

Contactor, 3 pole, 380 V 400 V 75 kW, RAC 440: 380 - 440 V 50/60 Hz, AC operation, Screw terminals

Part no. **DILM150(RAC440)**
 Catalog No. **239589**
 Alternate Catalog No. **XTCE150G00L**

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	150
AC-1			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	190
enclosed	I_{th}	A	144
Conventional free air thermal current, 1 pole			
open	I_{th}	A	400
enclosed	I_{th}	A	360
Max. rating for three-phase motors, 50 - 60 Hz			
AC-3			
220 V 230 V	P	kW	48
380 V 400 V	P	kW	75
660 V 690 V	P	kW	96
AC-4			
220 V 230 V	P	kW	20
380 V 400 V	P	kW	33
660 V 690 V	P	kW	48
Can be combined with auxiliary contact	DILM150-XHI(V)... DILM1000-XHI(V)...		
Actuating voltage	RAC 440: 380 - 440 V 50/60 Hz		
Voltage AC/DC	AC 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			
AC operated	Operations	$\times 10^6$	5.7
Operating frequency, mechanical			
AC 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	
Weight			
AC operated	kg	2.25	
Screw connector terminals			
Terminal capacity main cable			
Flexible with ferrule	mm ²	1 x (10 - 95) 2 x (10 - 70)	
Stranded	mm ²	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 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	690	
between the contacts	V AC	690	
Making capacity (p.f. to IEC/EN 60947)			
	Up to 690 V	A	2100
Breaking capacity			
220 V 230 V	A	1500	
380 V 400 V	A	1500	
500 V	A	1500	
660 V 690 V	A	1200	
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	250
690 V	gG/gL 690 V	A	250
Type "1" coordination			
400 V	gG/gL 500 V	A	250
690 V	gG/gL 690 V	A	250
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	190
at 50 °C	$I_{th} = I_e$	A	180
at 55 °C	$I_{th} = I_e$	A	170
at 60 °C	$I_{th} = I_e$	A	160
enclosed	I_{th}	A	144
Conventional free air thermal current, 1 pole			
open	I_{th}	A	400
enclosed	I_{th}	A	360
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	150
240 V	I_e	A	150
380 V 400 V	I_e	A	150
415 V	I_e	A	150
440V	I_e	A	150
500 V	I_e	A	150
660 V 690 V	I_e	A	100
Motor rating	P	kWh	
220 V 230 V	P	kW	48
240V	P	kW	52
380 V 400 V	P	kW	75
415 V	P	kW	91
440 V	P	kW	95
500 V	P	kW	110
660 V 690 V	P	kW	96
AC-4			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I_e	A	65
240 V	I_e	A	65
380 V 400 V	I_e	A	65

415 V	I _e	A	65
440 V	I _e	A	65
500 V	I _e	A	65
660 V 690 V	I _e	A	50
Motor rating	P	kWh	
220 V 230 V	P	kW	20
240 V	P	kW	22
380 V 400 V	P	kW	33
415 V	P	kW	39
440 V	P	kW	41
500 V	P	kW	47
660 V 690 V	P	kW	48

DC

Rated operational current, open			
DC-1			
60 V	I _e	A	160
110 V	I _e	A	160
220 V	I _e	A	90

Current heat loss

3 pole, at I _{th} (60°)		W	36.5
Current heat loss at I _e to AC-3/400 V		W	32.1
Impedance per pole		mΩ	0.6

Magnet systems

Voltage tolerance			
AC operated	Pick-up	x U _c	0.8 - 1.15
Drop-out voltage AC operated	Drop-out	x U _c	0.25 - 0.6
Power consumption of the coil in a cold state and 1.0 x U _S			
50 Hz	Pick-up	VA	180
50 Hz	Sealing	VA	3.1
50 Hz	Sealing	W	2.3
60 Hz	Pick-up	VA	170
60 Hz	Sealing	VA	3.1
60 Hz	Sealing	W	2.3
Duty factor		% DF	100
Changeover time at 100 % U _S (recommended value)			
Main contacts			
AC operated			
Closing delay		ms	28 - 33
Opening delay		ms	35 - 41
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		to EN 60947-1
Interference immunity		to EN 60947-1

Rating data for approved types

Switching capacity			
Maximum motor rating			
Three-phase			
200 V	HP	50	
208 V			
230 V	HP	60	
240 V			
460 V	HP	125	
480 V			
575 V	HP	125	
600 V			

Single-phase			
115 V	HP	10	
120 V			
230 V	HP	30	
240 V			
General use	A	225	
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	300/600 Class J	
SCCR (CB)	kA	30	
max. CB	A	350	
Special Purpose Ratings			
Electrical Discharge Lamps (Ballast)			
480V 60Hz 3phase, 277V 60Hz 1phase	A	160	
600V 60Hz 3phase, 347V 60Hz 1phase	A	160	
Incandescent Lamps (Tungsten)			
480V 60Hz 3phase, 277V 60Hz 1phase	A	160	
600V 60Hz 3phase, 347V 60Hz 1phase	A	160	
Resistance Air Heating			
480V 60Hz 3phase, 277V 60Hz 1phase	A	160	
600V 60Hz 3phase, 347V 60Hz 1phase	A	160	
Refrigeration Control (CSA only)			
LRA 480V 60Hz 3phase	A	540	
FLA 480V 60Hz 3phase	A	90	
LRA 600V 60Hz 3phase	A	540	
FLA 600V 60Hz 3phase	A	90	
Definite Purpose Ratings (100,000 cycles acc. to UL 1995)			
LRA 480V 60Hz 3phase	A	900	
FLA 480V 60Hz 3phase	A	150	
Elevator Control			
200V 60Hz 3phase	HP	30	
200V 60Hz 3phase	A	92	
240V 60Hz 3phase	HP	40	
240V 60Hz 3phase	A	104	
480V 60Hz 3phase	HP	75	
480V 60Hz 3phase	A	96	
600V 60Hz 3phase	HP	100	
600V 60Hz 3phase	A	99	

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	150
Heat dissipation per pole, current-dependent	P_{vid}	W	10.7
Equipment heat dissipation, current-dependent	P_{vid}	W	32.1
Static heat dissipation, non-current-dependent	P_{vs}	W	2.3
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	380 - 440
Rated control supply voltage Us at AC 60HZ	V	380 - 440
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	190
Rated operation current Ie at AC-3, 400 V	A	150
Rated operation power at AC-3, 400 V	kW	75
Rated operation current Ie at AC-4, 400 V	A	65
Rated operation power at AC-4, 400 V	kW	33
Rated operation power NEMA	kW	93
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