DATASHEET - DILER-40-EA(230V50HZ,240V60HZ)

Contactor relay, 230 V 50 Hz, 240 V 60 Hz, N/O = Normally open: 4 N/O, Screw terminals, AC operation



Part no. Catalog No. DILER-40-EA(230V50HZ,240V60HZ) 189973

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	le	А	6
380 V 400 V 415 V	le	А	3
Contacts			
N/O = Normally open			4 N/O
Code number and version of combination			
Distinctive number			40E
For use with			DILE
Actuating voltage			230 V 50 Hz, 240 V 60 Hz
Voltage AC/DC			AC operation
Instructions			Contact numbers to EN 50011 Coil terminal markings to EN 50005

Technical data

General			
Standards			IEC/EN 60947, EN 60947-5-1, VDE 0660, UL, CSA
Lifespan, mechanical			
AC operated	Operations	x 10 ⁶	10
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 - +50
Enclosed		°C	- 25 - 40
Mounting position			
Mounting position			As required, except vertical with terminals A1/A2 at the bottom
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
Protection against direct contact when actuated from front (EN 50274)			Finger and back-of-hand proof
Altitude		m	max. 2000 m
Weight			
AC operated		kg	0.17
Terminal capacities		mm ²	
Screw terminals			

Solid		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
		AWG	1 x (18 - 14) 2 x (18 - 14)
Stripping length		mm	8
Terminal screw			M3.5
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 x 5.5 1 x 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 _{imp}	V AC	6000
Overvoltage category/pollution degree			111/3
Rated insulation voltage	Ui	V AC	690
Rated operational voltage	Ue	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			
at 50 °C	I _{th} =I _e	A	10
	Ith =Ie	А	
AC-15			
220 V 230 V 240 V	l _e	A	6
380 V 400 V 415 V	l _e	A	3
500 V	le	А	1.5
DC current			
Notes			Switch-on and switch-off conditions based on DC-13, time constant as specified.
Notes DC L/R ≦ 15 ms			Switch-on and switch-off conditions based on DC-13, time constant as specified.
		A	Switch-on and switch-off conditions based on DC-13, time constant as specified.
DC L/R ≦ 15 ms	24 V	A A	Switch-on and switch-off conditions based on DC-13, time constant as specified.
DC L/R ≦ 15 ms Contacts in series:	24 V 60 V		
DC L/R ≦ 15 ms Contacts in series: 1		A	2.5
DC L/R ≦ 15 ms Contacts in series: 1 2	60 V	A A	2.5
DC L/R ≦ 15 ms Contacts in series: 1 2 3	60 V 110 V	A A A	2.5 2.5 1.5
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 3	60 V 110 V 220 V	A A A A	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations
DC L/R ≦ 15 ms Contacts in series: 1 2 3 3 3 Control circuit reliability	60 V 110 V 220 V	A A A A	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations
DC L/R ≦ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding	60 V 110 V 220 V	A A A A	2.5 2.5 1.5 0.5 $<10^{-8}$, < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA)
DC L/R ≦ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V	60 V 110 V 220 V	A A A A λ PKZM0	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA)
DC L/R ≦ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V	60 V 110 V 220 V	Α Α Α Α Α	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA)
DC L/R ≦ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse	60 V 110 V 220 V	A A A A λ λ PKZM0 PKZM0	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V	60 V 110 V 220 V	A A A A λ λ PKZM0 PKZM0 PKZM0	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4 6
DC L/R ≤ 15 ms Contacts in series: 1 2 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V	60 V 110 V 220 V	A A A A λ λ PKZM0 PKZM0	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V Stort heat loss at I _{th}	60 V 110 V 220 V	A A A A A A PKZM0 PKZM0 PKZM0 A gG/gL A fast	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4 6 10
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V Current heat loss at I _{th} AC operated	60 V 110 V 220 V	A A A A λ λ PKZM0 PKZM0 PKZM0	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4 6
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V Short-circuit protection maximum fuse Magnet systems	60 V 110 V 220 V	A A A A A A PKZM0 PKZM0 PKZM0 A gG/gL A fast	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4 6 10
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V 500 V 500 V Short-circuit protection maximum fuse 500 V Short-circuit protection maximum fuse 500 V Stort best lass at lab AC operated Magnet systems Voltage tolerance	60 V 110 V 220 V	A A A A A A PKZM0 PKZM0 PKZM0 A gG/gL A fast	2.5 2.5 1.5 0.5 $<10^{-8}$, < one failure at 100 million operations $(at U_e = 24 V DC, U_{min} = 17 V, I_{min} = 5.4 mA)$ 4 4 6 10
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V 500 V Short-circuit protection maximum fuse 500 V Stort best at I _{th} AC operated Magnet systems Voltage tolerance AC operated	60 V 110 V 220 V Failure rate	A A A A A A A PKZM0 PKZM0 PKZM0 A gG/gL A fast W	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4 4 10 10 1.1
DC L/R ≦ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V 500 V 500 V Voltage tolerance AC operated Magnet systems Voltage tolerance AC operated Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	60 V 110 V 220 V Failure rate	A A A A A A PKZM0 PKZM0 PKZM0 A gG/gL A fast W	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4 4 10 10 1.1 0.8 - 1.1
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V 500 V Current heat loss at I _{th} AC operated Magnet systems Voltage tolerance AC operated Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	60 V 110 V 220 V Failure rate	A A A A A A A PKZM0 PKZM0 PKZM0 A gG/gL A fast W	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4 4 10 10 1.1
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V Current heat loss at lth AC operated Magnet systems Voltage tolerance AC operated Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz Dual-frequency coil 50/60 Hz Power consumption	60 V 110 V 220 V Failure rate	A A A A A A PKZM0 PKZM0 PKZM0 A gG/gL A fast W	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4 4 10 10 1.1 0.8 - 1.1
DC L/R ≤ 15 ms Contacts in series: 1 2 3 3 Control circuit reliability Short-circuit rating without welding Maximum overcurrent protective device 220 V 230 V 240 V 380 V 400 V 415 V Short-circuit protection maximum fuse 500 V 500 V Short-circuit protection maximum fuse 500 V Current heat loss at Ith AC operated Magnet systems Voltage tolerance AC operated Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	60 V 110 V 220 V Failure rate	A A A A A A PKZM0 PKZM0 PKZM0 A gG/gL A fast W	2.5 2.5 1.5 0.5 <10 ⁻⁸ , < one failure at 100 million operations (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) 4 4 4 10 10 1.1 0.8 - 1.1

Changeover time at 100 % U _S (recommended value) ms 14 - 21 AC operated N/O contact opening delay ms 8 - 18 AC operated With auxiliary contact module Max. closing delay ms 45				
duty factor % DF 00 Changeover time at 100 % Us (recommended value) A Coperated closing delay ms 8 - 18 A Coperated N/D contact opening delay ms 8 - 18 A Coperated With auxiliary contact module Max. closing delay ms 8 - 18 A Coperated With auxiliary contact module Max. closing delay ms 8 - 18 Rating data for approved types	Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	Sealing	VA	4.6
AC operated closing delay Mass Id - 21 AC operated N/O contact opening delay ms 8 - 18 AC operated N/O contact module Max. closing delay ms 8 - 18 AC operated With auxiliary contact module Max. closing delay ms 8 - 18 Rating data for approved types Mass 45 Auxiliary contacts Mass 4600 Pilot Duty Mass 4600 D Coperated Use Mass 4600 AC operated Mass 4600 AC operated Use Mass 4600 <	Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	Sealing	w	1.3
AC operated closing delay ms 14 - 21 AC operated N/O contact opening delay ms 8 - 18 AC operated With auxiliary contact module Max. closing delay ms 45 Acting data for approved types ms 45 Acting data for approved types ms 400 Acting data for approved types ms 400 Acting contacts ms 400 Pilot Duty Ms 400 Coperated Use Ms 400 DC operated Ms 400 AC operated Use Ms 400 <	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 % U_{S} (recommended value)			
AC operated With auxiliary contact module Max. closing delay ms 45 Rating data for approved types File File Auxiliary contacts File File Pilot Duty File File AC operated File File DC operated File File AC File File File File File File File File	AC operated closing delay		ms	14 - 21
Auxiliary contacts Image: Contact Sector	AC operated N/O contact opening delay		ms	8 - 18
Auxiliary contacts Image: second se			ms	45
Pilot Duty AC operated A600 DC operated P300 General Use V AC V AC V AC AC DC operated V BOD AC AC AC AC AC AC AC AC AC AC AC BOD AC	Rating data for approved types			
AC operatedA600DC operatedP300General UseCACVACO0ACACDC operatedVSectionSectionACACSectionACSectionACSection	Auxiliary contacts			
DC operated P300 General Use Control AC V AC AC AC AC DC operated V BO0 Control BO0 Contro BO0 Con	Pilot Duty			
General Use V 60 AC AC AC DC V 50	AC operated			A600
ACV600ACA10DCV250	DC operated			P300
AC A 10 DC V 250	General Use			
DC 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

Design vernioution us per 120/21 01-05			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	А	6
Heat dissipation per pole, current-dependent	P _{vid}	W	0.4
Equipment heat dissipation, current-dependent	P _{vid}	W	0
Static heat dissipation, non-current-dependent	P _{vs}	W	1.8
Heat dissipation capacity	P _{diss}	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.
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 8.0 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 ۷ 230 - 230 Rated control supply voltage Us at AC 60HZ ٧ 240 - 240 Rated control supply voltage Us at DC ۷ 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 0 4 Number of auxiliary contacts as normally open contact Number of auxiliary contacts as normally closed contact, delayed switching 0 0 Number of auxiliary contacts as normally open contact, leading Number of auxiliary contacts as change-over contact 0 With LED indication No

No

Suitable for manual operation