



## 17.5 mm DIN rail mounting MUS2 Part number 88827004



- Relay or solid state output
- Multi-function or mono-function
- Multi-range
- Multi-voltage
- Screw or spring terminals
- LED status indicator (relay version)
- Option of connecting an external power supply to the control input
- 3-wire sensor control option

### Part numbers

|            | Type | Functions                                  | Timing    | Output      | Nominal rating | Connections     | Supply voltage |
|------------|------|--|-----------|-------------|----------------|-----------------|----------------|
| 88 827 004 | MUS2 | A - Ac - At - B - Bw - C - D - Di - H - Ht | 0,1s→100h | Solid state | 0,7 A          | Screw terminals | 24 →240 V AC   |

### Specifications

#### Timing

|   |  |
|---|--|
| Timing ranges (7 ranges)  | 1 s - 10 s - 1 min - 10 min - 1 h - 10 h - 100 h |
| Repetition accuracy with constant parameters                          | ± 0.5 % (IEC/EN 61812-1)                         |
| Drift Temperature   | ± 0,05 % / °C                                    |
| Drift Voltage   | ± 0,2 % / V                                      |
| Display accuracy according to IEC/EN 61812-1                          | ± 10 % / 25 °C                                   |
| Minimum pulse duration typically (relay version)                      | 30 ms  |
| Minimum pulse duration typically (solid state version)                | 50 ms  |
| Minimum pulse duration typically (relay version under load)           | 100 ms   |
| Maximum reset time by de-energisation typically (relay version)       | 120 ms   |
| Maximum reset time by de-energisation typically (solid state version) | 350 ms   |
| Immunity from micro power cuts : typical                              | < 10 ms  |

#### Supply

|                            |   |
|----------------------------|---|
| Multi-voltage power supply | Depending on version  |
| Frequency (Hz)             | 50 / 60   |
| Operating range            | 85 →110 % Un<br>85 →120 % Un for 12 V AC / DC   |
| Operator factor            | 100 %   |
| Max. absorbed power        | 32 VA (240 VAC)<br>1,5 W (240 VDC)<br>0,6 W (24 VDC)<br>0,7 VA (12 VAC)<br>0,7 W (12 VDC) |

#### Output specification

|  |  |
|--|--|
| 1 or 2 changeover relays, AgNi (cadmium-free)          | 1 C/O  |
| Rated power  | 2000 VA/80 W   |
| Maximum breaking current                               | 8 AAC 250 VAC resistive<br>8 ADC 30 VDC resistive      |
| Minimum breaking current                               | 10 mA / 5 VDC  |
| Voltage breaking capacity                              | 250 VAC / 8 AAC resistive<br>250 VDC / 0,3 A resistive |
| Electrical life (operations)                           | 10 <sup>5</sup><br>8 A 250 VAC resistive               |
| Mechanical life (operations)                           | 10 x 10 <sup>6</sup>                                   |
| Breakdown voltage acc. to IEC/EN 61812-1               | 2,5 kV / 1 min / 1 mA / 50 Hz                          |
| Impulse voltage acc. to IEC/EN 60664-1, IEC/EN 61812-1 | 5 kV<br>wave 1.2 / 50 µs                               |

#### Solid state output

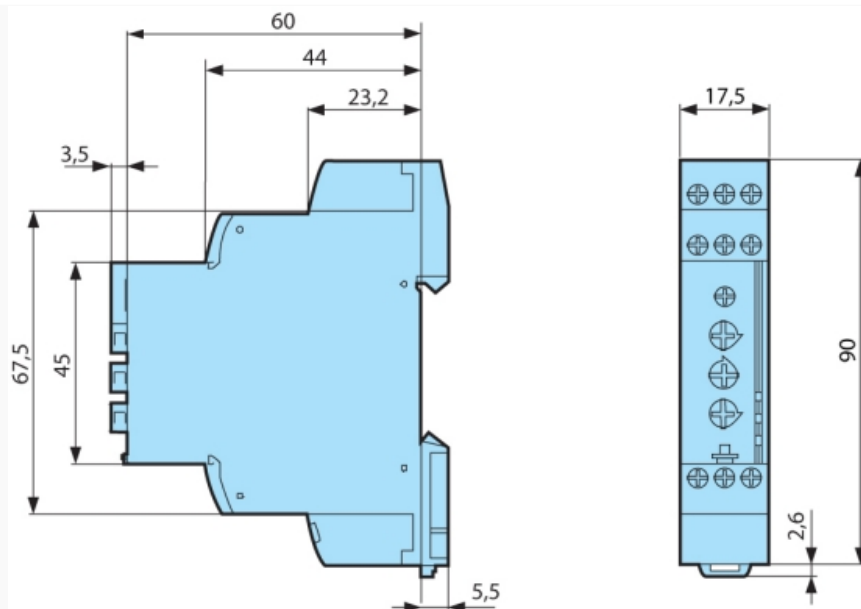
|                            |                                   |
|----------------------------|-----------------------------------|
| Rated power                | 0,7 A AC / DC<br>20 °C (0,5 A UL) |
| Derating                   | 5 mA/ °C                          |
| Maximum admissible current | 20 A ≤ 10 ms                      |
| Minimum breaking current   | 10 mA                             |
| Leakage current            | < 5 mA                            |
| Voltage breaking capacity  | 250 VAC / DC                      |

|  |   |
|--|---|
| Maximum voltage drop at terminals                        | 3 wire 4V<br>2 wire 8V  |
| Electrical life (operations)                             | 10 <sup>8</sup>   |
| Breakdown voltage acc. to IEC/EN 60664-1, IEC/EN 60255-5 | 2.5 kV to 1 mA / 1 min  |
| Input type   | Volt-free contact<br>3-wire PNP output control option residual voltage : 0.4V whatever the timer power supply |

### General characteristics

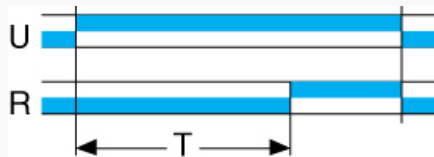
|  |   |
|--|---|
| Conformity to standards  | IEC/EN 61812-1<br>IEC/EN 61000-6-1<br>IEC/EN 61000-6-2<br>IEC/EN 61000-6-3<br>IEC/EN 61000-6-4  |
| Certifications   | CE, UL, cUL, CSA, GL  |
| Temperature limits use (°C)  | -20 → +60   |
| Temperature limits stored (°C)   | -30 → +60   |
| Installation category<br>(acc. to IEC/EN 60664-1)  | Voltage surge category III  |
| Creepage distance and clearance acc. to IEC/EN 60664-1                                       | 4 kV / 3 mm   |
| Protection (IEC/EN 60529)  | IP20<br>IP40  |
| Degree of protection acc. to IEC/EN 60529 Front face   | IP50  |
| Vibration resistance<br>acc. to IEC/EN 60068-2-6   | 20 m/s <sup>2</sup> 10 Hz → 150 Hz  |
| Relative humidity no condensation acc. to IEC/EN 60068-2-30                                  | 93 % non-condensing   |
| Electromagnetic compatibility - Immunity to electrostatic discharges acc to IEC/EN 61000-4-2 | Level III (Air 8 kV / Contact 6 kV)   |
| Immunity to radiated, radio-frequency, electromagnetic field acc. IEC/EN 61000-4-3           | Level I<br>(1 V/m : 2,0 G Hz → 2,7 G Hz)<br>Level II<br>(3 V/m : 1,4 G Hz → 2,0 G Hz)<br>Level III<br>(10 V/m : 80 M Hz → 1 G Hz)   |
| Immunity to rapid transient bursts acc. to IEC/EN 61000-4-4                                  | Level III (direct 2 kV / Capacitive coupling clamp 1 kV)  |
| Immunity to shock waves on power supply acc. to IEC/EN 61000-4-5                             | Level III (2 kV / common mode 2 kV/residual current mode 1 kV)  |
| Immunity to radio frequency in common mode acc. to IEC/EN 61000-4-6                          | Level III (10V rms : 0.15 M Hz to 80 M Hz)  |
| Immunity to voltage dips and breaks acc. to IEC/EN 61000-4-11                                | 0 % residual voltage, 1 cycle<br>70 % residual voltage, 25/30 cycles  |
| Mains-borne and radiated emissions acc. to EN 55022 (CISPR22), EN55011 (CISPR11)             | Class B   |
| Fixing : Symmetrical DIN rail  | 35 mm   |
| Terminal capacity Single-wire without ferrule  | 1 x 0,5 → 3,3 mm <sup>2</sup><br>(AWG 20 → AWG 12)<br>2 x 0,5 → 2,5 mm <sup>2</sup><br>(AWG 20 → AWG 14)  |
| Terminal capacity Multi-wire with ferrule  | 1 x 0,5 → 2,5 mm <sup>2</sup><br>(AWG 20 → AWG 14)<br>2 x 0,5 → 1,5 mm <sup>2</sup><br>(AWG 20 → AWG 16)  |
| Spring terminals, 2 terminals per connection point - flexible wire                           | 2 x 0,5 → 1,5 mm <sup>2</sup><br>(AWG 20 → AWG 16)  |
| Spring terminals, 2 terminals per connection point - rigid wire                              | 2 x 0,5 → 1,5 mm <sup>2</sup><br>(AWG 20 → AWG 16)  |
| Housing material   | Self-extinguishing  |
| Weight : casing 17,5 mm  | 88827105 (MUR1) : 63 g<br>88827115 (MAR1) : 63 g<br>88827125 (MBR1) : 63 g<br>88827135 (MCR1) : 62 g<br>88827145 (MHR1) : 63 g<br>88827150 (MLR4) : 63 g<br>88827155 (MLR1) : 64 g<br>88827100 (MUR4) : 62 g<br>88827103 (MUR3) : 66 g<br>88827503 (MURc3) : 59 g<br>88827150 (MLR4) : 63 g<br>88827185 (MXR1) : 63 g<br>88827004 (MUS2) : 55 g<br>88827014 (MAS5) : 53 g<br>88827044 (MHS2) : 53 g<br>88827054 (MLS2) : 56 g |
| Shock test IEC/EN 60068-2-27   | 15 g - 11 ms  |
| Short interruption on power line acc to IEC/EN 61000-4-11                                    | 0 % residual voltage, 250/300 cycles  |
| Insulation resistance according to IEC/EN 60664-1  | 100 MΩ (500 VDC)  |

### Dimensions (mm)



**Curves**

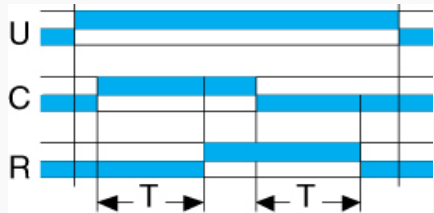
**Function A**



|                               |
|-------------------------------|
| <b>Function A</b>             |
| Delay on energisation 1 relay |

**Curves**

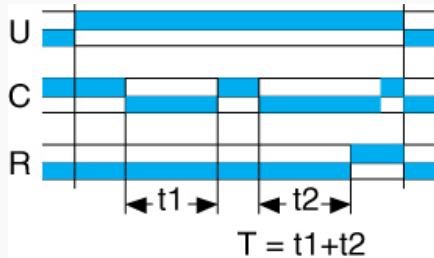
**Function Ac**



|   |
|---|
| <b>Function Ac</b>  |
| Timing after closing and opening of control contact 1 relay |

**Curves**

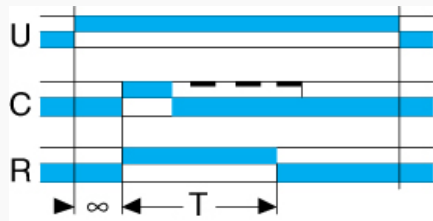
**Function At**



|  |
|--|
| <b>Function At</b>                         |
| Timing on energisation with memory 1 relay |

Curves

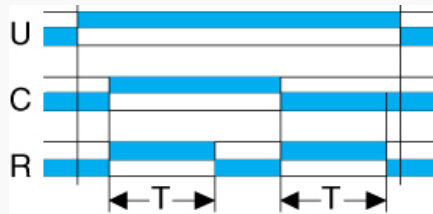
Function B



**Function B**  
Timing on impulse one shot 1 relay

Curves

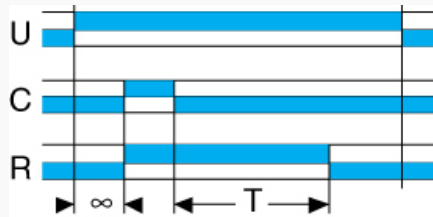
Function Bw



**Function Bw**  
Pulse output (adjustable) 1 relay

Curves

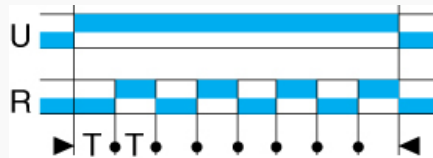
Function C



**Function C**  
Timing after impulse 1 relay

Curves

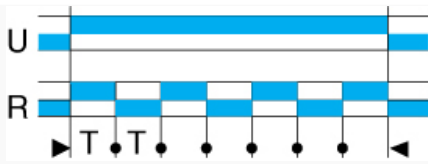
Function D



**Function D**  
Flip-flop Pause start 1 relay

Curves

Function Di



**Function Di**  
 Flip-flop Pulse start 1 relay

**Curves**

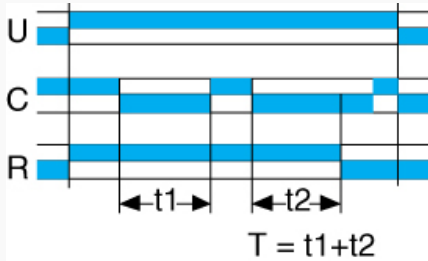
**Function H**



**Function H**  
 Timing on energisation 1 relay

**Curves**

**Function Ht**



**Function Ht**  
 Delay on energisation with memory 1 relay

**Connections**

**Solid state output**

