

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



Part no. **DILM80-EA(RDC24)**  
Catalog No. **189922**

## 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 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		Screw terminals
Number of poles		3 pole
<b>Rated operational current</b>		
AC-3		
Notes		At maximum permissible ambient temperature (open.) Also tested according to AC-3e.
380 V 400 V	$I_e$	A 80
AC-1		
Conventional free air thermal current, 3 pole, 50 - 60 Hz		
Open		
at 40 °C	$I_{th} = I_e$	A 110
enclosed	$I_{th}$	A 80
Conventional free air thermal current, 1 pole		
open	$I_{th}$	A 225
enclosed	$I_{th}$	A 200
<b>Max. rating for three-phase motors, 50 - 60 Hz</b>		
AC-3		
220 V 230 V	P	kW 25
380 V 400 V	P	kW 37
660 V 690 V	P	kW 63
AC-4		
220 V 230 V	P	kW 11.5
380 V 400 V	P	kW 20
660 V 690 V	P	kW 26
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
Frame size		4

## Technical data

General		
Standards		IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical		
DC operated	Operations $\times 10^6$	6.4
Operating frequency, mechanical		
DC operated	Operations/h	3600
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	2.25	
Screw connector terminals			
Terminal capacity main cable			
Flexible with ferrule	mm <sup>2</sup>	1 x (10 - 95) 2 x (10 - 70)	
Stranded	mm <sup>2</sup>	1 x (16 - 95) 2 x (16 - 70)	
Solid or stranded	AWG	single 8...3/0, double 8...2/0	
Flat conductor	Lamellenzahl x Breite x Dicke	mm	2 x (6 x 16 x 0.8)
Stripping length		mm	24
Terminal screw			M10
Tightening torque		Nm	14
Tool			
Hexagon socket-head spanner	SW	mm	5
Terminal capacity control circuit cables			
Solid	mm <sup>2</sup>	1 x (0.75 - 4) 2 x (0.75 - 2.5)	
Flexible with ferrule	mm <sup>2</sup>	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 <sub>imp</sub>	V AC	8000
Oversupply category/pollution degree			III/3
Rated insulation voltage	U <sub>i</sub>	V AC	690
Rated operational voltage	U <sub>e</sub>	V AC	690
Safe isolation to EN 61140			

between coil and contacts	V AC	690	
between the contacts	V AC	690	
Making capacity (p.f. to IEC/EN 60947)			
	Up to 690 V	A	1120
Breaking capacity			
220 V 230 V	A	800	
380 V 400 V	A	800	
500 V	A	800	
660 V 690 V	A	650	
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	160
690 V	gG/gL 690 V	A	160
Type "1" coordination			
400 V	gG/gL 500 V	A	250
690 V	gG/gL 690 V	A	200

## 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	110
at 50 °C	$I_{th} = I_e$	A	98
at 55 °C	$I_{th} = I_e$	A	94
at 60 °C	$I_{th} = I_e$	A	90
enclosed	$I_{th}$	A	80
Conventional free air thermal current, 1 pole			
open	$I_{th}$	A	225
enclosed	$I_{th}$	A	200

### AC-3

Rated operational current			
Open, 3-pole: 50 – 60 Hz			
Notes			At maximum permissible ambient temperature (open.) Also tested according to AC-3e.
220 V 230 V	$I_e$	A	80
240 V	$I_e$	A	80
380 V 400 V	$I_e$	A	80
415 V	$I_e$	A	80
440V	$I_e$	A	80
500 V	$I_e$	A	80
660 V 690 V	$I_e$	A	65
Motor rating	P	kWh	
220 V 230 V	P	kW	25
240V	P	kW	27.5
380 V 400 V	P	kW	37
415 V	P	kW	48
440 V	P	kW	51
500 V	P	kW	58
660 V 690 V	P	kW	63

### AC-4

Open, 3-pole: 50 – 60 Hz			
220 V 230 V	$I_e$	A	40
240 V	$I_e$	A	40
380 V 400 V	$I_e$	A	40

415 V	I <sub>e</sub>	A	40
440 V	I <sub>e</sub>	A	40
500 V	I <sub>e</sub>	A	40
660 V 690 V	I <sub>e</sub>	A	27
Motor rating	P	kWh	
220 V 230 V	P	kW	11.5
240 V	P	kW	13
380 V 400 V	P	kW	20
415 V	P	kW	24
440 V	P	kW	25
500 V	P	kW	29
660 V 690 V	P	kW	26

## DC

Rated operational current, open			
DC-1			
60 V	I <sub>e</sub>	A	110
110 V	I <sub>e</sub>	A	110
220 V	I <sub>e</sub>	A	70

## Current heat loss

3 pole, at I <sub>th</sub> (60°)		W	11.4
Current heat loss at I <sub>e</sub> to AC-3/400 V		W	9
Impedance per pole		mΩ	0.6

## Magnet systems

Voltage tolerance			
DC operated	Pick-up	x U <sub>c</sub>	0.7 - 1.2
Notes			RDC 24 (U <sub>min</sub> 24 V DC/U <sub>max</sub> 27 V DC) Example: U <sub>S</sub> = 0.7 x U <sub>min</sub> - 1.2 x U <sub>max</sub> / U <sub>S</sub> = 0.7 x 24V - 1.2 x 27V DC
DC operated	Drop-out	x U <sub>c</sub>	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 <sub>S</sub>			
DC operated	Pick-up	W	90
DC operated	Sealing	W	1.5
Duty factor		% DF	100
Changeover time at 100 % U <sub>S</sub> (recommended value)			
Main contacts			
DC operated		ms	
Closing delay		ms	
Closing delay		ms	45
Opening delay		ms	
Opening delay		ms	34
Arcing time		ms	15
Permissible residual current with actuation of A1 - A2 by the electronics (with 0 signal).		mA	≤ 1

## 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	25	
230 V 240 V	HP	30	
460 V 480 V	HP	60	
575 V 600 V	HP	75	

Single-phase			
115 V	HP	7.5	
120 V			
230 V	HP	15	
240 V			
General use	A	125	
Short Circuit Current Rating	SCCR		
Basic Rating			
SCCR	kA	10	
max. Fuse	A	600	
max. CB	A	600	
480 V High Fault			
SCCR (fuse)	kA	30/100	
max. Fuse	A	300/300 Class J	
SCCR (CB)	kA	65	
max. CB	A	250	
600 V High Fault			
SCCR (fuse)	kA	30/100	
max. Fuse	A	300/300 Class J	
SCCR (CB)	kA	30	
max. CB	A	350	
Special Purpose Ratings			
Electrical Discharge Lamps (Ballast)			
480V 60Hz 3phase, 277V 60Hz 1phase	A	100	
600V 60Hz 3phase, 347V 60Hz 1phase	A	100	
Incandescent Lamps (Tungsten)			
480V 60Hz 3phase, 277V 60Hz 1phase	A	100	
600V 60Hz 3phase, 347V 60Hz 1phase	A	100	
Resistance Air Heating			
480V 60Hz 3phase, 277V 60Hz 1phase	A	100	
600V 60Hz 3phase, 347V 60Hz 1phase	A	100	
Refrigeration Control (CSA only)			
LRA 480V 60Hz 3phase	A	540	
FLA 480V 60Hz 3phase	A	90	
LRA 600V 60Hz 3phase	A	420	
FLA 600V 60Hz 3phase	A	70	
Definite Purpose Ratings (100,000 cycles acc. to UL 1995)			
LRA 480V 60Hz 3phase	A	480	
FLA 480V 60Hz 3phase	A	80	
Elevator Control			
200V 60Hz 3phase	HP	20	
200V 60Hz 3phase	A	62.1	
240V 60Hz 3phase	HP	25	
240V 60Hz 3phase	A	68	
480V 60Hz 3phase	HP	50	
480V 60Hz 3phase	A	65	
600V 60Hz 3phase	HP	60	
600V 60Hz 3phase	A	62	

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	80
Heat dissipation per pole, current-dependent	$P_{vid}$	W	3
Equipment heat dissipation, current-dependent	$P_{vid}$	W	9
Static heat dissipation, non-current-dependent	$P_{vs}$	W	1.5
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 - 27
Voltage type for actuating		DC
Rated operation current Ie at AC-1, 400 V	A	110
Rated operation current Ie at AC-3, 400 V	A	80
Rated operation power at AC-3, 400 V	kW	37
Rated operation current Ie at AC-4, 400 V	A	40
Rated operation power at AC-4, 400 V	kW	20
Rated operation power NEMA	kW	44.7
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