

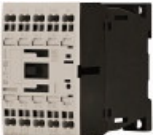
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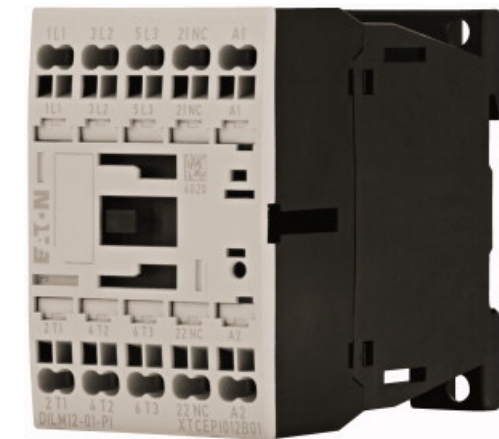


DILM12-01(220V50/60HZ)-PI - Contactor, 3 pole, 380 V 400 V 5.5 kW, 1 NC, 220 V 50/60 Hz, AC operation, Push in terminals



199653 DILM12-01(220V50/60HZ)-PI

[Overview](#) [Specifications](#) [Resources](#)



## 199653 DILM12-01(220V50/60HZ)-PI

Contactor, 3 pole, 380 V 400 V 5.5 kW, 1 NC, 220 V 50/60 Hz, AC operation, Push in terminals  
Alternate Catalog No. XTCEP1012B01AO

Application: Contactors for Motors, 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, Connection technique: Push in terminals, Also suitable for motors with efficiency class IE3., Number of poles: 3 pole, Rated operational current AC-3 380 V 400 V:  $I_e = 12$  A, Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz Open at 40 °C:  $I_{th} = I_e = 22$  A, enclosed:  $I_{th} = 18$  A, Rated operational current AC-1 Conventional free air thermal current, 1 pole open:  $I_{th} = 50$  A, enclosed:  $I_{th} = 45$  A, Max. rating for three-phase motors, 50 - 60 Hz AC-3 220 V 230 V:  $P = 3.5$  kW, 380 V 400 V:  $P = 5.5$  kW, 660 V 690 V:  $P = 6.5$  kW, Max. rating for three-phase motors, 50 - 60 Hz AC-4 220 V 230 V:  $P = 2$  kW, 380 V 400 V:  $P = 3$  kW, 660 V 690 V:  $P = 4.4$  kW, Can be combined with auxiliary contact: DILM12-XH1...-PI, DILM32-XH1...-PI, DILA-XH(V)...-PI, Contacts NC = Normally closed: 1 NC, Contacts to EN 50 012., with mirror contact., Voltage AC/DC: AC operation



- [Delivery program](#)
- [Technical data](#)
- [Design verification as per IEC/EN 61439](#)
- [Technical data ETIM 7.0](#)
- [Approvals](#)
- [Characteristics](#)
- [Dimensions](#)

### 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-3Notes

At maximum permissible ambient temperature (open.)

Also tested according to AC-3e.

AC-3380 V 400 V [ $I_e$ ]

12 A

AC-1Conventional free air thermal current, 3 pole, 50 - 60 HzOpenat 40 °C [ $I_{th} = I_e$ ]

22 A

AC-1Conventional free air thermal current, 3 pole, 50 - 60 Hzenclosed [ $I_{th}$ ]

18 A

AC-1Conventional free air thermal current, 1 poleopen [ $I_{th}$ ]

50 A

AC-1Conventional free air thermal current, 1 poleenclosed [ $I_{th}$ ]

45 A

Max. rating for three-phase motors, 50 - 60 Hz

AC-3220 V 230 V [F]

3.5 kW

AC-3380 V 400 V [F]

5.5 kW

AC-3660 V 690 V [F]

6.5 kW

AC-4220 V 230 V [F]

2 kW

AC-4380 V 400 V [F]

3 kW

AC-4660 V 690 V [F]

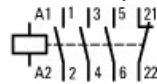
4.4 kW

Contacts

NC = Normally closed

1 NC

Contact sequence



### Instructions

Contacts to EN 50 012.

with mirror contact.

Can be combined with auxiliary contact

DILM12-XH...-PI

DILM32-XH...-PI

DILA-XH(V)...-PI

Actuating voltage

220 V 50/60 Hz

Voltage AC/DC

AC operation

Connection to SmartWire-DT

no

Frame size

1

## Technical data

General

Standards

IEC/EN 60947, VDE 0660, UL, CSA

Operating frequency, mechanicalAC operated [Operations/h]

9000

Climatic proofing

Damp heat, constant, to IEC 60068-2-78

Damp heat, cyclic, to IEC 60068-2-30

Ambient temperatureOpen

-25 - +60 °C

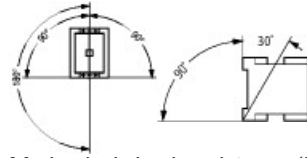
Ambient temperatureEnclosed

- 25 - 40 °C

Ambient temperatureStorage

- 40 - 80 °C

Mounting position



Mechanical shock resistance (IEC/EN 60068-2-27)Half-sinusoidal shock, 10 msMain contactsNO contact  
10 g

Mechanical shock resistance (IEC/EN 60068-2-27)Half-sinusoidal shock, 10 msAuxiliary contactsNO contact  
7 g

Mechanical shock resistance (IEC/EN 60068-2-27)Half-sinusoidal shock, 10 msAuxiliary contactsNC contact  
5 g

Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mountedHalf-sinusoidal shock, 10 msMain  
contactsNO contact  
5.7 g

Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mountedHalf-sinusoidal shock, 10 msAuxiliary  
contactsNO contact  
3.4 g

Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mountedHalf-sinusoidal shock, 10 msAuxiliary  
contactsNC contact  
3.4 g

Degree of Protection  
IP20

Protection against direct contact when actuated from front (EN 50274)  
Finger and back-of-hand proof

Altitude  
Max. 2000 m

WeightAC operated  
0.24 kg

Spring-loaded terminal connectionToolStandard screw driver  
3.0 x 0.5

Push-in terminalsTerminal capacity main cableSolid  
1 x (0,5 - 2,5)

2 x (0,5 - 2,5) mm<sup>2</sup>

Push-in terminalsTerminal capacity main cableflexible  
1 x (0,5 - 2,5)

2 x (0,5 - 2,5) mm<sup>2</sup>

Push-in terminalsTerminal capacity main cableflexible with ferrules  
1 x (0,5 - 1,5)

2 x (0,5 - 1,5) mm<sup>2</sup>

Push-in terminalsTerminal capacity main cableflexible with ultrasonic welded busbar end  
1 x (0,5 - 2,5)

2 x (0,5 - 2,5) mm<sup>2</sup>

Push-in terminalsTerminal capacity main cableflexible with uninsulated wire end ferrule  
1 x (1 - 6)

2 x (1 - 6) mm<sup>2</sup>

Push-in terminalsTerminal capacity main cableSolid or stranded  
20 - 14 AWG

Push-in terminalsTerminal capacity main cableStripping length  
10 mm

Push-in terminalsTerminal capacity main cableStandard screw driver  
3.0 x 0.5

Push-in terminalsTerminal capacity control circuit cablesSolid  
1 x (0,5 - 2,5)

2 x (0,5 - 2,5) mm<sup>2</sup>

Push-in terminalsTerminal capacity control circuit cablesflexible  
1 x (0,5 - 2,5)

2 x (0,5 - 2,5) mm<sup>2</sup>

Push-in terminalsTerminal capacity control circuit cablesflexible with ferrules  
1 x (0,5 - 1,5)

2 x (0,5 - 1,5) mm<sup>2</sup>

Push-in terminalsTerminal capacity control circuit cablesflexible with ultrasonic welded busbar end  
1 x (0,5 - 2,5)

2 x (0,5 - 2,5) mm<sup>2</sup>

Push-in terminalsTerminal capacity control circuit cablesflexible with uninsulated wire end ferrule  
1 x (0,5 - 2,5)

2 x (0,5 - 2,5) mm<sup>2</sup>

Push-in terminals Terminal capacity control circuit cables Solid or stranded  
 20 - 14 AWG  
 Push-in terminals Terminal capacity control circuit cables Stripping length  
 10 mm  
 Push-in terminals Tool Standard screw driver  
 3.0 x 0.5 mm  
 Main conducting paths  
 Rated impulse withstand voltage [ $U_{imp}$ ]  
 6000 V AC  
 Overvoltage category/pollution degree  
 III/3  
 Rated insulation voltage [ $U_i$ ]  
 690 V AC  
 Rated operational voltage [ $U_e$ ]  
 690 V AC  
 Safe isolation to EN 61140 between coil and contacts  
 400 V AC  
 Safe isolation to EN 61140 between the contacts  
 400 V AC  
 Making capacity (p.f. to IEC/EN 60947) [Up to 690 V]  
 144 A  
 Breaking capacity 220 V 230 V  
 120 A  
 Breaking capacity 380 V 400 V  
 120 A  
 Breaking capacity 500 V  
 100 A  
 Breaking capacity 660 V 690 V  
 70 A  
 Short-circuit rating Short-circuit protection maximum fuse Type "2" coordination 400 V [gG/gL 500 V]  
 20 A  
 Short-circuit rating Short-circuit protection maximum fuse Type "2" coordination 690 V [gG/gL 690 V]  
 20 A  
 Short-circuit rating Short-circuit protection maximum fuse Type "1" coordination 400 V [gG/gL 500 V]  
 35 A  
 Short-circuit rating Short-circuit protection maximum fuse Type "1" coordination 690 V [gG/gL 690 V]  
 25 A  
 AC  
 AC-1 Rated operational current Conventional free air thermal current, 3 pole, 50 - 60 Hz Open at 40 °C [ $I_{th} = I_e$ ]  
 22 A  
 AC-1 Rated operational current Conventional free air thermal current, 3 pole, 50 - 60 Hz Open at 50 °C [ $I_{th} = I_e$ ]  
 21 A  
 AC-1 Rated operational current Conventional free air thermal current, 3 pole, 50 - 60 Hz Open at 55 °C [ $I_{th} = I_e$ ]  
 21 A  
 AC-1 Rated operational current Conventional free air thermal current, 3 pole, 50 - 60 Hz Open at 60 °C [ $I_{th} = I_e$ ]  
 20 A  
 AC-1 Rated operational current Conventional free air thermal current, 3 pole, 50 - 60 Hz enclosed [ $I_{th}$ ]  
 18 A  
 AC-1 Rated operational current Conventional free air thermal current, 1 pole open [ $I_{th}$ ]  
 50 A  
 AC-1 Rated operational current Conventional free air thermal current, 1 pole enclosed [ $I_{th}$ ]  
 45 A  
 AC-3 Rated operational current Open, 3-pole: 50 – 60 Hz Notes  
 At maximum permissible ambient temperature (open.)  
 Also tested according to AC-3e.  
 AC-3 Rated operational current Open, 3-pole: 50 – 60 Hz 220 V 230 V [ $I_e$ ]  
 12 A  
 AC-3 Rated operational current Open, 3-pole: 50 – 60 Hz 240 V [ $I_e$ ]  
 12 A  
 AC-3 Rated operational current Open, 3-pole: 50 – 60 Hz 380 V 400 V [ $I_e$ ]  
 12 A  
 AC-3 Rated operational current Open, 3-pole: 50 – 60 Hz 415 V [ $I_e$ ]  
 12 A  
 AC-3 Rated operational current Open, 3-pole: 50 – 60 Hz 440 V [ $I_e$ ]  
 12 A  
 AC-3 Rated operational current Open, 3-pole: 50 – 60 Hz 500 V [ $I_e$ ]  
 10 A  
 AC-3 Rated operational current Open, 3-pole: 50 – 60 Hz 660 V 690 V [ $I_e$ ]  
 7 A

AC-3Mtor rating [P]220 V 230 V [P]  
 3.5 kW  
 AC-3Mtor rating [P]240V [P]  
 4 kW  
 AC-3Mtor rating [P]380 V 400 V [P]  
 5.5 kW  
 AC-3Mtor rating [P]415 V [P]  
 7 kW  
 AC-3Mtor rating [P]440 V [P]  
 7.5 kW  
 AC-3Mtor rating [P]500 V [P]  
 7 kW  
 AC-3Mtor rating [P]660 V 690 V [P]  
 6.5 kW  
 AC-4Open, 3-pole: 50 – 60 Hz220 V 230 V [I<sub>e</sub>]  
 7 A  
 AC-4Open, 3-pole: 50 – 60 Hz240 V [I<sub>e</sub>]  
 7 A  
 AC-4Open, 3-pole: 50 – 60 Hz380 V 400 V [I<sub>e</sub>]  
 7 A  
 AC-4Open, 3-pole: 50 – 60 Hz415 V [I<sub>e</sub>]  
 7 A  
 AC-4Open, 3-pole: 50 – 60 Hz440 V [I<sub>e</sub>]  
 7 A  
 AC-4Open, 3-pole: 50 – 60 Hz500 V [I<sub>e</sub>]  
 6 A  
 AC-4Open, 3-pole: 50 – 60 Hz660 V 690 V [I<sub>e</sub>]  
 5 A  
 AC-4Mtor rating [P]220 V 230 V [P]  
 2 kW  
 AC-4Mtor rating [P]240 V [P]  
 2.2 kW  
 AC-4Mtor rating [P]380 V 400 V [P]  
 3 kW  
 AC-4Mtor rating [P]415 V [P]  
 3.4 kW  
 AC-4Mtor rating [P]440 V [P]  
 3.6 kW  
 AC-4Mtor rating [P]500 V [P]  
 3.5 kW  
 AC-4Mtor rating [P]660 V 690 V [P]  
 4.4 kW  
 Current heat loss  
 3 pole, at I<sub>h</sub> (60°)  
 2.5 W  
 Current heat loss at I<sub>e</sub> to AC-3/400 V  
 0.9 W  
 Impedance per pole  
 2.5 mΩ  
 Magnet systems  
 Voltage toleranceAC operated [Pick-up]  
 0.8 - 1.1 x U<sub>c</sub>  
 Voltage toleranceDrop-out voltage AC operated [Drop-out]  
 0.3 - 0.6 x U<sub>c</sub>  
 Power consumption of the coil in a cold state and 1.0 x U<sub>s</sub>50/60 Hz [Pick-up]  
 27  
 25 VA  
 Power consumption of the coil in a cold state and 1.0 x U<sub>s</sub>50/60 Hz [Sealing]  
 4.2  
 3.3 VA  
 Power consumption of the coil in a cold state and 1.0 x U<sub>s</sub>50/60 Hz [Sealing]  
 1.4  
 1.2 W  
 Duty factor  
 100 % DF  
 Changeover time at 100 % U<sub>s</sub> (recommended value)Main contactsAC operatedClosing delay  
 15 - 21 ms  
 Changeover time at 100 % U<sub>s</sub> (recommended value)Main contactsAC operatedOpening delay  
 9 - 18 ms

Changeover time at 100 %  $U_S$  (recommended value) Arcing time  
10 ms

Lifespan, mechanical; Coil 50/60 Hz  
Mechanical lifespan at 50 Hz approx. 30% lower than under □ Technical data general x  $10^6$

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  
3 HP

Switching capacity Maximum motor rating Three-phase 230 V  
240 V  
3 HP

Switching capacity Maximum motor rating Three-phase 460 V  
480 V  
10 HP

Switching capacity Maximum motor rating Three-phase 575 V  
600 V  
10 HP

Switching capacity Maximum motor rating Single-phase 115 V  
120 V  
1 HP

Switching capacity Maximum motor rating Single-phase 230 V  
240 V  
2 HP

Switching capacity General use  
20 A

Auxiliary contacts Pilot Duty AC operated  
A600

Auxiliary contacts Pilot Duty DC operated  
P300

Auxiliary contacts General Use AC  
600 V

Auxiliary contacts General Use AC  
10 A

Auxiliary contacts General Use DC  
250 V

Auxiliary contacts General Use DC  
1 A

Short Circuit Current Rating Basic Rating SCCR  
5 kA

Short Circuit Current Rating Basic Rating max. Fuse  
45 A

Short Circuit Current Rating Basic Rating max. CB  
60 A

Short Circuit Current Rating 480 V High Fault SCCR (fuse)  
30/100 kA

Short Circuit Current Rating 480 V High Fault max. Fuse  
25 Class RK5/45 Class J A

Short Circuit Current Rating 600 V High Fault SCCR (fuse)  
30/100 kA

Short Circuit Current Rating 600 V High Fault max. Fuse  
25 Class RK5/45 Class J A

Special Purpose Ratings Electrical Discharge Lamps (Ballast) 480V 60Hz 3phase, 277V 60Hz 1phase  
20 A

Special Purpose Ratings Electrical Discharge Lamps (Ballast) 600V 60Hz 3phase, 347V 60Hz 1phase  
20 A

Special Purpose Ratings Incandescent Lamps (Tungsten) 480V 60Hz 3phase, 277V 60Hz 1phase  
14 A

Special Purpose Ratings Incandescent Lamps (Tungsten) 600V 60Hz 3phase, 347V 60Hz 1phase  
14 A

Special Purpose Ratings Resistance Air Heating 480V 60Hz 3phase, 277V 60Hz 1phase  
20 A

Special Purpose Ratings Resistance Air Heating 600V 60Hz 3phase, 347V 60Hz 1phase  
20 A

Special Purpose Ratings Refrigeration Control (CSA only) LRA 480V 60Hz 3phase

60 A  
 Special Purpose Ratings Refrigeration Control (CSA only) FLA 480V 60Hz 3phase  
 10 A  
 Special Purpose Ratings Refrigeration Control (CSA only) LRA 600V 60Hz 3phase  
 60 A  
 Special Purpose Ratings Refrigeration Control (CSA only) FLA 600V 60Hz 3phase  
 10 A  
 Special Purpose Ratings Definite Purpose Ratings (100,000 cycles acc. to UL 1995) LRA 480V 60Hz 3phase  
 72 A  
 Special Purpose Ratings Definite Purpose Ratings (100,000 cycles acc. to UL 1995) FLA 480V 60Hz 3phase  
 12 A  
 Special Purpose Ratings Elevator Control 200V 60Hz 3phase  
 2 HP  
 Special Purpose Ratings Elevator Control 200V 60Hz 3phase  
 7.8 A  
 Special Purpose Ratings Elevator Control 240V 60Hz 3phase  
 2 HP  
 Special Purpose Ratings Elevator Control 240V 60Hz 3phase  
 6.8 A  
 Special Purpose Ratings Elevator Control 480V 60Hz 3phase  
 7.5 HP  
 Special Purpose Ratings Elevator Control 480V 60Hz 3phase  
 11 A  
 Special Purpose Ratings Elevator Control 600V 60Hz 3phase  
 7.5 HP  
 Special Purpose Ratings Elevator Control 600V 60Hz 3phase  
 9 A

## Design verification as per IEC/EN 61439

Operating ambient temperature min.  
 -25 °C  
 Operating ambient temperature max.  
 +60 °C

## 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 (ec1@ss10.0.1-27-37-10-03 [AAB718015])  
 Rated control supply voltage  $U_s$  at AC 50Hz  
 220 - 220 V  
 Rated control supply voltage  $U_s$  at AC 60Hz  
 220 - 220 V  
 Rated control supply voltage  $U_s$  at DC  
 0 - 0 V  
 Voltage type for actuating  
 AC  
 Rated operation current  $I_e$  at AC-1, 400 V  
 22 A  
 Rated operation current  $I_e$  at AC-3, 400 V  
 12 A  
 Rated operation power at AC-3, 400 V  
 5.5 kW  
 Rated operation current  $I_e$  at AC-4, 400 V  
 7 A  
 Rated operation power at AC-4, 400 V  
 3 kW  
 Rated operation power NEMA  
 0 kW  
 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

Accessories  
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

- [Motor starters and "Special Purpose Ratings" for the North American market \(PDF\)](#)
- [Switchgear of Power Factor Correction Systems \(PDF\)](#)
- [X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely \(PDF\)](#)
- [Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions \(PDF\)](#)
- [Effect of the Cable Capacitance of Long Control Cables on the Actuation of Contactors \(PDF\)](#)
- [Switchgear for Luminaires \(PDF\)](#)
- [Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts \(PDF\)](#)
- [The Interaction of Contactors with PLCs \(PDF\)](#)
- [Busbar Component Adapters for modern Industrial control panels \(PDF\)](#)

## Wiring diagram



210S027

Line drawing

Contact sequences complete units

## 3D drawing



2110DRW-44

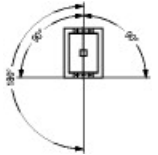
Line drawing

## Dimensions single product



2100DIM-74

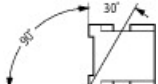
Line drawing



210N017

Line drawing

Mounting position



210N018

Line drawing

Mounting position

## Standards



0000SFC-571

Logo

IE3-ready logo 4c

(Int)

## Product photo



DILM12-01-FI\_C

Photo

Contactator

(Web)



DILM12-01-FI\_L

Photo

Contactator

(Web)



DILM12-01-FI\_R

Photo

Contactor

(Web)

## Instruction Leaflet

- [DILM Contactors \(IL034107ZU\)](#)  
(PDF, 05/2021, en)

## CAD data

### Step files

- [DA-CD-dil\\_m7\\_15\\_pi](#)  
File  
(Web, Language independent)
- [DA-CS-dil\\_m7\\_15\\_pi](#)  
File  
(Web, Language independent)

### edz files

- [DA-CE-ETN.DILM12-01\(220V/50\\_60HZ\)-FI](#)  
File  
(Web, Language independent)

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