



Contactor, 3p+1N/C, 4kW/400V/AC3, large packaging

Part no. **DILEM-01-G-C(24VDC)-GVP**
Article no. **100790**
Catalog No. **XTMCC9A01TD-B**

Delivery program

Product range				Contactors
Application				Mini Contactors for Motors and Resistive Loads
Subrange				DILEM contactors
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				Spring-loaded terminals
Description				With auxiliary contact
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
Max. rating for three-phase motors, 50 - 60 Hz				
AC-3				
220 V 230 V	P	kW		2.2
380 V 400 V	P	kW		4
660 V 690 V	P	kW		4
AC-4				
220 V 230 V	P	kW		1.5
380 V 400 V	P	kW		3
660 V 690 V	P	kW		3
Contacts				
N/C = Normally closed				1 NC
Contact sequence				
For use with				... DILE-C
Actuating voltage				24 V DC
Voltage AC/DC				DC operation

Technical data

General				
Standards				IEC/EN 60947, VDE 0660, CSA, UL
Lifespan, mechanical	Operations	$\times 10^6$		20
Maximum operating frequency				
Mechanical		Ops./h		9000
electrical (Contactors without overload relay)	Operations/h			See characteristic curves
Climatic proofing				Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature				

Open	°C	-25 - +50
Enclosed	°C	-25 - 40
Mounting position		As required, except vertical with terminals A1/A2 at the bottom
Mounting position		
Mechanical shock resistance (IEC/EN 60068-2-27)		
Half-sinusoidal shock, 10 ms		
Basic unit without auxiliary contact module		
Main contacts, make contacts	g	10
Main contacts Make/break contacts	g	10 / 8
Basic unit with auxiliary contact module		
Main contacts make contact	g	
Make	g	10
Auxiliary contacts Make/break contacts	g	20 / 20
Degree of Protection		
IP20		
Protection against direct contact when actuated from front (EN 50274)		
Finger and back-of-hand proof		
Weight		
kg 0.17		
Terminal capacity of auxiliary and main contacts		
Screw terminals		
Solid		
	mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Flexible with ferrule		
	mm ²	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)
Solid or stranded		
	AWG	18 - 14
Terminal screw		
		M3.5
Pozidriv screwdriver		
	Size	2
Standard screwdriver		
	mm	0.8 x 5.5 1 x 6
Max. tightening torque		
	Nm	1.2
Spring-loaded terminals		
Flexible with ferrule		
	mm ²	1 x (1 - 2.5) 2 x (1 - 2.5)
Standard screwdriver		
	mm	0.6 x 3.5
Main conducting paths		
Rated impulse withstand voltage	U _{imp}	V AC 6000
Overvoltage category/pollution degree		III/3
Rated insulation voltage	U _i	V AC 690
Rated operational voltage	U _e	V AC 690
Safe isolation to EN 61140		
between coil and contacts		V AC 300
between the contacts		V AC 300
Making capacity (cos φ to IEC/EN 60947)		
	A	110
Breaking capacity		
220 V 230 V	A	90
380 V 400 V	A	90
500 V	A	64
660 V 690 V	A	42
Short-circuit protection maximum fuse		
Type "2" coordination	gL/gG	A 10

Type "1" coordination	gL/gG	A	20
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	20
at 55 °C	$I_{th} = I_e$	A	19
enclosed	I_{th}	A	16
Notes			
At maximum permissible ambient air temperature.			
Conventional free air thermal current, 1 pole			
Notes			
At maximum permissible ambient air temperature.			
open	I_{th}	A	50
enclosed	I_{th}	A	40
AC-3			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
Notes			
At maximum permissible ambient air temperature.			
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	6.4
660 V 690 V	I_e	A	4.8
Motor rating			
220 V 230 V	P	kWh	
240V	P	kW	2.2
380 V 400 V	P	kW	4
415 V	P	kW	4.3
440 V	P	kW	4.6
500 V	P	kW	4
660 V 690 V	P	kW	4
AC-4			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
Notes			
At maximum permissible ambient air temperature.			
220 V 230 V	I_e	A	6.6
240 V	I_e	A	6.6
380 V 400 V	I_e	A	6.6
415 V	I_e	A	6.6
440 V	I_e	A	6.6
500 V	I_e	A	5
660 V 690 V	I_e	A	3.4
Motor rating			
220 V 230 V	P	kWh	
240 V	P	kW	1.5
380 V 400 V	P	kW	3
415 V	P	kW	3.1
440 V	P	kW	3
500 V	P	kW	3
660 V 690 V	P	kW	3

DC

Rated operational current open			
DC-1			
12 V	I_e	A	20
24 V	I_e	A	20
60 V	I_e	A	20
110 V	I_e	A	20
220 V	I_e	A	20
DC - 3			
12 V	I_e	A	8
24 V	I_e	A	8
60 V	I_e	A	4
110 V	I_e	A	3
DC - 5			
12 V	I_e	A	2.5
24 V	I_e	A	2.5
60 V	I_e	A	2.5
110 V	I_e	A	1.5
220 V	I_e	A	0.3
Current heat losses (3- or 4-pole)			
to I_{th}		W	3.5
at I_e to AC-3/400 V		W	0.7

Magnet systems

Voltage tolerance			
AC operated			
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	Pick-up	$x U_c$	0.8 - 1.1
Dual-frequency coil 50/60 Hz	Pick-up	$x U_c$	0.85 - 1.1
Power consumption			
DC operation			
Power consumption Pick-up = Sealing		VA/W	2.6
Notes			Smoothed DC voltage or three-phase bridge rectifier
Duty factor		% DF	100
Switching times at 100 % U_c			
Make contact		ms	
Closing delay		ms	
Closing delay min.		ms	26
Closing delay max.		ms	35
Opening delay		ms	
Opening delay min.		ms	15
Opening delay max.		ms	25
Closing delay with top mounting auxiliary contact		ms	max. 70
Reversing contactors			
Changeover time at 110 % U_c			
Changeover time min.		ms	40
Changeover time max.		ms	50
Arcing time at 690 V AC		ms	max. 12

Auxiliary contacts

Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module			Yes
Rated impulse withstand voltage	U_{imp}	V AC	6000
Overvoltage category/pollution degree			III/3
Rated insulation voltage	U_i	V AC	690
Rated operational voltage	U_e	V AC	600
Safe isolation to EN 61140			
between coil and auxiliary contacts		V AC	300

between the auxiliary contacts		V AC	300
Rated operational current			
AC-15			
220 V 240 V	I_e	A	6
380 V 415 V	I_e	A	3
500 V	I_e	A	1.5
DC L/R \leq 15 ms			
Contacts in series:		A	
1	24 V	A	2.5
2	60 V	A	2.5
3	100 V	A	1.5
3	220 V	A	0.5
Conv. thermal current	I_{th}	A	10
Control circuit reliability	Failure rate	λ	$<10^{-8}$, < one failure at 100 million operations (at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA)
Component lifespan at $U_e = 240$ V			
AC-15	Operations	$\times 10^6$	0.2
DC current			
L/R = 50 ms: 2 contacts in series at $I_e = 0.5$ A	Operations	$\times 10^6$	0.15
Notes			Switch-on and switch-off conditions based on DC-13, time constant as specified
Short-circuit rating without welding			
Maximum overcurrent protective device			
Short-circuit protection only			PKZM0-4
Short-circuit protection maximum fuse			
500 V		A gG/gL	6
500 V		A fast	10
Current heat loss at a load of I_{th} per contact		W	0.3

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	0.3
Equipment heat dissipation, current-dependent	P_{vid}	W	0.9
Static heat dissipation, non-current-dependent	P_{vs}	W	2.3
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	50
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.

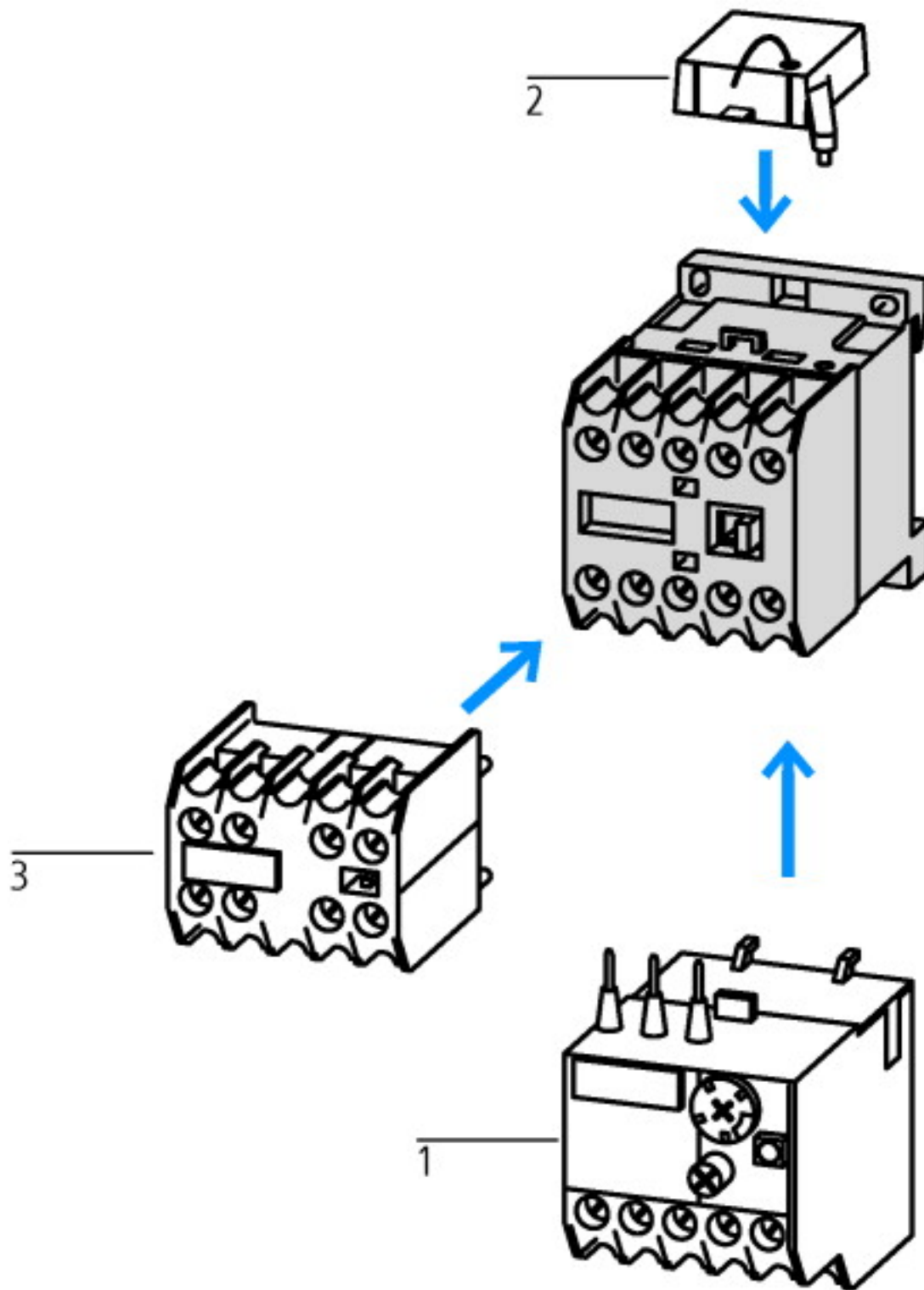
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
10.10 Temperature 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 6.0

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@ss8.1-27-37-10-03 [AAB718012])			
Rated control supply voltage Us at AC 50HZ	V		0 - 0
Rated control supply voltage Us at AC 60HZ	V		0 - 0
Rated control supply voltage Us at DC	V		24 - 24
Voltage type for actuating			DC
Rated operation current Ie at AC-1, 400 V	A		22
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		6.6
Rated operation power Ie at AC-4, 400 V	kW		3
Modular version			No
Number of auxiliary contacts as normally open contact			0
Number of auxiliary contacts as normally closed contact			1
Type of electrical connection of main circuit			Spring clamp 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 508; CSA-C22.2 No. 14-05; CE marking
UL File No.			E29096
UL Category Control No.			NLDX
CSA File No.			012528
CSA Class No.			3211-04
North America Certification			UL listed, CSA certified
Specially designed for North America			No



- 1: Overload relay
 - 2: Suppressor
 - 3: Auxiliary contact modules
- Enclosure totally insulated



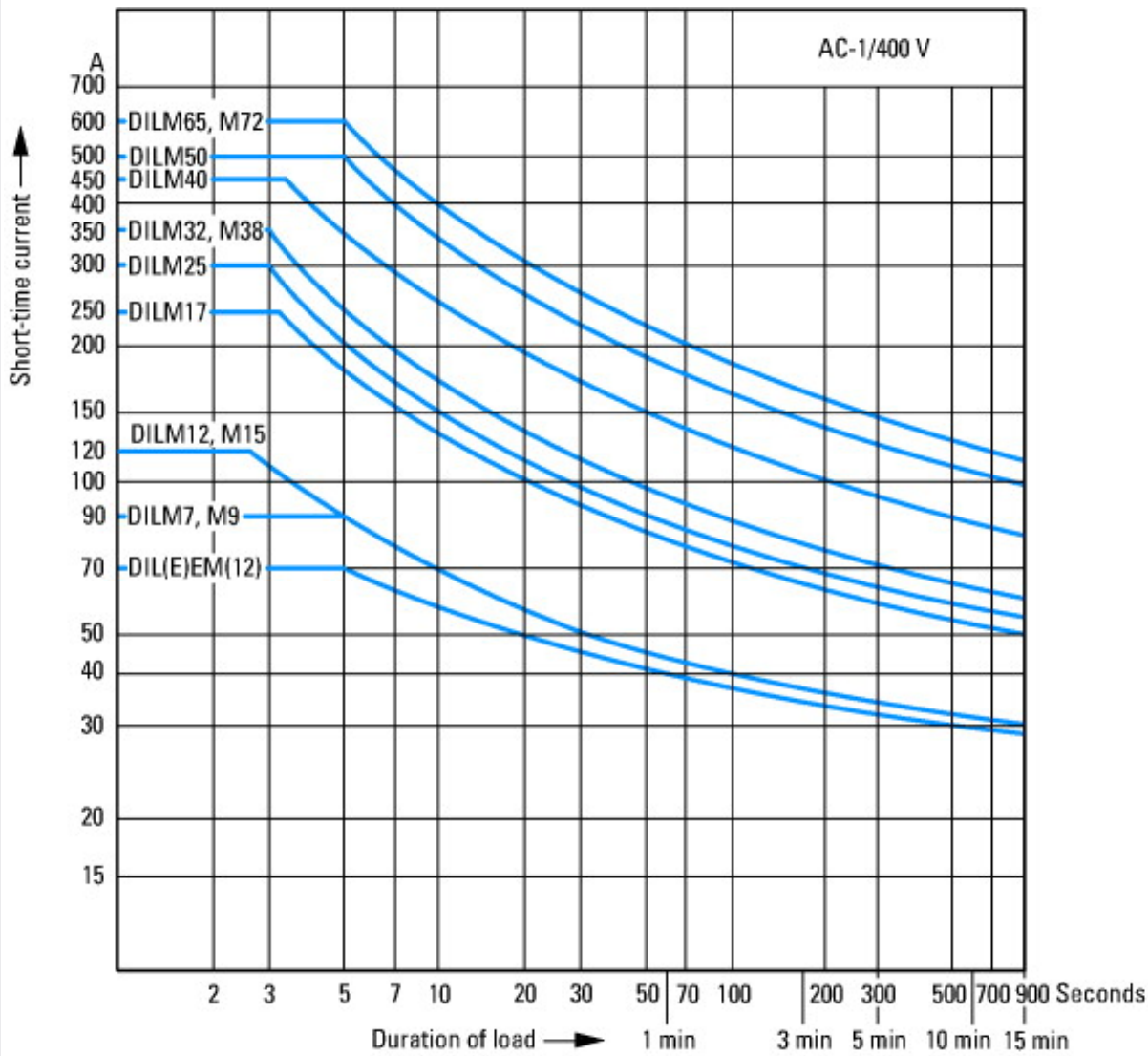
- Squirrel-cage motor
- Operating characteristics
- Starting: from rest
- Stopping: after attaining full running speed
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 1 x rated motor current
- Utilization category
- 100 % AC-3
- Typical applications
- Compressors
- Lifts
- Mixers
- Pumps
- Escalators
- Agitators
- Fans
- Conveyor belts
- Centrifuges
- Hinged flaps
- Bucket-elevators
- Air conditioning system
- General drives in manufacturing and processing machines



- Extreme switching duty
- Squirrel-cage motor
- Operating characteristics
- Inching, plugging, reversing
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 6 x rated motor current
- Utilization category
- 100 % AC-4
- Typical applications
- Printing presses
- Wire-drawing machines
- Centrifuges
- Special drives for manufacturing and processing machines

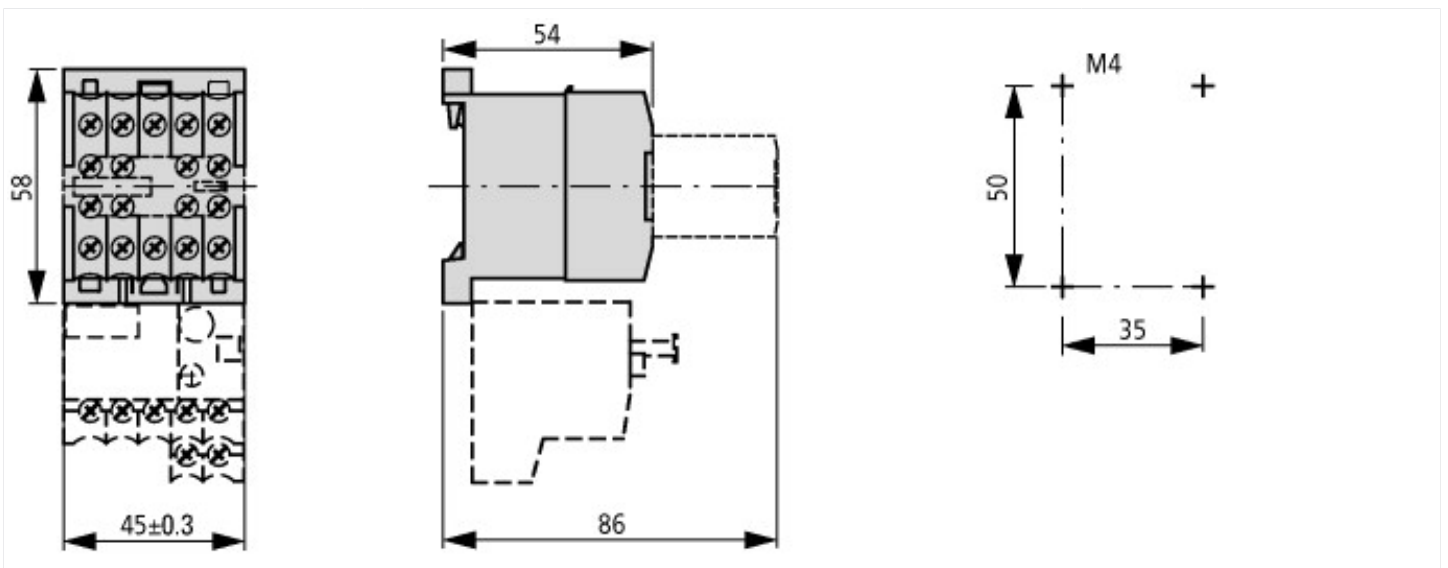


Switching duty for non-motor loads, 3-pole, 4-pole
 Operating characteristics
 Non-inductive or slightly inductive loads
 Electrical characteristics
 Make: 1 x rated current
 Break: 1 x rated current
 Utilization category
 100 % AC-1
 Typical applications
 Electric heat



Short-time loading, 3-pole
 Time interval between two loading cycles: 15 minutes

Dimensions



Additional product information (links)

IL03407009Z (AWA2100-0882) mini contactor relay

IL03407009Z (AWA2100-0882) mini contactor relay

ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407009Z2016_03.pdf

UL/CSA: Approved rating data

<http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&startpage=5.84>

