

Contactor, 380 V 400 V 315 kW, 2 N/O, 2 NC, RA 250: 110 - 250 V 40 - 60 Hz/110 - 350 V DC, AC and DC operation, Screw connection



Part no. DILM580/22(RA250)
Catalog No. 208216
Alternate Catalog No. XTCE580N22A
EL-Nummer (Norway) 4134087

Delivery program

Product range	Contactors		
Application	Contactors for Motors		
Subrange	Comfort devices greater than 170 A		
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 connection		
Rated operational current			
AC-3			
380 V 400 V	I_e	A	580
AC-1			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	980
Conventional free air thermal current, 1 pole			
open	I_{th}	A	2000
Max. rating for three-phase motors, 50 - 60 Hz			
AC-3			
220 V 230 V	P	kW	185
380 V 400 V	P	kW	315
660 V 690 V	P	kW	560
1000 V	P	kW	600
AC-4			
220 V 230 V	P	kW	143
380 V 400 V	P	kW	250
660 V 690 V	P	kW	440
1000 V	P	kW	509
Can be combined with auxiliary contact	DILM820-XHI...		
Actuating voltage	RA 250: 110 - 250 V 40 - 60 Hz/110 - 350 V DC		
Voltage AC/DC	AC and DC operation		
Contacts			
N/O = Normally open	2 N/O		
N/C = Normally closed	2 NC		
Auxiliary contacts			
possible variants at auxiliary contact module fitting options	on the side: 2 x DILM820-XHI11(V)-SI; 2 x DILM820-XHI11-SA		
Instructions			
	Interlocked opposing contacts according to IEC/EN 60947-5-1 Appendix L, inside the auxiliary contact module Auxiliary contacts used as mirror contacts according to IEC/EN 60947-4-1 Appendix F (not N/C late open)		
Instructions			
	integrated suppressor circuit in actuating electronics 660 V, 690 V or 1000 V: not directly reversing		

Technical data

General

Standards	IEC/EN 60947, VDE 0660, UL, CSA	
Lifespan, mechanical		

AC operated	Operations	$\times 10^6$	5
DC operated	Operations	$\times 10^6$	5
Operating frequency, mechanical			
AC operated	Operations/h		1000
DC operated	Operations/h		1000
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open	°C		-40 - +60
Enclosed	°C		-40 - +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		10
N/C contact	g		8
Degree of Protection			IP00
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof with terminal shroud or terminal block
Altitude	m		Max. 2000
Weight			
AC operated	kg		16.21
DC operated	kg		16.21
Weight	kg		16.21
Terminal capacity main cable			
Flexible with cable lug	mm ²		50 - 240
Stranded with cable lug	mm ²		70 - 240
Solid or stranded	AWG		2/0 - 500 MCM
Flat conductor	Lamellenzahl x Breite x Dicke	mm	Fixing with flat cable terminal or cable terminal blocks See terminal capacity for cable terminal blocks
Busbar	Width	mm	50
Main cable connection screw/bolt			M10
Tightening torque		Nm	24
Terminal capacity control circuit cables			
Solid	mm ²		1 x (0.75 - 2.5) 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
Control circuit cable connection screw/bolt			M3.5
Tightening torque		Nm	1.2
Tool			
Main cable			
Width across flats	mm		16
Control circuit cables			
Pozidriv screwdriver		Size	2
Main conducting paths			
Rated impulse withstand voltage	U _{imp}	V AC	8000
Oversvoltage category/pollution degree			III/3
Rated insulation voltage	U _i	V AC	1000
Rated operational voltage	U _e	V AC	1000
Safe isolation to EN 61140			
between coil and contacts		V AC	1000
between the contacts		V AC	1000
Making capacity (p.f. to IEC/EN 60947)		A	7800

Breaking capacity			
220 V 230 V	A	6500	
380 V 400 V	A	6500	
500 V	A	6500	
660 V 690 V	A	6500	
1000 V	A	4350	
Component lifespan			
			AC1: See → Engineering, characteristic curves
			AC3: See → Engineering, characteristic curves
			AC4: See → Engineering, characteristic curves
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	630
690 V	gG/gL 690 V	A	630
1000 V	gG/gL 1000 V	A	500
Type "1" coordination			
400 V	gG/gL 500 V	A	1000
690 V	gG/gL 690 V	A	1000
1000 V	gG/gL 1000 V	A	630
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	980
at 50 °C	$I_{th} = I_e$	A	876
at 55 °C	$I_{th} = I_e$	A	836
at 60 °C	$I_{th} = I_e$	A	800
Conventional free air thermal current, 1 pole			
Note			
open	I_{th}	A	2000
at maximum permissible ambient air temperature			
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	580
240 V	I_e	A	580
380 V 400 V	I_e	A	580
415 V	I_e	A	580
440V	I_e	A	580
500 V	I_e	A	580
660 V 690 V	I_e	A	580
1000 V	I_e	A	435
Motor rating			
220 V 230 V	P	kWh	
240V	P	kW	185
380 V 400 V	P	kW	200
415 V	P	kW	315
440 V	P	kW	348
500 V	P	kW	370
660 V 690 V	P	kW	420
1000 V	P	kW	560
			600
AC-4			
Rated operational current			

Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I_e	A	456
240 V	I_e	A	456
380 V 400 V	I_e	A	456
415 V	I_e	A	456
440 V	I_e	A	456
500 V	I_e	A	456
660 V 690 V	I_e	A	456
1000 V	I_e	A	348
Motor rating	P	kWh	
220 V 230 V	P	kW	143
240 V	P	kW	156
380 V 400 V	P	kW	250
415 V	P	kW	274
440 V	P	kW	290
500 V	P	kW	330
660 V 690 V	P	kW	440
1000 V	P	kW	509

Condensor operation

Individual compensation, rated operational current I_e of three-phase capacitors			
Open			
up to 525 V	A	463	
690 V	A	265	
Max. inrush current peak	$\times I_e$	30	
Component lifespan	Operations $\times 10^6$	0.1	
Max. operating frequency	Ops/h	200	

Current heat loss

3 pole, at I_{th} (60°)	W	61
Current heat loss at I_e to AC-3/400 V	W	32
Impedance per pole	$m\Omega$	0.032

Magnet systems

Voltage tolerance			
U_S			110 - 250 V 40-60 Hz 110 - 350 V DC
AC operated	Pick-up		$0.7 \times U_S \text{ min} - 1.15 \times U_S \text{ max}$
DC operated	Pick-up		$0.7 \times U_S \text{ min} - 1.15 \times U_S \text{ max}$
AC operated	Drop-out		$0.2 \times U_S \text{ max} - 0.6 \times U_S \text{ min}$
DC operated	Drop-out		$0.2 \times U_S \text{ max} - 0.6 \times U_S \text{ min}$

Power consumption of the coil in a cold state and $1.0 \times U_S$

Note on power consumption			Control transformer with $u_k \leq 7\%$
Pull-in power	Pick-up	VA	800
Pull-in power	Pick-up	W	700
Sealing power	Sealing	VA	26.5
Sealing power	Sealing	W	11.4

Duty factor

Changeover time at 100 % U_S (recommended value)

Main contacts			
Closing delay		ms	70
Opening delay		ms	110

Behaviour in marginal and transitional conditions

Sealing			
Voltage interruptions			
$(0 \dots 0.2 \times U_c \text{ min}) \leq 10 \text{ ms}$			Time is bridged successfully
$(0 \dots 0.2 \times U_c \text{ min}) > 10 \text{ ms}$			Drop-out of the contactor

Voltage drops		
$(0.2 \dots 0.6 \times U_c \text{ min}) \leq 12 \text{ ms}$		Time is bridged successfully
$(0.2 \dots 0.6 \times U_c \text{ min}) > 12 \text{ ms}$		Drop-out of the contactor
$(0.6 \dots 0.7 \times U_c \text{ min})$		Contactor remains switched on
Excess voltage		
$(1.15 \dots 1.3 \times U_c \text{ max})$		Contactor remains switched on
Pick-up phase		
$(0 \dots 0.7 \times U_c \text{ min})$		Contactor does not switch on
$(0.7 \times U_c \text{ min} \dots 1.15 \times U_c \text{ max})$		Contactor switches on with certainty
Admissible transitional contact resistance (of the external control circuit device when actuating A11)	$\text{m}\Omega$	≤ 500
PLC signal level (A3 - A4) to IEC/EN 61131-2 (type 2)		
High	V	15
Low	V	5

Electromagnetic compatibility (EMC)

Electromagnetic compatibility			This product is designed for operation in industrial environments (environment A). Its use in residential environments (environment B) may cause radio-frequency interference, requiring additional noise suppression measures.
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Rating data for approved types

Switching capacity			
Maximum motor rating			
Three-phase			
200 V	HP	200	
208 V			
230 V	HP	200	
240 V			
460 V	HP	400	
480 V			
575 V	HP	600	
600 V			
General use	A	980	
Auxiliary contacts			
Pilot Duty			
AC operated		A600	
DC operated		P300	
General Use			
AC	V	600	
AC	A	15	
DC	V	250	
DC	A	1	
Short Circuit Current Rating	SCCR		
Basic Rating			
SCCR	kA	30	
max. Fuse	A	2000	
max. CB	A	1200	
480 V High Fault			
SCCR (fuse)	kA	85	
max. Fuse	A	2000	
SCCR (CB)	kA	85	
max. CB	A	1200	
600 V High Fault			
SCCR (fuse)	kA	85	
max. Fuse	A	2000	
SCCR (CB)	kA	85	
max. CB	A	1200	
Special Purpose Ratings			
Definite Purpose Ratings (100,000 cycles acc. to UL 1995)			
LRA 480V 60Hz 3phase	A	4020	

FLA 480V 60Hz 3phase	A	670
LRA 600V 60Hz 3phase	A	4020
FLA 600V 60Hz 3phase	A	670

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	580
Heat dissipation per pole, current-dependent	P_{vid}	W	10.67
Equipment heat dissipation, current-dependent	P_{vid}	W	0
Static heat dissipation, non-current-dependent	P_{vs}	W	6.5
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	-40
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	110 - 250
Rated control supply voltage Us at AC 60Hz	V	110 - 250
Rated control supply voltage Us at DC	V	110 - 250
Voltage type for actuating		AC
Rated operation current Ie at AC-1, 400 V	A	980
Rated operation current Ie at AC-3, 400 V	A	580
Rated operation power at AC-3, 400 V	kW	315
Rated operation current Ie at AC-4, 400 V	A	456
Rated operation power at AC-4, 400 V	kW	250
Rated operation power NEMA	kW	298
Modular version		No

Number of auxiliary contacts as normally open contact	2
Number of auxiliary contacts as normally closed contact	2
Type of electrical connection of main circuit	Rail connection
Number of normally closed contacts as main contact	0
Number of normally open contacts as main contact	3