DATASHEET - DILEM4-G(24VDC)



Contactor, 24 V DC, 4 pole, 380 V 400 V, 4 kW, Screw terminals, DC operation



Part no. Catalog No. Alternate Catalog XTMF9A00TD No.

DILEM4-G(24VDC) 012701

Delivery program

Product range			Contactors
Application			Mini Contactors for Motors and Resistive Loads
Subrange			DILEM contactors
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. Also tested according to AC-3e.
Connection technique			Screw terminals
Number of poles			4 pole
Rated operational current			
AC-3			
380 V 400 V	Ι _e	А	9
AC-1			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	А	22
Max. rating for three-phase motors, 50 - 60 Hz			
AC-3			
220 V 230 V	Р	kW	2.2
380 V 400 V	Р	kW	4
660 V 690 V	Р	kW	4
AC-4			
220 V 230 V	Р	kW	1.5
380 V 400 V	Р	kW	3
660 V 690 V	Р	kW	3
Contact sequence			$\begin{array}{c c} A1 & 1 & 3 & 5 & 7 \\ \hline \\ A2 & 2 & 4 & 6 & 8 \end{array}$
Instructions			Integrated diode-resistor combination
For use with			DILEM DILE
Actuating voltage			24 V DC
Voltage AC/DC			DC operation

Technical data General

Gonora			
Standards			IEC/EN 60947, VDE 0660, CSA, UL
Lifespan, mechanical	Operations	x 10 ⁶	20
Maximum operating frequency			
Mechanical		Ops./h	9000
electrical (Contactors without overload relay)	Operations/h		Page 05/070
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open		°C	-25 - +50

Enclosed		°C	- 25 - 40
Storage		°C	
Min. ambient temperature, storage		°C	- 40
Ambient temperature, storage max.		°C	+ 80
Mounting position		Ū	As required, except vertical with terminals A1/A2 at the bottom
Mounting position			
Mechanical shock resistance (IEC/EN 60068-2-27)			
Half-sinusoidal shock, 10 ms			
Basic unit without auxiliary contact module			
Main contacts, make contacts		a	10
Basic unit with auxiliary contact module		g	
Main contacts make contact		g	
Make		g	10
Auxiliary contacts Make/break contacts		g	20 / 20
Degree of Protection		5	IP20
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Altitude		m	Max. 2000
Weight		kg	0.206
Terminal capacity of auxiliary and main contacts		-	
Screw terminals			
Solid		mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Flexible with ferrule		mm ²	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)
Solid or stranded		AWG	18 - 14
Stripping length		mm	8
Terminal screw			M3.5
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 x 5.5 1 x 6
Max. tightening torque		Nm	1.2
Main conducting paths Rated impulse withstand voltage	U _{imp}	V AC	6000
Overvoltage category/pollution degree	Cimp		111/3
Rated insulation voltage	Ui	V AC	690
Rated operational voltage	U _e	V AC	690
Safe isolation to EN 61140	C e		
between coil and contacts		V AC	300
between the contacts		V AC	300
Making capacity (cos φ to IEC/EN 60947)		A	90
Breaking capacity			
220 V 230 V		A	90
380 V 400 V		A	90
500 V		A	64
660 V 690 V		A	42
Short-circuit protection maximum fuse			
Туре "2", 500 V	gL/gG	A	10
Type "1", 500 V	gL/gG	А	20

AC

AC			
AC-1			
Rated operational current			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	I _{th} =I _e	А	22
at 50 °C	I _{th} =I _e	A	20
at 55 °C	I _{th} =I _e	A	19
enclosed	I _{th}	A	16
Notes			At maximum permissible ambient air temperature.
Conventional free air thermal current, 1 pole			
Notes			At maximum permissible ambient air temperature.
open	I _{th}	A	60
enclosed	I _{th}	A	50
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	le	А	9
240 V	le	Α	9
380 V 400 V	le	A	9
415 V	l _e	A	9
440V	le	A	9
500 V	l _e	A	6.4
660 V 690 V	l _e	A	4.8
Motor rating	P	kWh	
220 V 230 V	P	kW	2.2
240V	P	kW	2.5
380 V 400 V	P	kW	4
415 V	P	kW	4.3
440 V	P	kW	4.6
500 V	P	kW	4
660 V 690 V	P	kW	4
AC-4			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
Notes			At maximum permissible ambient air temperature.
220 V 230 V	le	A	6.6
240 V	l _e	A	6.6
380 V 400 V	l _e	A	6.6
415 V		A	6.6
	l _e		
440 V	l _e	A	6.6
500 V	l _e	A	5
660 V 690 V	l _e	A	3.4
Motor rating	P	kWh	
220 V 230 V	P	kW	1.5
240 V	P	kW	1.8
380 V 400 V	Р	kW	3
415 V	Ρ	kW	3.1
440 V	P P	kW	3.3
	Ρ		

DC

Rated operational current open

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Auxiliary contacts Auxilia			W	5.9
Positive operating contacts to EN60947-5-1 appendix L, including auxiliary contage Vmm	Impedance per pole		mΩ	7.86
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Rated insulation voltageIVAC90Rated operational voltageVAC90Safe isolation to EN 61140VACVACbetween coil and auxiliary contactsVACVACRated operational currentsVAC90AC-15VAC90220 V 240 VII380 V 415 VI90500 VII500 VII500 VII60 Charter is neries:II1III1III3III3III3III3III3IIIIIII3III3IIIIIII3III3IIIIIII3III3III3III3III3III3III3III3III3III3III3III3III3III3II	Rated impulse withstand voltage	U _{imp}	V AC	6000
Rated operational voltage Ve VAC 60 Safe isolation to EN 61140 </td <td>Overvoltage category/pollution degree</td> <td></td> <td></td> <td>111/3</td>	Overvoltage category/pollution degree			111/3
Seisation to EN 61140 Feature auxiliary contacts VAC	Rated insulation voltage	Ui	V AC	690
between coil and auxiliary contactsV AC MACHV AC MACH<	Rated operational voltage	U _e	V AC	600
between the auxiliary contacts YAC Rated operational current YAC AC-15 YAC 220 Y240 V Ie 380 V415 V Ie 380 V415 V Ie 500 V Ie DC L/R ≦ 15 ms Ie 1 Contacts in series: 1 24V A 1 24V A 2 A 3 Contacts in series: 3 AU 3 Contacts 4 Contacts 5 Contacts 3 Contacts 3 Contacts 3 Contacts 3 Contacts 3 Contacts 3 Contacts 4 A 4 Contacts	Safe isolation to EN 61140			
Rated operational current Action Action Action 20V 240 V Ie Action 20V 240 V Ie Action 380 V 415 V Ie Action 500 V Ie Action 500 V Ie Action DC L/R ≤ 15 ms Ie Action 1 Ie Action 1 Ie Action 2 Action Action 3 Ie Action	between coil and auxiliary contacts			300
AC-15Image: Second			V AC	300
220 Y240 VIeAA380 V 415 VIeA3500 VIeA5DC I/R 515 msContacts in series:-A-1AA25310VA5320VAA5320VAA5320VAA5AAA5AAA5AAA5AA<	Rated operational current			
380 V 415 V Ie A 3 500 V Ie A 15 DC L/R ≤ 15 ms I I I Contacts in series: I I I 1 24 V A 25 2 60 V A 26 3 10 V A 26 3 102 V A 102 3 20 V A 26 Conturent A 20 V A				
50 V Pe P	220 V 240 V	l _e	А	6
DC L/R ≦ 15 ms A A Contacts in series: A A 1 24V A 5 2 60V A 5 3 10V A 5 3 20V A 5 Contacts in series: A 5	380 V 415 V	l _e	А	3
Contacts in series:AA124VaA5260VaA5310VaA15320VaA5Conv. thermal currentInhAB	500 V	l _e	А	1.5
1 24V A 25 2 60V A 25 3 10V A 15 3 20V A 50 Conv. thermal current In A 10	DC L/R ≦ 15 ms			
2 60 V A 5 3 10 V A 15 3 20 V A 05 Conv. thermal current Ith A 10	Contacts in series:		А	
3 100 V A 1.5 3 20 V A 0.5 Conv. thermal current In A A	1	24 V	А	
3 20 V A 0.5 Conv. thermal current Ith A 0		60 V	А	2.5
Conv. thermal current l_{th} A 10		100 V	А	
			А	
Control circuit reliability Failure rate λ <10 ⁻⁸ , < one failure at 100 million operations	Conv. thermal current	l _{th}	A	10
	Control circuit reliability	Failure rate	λ	<10 ⁻⁸ , < one failure at 100 million operations

			(at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA)
Component lifespan at U _e = 240 V			
AC-15	Operations	x 10 ⁶	0.2
DC current			
L/R = 50 ms: 2 contacts in series at $\rm I_{e}$ = 0.5 A	Operations	x 10 ⁶	0.15
Notes			Switch-on and switch-off conditions based on DC-13, time constant as specified
Short-circuit rating without welding			
Maximum overcurrent protective device			
Short-circuit protection only			PKZM0-4
Short-circuit protection maximum fuse			
500 V		A gG/gL	6
500 V		A fast	10
Current heat loss at a load of I_{th} per contact		W	1.1
Rating data for approved types			
Switching capacity			
Maximum motor rating			
Three-phase			
200 V 208 V		НР	2
230 V 240 V		HP	3
460 V 480 V		HP	5
575 V 600 V		HP	5
Single-phase			
115 V 120 V		HP	0.5
230 V 240 V		HP	1.5
General use		А	15
Short Circuit Current Rating		SCCR	
Basic Rating			
SCCR		kA	5
max. Fuse		А	45

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	А	22
Heat dissipation per pole, current-dependent	P _{vid}	W	1.79
Equipment heat dissipation, current-dependent	P _{vid}	W	7.17
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	50
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.

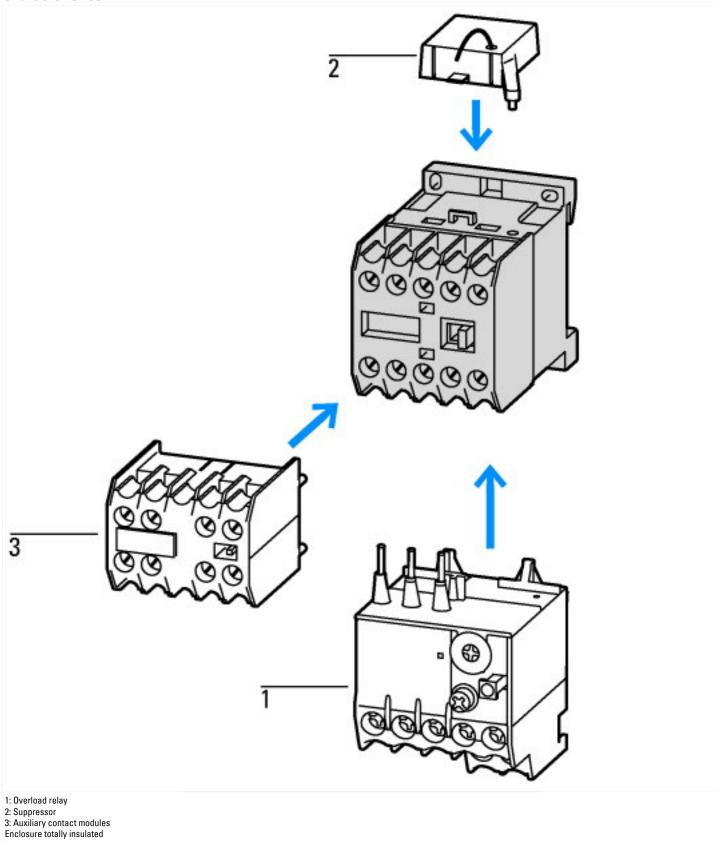
Technical data ETIM 7.0

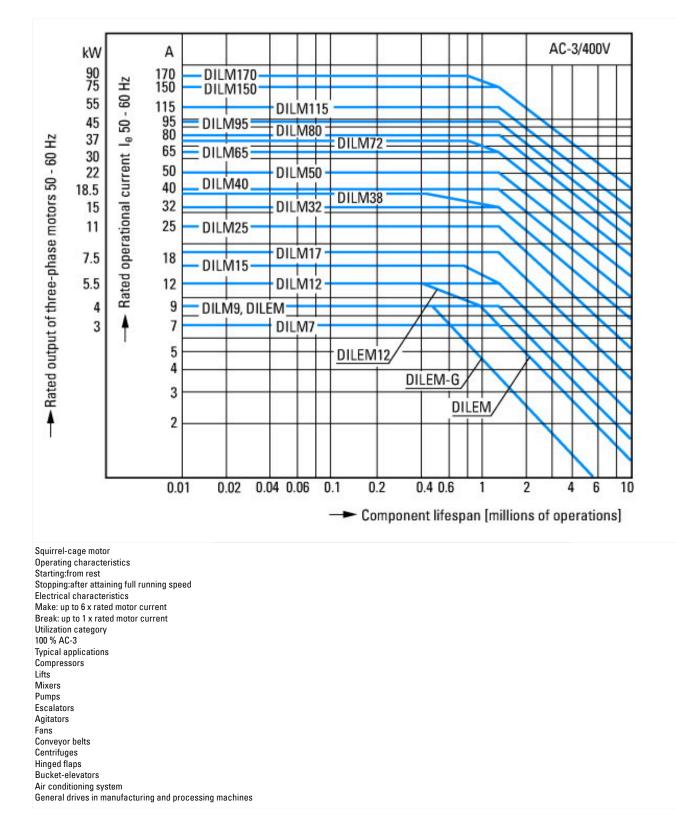
Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)

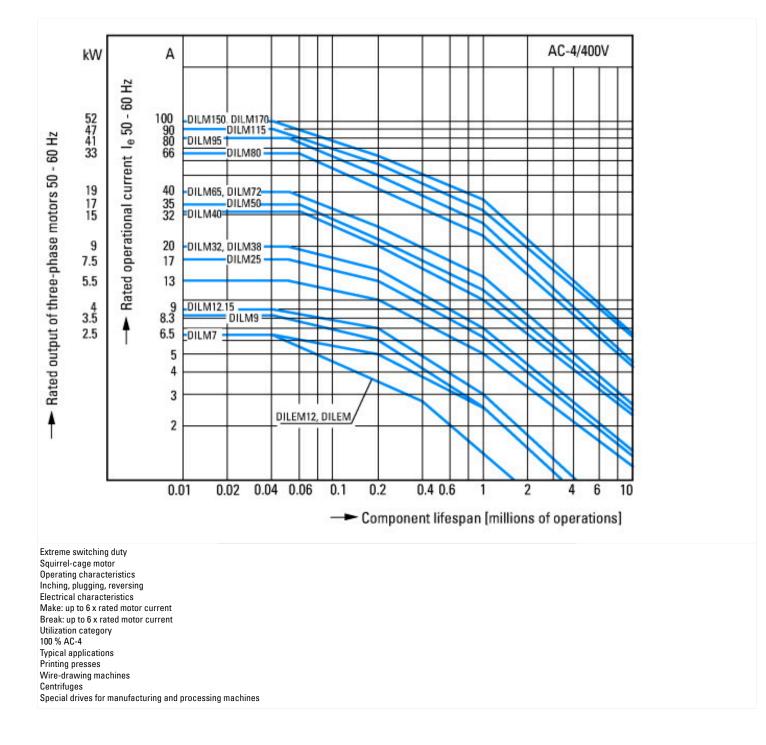
Electric engineering, automation, process control engineering / Low-voltage swite	ch technology / C	ontactor	(LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015])
Rated control supply voltage Us at AC 50HZ		V	0 - 0
Rated control supply voltage Us at AC 60HZ		V	0 - 0
Rated control supply voltage Us at DC		V	24 - 24
Voltage type for actuating			DC
Rated operation current le at AC-1, 400 V		А	22
Rated operation current le at AC-3, 400 V		A	9
Rated operation power at AC-3, 400 V		kW	4
Rated operation current le at AC-4, 400 V		А	6.6
Rated operation power at AC-4, 400 V		kW	3
Rated operation power NEMA		kW	3.7
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 main contacts as normally open contact			4

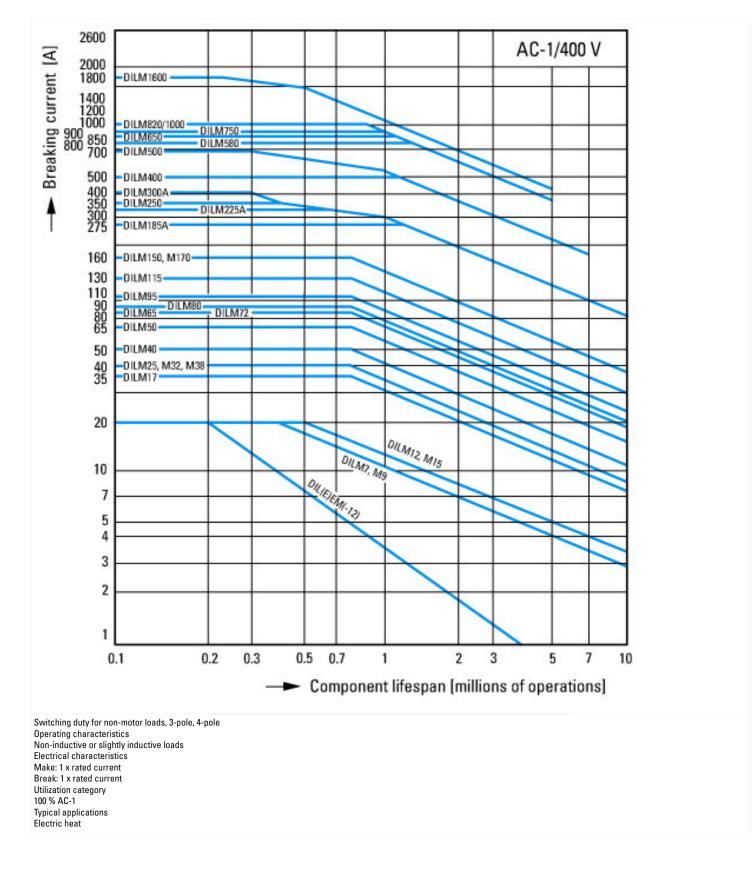
Approvals

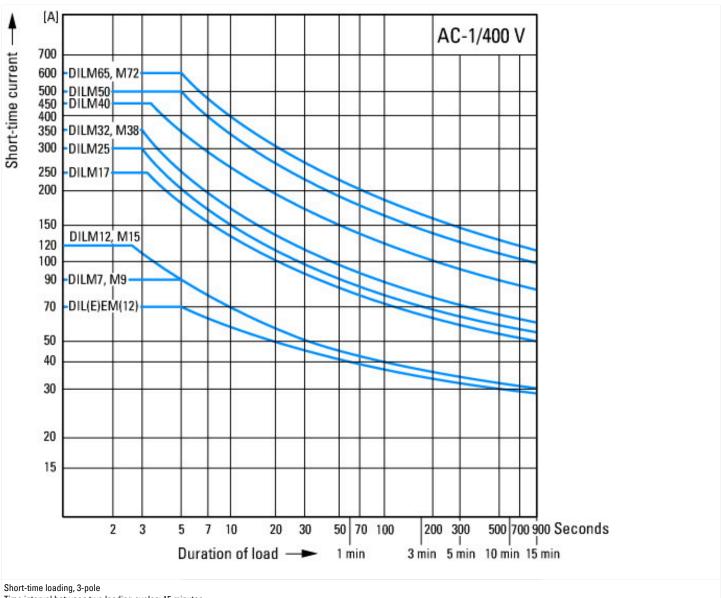
Product Standards	IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.	E29096
UL Category Control No.	NLDX
CSA File No.	012528
CSA Class No.	3211-04
North America Certification	UL listed, CSA certified
Specially designed for North America	No











Time interval between two loading cycles: 15 minutes

Dimensions

