

The MIKSTER MCM 023 microchip controller MANUAL

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1. APPLICATION

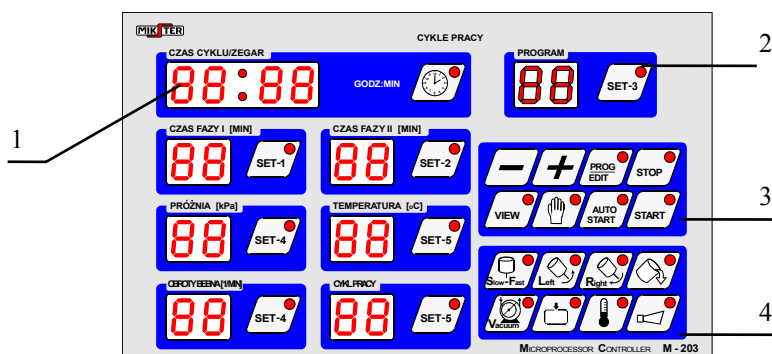
The MIKSTER MCM 023 microchip controller is designed for using in automatic controlling of the massing process in vacuum mass devices.

2. THE BASIC CONTROLLER FUNCTIONS

- automatic execution of the technological programme,
- 50 programmes,
- 6 cycles per programme,
- 2 stages per cycle,
- temperature control and regulation,
- vacuum control and regulation (pressure) 0-100 kPa,
- continuous setting of the drum rotation speed,
- programmed control over executive devices (contactors, electro-valves, etc.),
- manual operation,
- AUTOSTART function.

3. THE MIKSTER MCM 023 CONTROL PANEL

All the operations related to the activation of the controller, programming, manual changes, etc., are performed with the control panel (Plate 1).



The following functional blocks are present in the control panel:

- numerical displays -1-
- signalling diodes -2-
- function keys -3-
- device status keys -4-

All the information on the status of the MIKSTER MCM 023 controller at work (working status, values of the set and read parameters, signalling for ON/OFF devices) are displayed with numerical displays and diodes. If a given device is operating or the given is active, the diode is on continuously. The pulsating diode indicates waiting or temporary values.

Entering data into the MIKSTER MCM 023 controller memory, data adjustment, calling appropriate functions of the controller, are all executed with pressing appropriate function, numerical and status keys.

4. SECURITY CODE

In order to prevent the data stored in the MIKSTER MCM 023 memory against unauthorised persons, the security code has been provided for. The request for entering the security code is displayed when changes are to be introduced in the data on technological programmes (details, see 5.1.).

The security code is stored in the SET-UP memory.

5. **STARTING THE MIKSTER MCM 023 CONTROLLER**

When the power supply is turned on, the clock display shows CZAS RZECZYWISTY (REAL TIME).

The following functions may be now executed in the MIKSTER MCM 023 controller:

- programming technological processes,
- setting the SET-UP permanent parameters (the service function),
- controlling the executive devices,
- starting the programme executed by the MIKSTER MCM 023 controller,
- running the AUTO-START function.

5.1. **ENTERING TECHNOLOGICAL PROGRAMMES INTO THE CONTROLLER MEMORY**

50 technological processes (0-49) may be programmed by the user in the MIKSTER MCM 023 controller.

Each programme consists of 6 cycles divided into 2 stages.

The cycle has the following parameters:

- **CYCLE DURATION TIME, max: 99h:59min**
- *STAGE 1 DURATION TIME: max 99 min.*
- VACUUM FOR STAGE 1
- TEMPERATURE FOR STAGE 1
- DRUM ROTATION SPEED FOR STAGE 1
- STATUS OF EXECUTIVE DEVICES FOR STAGE 1
- *STAGE 2 DURATION TIME: max: 99 min.*
- VACUUM FOR STAGE 2
- TEMPERATURE FOR STAGE 2
- DRUM ROTATION SPEED FOR STAGE 2
- STATUS OF EXECUTIVE DEVICES FOR STAGE 2


Entering the MIKSTER MCM 023 controller into the programming mode:

- press the key 



(the CODE caption is displayed along with the 00 00 symbol, the CZAS FAZY I (the active display) pulsating))

- pressing the keys  


set the first digit of the security code

- press the key 


(the active display diode is pulsating)

- pressing the key  

set the second digit of the security code

- if the code is correct, press the key 

If the entered code is correct, the programming mode is entered. The displays show parameters for the programme, whose number is displayed in the PROGRAM field. When a wrong code is entered, MIKSTER MCM 023 returns to the readiness mode (the current time is displayed).

- press the key 


- by pressing the keys  , 



enter **the technological programme number**


- press the key 



- by pressing the keys  , 

set **the massing time in cycle 1**



- press the key 

- by pressing the keys  , 
 set **the duration time for stage 1**



- press the key 

- by pressing the keys  , 
 set **the vacuum value for stage 1**

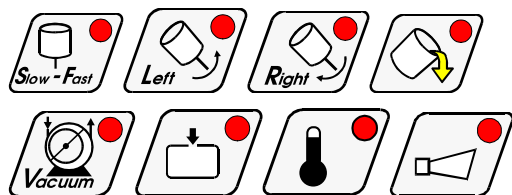
- press the key 

- by pressing the keys  , 
 set **the temperature for stage 1**

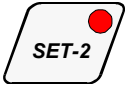
press the key 



- by pressing the keys  , 
 set **the drum rotation speed for stage 1**




- pressing appropriate keys in the device status field

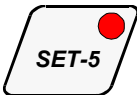




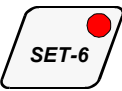


determine, which of them are to be switched on, and which are to be switched off in Stage 1.

 - press the key 

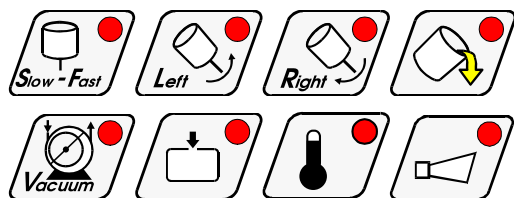
- by pressing the keys  , 
 set **the duration time for stage 2**

- press the key 
- by pressing the keys  , 
- set **the vacuum value for stage 2**

- press the key 
- by pressing the keys  , 
- set **the temperature for stage 2**


- press the key 
- by pressing the keys  , 
- set **the drum rotation speed for stage 2**

- pressing appropriate keys in the device status field

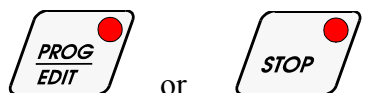


determine, which of them are to be switched on, and which are to be switched off in Stage 2

One complete cycle for the massing process has been programmed.

In order to programme further cycles, by pressing the key  select an appropriate cycle to be programmed and continue steps as for the first cycle.

Programming is ended with pressing the key



5.2. STARTING THE TECHNOLOGICAL PROGRAMME IN MIKSTER MCM 023

5.2.1. IMMEDIATE STARTING THE PROGRAMME EXECUTION

The automatic cycle (starting a device) may commence when the MIKSTER MCM 023 controller is in the readiness state (the current time is displayed).

In order to do this, perform the following steps:

- press the key

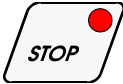


(the programme number display is pulsating)

- by pressing the keys




enter the number of the programme, which you would like to execute

(at this time, it is possible to stop activating the device by pressing the key  ; then the MIKSTER MCM 023 controller returns to the readiness state and the current time is displayed).

- after entering the programme's number and confirming its validity, press the key



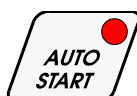
(the device starts operating.)

Stopping the programme execution is done with pressing the key  .

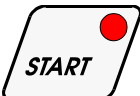
5.2.2. DELAYED STARTING THE PROGRAMME EXECUTION: AUTO-START.



The autostart function allows for starting a device at the set time.

In order to start the autostart function, press the key

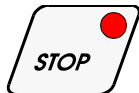


Then, in the PROGRAM field, enter the number of the programme, and enter hour and minute of the device starting in the (CZAS CYKLU/ZEGAR) field.

After pressing the key  , the autostart function is activated.

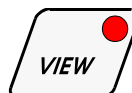
(the  and  key diodes are pulsating the current time and programme number are displayed).

In order to switch off the autostart function, press the key




. When the autostart function is active,


the autostart time may be displayed by pressing the key



5.3. **MANUAL CHANGING OF THE TECHNOLOGICAL PROCESS PARAMETERS DURING AUTOMATIC OPERATION**

During automatic operation, manual adjustments are possible for the entered programmes. It is achieved as follows:

- press the key  (all the set parameters for the given cycle are displayed),
- make change sin the programme as set forth in 5.1.,

- by pressing the key  , parameters are displayed for the successive programme cycles.

- the ending of the manual data adjustment is done with pressing the key



. Only now are the data rewritten into the controller's memory and the controller responds to the changes made.

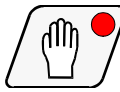
If entering data is terminated in the cycle (stage) different from the executed, the cycle (stage) is executed, during which leaving the manual data adjustment was performed.

5.4. **MANUAL CONTROL OVER THE EXECUTIVE DEVICES**

In order to manually start the executive devices, perform the following operations:

(The MIKSTER MCM 023 controller shall be in the readiness state: the current time is displayed)


- press the key 

- leaving the mode is done with pressing the key 

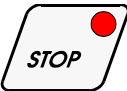
6. **SIGNALLING EMERGENCY PROGRAMME TERMINATION**

When a failure occurs during the programme's execution (e.g. power break-down), the time the failure occurs is stored in memory, and the programme is continued after the cause of the failure is eliminated, beginning in the moment, in which the programme's execution was disrupted.

If this is the case, the display (CZAS CYKLU/ZEGAR) periodically displays the - Error- caption, with the error code -40- displayed in the PROGRAM display.

By pressing the key , the error signalling may be switched off.

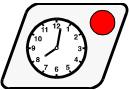
7. **THE AUTOMATIC PROCESS TERMINATION**

In order to stop the automatic process, press the key .

8. **PROGRAMMING THE REAL TIME CLOCK**


In order to change the real time:

(when the controller displays the current time and is in the readiness state)

- press the key  (the real time clock display is pulsating)

- by pressing the keys  , set the proper time.

In order to stop entering the real time:

- press the key .

9. **THE WORKING TIME OVERVIEW FOR THE DRUM AND VACUUM PUMP**

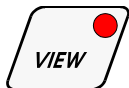
When the mass device is in the idle (the real time is displayed)

press the key . The (CZAS CYKLU/ZEGAR) display displays the number of hours the vacuum pump was operated.

The (CZAS FAZY I and CZAS FAZY II) displays display the number of hours the mass device drum was operated.

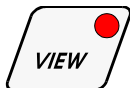
10. OVERVIEW OF THE SET PARAMETERS IN THE TECHNOLOGICAL PROGRAMME: THE MONITOR

In order to display the parameters set for the technological programme without the possibility of changing them, press the key:



(the set parameters shall be displayed for the technological process).

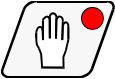
The return to the previous state occurs automatically after a time defined in the **F12** SET-UP function or after pressing the key




11. UNLOADING

The unloading conditions, i.e.. the drum rotation speed and the rotation direction are determined by the mass device producer.

In order to perform the unloading operation:

- press the key  (entering the manual operation)

- press the key 

In order to complete the unloading, press the key

