



# 28-CHANNEL CYCLE TIMER

## MS8328



**TECHNICAL DESCRIPTION  
AND  
USER MANUAL**

PLOVDIV 2014

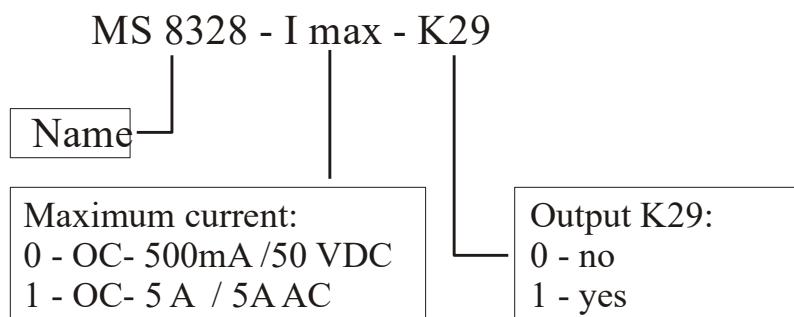
## CONTENT

I.	<b>ORDER CODE</b>	2
II.	<b>TECHNICAL DATA</b>	3
III.	<b>FRONT PANEL. ELECTRICAL CONNECTION.</b>	4
IV.	<b>OPERATION PRINCIPLE</b>	5
V.	<b>OPERATION GUIDE</b>	6
	♦ Review and editing of times for active/inactive state	6
	♦ Setting number of steps in the cycle	6
	♦ Setting the times format	7
VI.	<b>ACTIONS AGAINST INTERFERENCE</b>	7



Terminal +Vext (36) must be connected to +Uexternal  
(there is a protection function).

### I. ORDER CODE



## II. TECHNICAL DATA

<b>Time ON - duration</b>	0÷999 min; 0.00÷9.99 s	0.0÷99.9 s; 0÷999. s
<b>Time OFF - duration</b>	0÷999 min; 0.00÷9.99 s	0.0÷99.9 s; 0÷999. s
<b>Times forming accuracy</b>	0,5% 25°C /±0,3% -20÷+80°C (option 20 ppm -20÷+70°C)	
<b>Digital inputs</b>	2	
Stop, Reset	not galvanically insulated – active level GND	
<b>Outputs</b>	28 (option 29)	
K 1÷K29	NPN OC UCE max=50V, I <sub>C</sub> max =500mA In active output Uce=1,6V max	
	NPN OC Ic=5A - Ton/Toff = 1/5, Ic=1A - Continuous; Uce max = 36V, in active output Uce≤0,3V	
<b>Indication and keypad</b>		
Display	2 x 3 digits LED 10 mm	
Display range	999 min; 9.99 s; 99.9 s; 999. s	
Resolution	Up to 0.01s	
Keypad	Membrane	
<b>Power supply</b>		
Power supply voltage	220V / max 20mA	
Power supply frequency	50 Hz ( ± 1 Hz)	
<b>Operating conditions</b>		
Operating temperature	-20 ÷ 70 °C	
Operating relative humidity	without condensation	10 ÷ 80 % RH
<b>Dimensions</b>		
Overall dimensions (WxHxL)	105 x 86 x 57 mm	
Mounting	M36 DIN-rail	
Weight	<b>max 300 g</b>	
Protection class	IP20	
<b>Storage</b>		
Storage temperature	-20 ÷ 70 °C	
Storage relative humidity	without condensation	10 ÷ 95 % RH

### III. FRONT PANEL. ELECTRICAL CONNECTION.

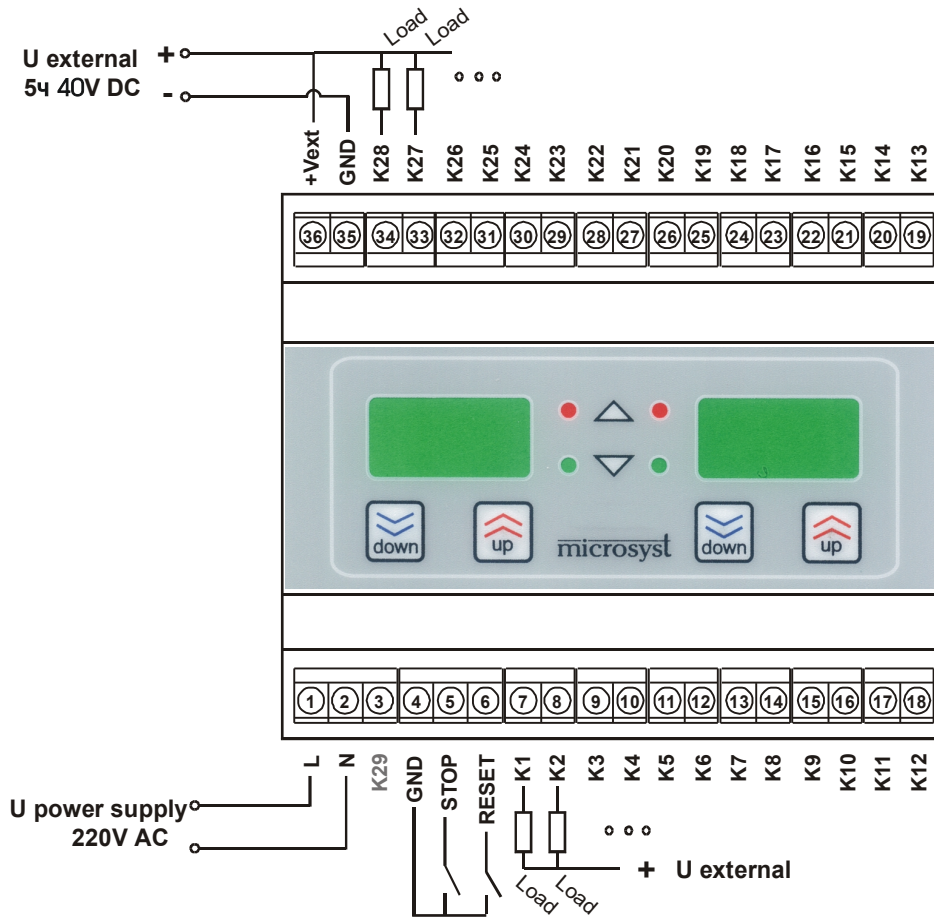


Figure 3.1 Electrical connection

- The electrical connection of the device is made by given diagrams figure 3.1.
- Must observe the limits of  $U_{supplying}$ ,  $U_{external}$ ,  $I_{load}$ .
- **Terminal +Vext (36) must be connected to +Uexternal (there is a protection function).**
- The outputs are suitable for inductive loads also.
- Output K29 (3) standard is not on terminal (option).

#### IV. OPERATION PRINCIPLE

The timer activates consequently up to 29 outputs, and are set (parameters) duration of active and inactive state. These times are the same for all outputs (figure 1).

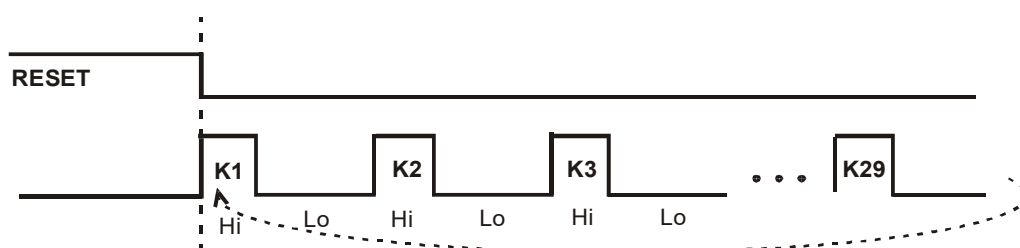
The operating cycle stops at active input STOP and continues from the next step in signal failure.

When activating the RESET input the cycle stops and continues from output 1 after signal failure.

In STOP or RESET state all outputs are inactive.

When turning off the power supply the current step is stored and after turning on the power supply the device continues from the next step.

There can be set random number of outputs from 1 to 29 to participate in the cycle.



Фиг.3.1 Operation principle

## V. OPERATION GUIDE

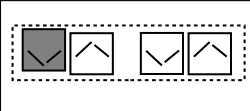
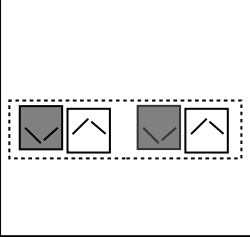
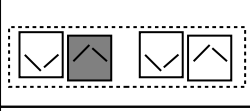
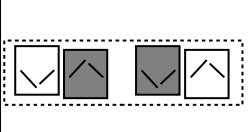
During operation the number of the active output appears on the left display, and time, remaining until activation of the next output - on the right display.

While the output is active the indication is constant (the value of time **Lo**), and when it become inactive the indication begins to decrease.

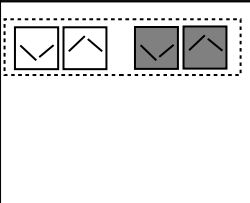
The upper right LED lights during ON, and the lower right LED - during OFF.

In active RESET or STOP input “---“ appears on the right display.

### Review and editing of times for active/inactive state

	<p>Display of time for inactive state <b>Lo</b></p>
	<p>Editing of time <b>Lo</b>. The right (shaded) button is pressed after pressing the left one. The value begins to blink. It is set by right arrows. Confirm by one of the arrows under the left display or automatically after a time.  <math>0\div 999</math> min; <math>0.00\div 9.99</math> s <math>0.0\div 99.9</math> s; <math>0\div 999.</math> s</p>
	<p>Display of time for active state <b>Hi</b></p>
	<p>Editing of time <b>Hi</b> ( as that for Lo, above)  <math>0\div 999</math> min; <math>0.00\div 9.99</math> s <math>0.0\div 99.9</math> s; <math>0\div 999.</math> s</p>

### Setting number of steps in the cycle

	<p>Changing the number of steps in the cycle. Two (shaded) buttons have to be held for more than 4sec., until ‘out’ appears on the display. The value is blinking (edited as Lo). In the operating cycle participate outputs from K1 up to entered value.</p> <p style="text-align: right;">1÷29</p>
--	--

## Setting the times format

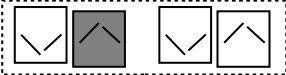
1. The shown (shaded) buttons have to be pressed and the power supply have to be turned on.

**Power ON** +  ---> **Display [DP1] [- - -]**

2. **ACTIVE OUTPUT TIME FORMAT** have to be set, by putting a decimal point to the desired position using the most right button.

 **[- - -] min; [-.- -]s; [- -.]s; [- - .]s**

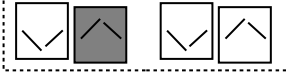
3. The shown (shaded) button have to be pressed.

 ---> **Display [DP2] [- - -]**

4. **INACTIVE OUTPUT TIME FORMAT** have to be set, by putting a decimal point to the desired position using the most right button.

 **[- - -] min; [-.- -]s; [- -.]s; [- - .]s**

5. The shown (shaded) button have to be pressed.

 ---> **exit in operation display**

### Note:

Visually the difference between seconds and minutes format is in the right-most decimal point. Minutes format is without decimal point and minutes format is with decimal point.

## VI. ACTIONS AGAINST INTERFERENCE

- ◆ Wires that transmit a similar type of signals can be packed together but if the signals are different the wires must be separated for prevent electromagnetic interaction.
- ◆ When there has to be crossed wires with different types of signals this must be done at an angle of 90 degrees and a long distance.
- ◆ Wires which carry weak signals and wires connecting the sensors to controller must not be near contactors, motors, generators, radios and wires which carry large currents.

## WARRANTY CARD

Warranty Card № : .....  
Warranty : ..... months  
Serial number : .....  
The product is bought by : .....  
with invoice № : ...../..... 20.....

## WARRANTY CONDITIONS

The warranty is valid only if this warranty card is filled legibly in ink, signed and stamped.

The warranty consists of free repair of all manufacturing defects that can occur during the warranty period. The repair is done by presenting of **this warranty card** in the service base with which is bought the product. The warranty does not cover damage caused by poor transport, poor storage, incorrect usage, forces of nature, failure to follow instructions and when others made an attempt to remove the defects. In these cases the defect can only be removed for a fee. Service during the warranty period and settlement of claims is in accordance with current legislation.

## REPAIRS MADE IN THE SERVICE BASE

Service	Day of entry	Order number	Type of the repair	Date of delivery	Performer of the repair

Seller:.....

Buyer:.....

Bulgaria, 4000 Plovdiv, 4 Murgash str.  
Tel.: (+359 32) 642 519, 640 446 fax: (+359 32) 640 446  
[www.microsyst.net](http://www.microsyst.net) e-mail: [info@microsyst.net](mailto:info@microsyst.net)