### **DATASHEET - DILAC-40(110VDC)**



Contactor relay, 110 V DC, N/O = Normally open: 4 N/O, Spring-loaded terminals, DC operation



Part no. DILAC-40(110VDC)
Catalog No. 276459

Alternate Catalog XTREC10B40E0

No

Similar to illustration

Delivery program			
Product range			DILA relays
Application			Contactor relays
Description			Basic devices with positive operation contacts
Connection technique			Spring-loaded terminals
Rated operational current			
AC-15			
220 V 230 V 240 V	I <sub>e</sub>	Α	4
380 V 400 V 415 V	I <sub>e</sub>	Α	4
Contacts			
N/O = Normally open			4 N/O
Contact sequence			A1 113 23 33 43 A2 14 24 34 44
Code number and version of combination			
Distinctive number			40D
Can be combined with auxiliary contact module			DILA-XHIC(V)
Actuating voltage			110 V DC
Voltage AC/DC			DC operation
Suppressor circuit			built-in
Connection to SmartWire-DT			no
Instructions			Contact numbers to EN 50011 Coil terminal markings to EN 50005 built-in suppressor circuit' Integrated varistor suppressor circuit.

## **Technical data**

General			
Standards			IEC/EN 60947, EN 60947-5-1, VDE 0660, UL, CSA
Lifespan, mechanical			
DC operated	Operations	x 10 <sup>6</sup>	20
Maximum operating frequency	Operations/h		9000
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open		°C	-25 - +60
Enclosed		°C	- 25 - 40
Ambient temperature, storage		°C	- 40 - 80
Mounting position			
Mounting position			30°
Mechanical shock resistance (IEC/EN 60068-2-27)			

Half-sinusoidal shock, 10 ms			
Basic unit with auxiliary contact module		g	
N/O contact		g	7
N/C contact		g	5
Degree of Protection			IP20
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Altitude		m	Max. 2000
Weight			
DC operated		kg	0.294
Terminal capacities		mm <sup>2</sup>	
Spring-loaded terminals			
Solid		mm <sup>2</sup>	1 x (0.75 - 2.5)
			2 x (0.75 - 2.5)
Flexible with or without ferrule DIN 46228		mm <sup>2</sup>	1 x (0,75 - 1.5) 2 x (0,75 - 1.5)
Solid or stranded		AWG	18 - 14
Stripping length		mm	10
Standard screwdriver		mm	0.6 × 3.5
Contacts			
Positive operating contacts to ZH 1/457, including auxiliary contact module			Yes
Rated impulse withstand voltage	U <sub>imp</sub>	V AC	6000
Overvoltage category/pollution degree			III/3
Rated insulation voltage	Ui	V AC	690
Rated operational voltage	U <sub>e</sub>	V AC	690
Safe isolation to EN 61140			
between coil and auxiliary contacts		V AC	400
between the auxiliary contacts		V AC	400
Rated operational current		Α	
Conventional free air thermal current, 1 pole			
Open			
at 60 °C	I <sub>th</sub> =I <sub>e</sub>	Α	16
AC-15			
220 V 230 V 240 V	l <sub>e</sub>	Α	4
380 V 400 V 415 V	I <sub>e</sub>	Α	4
500 V	I <sub>e</sub>	Α	1.5
DC current	6		
Notes			Switch-on and switch-off conditions based on DC-13, time constant as specified.
DC L/R ≦ 15 ms			on the state of th
Contacts in series:		Α	
1	24 V	Α	10
1	60 V	A	6
2	60 V	A	10
1	110 V	A	3
3	110 V	Α	6
1	220 V	A	1
3	220 V	Α	5
DC L/R ≤ 50 ms			
Contacts in series:		Α	
3	24 V	Α	4
3	60 V	Α	4
3	110 V	Α	2
3	220 V	Α	1
Control circuit reliability	Failure rate	λ	<10 <sup>-8</sup> , < one failure at 100 million operations
•			(at U <sub>e</sub> = 24 V DC, U <sub>min</sub> = 17 V, I <sub>min</sub> = 5.4 mA)
Short-circuit rating without welding			
Maximum overcurrent protective device			

230 Y 230 Y 240 Y 40 Y 145 Y         PKZM0         4           Short-circuit protection maximum fuse         Y 260 Y         10           500 Y         A g6/04         10           Current heat loss at I <sub>10</sub> Y 20         10           DC operated         W 20         10           Magnet systems         Y 20         10           DC operated         Y 20         10           Notes         Sonothed DC, three-phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave rectification of the phase bridge rectifiers or smoothed double-wave				
Short-circuit protection maximum fuse   Soo V   A gif/st   10	220 V 230 V 240 V		PKZM0	4
Sol   Current heat loss at In   DC operated   DC operate	380 V 400 V 415 V		PKZM0	4
Current heat loss at In DC operated         W         0.85           Magnet systems         Voltage tolerance         DC operated           DC operated         Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectification           Pick-up voltage         08 1.1           a 24 V: without auxiliary contact component (40 °C)         Pick-up voltage         07 - 1.3           DC operation         V         \$1.0           DC operation         V         \$1.0           DC operated         Switching times, DC operated, max. closing delay         ms         1.0           DC operated doising delay         ms         1.0           Switching times, DC operated, max. closing delay, max.         ms         1.0           Bating approved types         ms         1.0           Acting approved types         ms         1.0           Pilot Duty         Ms         3.0           A Coperated         AC Operated         AC Operated           A Coperated         Y         600           A C         AC         Y         600           A C         AC         AC         AC         AC         AC           A C         AC         AC         AC         AC         AC	Short-circuit protection maximum fuse			
DC operated W 085  Magnet systems  Voltage tolerance DC operated Notes Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectification 0.8 1.1  Prick-up voltage 0.8 1.1  at 24 V: without auxiliary contact component (40 °C) Pick-up X U <sub>C</sub> 0.7 - 1.3  Power consumption DC operated Pull-in = V 0 0.0  DC operated Pull-in = V 0 0.0  DC operated Closing delay Switching times, DC operated, max. closing delay max. M	500 V		A gG/gL	10
Magnet systems         Voltage tolerance       Local Section (Companie)       Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectification         Notes       0.8 1.1         Pick-up voltage       0.8 1.1         at 24 V. without suxiliary contact component (40 °C)       Pick-up       X U <sub>C</sub> 0.7 - 1.3         Power consumption       Pull-in = sealing       W       3         duty factor       Pull-in = sealing       W DF       100         Changeover time at 100 % U <sub>S</sub> (recommended value)       ms       31         DC operated closing delay       ms       31         Switching times, DC operated, max. closing delay, max       ms       12         Rating data for approved types       ms       12         Rating data for approved types       AC Operated       A600         Coperated Use       A600       A600         General Use       A600       A600         General Use       V       600         AC       AC       A       15         AC       AC       A       15         AC       AC       A       15         DC operated       AC       AC       AC         AC       AC       AC       AC       <	Current heat loss at I <sub>th</sub>			
Votage tolerance  DC operated  Notes Notes Pick-up voltage at 24 V. without auxiliary contact component (40 °C) Pick-up  DC operation  DC operation  DC operated  DC operated volve (recommended value)  DC operated (volve (recommended value)  DC	DC operated		W	0.85
DC operated  Notes  Pick-up voltage at 24 V: without auxiliary contact component (40 °C)  Pick-up x U <sub>C</sub> OC operation  DC operated  Pull-in = sealing Sealing DC operated closing delay  DC operated closing delay  DC operated closing delay  Switching times, DC operated, max. closing delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duy  AC operated  AC operated  AC Operated  Notes  Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectification  0.8 1.1  Notes  Note Notes  Pull-in = sealing ND D D Operated ND Comparity (10 °C) ND D D Operated closing delay  MS  Switching times, DC operated, max. closing delay MS  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Accoperated  AC Operated  AC Ope	Magnet systems			
Notes Pick-up voltage at 24 V: without auxiliary contact component (40 °C) Pick-up x U <sub>C</sub> 0.8 1.1  Power consumption DC operated  DC operated  Pull-in = sealing DC operated closing delay  DC operated closing delay  Switching times, DC operated make contact Opening delay, max.  Auxiliary contacts Pilot Duy  AC operated  DC operated  AC operated  AC Operated  Pick-up x U <sub>C</sub> Nick-up x U <sub>C</sub> Pick-up x U <sub>C</sub> Nick-up x U <sub>C</sub> Nick-u	Voltage tolerance			
Pick-up voltage at 24 V. without auxiliary contact component (40 °C)  Pick-up  DC operation  DC operated  DC operated  DC operated  DC operated  DC operated  DC operated  DC operated closing delay  Switching times, DC operated one contact opening delay, max.  DC operated N/O contact opening delay  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  AC AC AC AC AC AC AC A AC A AC A AC A	DC operated			
at 24 V: without auxiliary contact component (40 °C)  Pick-up  DC operation  DC operated  Pull-in = sealing  duty factor  Changeover time at 100 % Ug (recommended value)  DC operated closing delay  Switching times, DC operated make contact Opening delay, max.  Switching times, DC actuated make contact Opening delay, max.  Auxiliary contacts  Pilot Duty  AC operated  DC operated  AC  AC  AC  AC  AC  DC  Pilok-up  Vick-up  V	Notes			$Smoothed\ DC, three-phase\ bridge\ rectifiers\ or\ smoothed\ double-wave\ rectification$
Power consumption  DC operated  DC operated  Pull-in = sealing  W 3 sealing  duty factor  Changeover time at 100 % Us (recommended value)  DC operated closing delay  DC operated N/O contact opening delay  Switching times, DC actuated make contact Opening delay, max.  But in a sproved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  General Use  AC  AC  AC  AC  AC  AC  DC  Pull-in = sealing  W 3  Switching times, DC actuated walue)  ms  10  A600  P300  A600  P300  Cooperated  V 600  A 15  V 250	Pick-up voltage			0.8 1.1
DC operated  DC operated  Pull-in = sealing  W 3  duty factor  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay  Switching times, DC operated, max. closing delay  DC operated N/O contact opening delay  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  DC operated  General Use  AC  AC  AC  AC  AC  AC  AC  A  DC  Pull-in = sealing  W 3  SW 3  AW 3  BM  BM  BM  BM  BM  BM  BM  BM  BM  B	at 24 V: without auxiliary contact component (40 °C)	Pick-up	$x\;U_c$	0.7 - 1.3
DC operated  Pull-in = sealing  W 3  duty factor  K DF 100  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay  Switching times, DC operated, max. closing delay  DC operated N/O contact opening delay  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  AC AC V 600  AC DC  DC OPERATED  PUll-in = sealing  W 3  3  ADD  BD 100  MB 3  I 10  ADD  BD 100  MB 3  ADD  BD 100  BD 1	Power consumption			
duty factor % DF 100  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay  Switching times, DC operated, max. closing delay  DC operated N/O contact opening delay  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  DC operated  AC V 600  AC AC A 15  DC V 250	DC operation			
Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay  Switching times, DC operated, max. closing delay  DC operated N/O contact opening delay  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  DC operated  AC  AC  AC  AC  AC  AC  AC  AC  AC  A	DC operated		W	3
DC operated closing delay Switching times, DC operated, max. closing delay ms 31  DC operated N/O contact opening delay ms Switching times, DC actuated make contact Opening delay, max. ms 12  Rating data for approved types  Auxiliary contacts Pilot Duty AC operated DC operated DC operated AC	duty factor		% DF	100
Switching times, DC operated, max. closing delay ms Switching times, DC actuated make contact Opening delay, max. ms 12  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  AC  AC  AC  DC  V  600  AC  DC  V  250	Changeover time at 100 % U <sub>S</sub> (recommended value)			
DC operated N/O contact opening delay  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  AC  AC  AC  AC  AC  AC  AC  AC  AC  A	DC operated closing delay		ms	
Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  AC  AC  AC  AC  AC  AC  AC  AC  AC  A	Switching times, DC operated, max. closing delay		ms	31
Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  Fac  AC  AC  AC  AC  AC  AC  AC  AC  AC  A	DC operated N/O contact opening delay		ms	
Auxiliary contacts       Pilot Duty         AC operated       A600         DC operated       P300         General Use       V         AC       V       600         AC       A       15         DC       V       250			ms	12
Pilot Duty       A600         AC operated       A600         DC operated       P300         General Use       V         AC       V       600         AC       A       15         DC       V       250	Rating data for approved types			
AC operated       A600         DC operated       P300         General Use       V         AC       V         AC       A         DC       V    250	Auxiliary contacts			
DC operated       P300         General Use       V         AC       V         AC       A         DC       V	Pilot Duty			
General Use       V       600         AC       A       15         DC       V       250	AC operated			A600
AC V 600 AC A 15 DC V 250	DC operated			P300
AC	General Use			
DC V 250	AC		V	600
	AC		Α	15
DC A 1	DC		V	250
	DC		Α	1

# Design verification as per IEC/EN 61439

besign verification as per 120/214 01733			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	15.5
Heat dissipation per pole, current-dependent	$P_{\text{vid}}$	W	0.8
Equipment heat dissipation, current-dependent	$P_{\text{vid}}$	W	0
Static heat dissipation, non-current-dependent	$P_{vs}$	W	3
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
EC/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.

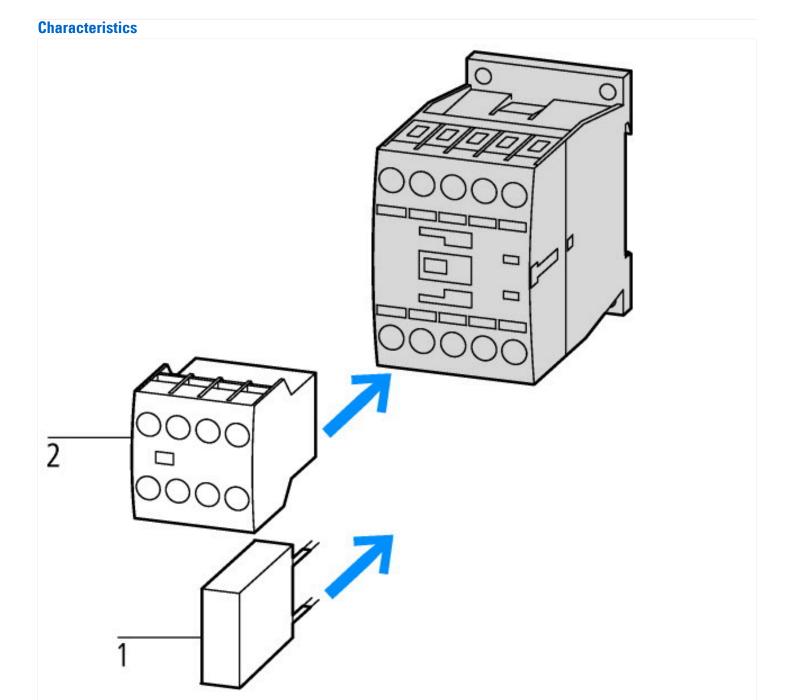
10.6 Incorporation of switching devices and components	Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections	Is the panel builder's responsibility.
10.8 Connections for external conductors	Is the panel builder's responsibility.
10.9 Insulation 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**

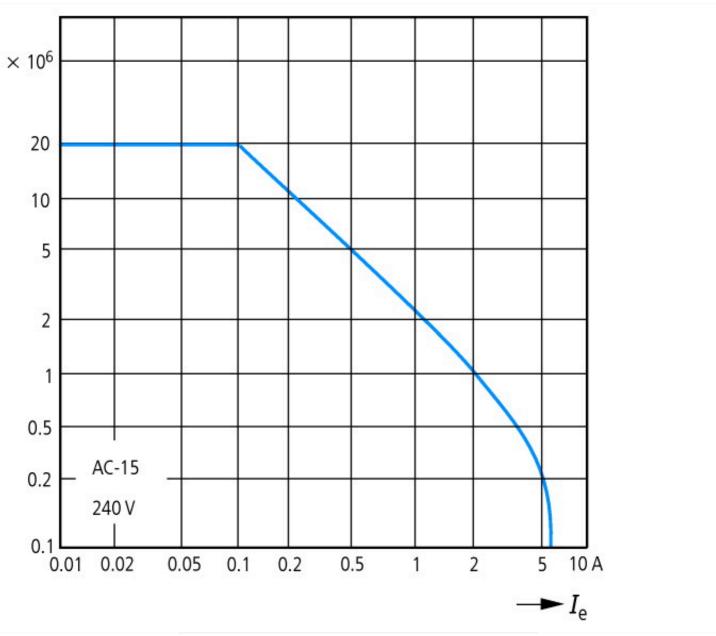
Low-voltage industrial components (EG000017) / Contactor relay (EC000196)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Contactor relay (ecl@ss10.0.1-27-37-10-01 [AAB716014])			
Rated control supply voltage Us at AC 50HZ	V	0 - 0	
Rated control supply voltage Us at AC 60HZ	V	0 - 0	
Rated control supply voltage Us at DC	V	110 - 110	
Voltage type for actuating		DC	
Rated operation current le, 400 V	А	4	
Connection type auxiliary circuit		Spring clamp connection	
Mounting method		DIN-rail/screw	
Interface		No	
Number of auxiliary contacts as normally closed contact		0	
Number of auxiliary contacts as normally open contact		4	
Number of auxiliary contacts as normally closed contact, delayed switching		0	
Number of auxiliary contacts as normally open contact, leading		0	
With LED indication		No	
Number of auxiliary contacts as change-over contact		0	
Manual operation possible		No	

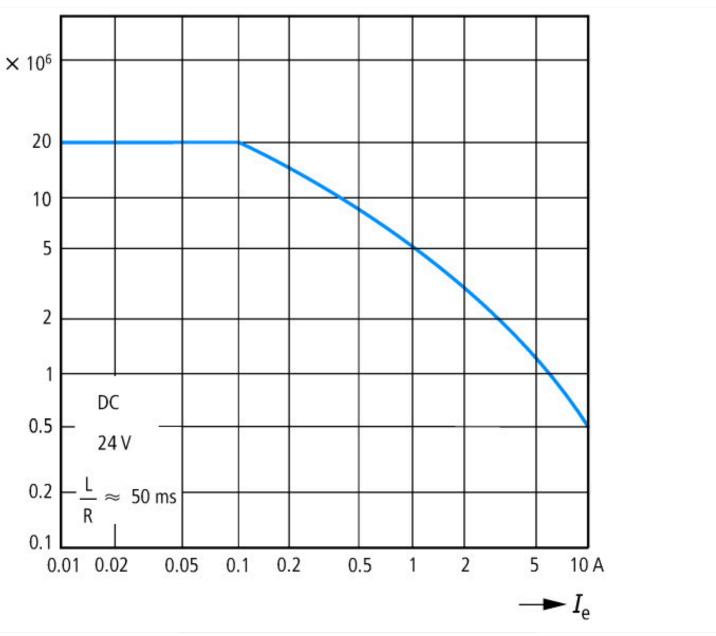
### **Approvals**

• •	
Product Standards	IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.	E29184
UL Category Control No.	NKCR
CSA File No.	012528
CSA Class No.	3211-03
North America Certification	UL listed, CSA certified
Specially designed for North America	No



1: Suppressor 2: Auxiliary contact module

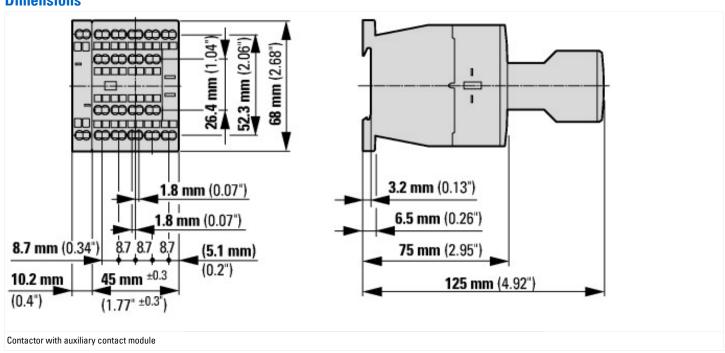


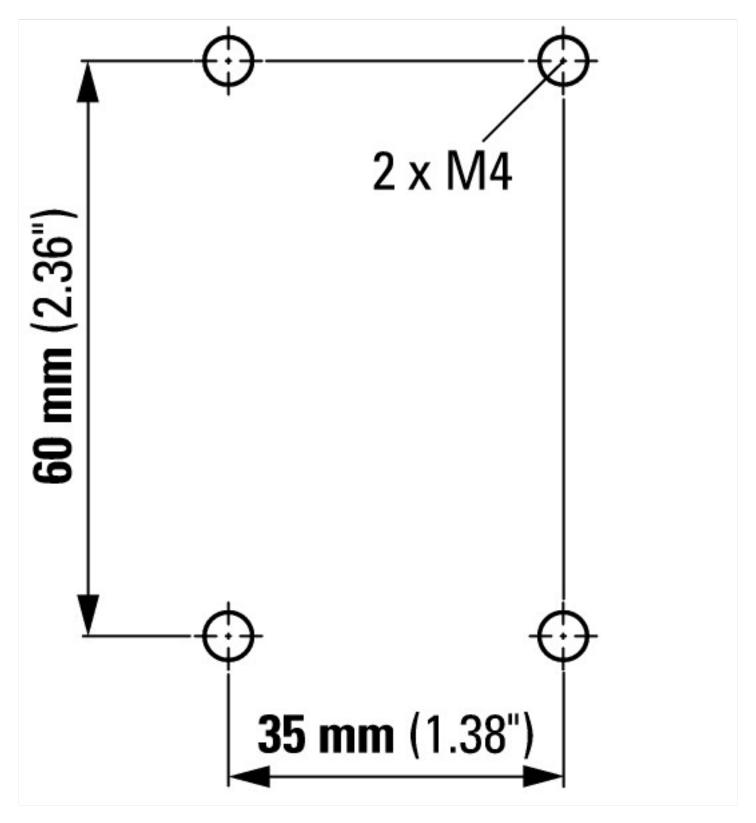


Component lifespan (operations)  $I_e$  = rated operational current

Three contacts in series

#### **Dimensions**





#### **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