

Contactor, 3 pole, 380 V 400 V 7.5 kW, 1 N/O, 24 V DC, DC operation, Screw terminals



Part no. **DILM15-10-EA(24VDC)**
 Catalog No. **190038**



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
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 15.5
AC-1		
Conventional free air thermal current, 3 pole, 50 - 60 Hz		
Open		
at 40 °C	$I_{th} = I_e$	A 22
enclosed	I_{th}	A 18
Conventional free air thermal current, 1 pole		
open	I_{th}	A 50
enclosed	I_{th}	A 45
Max. rating for three-phase motors, 50 - 60 Hz		
AC-3		
220 V 230 V	P	kW 4
380 V 400 V	P	kW 7.5
660 V 690 V	P	kW 7
AC-4		
220 V 230 V	P	kW 2
380 V 400 V	P	kW 3
660 V 690 V	P	kW 4.4
Contacts		
N/O = Normally open		1 N/O
Can be combined with auxiliary contact		DILA-XHI(V)...(-PI) DILA-XHI...-S DILM32-XHI...(-PI)
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		
Frame size		Contacts to EN 50 012. Integrated varistor suppressor circuit.
		1

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	5.7
Auxiliary contacts		
N/O contact	g	3.4
N/C contact	g	3.4
Degree of Protection		IP20
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	0.296
Screw connector terminals		
Terminal capacity main cable		
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	single 18 - 10, double 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
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	400	
between the contacts	V AC	400	
Making capacity (p.f. to IEC/EN 60947)			
	Up to 690 V	A	155
Breaking capacity			
220 V 230 V	A	124	
380 V 400 V	A	124	
500 V	A	100	
660 V 690 V	A	70	
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	20
690 V	gG/gL 690 V	A	20
Type "1" coordination			
400 V	gG/gL 500 V	A	63
690 V	gG/gL 690 V	A	50

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	22
at 50 °C	$I_{th} = I_e$	A	21
at 55 °C	$I_{th} = I_e$	A	21
at 60 °C	$I_{th} = I_e$	A	20
enclosed	I_{th}	A	18
Conventional free air thermal current, 1 pole			
open	I_{th}	A	50
enclosed	I_{th}	A	45
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	15.5
240 V	I_e	A	15.5
380 V 400 V	I_e	A	15.5
415 V	I_e	A	15.5
440V	I_e	A	15.5
500 V	I_e	A	12.5
660 V 690 V	I_e	A	9
Motor rating	P	kWh	
220 V 230 V	P	kW	4
240V	P	kW	4.6
380 V 400 V	P	kW	7.5
415 V	P	kW	8
440 V	P	kW	8.4
500 V	P	kW	7.5
660 V 690 V	P	kW	7
AC-4			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I_e	A	7
240 V	I_e	A	7

380 V 400 V	I_e	A	7
415 V	I_e	A	7
440 V	I_e	A	7
500 V	I_e	A	6
660 V 690 V	I_e	A	5
Motor rating	P	kWh	
220 V 230 V	P	kW	2
240 V	P	kW	2.2
380 V 400 V	P	kW	3
415 V	P	kW	3.4
440 V	P	kW	3.6
500 V	P	kW	3.5
660 V 690 V	P	kW	4.4

DC

Rated operational current, open			
DC-1			
60 V	I_e	A	20
110 V	I_e	A	20
220 V	I_e	A	15

Current heat loss

3 pole, at I_{th} (60°)		W	4
Current heat loss at I_e to AC-3/400 V		W	2.4
Impedance per pole		$m\Omega$	4.6

Magnet systems

Voltage tolerance			
DC operated	Pick-up	$\times U_c$	0.8 - 1.1
Notes			0.85 - 1.1 only with auxiliary contact module with 3 or more N/C contacts 0.7 - 1.3 without auxiliary contact module and at ambient air temperature + 40 °C
DC operated	Drop-out	$\times U_c$	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 $\times U_s$			
DC operated	Pick-up	W	4.5
DC operated	Sealing	W	4.5
Duty factor		% DF	100
Changeover time at 100 % U_s (recommended value)			
Main contacts			
DC operated		ms	
Closing delay		ms	
Closing delay		ms	31
Opening delay		ms	
Opening delay		ms	12
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	5	
230 V 240 V	HP	5	
460 V 480 V	HP	10	
575 V 600 V	HP	10	

Single-phase			
115 V	HP	1	
120 V			
230 V	HP	3	
240 V			
General use	A	20	
Auxiliary contacts			
Pilot Duty			
AC operated		A600	
DC operated		P300	
General Use			
AC	V	600	
AC	A	10	
DC	V	250	
DC	A	1	
Short Circuit Current Rating	SCCR		
Basic Rating			
SCCR	kA	5	
max. Fuse	A	45	
max. CB	A	60	
480 V High Fault			
SCCR (fuse)	kA	30/100	
max. Fuse	A	25 Class RK5/60 Class J	
600 V High Fault			
SCCR (fuse)	kA	30/100	
max. Fuse	A	25 Class RK5/60 Class J	
Special Purpose Ratings			
Electrical Discharge Lamps (Ballast)			
480V 60Hz 3phase, 277V 60Hz 1phase	A	20	
600V 60Hz 3phase, 347V 60Hz 1phase	A	20	
Incandescent Lamps (Tungsten)			
480V 60Hz 3phase, 277V 60Hz 1phase	A	14	
600V 60Hz 3phase, 347V 60Hz 1phase	A	14	
Resistance Air Heating			
480V 60Hz 3phase, 277V 60Hz 1phase	A	20	
600V 60Hz 3phase, 347V 60Hz 1phase	A	20	
Refrigeration Control (CSA only)			
LRA 480V 60Hz 3phase	A	60	
FLA 480V 60Hz 3phase	A	10	
LRA 600V 60Hz 3phase	A	60	
FLA 600V 60Hz 3phase	A	10	
Definite Purpose Ratings (100,000 cycles acc. to UL 1995)			
LRA 480V 60Hz 3phase	A	90	
FLA 480V 60Hz 3phase	A	15	
Elevator Control			
200V 60Hz 3phase	HP	2	
200V 60Hz 3phase	A	7.8	
240V 60Hz 3phase	HP	3	
240V 60Hz 3phase	A	9.6	
480V 60Hz 3phase	HP	7.5	
480V 60Hz 3phase	A	11	
600V 60Hz 3phase	HP	7.5	
600V 60Hz 3phase	A	9	

Design verification as per IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat dissipation	I_n	A	15.5
Heat dissipation per pole, current-dependent	P_{vid}	W	0.8
Equipment heat dissipation, current-dependent	P_{vid}	W	0
Static heat dissipation, non-current-dependent	P_{vs}	W	4.5
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	0 - 0	
Rated control supply voltage Us at AC 60HZ	V	0 - 0	
Rated control supply voltage Us at DC	V	24 - 24	
Voltage type for actuating		DC	
Rated operation current I_e at AC-1, 400 V	A	22	
Rated operation current I_e at AC-3, 400 V	A	15.5	
Rated operation power at AC-3, 400 V	kW	7.5	
Rated operation current I_e at AC-4, 400 V	A	7	
Rated operation power at AC-4, 400 V	kW	3	
Rated operation power NEMA	kW	7.4	
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		Screw connection	
Number of normally closed contacts as main contact		0	
Number of normally open contacts as main contact		3	

