

## Miniature contactors CE and CEC

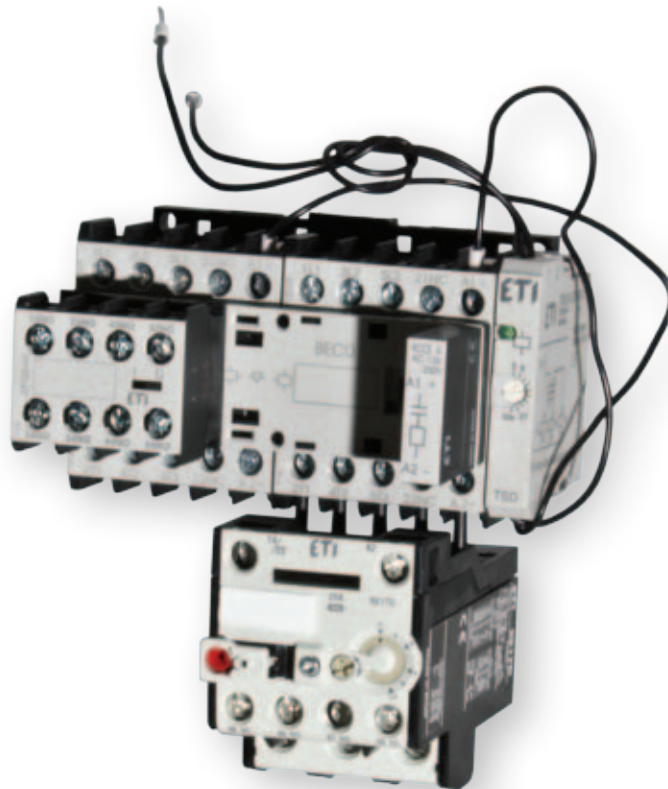
### Application:

Miniature contactors are used to remotely control and protect (in combination with overload relays) electric motors and other electric loads with nominal power up to 7,5kW (at 400V AC3 duty), and auxiliary contactors are used for realizing a wide range of control circuits.

### Advantages:


- Mounting on DIN rail and mounting plates
- Small size and high technical performance
- Low power loss (current heat loss)
- Protection against direct contact from front (IEC 536) IP20
- Wide range of accessories
- Surge suppressor (as option)
- Reversing starter with mechanical interlock
- Control voltage 24VAC, 48VAC, 110VAC, 230VAC, 400VAC

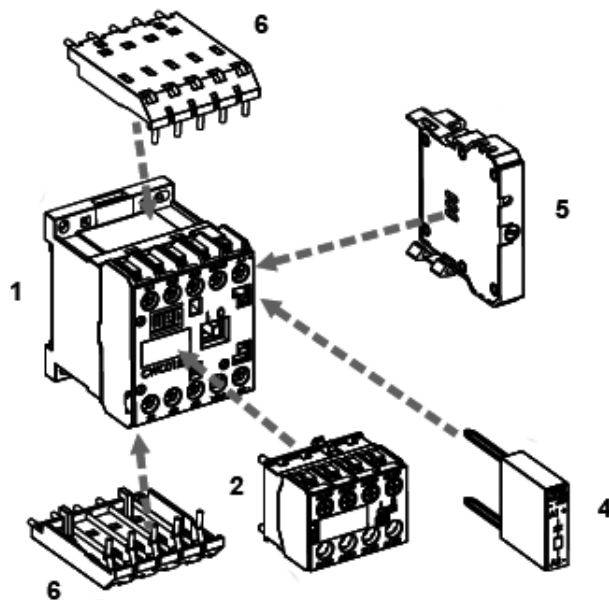
### Example of CEC configuration:



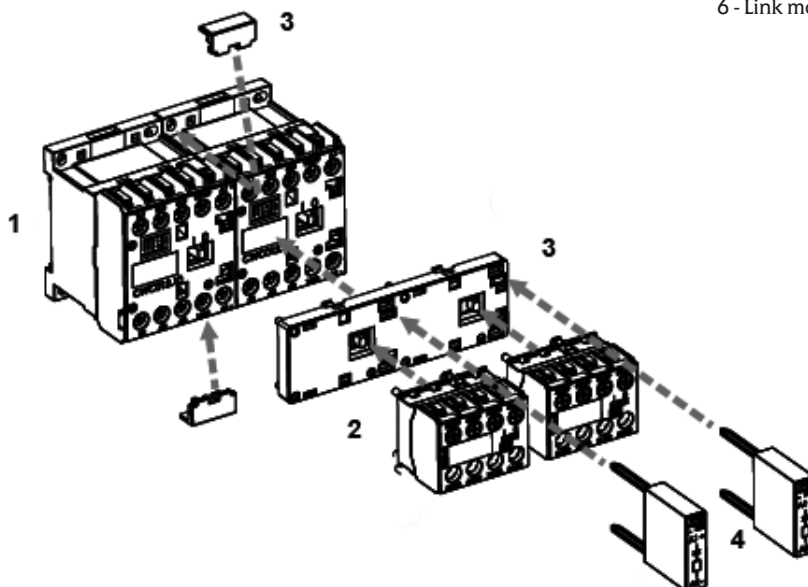
## Miniature contactors CE and CEC

Technical data								
Type		CE07	CEC07	CEC09	CEC012	CEC016	CECA0	CAE04
Standards		IEC/EN 60 947, DIN VDE 0660, UL, CSA						
Rated insulation voltage $U_i$ according to IEC/EN 60947, DIN VDE 0660	V	415 V			690 V			415 V
Rated impulse withstand voltage $U_{imp}$					4 kV			
Rated operational frequency					25 - 400 Hz			
<b>Degree of protection</b>								
Main circuits					IP20			
Control circuits and auxiliary contacts					IP20			
<b>Ambient temperature</b>								
Operating temperature					-25 ... +55°C			
Storage temperature					-55 ... +80°C			
<b>Altitude</b>								
Normal values					< 3000 m			
90% $I_e$ /80% $U_e$					3000 ... 4000 m			
80% $I_e$ /75% $U_e$					4000 ... 5000 m			
<b>Overvoltage category / Pollution degree</b>								
Climatic proofing					III/3			
Number of main poles		3		3			4	4
Rated operational voltage $U_e$		400-415 V			690 V			400-415 V
Conv. thermal current $I_{th}$ at < 55°C								
rated operational current $I_e$ /AC-1		16 A	18 A	20 A	22 A	22 A	10 A	16 A
<b>AC3 Utilization category</b>								
Rated operational power								
230 V	kW	1,5	1,5	2,2	3	4	-	-
400/415 V	kW	3	3	4	5,5	7,5	-	-
440 V	kW	-	3,7	4,5	5,5	7,5	-	-
500 V	kW	-	3,7	4,5	5,5	7,5	-	-
690 V	kW	-	3,7	5,5	7,5	7,5	-	-
<b>AC4 Utilization category</b>								
Rated operational current $I_e$ AC-4 ( $U_e \leq 440V$ )			2,8	3,5	4,5	5		
Short circuit rating, max. fuse gG (A)		16	20	20	25	25	6	6
<b>Max. electrical operating frequency</b>								
AC-1	Ops/h	50			300		-	-
AC-3	Ops/h	300			600		-	-
AC-4	Ops/h	250			300		-	-
no load	Ops/h	2000			2500		2500	2500
Mechanical life span	Ops x 10 <sup>6</sup>				10			
Electrical life span	Ops x 10 <sup>6</sup>	0,8	1,4	1,3	1,2	1,1	1	1
Maximum number of auxiliary contacts		-			5		-	-
<b>Rated operational current <math>I_e</math></b>								
AC-15	220-230 V	A	-	-	-	-	10	6
	380-400 V	A	-	-	-	-	6	4
	415 V	A	-	-	-	-	5	-
	500 V	A	-	-	-	-	4	-
	690 V	A					2	
DC-13	24 V	A	-	-	-	-	6,0	2,5
	48 V	A	-	-	-	-	4,0	1,5
	110 V	A	-	-	-	-	2	0,7
	220 V	A	-	-	-	-	0,7	0,35
<b>Auxiliary contacts reliability</b>								
Terminal capacity	mm <sup>2</sup>				1 x / 2 x (0,5...2,5)		$U_e$ min=17 V, $I_e$ min=5 mA	$U_e$ min=24 V, $I_e$ min=30 mA
Tightening torque	Nm	0,8			1...1,5			0,8

Technical data				CE07	CE07	CE09	CE012	CE016	CECA0	CAE04
Type										
Terminal capacity				1 x / 2 x (0,5...2,5)						
mm <sup>2</sup>										
										
Tightening torque				Nm	0,8		1...1,5			0,8
Control circuit										
Power consumption of the coil	AC	Closing	VA	20			30			20
		Cosφ					0,8			
	DC	Operating	VA	3,3...5,5			2...3			3,3...5,5
		Cosφ			0,2			0,27		
Switching time	Closing/opening (AC)		ms	9...30 / 5...25			8...20 / 6...13			9...30 / 5...25
			ms	-			35...45 / 7...12			-
	Coils rated voltage		V	12-660 VAC			12-660 VAC / 12-440 VDC			12-660 VAC
		Coil operational limits						0,85...1,1		



- 1 - Mini contactor
- 2 - Auxiliary frontal contacts block
- 3 - Mechanical interlock block
- 4 - Surge suppressor blocks
- 5 - Timer
- 6 - Link module for printed circuit board

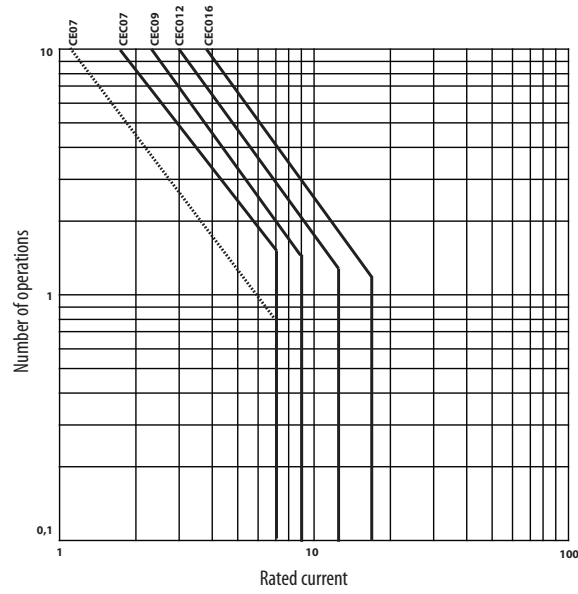


Auxiliary contact block			
Standards		IEC 60947-5-1, IEC 60947-4-1	
Rated Insulation voltage $U_i$	IEC, VDE 0660		1000
Rated operational voltage $U_e$	IEC, VDE 0660	(V)	690
Conv. thermal current $I_{th}$		A	10
Rated operational current ( $I_e$ )			
AC-15 (IEC 60947-5-1)	$U_e \leq 240V$	(A)	10
	380-400V	(A)	6
	415-440V	(A)	6
	500V	(A)	4
	660-690V	(A)	-
UL, CSA 1)			A600
DC-13 (IEC 60947-5-1)	24V	(A)	1,5
	60V	(A)	0,5
	110V	(A)	0,4
	220-240V	(A)	0,4
UL, CSA 1)			Q600
Short circuit protection max. fuse gL/gG		(A)	10
Control circuit reliability		(V / mA)	17 / 5
Electrical life span		c. op.	1.000.000
Mechanical life span		c. op.	10.000.000
Nr. of conductors and cross section	Stranded without end sleeve	mm <sup>2</sup>	2x (0,5...2,5)
Tightening torque		Nm	0,8...1,5

Electronic timer blocks TOE, TOD, TSD				
Inputs	Rated insulation voltage ( $U_i$ )	V	300	
	Supply voltage ( $U_e$ )	1 - 2 terminals	V	24...240 V AC/DC 50/60 Hz (TOE)
				24...60 V AC/DC 50/60 Hz (TOD)
				100...60 V AC/DC 50/60 Hz (TOD)
				220-240 V AC 50/60 Hz (TSD)
				110-130 V AC (TSD)
	Command ( $U_c$ ) (only TOD)	2 - B1 terminals	V	24...60 V AC/DC 50/60 Hz (TOD) 100...240 V AC/DC 50/60 Hz (TOD)
Voltage limits			0,85 - 1,1 x $U_e$ for AC 0,8 - 1,25 x $U_e$ for DC	
Consumption		mA	$\leq 5$	
Time adjustment	Min. time for Reset	ms	100	
	Min. command time (only TOD)	ms	50	
	Setting accuracy (% of the full scale value)	%	+/-5	
	Repeat accuracy	%	+/-1	
	Changeover time Y - $\Delta$	ms	50	

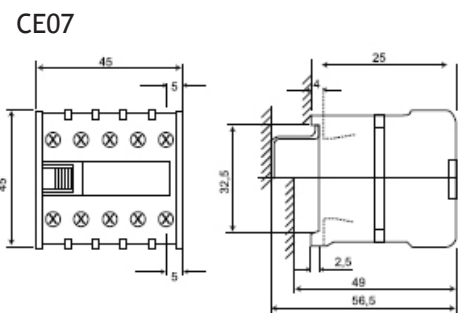
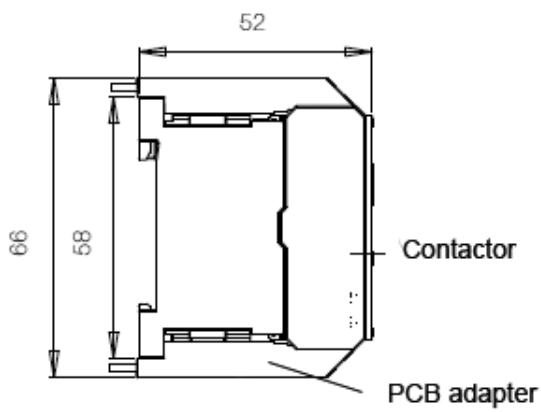
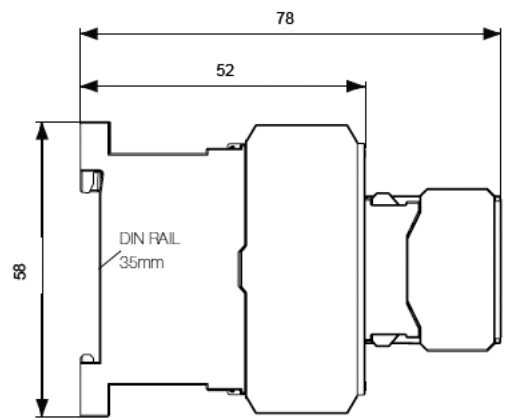
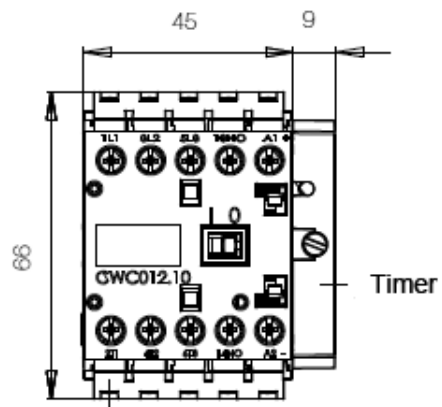
Diagrams			
Function	ON Delay TOE	OFF Delay TOD	Star - delta TSD
Functional diagram			
LED on			
LED off			
Schemes	Terminals 1 2 	Terminals (+)1 B1 (-)2 B2 	Terminals 1 2 D Y 

**Diagram**



**Dimensions**

CEC - Dimensions with PCB adapter



**Mounting**

