



Electronic RCD/MCB combination, 13 A, 30 mA, MCB trip characteristic: D, 2p, RCD trip characteristic: A

Part no.

Catalog No.

EL-Nummer  
(Norway)

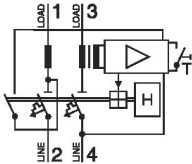
FRBDM-D13/2/003-G/A

168209

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Similar to illustration

Delivery program

|                                                    |                |      |                                                                                     |
|----------------------------------------------------|----------------|------|-------------------------------------------------------------------------------------|
| Basic function                                     |                |      | Combined RCD/MCB devices                                                            |
| Number of poles                                    |                |      | 2 pole                                                                              |
| Tripping characteristic                            |                |      | D                                                                                   |
| Application                                        |                |      | Switchgear for industrial and advanced commercial applications                      |
| Rated current                                      | $I_n$          | A    | 13                                                                                  |
| Rated switching capacity according to IEC/EN 61009 |                | kA   | 10                                                                                  |
| Rated fault current                                | $I_{\Delta n}$ | A    | 0.03                                                                                |
| Type                                               |                |      | Type G/A (ÖVE E 8601)                                                               |
| Tripping                                           |                | s... | Short time-delayed                                                                  |
| Product range                                      |                |      | FRBdM                                                                               |
| Sensitivity                                        |                |      | Pulse-current sensitive                                                             |
| Impulse withstand current                          |                |      | Surge-proof, 3 kA                                                                   |
| Contact sequence                                   |                |      |  |

Technical data

Electrical

|                                           |                |      |                         |
|-------------------------------------------|----------------|------|-------------------------|
| Protected pole                            |                |      | 2                       |
| Rated voltage according to IEC/EN 60947-2 | $U_n$          | V AC | 240                     |
| Rated frequency                           | f              | Hz   | 50                      |
| Rated fault current                       | $I_{\Delta n}$ | mA   | 30                      |
| Sensitivity                               |                |      | Pulse-current sensitive |
| Rated current                             | $I_n$          | A    | 13                      |
| Tripping characteristic                   |                |      | D                       |

Design verification as per IEC/EN 61439

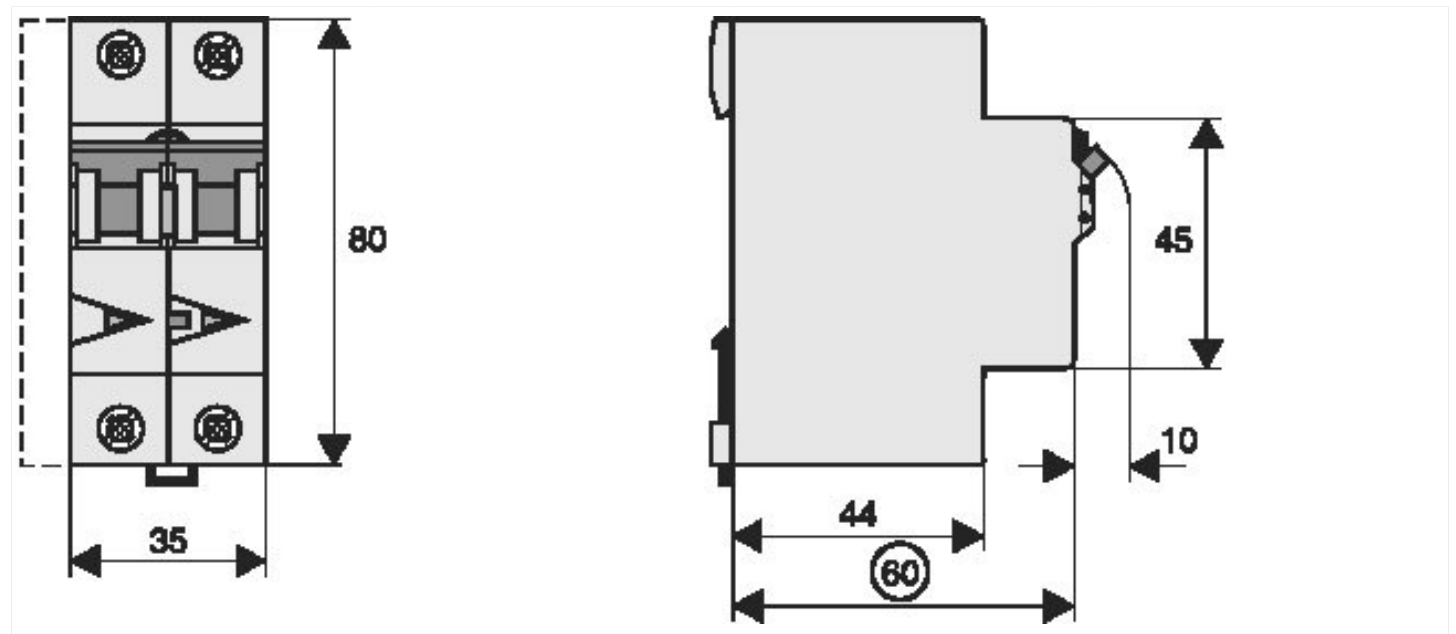
|                                                                            |            |    |                                            |
|----------------------------------------------------------------------------|------------|----|--------------------------------------------|
| Technical data for design verification                                     |            |    |                                            |
| Rated operational current for specified heat dissipation                   | $I_n$      | A  | 13                                         |
| Heat dissipation per pole, current-dependent                               | $P_{vid}$  | W  | 0                                          |
| Equipment heat dissipation, current-dependent                              | $P_{vid}$  | W  | 3.4                                        |
| Static heat dissipation, non-current-dependent                             | $P_{vs}$   | W  | 0                                          |
| Heat dissipation capacity                                                  | $P_{diss}$ | W  | 0                                          |
| Operating ambient temperature min.                                         |            | °C | -25                                        |
| Operating ambient temperature max.                                         |            | °C | 40                                         |
|                                                                            |            |    | 0                                          |
| 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

|                                                                                                                                                                                                    |  |                 |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------|--------------------|
| Circuit breakers and fuses (EG000020) / Earth leakage circuit breaker (EC000905)                                                                                                                   |  |                 |                    |
| Electric engineering, automation, process control engineering / Electrical installation, device / Residual current protection system / MCB/RCCB combination (ecl@ss10.0.1-27-14-22-07 [AFZ810015]) |  |                 |                    |
| Number of poles (total)                                                                                                                                                                            |  |                 | 2                  |
| Number of protected poles                                                                                                                                                                          |  |                 | 2                  |
| Rated voltage                                                                                                                                                                                      |  | V               | 240                |
| Rated insulation voltage Ui                                                                                                                                                                        |  | V               | 250                |
| Rated impulse withstand voltage Uimp                                                                                                                                                               |  | kV              | 4                  |
| Rated current                                                                                                                                                                                      |  | A               | 13                 |
| Rated fault current                                                                                                                                                                                |  | A               | 0.03               |
| Leakage current type                                                                                                                                                                               |  |                 | A                  |
| Current limiting class                                                                                                                                                                             |  |                 | 3                  |
| Rated short-circuit breaking capacity acc. EN 61009                                                                                                                                                |  | kA              | 10                 |
| Rated short-circuit breaking capacity IEC 60947-2                                                                                                                                                  |  | kA              | 0                  |
| Rated short-circuit breaking capacity Icn acc. EN 61009-1                                                                                                                                          |  | kA              | 10                 |
| Disconnection characteristic                                                                                                                                                                       |  |                 | Short-time delayed |
| Surge current capacity                                                                                                                                                                             |  | kA              | 3                  |
| Voltage type                                                                                                                                                                                       |  |                 | AC                 |
| Frequency                                                                                                                                                                                          |  |                 | 50 Hz              |
| Release characteristic                                                                                                                                                                             |  |                 | D                  |
| Concurrently switching N-neutral                                                                                                                                                                   |  |                 | No                 |
| With interlocking device                                                                                                                                                                           |  |                 | No                 |
| Over voltage category                                                                                                                                                                              |  |                 | 3                  |
| Pollution degree                                                                                                                                                                                   |  |                 | 2                  |
| Ambient temperature during operating                                                                                                                                                               |  | °C              | -25 - 40           |
| Width in number of modular spacings                                                                                                                                                                |  |                 | 2                  |
| Built-in depth                                                                                                                                                                                     |  | mm              | 70                 |
| Suitable for flush-mounted installation                                                                                                                                                            |  |                 | No                 |
| Anti-nuisance tripping version                                                                                                                                                                     |  |                 | Yes                |
| Degree of protection (IP)                                                                                                                                                                          |  |                 | IP20               |
| Connectable conductor cross section solid-core                                                                                                                                                     |  | mm <sup>2</sup> | 1 - 25             |
| Connectable conductor cross section multi-wired                                                                                                                                                    |  | mm <sup>2</sup> | 1 - 25             |

## Dimensions



## Additional product information (links)

Product overview (Web)

<http://www.eaton.eu/Europe/Electrical/ProductsServices/CircuitProtection/DigitalCircuitBreakers/index.htm>