

## DATASHEET - DILER-40-G(48VDC)



**Contactor relay, 48 V DC, N/O = Normally open: 4 N/O, Screw terminals, DC operation**

**Part no. DILER-40-G(48VDC)**  
**Catalog No. 010255**  
**Alternate Catalog No. XTRM10A40WD**



Similar to illustration

## Delivery program

|                                               |                |   |                                                                                                                                 |
|-----------------------------------------------|----------------|---|---------------------------------------------------------------------------------------------------------------------------------|
| Product range                                 |                |   | DILER Mini-contactors                                                                                                           |
| Application                                   |                |   | Contactor relays                                                                                                                |
| Description                                   |                |   | with interlocked opposing contacts                                                                                              |
| Connection technique                          |                |   | Screw terminals                                                                                                                 |
| <b>Rated operational current</b>              |                |   |                                                                                                                                 |
| Conventional free air thermal current, 1 pole |                |   |                                                                                                                                 |
| Open                                          |                |   |                                                                                                                                 |
| at 50 °C                                      | $I_{th} = I_e$ | A | 10                                                                                                                              |
| AC-15                                         |                |   |                                                                                                                                 |
| 220 V 230 V 240 V                             | $I_e$          | A | 6                                                                                                                               |
| 380 V 400 V 415 V                             | $I_e$          | A | 3                                                                                                                               |
| <b>Contacts</b>                               |                |   |                                                                                                                                 |
| N/O = Normally open                           |                |   | 4 N/O                                                                                                                           |
| Contact sequence                              |                |   |                                                                                                                                 |
| <b>Code number and version of combination</b> |                |   |                                                                                                                                 |
| Distinctive number                            |                |   | 40 E                                                                                                                            |
| For use with                                  |                |   | ...DILE                                                                                                                         |
| Actuating voltage                             |                |   | 48 V DC                                                                                                                         |
| Voltage AC/DC                                 |                |   | DC operation                                                                                                                    |
| <b>Instructions</b>                           |                |   | Contact numbers to EN 50011<br>Coil terminal markings to EN 50005<br>Integrated diode-resistor combination<br>Coil rating 2.6 W |

## Technical data

### General

|                             |              |               |                                                                                |
|-----------------------------|--------------|---------------|--------------------------------------------------------------------------------|
| Standards                   |              |               | IEC/EN 60947, EN 60947-5-1, VDE 0660, UL, CSA                                  |
| Lifespan, mechanical        |              |               |                                                                                |
| DC operated                 | Operations   | $\times 10^6$ | 20                                                                             |
| Maximum operating frequency | Operations/h |               | 9000                                                                           |
| Climatic proofing           |              |               | Damp heat, constant, to IEC 60068-2-78<br>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                |

|                                                                       |  |                 |                                                                                   |
|-----------------------------------------------------------------------|--|-----------------|-----------------------------------------------------------------------------------|
| Mounting position                                                     |  |                 |  |
| 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                                                                         |
| Weight                                                                |  |                 |                                                                                   |
| DC operated                                                           |  | kg              | 0.211                                                                             |
| Terminal capacities                                                   |  | mm <sup>2</sup> |                                                                                   |
| Screw terminals                                                       |  |                 |                                                                                   |
| Solid                                                                 |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5)                                              |
| Flexible with ferrule                                                 |  | mm <sup>2</sup> | 1 x (0.75 - 1.5)<br>2 x (0.75 - 1.5)                                              |
| Solid or stranded                                                     |  | AWG             | 18 - 14<br>1 x (18 - 14)<br>2 x (18 - 14)                                         |
| Stripping length                                                      |  | mm              | 8                                                                                 |
| Terminal screw                                                        |  |                 | M3.5                                                                              |
| Pozidriv screwdriver                                                  |  | Size            | 2                                                                                 |
| Standard screwdriver                                                  |  | mm              | 0.8 x 5.5<br>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 <sub>imp</sub>                 | V AC | 6000                                                                            |
| Overvoltage category/pollution degree                                         |                                  |      | III/3                                                                           |
| Rated insulation voltage                                                      | U <sub>i</sub>                   | 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                                                                          |                                  |      |                                                                                 |
| at 50 °C                                                                      | I <sub>th</sub> = I <sub>e</sub> | A    | 10                                                                              |
| AC-15                                                                         |                                  |      |                                                                                 |
| 220 V 230 V 240 V                                                             | I <sub>e</sub>                   | A    | 6                                                                               |
| 380 V 400 V 415 V                                                             | I <sub>e</sub>                   | A    | 3                                                                               |
| 500 V                                                                         | I <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                                                                                                                |
| 3                                     | 110 V        | A         | 1.5                                                                                                                |
| 3                                     | 220 V        | A         | 0.5                                                                                                                |
| Control circuit reliability           | Failure rate | $\lambda$ | $<10^{-8}$ , < one failure at 100 million operations<br>(at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA) |
| Short-circuit rating without welding  |              |           |                                                                                                                    |
| Maximum overcurrent protective device |              |           |                                                                                                                    |
| 220 V 230 V 240 V                     |              | PKZM0     | 4                                                                                                                  |
| 380 V 400 V 415 V                     |              | PKZM0     | 4                                                                                                                  |
| Short-circuit protection maximum fuse |              |           |                                                                                                                    |
| 500 V                                 |              | A gG/gL   | 6                                                                                                                  |
| 500 V                                 |              | A fast    | 10                                                                                                                 |
| Current heat loss at $I_{th}$         |              |           |                                                                                                                    |
| DC operated                           |              | W         | 1.1                                                                                                                |

## Magnet systems

|                                                              |                      |         |                                                                                  |
|--------------------------------------------------------------|----------------------|---------|----------------------------------------------------------------------------------|
| Voltage tolerance                                            |                      |         |                                                                                  |
| DC operated                                                  |                      |         |                                                                                  |
| Notes                                                        |                      |         | Smoothed DC, three-phase bridge rectifiers or smoothed double-wave rectification |
| Pick-up voltage                                              |                      |         | 0.85 - 1.3                                                                       |
| at 24 V: without auxiliary contact component (40 °C)         | Pick-up              | x $U_c$ | 0.7 - 1.3                                                                        |
| Power consumption                                            |                      |         |                                                                                  |
| DC operation                                                 |                      |         |                                                                                  |
| DC operated                                                  | Pull-in =<br>sealing | W       | 2.3                                                                              |
| duty factor                                                  |                      | % DF    | 100                                                                              |
| Changeover time at 100 % $U_S$ (recommended value)           |                      |         |                                                                                  |
| DC operated closing delay                                    |                      | ms      | 26 - 35                                                                          |
| DC operated N/O contact opening delay                        |                      | ms      | 15 - 25                                                                          |
| DC operated With auxiliary contact module Max. closing delay |                      | ms      | 70                                                                               |

## Rating data for approved types

|                    |  |   |      |
|--------------------|--|---|------|
| Auxiliary contacts |  |   |      |
| Pilot Duty         |  |   |      |
| AC operated        |  |   | A600 |
| DC operated        |  |   | P300 |
| General Use        |  |   |      |
| AC                 |  | V | 600  |
| AC                 |  | A | 10   |
| DC                 |  | V | 250  |
| DC                 |  | A | 0.5  |

## Design verification as per IEC/EN 61439

|                                                                                                                        |            |    |                                            |
|------------------------------------------------------------------------------------------------------------------------|------------|----|--------------------------------------------|
| Technical data for design verification                                                                                 |            |    |                                            |
| Rated operational current for specified heat dissipation                                                               | $I_n$      | A  | 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  | 2.3                                        |
| 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 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 | 0 - 0            |
| Rated control supply voltage Us at AC 60HZ                                                                                                                              | V | 0 - 0            |
| Rated control supply voltage Us at DC                                                                                                                                   | V | 48 - 48          |
| Voltage type for actuating                                                                                                                                              |   | DC               |
| Rated operation current Ie, 400 V                                                                                                                                       | A | 3                |
| Connection type auxiliary circuit                                                                                                                                       |   | Screw connection |
| Mounting method                                                                                                                                                         |   | DIN-rail/screw   |
| Interface                                                                                                                                                               |   | No               |
| Number of auxiliary contacts as normally closed contact                                                                                                                 |   | 0                |
| Number of auxiliary contacts as normally open contact                                                                                                                   |   | 4                |
| 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                                                        |



- 1: Suppressor  
2: Auxiliary contact module



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

## Dimensions



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



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



2DILE-... + MVDILE + ...DILE  
2DILE-...-G + MVDILE + ...DILE



2DILE-... + MVDILE  
2DILE-...-G + MVDILE

## Additional product information (links)

IL03407009Z (AWA2100-0882) Mini contactor relay

IL03407009Z (AWA2100-0882) Mini contactor relay

[https://es-assets.eaton.com/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03407009Z2020\\_05.pdf](https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407009Z2020_05.pdf)