DATASHEET - DILMP160(RDC24)



Contactor, 4 pole, 160 A, RDC 24: 24 - 27 V DC, DC operation

Powering Business Worldwide

DILMP160(RDC24) Part no. Catalog No. 109920

Alternate Catalog

XTCF160G00TD

EL-Nummer 4130416

(Norway)

Delivery program

Product range Application Contactors Contactors for 4 pole electric consumers Subrange Contactors up to 200 A, 4 pole electric consumers Connection technique AC-1 Normal AC induction motors: starting, switch off during running Number of poles Screw terminals Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz Yes at 40 °C In =1e A at 50 °C In =1e A at 50 °C In =1e A at 60 °C In =1e A In =1e A In =1e AC In =1e A In =1e A In =1e AC In =1e A In =1e In =1e In =1e AC In =1e In =1e AC	Delivery program			
Subrange Utilization category Connection technique Connection technique Number of poles Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz at 40 °C at 50 °C at 55 °C at 55 °C at 60 °C Lim = Le A 143 Contact sequence Contact sequence Contact sequence Contact sequence Contact sequence Actuating voltage Voltage AC/DC Connection to SmartWire-DT Instructions Contact set yellow a contact set in the material current is martwire-DT no Contact set sequence Contact sequence	Product range			Contactors
Utilization category AC-1: Non-inductive or slightly inductive loads, resistance furnaces NAC-3: Normal AC induction motors: starting, switch off during running Screw terminals 4 pole Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz at 40 °C Igh = Ia A 160 at 50 °C Igh = Ia A 150 at 60 °C Igh = Ia A 133 Contact sequence Contact sequence For use with Actuating voltage Voltage AC/DC Connection to SmartWire-DT Instructions AC-1: Non-inductive or slightly inductive loads, resistance furnaces NAC-3: Normal AC induction motors: starting, switch off during running Screw terminals 4 pole 4 po	Application			Contactors for 4 pole electric consumers
NAC-3: Normal AC induction motors: starting, switch off during running Connection technique Number of poles Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz at 40 °C Ith = Ie A 160 at 50 °C Ith = Ie A 150 at 60 °C Ith = Ie A 138 Contact sequence For use with DILM150-XHII(A)(V) DILM150-XHII(A)(V) DILM150-XHII(A)(V) DILM150-XHII(A)(V) Connection to SmartWire-DT Instructions NAC-3: Normal AC induction motors: starting, switch off during running Screw terminals 4 pole A 160 4 pole A 160 A 150 A 143 A 143 B 138 Contact sequence A 1 1 1 3 1 5 7 7 A 2 2 4 4 6 8 DILM150-XHII(A)(V)	Subrange			Contactors up to 200 A, 4 pole
Number of poles Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz at 40 °C at 50 °C th =le A 150 at 55 °C th =le A 143 Contact sequence For use with For use with Actuating voltage Voltage AC/DC Connection to SmartWire-DT Instructions A pole 4 pole 4 pole 4 pole A 160 A 160 A 150 A 143 B 138 DILM150-XHI(A)(V) DILM150-XHI(A)(V) DILM100-XHI(V) Contacts to EN 50 012.	Utilization category			
Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz Ith = Ie A 160 at 40 °C Ith = Ie A 150 at 55 °C Ith = Ie A 143 at 60 °C Ith = Ie A 138 Contact sequence A1 1 1 3 5 7 A2 2 4 4 6 8 For use with DILM150-XHI(A)(V) Actuating voltage RDC 24: 24 - 27 V DC Voltage AC/DC DC operation Connection to SmartWire-DT no Instructions Contacts to EN 50 012.	Connection technique			Screw terminals
AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz at 40 °C at 50 °C lth = le at 55 °C lth = le A 143 at 60 °C lth = le A 138 Contact sequence For use with DILM150-XHI(A)(V) DILM1000-XHI(V) BRDC 24: 24 - 27 V DC DC operation Instructions Listructions Contacts to EN 50 012.	Number of poles			4 pole
Conventional free air thermal current, 3 pole, 50 - 60 Hz Ith = Ie A 160 at 50 °C Ith = Ie A 150 at 55 °C Ith = Ie A 143 at 60 °C Ith = Ie A 138 Contact sequence A1 1 1 1 3 1 5 7 7	Rated operational current			
at 40 °C	AC-1			
at 50 °C at 55 °C lth = le A 143 at 60 °C lth = le A 138 Contact sequence DILM150-XHI(A)(V) DILM1000-XHI(V) DILM1000-XHI(V) DILM1000-XHI(V) DILM150-XP DC DC operation no Instructions Contacts to EN 50 012.	Conventional free air thermal current, 3 pole, 50 - 60 Hz			
at 55 °C Ith = le A 143 Contact sequence Contact sequence For use with Alth = le A 138 DILM150-XHI(A)(V) DILM150-XHI(A)(V) DILM150-XHI(A)(V) RDC 24: 24 - 27 V DC DC operation Connection to SmartWire-DT Instructions Contacts to EN 50 012.	at 40 °C	I _{th} =I _e	Α	160
at 60 °C Ith = Ie A 138 Contact sequence For use with DILM150-XHI(A)(V) DILM1000-XHI(V) Actuating voltage Voltage AC/DC Connection to SmartWire-DT Instructions A 138 DILM150-XHI(A)(V) DILM1000-XHI(V) RDC 24: 24 - 27 V DC DC operation no Contacts to EN 50 012.	at 50 °C	$I_{th} = I_e$	Α	150
Contact sequence A1 1 3 5 7 A2 2 4 6 8 For use with DILM150-XHI(A)(V) DILM1000-XHI(V) Actuating voltage RDC 24: 24 - 27 V DC Voltage AC/DC Connection to SmartWire-DT no Instructions Contacts to EN 50 012.	at 55 °C	$I_{th} = I_e$	Α	143
For use with DILM150-XHI(A)(V) DILM1000-XHI(V) Actuating voltage RDC 24: 24 - 27 V DC Voltage AC/DC Connection to SmartWire-DT no Instructions Contacts to EN 50 012.	at 60 °C	$I_{th} = I_e$	Α	138
DILM1000-XHI(V) Actuating voltage RDC 24: 24 - 27 V DC Voltage AC/DC Connection to SmartWire-DT Instructions DILM1000-XHI(V) RDC 24: 24 - 27 V DC DC operation no Connection to SmartWire-DT Contacts to EN 50 012.	Contact sequence			A1 1 3 5 7 A2 2 4 6 8
Voltage AC/DC DC operation Connection to SmartWire-DT no Instructions Contacts to EN 50 012.	For use with			
Connection to SmartWire-DT no Instructions Contacts to EN 50 012.	Actuating voltage			RDC 24: 24 - 27 V DC
Instructions Contacts to EN 50 012.	Voltage AC/DC			DC operation
	Connection to SmartWire-DT			no
	Instructions			

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			
N/O contact		g	10
Auxiliary contacts			
N/O contact		g	7
N/C contact Degree of Protection		g	5 IP00
Altitude		m	Max. 2000
Protection against direct contact when actuated from front (EN 50274)		""	Finger and back-of-hand proof
Stripping length		mm	15
Terminal capacity main cable			
Flexible with ferrule		mm ²	1 x (10 - 95)
		111111	2 x (10 - 70)
Stranded		mm^2	1 x (16 - 120) 2 x (16 - 95)
Solid or stranded		AWG	8 - 3/0
Flat conductor	Lamellenzahl		2 x (6 x 16 x 0.8)
	x Breite x Dicke		
Terminal screw	DICKC		M10
Tightening torque		Nm	14
Stripping length		mm	15
Terminal capacity control circuit cables			
Solid		mm ²	1 x (0.75 - 4) 2 x (0.75 - 4)
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 coble			
Main cable Hexagon socket-head spanner	SW	mm	5
Control circuit cables	300	mm	3
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 x 5.5
			1 x 6
Main conducting paths		V AC	0000
Rated impulse withstand voltage	U _{imp}	V AC	8000
Overvoltage category/pollution degree		V AC	III/3
Rated insulation voltage	Ui	V AC	690
Rated operational voltage	U _e	V AC	690
Safe isolation to EN 61140		VAC	440
between coil and contacts between the contacts		V AC	440 440
Making capacity (cos φ)	Up to 690 V	A	1330
	ορ to 000 V		According to IEC/EN 60947
Breaking capacity			
220 V 230 V		Α	950
380 V 400 V		Α	950
500 V		Α	950

660 V 690 V		Α	750
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	Α	160
690 V	gG/gL 690 V	Α	160
Type "1" coordination			
400 V	gG/gL 500 V	Α	250
690 V	gG/gL 690 V	Α	200
AC			
AC-1			
Rated operational current			
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 55 °C	I _{th} =I _e	Α	143
at 60 °C	I _{th} =I _e	A	138
enclosed	I _{th}	Α	128
Conventional free air thermal current, 1 pole			
open	I _{th}	Α	415
enclosed	I _{th}	Α	373
Motor rating	P	kWh	
220/230 V	P	kW	58
240 V	Р	kW	63
380/400 V	Р	kW	100
415 V	Р	kW	109
440 V	Р	kW	116
500 V	P	kW	132
690 V	Р	kW	174
AC-3			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
Notes			At maximum permissible ambient temperature (open.)
220 V 230 V		A	95
	l _e		
240 V	l _e	Α	95
380 V 400 V	l _e	Α	95
415 V	l _e	Α	95
440V	I _e	Α	95
500 V	I _e	Α	95
660 V 690 V	I _e	Α	80
Motor rating	P	kWh	
220 V 230 V	P	kW	30
240V	P	kW	33
	P		45
380 V 400 V		kW	
415 V	P	kW	57
440 V	P	kW	60
500 V	P	kW	70
660 V 690 V	P	kW	75
DC			
Rated operational current, open			
DC-1			400
60 V	l _e	Α	160
110 V	l _e	Α	160

Current heat loss 3 pole, at I _{th} (60°) Impedance per pole Magnet systems Voltage tolerance AC operated 50/60 Hz DC operated DC oper	
3 pole, at I _{th} (60°) W 36.3 Impedance per pole m0 0.6 Magnet systems Voltage tolerance X U _C 0.8 - 1.1 DC operated 50/60 Hz 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 Power consumption of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier - 0.2 - 0.6 Power consumption of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier DC operated Pick-up W 149 DC operated Sealing W 1.9 Duty factor Sealing W 1.9 Duty factor Main contacts	
Magnet systems Voltage tolerance x U _c 0.8 - 1.1 DC operated 50/60 Hz x U _c 0.8 - 1.1 DC operated Pick-up x U _c At least double-pulse bridge rectifier - 0.7 - 1.2 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 x U _S At least double-pulse bridge rectifier DC operated Pick-up W 149 DC operated Sealing W 1.9 Duty factor % DF 100 Changeover time at 100 % U _S (recommended value) ms Main contacts ms DC operated At least double-pulse bridge rectifier At least double-pulse bridge rectifier Male at least double-pulse bridge rectifier	
Magnet systems Voltage tolerance x U _c 0.8 - 1.1 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 Power consumption of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier DC operated Pick-up W 149 DC operated Sealing W 1.9 Duty factor % DF 100 Changeover time at 100 % U _S (recommended value) ms At least double-pulse bridge rectifier Main contacts ms At least double-pulse bridge rectifier Closing delay ms 35	
AC operated 50/60 Hz DC operated Pick-up X U _C Drop-out 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 Power consumption of the coil in a cold state and 1.0 x U _S Notes on DC actuation DC operated Pick-up Pick-up W 149 DC operated Sealing W 1.9 Duty factor Changeover time at 100 % U _S (recommended value) Main contacts DC operated Notes on DC actuation More on DC actuation To operated Notes on DC actuation At least double-pulse bridge rectifier	
DC operated Drop-out 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 Power consumption of the coil in a cold state and 1.0 x U _S Notes on DC actuation DC operated Pick-up W 149 DC operated Sealing W 1.9 Duty factor Changeover time at 100 % U _S (recommended value) Main contacts DC operated Notes on DC actuation The contacts at least double-pulse bridge rectifier on the collaboration of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier on the collaboration of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier on the collaboration of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier on the collaboration of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier on the collaboration of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier on the collaboration of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier on the collaboration of the coil in a cold state and 1.0 x U _S At least double-pulse bridge rectifier on the collaboration of the collaboration	
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 x U _S Notes on DC actuation DC operated Pick-up W 149 DC operated Sealing W 1.9 Duty factor Changeover time at 100 % U _S (recommended value) Main contacts DC operated Notes on DC actuation Notes on DC actuation Rain contacts DC operated Main contacts DC operated Notes on DC actuation Notes on DC actuation Sealing W 1.9 At least double-pulse bridge rectifier At least double-pulse bridge rectifier At least double-pulse bridge rectifier	
Power consumption of the coil in a cold state and 1.0 x Us Notes on DC actuation DC operated Pick-up W 149 DC operated Sealing W 1.9 Duty factor Changeover time at 100 % Us (recommended value) Main contacts DC operated Notes on DC actuation Notes on DC actuation Closing delay At least double-pulse bridge rectifier At least double-pulse bridge rectifier Main contacts ms 35	
Notes on DC actuation DC operated Pick-up V 149 DC operated Sealing W 1.9 Duty factor Changeover time at 100 % U _S (recommended value) Main contacts DC operated Notes on DC actuation Closing delay At least double-pulse bridge rectifier At least double-pulse bridge rectifier ms 35	
DC operated DC operated Sealing W 1.9 Duty factor Changeover time at 100 % U _S (recommended value) Main contacts DC operated Notes on DC actuation Closing delay Pick-up W 149 100 **DF 100 **Mobility	
DC operated Duty factor Changeover time at 100 % U _S (recommended value) Main contacts DC operated Notes on DC actuation Closing delay Sealing W 1.9 100 At least double-pulse bridge rectifier ms 35	
Duty factor	
Changeover time at 100 % U _S (recommended value) Main contacts DC operated Notes on DC actuation Closing delay ms 35	
Main contacts DC operated ms Notes on DC actuation At least double-pulse bridge rectifier Closing delay ms 35	
DC operated ms Notes on DC actuation At least double-pulse bridge rectifier Closing delay ms 35	
Notes on DC actuation At least double-pulse bridge rectifier Closing delay ms 35	
Closing delay ms 35	
Opening delay	
Opening delay ms 30	
Arcing time ms 15	
Permissible residual current with actuation of A1 - A2 by the electronics (with $mA \le 1$ 0 signal).	
Rating data for approved types Switching capacity	
Maximum motor rating	
Three-phase	
200 V 208 V HP 25	
230 V 240 V	
460 V 480 V	
575 V 600 V	
Single-phase	
115 V 120 V	
230 V 240 V	
General use A 125	
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 300/300 Class J	
SCCR (CB) kA 30	
max. CB A 350	
Special Purpose Ratings	
Electrical Discharge Lamps (Ballast)	

480V 60Hz 3phase, 277V 60Hz 1phase	Α	100
600V 60Hz 3phase, 347V 60Hz 1phase	Α	100
Incandescent Lamps (Tungsten)		
480V 60Hz 3phase, 277V 60Hz 1phase	Α	100
600V 60Hz 3phase, 347V 60Hz 1phase	Α	100
Resistance Air Heating		
480V 60Hz 3phase, 277V 60Hz 1phase	А	110
600V 60Hz 3phase, 347V 60Hz 1phase	А	110
Refrigeration Control (CSA only)		
LRA 480V 60Hz 3phase	А	540
FLA 480V 60Hz 3phase	А	90
LRA 600V 60Hz 3phase	Α	420
FLA 600V 60Hz 3phase	Α	70
Elevator Control		
200V 60Hz 3phase	HP	20
200V 60Hz 3phase	Α	62.1
240V 60Hz 3phase	HP	30
240V 60Hz 3phase	А	80
480V 60Hz 3phase	HP	60
480V 60Hz 3phase	А	77
600V 60Hz 3phase	НР	75
600V 60Hz 3phase	А	π

Design verification as per IEC/EN 61439

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.

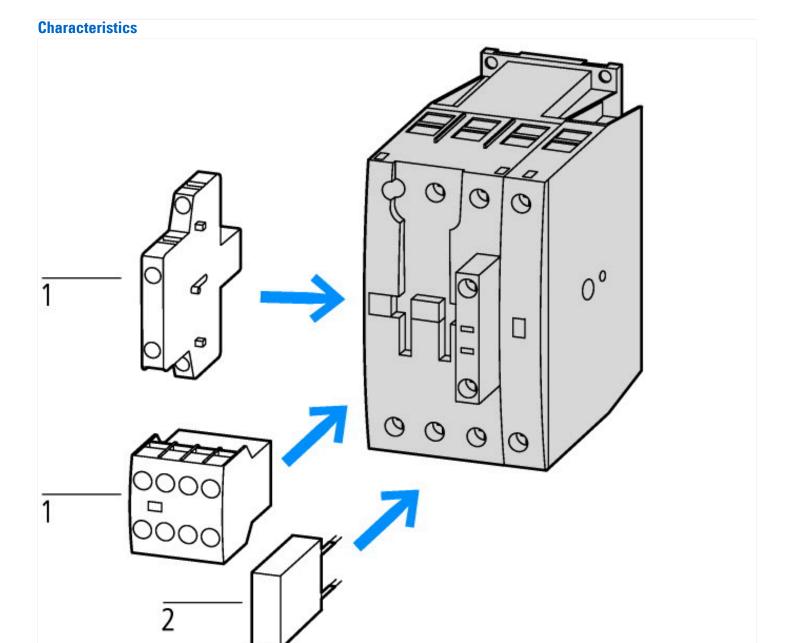
10.11 Short-circuit rating	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function	The device meets the requirements,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

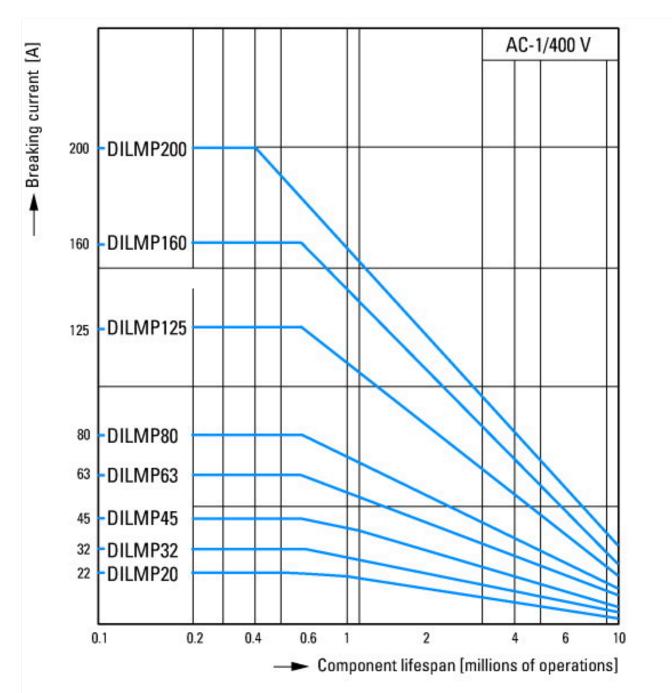
Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Power contactor, AC switching (Ed	C000066)		
Electric engineering, automation, process control engineering / Low-voltage switc	h technology / Co	ontactor	(LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015])
Rated control supply voltage Us at AC 50HZ	\	/	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	A	Д	160
Rated operation current le at AC-3, 400 V	A	Д	95
Rated operation power at AC-3, 400 V	k	κW	45
Rated operation current le at AC-4, 400 V	A	Д	65
Rated operation power at AC-4, 400 V	k	κW	33
Rated operation power NEMA	k	κW	55
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 60947-4-1; CSA - C22.2 No. 60947-4-1-14; 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

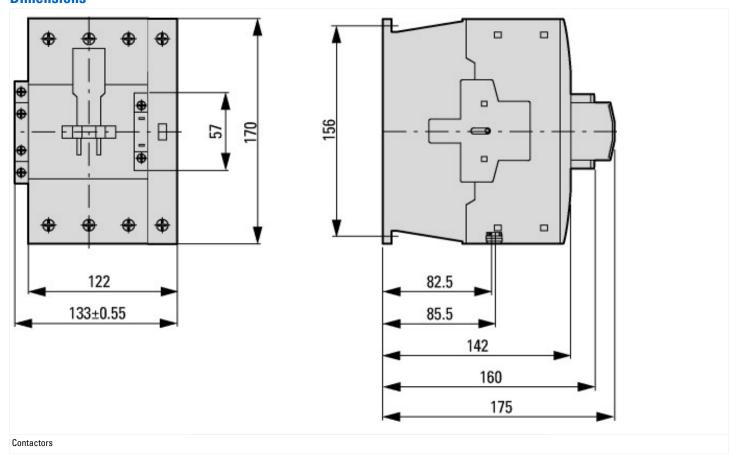


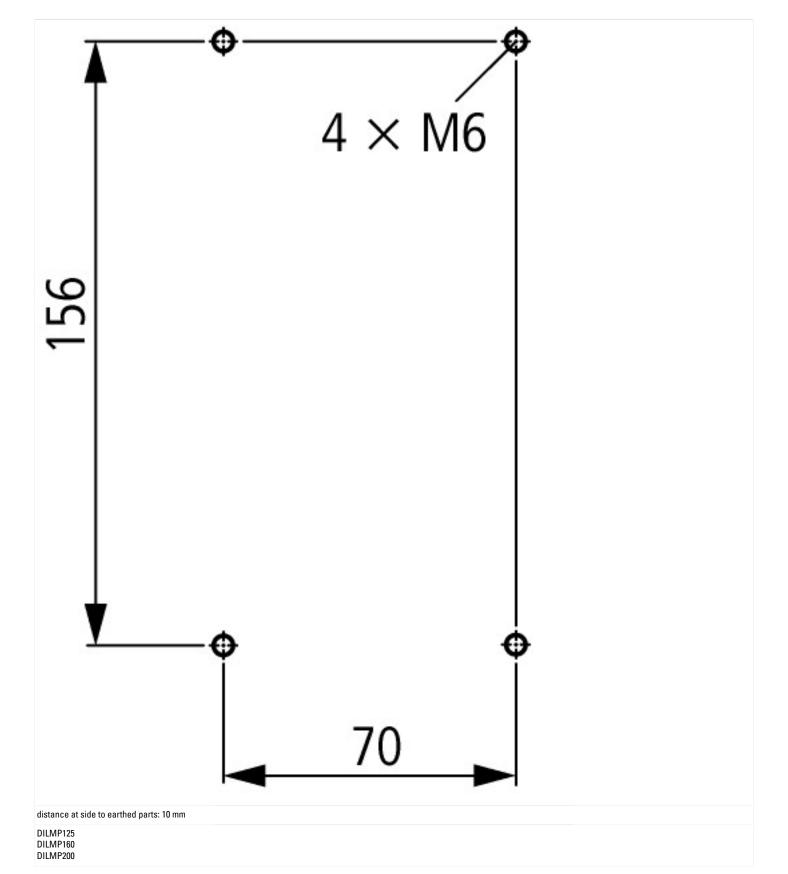


Switching conditions for 4 pole, non-motor loads Operating characteristics
Non inductive and slightly inductive loads Electrical characteristics
Switch on: 1 x rated operational current
Switch off: 1 x rated operational current
Utilization category
100 % AC-1
Typical examples of application

Electric heat

Dimensions





Assets (links)

Declaration of CE Conformity

00003251

Instruction Leaflets

IL03407049Z2018_05