



Contactors for Semiconductor Industries acc. to SEMI F47, 380 V 400 V: 9 A, 1 N/O, RAC 240: 190 - 240 V 50/60 Hz, Screw terminals



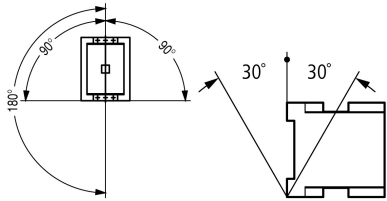
Part no. **DILMF11-10(RAC240)**
 Catalog No. **104421**
 Alternate Catalog No. **XTCE011C10B-F47**

Delivery program

Product range				Contactors
Application				Contactors for Semiconductor Industries acc. to SEMI F47
Subrange				Contactors up to 150 A with electronic actuation
Utilization category				AC-1: Non-inductive or slightly inductive loads, resistance furnaces NAC-3: Normal AC induction motors: starting, switch off during running AC-4: Normal AC induction motors: starting, plugging, reversing, inching
Notes				 Also suitable for motors with efficiency class IE3. IE3-ready devices are identified by the logo on their packaging.
Connection technique				Screw terminals
Description				Contactors suitable for semi-conductor industry according to SEMI F47. Contactors hum-free, suitable for building services automation. Operating mechanism adjustable from 50 Hz to 400 Hz.
Number of poles				3 pole
Rated operational current				
AC-3				
380 V 400 V	I_e	A		9
AC-1				
Conventional free air thermal current, 3 pole, 50 - 60 Hz				
Open				
at 40 °C	$I_{th} = I_e$	A		22
enclosed	I_{th}	A		18
Conventional free air thermal current, 1 pole				
open	I_{th}	A		50
enclosed	I_{th}	A		45
Max. rating for three-phase motors, 50 - 60 Hz				
AC-3				
220 V 230 V	P	kW		2.5
380 V 400 V	P	kW		4
660 V 690 V	P	kW		4.5
AC-4				
220 V 230 V	P	kW		1.5
380 V 400 V	P	kW		2.5
660 V 690 V	P	kW		3.6
Contacts				
N/O = Normally open				1 N/O
Contact sequence				
Actuating voltage				RAC 240: 190 - 240 V 50/60 Hz
Instructions				Contacts to EN 50 012. built-in suppressor circuit' integrated suppressor circuit in actuating electronics

Technical data

General

Mounting position			
Altitude	m	Max. 2000	

AC

AC-1			
Rated operational current			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	22
at 50 °C	$I_{th} = I_e$	A	21
at 60 °C	$I_{th} = I_e$	A	20
enclosed			
	I_{th}	A	18
Conventional free air thermal current, 1 pole			
open			
	I_{th}	A	50
enclosed			
	I_{th}	A	45
AC-3			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
Notes			At maximum permissible ambient temperature (open.)
220 V 230 V	I_e	A	9
240 V	I_e	A	9
380 V 400 V	I_e	A	9
415 V	I_e	A	9
440V	I_e	A	9
500 V	I_e	A	7
660 V 690 V	I_e	A	5
Motor rating			
220 V 230 V	P	kWh	2.5
240V	P	kW	3
380 V 400 V	P	kW	4
415 V	P	kW	5.5
440 V	P	kW	5.5
500 V	P	kW	4.5
660 V 690 V	P	kW	4.5
AC-4			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I_e	A	6
240 V	I_e	A	6
380 V 400 V	I_e	A	6
415 V	I_e	A	6
440 V	I_e	A	6
500 V	I_e	A	5
660 V 690 V	I_e	A	4.5
Motor rating			
220 V 230 V	P	kW	1.5
240 V	P	kW	1.6
380 V 400 V	P	kW	2.5
415 V	P	kW	2.8

440 V	P	kW	3
500 V	P	kW	2.8
660 V 690 V	P	kW	3.6

Current heat loss

3 pole, at I_{th} (60°)		W	2.4
Current heat loss at I_e to AC-3/400 V		W	0.6

Magnet systems

Voltage tolerance			
AC operated	Pick-up	x U_c	0.8 - 1.15
Drop-out voltage AC operated	Drop-out	x U_c	0.2 - 0.5
Power consumption of the coil in a cold state and $1.0 \times U_S$			
Electronic actuation	Pick-up	VA	14
Electronic actuation	Sealing	VA	0.7
Electronic actuation	Sealing	W	0.8
Duty factor		% DF	100
Operating times			
Closing delay		ms	40
Opening delay		ms	45
-suitable according to			SEMI F47

Electromagnetic compatibility (EMC)

Emitted interference			according to EN 60947-1
Interference immunity			according to EN 60947-1

Additional technical data

like the contactor	DIL		M9
--------------------	-----	--	----

Rating data for approved types

Switching capacity			
Maximum motor rating			
Three-phase			
200 V 208 V		HP	5
230 V 240 V		HP	5
460 V 480 V		HP	10
575 V 600 V		HP	15
Single-phase			
115 V 120 V		HP	2
230 V 240 V		HP	3
General use		A	40
Auxiliary contacts			
Pilot Duty			
AC operated			A600
DC operated			P300
General Use			
AC		V	600
AC		A	10
DC		V	250
DC		A	1
Short Circuit Current Rating			
Basic Rating			
SCCR		kA	5
max. Fuse		A	125
max. CB		A	125
480 V High Fault			
SCCR (fuse)		kA	10/100

max. Fuse	A	125/70 Class J
SCCR (CB)	kA	10/65
max. CB	A	50/32
600 V High Fault		
SCCR (fuse)	kA	10/100
max. Fuse	A	125/70 Class J
SCCR (CB)	kA	10/22
max. CB	A	50/32
Special Purpose Ratings		
Electrical Discharge Lamps (Ballast)		
480V 60Hz 3phase, 277V 60Hz 1phase	A	40
600V 60Hz 3phase, 347V 60Hz 1phase	A	40
Incandescent Lamps (Tungsten)		
480V 60Hz 3phase, 277V 60Hz 1phase	A	40
600V 60Hz 3phase, 347V 60Hz 1phase	A	40
Resistance Air Heating		
480V 60Hz 3phase, 277V 60Hz 1phase	A	40
600V 60Hz 3phase, 347V 60Hz 1phase	A	40
Refrigeration Control (CSA only)		
LRA 480V 60Hz 3phase	A	240
FLA 480V 60Hz 3phase	A	40
LRA 600V 60Hz 3phase	A	180
FLA 600V 60Hz 3phase	A	30
Definite Purpose Ratings (100,000 cycles acc. to UL 1995)		
LRA 480V 60Hz 3phase	A	108
FLA 480V 60Hz 3phase	A	18
Elevator Control		
200V 60Hz 3phase	HP	3
200V 60Hz 3phase	A	11
240V 60Hz 3phase	HP	3
240V 60Hz 3phase	A	9.6
480V 60Hz 3phase	HP	7.5
480V 60Hz 3phase	A	11
600V 60Hz 3phase	HP	10
600V 60Hz 3phase	A	11

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	9
Heat dissipation per pole, current-dependent	P_{vid}	W	0.2
Equipment heat dissipation, current-dependent	P_{vid}	W	0.6
Static heat dissipation, non-current-dependent	P_{vs}	W	0.8
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.

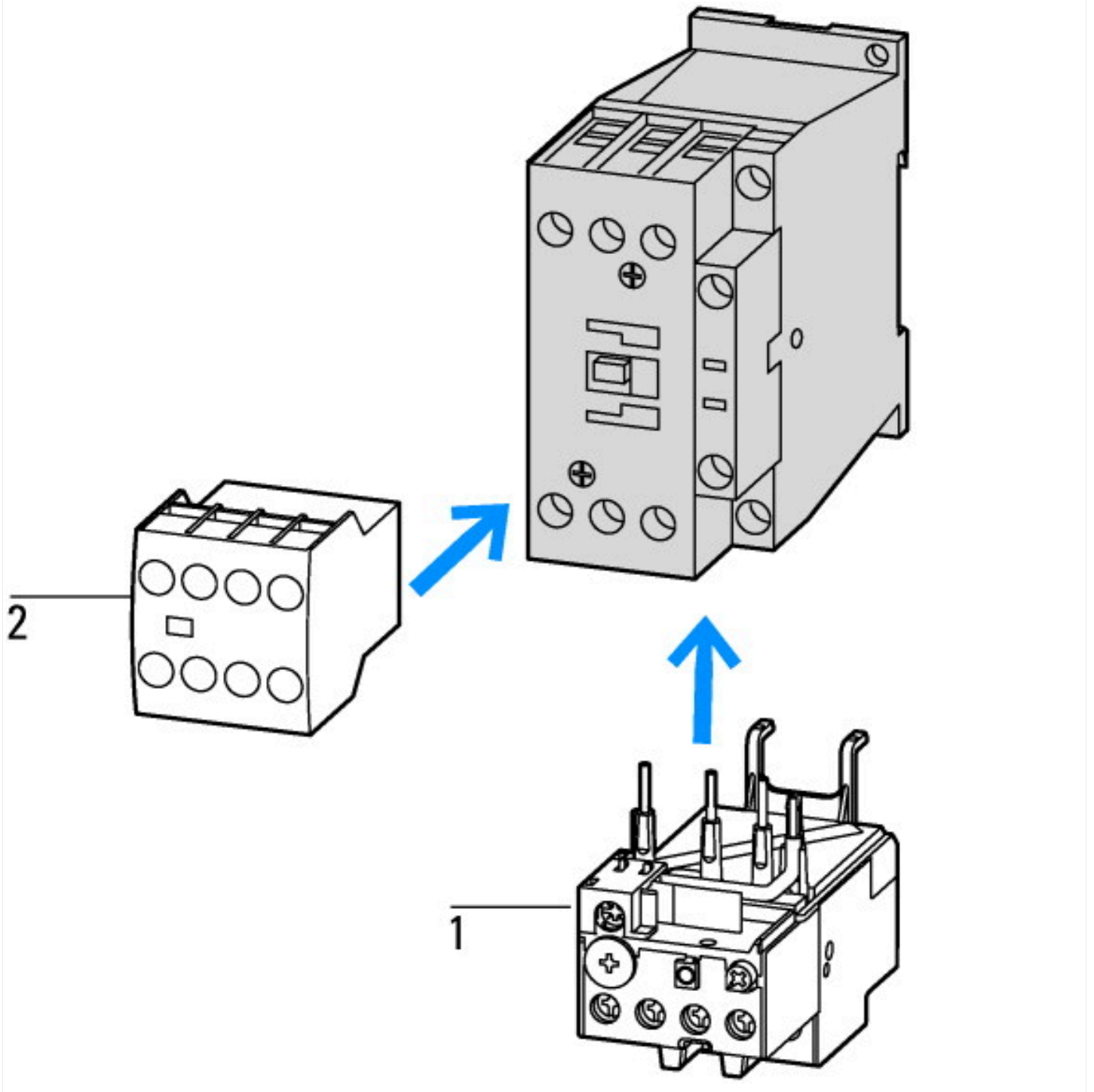
10.2.7 Inscriptions		Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES		Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances		Meets the product standard's requirements.
10.5 Protection against electric shock		Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components		Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections		Is the panel builder's responsibility.
10.8 Connections for external conductors		Is the panel builder's responsibility.
10.9 Insulation properties		
10.9.2 Power-frequency electric strength		Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage		Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material		Is the panel builder's responsibility.
10.10 Temperature rise		The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function		The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 7.0

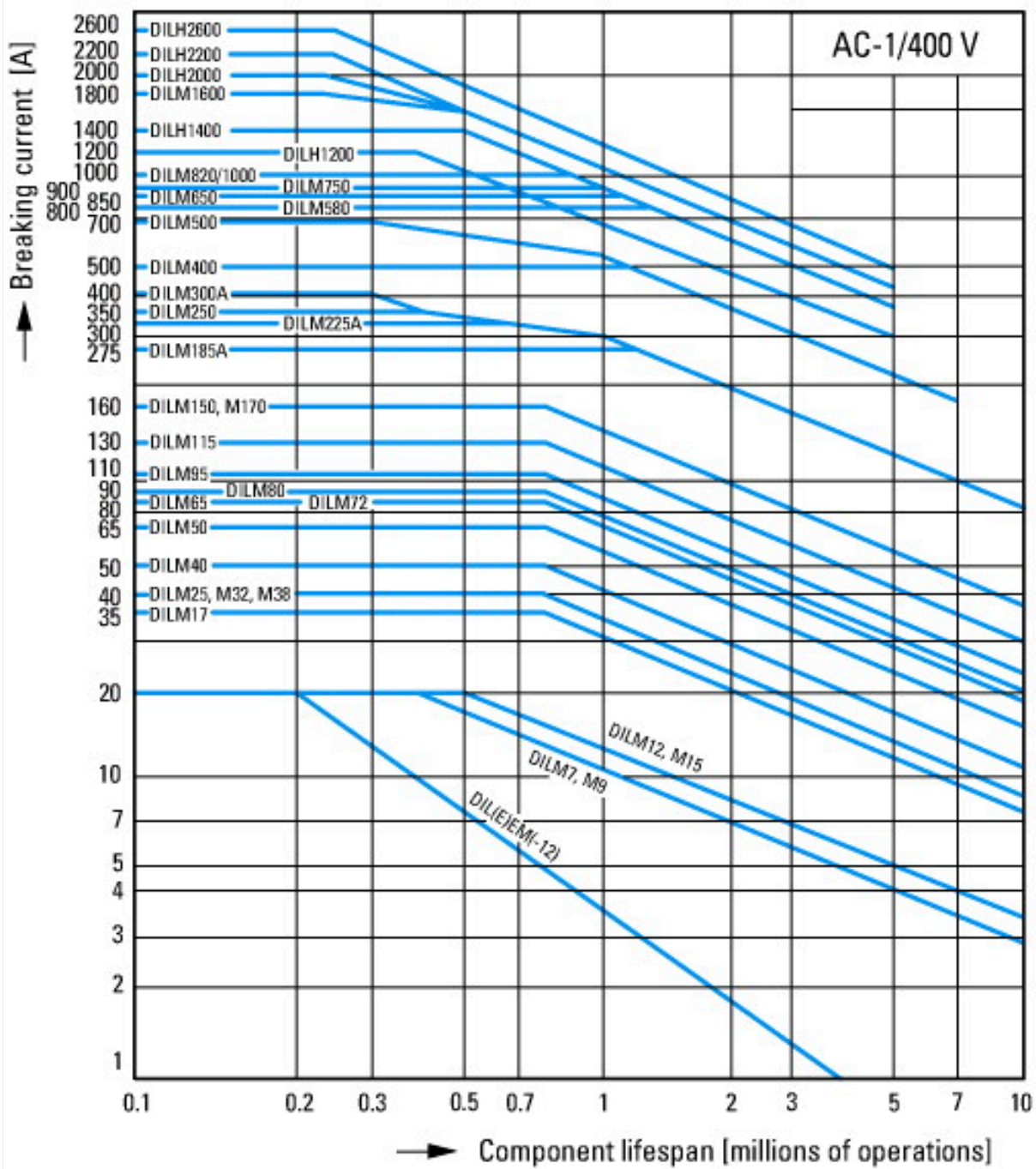
Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015])		
Rated control supply voltage Us at AC 50HZ	V	190 - 240
Rated control supply voltage Us at AC 60HZ	V	190 - 240
Rated control supply voltage Us at DC	V	0 - 0
Voltage type for actuating		AC
Rated operation current Ie at AC-1, 400 V	A	20
Rated operation current Ie at AC-3, 400 V	A	9
Rated operation power at AC-3, 400 V	kW	4
Rated operation current Ie at AC-4, 400 V	A	7
Rated operation power at AC-4, 400 V	kW	3
Rated operation power NEMA	kW	7.4
Modular version		No
Number of auxiliary contacts as normally open contact		1
Number of auxiliary contacts as normally closed contact		0
Type of electrical connection of main circuit		Screw connection
Number of normally closed contacts as main contact		0
Number of main contacts as normally open contact		3

Approvals

Product Standards		IEC/EN 60947-4-1; UL 60947-4-1; CSA - C22.2 No. 60947-4-1-14; CE marking
UL File No.		E29096
UL Category Control No.		NLDX
CSA File No.		012528
CSA Class No.		2411-03, 3211-04
North America Certification		UL listed, CSA certified
Specially designed for North America		No



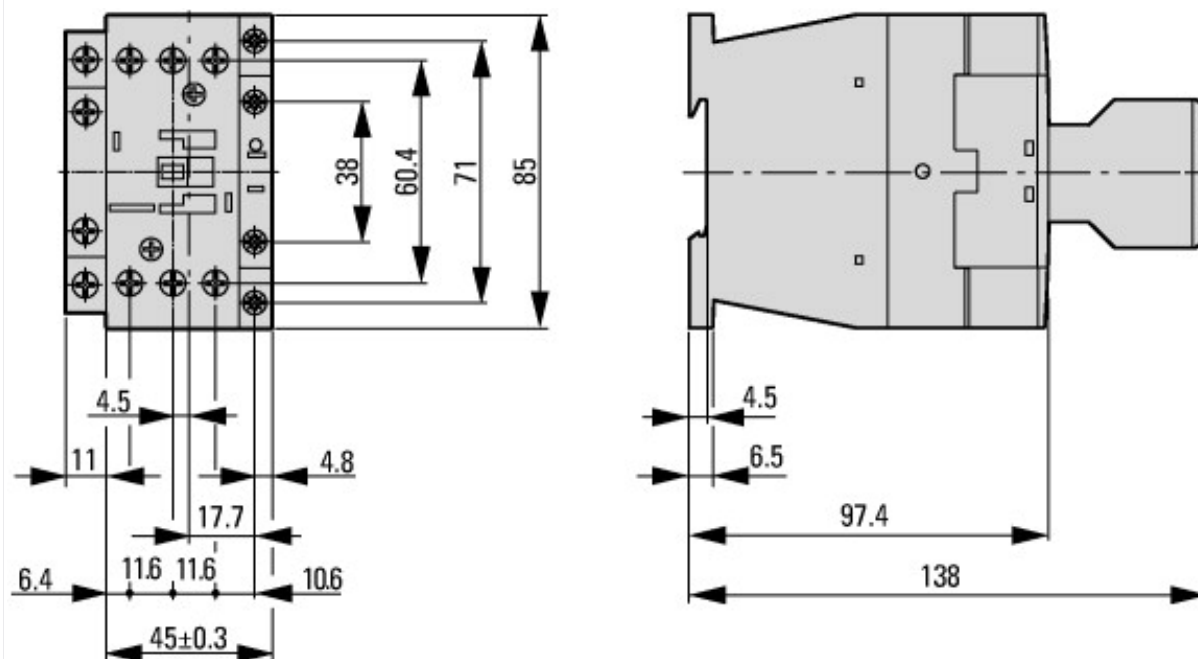
1: Overload relay
2: Auxiliary contact module



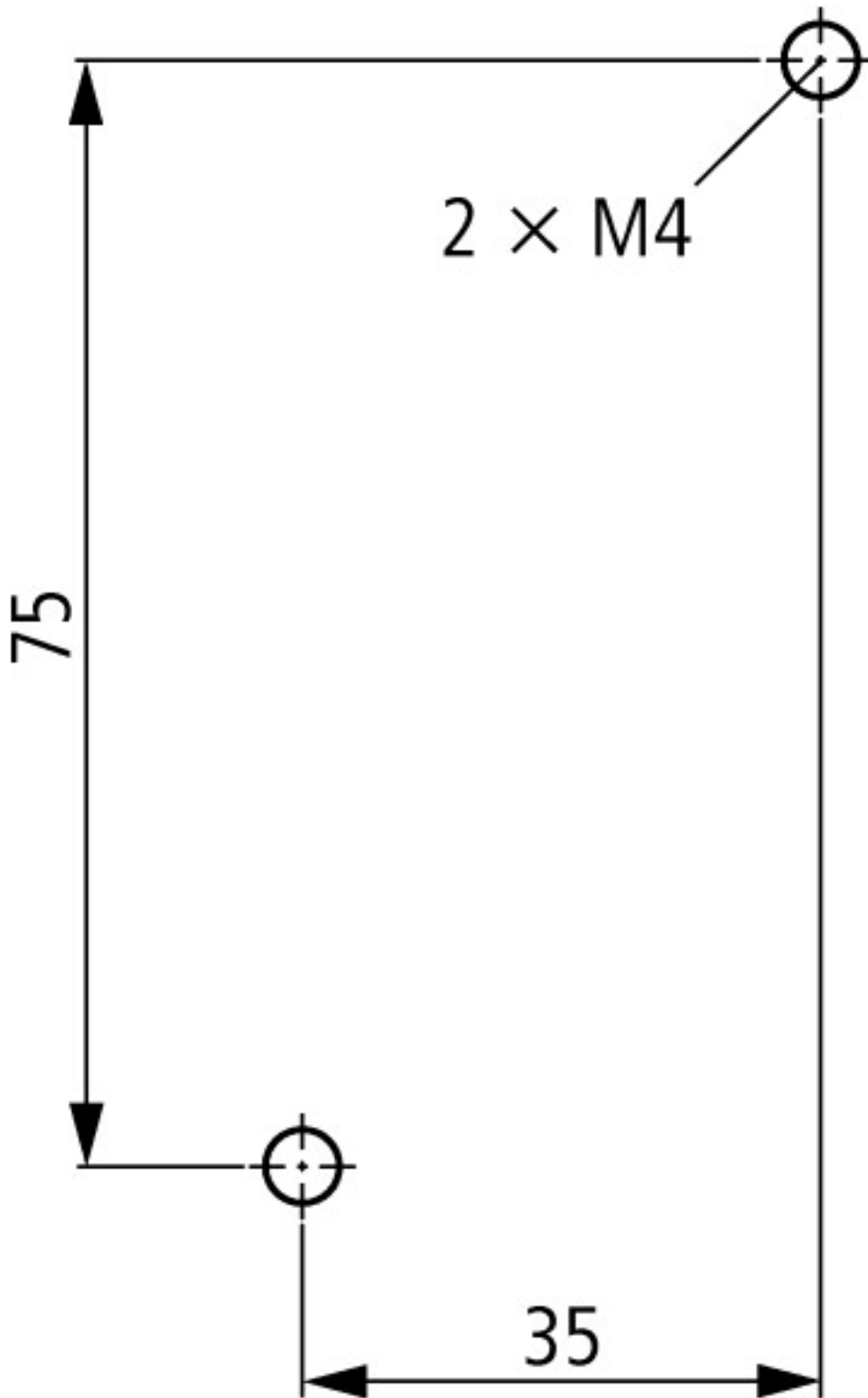
Switching conditions for non-motor consumers, 3 pole, 4 pole
 Operating characteristics
 Non inductive and slightly inductive loads
 Electrical characteristics
 Switch on: 1 x rated operational current
 Switch off: 1 x rated operational current
 Utilization category
 100 % AC-1
 Typical examples of application
 Electric heat



Dimensions



Contactor with auxiliary contact module



distance at side to earthed parts: 6 mm

Assets (links)

Declaration of CE Conformity

00003050

Instruction Leaflets

IL03407014Z2018_07

Additional product information (links)

IL03407014Z (AWA2100-2127) Contactor

IL03407014Z (AWA2100-2127) Contactor	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407014Z2018_07.pdf
Motor starters and "Special Purpose Ratings" for the North American market	http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf
Switchgear of Power Factor Correction Systems	http://www.moeller.net/binary/ver_techpapers/ver934en.pdf

X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely	http://www.moeller.net/binary/ver_techpapers/ver938en.pdf
Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions	http://www.moeller.net/binary/ver_techpapers/ver944en.pdf
Effect of the Cabel Capacitance of Long Control Cables on the Actuation of Contactors	http://www.moeller.net/binary/ver_techpapers/ver949en.pdf
Switchgear for Luminaires	http://www.moeller.net/binary/ver_techpapers/ver955en.pdf
Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts	http://www.moeller.net/binary/ver_techpapers/ver956en.pdf
The Interaction of Contactors with PLCs	http://www.moeller.net/binary/ver_techpapers/ver957en.pdf
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf