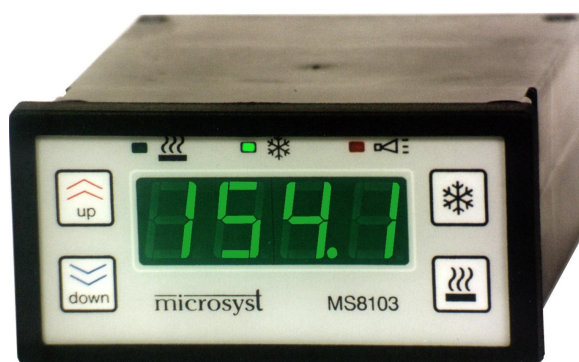


Universal microprocessor-based controller

MS8103M



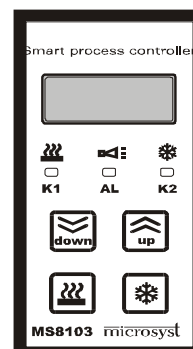
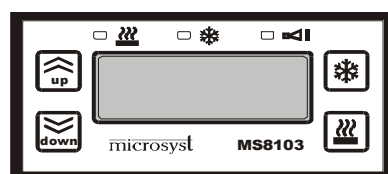
TECHNICAL DESCRIPTION AND OPERATION MANUAL

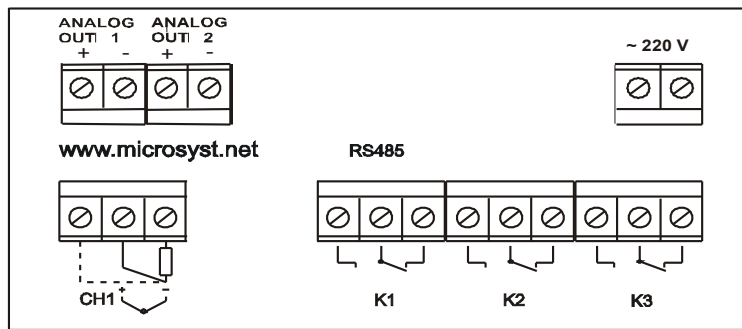
PLOVDIV 2007

I. TECHNICAL DATA

Inputs	1
Resistive temperature sensor or thermocouple From sensors for other process parameters	
- Linear voltage	0 ÷ 10 V DC
- Linear current	0(4) ÷ 20 mA DC
Outputs	digital – 3; analog - 2
Digital K1, K2, K3 Options	Relay 250 V / 5,10 A or OC for TTL Triac 250 V / 2 A; Relay 250 V / 5,10 A; OC for TTL or for SSR 250 V / 10,20,40 A
analog Out1, Out2- transmitting	0(4) ÷ 20 mA / 0 ÷ 1 (10) V
Indication and keypad	
Display	4 digits LED 10 mm
Range of the display	-1999 ÷ 9999
Accuracy	± 1 LSB
View of the display	XXXX, X.XXX, XX.XX, XXX.X
Keypad	Folio
Power supply	
Power supplying voltage	220V / max 20mA
Frequency of the power supplying voltage	50 Hz (± 1 Hz)
Operating conditions	
Operating temperature	0 ... 50 °C
Operating relative humidity	0 ... 80 % RH
Dimensions	
Overall dimensions (WxHxL)	96 x 48 x 128 mm
Installation	Panel in a hole 90 x 44 mm
Weight	max 300 g
Instance of protection	IP40
Storage	
Storage temperature	-10 ... 70 °C
Storage relative humidity	0 ... 95 % RH
Software versions:	
Version 1	Without parameters Cold, Hotd – delay of the outputs in On/Off mode
Version 2	With parameters Cold, Hotd – delay of the outputs in On/Off mode

II. FRONT AND BACK PANEL





III. DESIGNATION

The model **MS8103M** of “MICROSYST” is designed for measurement, indication and/or control by 3 states or proportional algorithm of different parameters of the technological processes.

It can be offered in two types of cases for panel installation – horizontal and vertical.

IV. OPERATION PRINCIPLE

The symbols on the graphics below (and everywhere else) have the following meaning:

SP1 - set-point of K 1 (for example “HEATING”)

SP2 - set-point of K 2 (for example “COOLING”)

ϵ_1 - proportional band or hysteresis for SP1

ϵ_2 - proportional band or hysteresis for SP2

AL - lower limit of the alarm

AH - higher limit of the alarm

Ad - delay at activation of the alarm

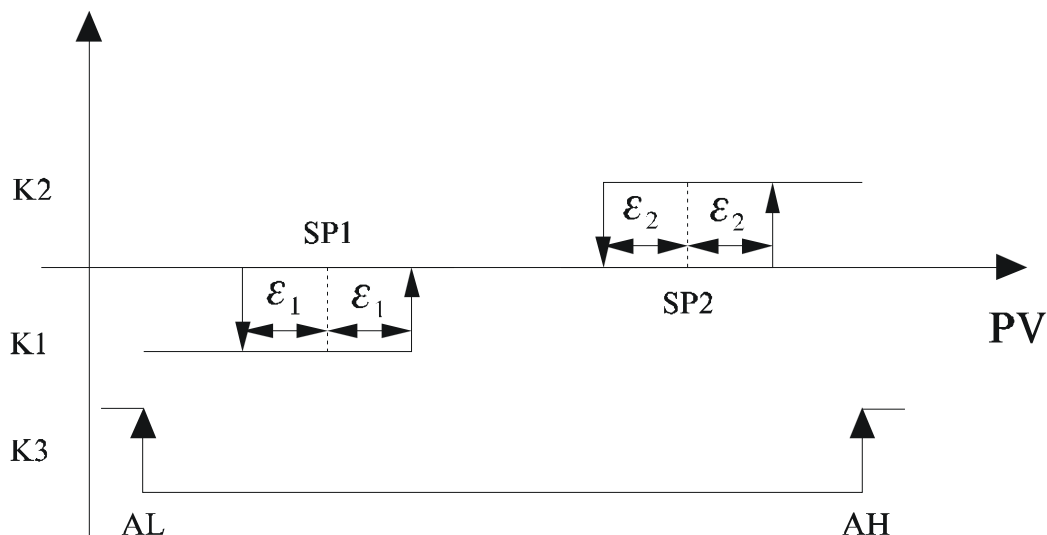


Fig. 1

On Fig. 1 and Fig. 2 there is the principle operation of the 3 states controller with alarm. The delays **Cold**, **Hotd**, available in software version 2, are accepted for 0.

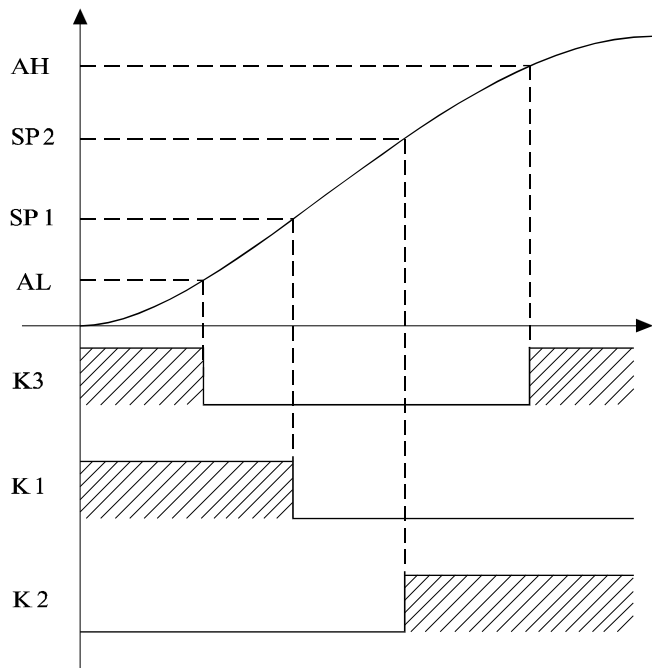


Fig. 2

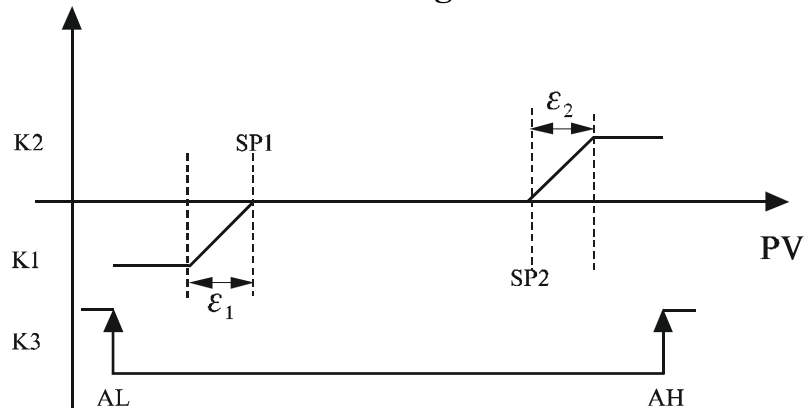


Fig. 3

On Fig. 3 and Fig. 4 there is the principle operation of controller with PWM outputs and alarm.

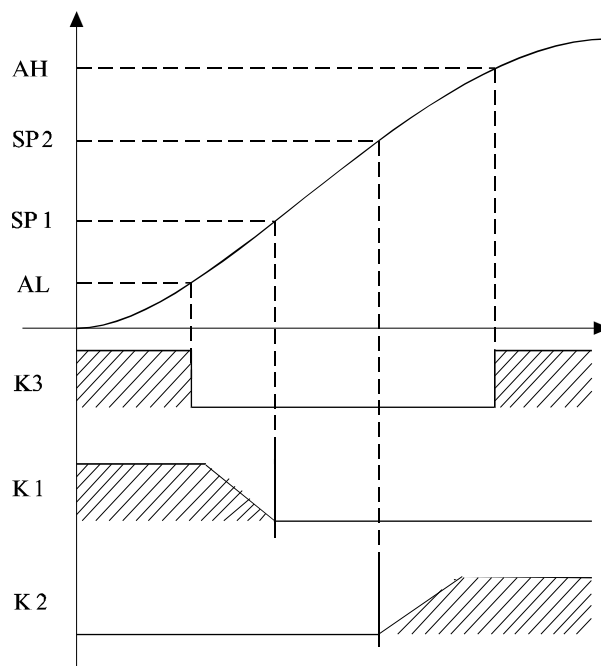


Fig. 4

V. OPERATION MANUAL

1. Normal operation

You can enter normal operating mode right after power supplying. The parameters, accessible for change in this mode are set-point of K 1 and set-point of K 2.

1) Indication and change of the set-point of K1 - SP1.

 - Indicates set-point of channel 1 - SP1

If you hold the button, the display starts flashing and if in 7 seconds you do not press any button, the device returns to normal operation.

  - Edition of the set-point

By one of the two buttons you can respectively increase or decrease the value of the set-point SP1 and the display stops flashing.

 or  - Exit from change of the set-point SP1 (and of the SP2)

You can exit the mode also, if in 3 seconds you do not press any button.

2) Indication and change of the set-point of K2 - SP2

 - Indicates the set-point of channel 2 - SP2

The other functions for SP2 are analogical to these ones for SP1.

2. Adjustment of the parameters

You can enter this mode by the simultaneous pressing of the buttons, shown below.

 
- Entering of mode “Adjustment of the parameters”

You can look at the parameters by the following buttons:

  - Selection of parameter

For edition of the selected parameter you can use the three buttons, shown below.

When you are entering the mode “tune” appears. You can look at the parameters and set-point their value by the following buttons:

 - Confirmation of selected parameter

  - Setting of value of the parameter

Note: In all modes the keypad gives a possibility for automatic increase or decrease of the values by pressing and holding of one of the two buttons.

Name	Description	Values
°Hot	Proportional band for SP1 (ϵ_1). At ON/OFF algorithm it means hysteresis for SP1 (ϵ_1).	-9999÷9999 (decimal point according to the parameter)
HotP	Period of PWM for SP1. At "0" – ON/OFF algorithm of control.	0÷127 seconds.
°Col	Proportional band for SP2 (ϵ_2). At ON/OFF algorithm it means hysteresis for SP2 (ϵ_2).	-9999÷9999 (decimal point according to the parameter)
ColP	Period of PWM for SP2. At "0" – ON/OFF algorithm of control.	0÷127 seconds.
ALo	Lower limit of the alarm	-9999÷9999 (decimal point according to the parameter)
AHi	Higher limit of the alarm	-9999÷9999 (decimal point according to the parameter)
ALd	Delay of activation of the alarm	0÷100 seconds
Filt	Coefficient of filtering of the input parameter.	0.00÷1.00
PARAMETERS, AVAILABLE ONLY IN SOFTWARE VERSION 2		
Attention! At setting of delays Cold or Hotd, different from 0, during operation, depending on the dynamics of the process, you may reach switching on of outputs K1 and K2 simultaneously.		
Hotd	Delay in On/Off mode for output K1. It is equal at switching on and off. The output switches when the necessary conditions for this have been available constantly.	0÷255 seconds.
Cold	As Hotd , but for output K2.	0÷255 seconds.

3. Locking/unlocking of the keypad



Locking/Unlocking of the keypad

Locking/unlocking of the keypad can be done by pressing and holding of the left button and after that by the pressing of the right one. The locking of the keypad is in order to avoid accidental influence in the adjustment and the operation of the device.

Bulgaria, 4000 Plovdiv, 4 Murgash STR.
 Tel.: (+359 32) 642 519 , 640 446 Fax: (+359 32) 640446
www.microsyst.net e-mail: info@microsyst.net