

Contactor, 4 pole, DC operation, AC-1: 22 A, 24 V DC, Screw terminals

Part no. DILMP20(24VDC)
Catalog No. 276985
Alternate Catalog No. XTCF020B00TD
EL-Nummer (Norway) 4130328



Delivery program

Product range	Contactors		
Application	Contactors for 4 pole electric consumers		
Subrange	Contactors up to 200 A, 4 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		
Connection technique	Screw terminals		
Number of poles	4 pole		
Rated operational current			
AC-1			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
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	20.5
at 60 °C	$I_{th} = I_e$	A	20
For use with	DILM32-XHI(C)... DILA-XHI(V)(C)...		
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	Contacts to EN 50 012. Integrated varistor suppressor circuit.		

Technical data

General					
Standards	IEC/EN 60947, VDE 0660, UL, CSA				
Lifespan, mechanical	Operations	$\times 10^6$	10		
AC operated	Operations	$\times 10^6$	10		
DC operated	Operations/h		5000		
Operating frequency, mechanical	Operations/h		5000		
AC operated	Operations/h		5000		
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			
Degree of Protection	IP20				
Altitude	m	Max. 2000			

Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Stripping length	mm	10	
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	18 - 14	
Terminal screw		M3.5	
Tightening torque	Nm	1.2	
Stripping length	mm	10	
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			
Main cable			
Pozidriv screwdriver	Size	2	
Standard screwdriver	mm	0.8 x 5.5 1 x 6	
Control circuit cables			
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 (cos φ)	Up to 690 V	A	144 According to IEC/EN 60947
Breaking capacity			
220 V 230 V		A	120
380 V 400 V		A	120
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	35
690 V	gG/gL 690 V	A	25

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	20.5
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	60
enclosed	I_{th}	A	54
Motor rating	P	kWh	
220/230 V	P	kW	8
240 V	P	kW	9
380/400 V	P	kW	14
415 V	P	kW	15
440 V	P	kW	16
500 V	P	kW	18
690 V	P	kW	24
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	12
240 V	I_e	A	12
380 V 400 V	I_e	A	12
415 V	I_e	A	12
440 V	I_e	A	12
500 V	I_e	A	10
660 V 690 V	I_e	A	7
Motor rating	P	kWh	
220 V 230 V	P	kW	3.5
240 V	P	kW	4
380 V 400 V	P	kW	5.5
415 V	P	kW	7
440 V	P	kW	7.5
500 V	P	kW	7
660 V 690 V	P	kW	6.5

DC

Rated operational current, open			
DC-1			
60 V	I_e	A	22
110 V	I_e	A	22
220 V	I_e	A	6

Current heat loss

3 pole, at I_{th} (60°)	W	3
Impedance per pole	$m\Omega$	2.5

Magnet systems

Voltage tolerance			
AC operated 50/60 Hz	$x U_c$		0.8 - 1.1
DC operated	Pick-up	$x U_c$	At least double-pulse bridge rectifier - 0.8 - 1.1
DC operated	Drop-out	$x U_c$	At least double-pulse bridge rectifier - 0.2 - 0.6
Power consumption of the coil in a cold state and $1.0 \times U_S$			
Notes on DC actuation			At least double-pulse bridge rectifier
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	
Notes on DC actuation			At least double-pulse bridge rectifier
Closing delay	ms	31	
Opening delay	ms	12	
Arcing time	ms	10	
Permissible residual current with actuation of A1 - A2 by the electronics (with 0 signal).	mA	≤ 1	

Rating data for approved types

Switching capacity			
General use	A	20	
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	
max. Fuse	A	25 Class RK5	
600 V High Fault			
SCCR (fuse)	kA	30	
max. Fuse	A	25 Class RK5	
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	
Elevator Control			
600V 60Hz 3phase	HP	5	
600V 60Hz 3phase	A	6.1	

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I _h	A	22
Heat dissipation per pole, current-dependent	P _{vid}	W	1.7
Equipment heat dissipation, current-dependent	P _{vid}	W	5.1
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 Ie at AC-1, 400 V	A	22
Rated operation current Ie at AC-3, 400 V	A	12
Rated operation power at AC-3, 400 V	kW	5.5
Rated operation current Ie at AC-4, 400 V	A	10
Rated operation power at AC-4, 400 V	kW	4.5
Rated operation power NEMA	kW	0
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		4