

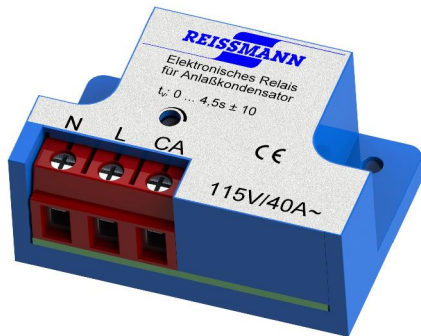
Product information

► Motor and machine protection

Electronic Start Capacitor Relay:

Start capacitor switching

Typ: ERA



- Basic information

The ERA electronic relay controls the motor and start capacitor by means of an electronic adjustable time switch.

- Application

The main function of the electronic relay is to control the connection between the start capacitor and the motor and is particularly suitable for applications demanding frequent switching.

- single phase motors
- three phase motors at single phase

- General function

The start capacitor is switched off after an adjustable time delay. The time delay corresponds to the time required, for the motor to achieve nominal rotary speed, after start up. Occur due to unwanted interference increased motor currents, is the starting capacitor above a defined threshold, switch off again (type L/I).

- Advantages

- High reliability throughout its life, produced through wear free, non-moving components.
- Compact construction for mounting inside the motor terminal box.
- Easier to install and adjust than centrifugal switches.
- Optimum setting of motor torque, by means of adjustable switch off time, of the start capacitor.
- Complete suppression of sparking during switching, unlike mechanical switches.
- current-dependent switching of the starting capacitor when faults occur (type L / I)
- Higher tripping currents but compact device.

Product information

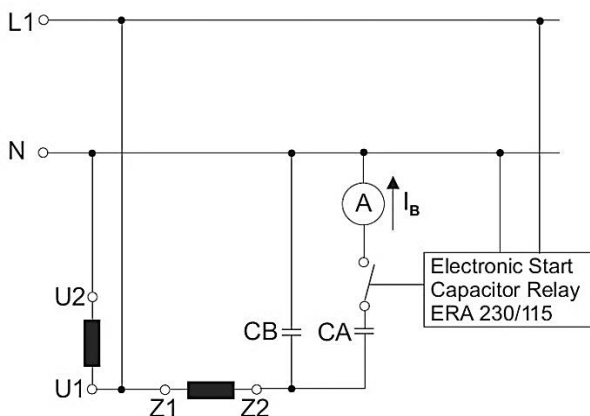
► Motor and machine protection

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Schematic diagram and measurement of switching current I_B



L1, N: operating voltage
 U1, U2, Z1, Z2: motor windings
 CB: operating capacitor
 CA: start capacitor
 I_B : switching current

Attention!

The operational liability cannot be guaranteed with a permanent overvoltage of +10% and a maximum ambient temperature by 80°C at the same time!

Switching current:

VDE: 24A AC
 UL: 15A AC (Typ F, L and L/I)
 ambient temperature
 max. +70°C

Storage

temperature:

-40°C ... +85°C

Cross-section

connection cable:

min.: 0,5mm²
 max.: 2,5mm²

Information

for type A:

fix supply voltages above the rated voltage and ambient temperatures above the rated temperature reduce the time delay to smaller values, supply voltages below the rated voltage increase the times to higher values

Versions:

(ERA):

Reclosing delay: ca. 60s

(ERAOW):

Reclosing delay: < 600ms

Product information

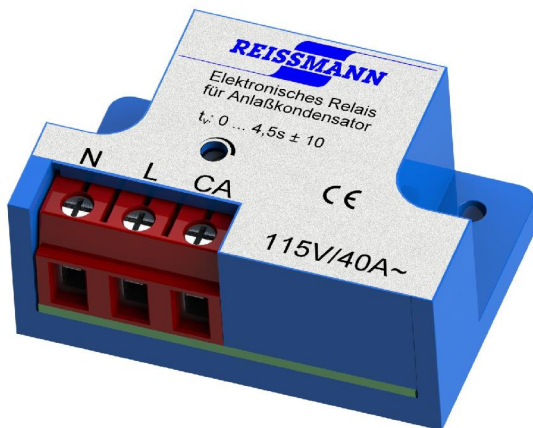
► Motor and machine protection

Electronic Start Capacitor Relay:

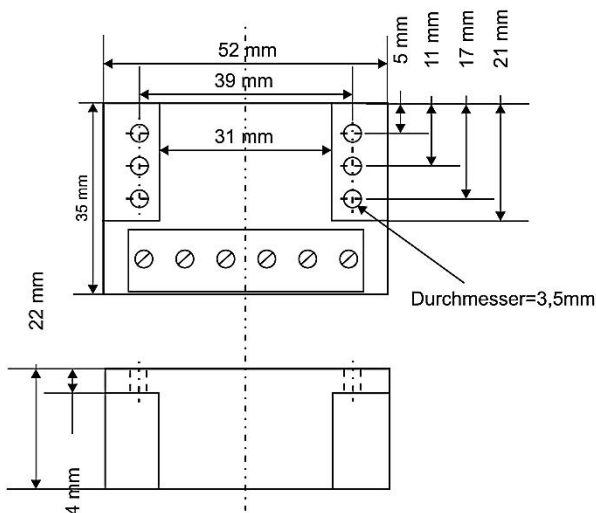
Start capacitor switching

Typ: ERA

Version type A



Dimensions:



Time delay until start capacitor switches off:

0,25 - 4,5s ± 10%
continuously adjustable

- technical data version type A

Mechanical Data:

Housing:	plastic/blue
material - DIN-designation	PA 66
continuous rated temperature [°C]	100
melting temperature (DIN 53 736) [°C]	255
dynamic glass transition temperature (DIN 53 736) [°C]	5/50
dimensional stability under heat according to ISO-R 75, procedure A (DIN 63 461) [°C]	100
dimensional stability under heat according to ISO-R 75, procedure B (DIN 63 461) [°C]	>200
short time rated temperature [°C]	170
coefficient of thermal conductivity (23°C)[W/(K*m)]	0,23
specific heat capacity (23°C) [J/(g*K)]	1,7
coefficient of linear thermal expansion (23°C) [10 ⁻⁵ *1/K]	7

Dimensions: 52 x 22 x 35 mm
see drawing
Mounting: with screws or glued
Protection factor: IP 20
Weight: about 70g

Electrical Data:

Operating voltage: 115V AC (50/60Hz)
230V AC (50/60Hz)
Switching current: VDE: 24A AC
max. ambient temperature
+70°C

Possible variants:

ERA: reclosing delay:
ca. 60s
ERAOW: reclosing delay:
< 600ms
switching frequency:
max. two times / 60s
at least. 15s break

Product information

► Motor and machine protection

Electronic Start Capacitor Relay:

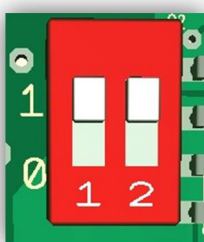
Start capacitor switching

Typ: ERA

Version type F



Time delay until start capacitor switches off:



time:	1	2
0,5 sec	0	0
1,0 sec	1	0
2,0 sec	1	1
3,0 sec	0	1

Certification:

UL: E469600
CE: EN 61000-3-2 ; 3-3
EN 61000-6-2 ; 6-4

- technical data version type F

Mechanical Data:

Housing: plastic / blue

Temperature resistance	Top an Terminal Blocks: polyamid	Hood: polysterene
	-40°C...+105°C	+80°C
burning behavior UL94:	V-0	

Dimensions: 93,50 x 22,60 x 70,50mm

Mounting: DIN rail

Protection class: IP 20

Weight: about 62g

Electrical Data:

Operating voltage: 85 ... 265V AC (50/60Hz)

Switching current: VDE: 24A AC

UL: 15A AC

max. ambient temperature
+80°C

ERAOW:

reclosing delay:

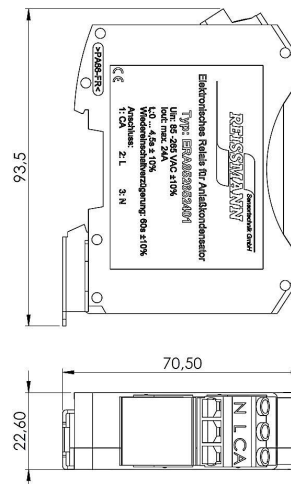
< 600ms

switching frequency: max.

two times / 60s

at least. 30s break

Dimensions:



Product information

Motor and machine protection

Electronic Start Capacitor Relay:

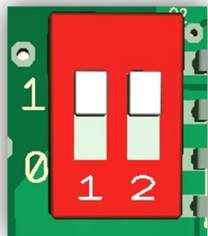
Start capacitor switching

Typ: ERA

Version type L



Time delay until start capacitor switches off:



time:	1	2
0,5 sec	0	0
1,0 sec	1	0
2,0 sec	1	1
3,0 sec	0	1

Certification:

UL: E469600
CE: EN 61000-3-2 ; 3-3
EN 61000-6-2 ; 6-4

- technical data version type L

Mechanical Data:

Housing: Grilon/nature

Temperature resistance	Top an Terminal Blocks: polyamid	Hood: polyesterene
	-40°C...+105°C	+80°C
burning behavior UL94:	V-0	

Dimensions: 73,50 x 46,50 x 19,50mm

Mounting: terminal box

Protection class: IP 20

Weight: about 96,50g

Electrical Data:

Operating voltage: 85 ... 265V AC (50/60Hz)

Switching current: VDE: 24A AC

UL: 15A AC

max. ambient temperature

+80°C

ERAOW:

reclosing time:

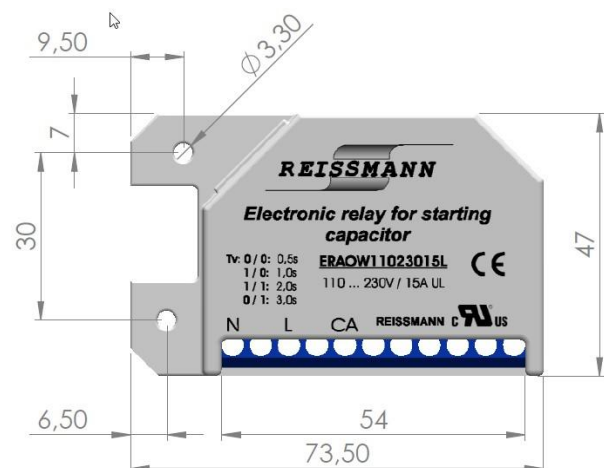
< 600ms

switching frequency: max.

two times / 60s

at least. 30s break

Dimensions:



Product information

► Motor and machine protection

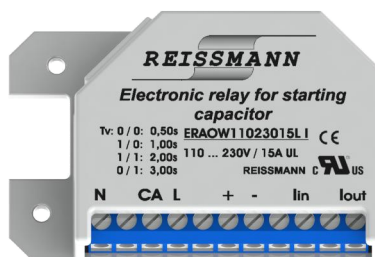
Electronic Start Capacitor Relay:

Start capacitor switching

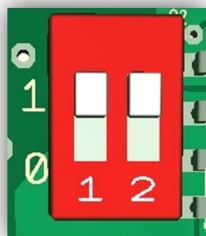
Typ: ERA

Version type L/I

Starting relay with current monitoring



Time delay until start capacitor switches off:



time:	1	2
0,5 sec	0	0
1,0 sec	1	0
2,0 sec	1	1
3,0 sec	0	1

Certification:

UL: E469600

CE: EN 61000-3-2 ; 3-3

EN 61000-6-2 ; 6-4

- technical data version type L/I

Mechanical Data:

Housing:	Grilon/nature	
Temperature resistance	Top an Terminal Blocks: polyamid	Hood: polysterene
	-40°C...+105°C	+80°C
burning behavior UL94:	V-0	

Dimensions relay: 73,50 x 46,50 x 19,50mm

Dimensions

Power Supply: 50,0 x D=36,0mm

Thread Power Supply: PG16

Lenght Connection cables Power Supply:

primarely (sw/sw): 170mm (M4-cable-lug)

secondary (bn/gr): 120mm (end sleeve)

Mounting: terminal box

Protection class: IP 20

Weight: about 121g

Electrical Data:

Operating voltage: 85 ... 265V AC (50/60Hz)

Switching current: VDE: 24A AC

UL: 15A AC

max. ambient temperature
+80°C

Threshold for switching again the stating capacitor during operation: 12,5A (factory)

Other switching thresholds available on request

ERAOW:

reclosing delay:

< 600ms

switching frequency:

max. 3x / 3sec

at least 30s break

Product information

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Electronic Start Capacitor Relay:

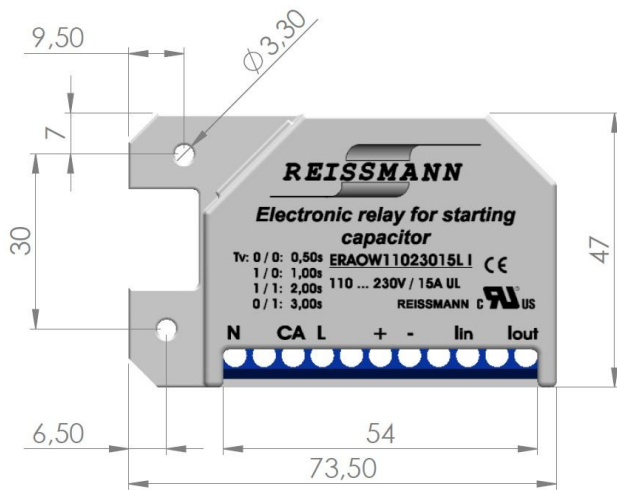
Start capacitor switching

Typ: ERA

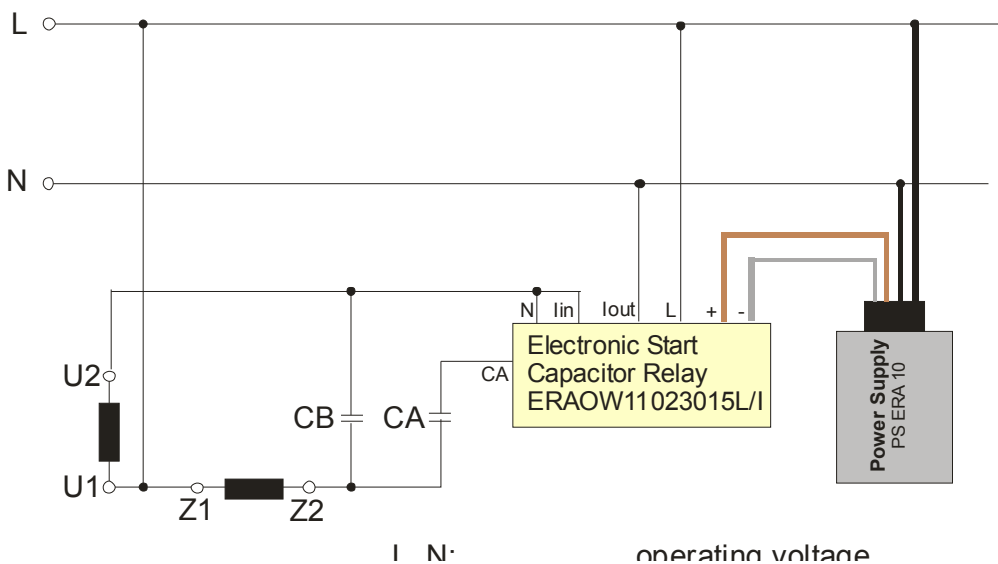
Dimension: Typ L/I

starting relay:

Power Supply:



Block diagram: Typ L/I



Product information

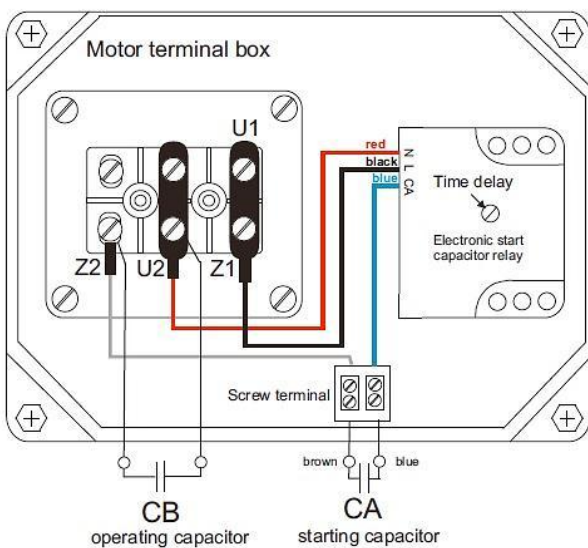
Motor and machine protection

Electronic Start Capacitor Relay:

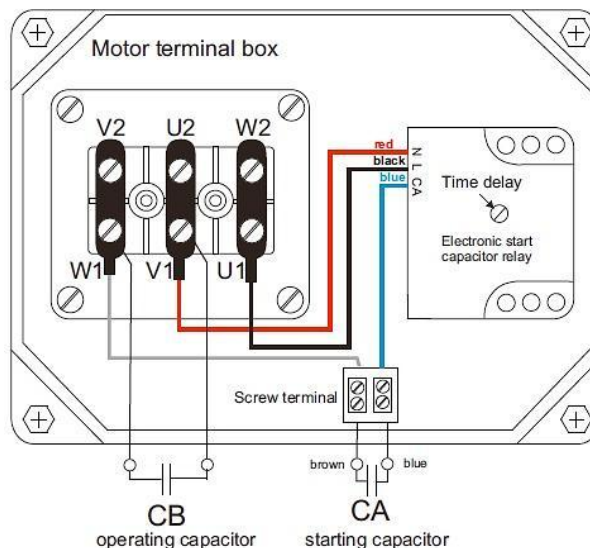
Start capacitor switching

Typ: ERA

Schematic circuit:
Electronic start capacitor relay in motor terminal box
Single-phase circuit



Schematic circuit:
Electronic start capacitor relay in motor terminal box
Steinmetz circuit



Possible combinations:

versions	time delay to reclosing of the start capacitor	Operating voltage	switching current VDE	switching current UL	housing type
ERA1152401	60s	115V AC	24A		A
ERA2302401	60s	230V AC	24A		A
ERAOW1152401	<600ms	115V AC	24A		A
ERAOW2302401	<600ms	230V AC	24A		A
ERAOW11023015F	<600ms	110 ... 230V AC	24A	15A	F
ERAOW11023015L	<600ms	110 ... 230V AC	24A	15A	L
ERAOW11023015L/I *	<600ms	110 ... 230V AC	24A	15A	L

* Current monitoring and switching on the starting capacitor during operation

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Typ: ERA

Responsibility:

No responsibility will be accepted for thermistors which have not been installed and tested according to the relevant standards as previously listed in our data sheet.

Due to the ongoing research and development program, product specification may be subject to change, at the manufacturer's discretion.

For further advice and information contact: