



CRM-91H CRM-93H CRM-9S

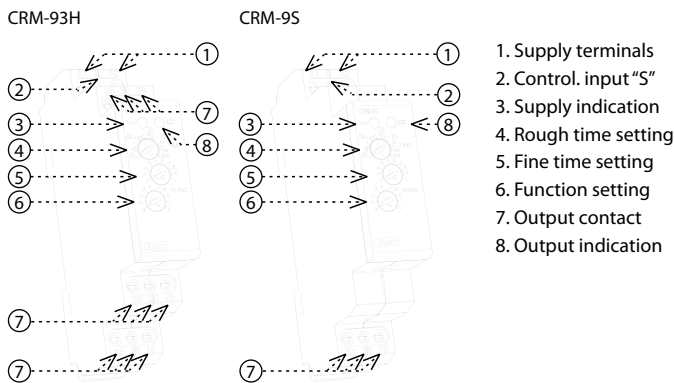
Multifunction time relay



Characteristic

- Multifunction time relay can be used for electrical appliances, control of lights, heating, motors, pumps and fans (10 functions, 10 time ranges, multi-voltage, 16 A or 3x 8 A contacts).
- Fulfills all requirements for time relays
- 10 functions:
 - 5 time functions controlled by supply voltage
 - 4 time functions controlled by control input
 - 1 function of latching relay
- Comfortable and well-arranged function and time-range setting by rotary switches.
- Time scale 0.1 s - 10 days divided into 10 ranges: (0.1 s - 1 s / 1 s - 10 s / 0.1 min - 1 min / 1 min - 10 min / 0.1 hrs - 1 hrs / 1 hrs - 10 hrs / 0.1 day - 1 day / 1 day - 10 days / only ON / only OFF).
- CRM-91H, CRM-93H:
 - universal supply voltage AC/DC 12 - 240 V or AC 230 V
 - output contact: CRM-91H: 1x changeover/SPDT 16 A
CRM-93H: 3 x changeover/SPDT 8 A
- CRM-9S:
 - universal supply voltage AC 12 - 240 V, absolutely noise-less switching.
 - 1x static contactless output (triac) 0.7 A (60 A / <10 ms), switches potential A1.
- Multifunction red LED output indicator flashes or shines depending on the status of output.
- 1-MODULE, DIN rail mounting.

Description



CRM-91H

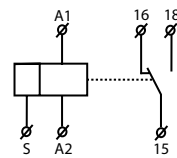
Type of load	$\cos \varphi \geq 0.95$	AC2	AC3	AC5a uncompensated	AC5a compensated	HAL 230V	AC6a	AC7b	AC12
mat. contacts AgNi, contact 16 A	250V / 16A	250V / 5A	250V / 3A	230V / 3A (690VA)	x	800W	x	250V / 3A	250V / 10A
Type of load	AC13	AC14	AC15	DC1	DC3	DC5	DC12	DC13	DC14
mat. contacts AgNi, contact 16 A	250V / 6A	250V / 6A	250V / 6A	24V / 16A	24V / 6A	24V / 4A	24V / 16A	24V / 2A	24V / 2A

CRM-93H

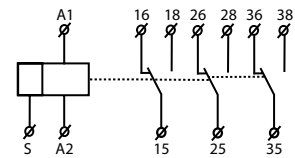
Type of load	$\cos \varphi \geq 0.95$	AC2	AC3	AC5a uncompensated	AC5a compensated	HAL 230V	AC6a	AC7b	AC12
mat. contacts AgNi, contact 8 A	250V / 8A	250V / 3A	250V / 2A	230V / 1.5A (345VA)	x	300W	x	250V / 1A	250V / 1A
Type of load	AC13	AC14	AC15	DC1	DC3	DC5	DC12	DC13	DC14
mat. contacts AgNi, contact 8 A	x	250V / 3A	250V / 3A	24V / 8A	24V / 3A	24V / 2A	24V / 8A	24V / 2A	x

Symbol

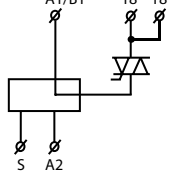
CRM-91H



CRM-93H

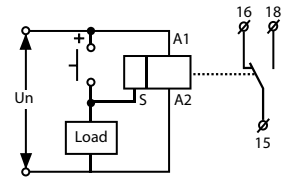


CRM-9S



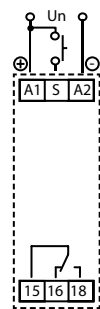
Possibility to connect load onto controlling input:

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

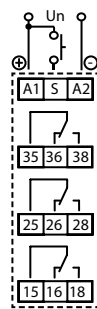


Connection

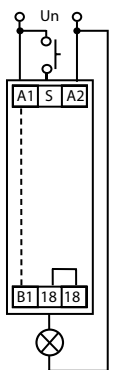
CRM-91H



CRM-93H



CRM-9S



Notes

- 1) Output contacts of CRM-93H do not allow switching of different phases or 3-phase voltages (voltage > 250 V).
- 2) When mounting into steal-plated switchboards, it is necessary to keep a safety distance of min. 3 mm from terminal's screws 35-36-38 and 25-26-28 towards the shutter of a switchboard.

Technical parameters

	CRM-91H	CRM-93H	CRM-95
Number of functions:	10		
Supply terminals:	A1 - A2		
Voltage range:	AC/DC 12-240V (AC 50-60 Hz)	AC 230 V / 50-60 Hz	AC/DC 12-240V (AC 50-60 Hz) / 50-60 Hz
Consumption (apparent / loss):	AC 0.7 - 3 VA / DC 0.5-1.7 W	AC max. 12 VA / 1.3 W	AC 0.7 - 3 VA / DC 0.5-1.7 W / 1.9 W
Supply voltage tolerance:	-15 %; +10 %		
Supply indication:	green LED		
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

	CRM-91H	CRM-93H	CRM-95
Number of contacts:	1x changeover/ SPDT (AgNi / Silver Alloy)	3x changeover/ SPDT (AgNi / Silver Alloy)	1x static contact. output (triac)
Current rating:	16 A / AC1	8 A / AC1	0.7 A
Breaking capacity:	4000 VA / AC1, 384 W / DC	2000 VA / AC1, 192 W / DC	x
Inrush current:	30 A / <3s	10 A / <3s	60 A / <10 ms
Switching voltage:	250 V AC1/ 24 V DC		x
Switch drop:	x		max. 0.9 V at I max.
Load-B1 terminal connect.:	x		YES / I max. 0.7 A
Output indication:	multifunction red LED		
Mechanical life:	3x10 ⁷		> 10 ⁸
Electrical life (AC1):	0.7x10 ⁵		> 10 ⁸

Controlling

Consumption of input:	AC 0.025-0.2VA/DC 0.1-0.7W (UNI), AC 0.53VA (AC230 V), AC 0.025-0.2VA (AC12-240 V)		
Load between S-A2:	Yes		
Control. terminals:	A1-S		
Glow tubes connection:	No	Yes	No
Max. amount of glow lamps connected to controlling input:	UNI - glow lamps cannot be connected / NO 230 V - max. 20 pcs (measured with glow lamp 0.68 mA / 230 V AC)		
Impulse length:	min. 25 ms / max. unlimited		
Reset time:	max. 150 ms		max. 250 ms

Other information

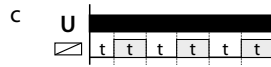
Operating temperature:	-20 °C .. +55 °C		
Storage temperature:	-30 °C .. +70 °C		
Electrical strength:	4kV (supply-output)		x
Operating position:	any		
Mounting:	DIN rail EN 60715		
Protection degree:	IP40 from front panel / IP20 terminals		
Overvoltage category:	III.		
Pollution degree:	2		
Max. cable size (mm ²):	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")		
Weight:	64 g (2.26 oz.)	62 g (2.2 oz.)	89 g (3.1 oz.) / 87 g (3 oz.) / 51 g (1.8 oz.)
Standards:	EN 61812-1, EN 61010-1		

Functions

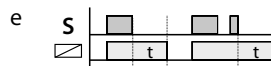
Delay ON after energisation



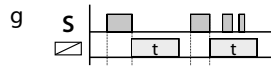
Cycler beginning with pause after energisation



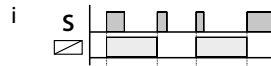
Delay OFF after de-energisation, instant make of output



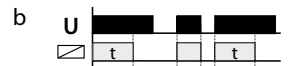
Delay OFF after break of control contact with instant output



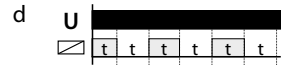
Impulse relay



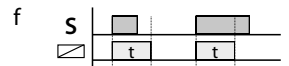
Delay OFF after energisation



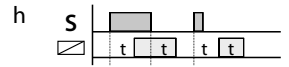
Cycler beginning with impulse after energisation



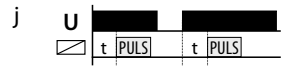
Delay OFF responding to make of control contact regardless its length



Delay OFF after make and break of control contact



Pulse generator (puls = 0.5s)



More accurate setting of timing for long periods of time

Example of time setting to 8 hours period:

For rough setting use time scale 1-10s on the potentiometer.

For fine time setting aim for 8s 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

The device is constructed for 1-phase main installation of 230V AC or AC/DC 12-240 V, CRM-95 is constructed for connection for 1-phase main AC 12-240 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.