

# Specifications

## Eaton 010157

Eaton Moeller® series DILER Contactor relay, 24 V DC, N/O = Normally open: 3 N/O, N/C = Normally closed: 1 NC, Screw terminals, DC operation DILER-31-G(24VDC)

### General specifications

|                             |                                                                                                                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRODUCT NAME</b>         | Eaton Moeller® series<br>DILER Control relay                                                                                                                                                                                  |
| <b>CATALOG NUMBER</b>       | 010157                                                                                                                                                                                                                        |
| <b>MODEL CODE</b>           | DILER-31-G(24VDC)                                                                                                                                                                                                             |
| <b>EAN</b>                  | 4015080101574                                                                                                                                                                                                                 |
| <b>PRODUCT LENGTH/DEPTH</b> | 54 mm                                                                                                                                                                                                                         |
| <b>PRODUCT HEIGHT</b>       | 58 mm                                                                                                                                                                                                                         |
| <b>PRODUCT WIDTH</b>        | 45 mm                                                                                                                                                                                                                         |
| <b>PRODUCT WEIGHT</b>       | 0.206 kg                                                                                                                                                                                                                      |
| <b>CERTIFICATIONS</b>       | UL 508<br>UL<br>CE<br>VDE 0660<br>IEC/EN 60947-4-1<br>CSA<br>CSA-C22.2 No. 14-05<br>CSA File No.: 012528<br>EN 60947-5-1<br>UL File No.: E29184<br>IEC/EN 60947<br>UL Category Control No.:<br>NKCR<br>CSA Class No.: 3211-03 |



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## Climatic environmental conditions

|                                            |       |
|--------------------------------------------|-------|
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b> | 50 °C |
|--------------------------------------------|-------|

|                                            |        |
|--------------------------------------------|--------|
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b> | -25 °C |
|--------------------------------------------|--------|

|                                                       |       |
|-------------------------------------------------------|-------|
| <b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b> | 40 °C |
|-------------------------------------------------------|-------|

|                                                       |       |
|-------------------------------------------------------|-------|
| <b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN</b> | 25 °C |
|-------------------------------------------------------|-------|

|                          |                                                                                |
|--------------------------|--------------------------------------------------------------------------------|
| <b>CLIMATIC PROOFING</b> | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
|--------------------------|--------------------------------------------------------------------------------|

## Contacts

|                    |     |
|--------------------|-----|
| <b>CODE NUMBER</b> | 31E |
|--------------------|-----|

|                                    |                                                                                                                  |
|------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>CONTROL CIRCUIT RELIABILITY</b> | < 2 $\lambda$ , < 1 failure at 100,000,000 Operations (at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA) |
|------------------------------------|------------------------------------------------------------------------------------------------------------------|

|                                                            |   |
|------------------------------------------------------------|---|
| <b>NUMBER OF AUXILIARY CONTACTS (CHANGE-OVER CONTACTS)</b> | 0 |
|------------------------------------------------------------|---|

|                                                                |   |
|----------------------------------------------------------------|---|
| <b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b> | 1 |
|----------------------------------------------------------------|---|

|                                                              |   |
|--------------------------------------------------------------|---|
| <b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b> | 3 |
|--------------------------------------------------------------|---|

## Design verification

|                                                                                         |                                                                                                                                  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>10.10 TEMPERATURE RISE</b>                                                           | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| <b>10.11 SHORT-CIRCUIT RATING</b>                                                       | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>                                              | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.13 MECHANICAL FUNCTION</b>                                                        | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |
| <b>10.2.2 CORROSION RESISTANCE</b>                                                      | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>                         | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>       | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b> | Meets the product standard's requirements.                                                                                       |
| <b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>                                 | Meets the product standard's requirements.                                                                                       |
| <b>10.2.5 LIFTING</b>                                                                   | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| <b>10.2.6 MECHANICAL IMPACT</b>                                                         | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| <b>10.2.7 INSCRIPTIONS</b>                                                              | Meets the product standard's requirements.                                                                                       |
| <b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>                                          | Does not apply, since the entire switchgear needs to be evaluated.                                                               |
| <b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>                                           | Meets the product standard's requirements.                                                                                       |
| <b>10.5 PROTECTION</b>                                                                  | Does not apply, since the                                                                                                        |

## Electrical rating

|                                                                     |                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RATED INSULATION VOLTAGE (UI)</b>                                | 690 V                                                                                                                                                                                                                                                                         |
| <b>RATED OPERATIONAL CURRENT (IE)</b>                               | 1.5 A at 110 V, DC L/R $\leq$ 15 ms (with 3 contacts in series)<br>2.5 A at 60 V, DC L/R $\leq$ 15 ms (with 2 contacts in series)<br>0.5 A at 220 V, DC L/R $\leq$ 15 ms (with 3 contacts in series)<br>2.5 A at 24 V, DC L/R $\leq$ 15 ms (with 1 contact in series)<br>10 A |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 220 V, 230 V, 240 V</b> | 6 A                                                                                                                                                                                                                                                                           |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 380 V, 400 V, 415 V</b> | 3 A                                                                                                                                                                                                                                                                           |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 500 V</b>               | 1.5 A                                                                                                                                                                                                                                                                         |
| <b>RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX</b>                   | 600 V                                                                                                                                                                                                                                                                         |
| <b>SAFE ISOLATION</b>                                               | 300 V AC, Between coil and auxiliary contacts, According to EN 61140<br>300 V AC, Between auxiliary contacts, According to EN 61140                                                                                                                                           |

|                                                                      |                                                                    |
|----------------------------------------------------------------------|--------------------------------------------------------------------|
| <b>AGAINST ELECTRIC SHOCK</b>                                        | entire switchgear needs to be evaluated.                           |
| <b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>        | Does not apply, since the entire switchgear needs to be evaluated. |
| <b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>             | Is the panel builder's responsibility.                             |
| <b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>                      | Is the panel builder's responsibility.                             |
| <b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>                      | Is the panel builder's responsibility.                             |
| <b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>                              | Is the panel builder's responsibility.                             |
| <b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>      | Is the panel builder's responsibility.                             |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>            | 0 W                                                                |
| <b>HEAT DISSIPATION CAPACITY PDISS</b>                               | 0 W                                                                |
| <b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>             | 0.4 W                                                              |
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 6 A                                                                |
| <b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>            | 2.3 W                                                              |

## Features & functions

|                     |                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------|
| <b>FEATURES</b>     | Positive operating contacts to EN 60947-5-1 appendix L, including auxiliary contact module |
| <b>FITTED WITH:</b> | Interlocked opposing contacts                                                              |

## General information

|                             |                                                                  |
|-----------------------------|------------------------------------------------------------------|
| <b>APPLICATION</b>          | Contactors relays                                                |
| <b>DEGREE OF PROTECTION</b> | IP20                                                             |
| <b>LIFESPAN, MECHANICAL</b> | 20,000,000 Operations (DC operated)                              |
| <b>MOUNTING METHOD</b>      | DIN-rail/screw                                                   |
| <b>MOUNTING POSITION</b>    | As required (except vertical with terminals A1/A2 at the bottom) |
| <b>OPERATING FREQUENCY</b>  | 9000 Operations/h                                                |
| <b>OVERVOLTAGE CATEGORY</b> | III                                                              |
| <b>POLLUTION DEGREE</b>     | 3                                                                |
| <b>PRODUCT CATEGORY</b>     | DILER Mini-contactors                                            |
| <b>PROTECTION</b>           | Finger and back-of-hand                                          |

|                                               |                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               | proof, Protection against direct contact when actuated from front (EN 50274)                                                                                                                                                                                                                    |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b> | 6000 V AC                                                                                                                                                                                                                                                                                       |
| <b>SHOCK RESISTANCE</b>                       | 8 g, N/C auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms<br>10 g, N/O auxiliary contact, Basic unit with auxiliary contact module, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms |
| <b>VOLTAGE TYPE</b>                           | DC                                                                                                                                                                                                                                                                                              |

## Magnet system

|                                                                                                        |                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DUTY FACTOR</b>                                                                                     | 100 %                                                                                                                                                           |
| <b>PICK-UP VOLTAGE</b>                                                                                 | 0.85 - 1.3 V DC x U <sub>c</sub><br>0.7 - 1.3 V DC x U <sub>c</sub> (at 24 V:<br>without auxiliary contact<br>module and at ambient air<br>temperature + 40 °C) |
| <b>POWER CONSUMPTION<br/>(PICK-UP) AT DC</b>                                                           | 2.3 W                                                                                                                                                           |
| <b>POWER CONSUMPTION<br/>(SEALING) AT DC</b>                                                           | 2.3 W                                                                                                                                                           |
| <b>RATED CONTROL SUPPLY<br/>VOLTAGE (US) AT DC -<br/>MAX</b>                                           | 24 V                                                                                                                                                            |
| <b>RATED CONTROL SUPPLY<br/>VOLTAGE (US) AT DC -<br/>MIN</b>                                           | 24 V                                                                                                                                                            |
| <b>SWITCHING TIME (DC<br/>OPERATED, MAKE<br/>CONTACTS, CLOSING<br/>DELAY) - MAX</b>                    | 35 ms                                                                                                                                                           |
| <b>SWITCHING TIME (DC<br/>OPERATED, MAKE<br/>CONTACTS, CLOSING<br/>DELAY) - MIN</b>                    | 26 ms                                                                                                                                                           |
| <b>SWITCHING TIME (DC<br/>OPERATED, MAKE<br/>CONTACTS, OPENING<br/>DELAY) - MAX</b>                    | 25 ms                                                                                                                                                           |
| <b>SWITCHING TIME (DC<br/>OPERATED, MAKE<br/>CONTACTS, OPENING<br/>DELAY) - MIN</b>                    | 15 ms                                                                                                                                                           |
| <b>SWITCHING TIME (DC<br/>OPERATED, N/O, WITH<br/>AUXILIARY CONTACT<br/>MODULE, CLOSING<br/>DELAY)</b> | 70 ms                                                                                                                                                           |
| <b>VOLTAGE TOLERANCE</b>                                                                               | Smoothed DC, three-<br>phase bridge rectifiers or<br>smoothed double-wave<br>rectification                                                                      |

## Switching capacity

|                                                                     |                                                                |
|---------------------------------------------------------------------|----------------------------------------------------------------|
| <b>SWITCHING CAPACITY<br/>(AUXILIARY CONTACTS,<br/>GENERAL USE)</b> | 0.5 A, 250 V DC, (UL/CSA)<br>10 A, 600 V AC, (UL/CSA)          |
| <b>SWITCHING CAPACITY<br/>(AUXILIARY CONTACTS,<br/>PILOT DUTY)</b>  | A600, AC operated<br>(UL/CSA)<br>P300, DC operated<br>(UL/CSA) |

## Short-circuit rating

|                                                                |                                                                                     |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>SHORT-CIRCUIT<br/>PROTECTION RATING</b>                     | 10 A fast, 500V, Maximum<br>fuse, Short-circuit rating<br>without welding, Contacts |
| <b>SHORT-CIRCUIT<br/>PROTECTION RATING<br/>WITHOUT WELDING</b> | 6 A gG/gL, 500 V, Max.<br>Fuse, Contacts                                            |

## Terminal capacities

|                         |                                                                                                              |
|-------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>SCREW SIZE</b>       | M3.5, Terminal screw                                                                                         |
| <b>SCREWDRIVER SIZE</b> | 2, Terminal screw, Pozidriv<br>screwdriver<br>0.8 x 5.5/1 x 6 mm,<br>Terminal screw, Standard<br>screwdriver |
| <b>STRIPPING LENGTH</b> | 8 mm                                                                                                         |

|                                                          |                                                                      |
|----------------------------------------------------------|----------------------------------------------------------------------|
| <b>(MAIN CABLE)</b>                                      |                                                                      |
| <b>TERMINAL CAPACITY<br/>(FLEXIBLE WITH<br/>FERRULE)</b> | 1 x (0.75 - 1.5) mm <sup>2</sup><br>2 x (0.75 - 1.5) mm <sup>2</sup> |
| <b>TERMINAL CAPACITY<br/>(SOLID)</b>                     | 1 x (0.75 - 2.5) mm <sup>2</sup><br>2 x (0.75 - 2.5) mm <sup>2</sup> |
| <b>TERMINAL CAPACITY<br/>(SOLID/STRANDED AWG)</b>        | 1 x (18 - 14)<br>2 x (18 - 14)<br>18 - 14                            |
| <b>TIGHTENING TORQUE</b>                                 | 1.2 Nm, Screw terminals                                              |

## Resources

|                            |                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CATALOGUES                 | <a href="#">eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf</a>                                                                                                                                                                                                                                                                                                        |
| CHARACTERISTIC CURVE       | <a href="#">eaton-contactors-diler-relay-characteristic-curve.eps</a>                                                                                                                                                                                                                                                                                                                         |
| DECLARATIONS OF CONFORMITY | <a href="#">eaton-control-relay-declaration-of-conformity-eu250760en.pdf</a><br><a href="#">eaton-control-relay-declaration-of-conformity-uk251243en.pdf</a>                                                                                                                                                                                                                                  |
| DRAWINGS                   | <a href="#">eaton-contactors-diler-dimensions-003.eps</a><br><a href="#">eaton-contactors-diler-dimensions.eps</a><br><a href="#">eaton-contactors-diler-dimensions-002.eps</a><br><a href="#">eaton-contactors-diler-dimensions-004.eps</a><br><a href="#">eaton-contactors-diler-dimensions-005.eps</a><br><a href="#">eaton-tripping-devices-mounting-diler-contactor-relay-symbol.eps</a> |
| ECAD MODEL                 | <a href="#">eaton-diler-control-relay-eplan-010157.edz</a>                                                                                                                                                                                                                                                                                                                                    |
| INSTALLATION INSTRUCTIONS  | <a href="#">IL03407009Z</a>                                                                                                                                                                                                                                                                                                                                                                   |
| MCAD MODEL                 | <a href="#">DA-CS-dil_em</a><br><a href="#">eaton-contactor-relays-mcad-drawings-dil-em.dwg</a>                                                                                                                                                                                                                                                                                               |
| SYSTEM OVERVIEW            | <a href="#">eaton-contactors-accessory-diler-relay-system-overview.eps</a>                                                                                                                                                                                                                                                                                                                    |
| WIRING DIAGRAMS            | <a href="#">eaton-contactors-contact-diler-relay-wiring-diagram-005.eps</a>                                                                                                                                                                                                                                                                                                                   |

|                 |
|-----------------|
| PROJECT NAME:   |
| PROJECT NUMBER: |
| PREPARED BY:    |
| DATE:           |



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