

Contactor, 3 pole, 380 V 400 V 37 kW, 230 V 50 Hz, 240 V 60 Hz, AC operation, Screw terminals



Part no. DILM72-EA(230V50HZ,240V60HZ)
Catalog No. 189919

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 NAC-3: Normal AC induction motors: starting, switch off during running AC-4: Normal AC induction motors: starting, plugging, reversing, inching
Notes		Not suitable for motors with efficiency class IE3.
Connection technique		Screw terminals
Number of poles		3 pole
Rated operational current		
AC-3		
Notes		At maximum permissible ambient temperature (open.)
380 V 400 V	I_e	A 72
AC-1		
Conventional free air thermal current, 3 pole, 50 - 60 Hz		
Open		
at 40 °C	$I_{th} = I_e$	A 98
enclosed	I_{th}	A 72
Conventional free air thermal current, 1 pole		
open	I_{th}	A 200
enclosed	I_{th}	A 180
Max. rating for three-phase motors, 50 - 60 Hz		
AC-3		
220 V 230 V	P	kW 22
380 V 400 V	P	kW 37
660 V 690 V	P	kW 35
AC-4		
220 V 230 V	P	kW 7
380 V 400 V	P	kW 12
660 V 690 V	P	kW 17
Can be combined with auxiliary contact		DILM150-XHI(V)... DILM1000-XHI(V)...
Actuating voltage		230 V 50 Hz, 240 V 60 Hz
Voltage AC/DC		AC operation
Connection to SmartWire-DT		no
Instructions		Contacts to EN 50 012. Observe electrical lifespan.
Frame size		3

Technical data

General		
Standards	IEC/EN 60947, VDE 0660, UL, CSA	
Lifespan, mechanical		
AC operated	Operations $\times 10^6$	10
Operating frequency, mechanical		
AC 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	°C	-25 - +60	
Enclosed	°C	-25 - 40	
Storage	°C	-40 - 80	
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	10	
Auxiliary contacts			
N/O contact	g	7	
N/C contact	g	5	
Degree of Protection		IP00	
Protection against direct contact when actuated from front (EN 50274)		Finger and back-of-hand proof	
Altitude	m	max. 2000 m	
Weight			
AC operated	kg	0.296	
Screw connector terminals			
Terminal capacity main cable			
Solid	mm ²	1 x (0.75 - 16) 2 x (0.75 - 16)	
Flexible with ferrule	mm ²	1 x (0.75 - 35) 2 x (0.75 - 25)	
Stranded	mm ²	1 x (16 - 50) 2 x (16 - 35)	
Solid or stranded	AWG	single 14 - 1, double 14 - 2	
Flat conductor	Lamellenzahl x Breite x Dicke	2 x (6 x 9 x 0.8)	
Stripping length	mm	14	
Terminal screw		M6	
Tightening torque	Nm	3.3	
Tool			
Pozidriv screwdriver	Size	2	
Standard screwdriver	mm	0.8 x 5.5 1 x 6	
Terminal capacity control circuit cables			
Solid	mm ²	1 x (0.75 - 4) 2 x (0.75 - 2.5)	
Flexible with ferrule	mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	
Solid or stranded	AWG	18 - 14	
Stripping length	mm	10	
Terminal screw		M3.5	
Tightening torque	Nm	1.2	
Tool			
Pozidriv screwdriver	Size	2	
Standard screwdriver	mm	0.8 x 5.5 1 x 6	
Main conducting paths			
Rated impulse withstand voltage	U _{imp}	V AC	8000
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		V AC	440
between coil and contacts		V AC	440
between the contacts		V AC	440
Making capacity (p.f. to IEC/EN 60947)		Up to 690 V	A
			910
Breaking capacity			
220 V 230 V		A	650
380 V 400 V		A	650
500 V		A	650
660 V 690 V		A	370
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	125
690 V	gG/gL 690 V	A	80
Type "1" coordination			
400 V	gG/gL 500 V	A	250
690 V	gG/gL 690 V	A	100

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	98
at 50 °C	$I_{th} = I_e$	A	88
at 55 °C	$I_{th} = I_e$	A	83
at 60 °C	$I_{th} = I_e$	A	80
enclosed	I_{th}	A	72
Conventional free air thermal current, 1 pole			
open	I_{th}	A	200
enclosed	I_{th}	A	180

AC-3

Rated operational current

Open, 3-pole: 50 – 60 Hz

Notes			At maximum permissible ambient temperature (open.)
220 V 230 V	I_e	A	72
240 V	I_e	A	72
380 V 400 V	I_e	A	72
415 V	I_e	A	72
440V	I_e	A	72
500 V	I_e	A	72
660 V 690 V	I_e	A	37
Motor rating	P	kWh	
220 V 230 V	P	kW	22
240V	P	kW	25
380 V 400 V	P	kW	37
415 V	P	kW	41
440 V	P	kW	44
500 V	P	kW	50
660 V 690 V	P	kW	35
AC-4			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I_e	A	25

240 V	I _e	A	25
380 V 400 V	I _e	A	25
415 V	I _e	A	25
440 V	I _e	A	25
500 V	I _e	A	25
660 V 690 V	I _e	A	20
Motor rating	P	kWh	
220 V 230 V	P	kW	7
240 V	P	kW	7.5
380 V 400 V	P	kW	12
415 V	P	kW	13
440 V	P	kW	14
500 V	P	kW	16
660 V 690 V	P	kW	17

DC

Rated operational current, open			
DC-1			
60 V	I _e	A	72
110 V	I _e	A	72
220 V	I _e	A	65

Current heat loss

3 pole, at I _{th} (60°)		W	25.9
Current heat loss at I _e to AC-3/400 V		W	21
Impedance per pole		mΩ	1.9

Magnet systems

Voltage tolerance			
AC operated	Pick-up	x U _c	0.8 - 1.1
Drop-out voltage AC operated	Drop-out	x U _c	0.3 - 0.6
Power consumption of the coil in a cold state and 1.0 x U _S			
50 Hz	Pick-up	VA	149
50 Hz	Sealing	VA	16
50 Hz	Sealing	W	4.1
60 Hz	Pick-up	VA	178
60 Hz	Sealing	VA	19
60 Hz	Sealing	W	4.1
Duty factor		% DF	100
Changeover time at 100 % U _S (recommended value)			
Main contacts			
AC operated			
Closing delay		ms	12 - 18
Opening delay		ms	8 - 13
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			
Maximum motor rating			
Three-phase			
200 V 208 V		HP	20
230 V 240 V		HP	25
460 V 480 V		HP	50
575 V 600 V		HP	60

Single-phase			
115 V	HP	5	
120 V			
230 V	HP	15	
240 V			
General use	A	88	
Short Circuit Current Rating	SCCR		
Basic Rating			
SCCR	kA	10	
max. Fuse	A	250	
max. CB	A	250	
480 V High Fault			
SCCR (fuse)	kA	30/100	
max. Fuse	A	250/150 Class J	
SCCR (CB)	kA	65	
max. CB	A	100	
600 V High Fault			
SCCR (fuse)	kA	30/100	
max. Fuse	A	250/150 Class J	
SCCR (CB)	kA	30	
max. CB	A	250	
Special Purpose Ratings			
Electrical Discharge Lamps (Ballast)			
480V 60Hz 3phase, 277V 60Hz 1phase	A	88	
600V 60Hz 3phase, 347V 60Hz 1phase	A	88	
Incandescent Lamps (Tungsten)			
480V 60Hz 3phase, 277V 60Hz 1phase	A	88	
600V 60Hz 3phase, 347V 60Hz 1phase	A	88	
Resistance Air Heating			
480V 60Hz 3phase, 277V 60Hz 1phase	A	88	
600V 60Hz 3phase, 347V 60Hz 1phase	A	88	
Definite Purpose Ratings (100,000 cycles acc. to UL 1995)			
LRA 480V 60Hz 3phase	A	432	
FLA 480V 60Hz 3phase	A	72	
Elevator Control			
200V 60Hz 3phase	HP	10	
200V 60Hz 3phase	A	32.2	
240V 60Hz 3phase	HP	15	
240V 60Hz 3phase	A	42	
480V 60Hz 3phase	HP	30	
480V 60Hz 3phase	A	40	
600V 60Hz 3phase	HP	40	
600V 60Hz 3phase	A	41	

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I _n	A	72
Heat dissipation per pole, current-dependent	P _{vid}	W	7
Equipment heat dissipation, current-dependent	P _{vid}	W	21
Static heat dissipation, non-current-dependent	P _{vs}	W	4.1
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.

10.2.3.1 Verification of thermal stability of enclosures		Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat		Meets the product standard's requirements.
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.
10.2.4 Resistance to ultra-violet (UV) radiation		Meets the product standard's requirements.
10.2.5 Lifting		Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact		Does not apply, since the entire switchgear needs to be evaluated.
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.
10.9.3 Impulse withstand voltage		Is the panel builder's responsibility.
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 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	230 - 230
Rated control supply voltage Us at AC 60Hz	V	240 - 240
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	98
Rated operation current Ie at AC-3, 400 V	A	72
Rated operation power at AC-3, 400 V	kW	37
Rated operation current Ie at AC-4, 400 V	A	25
Rated operation power at AC-4, 400 V	kW	12
Rated operation power NEMA	kW	37
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 normally open contacts as main contact		3