



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

Part no. **DILMP160(RDC24)**
 Catalog No. **109920**
 Alternate Catalog No. **XTCF160G00TD**
 EL-Nummer (Norway) **4130416**

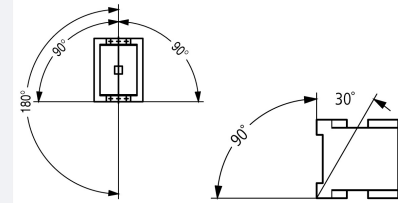
Delivery program

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	$I_{th} = I_e$	A	160
at 50 °C	$I_{th} = I_e$	A	150
at 55 °C	$I_{th} = I_e$	A	143
at 60 °C	$I_{th} = I_e$	A	138
Contact sequence			
For use with			DILM150-XHI(A)(V)... DILM1000-XHI(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. integrated suppressor circuit in actuating electronics

Technical data

General

Standards			IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical			
AC operated	Operations	$\times 10^6$	10
DC operated	Operations	$\times 10^6$	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			
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			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) 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 x Breite x Dicke	mm	2 x (6 x 16 x 0.8)
Terminal screw			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 cable			
Hexagon socket-head spanner	SW	mm	5
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	440
between the contacts		V AC	440
Making capacity (cos φ)	Up to 690 V	A	1330 According to IEC/EN 60947
Breaking capacity			
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			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	160
690 V	gG/gL 690 V	A	160
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			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	160
at 50 °C	$I_{th} = I_e$	A	150
at 55 °C	$I_{th} = I_e$	A	143
at 60 °C	$I_{th} = I_e$	A	138
enclosed	I_{th}	A	128
Conventional free air thermal current, 1 pole			
open	I_{th}	A	415
enclosed	I_{th}	A	373
Motor rating			
220/230 V	P	kWh	
240 V	P	kW	58
380/400 V	P	kW	63
415 V	P	kW	100
440 V	P	kW	109
440 V	P	kW	116
500 V	P	kW	132
690 V	P	kW	174
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	95
240 V	I_e	A	95
380 V 400 V	I_e	A	95
415 V	I_e	A	95
440V	I_e	A	95
500 V	I_e	A	95
660 V 690 V	I_e	A	80
Motor rating			
220 V 230 V	P	kWh	
240V	P	kW	30
380 V 400 V	P	kW	33
415 V	P	kW	45
440 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			
60 V	I_e	A	160
110 V	I_e	A	160

220 V	I_e	A	160
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Current heat loss

3 pole, at I_{th} (60°)		W	36.3
Impedance per pole		mΩ	0.6

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 - 0.7 - 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 $1.0 \times U_S$			
Notes on DC actuation			
DC operated	Pick-up	W	149
DC operated	Sealing	W	1.9
Duty factor		% DF	100
Changeover time at 100 % U_S (recommended value)			
Main contacts			
DC operated		ms	
Notes on DC actuation			
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

Rating data for approved types

Switching capacity			
Maximum motor rating			
Three-phase			
200 V 208 V		HP	25
230 V 240 V		HP	40
460 V 480 V		HP	75
575 V 600 V		HP	100
Single-phase			
115 V 120 V		HP	7.5
230 V 240 V		HP	15
General use		A	125
Short Circuit Current Rating			
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	A	100
600V 60Hz 3phase, 347V 60Hz 1phase	A	100
Incandescent Lamps (Tungsten)		
480V 60Hz 3phase, 277V 60Hz 1phase	A	100
600V 60Hz 3phase, 347V 60Hz 1phase	A	100
Resistance Air Heating		
480V 60Hz 3phase, 277V 60Hz 1phase	A	110
600V 60Hz 3phase, 347V 60Hz 1phase	A	110
Refrigeration Control (CSA only)		
LRA 480V 60Hz 3phase	A	540
FLA 480V 60Hz 3phase	A	90
LRA 600V 60Hz 3phase	A	420
FLA 600V 60Hz 3phase	A	70
Elevator Control		
200V 60Hz 3phase	HP	20
200V 60Hz 3phase	A	62.1
240V 60Hz 3phase	HP	30
240V 60Hz 3phase	A	80
480V 60Hz 3phase	HP	60
480V 60Hz 3phase	A	77
600V 60Hz 3phase	HP	75
600V 60Hz 3phase	A	77

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	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			
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 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 - 27
Voltage type for actuating		DC
Rated operation current Ie at AC-1, 400 V	A	160
Rated operation current Ie at AC-3, 400 V	A	95
Rated operation power at AC-3, 400 V	kW	45
Rated operation current Ie at AC-4, 400 V	A	65
Rated operation power at AC-4, 400 V	kW	33
Rated operation power NEMA	kW	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

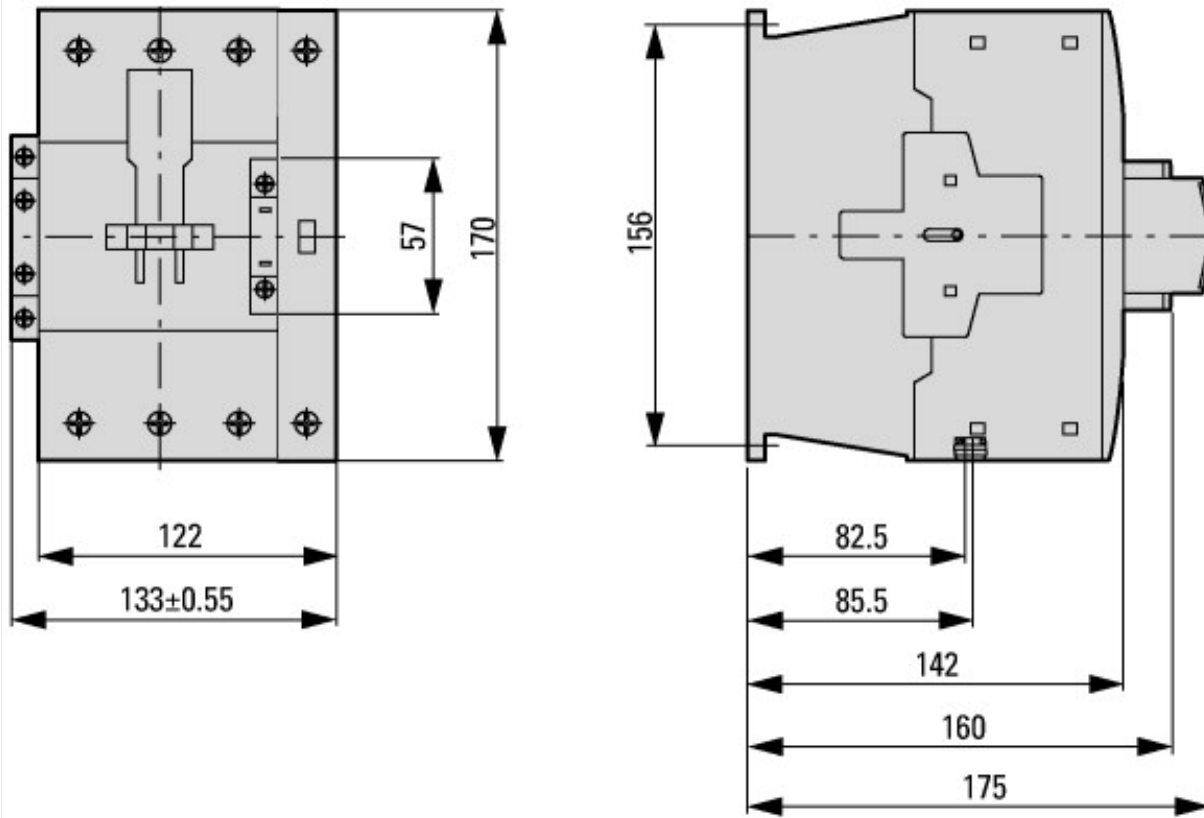
Characteristics



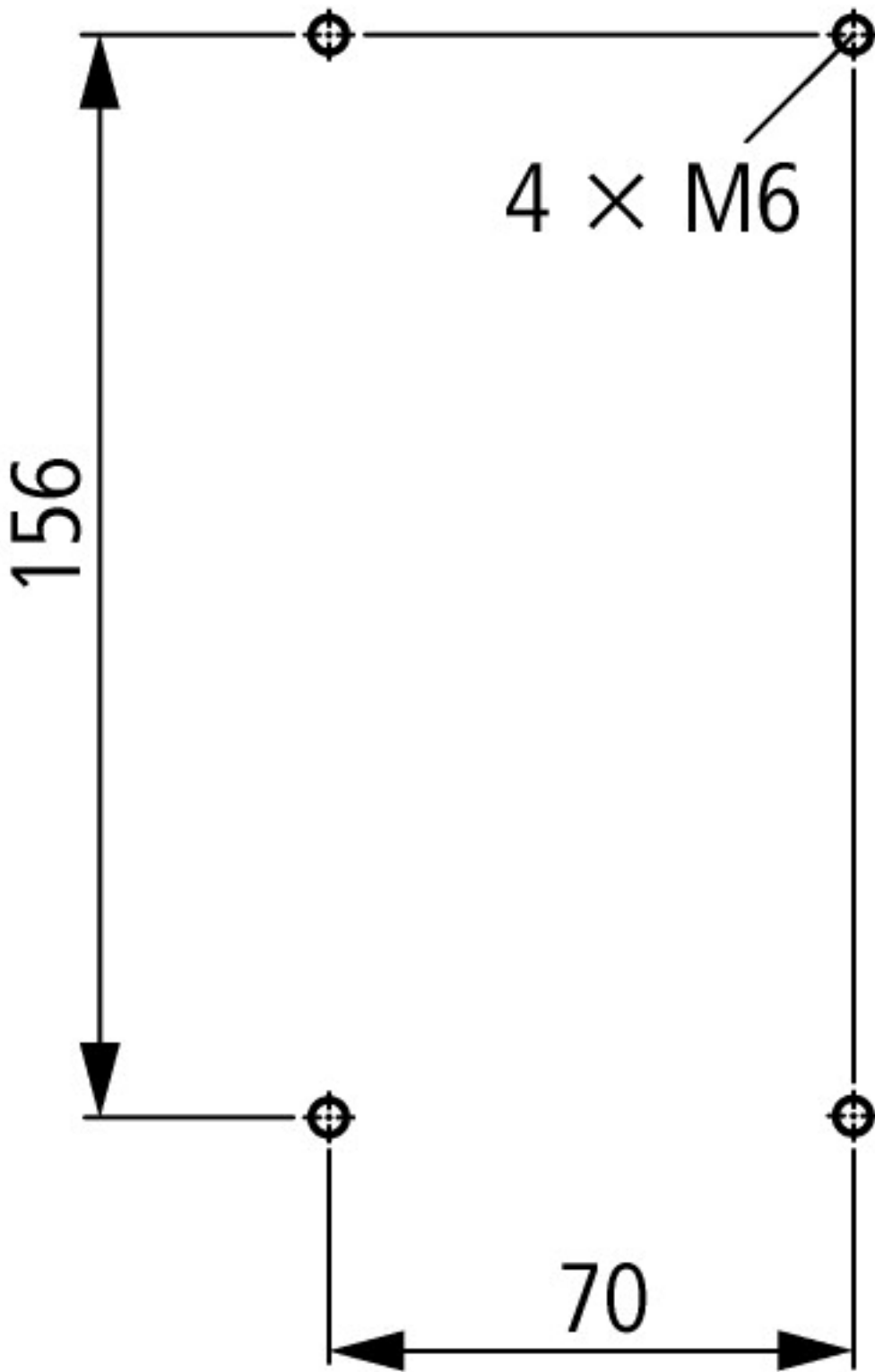


Switching conditions for 4 pole, non-motor loads
 Operating characteristics
 Non inductive and slightly inductive loads
 Electrical characteristics
 Switch on: 1 x rated operational current
 Switch off: 1 x rated operational current
 Utilization category
 100 % AC-1
 Typical examples of application
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

Dimensions



Contactors



distance at side to earthed parts: 10 mm

DILMP125
DILMP160
DILMP200

Assets (links)

Declaration of CE Conformity

00003251

Instruction Leaflets

IL03407049Z2018_05

Additional product information (links)

IL03407049Z (AWA2100-2356) 4 pole Contactor

IL03407049Z (AWA2100-2356) 4 pole Contactor ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407049Z2018_05.pdf

Motor starters and "Special Purpose Ratings" for the North American market http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf

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
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