

DATASHEET - DILMP160(RAC240)



Contactor, 4 pole, 160 A, RAC 240: 190 - 240 V 50/60 Hz, AC operation



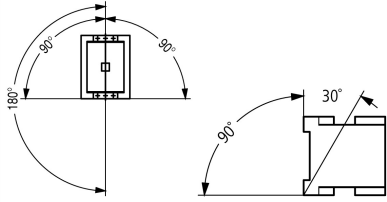
Part no. DILMP160(RAC240)
Catalog No. 109915
Alternate Catalog No. XTCF160G00B
EL-Nummer (Norway) 4130409

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 AC-3/AC-3e: Normal AC induction motors: Starting, switching off while 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			RAC 240: 190 - 240 V 50/60 Hz
Voltage AC/DC			AC operation
Connection to SmartWire-DT			no
Instructions			Contacts to EN 50 012. integrated suppressor circuit in actuating electronics Meets the requirements for voltage reduction protection as set out by VDE-AR-N 4105:2018-11.

Technical data

General			
Standards			IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical			
AC operated	Operations	$\times 10^6$	5.7
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
Push-in terminals				
Solid		mm ²		1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
flexible		mm ²		1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
flexible with ferrules		mm ²		1 x (0.75 - 1.5) 2 x (0.75 - 1.5)
Solid or stranded		AWG		18 - 14
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
Push-in terminals				
Solid		mm ²		1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Flexible		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
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	P	kWh	
220/230 V	P	kW	58
240 V	P	kW	63
380/400 V	P	kW	100
415 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.) Also tested according to AC-3e.
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	P	kWh	
220 V 230 V	P	kW	30
240V	P	kW	33
380 V 400 V	P	kW	45
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			
60 V	I _e	A	160
110 V	I _e	A	160
220 V	I _e	A	160

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 Hz	Pick-up	x U _c	0.8 - 1.15
AC operated 50/60 Hz		x U _c	0.8 - 1.15
Drop-out voltage AC operated	Drop-out	x U _c	0.25 - 0.6
Power consumption of the coil in a cold state and 1.0 x U _S			
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	2.3
Duty factor		% DF	100
Changeover time at 100 % U _S (recommended value)			
Main contacts			
AC operated			
Closing delay		ms	28 - 33
Opening delay		ms	35 - 41
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		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	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	2.3
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.

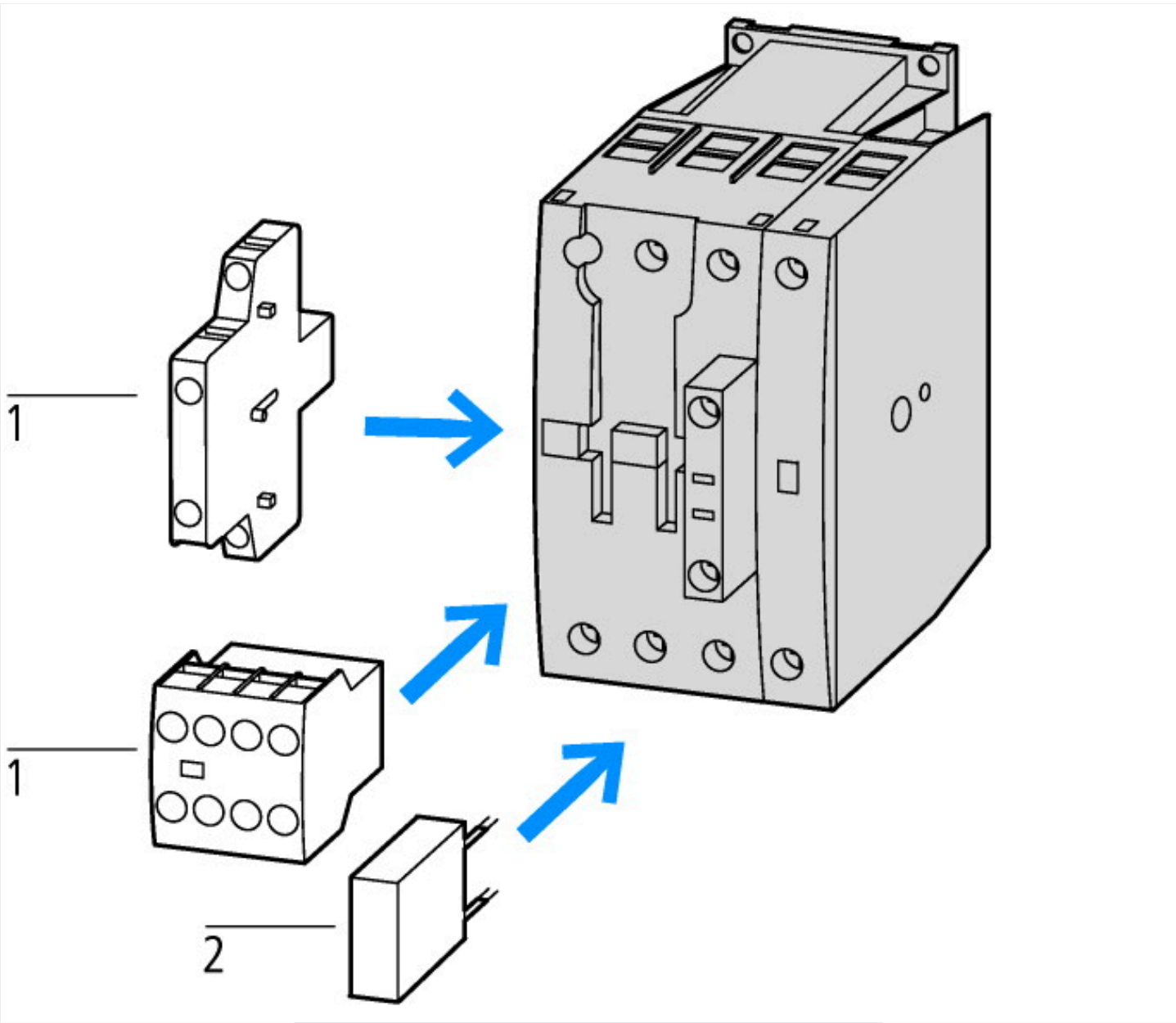
10.2.7 Inscriptions		Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES		Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances		Meets the product standard's requirements.
10.5 Protection against electric shock		Does not 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

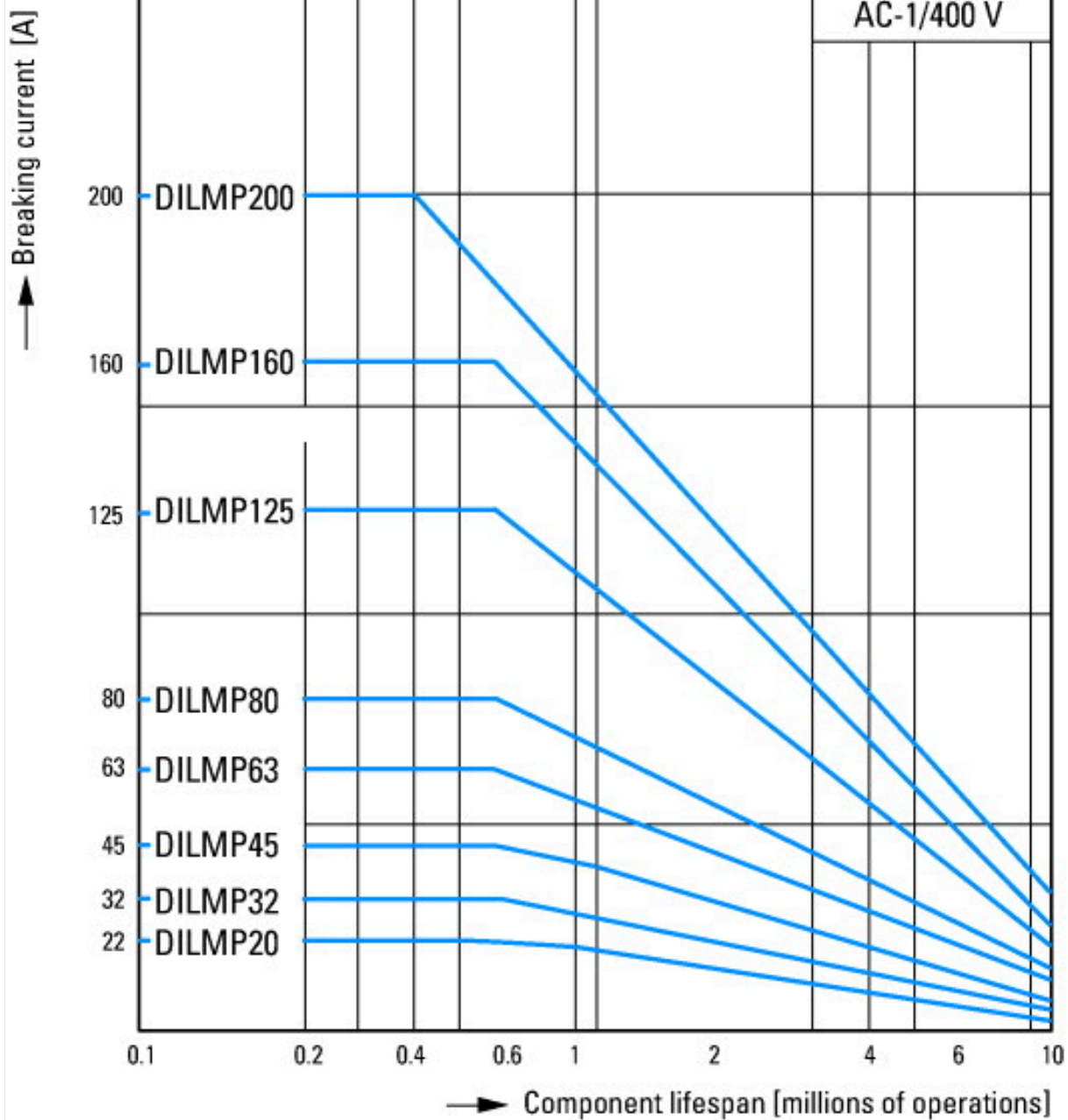
Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015])		
Rated control supply voltage Us at AC 50HZ	V	190 - 240
Rated control supply voltage Us at AC 60HZ	V	190 - 240
Rated control supply voltage Us at DC	V	0 - 0
Voltage type for actuating		AC
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

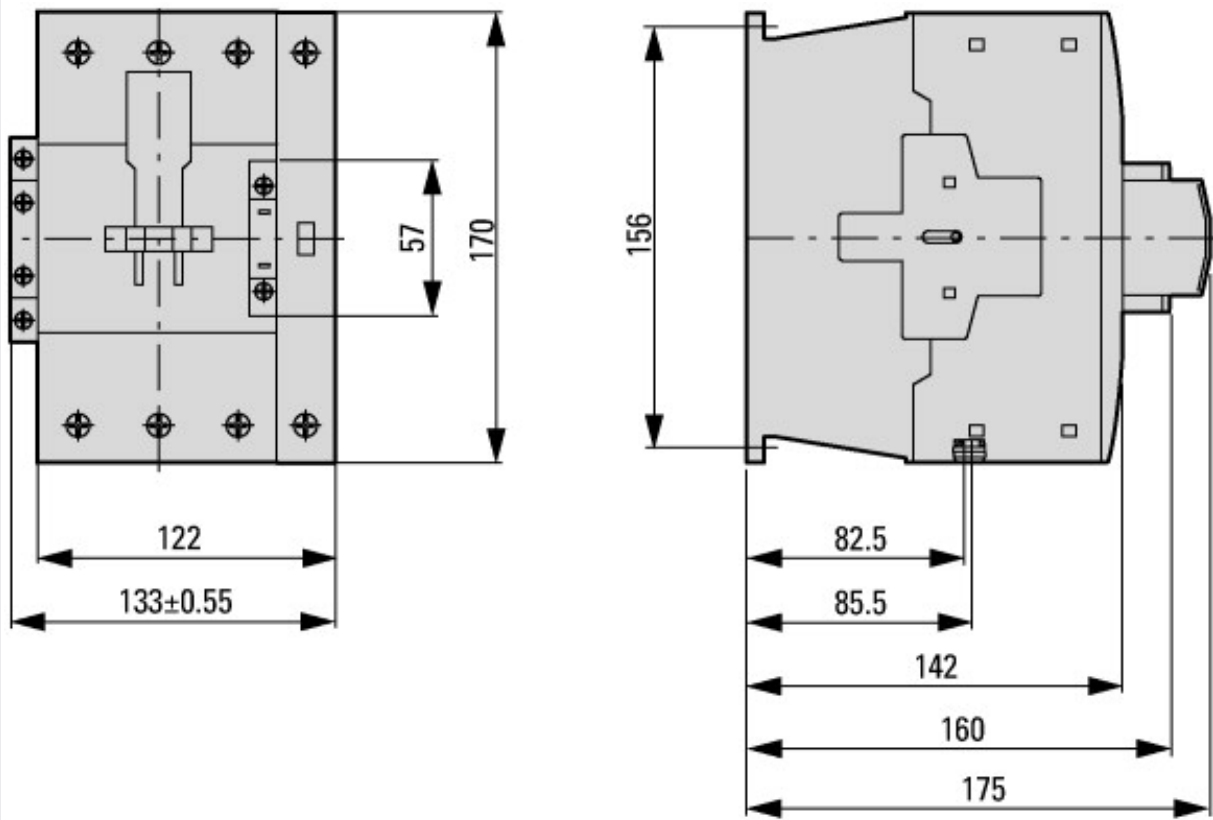


1: Auxiliary contact module
2: Suppressor

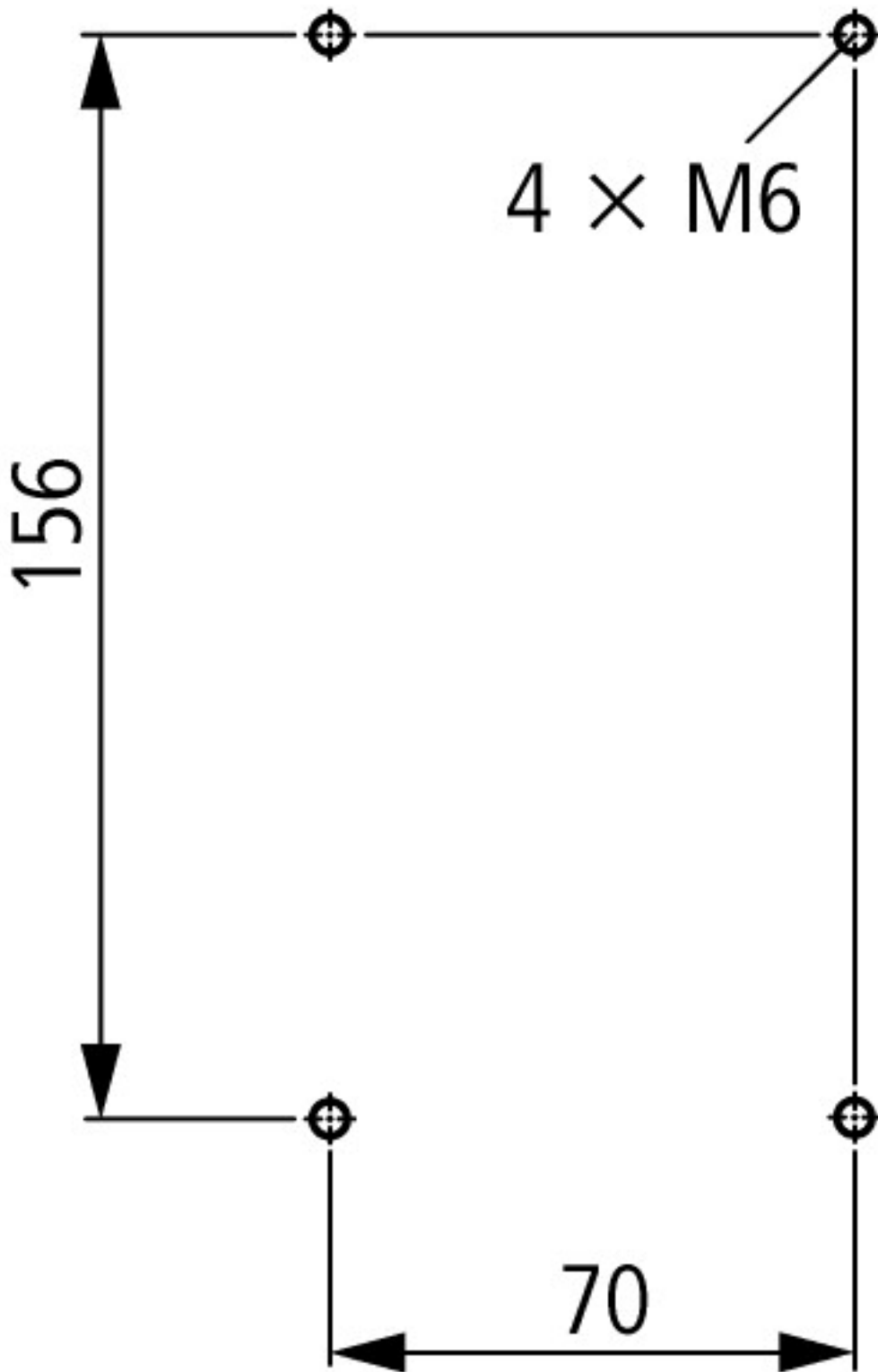


Switching conditions for 4 pole, non-motor loads
 Operating characteristics
 Non inductive and slightly inductive loads
 Electrical characteristics
 Switch on: 1 x rated operational current
 Switch off: 1 x rated operational current
 Utilization category
 100 % AC-1
 Typical examples of application
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

Dimensions



Contactors



distance at side to earthed parts: 10 mm

DILMP125
DILMP160
DILMP200