

Contactor, 3 pole, 380 V 400 V 3 kW, 1 N/O, 24 V DC, DC operation, Push in terminals



Part no. DILM7-10(24VDC)-PI  
 Catalog No. 199223  
 Alternate Catalog No. XTCEPI007B10TD  
 EL-Nummer (Norway) 4190432

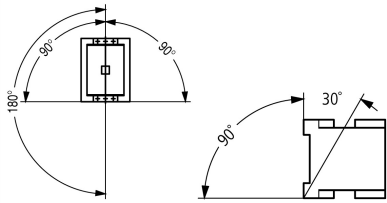
**Delivery program**

Product range				Contactors
Application				Contactors for Motors
Subrange				Contactors up to 170 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
<b>Rated operational current</b>				
AC-3				
Notes				At maximum permissible ambient temperature (open.) Also tested according to AC-3e.
380 V 400 V	$I_e$	A		7
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
<b>Max. rating for three-phase motors, 50 - 60 Hz</b>				
AC-3				
220 V 230 V	P	kW		2.2
380 V 400 V	P	kW		3
660 V 690 V	P	kW		3.5
AC-4				
220 V 230 V	P	kW		1
380 V 400 V	P	kW		2.2
660 V 690 V	P	kW		2.9
<b>Contacts</b>				
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				24 V DC
Voltage AC/DC				DC operation
Connection to SmartWire-DT				yes in conjunction with DIL-SWD SmartWire DT contactor module
Instructions				Contacts to EN 50 012. Integrated varistor suppressor circuit.

Frame size		1
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## Technical data

### General

Standards			IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical			
DC operated	Operations	$\times 10^6$	10
Operating frequency, mechanical			
DC 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			
DC operated		kg	0.285
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	112
Breaking capacity			
220 V 230 V		A	70
380 V 400 V		A	70
500 V		A	50
660 V 690 V		A	40
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	$I_{th} = I_e$	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	7

240 V	I <sub>e</sub>	A	7
380 V 400 V	I <sub>e</sub>	A	7
415 V	I <sub>e</sub>	A	7
440V	I <sub>e</sub>	A	7
500 V	I <sub>e</sub>	A	5
660 V 690 V	I <sub>e</sub>	A	4
Motor rating	P	kWh	
220 V 230 V	P	kW	2.2
240V	P	kW	2.2
380 V 400 V	P	kW	3
415 V	P	kW	4
440 V	P	kW	4.5
500 V	P	kW	3.5
660 V 690 V	P	kW	3.5
AC-4			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I <sub>e</sub>	A	5
240 V	I <sub>e</sub>	A	5
380 V 400 V	I <sub>e</sub>	A	5
415 V	I <sub>e</sub>	A	5
440 V	I <sub>e</sub>	A	5
500 V	I <sub>e</sub>	A	4.5
660 V 690 V	I <sub>e</sub>	A	4
Motor rating	P	kWh	
220 V 230 V	P	kW	1
240 V	P	kW	1.5
380 V 400 V	P	kW	2.2
415 V	P	kW	2.3
440 V	P	kW	2.4
500 V	P	kW	2.5
660 V 690 V	P	kW	2.9

### Current heat loss

3 pole, at I <sub>th</sub> (60°)		W	4.5
Current heat loss at I <sub>e</sub> to AC-3/400 V		W	0.3
Impedance per pole		mΩ	4.6

### Magnet systems

Voltage tolerance			
DC operated	Pick-up	x U <sub>c</sub>	0.8 - 1.1
Notes			0.85 - 1.1 only with auxiliary contact module with 3 or more N/C contacts 0.7 – 1.3 without auxiliary contact module and at ambient air temperature + +40 °C
DC operated	Drop-out	x U <sub>c</sub>	0.15 - 0.6
Notes			at least smoothed two-phase bridge rectifier or three-phase rectifier
Power consumption of the coil in a cold state and 1.0 x U <sub>S</sub>			
DC operated	Pick-up	W	3
DC operated	Sealing	W	3
Duty factor		% DF	100
Changeover time at 100 % U <sub>S</sub> (recommended value)			
Main contacts			
DC operated		ms	
Closing delay		ms	
Closing delay		ms	31
Opening delay		ms	
Opening delay		ms	12
Arcing time		ms	10

## Electromagnetic compatibility (EMC)

Emitted interference			According to EN 60947-1
Interference immunity			According to EN 60947-1
<b>Rating data for approved types</b>			
<b>Switching capacity</b>			
Maximum motor rating			
Three-phase			
200 V 208 V		HP	1.5
230 V 240 V		HP	2
460 V 480 V		HP	3
575 V 600 V		HP	5
Single-phase			
115 V 120 V		HP	0.25
230 V 240 V		HP	1
General use		A	20
<b>Auxiliary contacts</b>			
Pilot Duty			
AC operated			A600
DC operated			P300
General Use			
AC		V	600
AC		A	10
DC		V	250
DC		A	1
<b>Short Circuit Current Rating</b>			
			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 RK5/20 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
<b>Special Purpose Ratings</b>			
<b>Electrical Discharge Lamps (Ballast)</b>			
480V 60Hz 3phase, 277V 60Hz 1phase		A	12
600V 60Hz 3phase, 347V 60Hz 1phase		A	12
<b>Incandescent Lamps (Tungsten)</b>			
480V 60Hz 3phase, 277V 60Hz 1phase		A	14
600V 60Hz 3phase, 347V 60Hz 1phase		A	14
<b>Resistance Air Heating</b>			
480V 60Hz 3phase, 277V 60Hz 1phase		A	12
600V 60Hz 3phase, 347V 60Hz 1phase		A	12
<b>Refrigeration Control (CSA only)</b>			
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	42
FLA 480V 60Hz 3phase	A	7
Elevator Control		
200V 60Hz 3phase	HP	0.75
200V 60Hz 3phase	A	3.7
240V 60Hz 3phase	HP	1.5
240V 60Hz 3phase	A	6
480V 60Hz 3phase	HP	2
480V 60Hz 3phase	A	3.4
600V 60Hz 3phase	HP	3
600V 60Hz 3phase	A	3.9

## 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	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	7
Rated operation power at AC-3, 400 V	kW	3
Rated operation current Ie at AC-4, 400 V	A	5
Rated operation power at AC-4, 400 V	kW	2.2
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>