

#### Instructions

CES-RT4-250\_CES-RT4-400\_ver01

English

	<b>WARNING:</b>
	Hazardous voltage can cause electrical shock and burns. Disconnect power before proceeding with any work on this equipment.

#### Installation

Dimension drawings (dimensions in mm): **Fig. I**

Permissible installed positions: **Fig. II**

Do not subject to sudden shocks or long-term vibrations.

Snap-on mounting on a standard EN 50 023 rail (75mm) ,or bolting on a plane surface by four bolts to be secured by washers and spring washers.

#### Connection

Permissible cable cross-sections for phase conductors:

	CES-RT4-250/400	
	...200A	...400A
Mounting on contactors	a) CES 250, 300 b) CES 400	CES 400
Round conductor with cable lug mm <sup>2</sup>	ref. a) 35 to 185 (...170A) ref. b) 35 to 240	50 to 240
Flat bar mm <sup>2</sup>	20×3	2×30×5
Terminal screws	M8	M10
Tightening torque	Nm lb.in	10 to 14 89 to 124
		14 to 24 124 to 210

Permissible cable cross-sections for auxiliary conductors:

Solid	mm <sup>2</sup>	2 × (0.5 to 1); 2 × (1 to 2.5)
Finely stranded with end sleeve	mm <sup>2</sup>	2 × (0.5 to 1); 2 × (0.75 to 2.5)
AVG conductors		2 × (18 to 12)
Tightening torque	Nm	0.8 to 1.4
	lb.in	7 to 12

For position of connection terminals: **Fig. III**

Connection of the main conductors: **Fig. IV**

Equipment circuit diagram: **Fig. V**

In the case of several single-phase loads, the three main circuits must be connected in series.

#### Commissioning

Instructions: **Fig. VI**

① Set the scale to the rated current of load.

② Reset button (blue)

Push this button before commissioning and after tripping to make relay ready for operation. In the as-delivered condition, the auxiliary contact is set to H=Manual resetting. To change from H=Manual to A=Automatic, press and turn the button counter-clockwise from H to A.

③ Test button (red)

When this button is actuated, the NC contact opens and the NO contact closes, i.e. a test function for NC and NO contacts (simulation of overload tripping).

In the "Manual" position, the relay is reset when the blue button is pressed.

In the "Automatic" position, the relay is reset automatically when the red button is released.

④ TRIPPED indication (green)

In the H setting, a green pin protrudes from the front plate to indicate the TRIPPED condition. In the A setting, this condition is not indicated.

Separate installation of the relay, see Catalog.

Tripping characteristics: **Fig. VIII**

The characteristics conform to VDE0165, VDE 0170/0171 for machines with type of protection E Ex e. Tripping times are shown for a three-phase load from the cold state (ambient temperature +20°C).

In the case of hot relays, preloaded with 1×I<sub>E</sub>, the tripping times decrease by approx. 25%.

I<sub>E</sub> Current setting

t<sub>A</sub> Tripping time in seconds (±20%)

① Setting range (U= minimum setting, O= maximum setting )

② Type designation/Order No.

③ PTB (Federal testing Laboratories) Test Report No.

#### Technical data

Permissible ambient air temperature -25 °C to +55 °C

Degree of protection IP 00 ( IEC 60529 )

#### Main circuit

Rated insulation voltage 1000V

Rated operational current CES-RT4-250/400 80 to 400 A

short-circuit protection see nameplate

Table **Fig. VIII**

① Setting range (A=Ampere; u=minimum, o=maximum setting range)

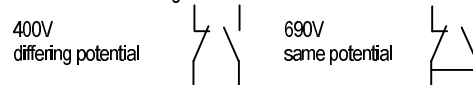
② Max. response current of the line-side circuit-breakers

③ Commissioning: Set scale so that the ratio corresponds to the rated load current.

Example: Rated load current =188 A  
Max. Setting =250 A  
Ratio =188:250 =0.75

#### Auxiliary circuit

Rated insulation voltage:



Rated operational currents

AC-15/Ue	V	24	60	125	230	400	500	690
AC-15/Ie	A	2	1.5	1.25	1.15	1.1	1	0.8
DC-13/Ue	V	24	60	110	220			
DC-13/Ie	A	2	0.5	0.3	0.2			

Short-circuit protection:

NH, NEOZED or DIAZED fuses 6A gG or 10A, fast

Miniature circuit-breaker 3A (C-characteristic)

Continuous thermal current I<sub>th</sub> 6A

Operating conditions at ambient temperatures >55 °C

At ambient temperatures > 55 °C, you must

1. Reduce the current loading for the overload relay

2. Upwardly correct the setting current to prevent tripping at motor rated current.

Correction factors:

Ambient temperature	Perm. current loading referred to end-of-scale value	Setting current correction
55 °C	1	1
60 °C	0.94	1.08
65 °C	0.88	1.09
70 °C	0.82	1.1

Example:

Motor rated current: 100 A

Ambient temperature: 70 °C

Overload relay fitted: 80 to 125 A

1st Step: Determine the permissible current loading:

Max. Current loading: 125 A×0.82=102.5 A

Loading with motor rated current 100A at 70 °C ambient temperature is permissible.

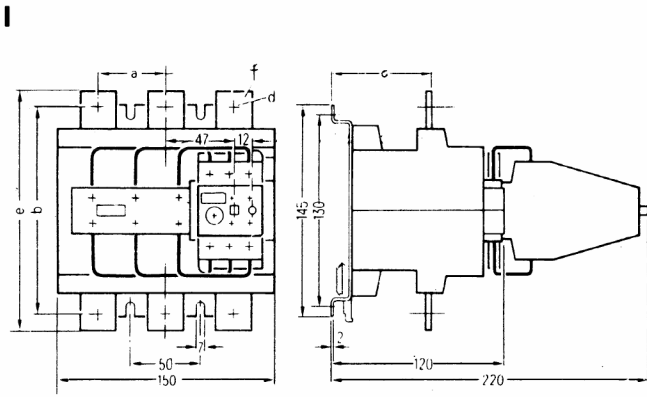
2nd Step: Calculate the setting current:

Motor rated current: 100 A

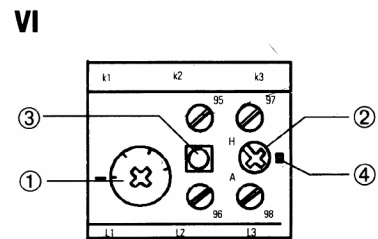
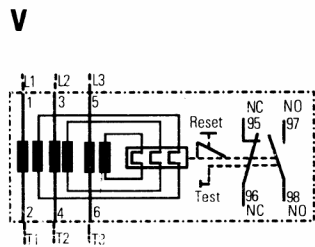
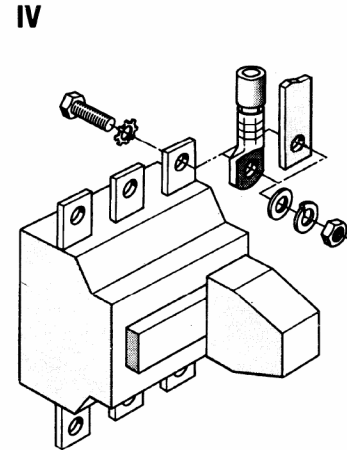
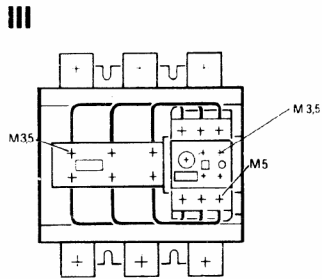
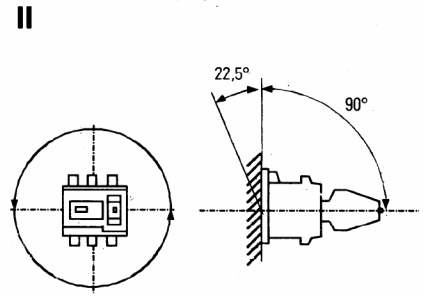
Setting current correction: 100 A×1.1=110 A

You must set the overload relay to 110 A.

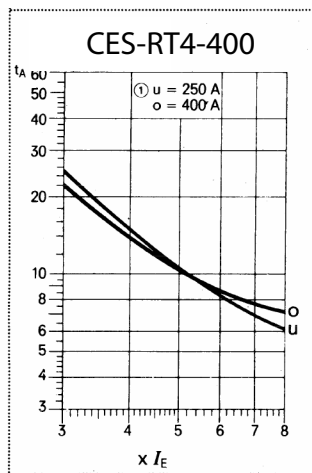
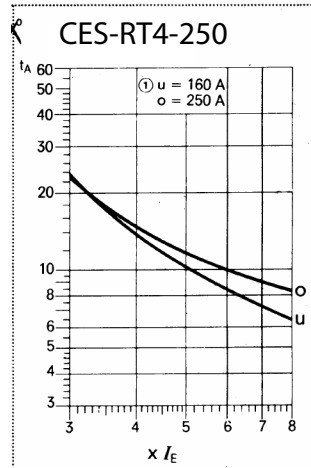
For further information and accessories, see Catalog.



Typ	a	b	c	ød	e	f
CES-RT4-250/400	50	146	70	11	171	25x4



## VII



## VIII

Typ	①		②	③				
	$u$ A	$o$ A	A	0,625	0,7	0,8	0,9	1
CES-RT4 250/400	160	250	2500	156	175	200	225	250
	200	320	3200	200	224	256	288	320
	250	400	4000	250	280	320	360	400



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