



199230
DILM9-10(110V50HZ,120V60HZ)-PI

- Overview
- Specifications
- Resources



Delivery program

Technical data

Design verification as
per IEC/EN 61439

Technical data ETIM7.0

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-3
Notes
At maximum permissible ambient temperature
(open.)
Also tested according to AC-3e.

AC-3
380 V 400 V [I_e]
9 A

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

AC-1
Conventional free air thermal current, 3 pole, 50 -
60 Hz
enclosed [I_{th}]
18 A

AC-1
Conventional free air thermal current, 1 pole
open [I_{th}]
50 A

AC-1
Conventional free air thermal current, 1 pole
enclosed [I_{th}]
45 A

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

AC-3
220 V 230 V [P]
2.5 kW

AC-3

380 V 400 V [F]
4 kW

AC-3
660 V 690 V [F]
4.5 kW

AC-4
220 V 230 V [F]
1.5 kW

AC-4
380 V 400 V [F]
2.5 kW

AC-4
660 V 690 V [F]
3.6 kW

Contacts

NO = Normally open
1 NO

Contact sequence



Instructions

Contacts to EN 50 012.

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

TECHNICAL DATA

General

Standards
IEC/EN 60947, VDE 0660, UL, CSA

Operating frequency, mechanical
AC operated [Operations/h]
9000

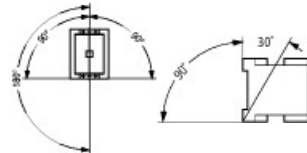
Climatic proofing
Damp heat, constant, to IEC 60068-2-78
Damp heat, cyclic, to IEC 60068-2-30

Ambient temperature
Open
-25 - +60 °C

Ambient temperature
Enclosed
- 25 - 40 °C

Ambient temperature
Storage
- 40 - 80 °C

Mounting position



Mechanical shock resistance (IEC/EN 60068-2-27)
Half-sinusoidal shock, 10 ms
Main contacts
N/O contact
10 g

Mechanical shock resistance (IEC/EN 60068-2-27)
Half-sinusoidal shock, 10 ms

Auxiliary contacts
N/O contact
7 g

Mechanical shock resistance (IEC/EN 60068-2-27)
Half-sinusoidal shock, 10 ms
Auxiliary contacts
N/C contact
5 g

Mechanical shock resistance (IEC/EN 60068-2-27)
when tabletop-mounted
Half-sinusoidal shock, 10 ms
Main contacts
N/O contact
5.7 g

Mechanical shock resistance (IEC/EN 60068-2-27)
when tabletop-mounted
Half-sinusoidal shock, 10 ms
Auxiliary contacts
N/O contact
3.4 g

Mechanical shock resistance (IEC/EN 60068-2-27)
when tabletop-mounted
Half-sinusoidal shock, 10 ms
Auxiliary contacts
N/C 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

Weight
AC operated
0.24 kg

Spring-loaded terminal connection
Tool
Standard screw driver
3.0 x 0.5

Push-in terminals
Terminal capacity main cable
Solid
1 x (0,5 - 2,5)
2 x (0,5 - 2,5) mm²

Push-in terminals
Terminal capacity main cable
flexible
1 x (0,5 - 2,5)
2 x (0,5 - 2,5) mm²

Push-in terminals
Terminal capacity main cable
flexible with ferrules
1 x (0,5 - 1,5)
2 x (0,5 - 1,5) mm²

Push-in terminals
Terminal capacity main cable
flexible with ultrasonic welded busbar end
1 x (0,5 - 2,5)
2 x (0,5 - 2,5) mm²

Push-in terminals
Terminal capacity main cable
flexible with uninsulated wire end ferrule
1 x (1 - 6)
2 x (1 - 6) mm²

Push-in terminals
Terminal capacity main cable
Solid or stranded
20 - 14 AWG

Push-in terminals
Terminal capacity main cable
Stripping length
10 mm

Push-in terminals
Terminal capacity main cable
Standard screw driver
3.0 x 0.5

Push-in terminals
Terminal capacity control circuit cables
Solid
1 x (0,5 - 2,5)
2 x (0,5 - 2,5) mm²

Push-in terminals
Terminal capacity control circuit cables
flexible
1 x (0,5 - 2,5)
2 x (0,5 - 2,5) mm²

Push-in terminals
Terminal capacity control circuit cables
flexible with ferrules
1 x (0,5 - 1,5)
2 x (0,5 - 1,5) mm²

Push-in terminals
Terminal capacity control circuit cables
flexible with ultrasonic welded busbar end
1 x (0,5 - 2,5)
2 x (0,5 - 2,5) mm²

Push-in terminals
Terminal capacity control circuit cables
flexible with uninsulated wire end ferrule
1 x (0,5 - 2,5)
2 x (0,5 - 2,5) mm²

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 EN61140
between coil and contacts
400 V AC

Safe isolation to EN61140
between the contacts
400 V AC

Making capacity (p.f. to IEC/EN 60947) [Up to 690 V]
112 A

Breaking capacity
220 V 230 V
90 A

Breaking capacity
380 V 400 V
90 A

Breaking capacity
500 V
70 A

Breaking capacity
660 V 690 V
50 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]
16 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]
20 A

AC

AC-1
Rated operational current
Conventional free air thermal current, 3 pole, 50 -
60 Hz
Open
at 40 °C [$I_{th} = I_n$]
22 A

AC-1
Rated operational current
Conventional free air thermal current, 3 pole, 50 -
60 Hz
Open
at 50 °C [$I_{th} = I_n$]
21 A

AC-1
Rated operational current
Conventional free air thermal current, 3 pole, 50 -
60 Hz
Open
at 55 °C [$I_{th} = I_n$]
21 A

AC-1
Rated operational current
Conventional free air thermal current, 3 pole, 50 -
60 Hz
Open
at 60 °C [$I_{th} = I_n$]
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]
9 A

AC-3
Rated operational current
Open, 3-pole: 50 – 60 Hz
240 V [I_e]
9 A

AC-3
Rated operational current
Open, 3-pole: 50 – 60 Hz
380 V 400 V [I_e]
9 A

AC-3
Rated operational current
Open, 3-pole: 50 – 60 Hz
415 V [I_e]
9 A

AC-3
Rated operational current
Open, 3-pole: 50 – 60 Hz
440V [I_e]
9 A

AC-3
Rated operational current
Open, 3-pole: 50 – 60 Hz
500 V [I_e]
7 A

AC-3
Rated operational current

Open, 3-pole: 50 – 60 Hz
660 V 690 V [I_e]
5 A

AC-3
Motor rating [P]
220 V 230 V [P]
2.5 kW

AC-3
Motor rating [P]
240V [P]
3 kW

AC-3
Motor rating [P]
380 V 400 V [P]
4 kW

AC-3
Motor rating [P]
415 V [P]
5.5 kW

AC-3
Motor rating [P]
440 V [P]
5.5 kW

AC-3
Motor rating [P]
500 V [P]
4.5 kW

AC-3
Motor rating [P]
660 V 690 V [P]
4.5 kW

AC-4
Open, 3-pole: 50 – 60 Hz
220 V 230 V [I_e]
6 A

AC-4
Open, 3-pole: 50 – 60 Hz
240 V [I_e]
6 A

AC-4

Open, 3-pole: 50 – 60 Hz
380 V 400 V [I_e]
6 A

AC-4
Open, 3-pole: 50 – 60 Hz
415 V [I_e]
6 A

AC-4
Open, 3-pole: 50 – 60 Hz
440 V [I_e]
6 A

AC-4
Open, 3-pole: 50 – 60 Hz
500 V [I_e]
5 A

AC-4
Open, 3-pole: 50 – 60 Hz
660 V 690 V [I_e]
4.5 A

AC-4
Motor rating [P]
220 V 230 V [P]
1.5 kW

AC-4
Motor rating [P]
240 V [P]
1.6 kW

AC-4
Motor rating [P]
380 V 400 V [P]
2.5 kW

AC-4
Motor rating [P]
415 V [P]
2.8 kW

AC-4
Motor rating [P]
440 V [P]
3 kW

AC-4

Motor rating [P]
500 V [P]
2.8 kW

AC-4
Motor rating [P]
660 V 690 V [P]
3.6 kW

Current heat loss

3 pole, at I_{th} (60°)
3 W

Current heat loss at I_e to AC-3/400 V
0.6 W

Impedance per pole
2.5 mΩ

Magnet systems

Voltage tolerance
AC operated [Pick-up]
 $0.8 - 1.1 \times U_e$

Voltage tolerance
Drop-out voltage AC operated [Drop-out]
 $0.3 - 0.6 \times U_e$

Power consumption of the coil in a cold state and
 $1.0 \times U_S$
50 Hz [Pick-up]
24 VA

Power consumption of the coil in a cold state and
 $1.0 \times U_S$
50 Hz [Sealing]
3.4 VA

Power consumption of the coil in a cold state and
 $1.0 \times U_S$
50 Hz [Sealing]
1.4 W

Power consumption of the coil in a cold state and
 $1.0 \times U_S$

60 Hz [Pick-up]
30 VA

Power consumption of the coil in a cold state and
 $1.0 \times U_S$
60 Hz [Sealing]
4.4 VA

Power consumption of the coil in a cold state and
 $1.0 \times U_S$
60 Hz [Sealing]
1.4 W

Duty factor
100 % DF

Changeover time at 100 % U_S (recommended
value)
Main contacts
AC operated
Closing delay
15 - 21 ms

Changeover time at 100 % U_S (recommended
value)
Main contacts
AC operated
Opening delay
9 - 18 ms

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

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
5 HP

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

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

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

Switching capacity
General use
20 A

Auxiliary contacts
Flot Duty
AC operated
A600

Auxiliary contacts
Flot 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
SOCR
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
SOCR (fuse)
30/100 kA

Short Circuit Current Rating
480 V High Fault
max. Fuse
25 Class RK5/20 Class J A

Short Circuit Current Rating
480 V High Fault
SOCR (CB)
65 kA

Short Circuit Current Rating
480 V High Fault
max. CB
16 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 RK5/20 Class J A

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

Special Purpose Ratings
Electrical Discharge Lamps (Ballast)
600V 60Hz 3phase, 347V 60Hz 1phase
18 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
18 A

Special Purpose Ratings
Resistance Air Heating
600V 60Hz 3phase, 347V 60Hz 1phase
18 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
54 A

Special Purpose Ratings
Definite Purpose Ratings (100,000 cycles acc. to
UL 1995)
FLA 480V 60Hz 3phase
9 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
3 HP

Special Purpose Ratings
Elevator Control
480V 60Hz 3phase
4.8 A

Special Purpose Ratings
Elevator Control
600V 60Hz 3phase
5 HP

Special Purpose Ratings
Elevator Control
600V 60Hz 3phase
6.1 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 (ecl@ss10.0.1-27-37-10-03 [AAB718015])

Rated control supply voltage U_s at AC 50HZ
110 - 110 V

Rated control supply voltage U_s at AC 60HZ
120 - 120 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
9 A

Rated operation power at AC-3, 400 V
4 kW

Rated operation current I_e at AC-4, 400 V
6 A

Rated operation power at AC-4, 400 V
2.5 kW

Rated operation power NEVA
0 kW

Modular version
No

Number of auxiliary contacts as normally open
contact
0

Number of auxiliary contacts as normally closed
contact
1

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

