



Timing relay, star-delta, 50 ms, 1W, 3-60s, 24-240VAC/DC

Part no. ETR4-51-A
Catalog No. 031884
Eaton Catalog No. XTTR6A60S51B
EL-Nummer 0004133308
(Norway)

Delivery program

| | | | |
|--|-----------------|----|---|
| Product range | | | ETR4 timing relays |
| Basic function | | | Timer relays |
| Function | | | Star-delta switching |
| | | | Changeover contact with a changeover time of 50 ms Fixed timing function |
| Number of changeover contacts | | | 1 |
| Time range | | | 3 - 60 s |
| Time range | | | 3 - 60 s |
| Rated operational current | | | |
| AC-14 | | | |
| 300 V | I _e | A | 3 |
| 380 V 400 V 415 V | I _e | A | 3 |
| | | | Value applies starting with release 001. |
| AC-15 | | | |
| 220 V 230 V 240 V | I _e | A | 3 |
| 300 V | I _e | A | 3 |
| 380 V 400 V 415 V | I _e | A | 3 |
| | | | Value applies starting with release 001. |
| Voltage range | U _{LN} | V | 24 - 240 V AC, 50/60 Hz 24 - 240 V DC |
| Width | | mm | 22.5 |
| | | | |
| Terminal marking according to EN 50042 | | | |

Technical data

General

| | | | |
|---|------------|-------------------|--|
| Standards | | | Standard IEC/EN 61812 VDE 0435 |
| Lifespan, mechanical | | | |
| AC operated | Operations | x 10 ⁶ | 30 |
| DC operated | Operations | x 10 ⁶ | 30 |
| Climatic proofing | | | Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30 |
| Ambient temperature | | | |
| Ambient temperature, storage | | °C | - 45 - + 85 |
| Open | | °C | -25 - +60 |
| Enclosed | | °C | - 25 - + 45 |
| Mounting position | | | As required |
| Mechanical shock resistance (IEC/EN 60068-2-27) | | | |
| Half-sinusoidal shock, 20 ms | | g | |
| Make contact | | g | 4 |
| Degree of protection | | | |
| Terminals | | | IP20 |

| | | | |
|-----------------------|--|-----------------|------------------------------------|
| Weight | | kg | 0.1 |
| Terminal capacities | | mm ² | |
| Solid | | mm ² | 1 x (0.5 - 2.5) 2 x (0.5 - 1.5) |
| Flexible with ferrule | | mm ² | 1 x (0.5 - 2.5) 2 x (0.5 - 1.5) |
| Solid or stranded | | AWG | 1 x (20 - 14) |

Contacts

| | | | |
|---|------------------|------------------|---|
| Rated impulse withstand voltage | U _{imp} | V AC | 4000 |
| Rated impulse withstand voltage | U _{imp} | V AC | 6000 |
| | | | Value applies starting with release 001. |
| Overvoltage category/pollution degree | | | III/2 |
| Rated insulation voltage | U _i | V AC | 400 |
| Rated insulation voltage | U _i | V AC | 600 |
| | | | Value applies starting with release 001. |
| Rated operational voltage | U _e | V AC | 300 |
| Rated operational voltage | U _e | V AC | 440 |
| | | | Value applies starting with release 001. |
| Safe isolation to EN 61140 | | | |
| between coil and auxiliary contacts | | V AC | 250 |
| between the auxiliary contacts | | V AC | 250 |
| Making capacity | | | |
| AC-14 cos φ = 0.3 400 V | | A | 48 |
| AC-15 cos φ = 0.3 220 V | | A | 50 |
| DC-11 L/R - 40 ms | | x I _e | 1.1 |
| Breaking capacity | | | |
| AC-14 cos φ = 0.3 440 V | | A | 3 |
| AC-15 cos φ = 0.3 220 V | | A | 3 |
| DC-11 L/R - 40 ms | | x I _e | 1.1 |
| Rated operational current | I _e | A | |
| AC-14 | I _e | | |
| 380 V 400 V 415 V | I _e | A | 3 |
| | | | Value applies starting with release 001. |
| AC--14 | | | |
| 440 V | I _e | A | 3 |
| AC-15 | | | |
| 220 V 230 V 240 V | I _e | A | 3 |
| DC-11 | | | |
| Note | | | Making and breaking conditions to DC13, time constant as stated |
| L/R max. 15 ms | | A | |
| 24 V | I _e | A | 1.5 |
| L/R max. 50 ms | | A | 1.2 |
| Conv. thermal current | I _{th} | A | 6 |
| Short-circuit rating without welding | | | |
| Note | | | When supplied directly from mains or transformer > 1000 VA |
| Max. fuse, make contacts | | A gG/gL | 6 |
| Max. fuse, break contacts | | A gG/gL | 6 |
| Max. overcurrent protective device, 220/230 V | | Type | FAZ-B4/1-HI |

Magnet systems

| | | | |
|-------------------|--|------|-----|
| Power consumption | | | |
| Pick-up AC | | VA | 2 |
| Sealing AC | | VA | 2 |
| Pick-up DC | | W | 1.8 |
| Sealing DC | | W | 1.8 |
| Duty factor | | % DF | 100 |

| | | | |
|---------------------------------------|----------------|-------|-------|
| Maximum operating frequency | | Ops/h | 4000 |
| Minimum command time | | | |
| AC | | ms | 50 |
| DC | | ms | 30 |
| Repetition accuracy (deviation) | | % | ≤ 0.5 |
| Recovery time (after 100% time delay) | | ms | 70 |
| Contact changeover time | t _u | ms | 50 |

Electromagnetic compatibility (EMC)

| | | | |
|---|--|-----|--|
| Electrostatic discharge (ESD) | | | |
| applied standard | | | IEC/EN 61000-4-2 |
| Air discharge | | kV | 8 |
| Contact discharge | | kV | 6 |
| Electromagnetic fields (RFI) | | | |
| applied standard | | | IEC/EN 61000-4-3 |
| | | V/m | 80 - 1000 MHz: 10 1.4 - 2 GHz: 3 2.0 - 2.7 GHz: 1 |
| Radio interference suppression | | | EN 55011, Class B (conducted) EN 55011, Class B (radiated) |
| Burst | | kV | Supply cables: 2 Signal cables: 1 according to IEC/EN 61000-4-4 |
| power pulses (Surge) | | | 2 kV (symmetrical) 4 kV (asymmetrical) according to IEC/EN 61000-4-5 |
| Immunity to line-conducted interference to (IEC/EN 61000-4-6) | | V | 10 |

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 | 1.4 |
| Equipment heat dissipation, current-dependent | P _{vid} | W | 0 |
| Static heat dissipation, non-current-dependent | P _{vs} | W | 1.8 |
| Heat dissipation capacity | P _{diss} | W | 0 |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient temperature max. | | °C | 60 |
| 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

| | | |
|---|----|------------------|
| Relays (EG000019) / Timer relay (EC001439) | | |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Relay and socket / Timed relay (ecI@ss10.0.1-27-37-16-05 [AKF092013]) | | |
| Type of electric connection | | Screw connection |
| Function delay-on energization | | No |
| Function delay on de-energization | | No |
| Function floating contact on energization | | No |
| Function floating contact on de-energization | | No |
| Function star-delta | | Yes |
| Function pulse shaping | | No |
| Function flashing, starting with pause, fixed time | | No |
| Function flashing, starting with pulse, fixed time | | No |
| Clock function, starting with pause, variable | | No |
| Clock function, starting with pulse, variable | | No |
| With plug-in socket | | No |
| Remote operation possible | | No |
| Suitable for remote control | | No |
| Pluggable on auxiliary contact block | | No |
| Rated control supply voltage Us at AC 50HZ | V | 24 - 240 |
| Rated control supply voltage Us at AC 60HZ | V | 24 - 240 |
| Rated control supply voltage Us at DC | V | 24 - 240 |
| Voltage type for actuating | | AC/DC |
| Nominal current | A | 3 |
| Time range | s | 3 - 60 |
| Number of outputs, undelayed, normally closed contact | | 0 |
| Number of outputs, undelayed, normally open contact | | 1 |
| Number of outputs, undelayed, change-over contact | | 0 |
| Number of outputs, delayed, normally closed contact | | 0 |
| Number of outputs, delayed, normally open contact | | 1 |
| Number of outputs, delayed, change-over contact | | 0 |
| Outputs, reversible delayed/undelayed | | No |
| With semiconductor output | | No |
| Suitable for DIN rail (top hat rail) mounting | | Yes |
| Suitable for front mounting | | No |
| Width | mm | 23 |
| Height | mm | 83 |
| Depth | mm | 103 |

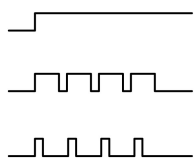
Approvals

| | | |
|-----------------------------|--|---|
| Product Standards | | IEC/EN 61812-1; IEC/EN 60947-5-1; UL 508; CSA-22.2 No. 14; CE marking |
| UL File No. | | E29184 |
| UL Category Control No. | | NKCR |
| CSA File No. | | 12528 |
| CSA Class No. | | 3211-03 |
| North America Certification | | UL listed, CSA certified |
| Degree of Protection | | IEC: IP20, UL/CSA Type: - |

Characteristics

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|--|
| Flow diagram for timing functions |
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LED legend



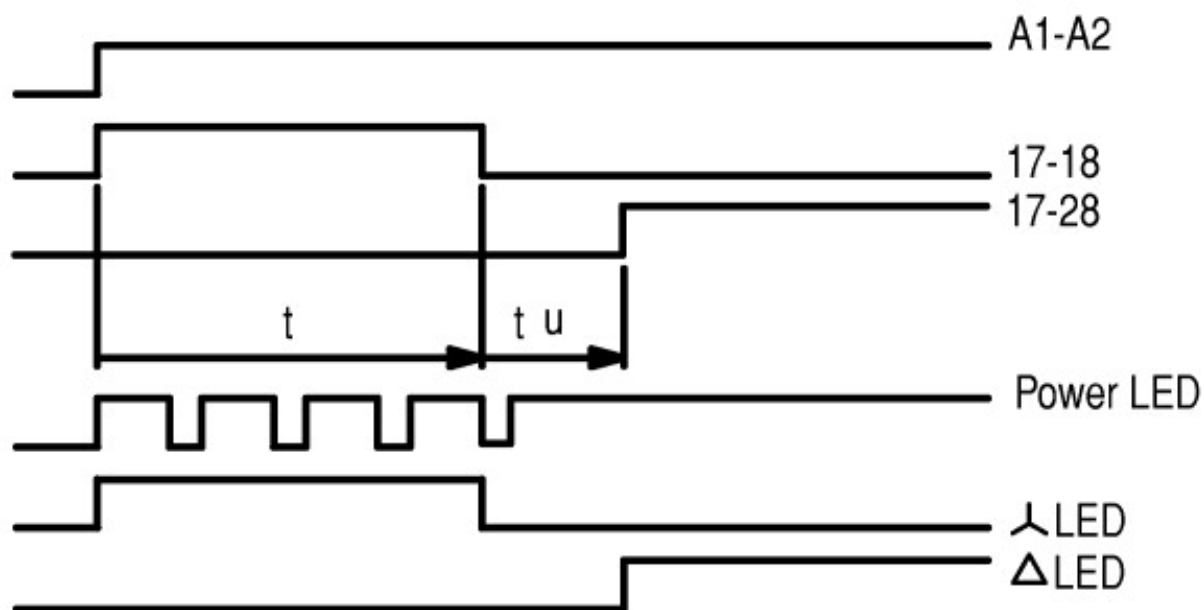
- ① A2/A1 linked
- ② A2/A1 not linked

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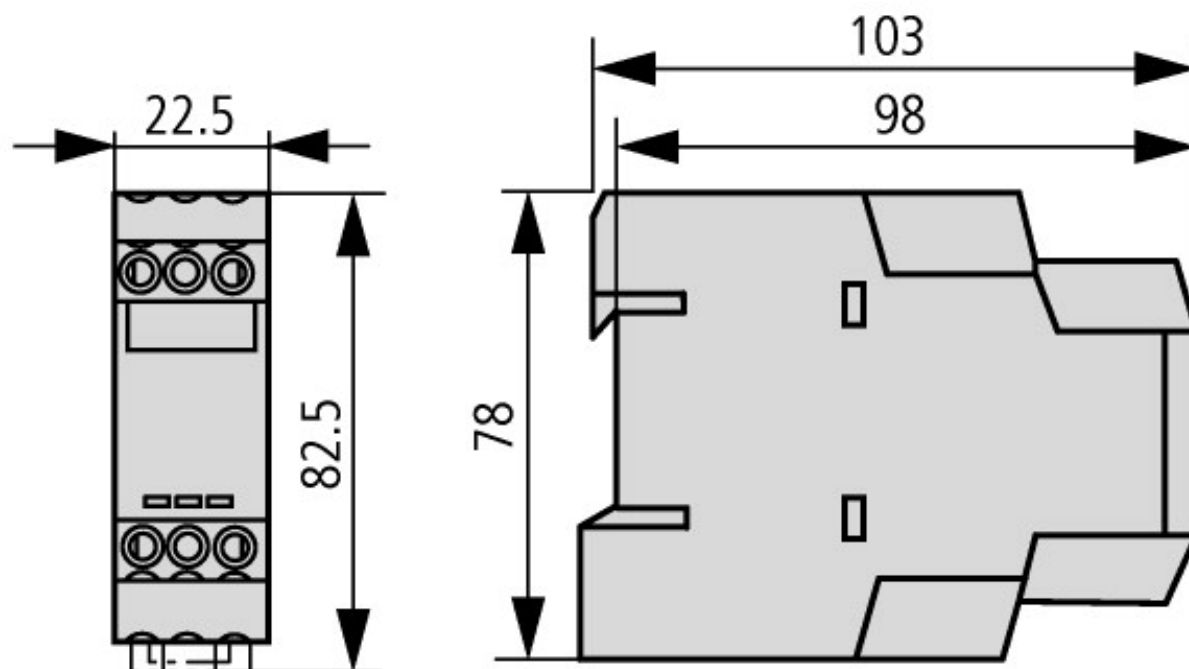
Time not running, contact 15 – 18 closed

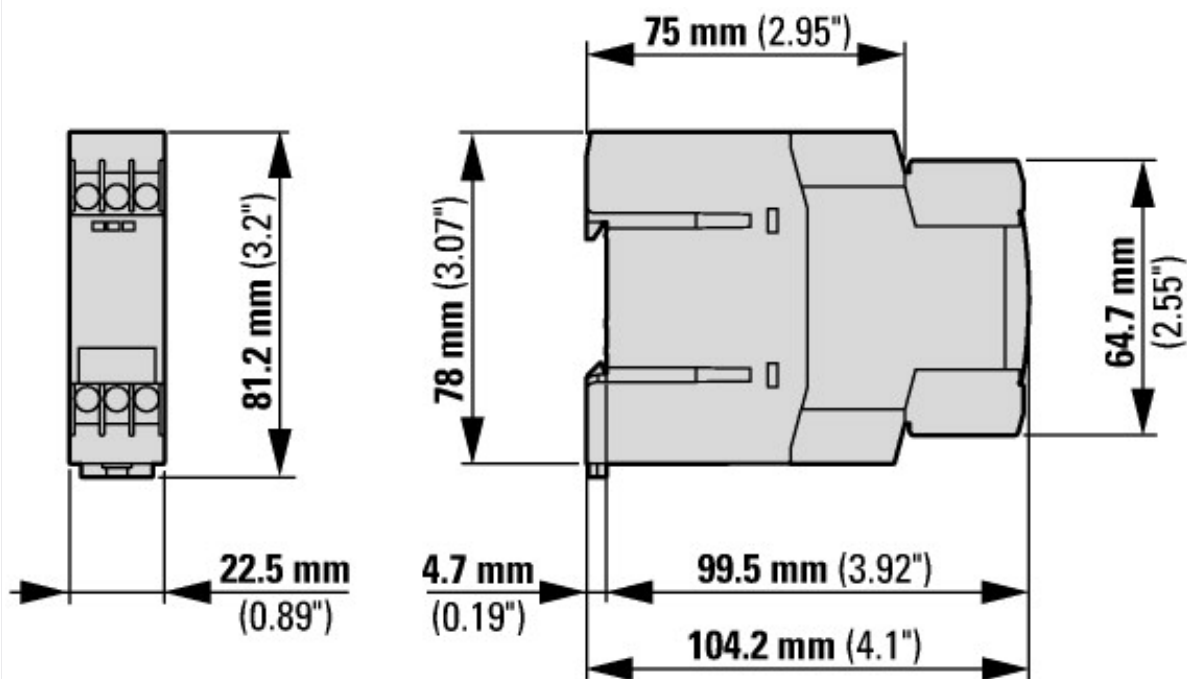
Time running, contact 15 – 18 closed

Time running, contact 15 – 18 not closed



Dimensions





Applies to release 001 and higher

Additional product information (links)

IL04910001Z (AWA2527-1485) Timing relay, star-delta relay, multifunction relay

IL04910001Z (AWA2527-1485) Timing relay, star-delta relay, multifunction relay ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04910001Z2018_05.pdf