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## CRM-131H

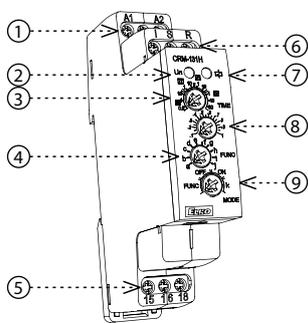
### Multi-function time relay



#### Characteristic

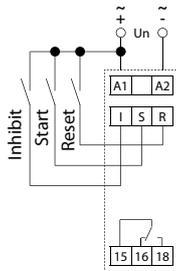
- Multi-function time relay for universal use in automation, control and regulation or in house installations.
- Three control inputs - START, INHIBIT, RESET.
- Relay mode selection - according to the set function, permanently closed, permanently open, memory latch function with delay.
- Universal supply voltage AC/DC 12 – 240 V.
- Time scale 50 ms - 30 days divided into 10 ranges: (50 ms - 0.5 s / 0.1 s - 1 s / 1 s - 10 s / 0.1 min - 1 min / 1 min - 10 min / 0.1 hr - 1 hrs / 1 hrs - 10 hrs / 0.1 days - 1 day / 1 day - 10 days / 3 days - 30 days).
- Output contact: 1x changeover / SPDT 16 A.
- Multifunction red LED flashes or shines depending on the operating status.

#### Description



- Supply terminals
- Supply indication
- Time range setting
- Function setting
- Output contacts
- Control inputs
- Output indication
- Fine time setting
- Relay mode selection

#### Connection



#### Functions

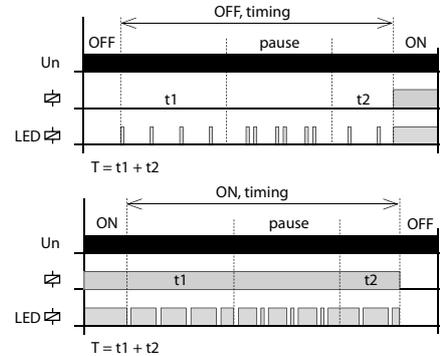
Control input function description:

- Contact START starts the time function
- INHIBIT contact pauses timing (pause)
- The RESET contact simulates switching the supply voltage on and off

Same for all features:

- If the control contact START is closed and the supply voltage is connected, the time function is activated when the supply voltage is connected.
- Closing the control contact INHIBIT pauses the timing, after opening the control contact INHIBIT timing continues from the moment of interruption.
- If the INHIBIT control contact is closed, the START control contact is activated and the timing is paused.
- Closing the control contact RESET immediately terminates the timing and the relay opens, just as when the supply voltage is disconnected.
- If the control contact RESET is closed and then the control contact START is closed, the time function is activated when the control contact RESET is opened as well as when the supply voltage is connected.

#### Indication of operating states



#### Relay mode selection

##### FUNC. SETTINGS FUNCTION MODE

The desired function a-j is set with the FUNC rotary switch.

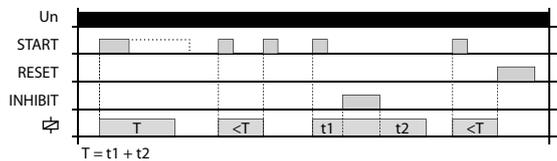
##### OFF. RELAY OPEN MODE



##### ON. RELAY CLOSED MODE

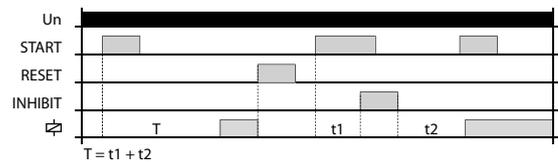


##### k. Function: MEMORY LATCH with delay



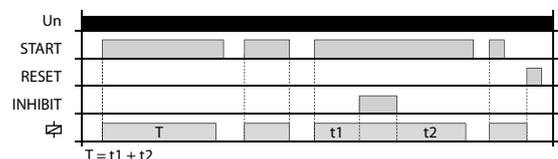
When the supply voltage is applied, the relay is open. If the START control contact is closed, the relay closes and the time delay T starts. It does not matter the length of the control pulse. When the timing is complete, the relay opens. If the START control contact is closed during timing, the relay opens immediately. Each time the control contact closes during relay timing, it changes status. Closing the INHIBIT control contact pauses the timing, after opening the INHIBIT control contact the timing continues from the moment of interruption. Closing the RESET control contact immediately ends the timing and the relay opens, just like as when the supply voltage is disconnected.

##### a. ON DELAY with Control Signal



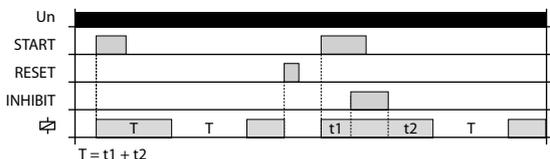
When the supply voltage is applied, the relay is open. If the control contact START is closed, the time delay T starts. The closing of the START control contact during timing is ignored.

##### b. INTERVAL ON with Control Signal



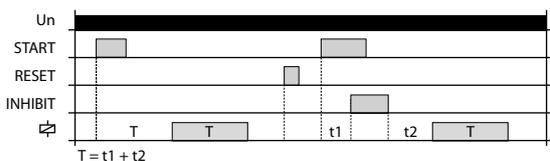
When the supply voltage is applied, the relay is open. When the control contact START is closed, the relay closes and the time delay T begins. If the START control contact is open during timing, the time interval is immediately terminated and the relay opens.

**c. FLASHER - ON first with Control Signal**



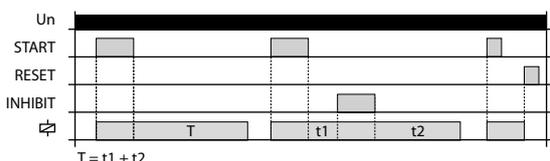
When the supply voltage is applied, the relay is open. When the START control contact is closed, the relay energizes and starts the delay time T. After the end of the timing relay opens and again runs delay time T. Upon completion timing again switches, and the sequence is repeated until the supply voltage is disconnected.

**d. FLASHER - OFF first with Control Signal**



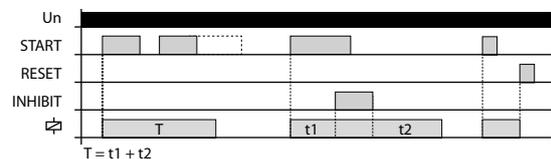
When the supply voltage is applied, the relay is open. When the START control contact is closed, starts the time delay T. After the end of the timing relay closes and again runs delay time T. After the end of the timing relay opens and the sequence is repeated until the supply voltage is disconnected.

**e. OFF DELAY**



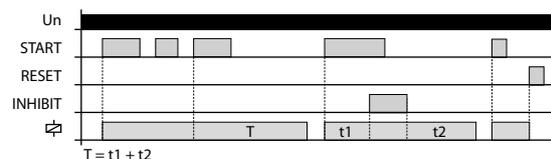
When the supply voltage is applied, the relay is open. If the control contact START is closed, the relay closes. After tripping Contact Start starts the delay time T. After the end of the timing relay is switched off.

**f. SINGLE SHOT**



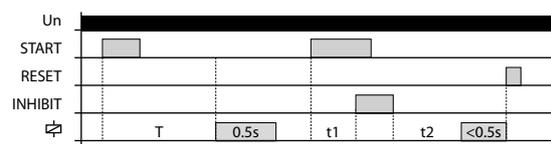
When the supply voltage is applied, the relay is open. When the START control contact is closed, the relay energizes and starts the delay time T. After the end of the timing relay is switched off. The closing of the START control contact during timing is ignored.

**g. WATCHDOG**



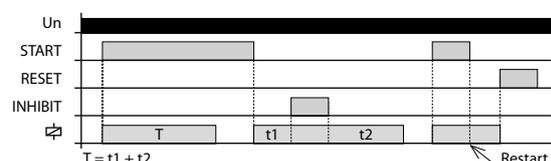
When the supply voltage is applied, the relay is open. When the START control contact is closed, the relay energizes and starts the delay time T. After the end of the timing relay is switched off. Closing control contact START during timing triggers a new time delay T - the relay closing time is thus increased.

**h. PULSE GENERATOR 0.5s with Control Signal**

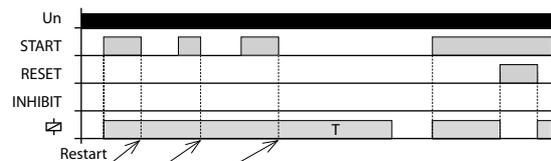


When the supply voltage is applied, the relay is open. When the START control contact is closed, starts the time delay T. After the end of the timing relay switches for the fixed time (0.5 sec).

**i. INTERVAL ON/OFF**

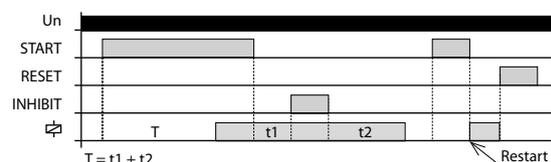


When the supply voltage is applied, the relay is open. When the START control contact is closed, the relay energizes and starts the delay time T. After the end of the timing relay is switched off. By opening the control contact start relay again closes and starts the delay time T. After the end of the timing relay is switched off.

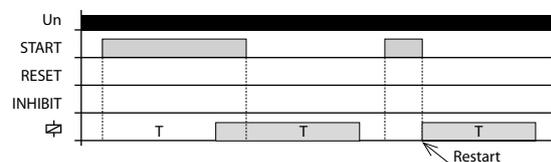


If the START control contact is open during timing, a restart occurs - the relay remains closed and a new time delay T begins. When the timing is complete, the relay opens.

**j. ON/OFF DELAY**



When the supply voltage is applied, the relay is open. When the START control contact is closed, starts the time delay T. After the end of the timing relay switches. Opening the control contact START starts a new time delay T. When the timing is complete, the relay opens.



If the START control contact is open during timing, a restart occurs - the relay closes and a new time delay T begins. When the timing is complete, the relay opens.

**Technical parameters**

**CRM-131H**

**Power supply**

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

**Time circuit**

Number of functions:	11
Time ranges:	50 ms - 30 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	1x changeover / SPDT (AgNi)
Current rating:	16 A / AC1
Breaking capacity:	4000 VA / AC1, 384 W / DC
Switching voltage:	250V AC / 24V DC
Max. power dissipation:	1.2 W
Output indication:	multifunction red LED
Mechanical life:	10 000 000 operations
Electrical life (AC1):	50 000 operations

**Control**

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

**Other information**

Operating temperature:	-20 °C to +55 °C (-4 °F to 131 °F)
Storage temperature:	-30 °C to +70 °C (-22 °F to 158 °F)
Dielectrical strength:	4 kV AC (supply - output)
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP40 from 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 / with sleeve max. 1x 2.5 (AWG 12)
Dimensions:	90 x 17.6 x 64 mm (3.5 x 0.7 x 2.5 inch)
Weight:	61 g (2.2 oz)

\* for adjustable delay <100ms, a time deviation of ± 10ms applies

**More accurate setting of timing for long periods of time**

Example of time setting to 8 hours period:  
For rough setting use time scale 1-10 s on the potentiometer.  
For fine time setting aim for 8 s on potentiometer, then recheck accuracy (using stopwatch etc).  
On rough time setting, set potentiometer to originally desired scale 1-10 hours, leave a fine setting as it is.

**Warning**

Device is constructed for connection in 1-phase AC/DC 12- 240 V main alternating current voltage and must be installed according to norms valid in the state of application. Connection according to the details in this direction. Installation, connection, setting and servicing should be installed by qualified electrician staff only, who has learnt these instruction and functions of the device. This device contains protection against overvoltage peaks and disturbances in supply. For correct function of the protection of this device there must be suitable protections of higher degree (A, B, C) installed in front of them. According to standards elimination of disturbances must be ensured. Before installation the main switch must be in position "OFF" and the device should be de-energized. Don't install the device to sources of excessive electro-magnetic interference. By correct installation ensure ideal air circulation so in case of permanent operation and higher ambient temperature the maximal operating temperature of the device is not exceeded. For installation and setting use screw-driver cca 2 mm. The device is fully-electronic - installation should be carried out according to this fact. Non-problematic function depends also on the way of transportation, storing and handling. In case of any signs of destruction, deformation, non-function or missing part, don't install and claim at your seller it is possible to dismount the device after its lifetime, recycle, or store in protective dump.