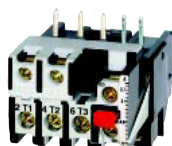


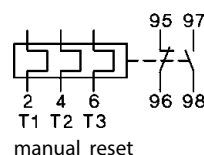
Thermal Overload Relays

For plug-in mounting



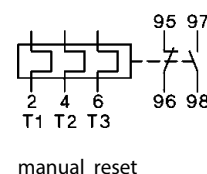
Setting Range D.O.L. (A)	Δ (A)	Type	Pack pcs.	Weight kg/pc.
With Manual Reset for contactors MB-..				
0,12 - 0,18	-	U12/16E 0,18 K1	1	0,10
0,18 - 0,27	-	U12/16E 0,27 K1	1	0,10
0,27 - 0,4	-	U12/16E 0,4 K1	1	0,10
0,4 - 0,6	-	U12/16E 0,6 K1	1	0,10
0,6 - 0,9	-	U12/16E 0,9 K1	1	0,10
0,8 - 1,2	-	U12/16E 1,2 K1	1	0,10
1,2 - 1,8	-	U12/16E 1,8 K1	1	0,10
1,8 - 2,7	-	U12/16E 2,7 K1	1	0,10
2,7 - 4 4	-	U12/16E 4 K1	1	0,10
4 - 6 6	7 - 10,5	U12/16E 6 K1	1	0,10
6 - 9 9	10,5 - 15,5	U12/16E 9 K1	1	0,10
8 - 11	14 - 19	U12/16E 11 K1	1	0,10
10 - 14	18 - 24	U12/16E 14 K1	1	0,10

Wiring Diagram



Setting Range D.O.L. (A)	Δ (A)	Type	Pack pcs.	Weight kg/pc.
With Manual Reset, for contactors MC (D)10-S.. to MC(D)22-S.. ..				
0,12 - 0,18	-	U12/16E 0,18 MC	1	0,10
0,18 - 0,27	-	U12/16E 0,27 MC	1	0,10
0,27 - 0,4	-	U12/16E 0,4 MC	1	0,10
0,4 - 0,6	-	U12/16E 0,6 MC	1	0,10
0,6 - 0,9	-	U12/16E 0,9 MC	1	0,10
0,8 - 1,2	-	U12/16E 1,2 MC	1	0,10
1,2 - 1,8	-	U12/16E 1,8 MC	1	0,10
1,8 - 2,7	-	U12/16E 2,7 MC	1	0,10
2,7 - 4 4	-	U12/16E 4 MC	1	0,10
4 - 6 6	7 - 10,5	U12/16E 6 MC	1	0,10
6 - 9 9	10,5 - 15,5	U12/16E 9 MC	1	0,10
8 - 11	14 - 19	U12/16E 11 MC	1	0,10
10 - 14	18 - 24	U12/16E 14 MC	1	0,10
13 - 18	23 - 31	U12/16E 18 MC	1	0,10
17 - 23	30 - 40	U12/16E 23 MC	1	0,10
22 - 30	38 - 52	U12/16E 30 MC	1	0,13

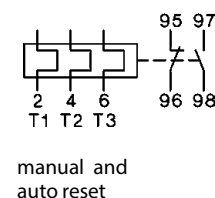
Wiring Diagram



For contactors MC-10-S.. to MC-22-S..



0,12 - 0,18	-	MCOR-1 0,18	1	0,14
0,18 - 0,27	-	MCOR-1 0,27	1	0,14
0,27 - 0,4	-	MCOR-1 0,4	1	0,14
0,4 - 0,6	-	MCOR-1 0,6	1	0,14
0,6 - 0,9	-	MCOR-1 0,9	1	0,14
0,8 - 1,2	-	MCOR-1 1,2	1	0,14
1,2 - 1,8	-	MCOR-1 1,8	1	0,14
1,8 - 2,7	-	MCOR-1 2,7	1	0,14
2,7 - 4 4	-	MCOR-1 4	1	0,14
4 - 6 6	7 - 10,5	MCOR-1 6	1	0,14
6 - 9 9	10,5 - 15,5	MCOR-1 9	1	0,14
8 - 11	14 - 19	MCOR-1 11	1	0,14
10 - 14	18 - 24	MCOR-1 14	1	0,14
13 - 18	23 - 31	MCOR-1 18	1	0,14
17 - 24	30 - 41	MCOR-1 24	1	0,14
23 - 32	40 - 55	MCOR-1 32	1	0,14



Thermal Overload Relays



For plug-in mounting



Setting Range
D.O.L. (A) Δ (A)

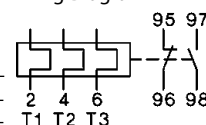
Type

Pack Weight
pcs. kg/pc.

Wiring Diagram

For contactors MC24-S.. to MC40-S ..

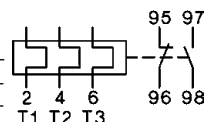
10 - 14	18 - 24	MCOR-2 14	1	0,30
14 - 20	24 - 35	MCOR-2 20	1	0,30
20 - 28	35 - 48	MCOR-2 28	1	0,30
28 - 42	48 - 73	MCOR-2 42	1	0,30



manual and auto reset

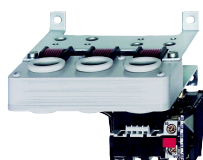
For contactors MC50-S.. to MC74-S,...

20 - 28	35 - 48	MCOR-3 28	1	0,40
28 - 42	48 - 73	MCOR-3 42	1	0,40
40 - 52	70 - 90	MCOR-3 52	1	0,40
52 - 65	90 - 112	MCOR-3 65	1	0,40
60 - 74	104 - 128	MCOR-3 74	1	0,40



manual and auto reset

For sepearte mounting



Setting Range
D.O.L. (A) Δ (A)

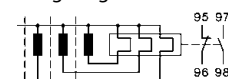
Type

Pack Weight
pcs. kg/pc.

Wiring Diagram

For contactors MC9-S.. to MC115-S..

60 - 90	104 - 156	MCOR-4 90	1	0,90
80 - 120	140 - 207	MCOR-4 120		



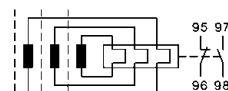
manual reset

For contactors MC-151.. and MC-176.., busbars included

120 - 180	208 - 312	MCOR-5 180	1	1,5
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For contactors MC-210.. up to MC-316.., busbars included

144 - 216	250 - 374	MCOR-6 216	1	1,8
216 - 320	374 - 554	MCOR-6 320		



manual and auto reset

For contactors MC-316.., MC-450.., MC-550.., MC-700.., MC-860..

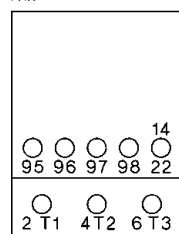
240 - 360	416 - 623	MCOR-7 360	1	4,1
360 - 540	623 - 935	MCOR-7 540	1	4,1
540 - 800	935 - 1385	MCOR-7 800	1	4,1

For contactors MC-1000.., MC-1200..

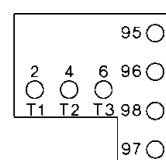
700 - 1000	1200 - 1730	MCOR-8 1000	1	7,0
875 - 1250	1510 - 2160			

Position of Terminals

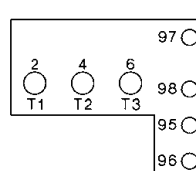
MCOR-1



U12/16E



MCOR-2, MCOR-3



Thermal Overload Relays



Data according to IEC 947-4-1, IEC 947-5-1, VDE 0660, EN 60947-4-1, EN 60947-5-1

Type			MCOR-1	U12/16 ⁶⁾	MCOR-2	MCOR-3	MCOR-4	MCOR-5	MCOR-6	MCOR-7	MCOR-8
Rated insulation voltage U _i ¹⁾		V~	690	690	690	690	750	690	1000	1000	690
Permissible ambient temperature operation		open °C	-25 to +60							-25 to +55	
storage		°C	-50 to +70							-40 to +70	
Trip class according to IEC 947-4-1		A	10	10	10	10	10	20	10	10	10
Cable cross-section											
main connector	solid or stranded	mm ²	0,75-6	0,75-6+0,75-2,5 ²⁾	0,75-10	4-35 ²⁾	3)	7)	-	7)	-
	flexible	mm ²	1-4	0,75-4+0,5-2,5 ²⁾	0,75-6	6-25 ²⁾					
	flexible with multicore cable end	mm ²	0,75-4	0,5-2,5+0,5-1,5	0,75-6	4-25					
Cables per clamp		number	2	1+1	2	1					
auxiliary connector	solid	mm ²								1-2,5 ²⁾	
	flexible	mm ²								1-2,5 ²⁾	
	flexible with multicore cable end	mm ²								1-2,5 ²⁾	
Cables per clamp		number	2							2	
Type			MCOR-1	U12/16	MCOR-2	MCOR-3	MCOR-4	MCOR-5	MCOR-6	MCOR-7	MCOR-8
Auxiliary contacts											
Rated insulation voltage U _i ¹⁾											
same potential	V~		690	690	690	690	690	690	690	500	690
different potential	V~		440	-	440	440	250	440	440	500	440
Utilization category AC15											
Rated operational current I _e	24V	A	3	4	5	5	4	5	3	4 ⁵⁾	5
	230V	A	2	2,5	3	3	2,5	3	2	2,5	3
	400V	A	1	1,5	2	2	1,5	2	1	1,5	2
	690V	A	0,5	0,6	0,6	0,6	0,6	0,6	0,5	0,6	0,6
Utilization category DC13											
Rated operational current I _e	24V	A	1	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
	110V	A	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
	220V	A	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Short circuit prot. (without welding 1kA)											
highest fuse rating	gL (gG)	A	4	4	6	6	6	6	4	6	6
Type			MCOR-1	U12/16	U12/16E	MCOR-2	MCOR-2	MCOR-3	MCOR-3	MCOR-4	
Setting range			all	to 23A	22 - 30A	to 28A	28 - 42A	to 52A	52 - 65A	all	
Power loss per current path (max.)											
minimum setting value	W		1,1	1,1	1,7	1,3	1,3	2,0	2,9	1,1	
maximum setting value	W		2,3	2,3	3,7	2,6	3,3	3,7	4,5	2,5	

Data according to cULus

Type		MCOR-1	MCOR-2	U12/16E	MCOR-3	MCOR-4
Rated insulation voltage	V~	600	600	600	600	600
Rated current	A	32	23	42	74	85
Auxiliary contacts						
Rated voltage						
same potential	V AC	600	600	600	600	600
different potential	V~	150	150	150	150	150
Switching capacity						
of aux. contacts	VA	500	500	600	600	600
	A	2	4	4	4	4

Temperature Compensation

In case of higher ambient temperature use the following formula:
 (Ambient temperature - 20) x 0,125 = correction factor in % of the full load motor current

Example: Ambient temperature 70°C, full load motor current 7A
 (70 - 20) x 0,125 = 6,25%
 Setting value: 7A + 6,25% = 7,44A

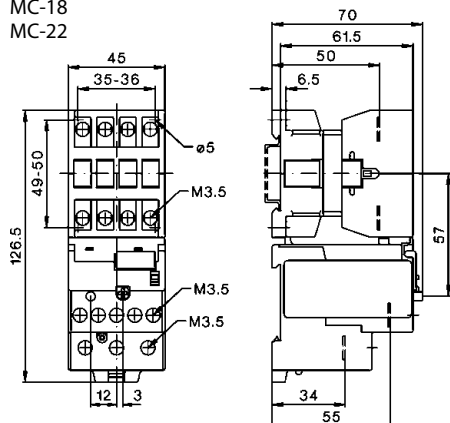
- 1) Suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): U_{imp} = 4kV (at 440V), 6kV (at 690V).
Data for other conditions on request.
- 2) Maximum cable cross-section with prepared conductor
- 3) Without terminals, suitable for bushing one connector 70mm² (stranded) per phase
- 4) Switching capacity of the start contact: AC15 300VA, max. 1,5A, DC13 (max. 220V) 30W, max. 1,5A
- 5) Switching capacity of the make contact: AC15 400VA, max. 1,7A, DC13 (max. 220V) 10W, max. 1A
- 6) U12/16E 30: Cable cross-section for main connector like type MCOR-2, one connector only

Thermal Overload Relays

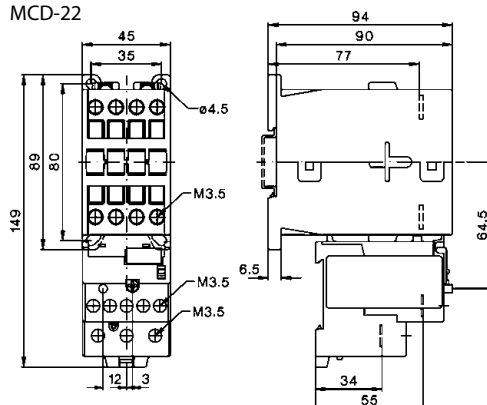
IMO

Dimensions

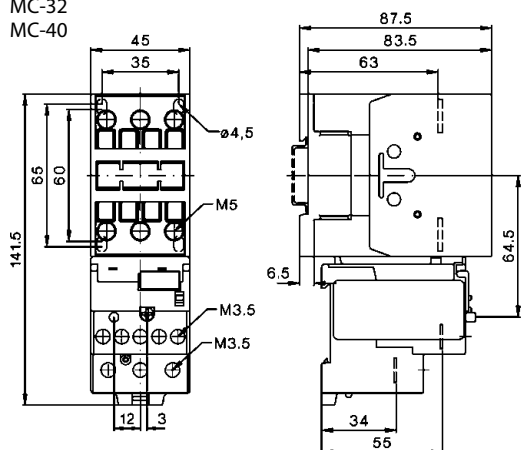
MC-10+ MCOR-1
MC-14
MC-18
MC-22



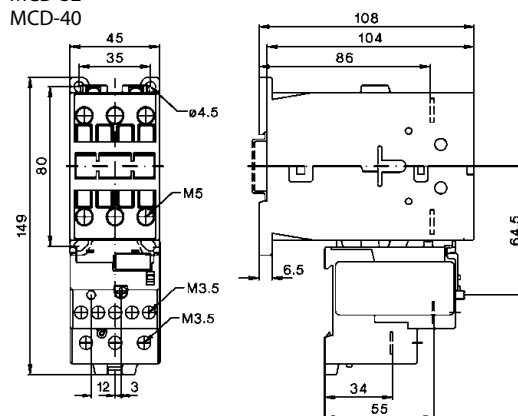
MCD-10+ MCOR-1
MCD-14
MCD-18
MCD-22



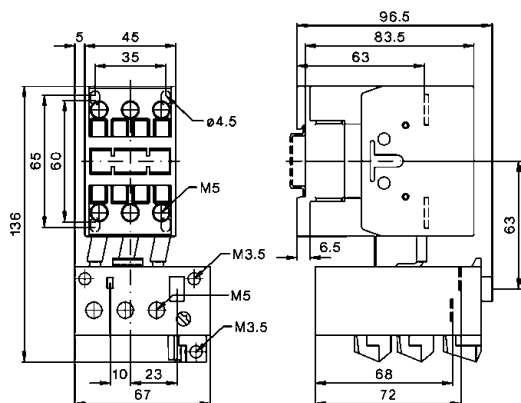
MC-24+ MCOR-1
MC-32
MC-40



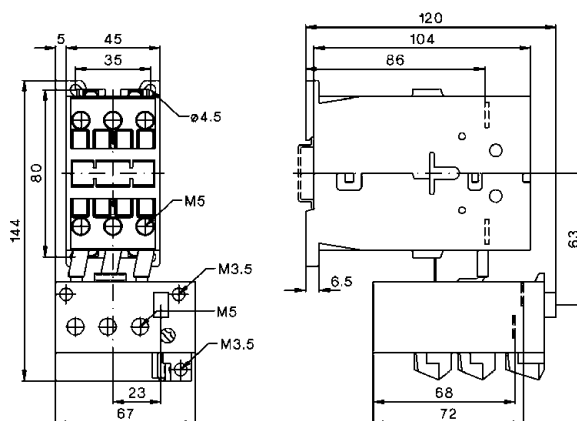
MCD-24+ MCOR-1
MCD-32
MCD-40



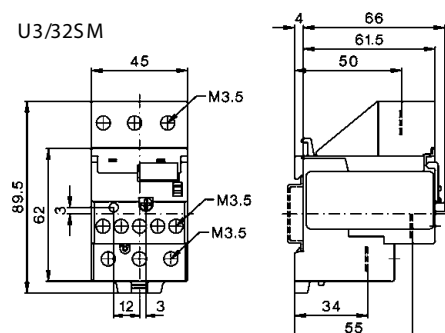
MC-24+ MCOR-2
MC-32
MC-40



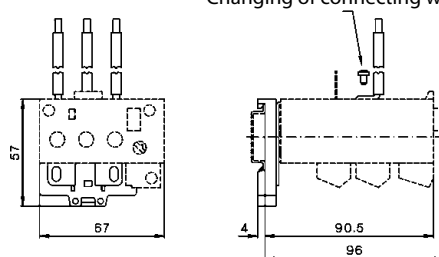
MCD-24+ MCOR-2
MCD-32
MCD-40



U3/32SM



U3/42G +LG5830-4.



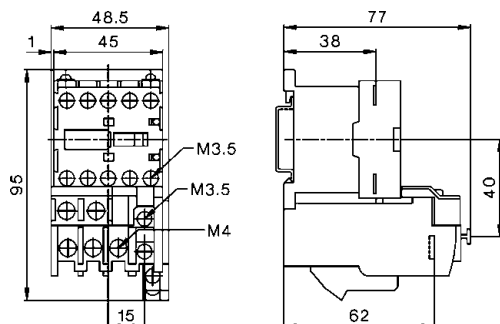
Changing of connecting wire with 1,8Nm

Thermal Overload Relays

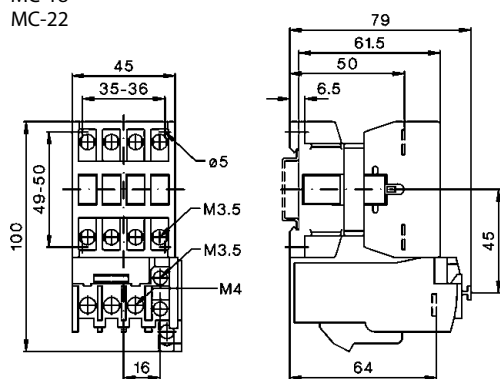
IMO

Dimensions

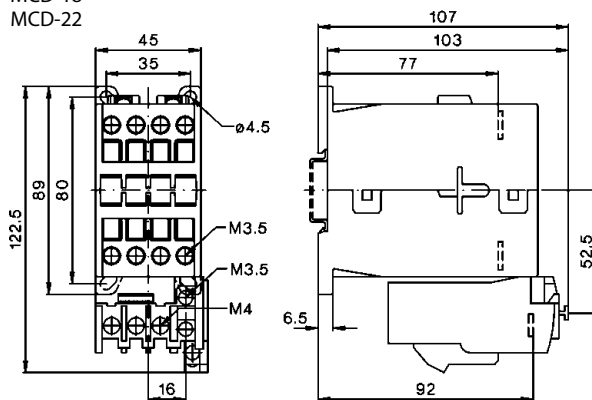
MB-09 + U12/16.. K1
MB-12



MC-10 + U12/16 MC
MC-14
MC-18
MC-22

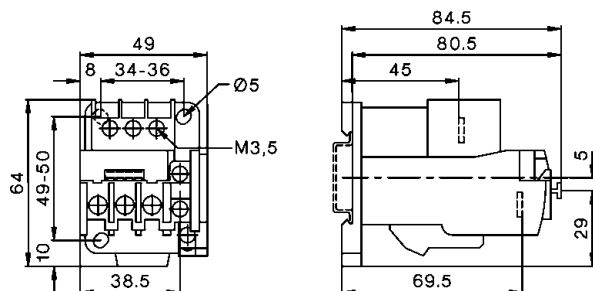


MCD-10 + U12/16 MC
MCD-14
MCD-18
MCD-22

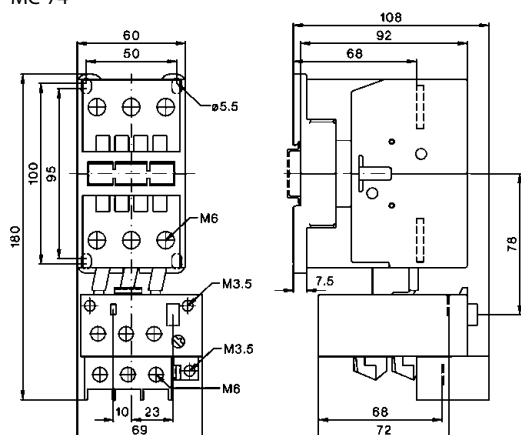


U12SM-MC

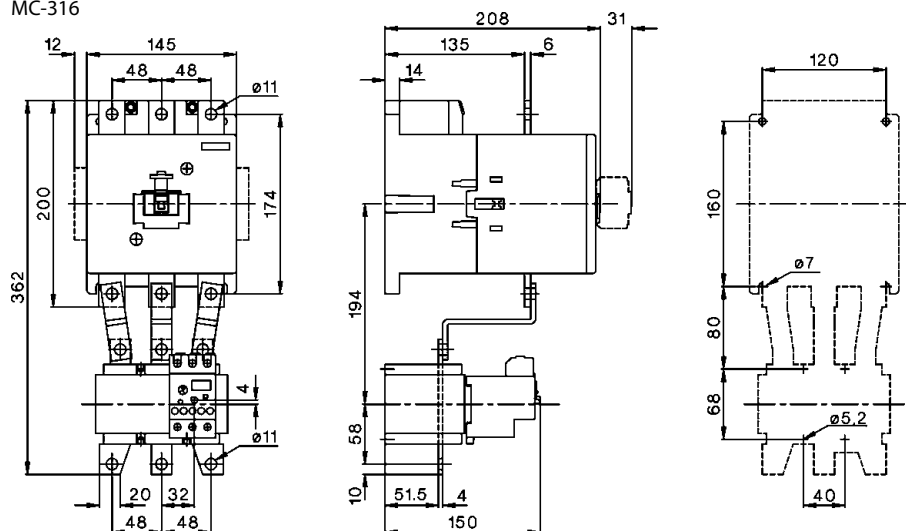
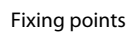
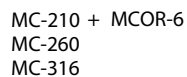
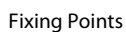
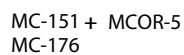
U12/16 + U12SM for snap-on 35mm DIN-rail according to DIN EN50022 and screw mounting (single mounting)



MC-50 + MCOR-3
MC-62
MC-74



MC-90 + MCOR-4
MC-115

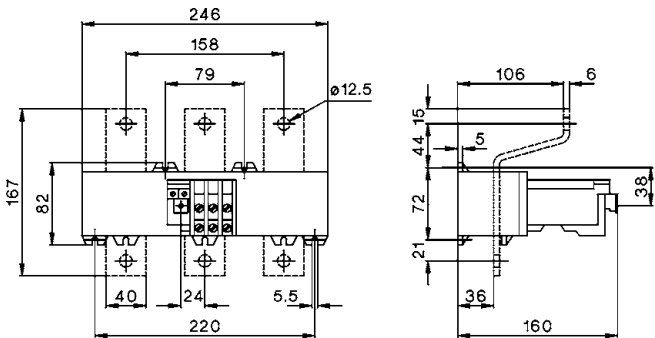


Thermal Overload Relays

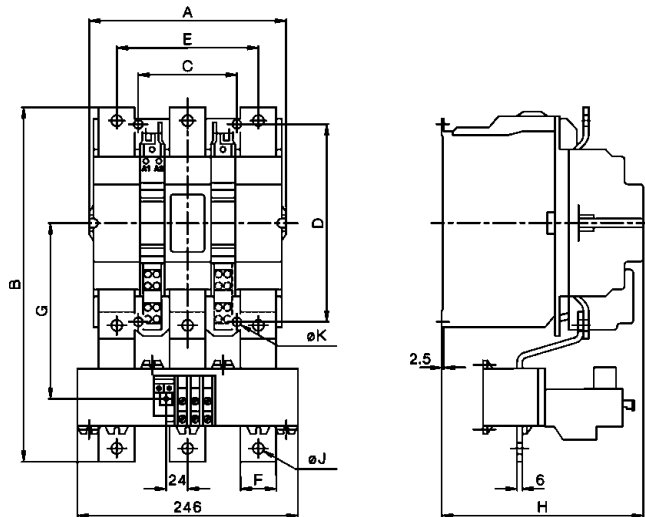


Dimensions

MCOR-7



U800 with	A	B	C	D	E	F	G	H	J	K
MC-450	220	372	110	220	158	40	185	225	12,5	9
MC-550	220	395	110	220	158	40	196	225	12,5	9
MC-550	220	395	110	220	158	40	196	225	14,5	11
MC-860	280	540	175	280	202	50	280	291	14,5	11



MCOR-8

