

Fig.1 The MRAC4 module.

APPLICATION

The relay module used to work as an executive element with an analog output of the controller to activate peripheral equipment requiring greater power. Among others it can control gas burners sets, heaters set, pumps system, etc.

DESCRIPTION

The MRAC4 and the MRAC4T are four relay modules that converts the analog input signal (0 - 10V) from the controller to five discrete, voltageless output states. Relays have SPST-NO contacts. Built-in input voltage level detection circuit allows enforce logical signals without transition states (no short switching of contacts). An important parameter is **the input signal settling time**. Typically it is 400ms and can be adapted to the needs of the customer in the range of 20ms up to several minutes. Time should be chosen to be equal to or greater than the output signal settling time of the controller, which proofing the module for short-term

interference. The hysteresis circuit prevents contacts from "flickering" in switching points. The MRAC4 has electromechanical relays with normally open contacts. The MRAC4T has a MOSFET solid state relays. LED diodes indicate output states according to enclosed diagram.

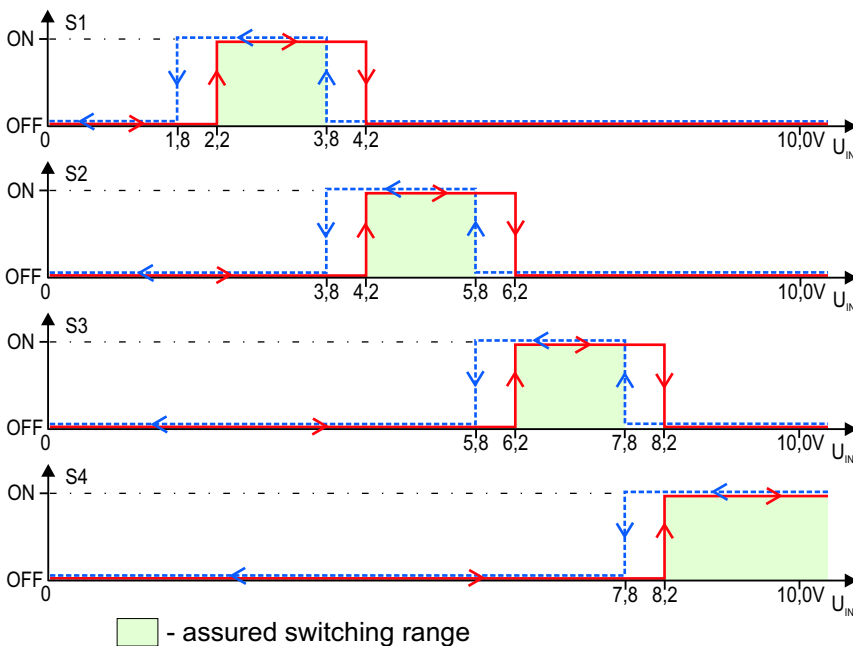


Fig.2 Switching diagram.

TABLE OF STATES

U_{in} [V] rising	U_{in} [V] falling	S1	S2	S3	S4
0	0	○	○	○	○
2,2	1,8	●	○	○	○
4,2	3,8	○	●	○	○
6,2	5,8	○	○	●	○
8,2	7,8	○	○	○	●

○ - opened contacts

● - closed contacts

adjust accuracy $\pm 0,5\%$

REMARK: The hysteresis width and thresholds can be individually set according to the specification.

MRAC4, MRAC4T

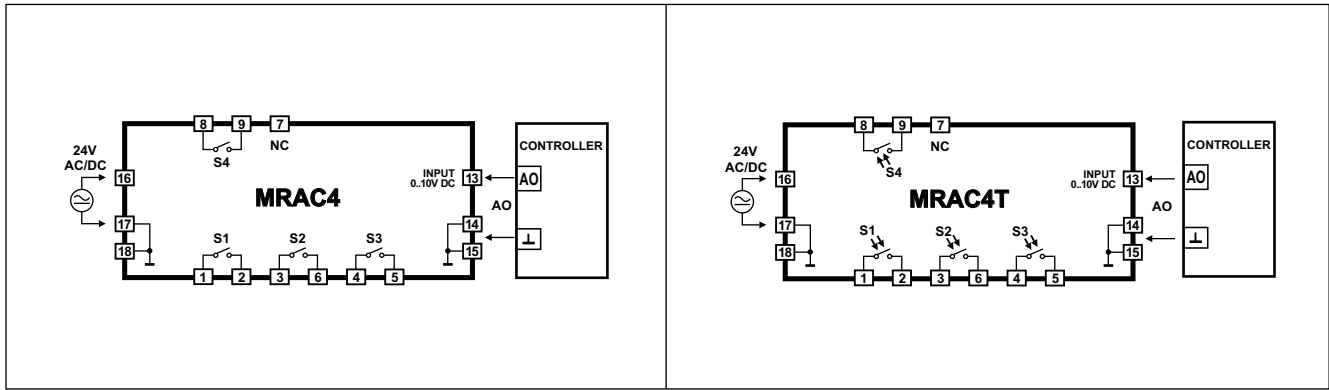


Fig.3 Connections of the MRAC4 and the MRAC4T.

TECHNICAL DATA

Module name	MRAC4	MRAC4T
Power supply	24 V AC/DC \pm 10%	
Max. current consumption	45 mA for 24 V AC / DC	28 mA for 24 V AC / DC
Input resistance	100k Ω	
Input voltage	0 - 10V	
Sensitivity	10mV	
Input signal settling time	400ms	
Hysteresis width	400mV	
Type of relay	Electromechanical	Solid state MOSFET
Contact switching capacity alternating current $\cos\phi=1$ direct current	400V, 8A [2000VA] 32V, 8A	270V, 130mA 400V, 130mA
Contact resistance	100m Ω	30 Ω
Protection class of the case	IP-40	
Compliance with EU standards	2004/108/EC	
Ambient temperature range	-10...+55 $^{\circ}$ C	
Diameter of terminals	2,5 mm 2	
Protections	against reverse polarisation	
Mounting	DIN-35 rail	
Dimensions (L x W x H)	90mm x 35mm x 56mm	
Weight	105 g	92 g

November 2012