



**Contactors, 3p, 40HP/600VAC, SEMI F47**

**Part no. DILMF40(RAC240)**  
**Article no. 104461**  
**Catalog No. XTCE040D00B-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
<b>Rated operational current</b>				
AC-3				
380 V 400 V	$I_e$	A		40
AC-1				
Conventional free air thermal current, 3 pole, 50 - 60 Hz				
Open				
at 40 °C	$I_{th} = I_e$	A		60
enclosed	$I_{th}$	A		45
Conventional free air thermal current, 1 pole				
open	$I_{th}$	A		125
enclosed	$I_{th}$	A		112
<b>Max. rating for three-phase motors, 50 - 60 Hz</b>				
AC-3				
220 V 230 V	P	kW		12.5
380 V 400 V	P	kW		18.5
660 V 690 V	P	kW		23
AC-4				
220 V 230 V	P	kW		5
380 V 400 V	P	kW		9
660 V 690 V	P	kW		12
Contact sequence				
Instructions				Contacts to EN 50012. built-in suppressor circuit*

# Technical data

## General

Mounting position					
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## AC

<b>AC-1</b>				
Rated operational current				
Conventional free air thermal current, 3 pole, 50 - 60 Hz				
Open				
at 40 °C	$I_{th} = I_e$	A	60	
at 50 °C	$I_{th} = I_e$	A	57	
at 60 °C	$I_{th} = I_e$	A	50	
enclosed				
	$I_{th}$	A	45	
Conventional free air thermal current, 1 pole				
open				
	$I_{th}$	A	125	
enclosed				
	$I_{th}$	A	112	
<b>AC-3</b>				
Rated operational current				
Open, 3-pole: 50 – 60 Hz				
220 V 230 V	$I_e$	A	40	
240 V	$I_e$	A	40	
380 V 400 V	$I_e$	A	40	
415 V	$I_e$	A	40	
440V	$I_e$	A	40	
500 V	$I_e$	A	40	
660 V 690 V	$I_e$	A	25	
Motor rating				
220 V 230 V	P	kWh	12.5	
240V	P	kW	13.5	
380 V 400 V	P	kW	18.5	
415 V	P	kW	24	
440 V	P	kW	25	
500 V	P	kW	28	
660 V 690 V	P	kW	23	
<b>AC-4</b>				
Open, 3-pole: 50 – 60 Hz				
220 V 230 V	$I_e$	A	18	
240 V	$I_e$	A	18	
380 V 400 V	$I_e$	A	18	
415 V	$I_e$	A	18	
440 V	$I_e$	A	18	
500 V	$I_e$	A	18	
660 V 690 V	$I_e$	A	14	
Motor rating				
220 V 230 V	P	kW	5	
240 V	P	kW	5.5	
380 V 400 V	P	kW	9	
415 V	P	kW	9.5	
440 V	P	kW	10	
500 V	P	kW	11	

660 V 690 V	P	kW	12
<b>Current heat loss</b>			
3-pole at $I_{th}$		W	11.3
Current heat loss at $I_e$ to AC-3/400 V		W	7.2
<b>Magnet systems</b>			
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 $1.0 \times U_c$			
Electronic actuation	Pick-up	VA	45
Electronic actuation	Sealing	VA	1.5
Electronic actuation	Sealing	W	1.5
Duty factor		% DF	100
Operating times			
Closing delay		ms	50
Opening delay		ms	45
-suitable according to			SEMI F47
<b>Electromagnetic compatibility (EMC)</b>			
Emitted interference			according to EN 60947-1
Interference immunity			according to EN 60947-1
<b>Additional technical data</b>			
like the contactor	DIL		M40

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	40
Heat dissipation per pole, current-dependent	$P_{vid}$	W	2.2
Equipment heat dissipation, current-dependent	$P_{vid}$	W	6.6
Static heat dissipation, non-current-dependent	$P_{vs}$	W	1.3
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 Verification of thermal stability of enclosures			
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			
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			
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.

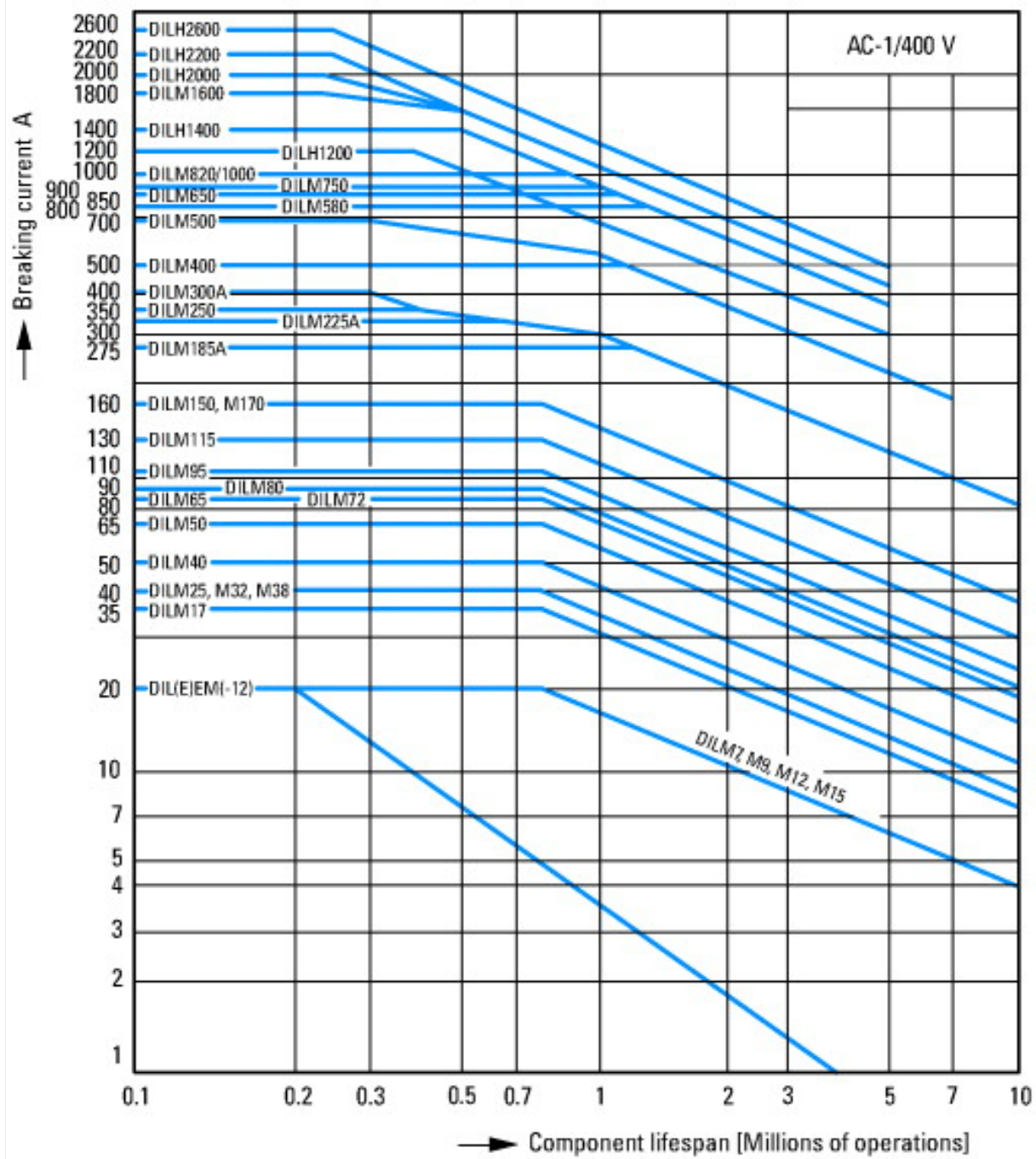
## Technical data ETIM 6.0

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	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	60
Rated operation current Ie at AC-3, 400 V	A	40
Rated operation power at AC-3, 400 V	kW	18.5
Rated operation current Ie at AC-4, 400 V	A	18
Rated operation power Ie at AC-4, 400 V	kW	9
Modular version		No
Number of auxiliary contacts as normally open contact		0
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

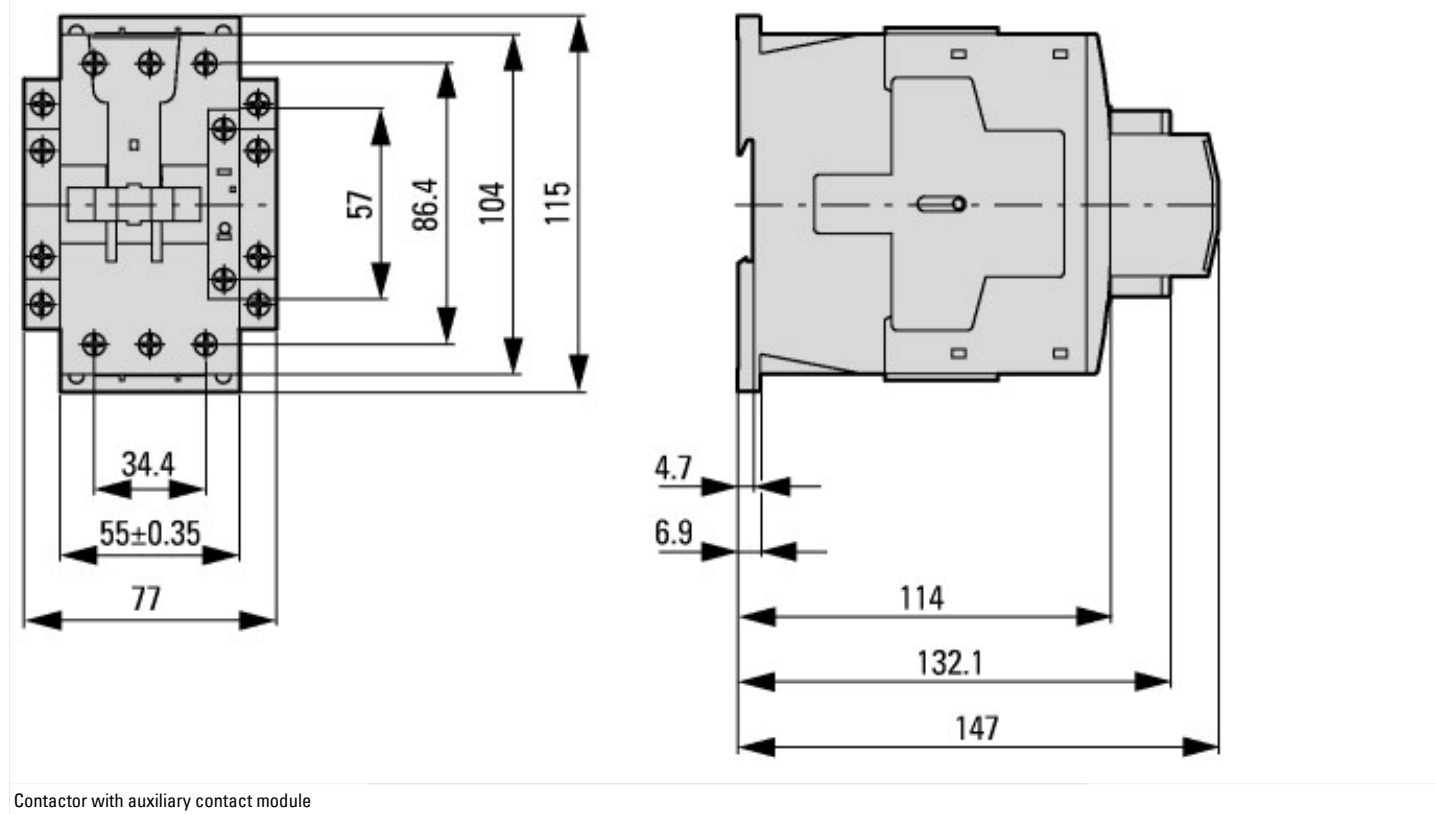
Product Standards		IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.		E29096
UL Category Control No.		NLDX
CSA File No.		012528
CSA Class No.		2411-03, 3211-04
North America Certification		UL listed, CSA certified
Specially designed for North America		No

# Characteristics

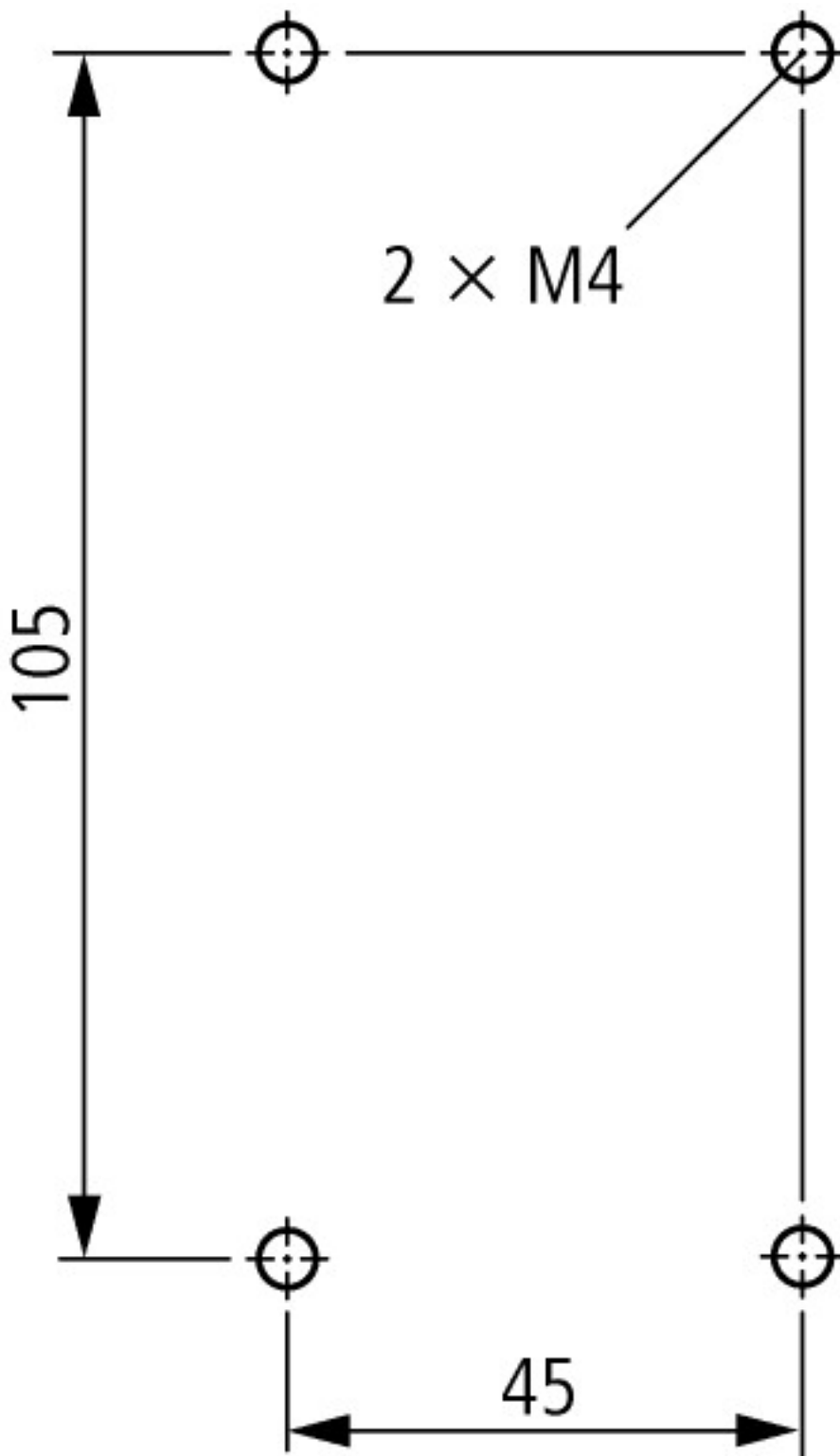


Switching conditions for non-motor consumers, 3 pole, 4 pole  
 Operating characteristics  
 Non inductive and slightly inductive loads  
 Electrical characteristics  
 Switch on: 1 x rated operational current  
 Switch off: 1 x rated operational current  
 Utilization category  
 100 % AC-1  
 Typical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

## Dimensions



Contacteur avec module de contact auxiliaire



Lateral clearance to earthed parts: 6 mm

## Additional product information (links)

### IL03407033Z (AWA2100-2247) Contactor DILM, basic unit

IL03407033Z (AWA2100-2247) Contactor DILM, basic unit [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03407033Z2012\\_03.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407033Z2012_03.pdf)

Switchgear of Power Factor Correction Systems [http://www.moeller.net/binary/ver\\_techpapers/ver934en.pdf](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](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](http://www.moeller.net/binary/ver_techpapers/ver944en.pdf)

Effect of the Cable Capacitance of Long Control Cables on the Actuation of Contactors [http://www.moeller.net/binary/ver\\_techpapers/ver949en.pdf](http://www.moeller.net/binary/ver_techpapers/ver949en.pdf)

Motor starters and "Special Purpose Ratings" for the North American market [http://www.moeller.net/binary/ver\\_techpapers/ver953en.pdf](http://www.moeller.net/binary/ver_techpapers/ver953en.pdf)

Switchgear for Luminaires [http://www.moeller.net/binary/ver\\_techpapers/ver955en.pdf](http://www.moeller.net/binary/ver_techpapers/ver955en.pdf)

Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts	<a href="http://www.moeller.net/binary/ver_techpapers/ver956en.pdf">http://www.moeller.net/binary/ver_techpapers/ver956en.pdf</a>
The Interaction of Contactors with PLCs	<a href="http://www.moeller.net/binary/ver_techpapers/ver957en.pdf">http://www.moeller.net/binary/ver_techpapers/ver957en.pdf</a>
Busbar Component Adapters for modern Industrial control panels	<a href="http://www.moeller.net/binary/ver_techpapers/ver960en.pdf">http://www.moeller.net/binary/ver_techpapers/ver960en.pdf</a>