### **DATASHEET - DILAC-22(24VDC)**



Contactor relay, 24 V DC, N/O = Normally open: 2 N/O, N/C = Normally closed: 2 NC, Spring-loaded terminals, DC operation

Powering Business Worldwide\*

**6** 

Part no. DILAC-22(24VDC) Catalog No. 276520

Alternate Catalog XTREC10B22TD

No.

**EL-Nummer** 4110169

(Norway)

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	l <sub>e</sub>	Α	4
380 V 400 V 415 V	l <sub>e</sub>	Α	4
Contacts			
N/O = Normally open			2 N/O
N/C = Normally closed			2 NC
Contact sequence			A1 13 21 31 43 A2 14 22 32 44
Code number and version of combination			
Distinctive number			22E
Can be combined with auxiliary contact module			DILA-XHIC(V)

24 V DC

DC operation built-in

Contact numbers to EN 50011 Coil terminal markings to EN 50005 built-in suppressor circuit' Integrated varistor suppressor circuit.

in conjunction with DIL-SWD SmartWire DT contactor module

# Technical data

Actuating voltage

Suppressor circuit

Connection to SmartWire-DT

Voltage AC/DC

Instructions

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			
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		$\text{mm}^2$	
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 x 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			111/3
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	$I_{th} = I_e$	Α	16
AC-15			
220 V 230 V 240 V	l <sub>e</sub>	Α	4
380 V 400 V 415 V	Ie	Α	4
500 V	Ie	Α	1.5
DC current			
Notes			Switch-on and switch-off conditions based on DC-13, time constant as specified.
DC L/R ≦ 15 ms			
Contacts in series:		Α	
1	24 V	Α	10
1	60 V	Α	6
2	60 V	Α	10
1	110 V	Α	3
3	110 V	Α	6
1	220 V	Α	1
3	220 V	Α	5
DC L/R ≦ 50 ms			
Contacts in series:		Α	
3	24 V	Α	4

Solition				
Source   Control circuit reliability	3	60 V	Α	4
Control circuit reliability  Short-circuit rating without welding  Maximum overcurrent protective device  220 V 230 V 240 V	3	110 V	Α	2
Short-circuit reting without welding	3	220 V	Α	1
Maximum ovarcurrent protective device         PKZM0         4           220 V 230 V 240 V         PKZM0         4           380 V 300 V 415 V         PKZM0         4           Short-circuit protection maximum fuse         0         0           500 V         A gG/gL         10           Current heat loss at I <sub>th</sub> W         0.35           DC operated         W         0.35           Magnet systems         Voltage tolerance         Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifier Prick-up voltage         0.8 - 1.1           At 24 V. without auxiliary contact component (40 °C)         Pick-up X U <sub>c</sub> V <sub>c</sub> 0.7 - 1.3         0.7 - 1.3           Power consumption         V         3         3           DC operated         Y DF         100           duty factor         Y DF         100           Changeover time at 100 % U <sub>S</sub> (recommended value)         ms         3           DC operated Closing delay         ms         3           Switching times, DC operated, max. closing delay, max.         ms         3           Coverated N/C contact opening delay, max.         ms         3           Actification of the period of	Control circuit reliability	Failure rate	λ	$<\!10^{-8},<$ one failure at 100 million operations (at Ue = 24 V DC, $U_{min}$ = 17 V, $I_{min}$ = 5.4 mA)
220 V 230 V 240 V 380 V 400 V 415 V PKZM0 4  Short-circuit protection maximum fuse 500 V PKZM0 5  Souver the set loss at I <sub>m</sub> V 0.85  Magnet systems  Voltage tolerance DC operated Spring and the set of the set	Short-circuit rating without welding			
Short-circuit protection maximum fuse  500 V  Current heat loss at I <sub>III</sub> DC operated  Magnet systems  Vulage forerance  DC operated  Notes  Pick-up voltage  at 24 V. without auxiliary contact component (40 °C)  Pick-up voltage  DC operated  Pull-in = W seeling  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay  Switching times, DC operated, max. closing delay, max.  Switching times, DC operated maxe contact Opening delay, max.  Axiliary contacts  Baing data for approved types  Axiliary contacts  A g6/gL  V 0.85  Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoo	Maximum overcurrent protective device			
Short-circuit protection maximum fuse 500 V  Current heat loss at I <sub>dn</sub> DC operated  W 0.85  Magnet systems  Voltage tolerance  DC operated  Notes  Character  Pick-up voltage at 24 V: without auxiliary contact component (40 °C)  Pick-up  DC operated  Pull-in = sealing  duty factor  Changeover time at 100 % Us frecommended 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  A600  P300	220 V 230 V 240 V		PKZM0	4
Current heat loss at I <sub>th</sub> DC operated  W 0.85  Magnet systems  Voltage tolerance  DC operated  Notes  Fick-up voltage at 24 V: without auxiliary contact component (40 °C)  DC operated  DC operated  DC operated  Pul-in = w Jack Defence  DC operated  W 3  duty factor  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated N/O contact opening 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 Dury  AC operated  DC operated  A600  P300	380 V 400 V 415 V		PKZM0	4
Current heat loss at I <sub>th</sub> DC operated  Magnet systems  Voltage tolerance  DC operated  Notes  Pick-up voltage	Short-circuit protection maximum fuse			
DC operated  Magnet systems  Voltage tolerance  DC operated  Notes  Pick-up voltage at 24 V: without auxiliary contact component (40 °C)  Pick-up  DC operated  DC operated  Pull-in = Sealing  duty factor  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay  Switching times, DC operated, max. closing delay, max.  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  AC operated	500 V		A gG/gL	10
Magnet systems         Voltage tolerance       Body operated         DC operated       Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifier pick-up voltage at 24 V: without auxiliary contact component (40 °C)       0.8 - 1.1         DC operation       Pick-up voltage voltage at 24 V: without auxiliary contact component (40 °C)       V       0.7 - 1.3         Power consumption       Pull-in = Variation with pick-up voltage along the pick-up voltage at 24 V: without auxiliary contact of the pick-up voltage at 24 V: voltage	Current heat loss at I <sub>th</sub>			
Voltage tolerance DC operated  Notes Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectifiers or smoothed DC, and the DC operated (40 °C) PSDO DC operated DC, three-phase bridge rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed DC, and Smoothed DC, three-phase bridge rectifiers or smoothed DC, and Smoothed DC, three-phase bridge rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed DC, and Smoothed DC, three-phase bridge rectifiers or smoothed DC, three-phase bridge rectifiers or smoothed DC, and Smoothed DC, three-phase bridge rectifiers or smoothed DC, and Smoothed DC, and Smoothed DC, three-phase bridge rectifiers or smoothed DC, and Smoothed DC, and Smoothed DC, and Smoothed DC, three-phase bridge rectifiers or smoothed DC, and Smoot	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> DC operation  DC operated  Pull-in = wealing  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  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  A600  P300	Magnet systems			
Notes  Notes  Pick-up voltage at 24 V: without auxiliary contact component (40 °C)  Pick-up  DC operation  DC operated  DC operated  DC operated  DC operated (losing delay  Switching times, DC contact opening delay, max.  Switching times, DC actuated make contact Opening delay, max.  Auxiliary contacts  Pilot Duty  AC operated  DC operated  DC operated  AC operated  DC operated  DC operated  DC operated  AC operated  DC operated  DC operated  AC operated  DC operated  DC operated  DC operated  DC operated  AC operated  DC operated	Voltage tolerance			
Pick-up voltage at 24 V: without auxiliary contact component (40 °C)  Pick-up x U <sub>c</sub> 0.7 - 1.3  Power consumption  DC operation  DC operated  Pull-in = W sealing  W DF 100  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay  Switching times, DC operated, max. closing delay  Switching times, DC 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  A600  P300	DC operated			
at 24 V: without auxiliary contact component (40 °C)  Pick-up x U <sub>c</sub> 0.7 - 1.3  Power consumption  DC operation  DC operated  Pull-in = wsealing  duty factor  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay  Switching times, DC operated, max. closing delay  Switching times, DC operated make contact Opening delay, max.  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  A600  P300	Notes			$Smoothed\ DC, three-phase\ bridge\ rectifiers\ or\ smoothed\ double-wave\ rectification$
Power consumption  DC operation  DC operated  Pull-in = W sealing  duty factor  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay  Switching times, DC operated, max. closing delay  BC operated N/O contact opening delay  Switching times, DC actuated make contact Opening delay, max.  Switching times, DC actuated make contact Opening delay, max.  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  A600  P300	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  BC operated N/O contact opening delay  Switching times, DC actuated make contact Opening delay, max.  Bating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  A600  P300	at 24 V: without auxiliary contact component (40 °C)	Pick-up	x U <sub>c</sub>	0.7 - 1.3
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  A600  P300	Power consumption			
duty factor % DF 100  Changeover time at 100 % U <sub>S</sub> (recommended value)  DC operated closing delay ms 31  DC operated N/O contact opening delay ms 12  Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  DC operated  DC operated  A600  DC operated	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  A600  P300	DC operated		W	3
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  A600  P300	duty factor		% DF	100
Switching times, DC operated, max. closing delay ms  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 A600  DC operated P300	Changeover time at 100 $\%$ U $\!_{S}$ (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  A600  P300	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  DC operated  MS 12	Switching times, DC operated, max. closing delay		ms	31
Rating data for approved types  Auxiliary contacts  Pilot Duty  AC operated  DC operated  P300	DC operated N/O contact opening delay		ms	
Auxiliary contacts  Pilot Duty  AC operated  DC operated  P300	Switching times, DC actuated make contact Opening delay, max.		ms	12
Pilot Duty AC operated A600 DC operated P300	Rating data for approved types			
AC operated A600 DC operated P300	Auxiliary contacts			
DC operated P300				
	AC operated			A600
General Use	DC operated			P300
	General Use			
AC V 600	AC		V	600
AC A 15	AC		Α	15
DC V 250	DC		V	250
DC A 1	DC		Α	1

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	15.5
Heat dissipation per pole, current-dependent	$P_{vid}$	W	0.8
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	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
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.

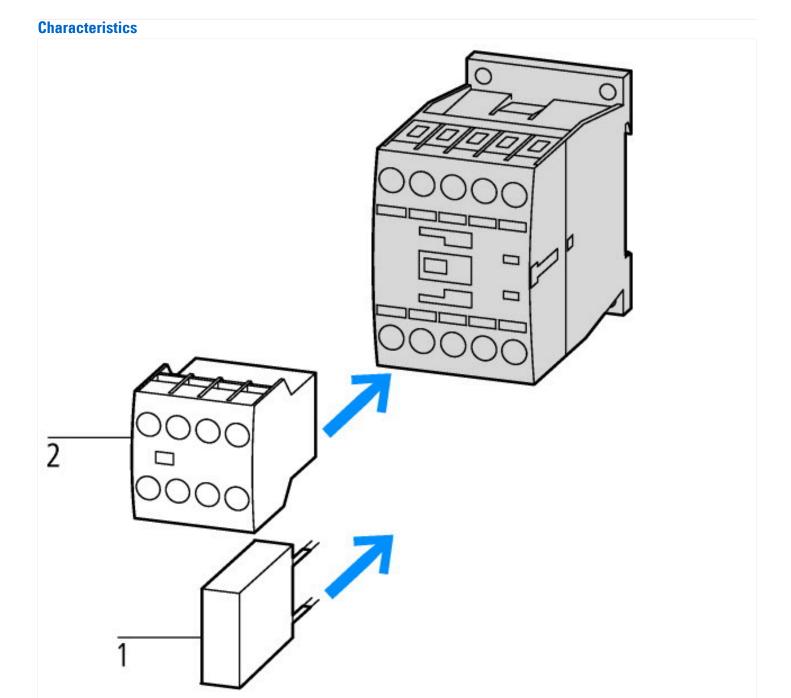
10.2.4 Resistance to ultra-violet (UV) radiation	Meets the product standard's requirements.
10.2.5 Lifting	Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact	Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions	Meets the product 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**

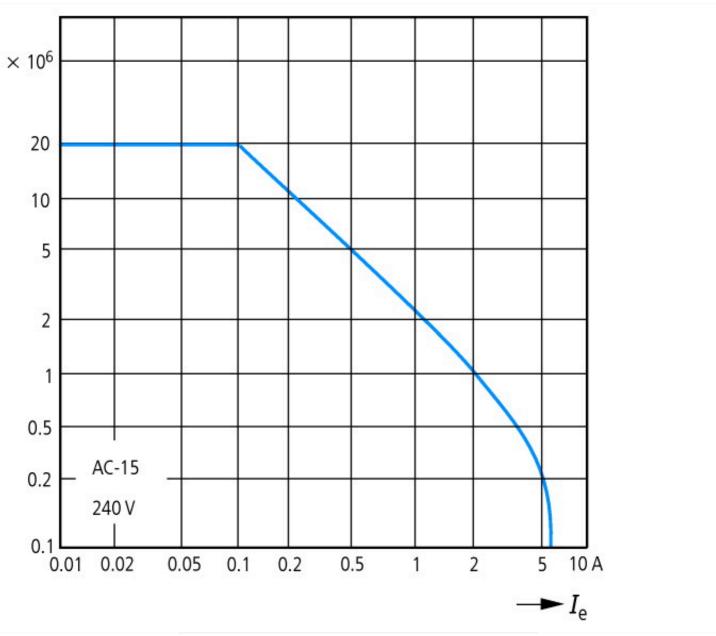
Low-voltage industrial components (EG000017) / Contactor relay (EC000196)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Contactor relay (ecl@ss10.0.1-27-37-10-01 [AAB716014])			
Rated control supply voltage Us at AC 50HZ	\	V	0 - 0
Rated control supply voltage Us at AC 60HZ	\	V	0 - 0
Rated control supply voltage Us at DC	\	V	24 - 24
Voltage type for actuating			DC
Rated operation current le, 400 V	,	4	4
Connection type auxiliary circuit			Spring clamp connection
Mounting method			DIN-rail/screw
Interface			No
Number of auxiliary contacts as normally closed contact			2
Number of auxiliary contacts as normally open contact			2
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

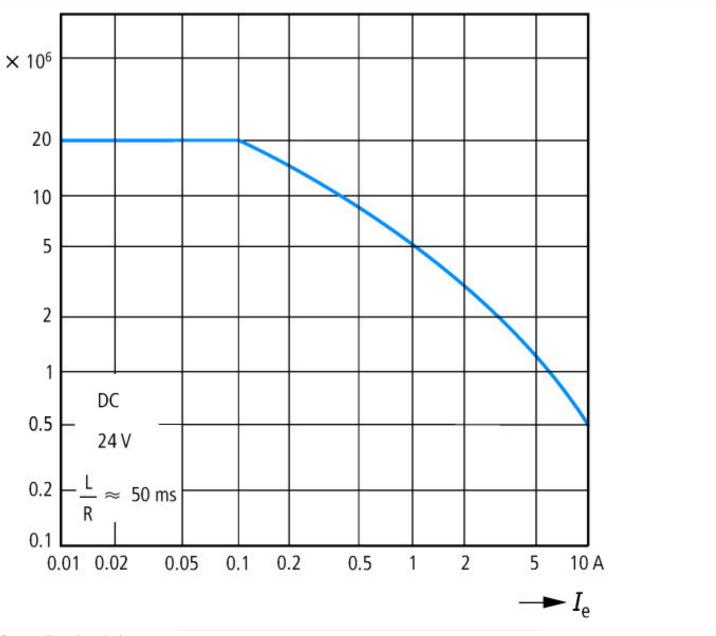
# Approvals

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

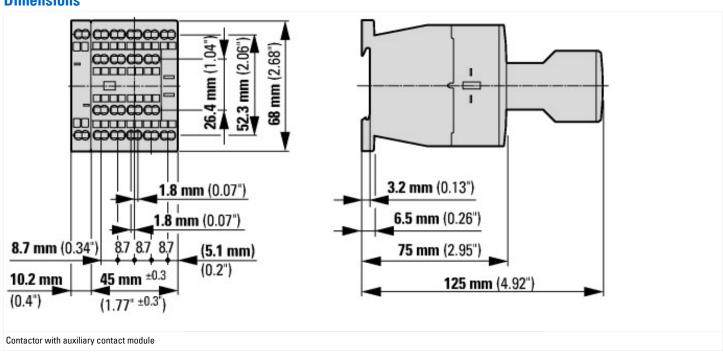


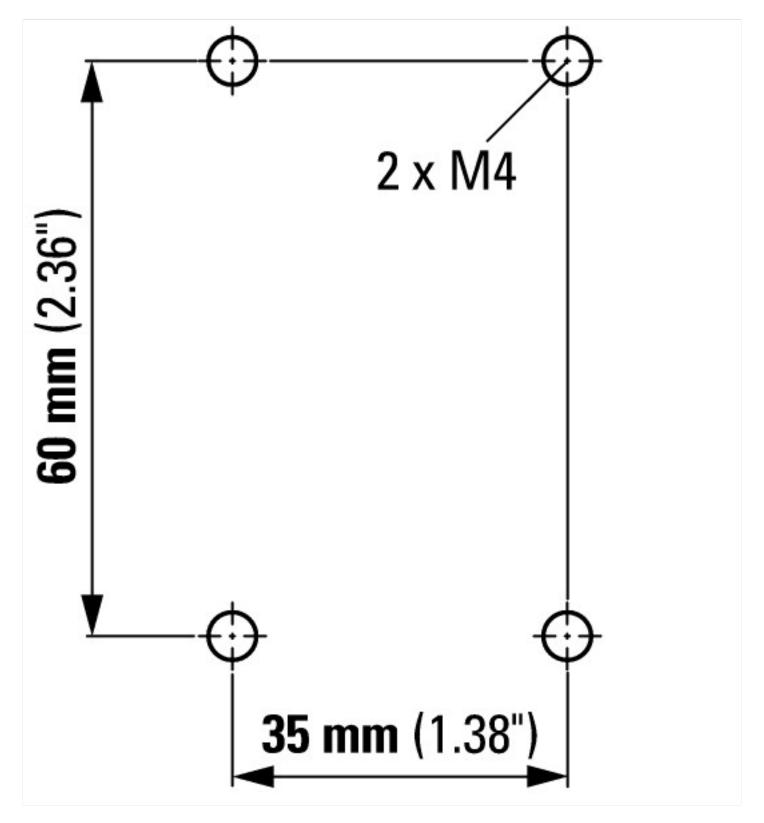


Component lifespan (operations)  $I_e$  = rated operational current

Three contacts in series

#### **Dimensions**





#### **Additional product information (links)**

IL03407013Z (AWA2100-2126) Contactors

IL03407013Z (AWA2100-2126) Contactors

ftp://ftp.moeller.net/DOCUMENTATION/AWA\_INSTRUCTIONS/IL03407013Z2020\_05.pdf