**MIKSTER**

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# 1. APPLICATION

The MIKSTER MCC 026-series Microprocessor Controller has been designed for the prurposes of automatical control of industrial equipment requiring programmed operation, and to measure physical quantities, e.g. temperature, pressure, humidity, etc.

In particular, the MIKSTER MCC 026 controller is intended for controlling technological process in DRYING CHAMBERS.

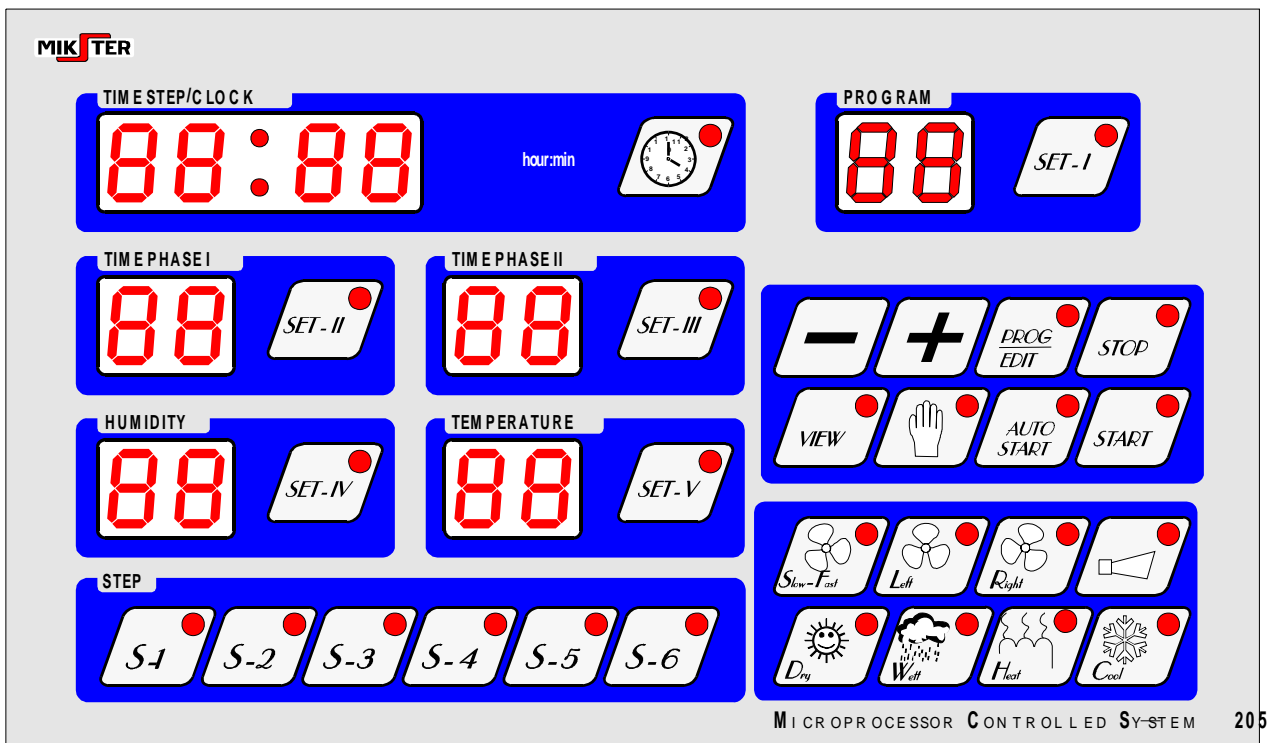# 2. BASIC FUNCTIONS OF THE CONTROLLER

- automatic execution of technological program
- 40 programs
- 6 steps / program
- 2 phases / step
- temperature control and adjustment
- humidity control and adjustment: 0-99 %
- conditional execution of program depending on humidity
- programmed control of actuators (contactors, electro-valves, etc.)
- manual operation mode
- AUTOSTART function

# 3. MIKSTER MCC 026 CONSOLE

All operations related to controller activation, programming, manually introduced modifications, etc. are carried out from the console (fig.1).

Keys on the console are arranged in the following keypads:

- digital displays         -1-
- signal diodes          -2-
- function keys          -3-
- equipment state keys      -4-
- program step keys        -5-

All information regarding the operation mode of the "MIKSTER MCC 026" (in-operation state, values of preset and read out parameters, equipment on / of signalling) is displayed on numeric displays and signalled by diodes. If particular unit is in operation or given function is active, the diode is continuously on. Blinking diode indicates waiting state or signals instantaneous value.

Data input in the "MIKSTER MCC 026" memory, data correction, and calling of appropriate controller functions is executed by pressing proper function keys, and numeric and equipment state keys.

## 4.    SECURITY CODE

Security code has been introduced in order to protect data stored in the MIKSTER MCC 026 memory against access of unauthorized persons. If we attempt to introduce changes in data concerning technological programs, the program will request to enter security code (detailed description in point **5.1.**)

Security code value is stored in the SET-UP memory.        By default (22 22)

## 5.    MIKSTER MCC 026 – START OF OPERATION

After turning on power supply the clock display will show REAL TIME.

At this moment it is possible to activate the following functions of the unit:

-    programming technological (manufacturing) processes,

- setting constant SET-UP parameters (applies to service),
- control of actuators,
- activation of program executed by MIKSTER MCC 026,
- switching on the AUTO-START function.

## 5.1. PROGRAMMING OF MANUFACTURING PROCESSES

User may program 40 technological programs in MIKSTER MCC 026 (Numbers from 0 to 39).

Each program consists of 6 steps divided in 2 phases.

Step parameters are as follows:
- STEP DURATION: max – 99h:59min
- PHASE 1 DURATION
- HUMIDITY VALUE FOR PHASE 1
- TEMPERATURE VALUE FOR PHASE 1
- STATE OF ACTUATORS FOR PHASE 1
- HUMIDITY CONDITION FOR PHASE 1
- PHASE 2 DURATION
- HUMIDITY VALUE FOR PHASE 2
- TEMPERATURE VALUE FOR PHASE 2
- STATE OF ACTUATORS FOR PHASE 2
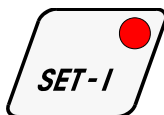- HUMIDITY CONDITION FOR PHASE 2

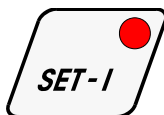Setting the MIKSTER MCC 026 in programming mode:

- press the [PROG EDIT] key;
(word CODE and symbol 00 00 will be displayed, PHASE I TIME display is active (diode blinks))

- using the [–] [+] keys
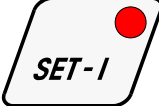set the first digit of the security code;

- press the [SET-I] key (TIME PHASE I field)
(active display diode blinks)

- using the ⊟ ⊞ keys

set the first digit of the security code;

- it is possible to correct the security code value by changing active display, using the keys:

**SET-I** (TIME PHASE I field), **SET-II** (TIME PHASE II field);

- when you are sure that entered code is correct, press the **PROG EDIT** key.

When the code is correct, the unit switches to programming. The displays will show parameters of a program, number of which is displayed in the PROGRAM field.
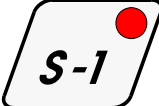
In case if entered code is wrong, "MIKSTER MCC 026" returns to the stand-by mode.
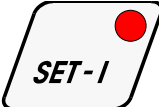
(current time is displayed).

In order to program the unit, user is required to enter preset parameters (step time, phase time, humidity, temperature, setting of actuators, program execution conditions) in suitable fields on the console. If you intend to modify selected program parameter, press the key of that parameter (active display will blink), and then press the following keys:

**＋ －** to set required parameter value.

In order to change step press button with appropriate step number:

**S-1** to **S-6**

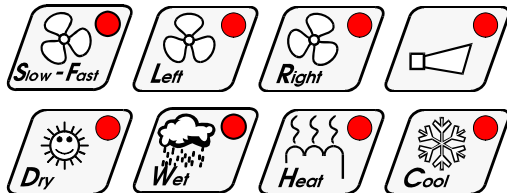- to carry out programming of the next program press the

**SET-I** key and proceed as above.

- to finish controller programming press the
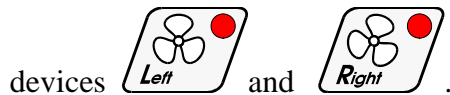
**PROG EDIT** or **STOP** keys.

## 5.1.1. SETTING EQUIPMENT STATE AND STEP TERMINATION CONDITION

In each step and phase user shall set state of actuators (whether particular device is to be on or off). In order to do this press the following keys:
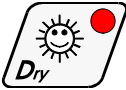


if particular device is to be on, then diode built-in in the key is on, otherwise the diode is off.

Standard software version does not allow simultaneous turning on of

devices  and  .

While programming, it is also possible to preset the step termination condition as a result of humidity increase or drop. In order to do that carry out the following procedure:

Each pressing of the  key is signalled in the following sequence:

*diode off* - indicates that drying control is off

*diode on* - indicates that drying control is on

*diode blinks* - drying control is on and the step termination condition will be set after humidity drops below its preset value

*diode off* - indicates that drying control is off, etc.

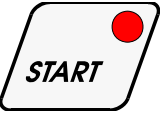Similarly, each pressing of the  key is signalled in the following sequence:

*diode off* - indicates that humidification control is off

*diode on* - indicates that humidification control is on

*diode blinks* - humidification control is on and the step termination condition will be set after humidity increases over its preset value

*diode off* - indicates that humidification control is off, etc.

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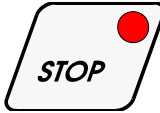## 5.2.   STARTING EXECUTION OF MIKSTER MCC 026 TECHNOLOGICAL PROGRAM

### 5.2.1.   IMMEDIATE START OF PROGRAM EXECUTION

The automatic step (unit actuation) may be activated, when MIKSTER MCC 026 is in the stand-by mode (current time is displayed).

In order to do that follow this procedure:

- press the **START** key (program number display field will blink);

- by pressing the **+** **−** keys

enter the number of program, which you intend to execute;

*(at that moment it is possible to interrupt the unit activation by pressing the* **STOP**

*key, if the key is pressed, MIKSTER MCC 026 returns to the stand-by mode, current time is displayed)*

- after entering program number, when you are sure that it is correct, press the **START** key (the unit will start operation).
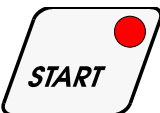
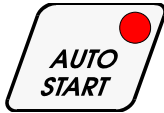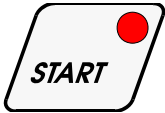### 5.2.2.   DELAYED START OF PROGRAM EXECUTION – AUTO-START

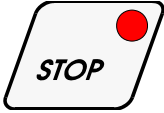The autostart function permits to actuate a unit at previously programmed hour.

In order to engage the autostart function do the following:

Press the **AUTO START** key.
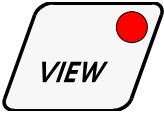
Then enter program number in the PROGRAM field, and then enter hour and minute of planned unit activation in the TIME STEP/CLOCK field.

As soon as the **START** key is pressed, the autostart function will activate.

*(diodes built-in in the* [AUTO START] *and* [START] *keys blink*

*current time and program number will be displayed)*

In order to disengage the autostart function press the [STOP] key.

While the autostart function is active, it is possible to display

the auto-start hour by pressing the [VIEW] key.

## 5.3.  MANUAL MODIFICATIONS OF TECHNOLOGICAL PROCESS PARAMETERS WHILE IN AUTOMATIC OPERATION MODE

During automatic operation it is possible to manually introduce corrections in a previously programmed program. In order to do that follow the procedure below:

- press the [PROG EDIT] key (all preset parameters of currently executed step will be displayed);

- introduce changes in the program in the same way as in point **5.1.**

- parameters of successive program steps are displayed after pressing keys in the STEP field. Blinking diode in selected step field confirms that currently displayed step is not being executed.

- the operation of manual data correction will be completed after pressing the [PROG EDIT] key again.

After completion of the above procedure all data will be copied to the controller memory and the device will respond to all introduced modifications.
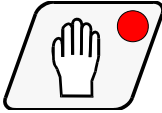
If data input is terminated in other step (phase) than the one previously executed, the unit will execute that step (phase), in which the operation of manual data correction was interrupted.

**CAUTION !**  IT IS IMPOSSIBLE TO MODIFY THE STATE OF ACTUATORS AND STEP TERMINATION CONDITIONS DURING PROGRAM EXECUTION.
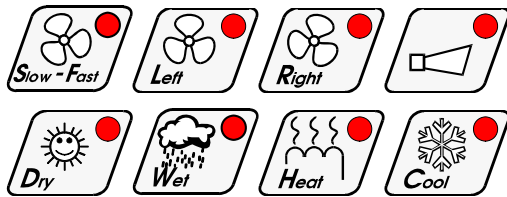
## 5.4. MANUAL OPERATION OF ACTUATORS

In order to activate actuators manually follow the procedure below:

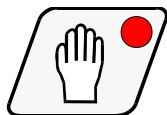*("MIKSTER MCC 026" shouldbe in the stand-by mode – current time is displayed)*

- press the  key;

- press the



keys in order to program appropriate controller output and switch on or off an actuator.

- when the



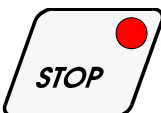key is pressed, the unit will quit the mode of automatic actuator operation.

## 6. PROGRAM EMERGENCY STOP SIGNALLING

In case of any breakdown during program execution (e.g. power decay) the moment of failure occurrence will be memorized, and then, after the cause of failure is removed, the program will continue its work from the moment of program execution interruption.

In this case on the TIME STEP/CLOCK display will cyclically show word -Error-, while the PROGRAM display will show error number -40-.

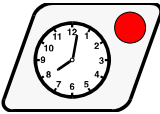Press the  key in order to switch off error signalling.

## 7. AUTOMATIC PROCESS INTERRUPTION

Press the  key in order to interrupt automatic process.
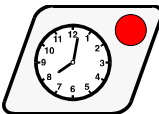
## 8.    REAL-TIME CLOCK PROGRAMMING

In order to set the real time clock do the following steps:

*(whle the controller displays current time and remains in the stand-by mode)*

- press the              key (real time clock display blinks);

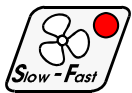- using the                 keys set proper time.

In order to finish entering real time:

- press the              key again.


## 9.    COUNTING DOWN DRYING CHAMBER OPERATION TIME

The MCC 026 controller is equipped with counter for counting down hours of drying chamber operation (fan operation time is counted). The counter allows to determine the degree of unit wear and to establish appropriate warranty conditions.
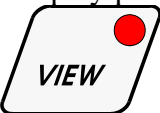
In order to have the counter displayed, press the

key, while the controller is in the stand-by mode (real time value is being displayed); the TIME STEP/CLOCK display will show number of the controller operation hours.
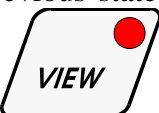

## 10.    MONITOR – PREVIEW OF TECHNOLOGICAL PROGRAM PRESET PARAMETERS

In order to display preset parameters of the technological program without being able to modify

them, press the              key.

*(preset parameters of the technological (manufacturing) process will be displayed)*

Return to previous state will be automatic after time defined in the SET-UP **F12** function or

after pressing the              key again.