# DATASHEET - EMR6-W400-M-1

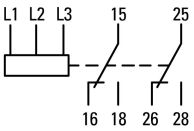


**Phase monitoring relays, On- and Off-delayed, 400 V AC, 50/60 Hz**

| | |
|---|---|
| **Part no.** | **EMR6-W400-M-1** |
| **Catalog No.** | **184778** |
| **Alternate Catalog No.** | **EMR6-W400-M-1** |
| **EL-Nummer (Norway)** | **4101974** |

Powering Business Worldwide™

## Delivery program

| | | | |
|---|---|---|---|
| Product range | | | EMR Measuring and monitoring relays |
| Basic function | | | Phase monitoring relays |
| Function | | | On- and Off-delayed |
| | | | Power supply from the measuring circuit<br>On-delay/off-delay: none = 0 or adjustable between 0.1 - 30 s<br>Imbalance threshold values adjustable 2 - 25 % of mean value of phase voltages<br>Three-phase networks |
| Monitoring voltage per phase | $U_N$ | V AC | 400 V AC, 50/60 Hz |
| Monitoring of | | | Phase sequence (can be deactivated)<br>Phase failure<br>Overvoltage<br>Undervoltage |
| Contact sequence | | |  |
| Supply voltage | | | 400 V AC, 50/60 Hz |
| Width | | mm | 22.5 |

## Technical data

### General

| | | | |
|---|---|---|---|
| Standards | | | IEC, UL, CSA, CCC, GL |
| Lifespan, mechanical | Operations | x $10^6$ | 30 |
| Climatic proofing | | | Damp heat, cyclical to IEC 60068-2-30: 24 h cycle, 55° C, 93% relative humidity, 96 h |
| Ambient temperature | | | |
| Operation | | °C | |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient temperature max. | | °C | + 60 |
| Storage | | °C | - 40 - 85 |
| Mounting position | | | As required |
| Shock resistance | | | Class 2 |
| Degree of protection | | | |
| Terminals | | | IP20 |
| Enclosures | | | IP50 |
| Terminal capacities | | $mm^2$ | |
| Solid | | $mm^2$ | 1 x 0.5-2.5 (1 x 18-14 AWG) |
| Flexible with ferrule | | $mm^2$ | 2 x 0.5-1.5 (2 x 18-16 AWG) |
| Standard screwdriver | | mm | 5.5 x 0.8 |
| Tightening torque | | Nm | 0.6 - 0.8 |
| Fixing | | | Snap fixing, top-hat rail IEC/EN 60715 |
| MTBF (mean time between failures) | | | 382977 h |

### Contacts

| | | | |
|---|---|---|---|
| Rated impulse withstand voltage | $U_{imp}$ | V AC | 4000 |
| Overvoltage category/pollution degree | | | III/3 |

### Power supply

| | | | |
|---|---|---|---|
| Supply voltage | | | 400 V AC, 50/60 Hz |

| | | | |
|---|---|---|---|
| Voltage tolerance | | x $U_c$ | 0.85 - 1.1 |
| Power consumption | | VA | 18 |
| Rated frequency | f | Hz | 50 - 60 |
| Duty factor | | % DF | 100 |

### Timing cycle

| | | | |
|---|---|---|---|
| Response delay time | | s | 0.25 |
| Reset delay/Off-delay time | | s | Adjustable from 0.1 – 30 |
| Time error within supply voltage | | % | 0.5 |
| Time error within temperature range | | %/°C | 0.06 |

### Measuring circuits

| | | | |
|---|---|---|---|
| Frequency | | Hz | 50/60 ± 10 % |
| Hysteresis | | % | 0 … 5 |
| Frequency | | Hz | 50/60 ± 10 % |
| Measuring cycle | | ms | 50 |
| Temperature error | | %/°C | 0.06 |
| Error within supply voltage | | % | 0.5 |

### Status indication

| | | | |
|---|---|---|---|
| Supply voltage | | | LED yellow |
| Overvoltage | | | LED red: F1 on |
| Undervoltage | | | LED red: F2 on |
| Status indicator (LED) | | | Yellow, solid: Supply voltage<br>Yellow, solid (R/T): Relay energized<br>Yellow, flashing (R/T): Delay time running<br>Red, solid (F1): Overvoltage<br>Red, solid (F2): Undervoltage<br>Red: F1 solid, F2 flashing: Phase failure<br>Red, flashing (F1 & F2 alternating): Phase sequence fault |

### Relay output contacts

| | | | |
|---|---|---|---|
| Rated operational voltage | $U_e$ | V AC | 250 |
| Rated operational current | $I_e$ | A | |
| AC-12 at 230 V | $I_e$ | A | 4 |
| AC-15 with 230 V | $I_e$ | A | 3 |
| DC-12 at 24 V | $I_e$ | A | 4 |
| DC-13 at 24 V | $I_e$ | A | 2 |
| Minimum Switching capacity | | | 10 mA / 24 V |
| Lifespan, electrical (AC-12/230 V/4 A) | Operations | x $10^6$ | |
| Lifespan, electrical | Operations | x $10^6$ | 0.1 |

### Electromagnetic compatibility (EMC)

| | | | |
|---|---|---|---|
| Electromagnetic compatibility | | | IEC/EN 60947-6-2 |
| ESD | Air/contact discharge | kV | IEC/EN 61000-4-2 level 3 |
| HF-immunity to radiation | | | IEC/EN 61000-4-3 level 3 |
| Burst | | | IEC/EN 61000-4-4 level 3 |
| Surge | | | IEC/EN 61000-4-5 Level 4 |
| HF-immunity to line-conducted interference | | | IEC/EN 61000-4-6 level 3 |

## Design verification as per IEC/EN 61439

| | | | |
|---|---|---|---|
| Technical data for design verification | | | |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient temperature max. | | °C | 60 |
| IEC/EN 61439 design verification | | | |
| 10.9 Insulation properties | | | |
| 10.9.4 Testing of enclosures made of insulating material | | | Is the panel builder's responsibility. |

## Technical data ETIM 7.0

Relays (EG000019) / Phase monitoring relay (EC001441)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Monitoring equipment (low-voltage switch technology) / Asymmetry monitoring equipment (ecl@ss10.0.1-27-37-18-03 [AKF097014])

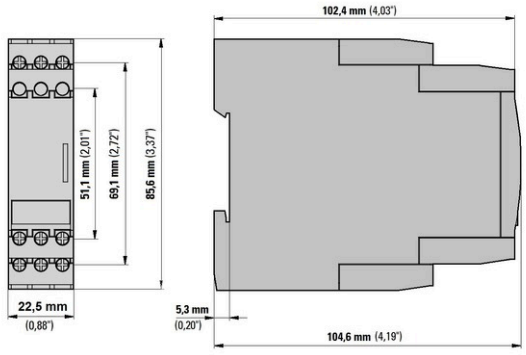
| | | | |
|---|---|---|---|
| Type of electric connection | | | Screw connection |

| | | | |
|---|---|---|---|
| With detachable clamps | | | No |
| Rated control supply voltage Us at AC 50HZ | | V | 400 - 400 |
| Rated control supply voltage Us at AC 60HZ | | V | 400 - 400 |
| Rated control supply voltage Us at DC | | V | 0 - 0 |
| Voltage type for actuating | | | AC |
| Phase sequence monitoring | | | Yes |
| Phase failure detection | | | Yes |
| Function under voltage detection | | | Yes |
| Function over voltage detection | | | Yes |
| Phase imbalance monitoring | | | No |
| Voltage measurement range | | V | 400 - 400 |
| Min. adjustable delay-on energization time | | s | 0.1 |
| Max. permitted delay-on energization time | | s | 30 |
| Min. adjustable off-delay time | | s | 0.1 |
| Max. permitted off-delay time | | s | 30 |
| Number of contacts as normally closed contact | | | 0 |
| Number of contacts as normally open contact | | | 0 |
| Number of contacts as change-over contact | | | 2 |
| Width | | mm | 22.5 |
| Height | | mm | 85.6 |
| Depth | | mm | 104.6 |

## Approvals

| | | | |
|---|---|---|---|
| Product Standards | | | IEC 255-6; UL 508; CSA-22.2 No. 14-05; CE marking |
| UL File No. | | | E29184 |
| UL Category Control No. | | | NKCR, NKCR7 |
| CSA File No. | | | UL report valid |
| CSA Class No. | | | 3211-03 |
| North America Certification | | | UL listed, certified by UL for use in Canada |

## Dimensions





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