

Contactor, 4p, 160A/AC1

Part no. DILMP160(RDC24)
Article no. 109920
Catalog No. XTCF160G00TD



Delivery program

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 NAC-3: Normal AC induction motors: starting, switch off during 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	$I_{th} = I_e$	Α	160
at 50 °C	$I_{th} = I_e$	Α	150
at 60 °C	$I_{th} = I_e$	Α	138
Contact sequence			$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
For use with			DILM150-XHI(A)(V) DILM1000-XHI(V)
Actuating voltage			RDC 24: 24 - 27 V DC
Voltage AC/DC			DC operation
Instructions			Contacts to EN 50012. integrated suppressor circuit in actuating electronics

Technical data

General

General			
Standards			IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical			
AC operated	Operations	x 10 ⁶	10
DC operated	Operations	x 10 ⁶	10
Operating frequency, mechanical			
AC operated	Operations/h		3600
DC operated	Operations/h		3600
Climatic proofing			Damp heat, constant, to IEC 60068-2-3 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open		°C	-25 - +60
Enclosed		°C	- 25 - 40
Storage		°C	- 40 - 80
Mounting position			
Mounting position			30°
Mechanical shock resistance (IEC/EN 60068-2-27)			
Half-sinusoidal shock, 10 ms			
Main contacts			

Not context Not con				
Mill Content Procession P			g	10
NVC contacts Compare of Procession Compare of Procession Compare of Procession and Control C				
Despite of Prantection Procession appared direct contact when neutrated from front ECM SEZVAID File of the procession of the contact when neutrated from front ECM SEZVAID File of the procession of the contact when neutrated from front ECM SEZVAID File of the procession of the contact when neutrated from front ECM SEZVAID File of the procession of the contact when neutrated from front ECM SEZVAID File of the procession of the contact when neutrated from front ECM SEZVAID ACM SEZVAID FRONT TO			g	
Procession against direct contact when actuated from frant EN SEZEYA Finger and back-planted ground Finde Find			g	5
Personal capacity man cable Personal countries	Degree of Protection			IP00
Paralle with feruid	Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Summed	Terminal capacity main cable			
Standard standard	Flexible with ferrule		mm^2	
Solic or stranded			_	
Second or servended	Stranded		mm ²	
Foot conductor	Solid or stranded		AWG	
Remail capacity control circuit cables	Flat conductor	Lamellenzahl		
Terminal capacity control circuit cables Solid Image				
Solid Levi (1975 - 4) 1 (1975 - 4) 4 (1975 - 4) Fleshalte with ferrate 400 2 1 (1975 - 2)	Tamping I against a sector of singuity and I a	Dicke		
Field Fiel			2	1(0.75 A)
Solid or stranted	50110		mm ²	
Solid or stranded	Flexible with ferrule		mm ²	1 x (0.75 - 2.5)
Main cable connection screwboth Mon 14 44 14				2 x (0.75 - 2.5)
Tightening torque Nm 14 Control circuit able connection screw/both Nm 3.5 Trightening torque Nm 12 Totl Nm 12 Main cable Nm 5 Control circuit cables Nm 5 Pozidin screwdriver SD 2 Pozidin screwdriver Nm 3 80 Standard screwdriver Nm 4 80 New collage actegory/bollution degree Nm 9 80 Reted dissillation voltage Up VAC 80 Sals including to State actegory/bollution degree VAC 40 Reted coperational voltage Up VAC 40 Sals including to States VAC 44 between coll and contacts VAC 40 Breaking capacity (cs e) VAC 40 Salving capacity (cs e) VAC 40 Salving capacity (cs e) VAC 40 Salving capacity (cs e) VAC 40 Salvin (cruit triang VAC <	Solid or stranded		AWG	18 - 14
Control circuit cable connection screwholt Max 12 Total Lead of Control circuit cables SW mm 5 Control circuit cables SW mm 5 Control circuit cables SW mm 5 Pocatifity screwdriver % SE 2 Standard scrwdriver % 10 0.2 × 5.5 Main conducting paths W MC 800 Rated impulse withstand voltage U, VAC 800 Overvoltage category/pollution degree U, VAC 80 Rated operational voltage U, VAC 80 Sale isoladon to EN 81140 W VAC 40 between coil and contacts W VAC 40 Making capacity (cos e) W A 20 220 V230 V A 55 40 380 V 680 V W 50 50 580 V 680 V W 50 50 580 V 680 V SW 75 50	Main cable connection screw/bolt			M10
Tightening torque Name 12 Tool Main cable SW Image: Control circuit cables Pasagin socket-head spanner SW Image: Control circuit cables Patrolin's circwidriver SW Image: SX 2 Standard screwdriver Image: SX 0.8 x 5.5 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Tightening torque		Nm	14
Tool	Control circuit cable connection screw/bolt			M3.5
Main cable SW mm 5 Control circuit cables Size 2 Pozidiri screwdriver Size 2 Standard screwdriver Image: Standard screwdriver Size 2 Main conducting paths ***********************************	Tightening torque		Nm	1.2
Hexagon socker-head spanner SW mm S Control circuit cables Podrir's crewdriver Size Size 2 Standard screwdriver Size Si	Tool			
Pozidriv screwdriver	Main cable			
Pozidriv screwdriver	Hexagon socket-head spanner	SW	mm	5
Mair conducting paths V AC 8000 Rated impulse withstand voltage U _{imp} V AC 8000 Rated impulse withstand voltage U _i V AC 800 Rated onsulation voltage U _i V AC 800 Rated onsulation voltage U _i V AC 800 Safe isolation to EN 61140 V AC 400 between coil and contacts V AC 40 Making capacity (cos qi) V AC 40 Breaking capacity (cos qi) A 90 380 V 400 V A 90 800 V 580 V A 90 800 V 680 V A 90 810-cicult rating A 90 810-cicult rating A 90 1 400 V A 160 6 90 V P 160 6 90 V A	Control circuit cables			
Main conducting paths VAC 800 Overvoltage category/pollution degree U _I VAC 800 Rated impulse withstand voltage U _I VAC 690 Rated operational voltage U _I VAC 690 Safe isolation to R 01140 VAC 440 between roll and contacts VAC 440 Making capacity (cos qi) VAC 333 Breaking capacity (cos qi) A 950 220 V 230 V A 950 380 V 400 V A 950 680 V 890 V A 950 Short-circuit rating A 950 Short-circuit protection maximum fuse A 950 400 V B(G) L 500 V A 160 400 V B(G) L 500 V A 160 680 V 800 V B(G) L 500 V A 160 680 V 90 V B(G) L 500 V A 160 680 V B(G) L 500 V A 160 680 V B(G) L 500 V A	Pozidriv screwdriver		Size	2
Main conducting paths Rated impulse withstand voltage Uimp V AC 8000 Overvoltage category/pollution degree Ui V AC 690 Rated insulation voltage Uj V AC 690 Rated operational voltage Uj V AC 690 Safe isolation to EN 61140 V AC 440 between coil and contacts V AC 440 Making capacity (cos q) Up to 890 V A 1300 Breaking capacity A 950 220 V 230 V A 950 380 V 400 V A 950 500 V A 950 680 V 500 V A 750 5Nort-circuit rating B Y Y 5Nort-circuit protection maximum fuse B 160 400 V G 160 160 680 V G 1	Standard screwdriver		mm	0.8 x 5.5
Rated impulse withstand voltage U _{imp} VAC 8000 Overvoltage category/pollution degree U _i VAC 890 Rated insulation voltage U _i VAC 890 Safe isolation to EN 61140 VAC 440 between coil and contacts VAC 440 between the contacts VAC 440 Braking capacity (cos q) VAC 450 220 V 230 V A 950 380 V 400 V A 950 580 V 580 V A 950 Short-circuit rating A 950 Short-circuit protection maximum fuse YAC 950 400 V A 950 400 V A 950 400 V B 960 890 V B 960 890 V B 10 890 V B 10 890 V B 10 890 V B 20 800 V B 20 800				1 x 6
Overvoltage category/pollution degree Ua V AC 800 Rated insulation voltage Ug V AC 800 Safe isolation to EN 61140 V AC 440 between coil and contacts V AC 440 between the contacts V AC 440 Making capacity (cos e) V AC 400 220 V 230 V A 950 380 V 400 V A 950 500 V A 950 500 V A 950 500 V A 950 500 V A 950 Short-circuit protection maximum fuse A 950 Short-circuit protection maximum fuse A 950 400 V 96/9L 500 V A 160 680 V 96/9L 500 V A 160 690 V 96/9L 500 V A 160 690 V 96/9L 500 V A 20 690 V 90 V 20 20 690 V 90 V 20 20 </td <td></td> <td></td> <td>V/ A.C.</td> <td>2000</td>			V/ A.C.	2000
Rated insulation voltage U _i V AC 60 Safe isolation to EN 61140 V AC 40 between coil and contacts V AC 40 between the contacts V AC 40 Making capacity (cos φ) V AC 40 Breaking capacity (cos φ) A 3330 V 400 V 380 V 400 V A 95 680 V 680 V A 95 Short-circuit protection maximum fuse A 95 Type "2" coordination A 96 400 V G/g/L 500 V A 160 680 V 800 V A 160 Abort-circuit protection maximum fuse B B B 400 V G/g/L 500 V A 160 680 V B 160 B 400 V G/g/L 500 V A 160 690 V B 160 B 690 V B 20 20 800 V B 20 20 800 V B		U _{imp}	V AC	
Rated operational voltage U ₀ VAC 690 Safe isolation to EN 61140 VAC 440 between coil and contacts VAC 440 Making capacity (cos φ) Up to 690 V A 400 Breaking capacity A 950 220 V 230 V A 950 380 V 400 V A 950 860 V 650 V A 950 8hort-circuit rating Yes Yes Short-circuit protection maximum fuse Yes Yes 400 V g6/g1 500 V A 160 690 V 96/g1 500 V A 160 400 V 96/g1 500 V A 20 400 V 96 Sig V A 20 860 V 860 V 860 V 860 V 860 V				
Sale isolation to EN 61140 V AC 440 between the contacts V AC 440 Making capacity (cos φ) V AC 440 Breaking capacity (cos φ) V AC 1330 According to IEC/EN 60947 220 V 230 V A 950 380 V 400 V A 950 660 V 890 V A 750 Short-circuit rating A 750 Short-circuit protection maximum fuse A 750 400 V 96/gl 590 V A 160 400 V 96/gl 590 V A 160 400 V 96/gl 590 V A 160 400 V 96/gl 590 V A 250 690 V 96/gl 590 V A 250				
between coil and contacts V AC 440 between the contacts V AC 440 Making capacity (cos φ) V 10 690 V A 1330 According to IEC/EN 60947 220 V 230 V A 350 380 V 400 V A 350 500 V A 350 660 V 680 V A 350 660 V 680 V A 350 Short-circuit rating A 350 Short-circuit protection maximum fuse Figure "2" coordination 400 V 690 V A 610 690 V 690 V 60 V 60 V 60 V 690 V 690 V 60 V 60 V 690 V 60 V	Rated operational voltage	U _e	V AC	690
between the contacts V AC 440 Making capacity (cos φ) Up to 690 V A 1330 According to IEC/EN 60947 Breaking capacity A 950 220 V 230 V A 950 380 V 400 V A 950 660 V 690 V A 750 Short-circuit rating A 750 Short-circuit protection maximum fuse A 160 400 V 96/9L 590 V A 160 690 V 96/9L 690 V A 250 400 V 96/9L 500 V A 250 690 V 96/9L 690 V A 200 AC-1 Rated operational current	Safe isolation to EN 61140			
Making capacity (cos φ) Up to 690 V A according to IEC/EN 60947 Breaking capacity A 950 380 V 400 V A 950 500 V A 950 660 V 690 V A 750 Short-circuit rating A 750 Type "2" coordination B 690 V A 160 400 V g 6/g L 500 V A 160 Type "1" coordination B 690 V A 250 400 V g 6/g L 500 V A 250 690 V g 6/g L 690 V A 200	between coil and contacts		V AC	440
Breaking capacity According to IEC/EN 60947 220 V 230 V A 950 380 V 400 V A 950 500 V A 950 660 V 690 V A 750 Short-circuit rating F F Short-circuit protection maximum fuse F F Type "2" coordination g6/gL 500 V A 160 690 V G90 V A 160 Type "1" coordination g6/gL 500 V A 250 690 V G90 V A 200 AC-1 Rated operational current	between the contacts		V AC	440
Breaking capacity A 950 380 ∨ 400 ∨ A 950 500 ∨ A 950 660 ∨ 690 ∨ A 750 Short-circuit rating A 750 Short-circuit protection maximum fuse B B Type "2" coordination G6/gL 500 ∨ A 160 690 ∨ G6/gL 690 ∨ A 160 Type "1" coordination G6/gL 500 ∨ A 250 690 ∨ G6/gL 690 ∨ A 200 AC-1 Rated operational current	Making capacity (cos φ)	Up to 690 V	Α	
220 V 230 V				According to IEC/EN 60947
380 V 400 V 500 V 660 V 690 V Short-circuit rating Short-circuit protection maximum fuse Type "2" coordination 400 V 690 V 7ype "1" coordination 400 V 690 V 690 V 690 V 7ype "1" coordination 400 V 690 V 690 V 7ype "1" coordination 400 V 690 V 690 V 7ype "1" coordination 400 V 690 V 7ype "1" coordination 400 V 690 V 7ype "1" coordination 400 V 690 V 7ype "1" coordination				222
Solution				
Short-circuit rating				
Short-circuit rating Short-circuit protection maximum fuse Type "2" coordination G6/gL 500 V A 160 690 V G6/gL 690 V A 160 Type "1" coordination G6/gL 500 V A 250 690 V G6/gL 500 V A 200 AC-1 Rated operational current				
Type "2" coordination			Α	750
Type "2" coordination 400 V 96/9L 500 V A 160 Type "1" coordination 400 V 96/9L 690 V A 250 690 V A 250 690 V A 200 ACC Rated operational current				
400 V gG/gL 500 V A 160 690 V gG/gL 690 V A 160 Type "1" coordination gG/gL 500 V A 250 690 V gG/gL 690 V A 200 AC AC-1 Rated operational current Image: Rated operational current Image: Rated operational current Image: Rated operational current				
690 V Type "1" coordination 400 V gG/gL 500 V A 250 690 V GG/gL 690 V A 200 AC AC-1 Rated operational current				
Type "1" coordination gG/gL 500 V A 250 690 V gG/gL 690 V A 200 AC AC-1 Rated operational current Image: Coordination of the coordination of	400 V			160
400 V		gG/gL 690 V	Α	160
690 V gG/gL 690 V A 200 AC AC-1 Rated operational current	Type "1" coordination			
AC-1 Rated operational current	400 V			250
AC-1 Rated operational current		gG/gL 690 V	Α	200
Rated operational current	AC			
Conventional free air thermal current, 3 pole, 50 - 60 Hz				
	Conventional free air thermal current, 3 pole, 50 - 60 Hz			

Open			
at 40 °C	I _{th} =I _e	Α	160
at 50 °C	I _{th} =I _e	Α	150
at 60 °C	I _{th} =I _e	Α	138
enclosed	I _{th}	A	128
Conventional free air thermal current, 1 pole	-01	^	
open	I _{th}	Α	415
enclosed	I _{th}	A	373
AC-3	·m	, ·	U.C
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	I _e	Α	95
240 V	I _e	A	95
380 V 400 V	I _e	A	95
415 V	I _e	Α	95
440V	I _e	Α	95
500 V	I _e	Α	95
660 V 690 V	l _e	A	80
Motor rating	'e P	kWh	
220 V 230 V	P	kW	30
240V	P	kW	33
380 V 400 V	P	kW	45
415 V	Р	kW	57
440 V	P	kW	60
500 V	Р	kW	70
660 V 690 V	Р	kW	75
DC			
Rated operational current, open			
DC-1			
60 V	l _e	Α	160
110 V	le	Α	160
220 V	I _e	Α	160
440 V	l _e	Α	10
DC-3			
60 V	l _e	A	160
110 V	I _e	Α	160
220 V	l _e	Α	160
440 V	l _e	Α	9
DC-5			
60 V	l _e	A	160
110 V	l _e	Α	160
220 V	I _e	Α	125
440 V	l _e	Α	8
Current heat loss		W	46
3-pole at l _{th}			
Impedance per pole Magnet systems		mΩ	0.6
Voltage tolerance			
AC operated 50 Hz	Pick-up	x U _c	0.8 - 1.1
AC operated 50/60 Hz		x U _c	0.8 - 1.1
Drop-out voltage AC operated	Drop-out	x U _c	0.4 - 0.6
DC operated	Pick-up	x U _c	At least double-pulse bridge rectifier - 0.7 - 1.2
DC operated	Drop-out	x U _c	At least double-pulse bridge rectifier - 0.2 - 0.6
	p Jut	00	

Power consumption of the coil in a cold state and 1.0 x $\rm U_{\rm C}$			
AC operated 50/60 Hz	Pick-up	VA	180
AC operated 50/60 Hz	Pick-up	W	150
AC operated 50/60 Hz	Sealing	VA	3.1
AC operated 50/60 Hz	Sealing	W	2.1
Notes on DC actuation			At least double-pulse bridge rectifier
DC operated	Pick-up	W	149
DC operated	Sealing	W	2.1
Duty factor		% DF	100
Changeover time at 100 % U_{C} (recommended value)			
Main contacts			
AC operated			
Closing delay		ms	28 - 33
Opening delay		ms	35 - 41
DC operated		ms	
Notes on DC actuation			At least double-pulse bridge rectifier
Closing delay		ms	35
Opening delay		ms	30
Arcing time		ms	15
Permissible residual current with actuation of A1 - A2 by the electronics (with 0 signal).		mA	≦₁

Design verification as per IEC/EN 61439

Design verification as per 120/214 01-103			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	160
Heat dissipation per pole, current-dependent	P _{vid}	W	12.1
Equipment heat dissipation, current-dependent	P _{vid}	W	36.3
Static heat dissipation, non-current-dependent	P _{vs}	W	1.9
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.

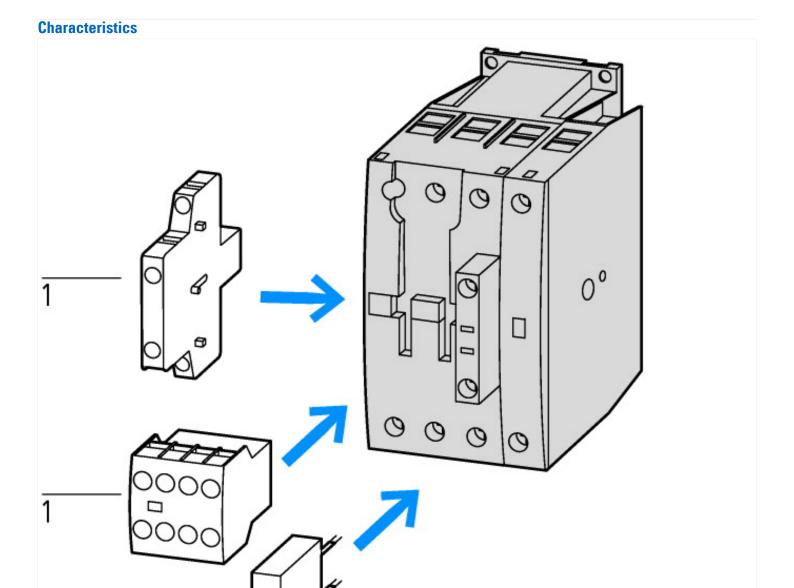
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 6.0

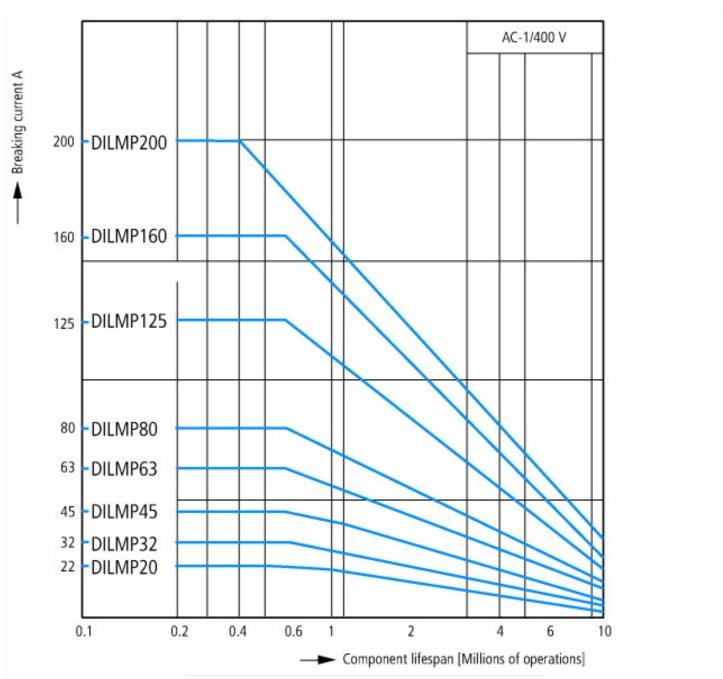
Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)				
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss8.1-27-37-10-03 [AAB718012])				
Rated control supply voltage 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 le at AC-1, 400 V	Α	4	160	
Rated operation current le at AC-3, 400 V	Д	A	95	
Rated operation power at AC-3, 400 V	k	κW	45	
Rated operation current le at AC-4, 400 V	Α	A	65	
Rated operation power le at AC-4, 400 V	k	κW	33	
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

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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.	2411-03, 3211-04
North America Certification	UL listed, CSA certified
Specially designed for North America	No

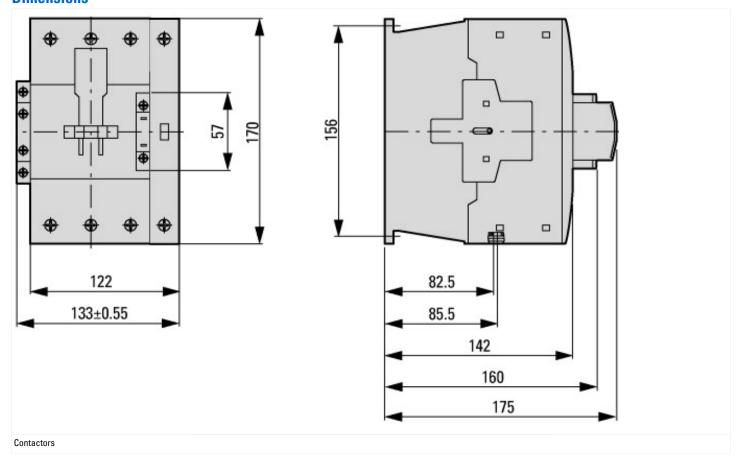


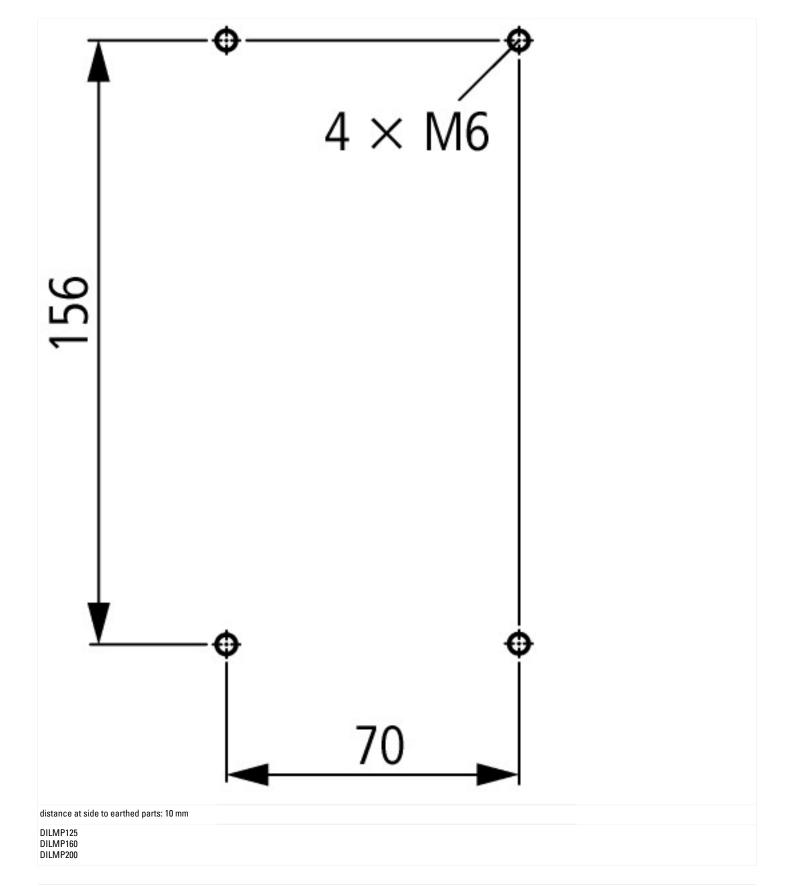
1: Auxiliary contact module 2: Suppressor



Switching conditions for 4 pole, non-motor loads Operating characteristics
Non inductive and slightly inductive loads Electrical characteristics
Switch on: 1 x rated operational current
Switch off: 1 x rated operational current
Utilization category
100 % AC-1
Typical examples of application
Electric heat

Dimensions





Additional product information (links)

IL03407049Z (AWA2100-2356) 4 pole Contactor	
IL03407049Z (AWA2100-2356) 4 pole Contactor	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407049Z2012_01.pdf
UL/CSA: UL/CSA: Special Purpose Rating	http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&startpage=5.85
Switchgear of Power Factor Correction Systems	http://www.moeller.net/binary/ver_techpapers/ver934en.pdf
X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely	http://www.moeller.net/binary/ver_techpapers/ver938en.pdf
Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions	http://www.moeller.net/binary/ver_techpapers/ver944en.pdf
Effect of the Cabel Capacitance of Long Control Cables on the Actuation of Contactors	http://www.moeller.net/binary/ver_techpapers/ver949en.pdf

Motor starters and "Special Purpose Ratings" for the North American market	http://www.moeller.net/binary/ver_techpapers/ver953en.pdf
Switchgear for Luminaires	http://www.moeller.net/binary/ver_techpapers/ver955en.pdf
Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts	http://www.moeller.net/binary/ver_techpapers/ver956en.pdf
The Interaction of Contactors with PLCs	http://www.moeller.net/binary/ver_techpapers/ver957en.pdf
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf