

Contactor, 3 pole, 380 V 400 V 22 kW, RDC 24: 24 - 27 V DC, DC operation,  
Screw terminals



**Part no.** DILM50(RDC24)  
**Catalog No.** 277844  
**Alternate Catalog No.** XTCE050D00TD  
**EL-Nummer (Norway)** 4130449

## 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

## Rated operational current

AC-3				
Notes				At maximum permissible ambient temperature (open.) Also tested according to AC-3e.
380 V 400 V	$I_e$	A	50	
AC-1				
Conventional free air thermal current, 3 pole, 50 - 60 Hz				
Open				
at 40 °C	$I_{th} = I_e$	A	80	
enclosed	$I_{th}$	A	58	
Conventional free air thermal current, 1 pole				
open	$I_{th}$	A	162	
enclosed	$I_{th}$	A	145	

## Max. rating for three-phase motors, 50 - 60 Hz

AC-3				
220 V 230 V	P	kW	15.5	
380 V 400 V	P	kW	22	
660 V 690 V	P	kW	30	
AC-4				
220 V 230 V	P	kW	6	
380 V 400 V	P	kW	10	
660 V 690 V	P	kW	14	
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			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
Weight		
DC operated	kg	1.052
Screw connector terminals		
Terminal capacity main cable		
Solid	mm <sup>2</sup>	1 x (0.75 - 16) 2 x (0.75 - 16)
Flexible with ferrule	mm <sup>2</sup>	1 x (0.75 - 35) 2 x (0.75 - 25)
Stranded	mm <sup>2</sup>	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 <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
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Overtoltage 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)			
	Up to 690 V	A	700
Breaking capacity			
220 V 230 V		A	500
380 V 400 V		A	500
500 V		A	500
660 V 690 V		A	320
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	80
690 V	gG/gL 690 V	A	63
Type "1" coordination			
400 V	gG/gL 500 V	A	160
690 V	gG/gL 690 V	A	80

## 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	80
at 50 °C	$I_{th} = I_e$	A	71
at 55 °C	$I_{th} = I_e$	A	68
at 60 °C	$I_{th} = I_e$	A	65
enclosed	$I_{th}$	A	58
Conventional free air thermal current, 1 pole			
open	$I_{th}$	A	162
enclosed	$I_{th}$	A	145

### 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	50
240 V	$I_e$	A	50
380 V 400 V	$I_e$	A	50
415 V	$I_e$	A	50
440V	$I_e$	A	50
500 V	$I_e$	A	50
660 V 690 V	$I_e$	A	32
Motor rating	P	kWh	
220 V 230 V	P	kW	15.5
240V	P	kW	17
380 V 400 V	P	kW	22
415 V	P	kW	30
440 V	P	kW	32
500 V	P	kW	36
660 V 690 V	P	kW	30
AC-4			

Open, 3-pole: 50 – 60 Hz			
220 V 230 V	$I_e$	A	21
240 V	$I_e$	A	21
380 V 400 V	$I_e$	A	21
415 V	$I_e$	A	21
440 V	$I_e$	A	21
500 V	$I_e$	A	21
660 V 690 V	$I_e$	A	17
Motor rating	P	kWh	
220 V 230 V	P	kW	6
240 V	P	kW	6.5
380 V 400 V	P	kW	10
415 V	P	kW	11
440 V	P	kW	12
500 V	P	kW	13
660 V 690 V	P	kW	14

## DC

Rated operational current, open			
DC-1			
60 V	$I_e$	A	60
110 V	$I_e$	A	50
220 V	$I_e$	A	45

## Current heat loss

3 pole, at $I_{th}$ (60°)		W	16.7
Current heat loss at $I_e$ to AC-3/400 V		W	9.9
Impedance per pole		$m\Omega$	1.9

## Magnet systems

Voltage tolerance			
DC operated	Pick-up	$\times U_c$	0.7 - 1.2
Notes			RDC 24 ( $U_{min}$ 24 V DC/ $U_{max}$ 27 V DC) Example: $U_S = 0.7 \times U_{min} - 1.2 \times U_{max} / U_S = 0.7 \times 24V - 1.2 \times 27V$ DC
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	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		to EN 60947-1
Interference immunity		to EN 60947-1

## Rating data for approved types

Switching capacity			
Maximum motor rating			
Three-phase			
200 V 208 V	HP	15	
230 V 240 V	HP	20	

460 V	HP	40
480 V		
575 V	HP	50
600 V		
Single-phase		
115 V	HP	3
120 V		
230 V	HP	10
240 V		
General use	A	80
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	79
600V 60Hz 3phase, 347V 60Hz 1phase	A	79
Incandescent Lamps (Tungsten)		
480V 60Hz 3phase, 277V 60Hz 1phase	A	74
600V 60Hz 3phase, 347V 60Hz 1phase	A	74
Resistance Air Heating		
480V 60Hz 3phase, 277V 60Hz 1phase	A	79
600V 60Hz 3phase, 347V 60Hz 1phase	A	79
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	50
Heat dissipation per pole, current-dependent	$P_{vid}$	W	3.3
Equipment heat dissipation, current-dependent	$P_{vid}$	W	9.9
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 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	80
Rated operation current Ie at AC-3, 400 V	A	50
Rated operation power at AC-3, 400 V	kW	22
Rated operation current Ie at AC-4, 400 V	A	21
Rated operation power at AC-4, 400 V	kW	10
Rated operation power NEMA	kW	29.8
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