

Contactor, 3 pole, 380 V 400 V 37 kW, RDC 24: 24 - 27 V DC, DC operation, Screw terminals



Part no. DILM72-EA(RDC24)
Catalog No. 189920

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				RDC 24: 24 - 27 V DC
Voltage AC/DC				DC operation
Connection to SmartWire-DT				no
Instructions				Contacts to EN 50 012. integrated suppressor circuit in actuating electronics Observe electrical lifespan.
Frame size				3

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			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			
DC operated		kg	1.052
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	mm	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			
between coil and contacts		V AC	440
between the contacts		V AC	440
Making capacity (p.f. to IEC/EN 60947)			
	U_p 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			
DC operated	Pick-up	x U _c	0.7 - 1.2
Notes			RDC 24 (U _{min} 24 V DC/U _{max} 27 V DC) Example: U _S = 0.7 x U _{min} - 1.2 x U _{max} / U _S = 0.7 x 24V - 1.2 x 27V DC
DC operated	Drop-out	x U _c	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 _S			
DC operated	Pick-up	W	24
DC operated	Sealing	W	1
Duty factor		% DF	100
Changeover time at 100 % U _S (recommended value)			
Main contacts			
DC operated		ms	
Closing delay		ms	
Closing delay		ms	54
Opening delay		ms	
Opening delay		ms	24
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 120 V		HP	5
230 V 240 V		HP	15
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	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 U_s at AC 50HZ	V	0 - 0
Rated control supply voltage U_s at AC 60HZ	V	0 - 0
Rated control supply voltage U_s at DC	V	24 - 27
Voltage type for actuating		DC
Rated operation current I_e at AC-1, 400 V	A	98
Rated operation current I_e at AC-3, 400 V	A	72
Rated operation power at AC-3, 400 V	kW	37
Rated operation current I_e 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