	Test Current	Initial State	Tripping or Non-tripping Time Limit	Expected Result	Remark
A	B.C.D	1.13In	Cold	$t \leq 1h$	no tripping	
B	B.C.D	1.45In	After test A	$t \leq 1h$	tripping	The current steadily rises to the specified value within 5s
C	B.C.D	2.55In	Cold	$1s < t < 60s$	tripping	
D	B	3In	Cold	$t \leq 0.1s$	no tripping	Turn on the auxiliary switch to close the current
	C	5In				
	D	10In				
E	B	5In	Cold	$t \leq 0.1s$	tripping	Turn on the auxiliary switch to close the current
	C	10In				
	D	20In				

Residual Current Operating Breaking Time						
Type	In/A	$I\Delta n/A$	Residual Current($I\Delta$)Is Corresponding To The Following Breaking Time(S)			
AC type	Any value	Any value	In	2In	5In	5A.10A.20A.50A.100A.200A.500A
A type		> 0.01	1.4In	2.8In	7In	
			0.3	0.15	0.04	0.04 Max breaking time

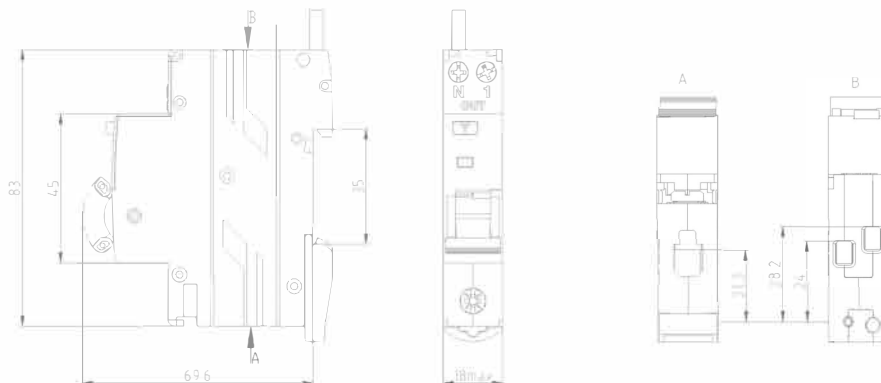
The general type RCBO whose current $I\Delta n$ is 0.03mA or less can use 0.25A instead of $5I\Delta n$.

Installation	
Fault current indicator window	Yes
Protection degree	IP20
Ambient temperature	-5~+40°C and its average over a period of 24h does not exceed +35°C
Storage temperature	-25~+ 70°C
Terminal connection type	Cable / U-type busbar / Pin-type busbar
Terminal size top for cable	10mm ²
Terminal size bottom for cable	25mm ²
Tightening torque	2.5N·m/1.2N·m
Mounting	On DIN rail FN 60715 (35mm) by means of fast clip device
Connection	Top and bottom

The wiring diagram



Dimensions(mm)

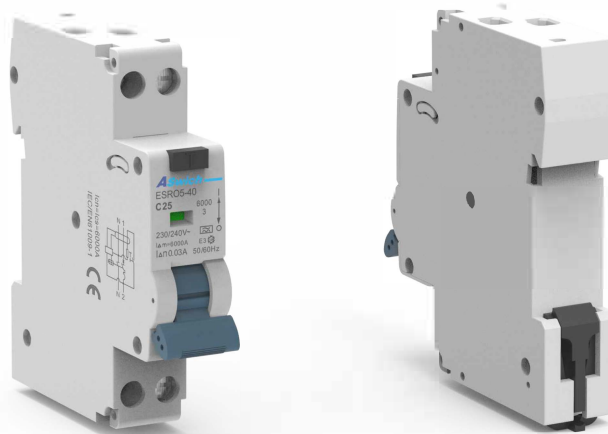


RESIDUAL CURRENT CIRCUIT BREAKER WITH OVERCURRENT PROTECTION

ESRO5-40 RCBO

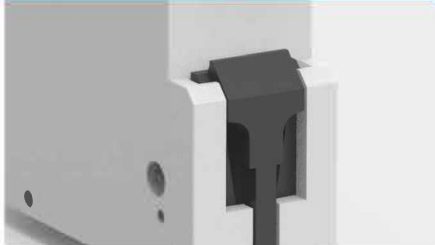
RoHS ENEC S CB A SAA CE

- Comply with standard IEC61009-1
- Breaking capacity 6kA



Detail features

Din Rail Mounting



Two step snapping mechanism for easy & efficient mounition in 35mm DIN Rail steadily

Test button



Testing product's performance regularly

Select Code

E S RO 3 - 40 / □ □ / □ / □
1 2 3 4 4 5 6 7 8

Electrical Features

Code	Name	Description
1	ASwitch brand	E
2	AC	S
3	RCBO	RO
4	Series	5:Series5
5	Frame Current	40
6	Tripping curve	B / C
7	Rated current	6:6A 8:8A 10:10A 13:13A 16:16A 20:20A 25:25A 32:32A 40:40A
8	Poles	1:1P+N
9	Type	A:A type AC:AC type

Technical Data

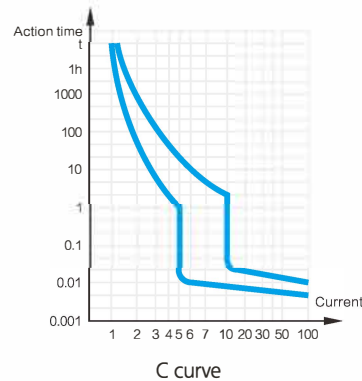
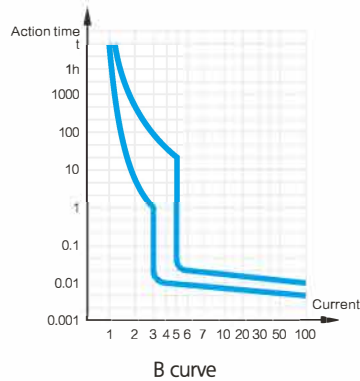
Electrical Features

Mode	Electronic
Type	A / AC
Rated current(I _n)	6/8/10/13/16/20/25/32/40A
Pole No.	1P+N
Rated voltage	240V~
Rated frequency	50/60Hz
Insulation voltage(U _i)	500V

Rated residual operating current(I _{Δn})	10.30.100.300mA
Rated breaking capacity	6000A
Energy limiting	Class 3
Rated impulse withstand voltage(1.5/50) U _{imp}	4000V
Dielectric test voltage at ind.Freq.for 1 min	2000V
Pollution degree	2
Thermo-magnetic release characteristic	B.C

ESRO5-40 RCBO

Standard: IEC61009-1



Thermal Tripping

As per IEC 60898	NO tripping current	Tripping current I_t	Time Limits t	Hold current I_h	Trip current I_s	Trip Limits t
B Curve	$1.13 \times I_N$	$1.45 \times I_N$	$\geq 1h$ $< 1h$	$3 \times I_N$	$5 \times I_N$	$\geq 1s$ $< 1s$
C Curve	$1.13 \times I_N$	$1.45 \times I_N$	$\geq 1h$ $< 1h$	$5 \times I_N$	$10 \times I_N$	$\geq 1s$ $< 1s$

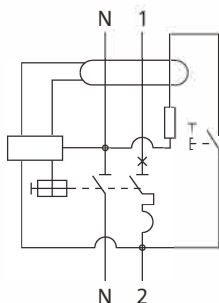
Residual Current Circuit Breaker Tripping Current Range

Type	Tripping current $I\Delta/A$		
AC		$0.5I\Delta n < I\Delta < I\Delta n$	
A	Legging Angle	$I\Delta n < 0.01A$	$I\Delta n < 0.01A$
	0°	$0.35I\Delta n < I\Delta < 1.4I\Delta n$	$0.35I\Delta n < I\Delta < 2I\Delta n$
	90°	$0.25I\Delta n < I\Delta < 1.4I\Delta n$	$0.25I\Delta n < I\Delta < 2I\Delta n$
	135°	$0.11I\Delta n < I\Delta < 1.4I\Delta n$	$0.11I\Delta n < I\Delta < 2I\Delta n$

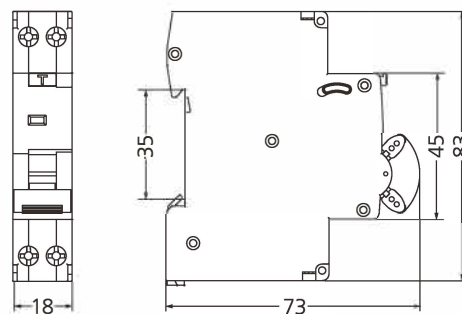
Installation

Electrical/Mechanical life	4000/10000 Cycles
Contact position indicator	Yes
Protection degree	IP20
Reference temperature for setting of thermal element	30°C
Ambient temperature	-5~+40°C and its average over a period of 24h does not exceed +35°C
Storage temperature	-25~+ 70°C
Terminal connection type	Cable/Pin -type busbar
Terminal size top/bottom for cable	16mm ² 18-5AWG
Terminal size top/bottom for busbar	16mm ² 18-5AWG
Tightening torque	2.5N·m 22In-lbs
Mounting	On DIN rail FN 60715 (35mm) by means of fast clip device
Connection	Power supply from top

The wiring diagram



Dimensions(mm)

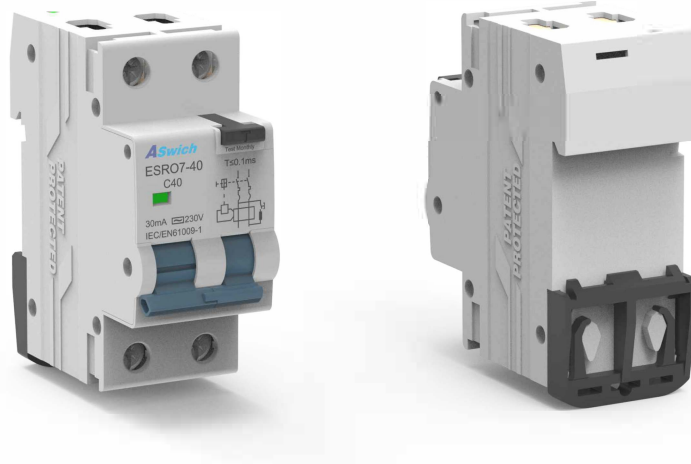


RESIDUAL CURRENT CIRCUIT BREAKER WITH OVERCURRENT PROTECTION

ESRO7-40 RCBO

RoHS ENEC S CB A SAA CE

- Breaking capacity 6kA/10kA
- Long mechanical and electrical endurance over 20000 cycles operation
- N pole can be switched



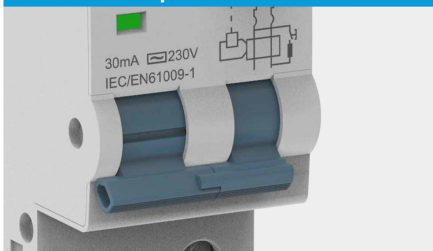
Detail features

Cable/Busbar connection



Free choice to connect by U-type/Pin-type busbar as well as cable

Clear and independent Indication



RCD part trip only when earth leakage occurs

Select Code

E S RO 7 - 40 / □ □ / □ / □
1 2 3 4 5 6 7 8 9

Electrical Features

Code	Name	Description
1	ASwch brand	E
2	AC	S
3	RCBO	RO
4	Series	7:Series7
5	Frame Current	40
6	Tripping curve	B / C / D
7	Rated current	6:6A 10:10A 16:16A 20:20A 25:25A 32:32A 40:40A
8	Poles	1P+N
9	Type	A:A type AC:AC type

Technical Data

Electrical Features

Mode	Electronic	Rated current	6-40A
Type	A / AC	Rated residual operating current(I Δ n)	30.100.300mA
Tripping curve	B C D	Residual operating current range	0.5 I Δ n~I Δ n
Pole No.	1P+N	Rated conditional short-circuit current(I α nc)	6000A
Rated voltage	240V~	Energy limiting	class 3
Rated frequency	50/60Hz	Electrical and Mechanical life	20000

ESRO7-40 RCBO

Standard: IEC61009-1

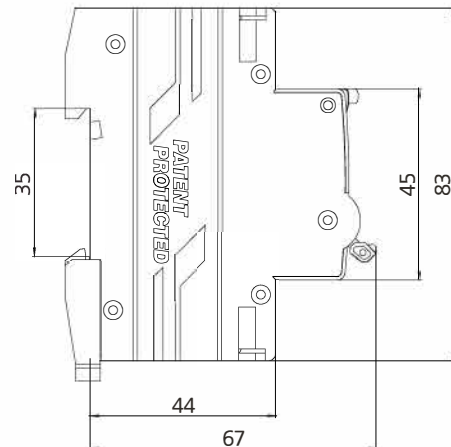
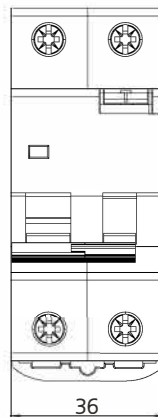
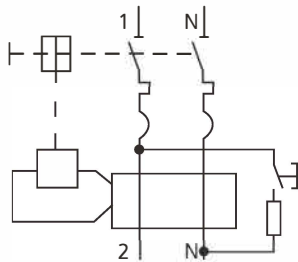
Overload Current Protection Characteristics						
Test Procedure	Type	Test Current	Initial State	Tripping or Non-tripping Time Limit	Expected Result	Remark
A	B.C.D	1.13In	Cold	$t \leq 1h$	no tripping	
B	B.C.D	1.45In	After test A	$t \leq 1h$	tripping	The current steadily rises to the specified value within 5s
C	B.C.D	2.55In	Cold	$1s < t < 60s$	tripping	
D	B	3In	Cold	$t \leq 0.1s$	no tripping	Turn on the auxiliary switch to close the current
	C	5In				
	D	10In				
E	B	5In	Cold	$t \leq 0.1s$	tripping	Turn on the auxiliary switch to close the current
	C	10In				
	D	20In				

Residual Current Operating Breaking Time						
Type	In/A	I Δ n/A	Residual Current(I Δ)Is Corresponding To The Following Breaking Time(S)			
AC type	Any value	Any value	In	2In	5In	5A.10A.20A.50A.100A.200A.500A
A type		> 0.01	1.4In	2.8In	7In	
			0.3	0.15	0.04	0.04 Max breaking time

The general type RCBO whose current I Δ n is 0.03mA or less can use 0.25A instead of 5I Δ n.

Installation	
Fault current indicator window	Yes
Protection degree	IP20
Ambient temperature	-5~+40°C and its average over a period of 24h does not exceed +35°C
Storage temperature	-25~+ 70°C
Terminal connection type	Cable
Terminal size top for cable	25mm ²
Terminal size bottom for cable	25mm ²
Tightening torque	2.5N·m
Mounting	On DIN rail FN 60715 (35mm) by means of fast clip device
Connection	Top and bottom

The wiring diagram	Dimensions(mm)
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RESIDUAL CURRENT CIRCUIT BREAKER WITH OVERCURRENT PROTECTION

ESRO100-63 RCBO

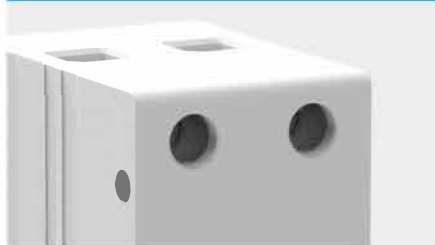
RoHS ENEC S CB A SAA CE

- Cover and base material: DMC
- Mass production products can pass: 10kA
- Long mechanical and electrical endurance



Detail features

IP20 Degree Protection



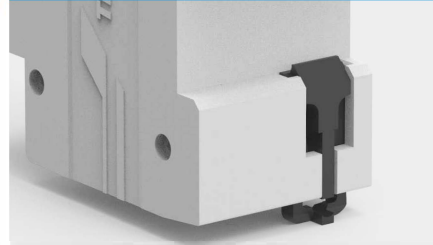
Terminals are finger touch proof. Prevent electrical shock by accidental touch

Red/Green indication



With overload current, short circuit and residual current protection on each pole

Din Rail Mounting



Two step snapping mechanism for easy & efficient mounting in 35mm DIN Rail steadily

Technical Data

Electrical Features

Mode	Electronic	Rated current	6-63A
Type	A / AC	Rated residual operating current($I_{\Delta n}$)	30.100.300mA
Tripping curve	B C D	Residual operating current range	0.5 $I_{\Delta n}$ ~ $I_{\Delta n}$
Pole No.	2P	Rated conditional short-circuit current(I_{nc})	10000A
Rated voltage	240V~	Energy limiting	class 3
Rated frequency	50/60Hz	Electrical and Mechanical life	20000

ESRO100-63 RCBO

Standard: IEC61009-1

Overload Current Protection Characteristics						
Test Procedure	Type	Test Current	Initial State	Tripping or Non-tripping Time Limit	Expected Result	Remark
A	B.C.D	1.13In	Cold	$t \leq 1h$	no tripping	
B	B.C.D	1.45In	After test A	$t \leq 1h$	tripping	The current steadily rises to the specified value within 5s
C	B.C.D	2.55In	Cold	$1s < t < 60s$	tripping	
D	B	3In	Cold	$t \leq 0.1s$	no tripping	Turn on the auxiliary switch to close the current
	C	5In				
	D	10In				
E	B	5In	Cold	$t \leq 0.1s$	tripping	Turn on the auxiliary switch to close the current
	C	10In				
	D	20In				

Residual Current Operating Breaking Time						
Type	In/A	I Δ n/A	Residual Current(I Δ n)Is Corresponding To The Following Breaking Time(S)			
AC type	Any value	Any value	In	2In	5In	5A.10A.20A.50A.100A.200A.500A
A type		> 0.01	1.4In	2.8In	7In	
			0.3	0.15	0.04	0.04 Max breaking time

The general type RCBO whose current I Δ n is 0.03mA or less can use 0.25A instead of 5I Δ n.

Installation	
Fault current indicator window	Yes
Protection degree	IP20
Ambient temperature	-5~+40°C and its average over a period of 24h does not exceed +35°C
Storage temperature	-25~+ 70°C
Terminal connection type	Cable
Terminal size top for cable	25mm ²
Terminal size bottom for cable	25mm ²
Tightening torque	2.5N·m
Mounting	On DIN rail FN 60715 (35mm) by means of fast clip device
Connection	Top and bottom

The wiring diagram	Dimensions(mm)
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