

DATASHEET - DILA-31(24VDC)



Contactor relay, 24 V DC, 3 N/O, 1 NC, Screw terminals, DC operation

Part no. DILA-31(24VDC)  
276379  
EL Number 4130206  
(Norway)

General specifications		
Product name		Eaton Moeller® series DILA Control relay
Part no.		DILA-31(24VDC)
EAN		4015082763794
Product Length/Depth		75 millimetre
Product height		68 millimetre
Product width		45 millimetre
Product weight		0.296 kilogram
Certifications		IEC/EN 60947-4-1 UL Category Control No.: NKCR CSA UL CSA File No.: 012528 UL File No.: E29184 CE VDE 0660 CSA Class No.: 3211-03 UL 508 IEC/EN 60947 CSA-C22.2 No. 14-05 EN 60947-5-1
Product Tradename		DILA
Product Type		Control relay
Product Sub Type		None
Features & Functions		
Features		Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module
Fitted with:		Suppressor circuit Positive operation contacts Built-in suppressor circuit
General information		
Application		Contactor relays
Connection		Screw terminals
Degree of protection		IP20
Shock resistance		5 g, N/C auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms 7 g, N/O auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms
Lifespan, mechanical		20,000,000 Operations (DC operated)
Mounting method		DIN-rail/screw
Operating frequency		9000 Operations/h
Overvoltage category		III
Pollution degree		3
Product category		DILA relays
Protection		Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
Rated impulse withstand voltage (Uimp)		6000 V AC
Voltage type		DC
Climatic environmental conditions		
Ambient operating temperature - min		-25 °C
Ambient operating temperature - max		60 °C
Ambient operating temperature (enclosed) - min		25 °C
Ambient operating temperature (enclosed) - max		40 °C
Ambient storage temperature - min		40 °C
Ambient storage temperature - max		80 °C

Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
<b>Terminal capacities</b>			
Terminal capacity (flexible with ferrule)			1 x (0.75 - 2.5) mm <sup>2</sup> , Screw terminals 2 x (0.75 - 2.5) mm <sup>2</sup> , Screw terminals
Terminal capacity (solid)			1 x (0.75 - 4) mm <sup>2</sup> , Screw terminals 2 x (0.75 - 2.5) mm <sup>2</sup> , Screw terminals
Terminal capacity (solid/stranded AWG)			18 - 14, Screw terminals
Stripping length (main cable)			10 mm
Screw size			M3.5, Terminal screw
Screwdriver size			2, Terminal screw, Pozidriv screwdriver 0.8 x 5.5/1 x 6 mm, Terminal screw, Standard screwdriver
Tightening torque			1.2 Nm, Screw terminals
<b>Electrical rating</b>			
Conventional thermal current <i>I</i> <sub>th</sub> at 60°C (3-pole, open)			16 A
Rated operational current ( <i>I</i> <sub>e</sub> )			16 A 4 A at 24 V, DC L/R ≤ 50 ms (with 3 contacts in series) 3 A at 110 V, DC L/R ≤ 15 ms (with 1 contact in series) 10 A at 60 V, DC L/R ≤ 15 ms (with 2 contacts in series) 6 A at 110 V, DC L/R ≤ 15 ms (with 3 contacts in series) 1 A at 220 V, DC L/R ≤ 50 ms (with 3 contacts in series) 2 A at 110 V, DC L/R ≤ 50 ms (with 3 contacts in series) 4 A at 60 V, DC L/R ≤ 50 ms (with 3 contacts in series) 1 A at 220 V, DC L/R ≤ 15 ms (with 1 contact in series) 6 A at 60 V, DC L/R ≤ 15 ms (with 1 contact in series) 5 A at 220 V, DC L/R ≤ 15 ms (with 3 contacts in series) 10 A at 24 V, DC L/R ≤ 15 ms (with 1 contact in series)
Rated operational current ( <i>I</i> <sub>e</sub> ) at AC-15, 220 V, 230 V, 240 V			4 A
Rated operational current ( <i>I</i> <sub>e</sub> ) at AC-15, 380 V, 400 V, 415 V			4 A
Rated operational current ( <i>I</i> <sub>e</sub> ) at AC-15, 500 V			1.5 A
Rated insulation voltage ( <i>U</i> <sub>i</sub> )			690 V
Rated operational voltage ( <i>U</i> <sub>e</sub> ) at AC - max			690 V
Short-circuit protection rating without welding			10 A gG/gL, 500 V, Max. Fuse, Contacts
Safe isolation			400 V AC, Between coil and auxiliary contacts, According to EN 61140 400 V AC, Between auxiliary contacts, According to EN 61140
Switching capacity (auxiliary contacts, general use)			15 A, 600 V AC, (UL/CSA) 1 A, 250 V DC, (UL/CSA)
Switching capacity (auxiliary contacts, pilot duty)			A600, AC operated (UL/CSA) P300, DC operated (UL/CSA)
<b>Magnet system</b>			
Duty factor			100 %
Pick-up voltage			0.7 - 1.3 V DC x <i>U</i> <sub>c</sub> (at 24 V: without auxiliary contact module and at ambient air temperature + 40 °C) 0.8 - 1.1 V DC x <i>U</i> <sub>c</sub>
Power consumption (pick-up) at DC			2.6 W
Power consumption (sealing) at DC			2.6 W
Rated control supply voltage ( <i>U</i> <sub>s</sub> ) at AC, 50 Hz - min			0 V
Rated control supply voltage ( <i>U</i> <sub>s</sub> ) at AC, 50 Hz - max			0 V
Rated control supply voltage ( <i>U</i> <sub>s</sub> ) at AC, 60 Hz - min			0 V
Rated control supply voltage ( <i>U</i> <sub>s</sub> ) at AC, 60 Hz - max			0 V
Rated control supply voltage ( <i>U</i> <sub>s</sub> ) at DC - min			24 V
Rated control supply voltage ( <i>U</i> <sub>s</sub> ) at DC - max			24 V
Switching time (DC operated, make contacts, closing delay) - max			31 ms
Switching time (DC operated, make contacts, opening delay) - max			12 ms
Voltage tolerance			Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectification
<b>Communication</b>			
Connection to SmartWire-DT			Yes In conjunction with DIL-SWD SmartWire DT contactor module
<b>Contacts</b>			
Code number			31E
Control circuit reliability			λ < 5 x 10 <sup>-7</sup> (1 failure at 2,000,000 operations for <i>U</i> <sub>#</sub> = 24 V DC, <i>U</i> <sub>min</sub> = 17 V, <i>I</i> <sub>min</sub> = 5.4 mA)
Number of auxiliary contacts (change-over contacts)			0

Number of contacts (normally closed contacts)		1
Number of contacts (normally open contacts)		3
Number of auxiliary contacts (normally closed contacts)		1
Number of auxiliary contacts (normally open contacts)		3
<b>Design verification</b>		
Equipment heat dissipation, current-dependent P <sub>vid</sub>		0 W
Heat dissipation capacity P <sub>diss</sub>		0 W
Heat dissipation per pole, current-dependent P <sub>vid</sub>		1 W
Rated operational current for specified heat dissipation (I <sub>n</sub> )		15.5 A
Static heat dissipation, non-current-dependent P <sub>vs</sub>		3 W
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 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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.
10.9.2 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 9.0

Low-voltage industrial components (EG000017) / Contactor relay (EC000196)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Contactor relay (ecl@ss13-27-37-10-01 [AAB716019])		
Rated control supply voltage AC 50 Hz	V	0 - 0
Rated control supply voltage AC 60 Hz	V	0 - 0
Rated control supply voltage DC	V	24 - 24
Voltage type for actuating		DC
Rated operation current	A	16
Rated operation current I <sub>e</sub> , 400 V	A	4
Mounting method		DIN-rail/screw
With LED indication		No
Suitable for manual operation		No
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
Number of auxiliary contacts as change-over contact		0
Operating voltage AC 50 Hz	V	17 - 500
Operating voltage AC 60 Hz	V	17 - 500
Operating voltage DC	V	24 - 220

Voltage type (operating voltage)		AC/DC
Rated switch current	A	16
Connection type auxiliary circuit		Screw connection
Width	mm	45
Height	mm	68
Depth	mm	75