



**010251**  
**DILER-31(24V50HZ)**

Overview

Specifications

Resources



Delivery program

Technical data

Design verification as per IEC/EN 61439

Technical data ETIM 7.0

Approvals

Characteristics

Dimensions

## 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 [ $I_{th} = I_e$ ]  
10 A

AC-15  
220 V 230 V 240 V [ $I_e$ ]

6 A

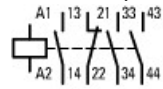
AC-15  
380 V 400 V 415 V [I<sub>e</sub>]  
3 A

## Contacts

NO = Normally open  
3 NO

NC = Normally closed  
1 NC

Contact sequence



## Code number and version of combination

Distinctive number  
31E

For use with  
...DILE

Actuating voltage  
24 V 50 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]  
10 x 10<sup>6</sup>

Maximum operating frequency [Operations/h]  
9000

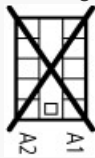
Climatic proofing  
Damp heat, constant, to IEC 60068-2-78  
Damp heat, cyclic, to IEC 60068-2-30

Ambient temperature  
Open  
-25 - +50 °C

Ambient temperature  
Enclosed  
- 25 - 40 °C

Mounting position  
Mounting position  
As required, except vertical with terminals A1/A2  
at the bottom

Mounting position  
Mounting position



Mechanical shock resistance (IEC/EN 60068-2-27)  
Half-sinusoidal shock, 10 ms  
Basic unit with auxiliary contact module  
N/O contact  
10 g

Mechanical shock resistance (IEC/EN 60068-2-27)  
Half-sinusoidal shock, 10 ms  
Basic unit with auxiliary contact module  
N/C contact  
8 g

Degree of Protection  
IP20

Protection against direct contact when actuated  
from front (EN 50274)  
Finger and back-of-hand proof

Altitude  
Max. 2000 m

Weight  
AC operated  
0.17 kg

Terminal capacities  
Screw terminals  
Solid  
1 x (0.75 - 2.5)  
2 x (0.75 - 2.5) mm<sup>2</sup>

Terminal capacities  
Screw terminals  
Flexible with ferrule  
1 x (0.75 - 1.5)  
2 x (0.75 - 1.5) mm<sup>2</sup>

Terminal capacities  
Screw terminals  
Solid or stranded  
18 - 14  
1 x (18 - 14)  
2 x (18 - 14) AWG

Terminal capacities  
Screw terminals  
Stripping length  
8 mm

Terminal capacities  
Screw terminals  
Terminal screw  
M3.5

Terminal capacities  
Screw terminals  
Pozidriv screw driver  
2 Size

Terminal capacities  
Screw terminals  
Standard screw driver  
0.8 x 5.5

1 x 6 mm

Terminal capacities  
Screw terminals  
Max. tightening torque  
1.2 Nm

## Contacts

Interlocked opposing contacts to ZH 1/457,  
including auxiliary contact module  
Yes

Rated impulse withstand voltage [ $U_{imp}$ ]  
6000 V AC

Overvoltage category/pollution degree  
III/3

Rated insulation voltage [ $U_i$ ]  
690 V AC

Rated operational voltage [ $U_e$ ]  
600 V AC

Safe isolation to EN 61140  
between coil and auxiliary contacts  
300 V AC

Safe isolation to EN 61140  
between the auxiliary contacts  
300 V AC

Rated operational current  
Conventional free air thermal current, 1 pole  
Open  
at 50 °C [ $I_{th} = I_e$ ]  
10 A

Rated operational current  
AC-15  
220 V 230 V 240 V [ $I_e$ ]  
6 A

Rated operational current  
AC-15  
380 V 400 V 415 V [ $I_e$ ]

3 A

Rated operational current  
AC-15  
500 V [ $I_e$ ]  
1.5 A

Rated operational current  
DC current  
Notes  
Switch-on and switch-off conditions based on  
DC-13, time constant as specified.

Rated operational current  
DC current  
DC L/R  $\square$  15 ms  
Contacts in series:  
1 [24 V]  
2.5 A

Rated operational current  
DC current  
DC L/R  $\square$  15 ms  
Contacts in series:  
2 [60 V]  
2.5 A

Rated operational current  
DC current  
DC L/R  $\square$  15 ms  
Contacts in series:  
3 [110 V]  
1.5 A

Rated operational current  
DC current  
DC L/R  $\square$  15 ms  
Contacts in series:  
3 [220 V]  
0.5 A

Rated operational current  
Control circuit reliability [Failure rate]  
 $<10^{-8}$ , < one failure at 100 million operations  
(at  $U_e = 24$  V DC,  $U_{min} = 17$  V,  $I_{min} = 5.4$  mA)  $\lambda$

Short-circuit rating without welding  
Maximum overcurrent protective device  
220 V 230 V 240 V  
4 FKZMD

Short-circuit rating without welding  
6 / 15

Maximum overcurrent protective device  
380 V 400 V 415 V  
4 FKZMD

Short-circuit rating without welding  
Short-circuit protection maximum fuse  
500 V  
6 A gG/gL

Short-circuit rating without welding  
Short-circuit protection maximum fuse  
500 V  
10 A fast

Current heat loss at  $I_{th}$   
AC operated  
1.1 W

## Magnet systems

Voltage tolerance  
AC operated  
Single-voltage coil 50 Hz and dual-voltage coil 50  
Hz, 60 Hz [Pick-up]  
 $0.8 - 1.1 \times U_c$

Voltage tolerance  
AC operated  
Dual-frequency coil 50/60 Hz [Pick-up]  
 $0.85 - 1.1 \times U_c$

Power consumption  
AC operation  
Single-voltage coil 50 Hz and dual-voltage coil 50  
Hz, 60 Hz [Pick-up]  
25 VA

Power consumption  
AC operation  
Single-voltage coil 50 Hz and dual-voltage coil 50  
Hz, 60 Hz [Sealing]  
4.6 VA

Power consumption  
AC operation  
Single-voltage coil 50 Hz and dual-voltage coil 50  
Hz, 60 Hz [Sealing]  
1.3 W

duty factor

100 % DF

Changeover time at 100 %  $U_N$  (recommended value)  
AC operated closing delay  
14 - 21 ms

Changeover time at 100 %  $U_N$  (recommended value)  
AC operated NO contact opening delay  
8 - 18 ms

Changeover time at 100 %  $U_N$  (recommended value)  
AC operated With auxiliary contact module Max. closing delay  
45 ms

### Rating data for approved types

Auxiliary contacts  
Flot Duty  
AC operated  
A600

Auxiliary contacts  
Flot Duty  
DC operated  
P300

Auxiliary contacts  
General Use  
AC  
600 V

Auxiliary contacts  
General Use  
AC  
10 A

Auxiliary contacts  
General Use  
DC  
250 V

Auxiliary contacts  
General Use  
DC  
0.5 A



# DESIGN VERIFICATION AS PER IEC/EN 61439

## Technical data for design verification

Rated operational current for specified heat dissipation [ $I_n$ ]  
6 A

Heat dissipation per pole, current-dependent [ $P_{vid}$ ]  
0.4 W

Equipment heat dissipation, current-dependent [ $P_{vid}$ ]  
0 W

Static heat dissipation, non-current-dependent [ $P_{vs}$ ]  
1.8 W

Heat dissipation capacity [ $P_{diss}$ ]  
0 W

Operating ambient temperature min.  
-25 °C

Operating ambient temperature max.  
+50 °C

## 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 Strength of materials and parts  
10.2.3.1 Verification of thermal stability of enclosures  
Meets the product standard's requirements.

10.2 Strength of materials and parts  
10.2.3.2 Verification of resistance of insulating materials to normal heat  
Meets the product standard's requirements.

10.2 Strength of materials and parts  
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 Strength of materials and parts  
10.2.4 Resistance to ultra-violet (UV) radiation  
Meets the product standard's requirements.

10.2 Strength of materials and parts  
10.2.5 Lifting  
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts  
10.2.6 Mechanical impact  
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts  
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 Insulation properties  
10.9.3 Impulse withstand voltage  
Is the panel builder's responsibility.

10.9 Insulation properties  
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  $U_s$  at AC 50HZ  
24 - 24 V

Rated control supply voltage  $U_s$  at AC 60HZ  
0 - 0 V

Rated control supply voltage  $U_s$  at DC  
0 - 0 V

Voltage type for actuating  
AC

Rated operation current  $I_e$ , 400 V  
3 A

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

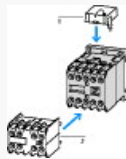
CSA File No.  
012528

CSA Class No.  
3211-03

North America Certification  
UL listed, CSA certified

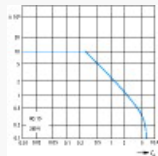
Specially designed for North America  
No

## CHARACTERISTICS



Accessories  
1: Suppressor  
2: Auxiliary contact module

Characteristic curve



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

## DIMENSIONS

DILER-...  
DILER-...-G(-C)

DILER-...(-C) + ...DILE(-C)  
DILER-...-G(-C) + ...DILE(-C)

2DILE-... + M/DILE + ...DILE  
2DILE-...-G + M/DILE + ...DILE

2DILE-... + M/DILE  
2DILE-...-G + M/DILE





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