

**ELKO EP, s.r.o.**  
 Palackého 493  
 769 01 Holešov, Vsetuly  
 Czech Republic  
 Tel.: +420 573 514 211  
 e-mail: elko@elkoep.com  
 www.elkoep.com



## CRM-91HE

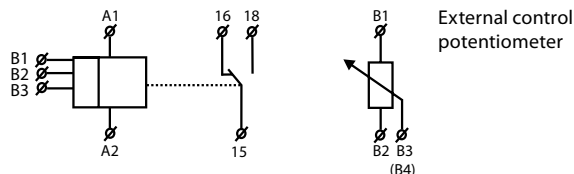
### Multifunction time relay with external potentiometer

02-187/2016 Rev.: 0

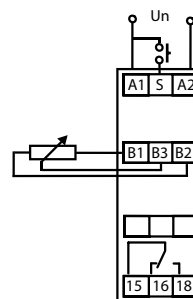
#### Characteristics

- 10 functions:
  - 5 time functions controlled via supply voltage
  - 4 time functions controlled via control input
  - 1 function of memory (latching) relay
- comfortable function and time setting is done by rotary switches
- remote control by external control unit - potentiometer, which can be for example on the doors of switch board or in panel
- 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)
- universal supply voltage AC/DC 12 - 240 V
- output contact: 1x changeover 16 A
- 1-MODULE, DIN rail mounting

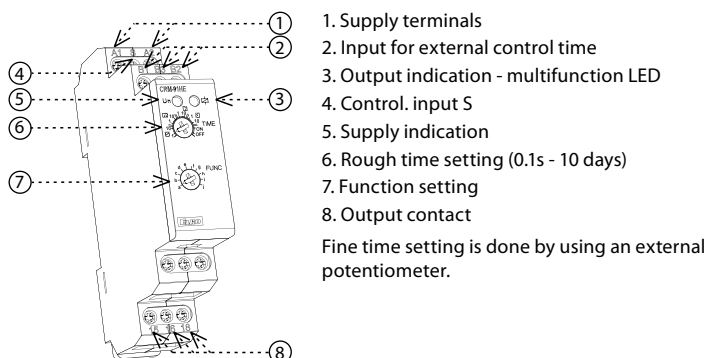
#### Symbol



#### Connection



#### Description



Type of load	$\cos \varphi \geq 0.95$								
Mat. contacts AgNi, contact 16A	250V / 16A	250V / 5A	250V / 3A	230V / 3A (690VA)	x	800W	x	250V / 3A	250V / 10A
Type of load									
Mat. contacts AgNi, contact 16A	250V / 6A	250V / 6A	250V / 6A	24V / 16A	24V / 6A	24V / 4A	24V / 16A	24V / 2A	24V / 2A

CRM-91HE

Number of functions:	10
Supply terminals:	A1 - A2
Voltage range:	AC/DC 12 - 240 V (AC 50 - 60 Hz)
Power input:	AC 0.7 - 3 VA / DC 0.5 - 1.7 W
Supply voltage tolerance:	-15%; + 10%
Supply indication:	green LED
Time ranges:	0.1 s - 10 days
Time settings:	rotary switch and external potentiometers
Time deviation:	5 % - mechanical setting
Repeat accuracy:	0.2 % - set value stability
Temperature coefficient:	0.01 % / °C, at = 20 °C

Output

Number of contacts:	1x changeover / SPDT (AgNi / Silver Alloy)
Rated current:	16 A/AC 1
Breaking capacity:	4000 VA/AC1, 384 W / DC
Inrush current:	30 A / < 3 s
Switching voltage:	250 V AC1 / 24 V DC
Output indication:	multifunction red LED
Mechanical life:	3x10 <sup>7</sup>
Electrical life (AC1):	0.7x10 <sup>5</sup>

Controlling

Control. voltage:	AC/DC 12 - 240 V (AC 50 - 60 Hz)
Power the control input:	AC 0.025-0.2 VA/DC 0.1-0.7 W
Load between S-A2:	Yes
Glow tubes connetions:	No
Control. terminals:	A1-S
Impulse length:	min. 25 ms / max. unlimited
Reset time:	max. 150 ms

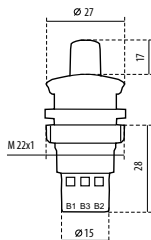
Other information

Operating temperature:	-20 °C to 55 °C (-4 °F to 131 °F)
Storage temperature:	-30 °C to 70 °C (-22 °F to 158 °F)
Electrical strength:	4 kV (supply - output)
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP40 from front panel / IP20 terminals
Overvoltage cathegory:	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")
Weight:	77 g (2.8 oz.)
Standards:	EN 61812-1, EN 61010-1

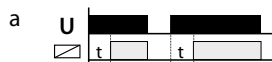
Potentiometer

It is possible to connect the external operating potentiometer up to the distance of maximally 10 meters (32.8 ft.) from relay CRM-91HE, for example in switchboard. The external potentiometer has cover IP65 from the front side and IP20 from the rear side. It is absolutely necessary to connect potentiometer with the device in correct way. The terminals on the device must be connected to the equally marked terminal on the potentiometer.

Potentiometer:	47 kΩ, linear
Protection degree:	IP65 from front side / IP20 from back side
Max. cable size (mm <sup>2</sup> ):	1.5 with sleeve / without sleeve max. 2.5 (AWG 12)
Weight:	15 g (0.5 oz.)



Delay ON after energisation



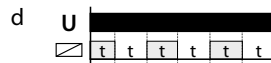
Delay OFF after energisation



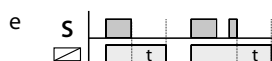
Cycler beginning with pause after energisation



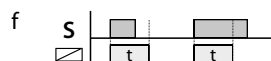
Cycler beginning with impulse after energisation



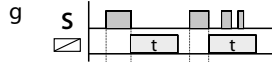
Delay OFF after de-energisation, instant make of output



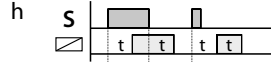
Delay OFF responding to make of control contact regardless its length



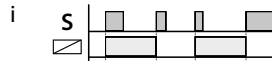
Delay OFF after break of control contact with instant output



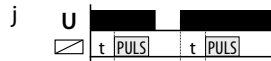
Delay OFF after make and break of control contact



Impulse relay



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 - 10 s on the potentiometer.

On the external potentiometer for fine adjustment of time to adjust 8 s, check accuracy (eg. a stopwatch).

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 main alternating current 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. After stop using the product it is possible to demount and recycle.