#### DATASHEET - DILER-31(220V50/60HZ)



Contactor relay, 220 V 50/60 Hz, N/O = Normally open: 3 N/O, N/C = Normally closed: 1 NC, Screw terminals, AC operation



Part no. Catalog No. Alternate Catalog No.

DILER-31(220V50/60HZ) 021665 log XTRM10A31A0

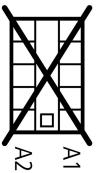
Similar to illustration

#### **Delivery program**

Product range			DILER Mini-contactors
Application			Contactor relays
Description			with interlocked opposing contacts
Connection technique			Screw terminals
Rated operational current			
Conventional free air thermal current, 1 pole			
Open			
at 50 °C	$I_{th} = I_e$	А	10
AC-15			
220 V 230 V 240 V	I <sub>e</sub>	А	6
380 V 400 V 415 V	I <sub>e</sub>	А	3
Contacts			
N/O = Normally open			3 N/O
N/C = Normally closed			1 NC
Contact sequence			$\begin{array}{c} A^{1} \\ A^{1} \\ A^{2} \\$
Code number and version of combination			
Distinctive number			31E
For use with			DILE
Actuating voltage			220 V 50/60 Hz
Voltage AC/DC			AC operation
Instructions			Contact numbers to EN 50011 Coil terminal markings to EN 50005

## Technical data

Standards    I	General			
AC operated  Operations  >10 <sup>6</sup> Maximum operating frequency  Operations/n  900    Climatic proofing  Image: Constant, to IEC 60068-2-78    Ambient temperature  Image: Constant, to IEC 60068-2-30    Open  Image: Constant, to IEC 60068-2-30    Inclosed  Image: Constant, to IEC 60068-2-30    Mounting position  Image: Constant, to IEC 60068-2-30	Standards			IEC/EN 60947, EN 60947-5-1, VDE 0660, UL, CSA
Naximum operating frequency  Operations/h  900    Climatic proofing  Ambient temperature  Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30    Ambient temperature	Lifespan, mechanical			
Climatic proofing  Part of the constant, to IEC 60068-2-78 pamp heat, constant, to IEC 60068-2-78 pamp hea	AC operated	Operations	x 10 <sup>6</sup>	10
Ambient temperature  Open  Open  Open    Enclosed  C  -25 - +50    Mounting position  C  -25 - 40	Maximum operating frequency	Operations/h		9000
Open  °C  -25 - +50    Enclosed  °C  -25 - 40    Mounting position  C  -25 - 40	Climatic proofing			
Enclosed  °C  - 25 - 40    Mounting position  Image: Sector Sect	Ambient temperature			
Mounting position	Open		°C	-25 - +50
	Enclosed		°C	- 25 - 40
Mounting position	Mounting position			
As required, except vertical with terminals AT/A2 at the bottom	Mounting position			As required, except vertical with terminals A1/A2 at the bottom



			A1 A2
Mechanical shock resistance (IEC/EN 60068-2-27)			
Half-sinusoidal shock, 10 ms			
Basic unit with auxiliary contact module		g	
N/O contact		g	10
N/C contact		g	8
Degree of Protection			IP20
Altitude		m	Max. 2000
Weight			
AC operated		kg	0.17
Terminal capacities		mm <sup>2</sup>	
Screw terminals			
Solid		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)
Solid or stranded		AWG	18 - 14 1 × (18 - 14) 2 × (18 - 14)
Stripping length		mm	8
Terminal screw			M3.5
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 × 5.5 1 × 6
Max. tightening torque		Nm	1.2
Contacts			
Interlocked opposing 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	600
Safe isolation to EN 61140			
between coil and auxiliary contacts		V AC	300
between the auxiliary contacts		V AC	300
Rated operational current		A	
Conventional free air thermal current, 1 pole			
Open			10
at 50 °C	I <sub>th</sub> =I <sub>e</sub>	A	10
AC-15			
220 V 230 V 240 V	l <sub>e</sub>	A	6
380 V 400 V 415 V	l <sub>e</sub>	A	3
500 V	l <sub>e</sub>	A	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:		A	
1	24 V	A	2.5
2	60 V	A	2.5

320VA6Control circuit reliabilityFilmer at (a d a control circuit reliability)Filmer at (a d a control circuit reliability)Filmer at (a d a control circuit reliability)Short-circuit reliabilityFilmer at (a d a control circuit reliability)Filmer at (a d a control circuit reliability)Maximum overcurrent protective deviceFilmer at (a d a control circuit reliability)Filmer at (a d a control circuit protection maximum fuse300 \ 400 V415 \ 1Filmer at (a d a d a control circuit protection maximum fuseFilmer at (a d a d a control circuit protection maximum fuse500 \ 1Filmer at (a d a d a control circuit protection maximum fuseFilmer at (a d a d a control circuit protection maximum fuse500 \ 1Filmer at (a d a d a d a control circuit protection maximum fuseFilmer at (a d a d a control circuit protection maximum fuse500 \ 1Filmer at (a d a d a control circuit protection maximum fuseFilmer at (a d a d a control circuit protection maximum fuse500 \ 1Filmer at (a d a d a control circuit protection maximum fuseFilmer at (a d a d a control circuit protection maximum fuse600 \ 1Filmer at (a d a d a control circuit protection protecti	2	110 V	А	15
Anticipation operations oper	3			1.5
Shir-Guiden where w				
Maximu novecurant protocologiesImage: statusImage: status280 V200 V15 V0644380 V400 V15 V1666580 V1666580 V1666580 V1666580 V1780 V166600 v100 V15 V100 V15 V100 V100 V100 V100 V10	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)
20 V20 V20 V20 V40 V415 VPKZM04380 V40 V415 V64Short-icruit protection maximum fuseFKZM04500 VA fast6500 VA fast10Current heat loss at lyM10AC oporatedMW1.1AC oporatedMK10Mignet SystemsMK10Single-vtage coll 500 K2 and dua-votage coll 50 K2 K0 K2Pick-upKL10Dual-frequency coll 500 K1Pick-upKL10Dual-frequency coll 500 K1Pick-upKL10Dual-frequency coll 500 K1Pick-upKL10Dual-frequency coll 500 K1/2Pick-upKL10Dual-frequency coll 500 K1/2Pick-upKL10Dual-frequency coll 500 K1/2Pick-upKL10Dual-frequency coll 500 K1/2Pick-upKL10Dual-frequency coll 500 K1/2Pick-upKL10AC oporated W0 musclisory coll 500 K1/2Pick-upKL10AC oporated W0 musclisory coll 500 K1/2Pick-upRE10AC oporated W0 musclisory coll 500 K1/2Pick-upRE10AC oporated W0 musclisory coll 500 K1/2Pick-upRE10AC oporated W0 musclisory coll 500 K1/2Pick-upPick-up10AC oporated W0 musclisory coll 500 K1/2Pick-upPick-up10AC oporated W0 musclisory coll 500 K1/2Pick-upPick-up10AC oporated W0 musclisory coll 5	Short-circuit rating without welding			
380 V0 415 V      PK2M      4.0        500 V      500 V      500 V      500 V        500 V      500 V      6.0      6.0        500 V      6.0      6.0      6.0        500 V      6.0      7.0      7.0        500 V      0.0      1.0      7.0        Corrent heat loss at lun      0.0      1.0      7.0        A Coperated      0.0      8.1.1      7.0        A Coperation      7.0      7.0      7.0        Power consumption      7.0      8.0      8.5.1.1        Power consumption      7.0      7.0      7.0        A Coperation      7.0      7.0      7.0        Dual-frequency coi 50/60 Hz      7.0      7.0      7.0        A Coperated Holosing delay      6.0      8.0      7.0        A Coperated Holosing delay      7.0	Maximum overcurrent protective device			
Sour-circuit protection maximum fuseA regionA region	220 V 230 V 240 V		PKZM0	4
SolvSo	380 V 400 V 415 V		PKZM0	4
BOVAnd And And And 	Short-circuit protection maximum fuse			
Current heat loss at l <sub>b</sub> .      Image: loss at l <sub>b</sub> .        A C operated      W      1        Buel-frequency coli 50 Hz and dual-voltage coli 50 Hz, 60 Hz      Vec.      8×1.1        Power consumption      KUc      8×1.1        A C operation      W      Single-voltage coli 50 Hz and dual-voltage coli 50 Hz, 60 Hz      Vec.      8×1.1        Power consumption      KUc      8×1.1      Single-voltage coli 50 Hz	500 V		A gG/gL	6
AC operated    N    N    N      AC operated    N    N    N      AC operated    N    N    N    N      Non-Frequency coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz    Pick-up    X Lo    N	500 V		A fast	10
Nates      Notes        Voltage tolkrance      Image: Statume      Image: Statume        AC operated      Image: Statume      Image: Statume      Image: Statume        Single-voltage coil 50 Hz and dual-voltage coil 50 Hz. 60 Hz      Pick-up      X Le      0.8.1.1        Dual-frequency coil 5060 Hz      Pick-up      X Le      0.8.1.1        AC operation      Image: Statume      Image: Statume      Image: Statume        Dual-frequency coil 5060 Hz      Hold      X Le      Statume        Dual-frequency coil 5060 Hz      Fore      N Le      Statume        Actoperated Nucleonsing delay      No      Statume      Statume        Actoperated Nucleonsing delay      M Statume      Statume      Statume        Pict Dury      M Cooperated Nucleonsing delay      M Statume      Statume        Actoperated Nucenter <td>Current heat loss at I<sub>th</sub></td> <td></td> <td></td> <td></td>	Current heat loss at I <sub>th</sub>			
Notage to leave to the second secon	AC operated		W	1.1
AC operated    Pick-up    Nu      Single-voltage coil 50 Hz, and dual-voltage coil 50 Hz, 60 Hz    Pick-up    Nu    Sin14      Dual-frequency coil 50/60 Hz    Pick-up    Nu    Sin14      Power consumption    Pick-up    Nu    Sin14      Dual-frequency coil 50/60 Hz    Hold    Nu    Sin34      Dual-frequency coil 50/60 Hz    Hold    Nu    Sin34      duty factor    Sealing    Nu    Sin34      duty factor    Sealing    Nu    Sin34      AC operated losing delay    Nu    Sin34    Sin34      AC operated N/0 contact opening delay    Nu    Sin34    Sin34      AC operated N/0 contact opening delay    Nu    Sin34    Sin34      Pick Duty    Mu    Sin34    Sin34    Sin34      AC operated N/0 contact nodule Max. closing delay    Nu    Sin34    Sin34      Pick Duty    Mu    Sin34    Sin34    Sin34      Pick Duty    Mu    Sin34    Sin34    Sin34      AC operated N/0 contact opening delay    Mu    Sin34    Sin34      Pick Duty    Mu	Magnet systems			
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 HzPick-up¥ Uc8a 1.1Dual-frequency coil 50,60 HzPick-up¥ Uc85 - 1.1AC operationHoldVa3.3Dual-frequency coil 50,60 HzHoldVa3.3Dual-frequency coil 50,60 HzSeaingVa3.3duty factorSeaing% De1.3duty factorSeaing% De1.3AC operated losing delaySeaing% De1.4AC operated N/0 contact opening delaySeaing% De1.4AC operated With auxiliary contact module Max. closing delayNa8.18AC operated With auxiliary contact module Max. closing delaySeaing% DePick DutySeaingMolSeaingAC operated Seaing delaySeaing% DePick DutySeaingSeaingPick DutySeaing% DeAC operated Seaing delaySeaingAC operated Seaing delaySeaingPick DutySeaing% DeAc operated Seaing delaySeaingAC operated Se	Voltage tolerance			
Polai-frequency oil 50/60 HzPick-upx Up x Up x Up x UpS5 - 1AC operationNoNoNoDual-frequency oil 50/60 HzNoSalingNoDual-frequency oil 50/60 HzSalingNoSalingDual-frequency oil 50/60 HzSalingNoSalingduy lactorSalingNoSalingduy lactorSalingNoSalingduy lactorSalingNoSalingduy lactorSalingNoSalingduy lactorSalingNoSalingduy lactorSalingNoSalingduy lactorNoSalingNoAC operated N/O contact module Max. closing delayNoSalingAC operated N/O contact module Max. closing delayNoSalingPilot DuyNoSalingSalingAC operated SalingNoSalingPilot DuyNoSalingA CoperatedNoSalingA Coperated NetworkNoSalingA Coperated SalingNoSalingA Coperate	AC operated			
Power consumption	Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	Pick-up	x U <sub>c</sub>	0.8 - 1.1
AC operation    Image: Constraint of the second of the se	Dual-frequency coil 50/60 Hz	Pick-up	x U <sub>c</sub>	0.85 - 1.1
Dual-frequency coil 50/60 Hz      Hold      VA      5/3        Dual-frequency coil 50/60 Hz      Sealing      VA      5/3        Dual-frequency coil 50/60 Hz      Sealing      VA      5/3        duty factor      Sealing      VA      5/3        duty factor      P      P      10        Changeover time at 100 % Ug (recommended value)      MA      7      10        AC operated losing delay      Na      8-18      10        AC operated N/D contact opening delay      Na      8-18      10        AC operated N/D contact opening delay      Na      8-18      10        AC operated N/D contact opening delay      Na      8-18      10        AC operated N/D contact opening delay      Na      8-18      10        AC operated Searce      Na      5      10      10        Pilot Duty      AC operated      Na      5      10      10      10      10      10      10      10      10      10      10      10      10      10      10      10      10      10      10      10	Power consumption			
Lander of the second	AC operation			
duty fact    % PF    10      duty factor    % DF    ·      Changeover time at 100 % Us (recommended value)    ms    14-21      A Coperated closing delay    ms    8-18      A Coperated N/O contact opening delay    ms    8-18      A Coperated With auxiliary contact module Max. closing delay    ms    8-18      Rating data for approved types    ms    9-10      Rating data for approved types    ms    8-18      Rating data for approved types    ms    9-10      Rating data for approved types    ms<	Dual-frequency coil 50/60 Hz	Hold	VA	
Changeover time at 100 % Ug (recommended value)  Image: Margin M	Dual-frequency coil 50/60 Hz	Sealing	W	
AC operated losing delayImage: Note of the section of th	duty factor		% DF	100
AC operated N/O contact opening delay    ms    8-18      AC operated With auxiliary contact module Max. closing delay    ms    45      Rating data for approved types	Changeover time at 100 $\%~\text{U}_{S}$ (recommended value)			
AC operated With auxiliary contact module Max. closing delay  ms  45    Rating data for approved types  Image: State Sta	AC operated closing delay		ms	14 - 21
Rating data for approved types      Auxiliary contacts    Image: Section of the sect	AC operated N/O contact opening delay		ms	8 - 18
Auxiliary contactsImage: Big Pice Pice Pice Pice Pice Pice Pice Pice	AC operated With auxiliary contact module Max. closing delay		ms	45
Pilot DutyImage: Pilot DutyImage: Pilot DutyImage: Pilot DutyImage: Pilot DutyAC operatedImage: Pilot DutyP300General UseImage: Pilot DutyImage: Pilot DutyACImage: Pilot DutyImage: Pilot DutyACImage: Pilot DutyImage: Pilot DutyACImage: Pilot DutyImage: Pilot DutyDCImage: Pilot DutyImage: Pilot DutyDCImage: Pilot DutyImage: Pilot Duty	Rating data for approved types			
AC operatedAC operate	Auxiliary contacts			
DC operatedP300General UseIACVACACDCVDCVDCVDCV	-			
General UseImage: Constraint of the second seco				
ACV600ACA10DCV250	DC operated			P300
AC A 10 DC V 250	General Use			
DC V 250	AC		V	600
	AC		А	10
DC A 0.5	DC		V	250
	DC		А	0.5

# Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	А	6
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0.4
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	0
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	1.8
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	50
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.
Ũ	
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**

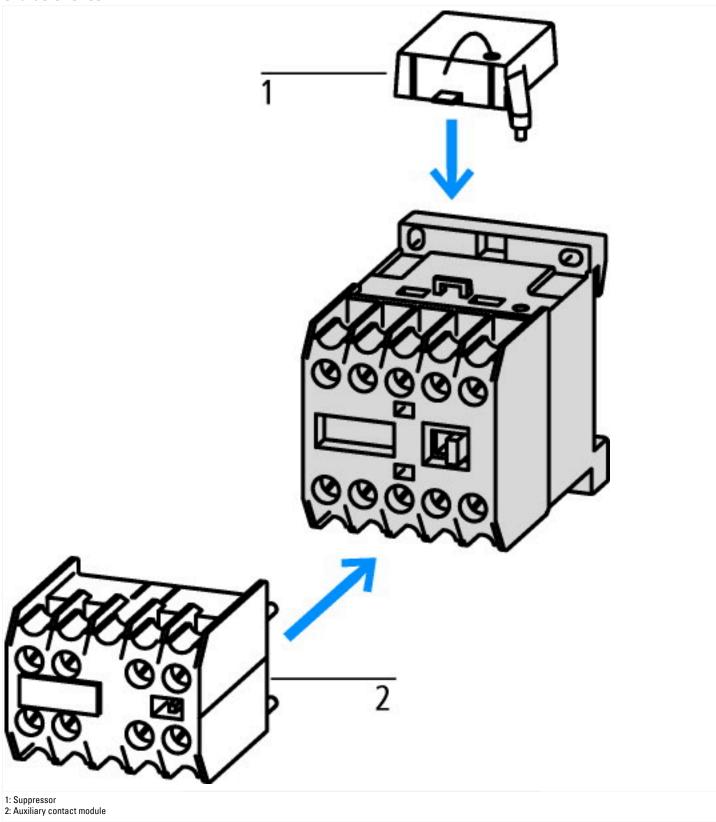
Low-voltage industrial components (EG000017) / Contactor relay (EC000196)

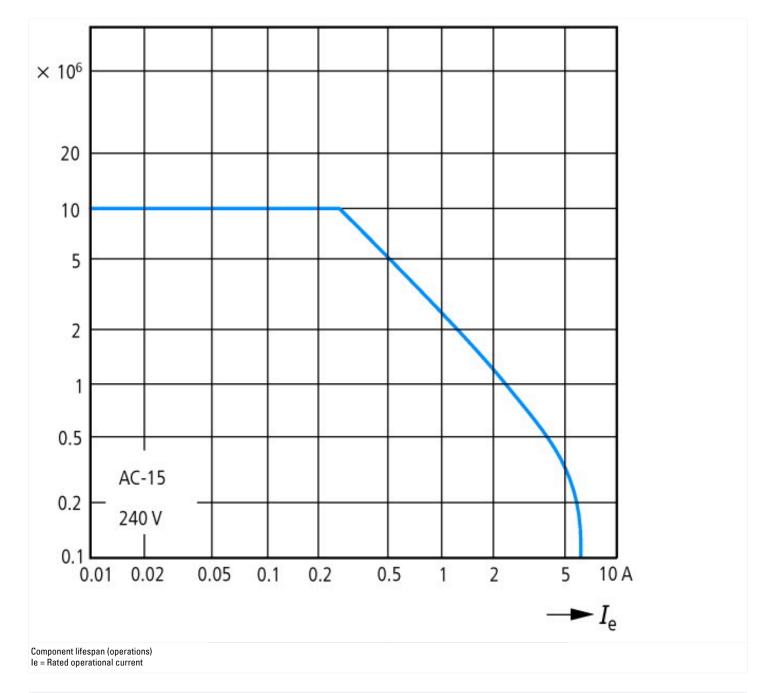
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Contactor relay (ecl@ss10.0.1-27-37-10-01 [AAB716014])

Rated control supply voltage Us at AC 50HZ	V	220 - 220
Rated control supply voltage Us at AC 60HZ	V	220 - 220
Rated control supply voltage Us at DC	V	0 - 0
Voltage type for actuating		AC
Rated operation current le, 400 V	А	3
Connection type auxiliary circuit		Screw connection
Mounting method		DIN-rail/screw
Interface		No
Number of auxiliary contacts as normally closed contact		1
Number of auxiliary contacts as normally open contact		3
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

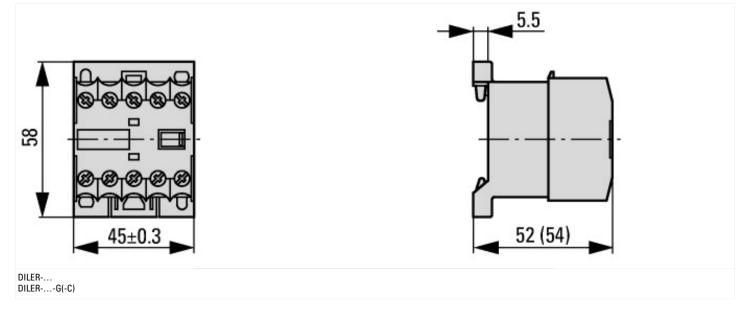
### Approvals

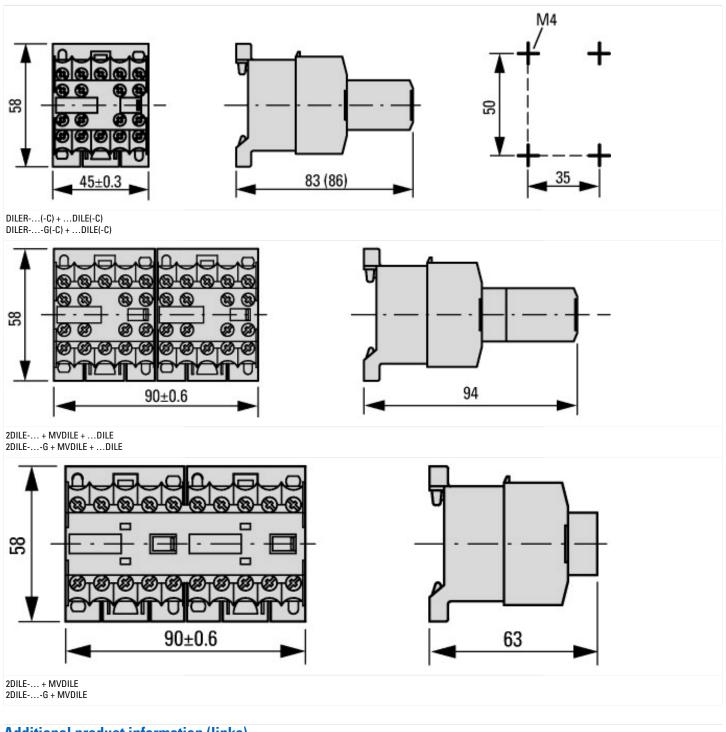
Product Standards	IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.	E29184
UL Category Control No.	NKCR
CSA File No.	012528
CSA Class No.	3211-03
North America Certification	UL listed, CSA certified
Specially designed for North America	No





#### Dimensions





### Additional product information (links)

#### IL03407009Z (AWA2100-0882) Mini contactor relay

IL03407009Z (AWA2100-0882) Mini contactor https://es-assets.eaton.com/DOCUMENTATION/AWA\_INSTRUCTIONS/IL03407009Z2020\_05.pdf relay