

# CRM-91H, CRM-92H, CRM-93H | Multifunction time relays



EAN code  
CRM-91H/UNI: 8595188112420  
CRM-92H/UNI: 8595188176897  
CRM-93H/UNI: 8595188112468



## Technical parameters CRM-91H CRM-92H CRM-93H

### Power supply

|                           |                                |              |              |
|---------------------------|--------------------------------|--------------|--------------|
| Supply terminals:         | A1 - A2                        |              |              |
| Voltage range:            | AC/DC 12 - 240 V (AC 50-60 Hz) |              |              |
| Power input (max.):       | 2 VA/1.5 W                     | 2.5 VA/1.5 W | 2.5 VA/1.5 W |
| Voltage range:            | AC 230 V (50/60 Hz)            |              |              |
| Power input (max.):       | 3VA/1.4W                       | -            | 4VA/2W       |
| Supply voltage tolerance: | -15 %; +10 %                   |              |              |
| Supply indication:        | green LED                      |              |              |

### Time circuit

|                          |                                               |  |  |
|--------------------------|-----------------------------------------------|--|--|
| Number of functions:     | 10                                            |  |  |
| Time ranges:             | 0.1 s - 10 days                               |  |  |
| Time setting:            | rotary switch and potentiometer               |  |  |
| Time deviation:          | 5 % - mechanical setting                      |  |  |
| Repeat accuracy:         | 0.2 % - set value stability                   |  |  |
| Temperature coefficient: | 0.01 %/°C, at = 20 °C (0.01 %/°F, at = 68 °F) |  |  |

### Output

|                           |                                                  |                                                  |                                  |
|---------------------------|--------------------------------------------------|--------------------------------------------------|----------------------------------|
| Number of contacts 1:     | 1x changeover/SPDT (AgNi)                        |                                                  |                                  |
| Current rating:           | 16 A/AC1; 1 HP 240 Vac, 1/2 HP 120 Vac; PD. B300 |                                                  |                                  |
| Breaking capacity:        | 4000 VA/AC1, 384 W/DC                            |                                                  |                                  |
| Electrical life (AC1):    | 100.000 ops.                                     |                                                  |                                  |
| Number of contacts 2 (3): | x                                                | 1x chang./SPDT (AgNi)                            | 2x chang./DPDT (AgNi)            |
| Current rating:           | x                                                | 16 A/AC1; 1 HP 240 Vac, 1/2 HP 120 Vac; PD. B300 | 8 A/AC1; 1/2 HP 240Vac; PD. B300 |
| Breaking capacity:        | x                                                | 4000 VA/AC1, 384 W/DC                            | 2000 VA/AC1, 192 W/DC            |
| Electrical life (AC1):    | x                                                | 100.000 ops.                                     | 50.000 ops.                      |
| Switching voltage:        | 250 V AC/24 V DC                                 |                                                  |                                  |
| Max. power dissipation:   | 1.2 W                                            | 2.4 W                                            | 2.4 W                            |
| Mechanical life:          | 10.000.000 ops.                                  |                                                  |                                  |

### Control

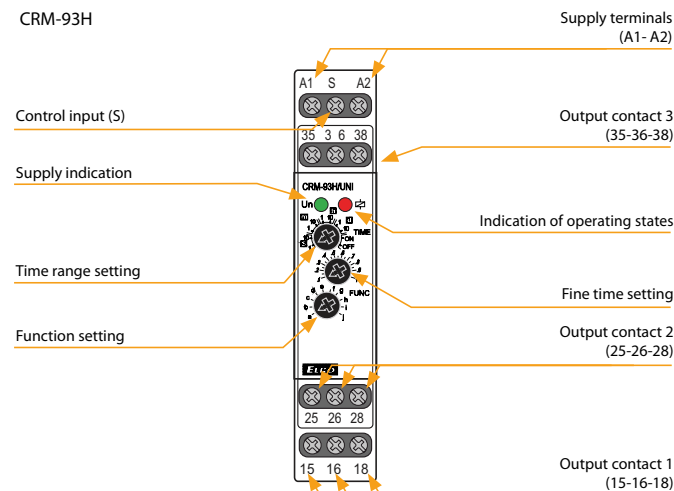
|                     |                           |  |  |
|---------------------|---------------------------|--|--|
| Control. terminals: | A1-S                      |  |  |
| Load between S-A2:  | Yes                       |  |  |
| Impulse length:     | min. 25 ms/max. unlimited |  |  |
| Reset time:         | max. 150 ms               |  |  |

### Other information

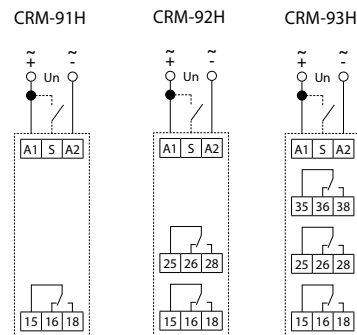
|                                     |                                                                       |                        |                                          |
|-------------------------------------|-----------------------------------------------------------------------|------------------------|------------------------------------------|
| Operating temperature:              | -20 .. +55 °C (-4 .. 131 °F)                                          |                        |                                          |
| Storage temperature:                | -30 .. +70 °C (-22 .. 158 °F)                                         |                        |                                          |
| Dielectric strength:                | 4kV AC                                                                |                        |                                          |
| supply - output 1                   | 4kV AC                                                                |                        |                                          |
| supply - output 2 (3)               | x                                                                     | 4kV AC                 | 1kV AC                                   |
| output 1 - output 2                 | x                                                                     | 4kV AC                 | 1kV AC                                   |
| output 2 - output 3                 | x                                                                     | x                      | 1kV AC                                   |
| Operating position:                 | any                                                                   |                        |                                          |
| Mounting:                           | DIN rail EN 60715                                                     |                        |                                          |
| Protection degree:                  | IP40 front panel/IP20 terminals                                       |                        |                                          |
| Overvoltage category:               | III.                                                                  |                        |                                          |
| Pollution degree:                   | 2                                                                     |                        |                                          |
| Max. cable size (mm <sup>2</sup> ): | solid wire max. 1x 2.5 or 2x 1.5/<br>with sleeve max. 1x 2.5 (AWG 12) |                        |                                          |
| Dimensions:                         | 90 x 17.6 x 64 mm (3.5" x 0.7" x 2.5")                                |                        |                                          |
| Weight:                             | UNI - 62 g (2.2 oz)<br>230 - 57 g (2 oz)                              | UNI - 85 g (3 oz)<br>- | UNI - 85 g (3 oz)<br>230 - 80 g (2.8 oz) |
| Standards:                          | EN 61812-1                                                            |                        |                                          |

- Multifunction time relay for universal use in automation, control and regulation or in house installations.
- Comfortable and well-arranged function and time-range setting by rotary switches.
- Multifunction red LED flashes or shines depending on the operating status.

## Description



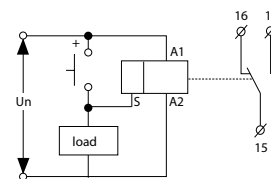
## Connection



**CRM-93H:**  
The potential difference between the supply terminals (A1-A2), output contact 2 (25-26-28) and output contact 3 (35-36-38) must be a maximum of 250V AC rms/DC.

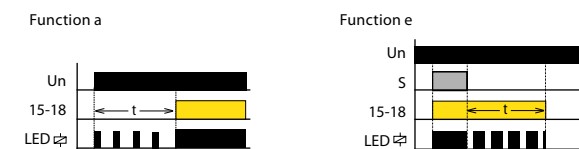
## Possibility to connect load onto controlling input

It is possible to connect the load (e.g.: contactor) between terminals S-A2, without any interruption of correct relay function.



## Indication of operating states

### Examples of signaling



**ON DELAY**

When the input voltage U is applied, timing delay t begins. Relay contacts R change state after time delay is complete. Contacts R return to their shelf state when input voltage U is removed. Trigger switch is not used in this function.

**INTERVAL ON**

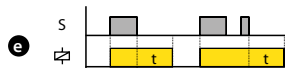
When input voltage U is applied, relay contacts R change state immediately and timing cycle begins. When time delay is complete, contacts return to shelf state. When input voltage U is removed, contacts will also return to their shelf state. Trigger switch is not used in this function.

**FLASHER - OFF first**

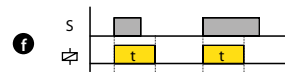
When input voltage U is applied, time delay t begins. When time delay t is complete, relay contacts R change state for time delay t. This cycle will repeat until input voltage U is removed. Trigger switch is not used in this function.

**FLASHER - ON first**

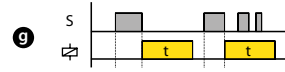
When input voltage U is applied, relay contacts R change state immediately and time delay t begins. When time delay t is complete, contacts return to their shelf state for time delay t. This cycle will repeat until input voltage U is removed. Trigger switch is not used in this function.

**OFF DELAY**

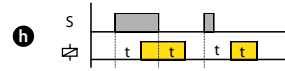
Input voltage U must be applied continuously. When trigger switch S is closed, relay contacts R change state. When trigger switch S is opened, delay t begins. When delay t is complete, contacts R return to their shelf state. If trigger switch S is closed before time delay t is complete, then time is reset. When trigger switch S is opened, the delay begins again, and relay contacts R remain in their energized state. If input voltage U is removed, relay contacts R return to their shelf state.

**SINGLE SHOT**

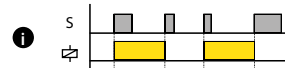
Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time t begins. During time-out, the trigger signal S is ignored. The relay resets by applying the trigger switch S when the relay is not energized.

**SINGLE SHOT falling edge**

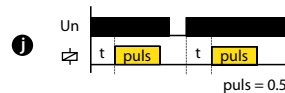
Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time t begins. At the end of the preset time t, the relay contacts R return to their normal condition unless the trigger switch S is opened and closed prior to time out t (before preset time elapses). Continuous cycling of the trigger switch S at a rate faster than the preset time will cause the relay contacts R to remain closed. If input voltage U is removed, relay contacts R return to their shelf state.

**ON/OFF DELAY**

Input voltage U must be applied continuously. When trigger switch S is closed, time delay t begins. When time delay t is complete, relay contacts R change state and remain transferred until trigger switch S is opened. If input voltage U is removed, relay contacts R return to their shelf state.

**MEMORY LATCH**

Input voltage U must be applied continuously. When trigger switch S is closed, time delay t begins. When time delay t is complete, relay contacts R change state and remain transferred until trigger switch S is opened. If input voltage U is removed, relay contacts R return to their shelf state.

**PULSE GENERATOR**

Upon application of input voltage U, a single output pulse of 0.5 seconds is delivered to relay after time delay t. Power must be removed and reapplied to repeat pulse. Trigger switch is not used in this function.