276985
DILMP20(24VDC)

DELIVERY PROGRAM

Product range
Contactors

Application
Contactors for 4 pole electric consumers

Subrange
Contactors up to 200 A, 4 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

Connection technique
Screw terminals

Number of poles
4 pole

Rated operational current

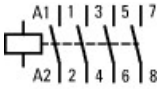
AC-1
Conventional free air thermal current, 3 pole, 50 - 60 Hz
at 40 °C [$I_{th} = I_e$]
22 A

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

AC-1
Conventional free air thermal current, 3 pole, 50 - 60 Hz
at 55 °C [$I_{th} = I_e$]
20.5 A

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

Contact sequence



For use with
DILM32-XHI(C)…
DILA-XHI(V)(C)…

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.

TECHNICAL DATA

General

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

Lifespan, mechanical
AC operated [Operations]
10×10^6

Lifespan, mechanical
DC operated [Operations]
10×10^6

Operating frequency, mechanical
AC operated [Operations/h]
5000

Operating frequency, mechanical
DC operated [Operations/h]
5000

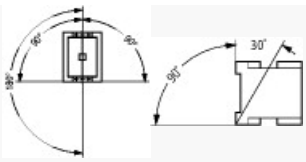
Climatic proofing
Damp heat, constant, to IEC 60068-2-78
Damp heat, cyclic, to IEC 60068-2-30

Ambient temperature
Open
-25 - +60 °C

Ambient temperature
Enclosed
- 25 - 40 °C

Ambient temperature
Storage
- 40 - 80 °C

Mounting position
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

Degree of Protection
IP20

Altitude
Max. 2000 m

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

Stripping length
10 mm

Terminal capacity main cable
Solid
1 x (0.75 - 4)
2 x (0.75 - 2.5) mm^2

Terminal capacity main cable
Flexible with ferrule
1 x (0.75 - 2.5)
2 x (0.75 - 2.5) mm^2

Terminal capacity main cable
Solid or stranded
18 - 14 AWG

Terminal capacity main cable
Terminal screw
M3.5

Terminal capacity main cable
Tightening torque
1.2 Nm

Terminal capacity main cable
Stripping length
10 mm

Terminal capacity main cable
Push-in terminals
Solid
1 x (0.75 - 2.5)
2 x (0.75 - 2.5) mm^2

Terminal capacity main cable
Push-in terminals
flexible
1 x (0.75 - 2.5)
2 x (0.75 - 2.5) mm^2

Terminal capacity main cable
Push-in terminals
flexible with ferrules
1 x (0.75 - 1.5)
2 x (0.75 - 1.5) mm^2

Terminal capacity main cable
Push-in terminals
Solid or stranded
18 - 14 AWG

Terminal capacity control circuit cables
Solid
1 x (0.75 - 4)
2 x (0.75 - 2.5) mm^2

Terminal capacity control circuit cables
Flexible with ferrule
1 x (0.75 - 2.5)
2 x (0.75 - 2.5) mm^2

Terminal capacity control circuit cables
Solid or stranded
18 - 14 AWG

Terminal capacity control circuit cables
Stripping length
10 mm

Terminal capacity control circuit cables
Terminal screw
M3.5

Terminal capacity control circuit cables
Tightening torque
1.2 Nm

Terminal capacity control circuit cables
Push-in terminals
Solid
1 x (0.75 - 2.5)
2 x (0.75 - 2.5) mm^2

Terminal capacity control circuit cables
Push-in terminals
Flexible
1 x (0.75 - 2.5)
2 x (0.75 - 2.5) mm^2

Terminal capacity control circuit cables
Push-in terminals
Flexible with ferrule
1 x (0.75 - 1.5)
2 x (0.75 - 1.5) mm^2

Terminal capacity control circuit cables
Push-in terminals
Solid or stranded
18 - 14 AWG

Tool
Main cable
Pozidriv screwdriver
2 Size

Tool
Main cable
Standard screwdriver
0.8 x 5.5
1 x 6 mm

Tool
Control circuit cables
Pozidriv screwdriver
2 Size

Tool
Control circuit cables
Standard screwdriver
0.8 x 5.5
1 x 6 mm

Main conducting paths

Rated impulse withstand voltage [U_{imp}]
8000 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 (cos ϕ) [Up to 690 V]
144
According to IEC/EN 60947 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 [$I_{th} = I_e$]
20.5 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}]
60 A

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

AC-1
Motor rating [P]
220/230 V [P]
8 kW

AC-1
Motor rating [P]
240 V [P]
9 kW

AC-1
Motor rating [P]
380/400 V [P]
14 kW

AC-1
Motor rating [P]
415 V [P]
15 kW

AC-1
Motor rating [P]
440 V [P]
16 kW

AC-1
Motor rating [P]
500 V [P]
18 kW

AC-1
Motor rating [P]
690 V [P]
24 kW

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
440V [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-3
Motor rating [P]
220 V 230 V [P]
3.5 kW

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

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

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

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

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

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

DC

Rated operational current, open
DC-1
60 V [I_e]
22 A

Rated operational current, open
DC-1
110 V [I_e]
22 A

Rated operational current, open
DC-1
220 V [I_e]
6 A

Current heat loss

3 pole, at I_{th} (60°)
3 W

Impedance per pole
2.5 mΩ

Magnet systems

Voltage tolerance
AC operated 50/60 Hz
0.8 - 1.1 x U_c

Voltage tolerance
DC operated [Pick-up]
At least double-pulse bridge rectifier - 0.8 - 1.1 x U_c

Voltage tolerance
DC operated [Drop-out]
At least double-pulse bridge rectifier - 0.2 - 0.6 x U_c

Power consumption of the coil in a cold state and 1.0 x U_S
Notes on DC actuation
At least double-pulse bridge rectifier

Power consumption of the coil in a cold state and 1.0 x U_S
DC operated [Pick-up]
4.5 W

Power consumption of the coil in a cold state and 1.0 x U_S
DC operated [Sealing]

4.5 W

Duty factor
100 % DF

Changeover time at 100 % U_S (recommended value)
Main contacts
DC operated
Notes on DC actuation
At least double-pulse bridge rectifier

Changeover time at 100 % U_S (recommended value)
Main contacts
DC operated
Closing delay
31 ms

Changeover time at 100 % U_S (recommended value)
Main contacts
DC operated
Opening delay
12 ms

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

Changeover time at 100 % U_S (recommended value)
Permissible residual current with actuation of A1 - A2 by the electronics (with 0 signal).
□ 1 mA

Rating data for approved types

Switching capacity
General use
20 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 kA

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

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

Short Circuit Current Rating
600 V High Fault
max. Fuse
25 Class RK5 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
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

Technical data for design verification

Rated operational current for specified heat dissipation [I_n]
22 A

Heat dissipation per pole, current-dependent [P_{vid}]
1.7 W

Equipment heat dissipation, current-dependent [P_{vid}]
5.1 W

Static heat dissipation, non-current-dependent [P_{vs}]
4.5 W

Heat dissipation capacity [P_{diss}]
0 W

Operating ambient temperature min.
-25 °C

Operating ambient temperature max.
+60 °C

IEC/EN 61439 design verification

10.2 Strength of materials and parts
10.2.2 Corrosion resistance
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.1 Verification of thermal stability of enclosures
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.2 Verification of resistance of insulating materials to normal heat
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.4 Resistance to ultra-violet (UV) radiation
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.5 Lifting

Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts
10.2.6 Mechanical impact
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts
10.2.7 Inscriptions
Meets the product standard's requirements.

10.3 Degree of protection of ASSEMBLIES
Does not apply, since the entire switchgear needs to be evaluated.

10.4 Clearances and creepage distances
Meets the product standard's requirements.

10.5 Protection against electric shock
Does not apply, since the entire switchgear needs to be evaluated.

10.6 Incorporation of switching devices and components
Does not apply, since the entire switchgear needs to be evaluated.

10.7 Internal electrical circuits and connections
Is the panel builder's responsibility.

10.8 Connections for external conductors
Is the panel builder's responsibility.

10.9 Insulation properties
10.9.2 Power-frequency electric strength
Is the panel builder's responsibility.

10.9 Insulation properties
10.9.3 Impulse withstand voltage
Is the panel builder's responsibility.

10.9 Insulation properties
10.9.4 Testing of enclosures made of insulating material
Is the panel builder's responsibility.

10.10 Temperature rise
The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.

10.11 Short-circuit rating
Is the panel builder's responsibility. The specifications for the switchgear must be observed.

10.12 Electromagnetic compatibility
Is the panel builder's responsibility. The specifications for the switchgear must be observed.

10.13 Mechanical function
The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

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
0 - 0 V

Rated control supply voltage Us at AC 60HZ
0 - 0 V

Rated control supply voltage Us at DC
24 - 24 V

Voltage type for actuating
DC

Rated operation current Ie at AC-1, 400 V
22 A

Rated operation current Ie at AC-3, 400 V

12 A

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

Rated operation current Ie at AC-4, 400 V
10 A

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

Rated operation power NEMA
0 kW

Modular version
No

Number of auxiliary contacts as normally open contact
0

Number of auxiliary contacts as normally closed contact
0

Type of electrical connection of main circuit
Screw connection

Number of normally closed contacts as main contact
0

Number of main contacts as normally open contact
4

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

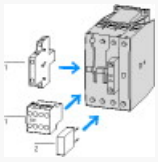
CSA File No.
012528

CSA Class No.
2411-03, 3211-04

North America Certification
UL listed, CSA certified

Specially designed for North America
No

CHARACTERISTICS



Accessories
1: Auxiliary contact module
2: Suppressor

Characteristic curve

Switching conditions for 4 pole, non-motor loads
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

Contactor with auxiliary contact module

DILMP20