


Contactor, 3 pole, 380 V 400 V 5.5 kW, 1 N/O, 230 V 50 Hz, 240 V 60 Hz, AC operation, Push in terminals



Part no. DILM12-10(230V50HZ,240V60HZ)-PI  
 Catalog No. 199239  
 Alternate Catalog No. XTCEPI012B10F  
 EL-Nummer (Norway) 4190470

**Delivery program**

Product range			Contactors
Application			Contactors for Motors
Subrange			Contactors up to 95 A, 3 pole
Utilization category			AC-1: Non-inductive or slightly inductive loads, resistance furnaces AC-3/AC-3e: Normal AC induction motors: Starting, switching off while running AC-4: Normal AC induction motors: starting, plugging, reversing, inching
Notes			 Also suitable for motors with efficiency class IE3.
Connection technique			Push in terminals
Number of poles			3 pole

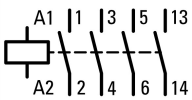
**Rated operational current**

AC-3			
Notes			At maximum permissible ambient temperature (open.) Also tested according to AC-3e.
380 V 400 V	$I_e$	A	12
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	3.5
380 V 400 V	P	kW	5.5
660 V 690 V	P	kW	6.5
AC-4			
220 V 230 V	P	kW	2
380 V 400 V	P	kW	3
660 V 690 V	P	kW	4.4

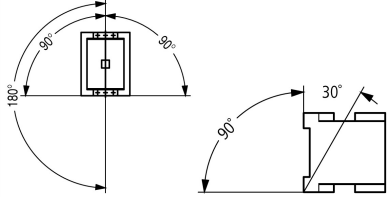
**Contacts**

N/O = Normally open			1 N/O
Contact sequence			
Can be combined with auxiliary contact			DILA-XHI(V)...-PI DILA-XHI...-S-PI DILM12-XHI...-PI DILM32-XHI...-PI
Actuating voltage			230 V 50 Hz, 240 V 60 Hz
Voltage AC/DC			AC operation
Connection to SmartWire-DT			no

<b>Instructions</b>		Contacts to EN 50 012.
Frame size		1

## Technical data

### General

Standards		IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical		
AC operated	Operations	$\times 10^6$ 10
Operating frequency, mechanical		
AC operated	Operations/h	9000
Climatic proofing		Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature		
Open	°C	-25 - +60
Enclosed	°C	-25 - 40
Storage	°C	-40 - 80
Mounting position		
Mechanical shock resistance (IEC/EN 60068-2-27)		
Half-sinusoidal shock, 10 ms		
Main contacts		
N/O contact	g	10
Auxiliary contacts		
N/O contact	g	7
N/C contact	g	5
Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mounted		
Half-sinusoidal shock, 10 ms		
Main contacts		
N/O contact	g	5.7
Auxiliary contacts		
N/O contact	g	3.4
N/C contact	g	3.4
Degree of Protection		IP20
Protection against direct contact when actuated from front (EN 50274)		Finger and back-of-hand proof
Altitude	m	Max. 2000
Weight		
AC operated	kg	0.24
Spring-loaded terminal connection		
Tool		
Standard screwdriver		3.0 x 0.5
Push-in terminals		
Terminal capacity main cable		
Solid	mm <sup>2</sup>	1 x (0,5 - 2,5) 2 x (0,5 - 2,5)
flexible	mm <sup>2</sup>	1 x (0,5 - 2,5) 2 x (0,5 - 2,5)
flexible with ferrules	mm <sup>2</sup>	1 x (0,5 - 1,5) 2 x (0,5 - 1,5)
flexible with ultrasonic welded busbar end	mm <sup>2</sup>	1 x (0,5 - 2,5) 2 x (0,5 - 2,5)
flexible with uninsulated wire end ferrule	mm <sup>2</sup>	1 x (1 - 6) 2 x (1 - 6)
Solid or stranded	AWG	20 - 14
Stripping length	mm	10

Standard screwdriver			3.0 x 0.5
Terminal capacity control circuit cables			
Solid		mm <sup>2</sup>	1 x (0,5 - 2,5) 2 x (0,5 - 2,5)
flexible		mm <sup>2</sup>	1 x (0,5 - 2,5) 2 x (0,5 - 2,5)
flexible with ferrules		mm <sup>2</sup>	1 x (0,5 - 1,5) 2 x (0,5 - 1,5)
flexible with ultrasonic welded busbar end		mm <sup>2</sup>	1 x (0,5 - 2,5) 2 x (0,5 - 2,5)
flexible with uninsulated wire end ferrule		mm <sup>2</sup>	1 x (0,5 - 2,5) 2 x (0,5 - 2,5)
Solid or stranded		AWG	20 - 14
Stripping length		mm	10
Tool			
Standard screwdriver		mm	3.0 x 0.5

### 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	400
between the contacts		V AC	400
Making capacity (p.f. to IEC/EN 60947)			
	$U_p$ to 690 V	A	144
Breaking capacity			
220 V 230 V		A	120
380 V 400 V		A	120
500 V		A	100
660 V 690 V		A	70
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	20
690 V	gG/gL 690 V	A	20
Type "1" coordination			
400 V	gG/gL 500 V	A	35
690 V	gG/gL 690 V	A	25

### 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 55 °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.) Also tested according to AC-3e.

220 V 230 V	$I_e$	A	12
240 V	$I_e$	A	12
380 V 400 V	$I_e$	A	12
415 V	$I_e$	A	12
440V	$I_e$	A	12
500 V	$I_e$	A	10
660 V 690 V	$I_e$	A	7
Motor rating	P	kWh	
220 V 230 V	P	kW	3.5
240V	P	kW	4
380 V 400 V	P	kW	5.5
415 V	P	kW	7
440 V	P	kW	7.5
500 V	P	kW	7
660 V 690 V	P	kW	6.5
AC-4			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	$I_e$	A	7
240 V	$I_e$	A	7
380 V 400 V	$I_e$	A	7
415 V	$I_e$	A	7
440 V	$I_e$	A	7
500 V	$I_e$	A	6
660 V 690 V	$I_e$	A	5
Motor rating	P	kWh	
220 V 230 V	P	kW	2
240 V	P	kW	2.2
380 V 400 V	P	kW	3
415 V	P	kW	3.4
440 V	P	kW	3.6
500 V	P	kW	3.5
660 V 690 V	P	kW	4.4

### Current heat loss

3 pole, at $I_{th}$ (60°)		W	2.5
Current heat loss at $I_e$ to AC-3/400 V		W	0.9
Impedance per pole		mΩ	2.5

### Magnet systems

Voltage tolerance			
AC operated	Pick-up	$x U_c$	0.8 - 1.1
Drop-out voltage AC operated	Drop-out	$x U_c$	0.3 - 0.6
Power consumption of the coil in a cold state and $1.0 \times U_S$			
50 Hz	Pick-up	VA	24
50 Hz	Sealing	VA	3.4
50 Hz	Sealing	W	1.4
60 Hz	Pick-up	VA	30
60 Hz	Sealing	VA	4.4
60 Hz	Sealing	W	1.4
Duty factor		% DF	100
Changeover time at 100 % $U_S$ (recommended value)			
Main contacts			
AC operated			
Closing delay		ms	15 - 21
Opening delay		ms	9 - 18
Arcing time		ms	10

## Electromagnetic compatibility (EMC)

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

## Rating data for approved types

Switching capacity			
Maximum motor rating			
Three-phase			
200 V 208 V		HP	3
230 V 240 V		HP	3
460 V 480 V		HP	10
575 V 600 V		HP	10
Single-phase			
115 V 120 V		HP	1
230 V 240 V		HP	2
General use		A	20
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		SCCR	
Basic Rating			
SCCR		kA	5
max. Fuse		A	45
max. CB		A	60
480 V High Fault			
SCCR (fuse)		kA	30/100
max. Fuse		A	25 Class RK5/45 Class J
600 V High Fault			
SCCR (fuse)		kA	30/100
max. Fuse		A	25 Class RK5/45 Class J
Special Purpose Ratings			
Electrical Discharge Lamps (Ballast)			
480V 60Hz 3phase, 277V 60Hz 1phase		A	20
600V 60Hz 3phase, 347V 60Hz 1phase		A	20
Incandescent Lamps (Tungsten)			
480V 60Hz 3phase, 277V 60Hz 1phase		A	14
600V 60Hz 3phase, 347V 60Hz 1phase		A	14
Resistance Air Heating			
480V 60Hz 3phase, 277V 60Hz 1phase		A	20
600V 60Hz 3phase, 347V 60Hz 1phase		A	20
Refrigeration Control (CSA only)			
LRA 480V 60Hz 3phase		A	60
FLA 480V 60Hz 3phase		A	10
LRA 600V 60Hz 3phase		A	60
FLA 600V 60Hz 3phase		A	10
Definite Purpose Ratings (100,000 cycles acc. to UL 1995)			
LRA 480V 60Hz 3phase		A	72

FLA 480V 60Hz 3phase	A	12
Elevator Control		
200V 60Hz 3phase	HP	2
200V 60Hz 3phase	A	7.8
240V 60Hz 3phase	HP	2
240V 60Hz 3phase	A	6.8
480V 60Hz 3phase	HP	7.5
480V 60Hz 3phase	A	11
600V 60Hz 3phase	HP	7.5
600V 60Hz 3phase	A	9

## Design verification as per IEC/EN 61439

Technical data for design verification		
Operating ambient temperature min.	°C	-25
Operating ambient temperature max.	°C	60

## Technical data ETIM 8.0

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	230 - 230
Rated control supply voltage Us at AC 60HZ	V	240 - 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	22
Rated operation current Ie at AC-3, 400 V	A	12
Rated operation power at AC-3, 400 V	kW	5.5
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	0
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		Spring clamp connection
Number of normally closed contacts as main contact		0
Number of normally open contacts as main 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

## Characteristics

1: Overload relay
2: Suppressor
3: Auxiliary contact modules
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

### Additional product information (links)

Motor starters and "Special Purpose Ratings" for the North American market	<a href="http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf">http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf</a>
Switchgear of Power Factor Correction Systems	<a href="http://www.moeller.net/binary/ver_techpapers/ver934en.pdf">http://www.moeller.net/binary/ver_techpapers/ver934en.pdf</a>
X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely	<a href="http://www.moeller.net/binary/ver_techpapers/ver938en.pdf">http://www.moeller.net/binary/ver_techpapers/ver938en.pdf</a>
Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions	<a href="http://www.moeller.net/binary/ver_techpapers/ver944en.pdf">http://www.moeller.net/binary/ver_techpapers/ver944en.pdf</a>
Effect of the Cable Capacitance of Long Control Cables on the Actuation of Contactors	<a href="http://www.moeller.net/binary/ver_techpapers/ver949en.pdf">http://www.moeller.net/binary/ver_techpapers/ver949en.pdf</a>
Switchgear for Luminaires	<a href="http://www.moeller.net/binary/ver_techpapers/ver955en.pdf">http://www.moeller.net/binary/ver_techpapers/ver955en.pdf</a>
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>