



Contactor, 4 pole, 22 A, TVC100: 100 V 50 Hz/100-110 V 60 Hz, AC operation



Powering Business Worldwide™

Part no. DILMP20(TVC100)
Catalog No. 276980
Alternate Catalog No. XTCF020B00E6

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	22
at 50 °C	$I_{th} = I_e$	A	21
at 55 °C	$I_{th} = I_e$	A	20.5
at 60 °C	$I_{th} = I_e$	A	20
Contact sequence			
For use with			DILM32-XHI(C)... DILA-XHI(V)(C)...
Actuating voltage			TVC100: 100 V 50 Hz/100-110 V 60 Hz
Voltage AC/DC			AC operation
Connection to SmartWire-DT			no
Instructions			Contacts to EN 50 012.

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		5000
DC operated	Operations/h		5000
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			IP20
Altitude			m Max. 2000
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Stripping length			mm 10
Terminal capacity main cable			
Solid	mm ²		1 x (0.75 - 4) 2 x (0.75 - 2.5)
Flexible with ferrule	mm ²		1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Solid or stranded	AWG		18 - 14
Terminal screw			M3.5
Tightening torque			Nm 1.2
Stripping length			mm 10
Terminal capacity control circuit cables			
Solid	mm ²		1 x (0.75 - 4) 2 x (0.75 - 2.5)
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			
Pozidriv screwdriver	Size		2
Standard screwdriver	mm		0.8 x 5.5 1 x 6
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	400
between the contacts		V AC	400
Making capacity (cos ϕ)	Up to 690 V	A	144 According to IEC/EN 60947
Breaking capacity			
220 V 230 V		A	120
380 V 400 V		A	120
500 V		A	100
660 V 690 V		A	70
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	20
690 V	gG/gL 690 V	A	20

Type "1" coordination			
400 V	gG/gL 500 V	A	35
690 V	gG/gL 690 V	A	25

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	22
at 50 °C	$I_{th} = I_e$	A	21
at 55 °C	$I_{th} = I_e$	A	20.5
at 60 °C	$I_{th} = I_e$	A	20
enclosed	I_{th}	A	18
Conventional free air thermal current, 1 pole			
open	I_{th}	A	60
enclosed	I_{th}	A	54
Motor rating	P	kWh	
220/230 V	P	kW	8
240 V	P	kW	9
380/400 V	P	kW	14
415 V	P	kW	15
440 V	P	kW	16
500 V	P	kW	18
690 V	P	kW	24

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	12
240 V	I_e	A	12
380 V 400 V	I_e	A	12
415 V	I_e	A	12
440V	I_e	A	12
500 V	I_e	A	10
660 V 690 V	I_e	A	7
Motor rating	P	kWh	
220 V 230 V	P	kW	3.5
240V	P	kW	4
380 V 400 V	P	kW	5.5
415 V	P	kW	7
440 V	P	kW	7.5
500 V	P	kW	7
660 V 690 V	P	kW	6.5

DC

Rated operational current, open			
DC-1			
60 V	I_e	A	22
110 V	I_e	A	22
220 V	I_e	A	6

Current heat loss

3 pole, at I_{th} (60°)		W	3
Impedance per pole		mΩ	2.5

Magnet systems

Voltage tolerance			
AC operated 50 Hz	Pick-up	x U_c	0.85 - 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
Power consumption of the coil in a cold state and 1.0 x U _S			
AC operated 50/60 Hz	Pick-up	VA	24
AC operated 50/60 Hz	Pick-up	W	19
AC operated 50/60 Hz	Sealing	VA	4
AC operated 50/60 Hz	Sealing	W	1.4
Duty factor		% DF	100
Changeover time at 100 % U _S (recommended value)			
Main contacts			
AC operated			
	Closing delay	ms	15 - 21
	Opening delay	ms	9 - 18
	Permissible residual current with actuation of A1 - A2 by the electronics (with 0 signal).	mA	≤ 1

Rating data for approved types

Switching capacity			
	General use	A	20
Short Circuit Current Rating			
Basic Rating			
	SCCR	kA	5
	max. Fuse	A	45
	max. CB	A	60
480 V High Fault			
	SCCR (fuse)	kA	30
	max. Fuse	A	25 Class RK5
600 V High Fault			
	SCCR (fuse)	kA	30
	max. Fuse	A	25 Class RK5
Special Purpose Ratings			
Electrical Discharge Lamps (Ballast)			
	480V 60Hz 3phase, 277V 60Hz 1phase	A	20
	600V 60Hz 3phase, 347V 60Hz 1phase	A	20
Incandescent Lamps (Tungsten)			
	480V 60Hz 3phase, 277V 60Hz 1phase	A	14
	600V 60Hz 3phase, 347V 60Hz 1phase	A	14
Resistance Air Heating			
	480V 60Hz 3phase, 277V 60Hz 1phase	A	20
	600V 60Hz 3phase, 347V 60Hz 1phase	A	20
Refrigeration Control (CSA only)			
	LRA 480V 60Hz 3phase	A	60
	FLA 480V 60Hz 3phase	A	10
	LRA 600V 60Hz 3phase	A	60
	FLA 600V 60Hz 3phase	A	10
Elevator Control			
	600V 60Hz 3phase	HP	5
	600V 60Hz 3phase	A	6.1

Design verification as per IEC/EN 61439

Technical data for design verification			
	Rated operational current for specified heat dissipation	I _n	A 22
	Heat dissipation per pole, current-dependent	P _{vid}	W 1
	Equipment heat dissipation, current-dependent	P _{vid}	W 3
	Static heat dissipation, non-current-dependent	P _{vs}	W 1.4
	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.

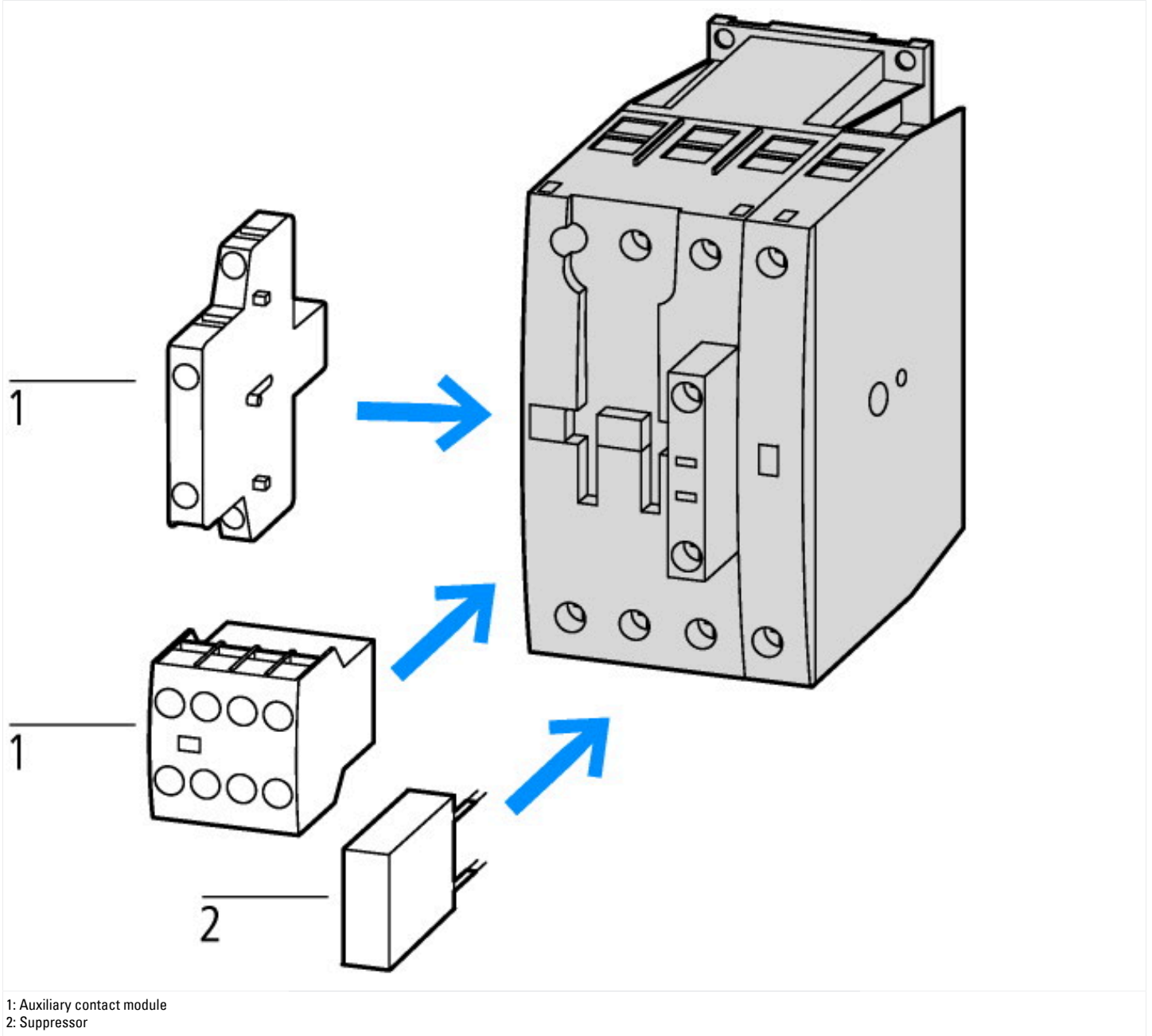
Technical data ETIM 7.0

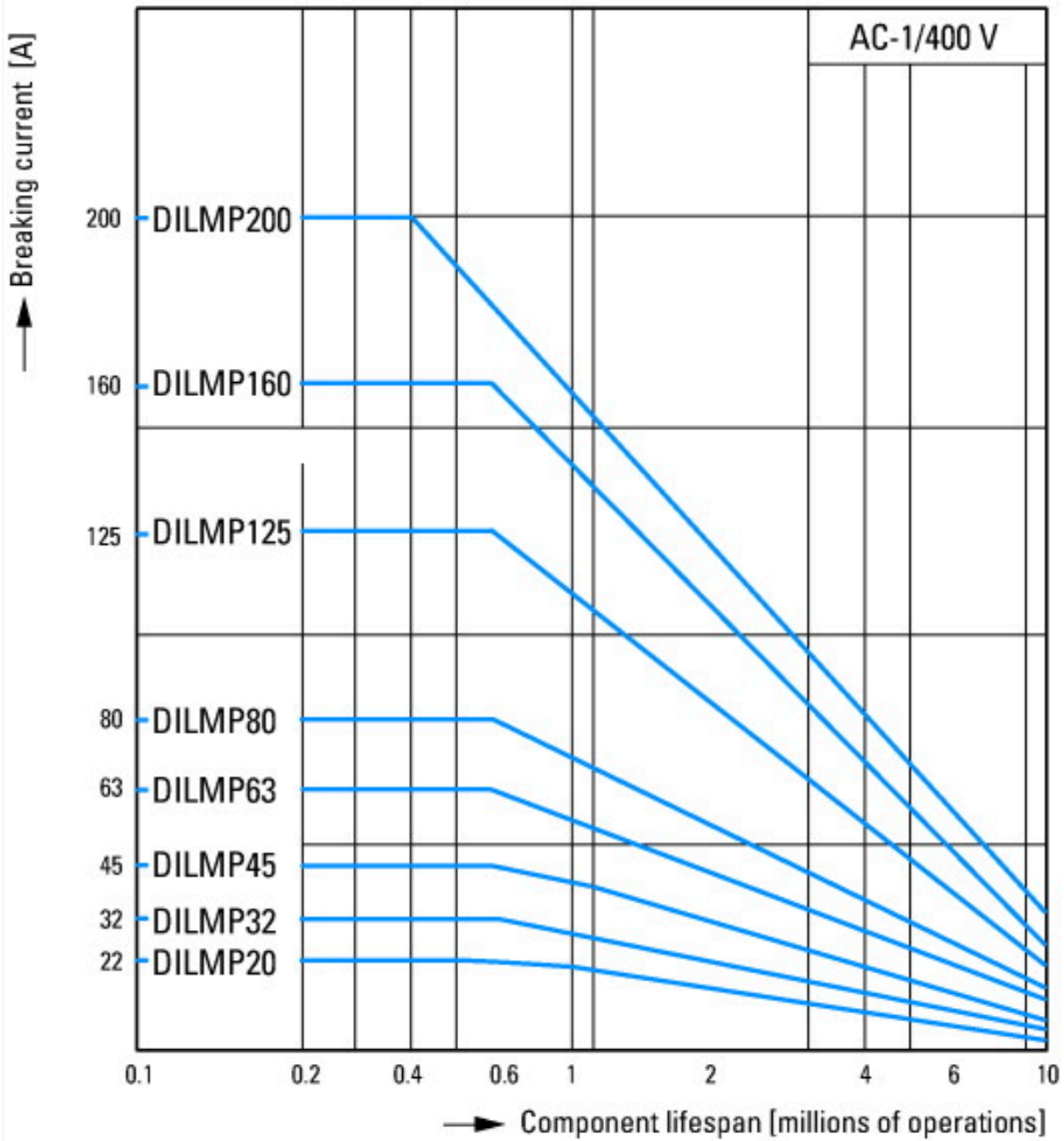
Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015])		
Rated control supply voltage U_s at AC 50HZ	V	100 - 100
Rated control supply voltage U_s at AC 60HZ	V	100 - 110
Rated control supply voltage U_s at DC	V	0 - 0
Voltage type for actuating		AC
Rated operation current I_e at AC-1, 400 V	A	22
Rated operation current I_e at AC-3, 400 V	A	12
Rated operation power at AC-3, 400 V	kW	5.5
Rated operation current I_e at AC-4, 400 V	A	10
Rated operation power at AC-4, 400 V	kW	4.5
Rated operation power NEMA	kW	0
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

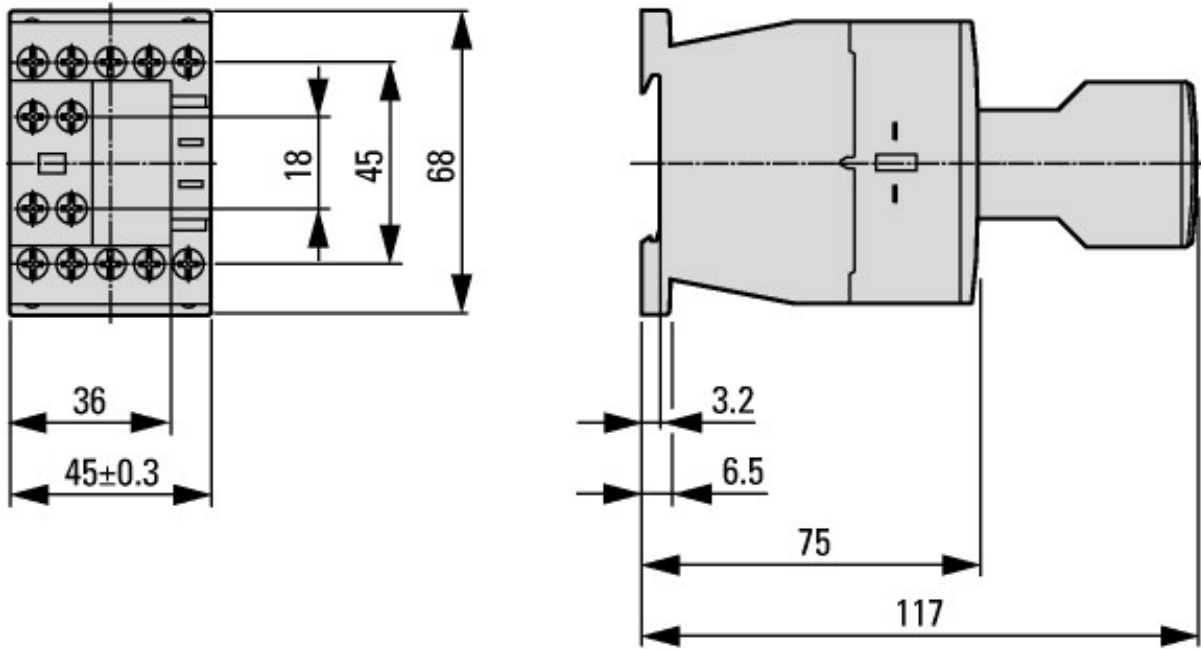
Characteristics



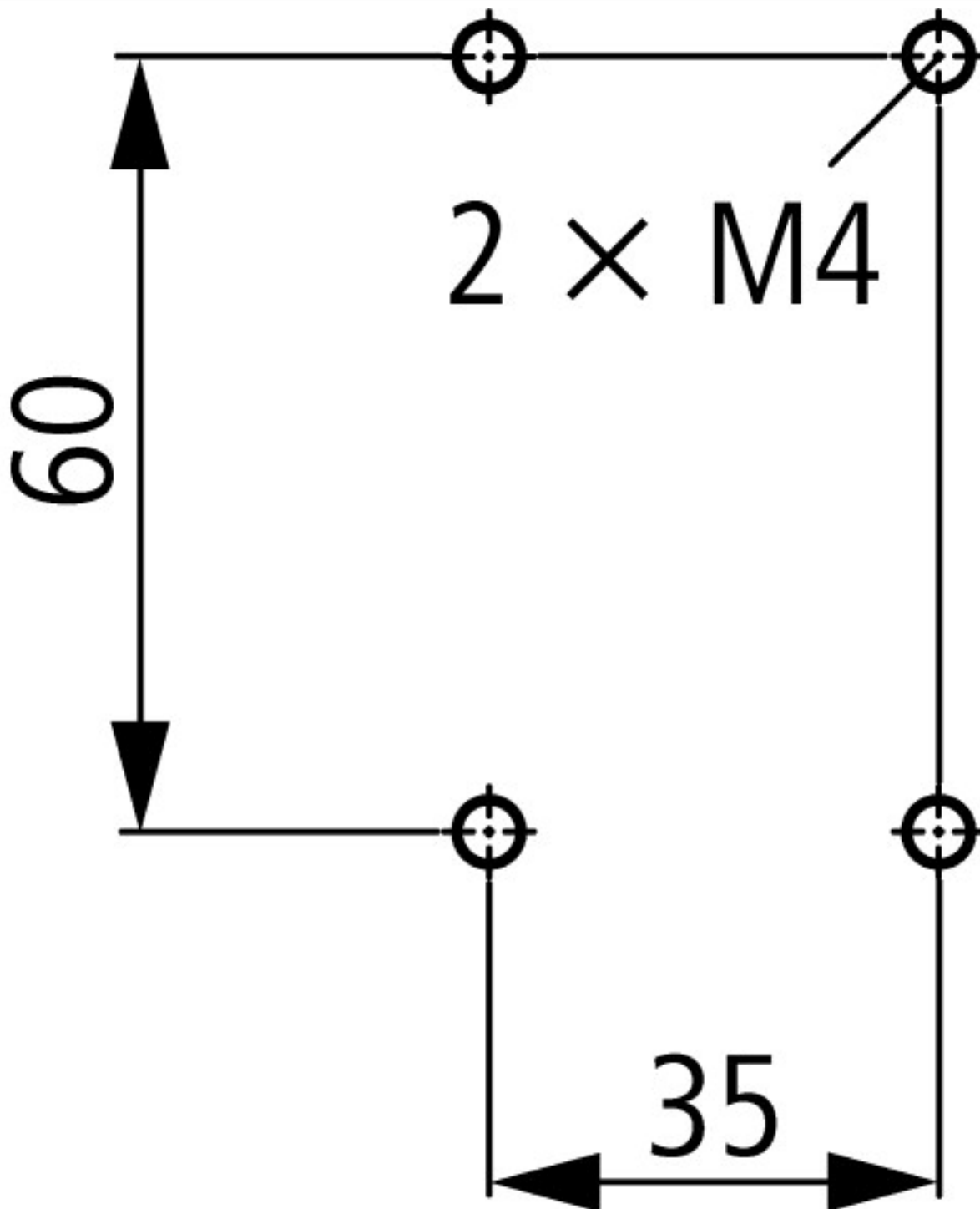


Switching conditions for 4 pole, non-motor loads
 Operating characteristics
 Non inductive and slightly inductive loads
 Electrical characteristics
 Switch on: 1 x rated operational current
 Switch off: 1 x rated operational current
 Utilization category
 100 % AC-1
 Typical examples of application
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

Dimensions



Contacteur avec module de contact auxiliaire



DILMP20

Assets (links)

Declaration of CE Conformity

00002875

Instruction Leaflets

IL03407013Z2018_07

Additional product information (links)

IL03407013Z (AWA2100-2126) Contactors

IL03407013Z (AWA2100-2126) Contactors	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407013Z2020_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 Cable 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