

**Contactor, 3 pole, 380 V 400 V 4 kW, 1 NC, 110 V 50 Hz, 120 V 60 Hz, AC operation, Push in terminals**



**Part no. DILM9-01(110V50HZ,120V60HZ)-PI**  
**Catalog No. 199235**  
**Alternate Catalog No. XTCEPI009B01A**

**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

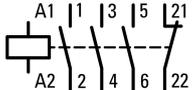
**Rated operational current**

AC-3			
Notes			At maximum permissible ambient temperature (open.) Also tested according to AC-3e.
380 V 400 V	$I_e$	A	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/C = Normally closed			1 NC
Contact sequence			

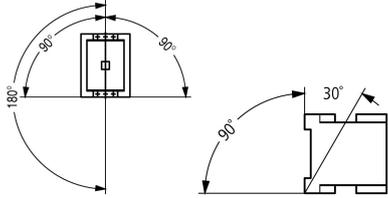
**Instructions**

Can be combined with auxiliary contact			DILM12-XHI...-PI DILM32-XHI...-PI DILA-XHI(V)...-PI
Actuating voltage			110 V 50 Hz, 120 V 60 Hz
Voltage AC/DC			AC operation
Connection to SmartWire-DT			no

Frame size		1
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## Technical data

### General

Standards			IEC/EN 60947, VDE 0660, UL, CSA
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 <sub>imp</sub>	V AC	6000
Overvoltage category/pollution degree			III/3
Rated insulation voltage	U <sub>i</sub>	V AC	690
Rated operational voltage	U <sub>e</sub>	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)			
	Up to 690 V	A	112
Breaking capacity			
220 V 230 V		A	90
380 V 400 V		A	90
500 V		A	70
660 V 690 V		A	50
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	16
Type "1" coordination			
400 V	gG/gL 500 V	A	35
690 V	gG/gL 690 V	A	20

### AC

AC-1			
Rated operational current			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	I <sub>th</sub> = I <sub>e</sub>	A	22
at 50 °C	I <sub>th</sub> = I <sub>e</sub>	A	21
at 55 °C	I <sub>th</sub> = I <sub>e</sub>	A	21
at 60 °C	I <sub>th</sub> = I <sub>e</sub>	A	20
enclosed	I <sub>th</sub>	A	18
Conventional free air thermal current, 1 pole			
open	I <sub>th</sub>	A	50
enclosed	I <sub>th</sub>	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 <sub>e</sub>	A	9
240 V	I <sub>e</sub>	A	9
380 V 400 V	I <sub>e</sub>	A	9
415 V	I <sub>e</sub>	A	9

440V	I <sub>e</sub>	A	9
500 V	I <sub>e</sub>	A	7
660 V 690 V	I <sub>e</sub>	A	5
Motor rating	P	kWh	
220 V 230 V	P	kW	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 <sub>e</sub>	A	6
240 V	I <sub>e</sub>	A	6
380 V 400 V	I <sub>e</sub>	A	6
415 V	I <sub>e</sub>	A	6
440 V	I <sub>e</sub>	A	6
500 V	I <sub>e</sub>	A	5
660 V 690 V	I <sub>e</sub>	A	4.5
Motor rating	P	kWh	
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 <sub>th</sub> (60°)		W	3
Current heat loss at I <sub>e</sub> to AC-3/400 V		W	0.6
Impedance per pole		mΩ	2.5

### Magnet systems

Voltage tolerance			
AC operated	Pick-up	x U <sub>c</sub>	0.8 - 1.1
Drop-out voltage AC operated	Drop-out	x U <sub>c</sub>	0.3 - 0.6
Power consumption of the coil in a cold state and 1.0 x U <sub>S</sub>			
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 <sub>S</sub> (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			
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Maximum motor rating		
Three-phase		
200 V 208 V	HP	3
230 V 240 V	HP	3
460 V 480 V	HP	5
575 V 600 V	HP	7.5
Single-phase		
115 V 120 V	HP	0.5
230 V 240 V	HP	1.5
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		
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 RK5/20 Class J
SCCR (CB)	kA	65
max. CB	A	16
600 V High Fault		
SCCR (fuse)	kA	30/100
max. Fuse	A	25 Class RK5/20 Class J
Special Purpose Ratings		
Electrical Discharge Lamps (Ballast)		
480V 60Hz 3phase, 277V 60Hz 1phase	A	18
600V 60Hz 3phase, 347V 60Hz 1phase	A	18
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	18
600V 60Hz 3phase, 347V 60Hz 1phase	A	18
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	54
FLA 480V 60Hz 3phase	A	9
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	3
480V 60Hz 3phase	A	4.8
600V 60Hz 3phase	HP	5
600V 60Hz 3phase	A	6.1

## 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 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	110 - 110
Rated control supply voltage Us at AC 60HZ	V	120 - 120
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	9
Rated operation power at AC-3, 400 V	kW	4
Rated operation current Ie at AC-4, 400 V	A	6
Rated operation power at AC-4, 400 V	kW	2.5
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 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

## 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

