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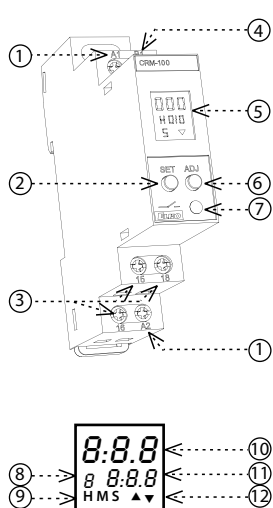
## CRM-100

### Digital multifunction time relay

#### Characteristics

- Digital multifunction relay can be used for controlling lights, heating, motors, pumps, machines and appliances where you need set time functions.
- 17 most used functions.
- Thanks to digital display and settings you exact set required time (without any mechanical tolerance).
- Time range 0.1 s - 999 hours
- Universal power supply 24-240 AC/DC brings you variability of powering.
- 1x 8 A changeover contact.
- Visible time function for non-authorized.
- 1-MODULE, DIN rail mounting.

#### Description

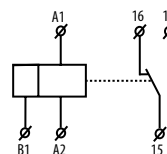


1. Supply terminals
2. Button SET
3. Output contact
4. Control input B1
5. Display
6. Button ADJ
7. LED indication for relay status
8. Function
9. Range
10. Run time: In Down counting (▼) mode it indicates the remaining time while in Up counting (▲) mode it indicates the elapsed time.
11. Preset time: The Timer Duration selected by the user.
12. Up/Down (▼/▲) blinks during the Timer Duration (T)

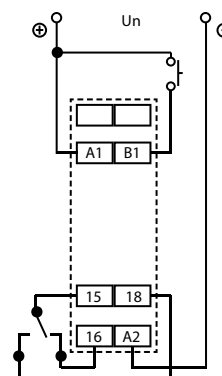
#### Timing diagrams of modes

h:m	m:s	hr	min	sec
9:59	9:59	999	999	999
		99.9	99.9	99.9

#### Symbol



#### Connection



#### Control

KEY	OPERATION
Apply Power & Hold the key for >3 sec.	Program Mode
Press both > 3 sec after power on	Program Mode
Press in Program mode	Select parameter
Press in Program mode	Edit blinking parameter
Press for > 3 sec. during Timer operation	Reset Timer
Press for > 3 sec. during Timer operation	Lock / Unlock Preset Time
Press during Timer operation	Edit Preset Time during Timer operation

## Programming instruction

Apply power & hold the SET key for > 3 sec.

OR

Press both ADJ & SET key for > 3 sec. After power ON.

Now follow the steps given below

KEY	DISPLAY	RESULT
SET ADJ		Press ADJ key to select desired function (e.g. F)
SET ADJ		Confirms function Then Range indicator blinks
SET ADJ		Press ADJ key to select range (e.g. HM range 'HM')
SET ADJ		Confirms range selection. 1st digit of Preset time blinks. (For modes '1', '2' & 'G' two preset times 'On' & 'Off' to be set)
SET ADJ		Press ADJ key to adjust desired preset time digit (e.g. from 5 to 8)
SET ADJ		Press Set to confirm 1st digit selection, now 2nd digit blinks
SET ADJ		Change with ADJ Key (e.g. from 3 to 0)
SET ADJ		Confirms 2nd digit selection, now 3rd digit of Preset Time blinks.
SET ADJ		Change with ADJ Key (e.g. from 9 to 6)
SET ADJ		Now UP / DOWN Indicator blinks
SET ADJ		Change with ADJ Key (e.g. from DOWN to UP)
SET ADJ		Confirms counting mode. Program Over. Timer starts working normally.

### Important Note:

- Output de-energizes when device enters into PROGRAM MODE and starts new cycle after coming out of PROGRAM MODE.
- Loads which have current requirement > 1mA, can only be used as Optional Load. For e.g. Contactor Coil, AC Relay Coil, etc.

## Function

0		<b>ON delay [0]</b> Timing commences when supply is present. R energizes at the end of the timing period.
1		<b>Cyclic OFF/ON {OFF Start, (Sym, Asym)} [1]</b> T-ON and T-OFF can be same or different. The relay (R) keeps on changing its status till power is removed.
2		<b>Cyclic ON/OFF {On Start, (Sym, Asym)} [2]</b> This function is quite similar to the function '1' but initially the relay (R) is ON for period T-ON after the power is applied.
3		<b>Impulse ON energizing [3]</b> After power ON, R energizes and timing starts. R de-energizes after timing is over.
4		<b>Accumulative delay ON signal [4]</b> Time commences as supply is present and switch B1 is open. Closing switch B1 pauses timing. Timing resumes when switch B1 is opened again. R energizes at the end of timing.
5		<b>Accumulative delay ON inverted signal [5]</b> Time commences as supply is present and switch B1 is closed. Opening switch B1 pauses timing. Timing resumes when switch B1 is closed again. R energizes at end of timing.
6		<b>Accumulative impulse ON signal [6]</b> When supply is ON, R energizes. When switch B1 is closed timing is suspended and remains suspended till switch B1 is opened again. Interrupting supply resets timer.
7		<b>Signal ON delay [7]</b> Permanent supply required. Timing starts when switch B1 is closed. R energizes at end of timing period and de-energizes when B1 is opened.
8		<b>Inverted signal ON delay [8]</b> Timing will commence when supply is present and switch B1 is open. R energizes after timing. If B1 is closed during timing period, timing resets to the beginning of cycle.
9		<b>Signal OFF delay [9]</b> Permanent supply is required. R energizes when switch B1 is closed. Timing commences after S is opened and then the relay de-energizes.
A		<b>Impulse ON/OFF [A]</b> Permanent supply is required. R energizes for the timing period when B1 is opened or closed. When timing commences, changing state of B1 does not affect R but resets timer.
B		<b>Signal OFF/ON [B]</b> When switch B1 is closed or opened for preset time T, the relay changes its state after time duration T.
C		<b>Leading edge impulse1 [C]</b> A permanent supply is needed. When B1 is closed, output relay energizes until timing irrespective of any further action of B1.
D		<b>Leading edge impulse2 [D]</b> Permanent supply is required. when switch B1 is closed, and remains closed output relay energizes until timing is over. If B1 is opened during timing, R resets.
E		<b>Trailing edge impulse1 [E]</b> Permanent supply required. when B1 is opened, R energizes and de-energizes when timing is over. If B1 is closed during timing R resets.
F		<b>Trailing edge impulse2 [F]</b> Permanent supply is required. When switch B1 is opened, R energizes and will de-energize when timing is over. If B1 is pulsed during timing period it will have no effect on R.
G		<b>Delayed impulse [G]</b> When switch B1 is closed, T_OFF starts. Relay energizes at the end of T_OFF period. Then, T_ON starts irrespective of signal level and relay de-energizes at the end of T_ON period.

**CRM-100**

Number of functions:	17
Supply terminals:	A1 - A2
Voltage range:	AC/DC 24-240V (50-60 Hz)
Consumption (apparent / loss):	AC 1-4 VA / DC 1-3 W
Supply voltage tolerance:	-15 %; +10 %
Time ranges:	0.1 s - 999 hrs.
Time setting:	Buttons SET / ADJ
Repeat accuracy:	± 0.5 % - of selected range
Variation in timing due to voltage change:	± 2%
Variation in timing due to temperature change:	± 5%

**Output**

Number of contacts:	1x C/O / SPDT (AgNi)
Current rating:	8 A / AC1
Breaking capacity:	2000 VA / AC1, 192 W / DC
Inrush current:	10 A / <3s
Switching voltage:	250 V AC1 / 24 V DC
Output indication:	multifunction red LED
Mechanical life:	2 x 10 <sup>7</sup>
Electrical life (AC1):	1 x 10 <sup>5</sup>

**Controlling**

Control. terminals:	A1-B1
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**Other information**

Operating temperature:	14 .. 131 °F (-10 .. +55 °C)
Storage temperature:	-22 .. 158 °F (-30 .. +70 °C)
Isolation (Between Input and Output):	2.5 kV
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP30 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:	85 x 18.2 x 76 mm (3.3" x 0.7" x 2.99")
Weight:	85 g (2.99 oz.)

The device is constructed for 1-phase main installation of 230V AC or AC/DC 24-240 V and must be installed in accordance with regulations and standards applicable in the country of use. 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.