

**User manual of the microprocessor controller „MIKSTER MCC 100 FUTURE”**

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The control desk consists of the following blocks:

- numeric displays -1-
- signalling diodes -2-
- numeric keyboard -3-
- function keys -4-
- devices' status keys -5-

All the information concerning the operating conditions of the MIKSTER MCC 100 FUTURE (values of the given and measured parameters, ON/OFF signalling) are displayed by the numeric displays and LEDs.

If any device is in the operating mode or any particular function is active the LED placed on its key lights continuously, blinking LED means instantaneous state or break-down. Data input to the MIKSTER MCC 100 FUTURE memory, data correction and particular controller's functions calling is performed by pressing of the appropriate function keys, numerical keys or the devices' status keys.

### **3. SECURITY CODE**

For protection of data written into the MIKSTER MCC 100 FUTURE memory against unauthorised persons the security code has been introduced. Security code request appears when one tries to make changes in the existing data concerning technological program parameters (for the detailed description see 4.1.)

The security code consists of 6 digits and its value is set by the smoking chamber serviceman and they should be given to the user. Usually, the security code is set to 222 222.

### **4. STARTING WORK WITH MIKSTER MCC 100 FUTURE**

After switching the power ON, all the displays are lighted for about 2 seconds, then the **STOP** message appears, what is the certificate of a proper operation of the system.

When the **STOP** message appears - it means **STAND-BY** mode, and now you can change it to one of below described modes and start appropriate functions:

- program mode - to start programming of the manufacturing routines,
- set-up mode - to enter constant parameters,
- manual mode - for manual control of the working devices,
- automatic mode - to start realisation of one of the earlier programmed manufacturing routines.

#### **4.1. PROGRAMMING OF MANUFACTURING PROCESSES**

There is a possibility in the MIKSTER MCC 100 FUTURE to use up to 49 programmed by user routines for the manufacturing processes (Nos. 1-49). Each program consists of 10 (20) cycles with a possibility of a programming of one's choice, e.g.:

- 0 - HEATING,
- 1 - DRYING,
- 2 - SMOKE-CURING,
- 3 - VENTILATING,
- 4 - SMOKE-CURING,
- 5 - VENTILATING,
- 6 - SMOKE-CURING,
- 7 - VENTILATING,
- 8 - BURNING,
- 9 - VENTILATING.

Programming is based on the appropriate data input (chamber temp., core temp., humidity, etc.) for the above sequence of cycles.

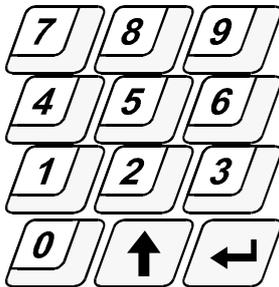
If you want to start programming, you must switch the MIKSTER MCC 100 FUTURE to the

programming mode pressing the key



. It results in displaying **CODE** message and the symbol **000 000**.

Now, pressing the numeric keys:



type the first 3 digits of the security code.

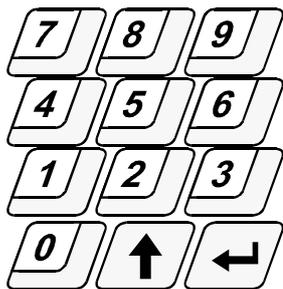
Then press the key , and type the next 3 digits of the security code and press the key  again. Pressing the key  changes the active field of the entered parameter.

When the security code is completed, press the key



. If the code is correct the programming mode starts, and the displays show the cycle number 00 and the program number, which has been chosen for programming. In case of mistyping the security code, MIKSTER MCC 100 FUTURE returns to the STAND-BY mode.

When the security code is correct, you can enter the program number(00-49), you will program, by pressing the numeric keys:



( the display is flashing at the position of actually inputted digit)

When the program number is set, approve it by pressing the key  .

Now, using the numeric keys, type the values of the parameters below, in the following order:

TEMPERATURE INSIDE THE CHAMBER [°C]

CORE TEMPERATURE [°C]

TEMPERATURE INCREMENT „DELTA” [°C/min.]

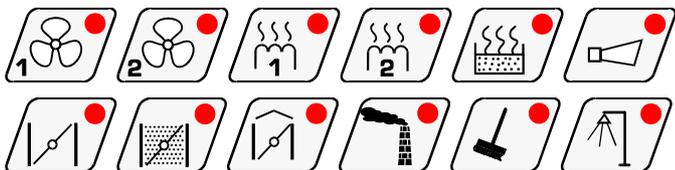
RELATIVE HUMIDITY [%]

CYCLE DURATION [h.min]

In the case of going over the range of the parameter, in the editing field appears 0, and you must input the parameter value again.

When the entered value is correct, approve it pressing the key  .

When programming the technological routine, you must define the work state(ON/OFF) of working devices by pressing the devices state keys below:



When the parameters of a particular cycle are already set and accepted as correct, press the key  , what allows for programming of the next cycle.

You must repeat the above procedure for all the cycles, up to the 09(19) cycle. After the 09(19) cycle programming, the device returns to 00 cycle.

- When all the cycles are programmed press the key  . As a result all the data are stored into controller’s memory and **STOP** message appears - it means the controller state is **STAND-BY**.

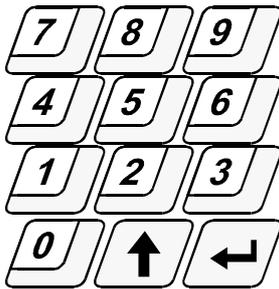
When all the cycles are already programmed, press the key  . Now you can start next routine programming.

## 4.2. RUNNING THE MANUFACTURING PROCESS' ROUTINE ON THE MIKSTER MCC 100 FUTURE

The automatic realisation of a chosen routine (chamber initiation) can begin when MIKSTER MCC 100 FUTURE is in the STAND-BY mode (displayed STOP).

If you want to start realisation of a chosen routine, you must press the key . As a result the message READY is displayed and the program number display starts blinking.

Then pressing the numeric keys:



enter the chosen program number you want to realise and the cycle number you want to start its realisation.

Pressing the key  changes the actual entered field.

(Now, you can abandon chamber initiation by pressing the key . After pressing that key MIKSTER MCC 100 FUTURE returns to the STAND-BY mode and the STOP message is displayed.)

- When the program number is correct, press the key  (the chamber starts work)

### 4.2.1. OPERATING THE PROGRAM

When the program runs, MIKSTER MCC 100 FUTURE, basing on the given parameters, operates the working devices and checks conditions of the program realisation for counting the time of each cycle.

The following conditions should be satisfied for the cycle time counting:

1.

*if (CORE temperature (given) > 0 and Cycle duration (given) > 0)*

*the cycle ends when:*

- *CORE temperature (measured) >= CORE temperature (given)*

*or*

- *cycle duration (measured) >= cycle duration (given)*

2.

if (CORE temperature (given) $>0$  and cycle duration (given) $=0$ )

the cycle ends when:

- CORE temperature (measured)  $\geq$  CORE temperature (given)

3.

(CORE temperature (given) $=0$  and cycle duration (given) $>0$ )

the cycle ends when:

- cycle duration (measured)  $\geq$  cycle duration (given)

After fulfilling the above conditions, on the display showing time of the program realisation appears the value of the time of realisation of the particular cycle.

The processes in the chamber terminate after all the cycles of the routine have been performed.

If you want to omit any cycle, you have to set:

- CORE temperature (given) = 0
- cycle duration (given) = 0

#### 4.3. **MANUAL CHANGES OF THE MANUFACTURING PROCESS PARAMETERS DURING THE WORK-TIME OF THE SMOKE-CHAMBER**

During the automatic realisation of any of the previously programmed routines, you can still make manual corrections. Manual corrections can be made during the smoke-chamber automatic work-time

after pressing the key .

(as a result, all the parameters values of the actual cycle are displayed),

- Now you can start the procedure described earlier(see p.4.1) to make the needed corrections in the

routine, by pressing the key .

Parameters of the succeeding cycles of the realised routine are displayed (at the same time there are no read-outs of the CHAMBER temperature and the CORE temperature).

If the cycle number blinks, it means that this cycle is not processed at the moment.

- When all the manual correction of the data are finished, press the key  again.

After pressing that key, all the modified data are stored into the controller's memory and the controller responds to the entered changes.

If the terminating of the manual data correction took place in the other cycle than that previously realised, MIKSTER MCC 100 FUTURE starts realisation of a cycle in which the terminating of the data correction took place.

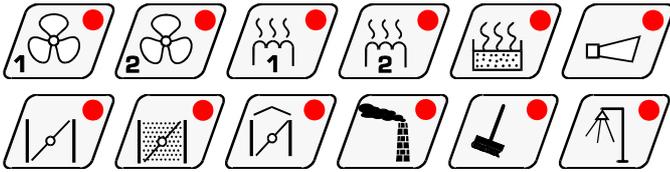
#### 4.4. MANUAL MODE

(WARNING: You can start this function when the controller's mode is STAND-BY, i.e., STOP message is displayed.)

For manual initiation of the working devices press the key  ,

(„null” given parameters are displayed)

- pressing the devices status keys:



- set the devices you want to be active after pressing the key  .

(blinking LED on such a device means that the device will be active)

- Set the given parameters values of the realised process like it was described earlier in 4.1.

Press the key  when working devices are set as needed. After that the smoke chamber starts its work.

The circumstances of terminating the program realisation in the manual mode are the same as described in 4.2.1.

When the program is realised in manual mode you can arbitrary switch ON/OFF the working devices.

The automatic program realisation terminates after pressing the key  .

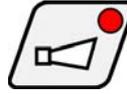
You can continue the interrupted program by pressing the key  .

- The manual mode terminates after pressing the key  .

#### 5. ERRORS AND FAILURES MESSAGES

In case of failure during the work-time of the MIKSTER MCC 100 FUTURE, program realisation terminates. Displays show ERROR message and the error number (in the same time controller generates the sound signal).

You can turn off the sound signal by pressing the key



After fixing the broken part, press the key



for switching back to the STAND-BY mode.

(After that, the message **STOP** appears)

Now, you can continue the terminated routine by pressing the key



. Controller starts work from that instruction of a routine at which the program was terminated.

## THE LIST OF SIGNALLED ERRORS

### ERROR 17

**Cause of the error** - control input error

**Controller's reaction** - depends on F26 (SET-UP)

if F26=0 - ERROR-17 monitoring is turned OFF,

if F26=1 - smoke chamber continues its work, the error message appears cyclically and the sound signal is generated,

if F26=2- program realisation terminates, error message appears and the sound signal is generated.

### ERROR 21

**Cause of the error** - exceeding the temperature range

**Controller's reaction** - chamber work is terminated, error message appears, sound signal is generated.

### ERROR 25

**Cause of the error** - when trying to run simultaneously fan1 and fan2, if set-up function F4 defines blocking of their simultaneous work.

**Controller's reaction** - chamber work is terminated, error message appears, sound signal is generated.

### ERROR 30

**Cause of the error** - RAM control sum error

**Controller's reaction** - the error message appears cyclically, automatic mode is disabled.

**WARNING !** In case of this error, please let know the service !

### ERROR 40

**Cause of the error** - instantaneous power decay when automatic mode or manual mode or AUTO-START function is running

If the power decay is longer than the value set in the set-up function **F23**, controller terminates work and its mode is changed to STAND-BY (**STOP** message appears). If the power decay duration is shorter than **F23**, controller continues its work from the point the power decay occurred.

**Controller's reaction** - error message appears cyclically.

**WARNING !** Pressing the key  deletes error message displaying. In case of

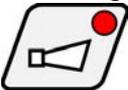
temperature sensor damage, symbol  is displayed in its field.

If the above symbol appears in the humidity sensor field when the temperature sensor „dry” is efficient, it means that the temperature sensor „wet” is damaged.

## 6. SOUND SIGNALS

During the normal work of the chamber, sound signalling device is turned on when passing to the next cycle. The duration of sound signal is set by service and written to the SET-UP memory. When passing to the 09 cycle the sound signal duration is twice longer.

During the failures, signalling device generates discontinuous signal, till manual switching off

by pressing the key .

## 7. PROGRAM BREAK -PAUSE-

When MIKSTER MCC 100 FUTURE realises automatic process, you can use PAUSE option for opening the door to the chamber or for temporary ventilation of the chamber if it is necessary.

Pressing the key  makes controller mode changes to PAUSE.

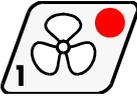
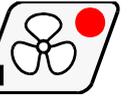
*(PAUSE message appears on the display)*

Press again the same key to exit PAUSE option.

If the PAUSE key was not pressed again, the PAUSE process terminates after the certain time programmed by service.

## 8. CALIBRATION OF TEMPERATURE PROBES

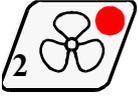
Temperature probes calibration should be performed as follows:

- PRESS AND HOLD THE KEY 
- PRESS AND HOLD THE KEY 
- LET THE KEY 
- LET THE KEY 

By pressing the key  proceed to the following tests of the controller.

If in the cycle field of the display, „0” is displayed it means that the controller is ready for temperature probe calibration.

The probe should be put into water ice mix.

After temperature 0°C is set press the key  .

Then you can follow to the calibration of the second probe by pressing the  key.

Calibration is performed as above.

After calibration is completed press  , the parameters will be stored in the controller memory.

Calibration of temperature probe for 100°C is performed by adjusting the potentiometers located at the back of the controller.

***The probe should be put into boiling water and after putting the probe into boiling water adjust the potentiometer until 100 is displayed in the relevant channel***

## 9. PROGRAM TERMINATION

For terminating of the automatic process press the key  .

## 10. CONTROL OF THE TEMPERATURE INCREMENT 'DELTA'

MIKSTER MCC 100 FUTURE has a possibility of regulation of the temperature increment as a function of time (fish smoke-curing) or as a function of „CORE” temperature (parzenie w różnicy temperatur).

During programming of the manufacturing process, type the value of temperature increment [°C/min] or difference between „CORE” and „CHAMBER” temperature [°C ] in the field with a label [DEL].

In case of giving the value of DELTA = 0.0°C, regulation of temperature increment is not active.

Temperature increment regulation depends on **F22** SET-UP function settings. Below are listed **F22** values:

F22=0 - DELTA regulation is not active,

F22=1 - DELTA regulation as a function of time is active,

F22=2 - DELTA regulation as a function of „CORE” temperature is active.

## 11. RESPONSE TO THE TEMPERATURE LIMIT EXCEEDING

Controller reacts for temperature limit exceeding signalling the ERROR 21.

Temperature limit is set in the SET-UP function **F29**. This function allows to set the tolerance [°C] of the temperature limit.

**EXAMPLE:** if given temperature is equal 60°C and the value of the function **F29** is equal 10°C, then error signalling turns on, when the temperature read-out exceeds 70°C.

## 12. AUTO-START FUNCTION

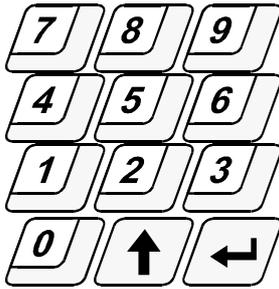
You can set the time MIKSTER MCC100 FUTURE will start the chosen routine realisation.

The AUTO-START function is activated by pressing the key .

Then you must enter in sequence the parameters below:

- the chosen program number,
- the cycle number,
- time, when you want the process to start, i.e.:
  - hours: HH,
  - minutes: MM.

Use the numeric keypad to enter all the above parameters values:



After entering each parameter, you must approve its value by pressing the key .

It makes possible entering the next parameter value in sequence:

program number  $\Rightarrow$  cycle number  $\Rightarrow$  AUTO-START hh  $\Rightarrow$  AUTO-START mm

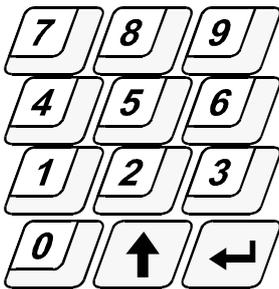
When you have set all the above parameters, press the key .

as a result LEDs placed on the keys AUTO-START and START are blinking and AUTO-START and STOP LEDs green light.

You can break the AUTO-START setting by pressing the key .

### 13. THE REAL TIME CLOCK SETTING

If you want to change the real time clock settings, press the key . As a result SET CLO message is displayed. Now enter the actual time (HH:MM), using the numeric keypad:



.Then press the key  to approve the entered time.