

# Industrial Microprocessor Controller



## INDU-21

*Intended for;  
Vacuum devices, mixers*

**MIKSTER**  
Sp. z o.o.  
41-250 Czeladź ul. Wojkowicka 21  
POLAND  
Tel. +48 32 763 -77- 77,  
Fax: +48 32 763 -75 -94  
[www.mikster.com](http://www.mikster.com) [mikster@mikster.com](mailto:mikster@mikster.com)

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## 1. Front Panel

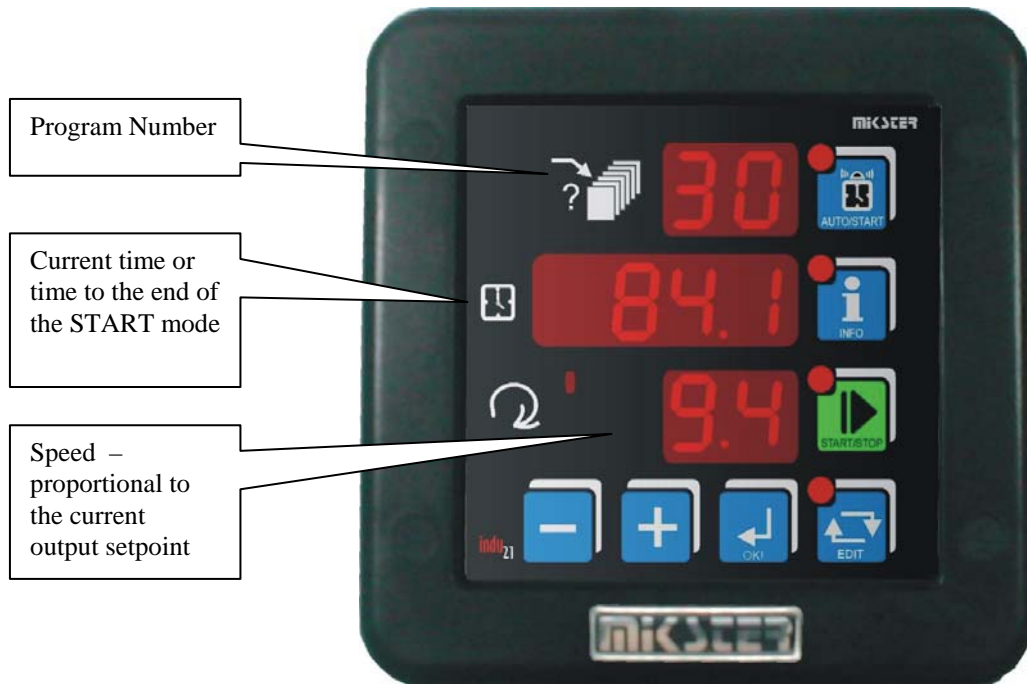


Fig. INDU21 Front Panel

## 2. Technical Specifications

Display	LED ½ " x 2 digits LED ½ " x 4 digits LED ½ " x 2 digits
Power Supply	230 optionally (110)(24) VAC ± 10%
Keyboard	7 keys (microswitches)
Enclosure dimensions	134x134x65 mm
Rack mount opening	90x90 mm
Inputs	Closing Close contact maximum resistance: 100 Ω Open contact minimum resistance: 10000 Ω
Outputs	1 current output: 4..20 mA 1 closing relay output: (250 VAC/8A) 3 switching relay outputs (250 VAC/8A)
Protection	IP67 (front side)
Power input	3 W
Programming	100 programs + setpoint editing function

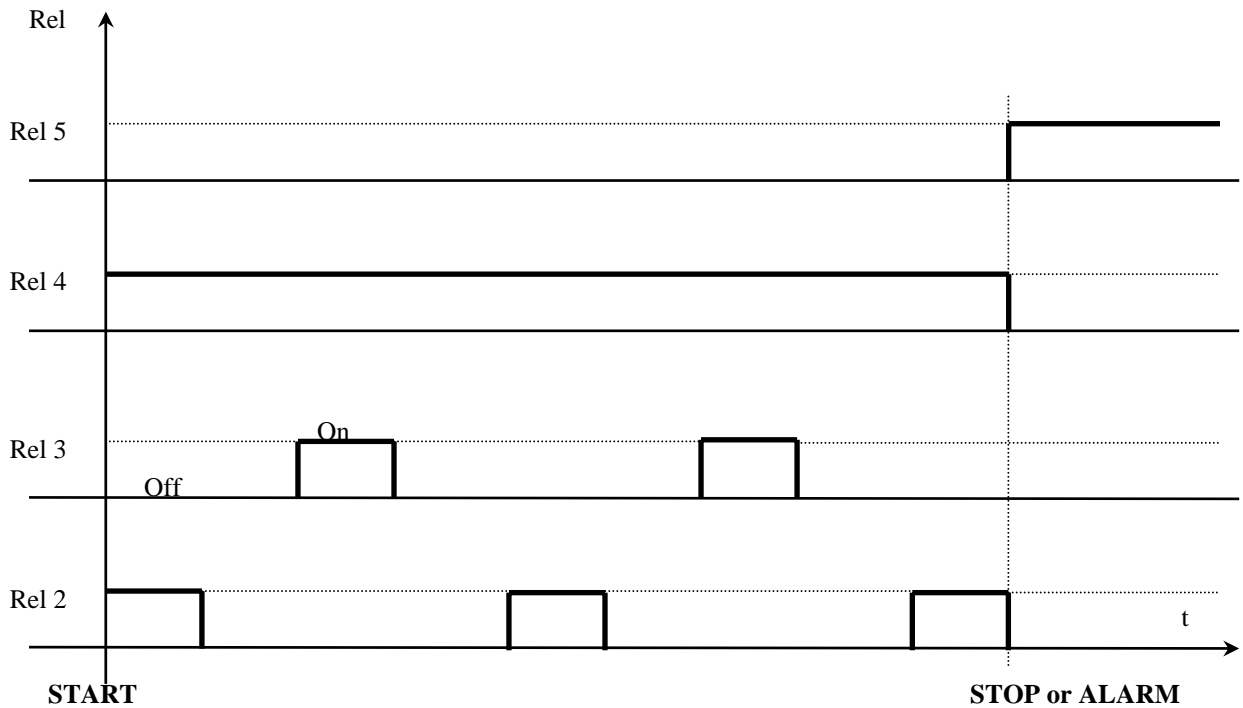
### 3. Process Start

Press the START key to start the process – the STAR key is lit, select the required program with the PLUS / MINUS keys and confirm your choice by pressing OK.

Press the STOP key to cancel.

The START key flashes when the START mode is running.

When the START mode is running the REL4 output is set and the time to the process stop is shown on the middle LED display.



### 4. Process Stop

The process can be stopped at any moment by switching into the STOP mode. To do it press the STOP key. The display shows “STOP” and the REL5 output is set.

Press OK to confirm.

### 5. Programming and Setpoint Changing

When settings are to be modified, press the EDIT key and select the edit program on the upper display. Press OK to confirm and change settings with the PLUS / MINUS keys.

Press OK to move to the next parameter.

To quit the Edit mode press the EDIT key once again.

The edit mode allows the following values to be modified:

Cycle Time in hours and Cycle Time in minutes

Speed– proportional to the current output setpoint

## **6. Autostart**

You can program a delayed start of the controller. To do it press the AUTOSTART key (both the LED and program No. flash). Change the program No. with the PLUS / MINUS keys and confirm by pressing OK. Enter the Autostart parameters into the Setup menu (SF2 - AUTOSTART Parameter Format). Enter parameters with the PLUS / MINUS keys and move to the next parameter by pressing OK.

The counting down the time to Start (after pressing the START key) is indicated by concurrent flashing of the AUTOSTART and START keys.

The Autostart mode can be immediately stopped by pressing the AUTOSTART key or switched into the Start mode by pressing the START key.

## **7. Info**

By pressing the INFO key you can display the following information depending on the controller operating mode:

For the Start mode: current time is displayed

For the Autostart mode: according to the Setup item (SF2) :

if SF2=H Π – hours and minutes to Start

if SF2=HΠ d –hour, minute (daily delay) of Start

Press the INFO to quit the Info mode.

## **8. User's Settings**

Press and hold down the MINUS key and then press the PLUS key to enter the user's settings. The display shows UF x indicating the item number. Change the item with the PLUS / MINUS keys. Quit editing by pressing OK.

Available items:

UF 0 – real time clock settings: change values with the PLUS / MINUS keys, move to the next parameter by pressing OK. Quit by pressing the EDIT key.

Clock parameters:

Ho – hour

Mi – minute

Ye – year

Mo – month

dA - day

UF 1 – changing the user's setting access code : 0 disabled, range: 1..9999

UF 2 –software version info

UF 3 – keyboard click ON/OFF

UF 3=0 - OFF

UF 3=1 - ON

## 9. Setup

Press and hold down the MINUS key and then press the EDIT key to open the Setup menu. The display shows “F” indicating the Setup item number. Change the item number with the PLUS / MINUS keys. Edit the highlighted item by pressing OK. Quit by pressing the EDIT key.

Setup items:

Item Number	Default value	Range	Description
F0	1	0..247	MODBUS network address
F1	0	0..4	Baud rate 0 – 9600 1 – 19200 2 – 38400 3 – 57600 4 – 115200
F2	НП D	НП D / НП	AUTOSTART Parameter Format НП D – hour, minute and daily delay of START НП – hours and minutes to START
F3	5	0..10 hour	Maximum period in hours after which the controller does not return into the START mode after power failure
F4	20	0..9999	PAUSE in seconds for the REL2 and REL3 outputs
F5	10	0..9999	REL2 set time in seconds
F6	10	0..9999	REL3 set time in seconds
F7		0..9999	Setup access code change SF7=0 code is disabled
F8	0	0..4	Control Input 1 operation: 0 – operation disabled 1 – alarm when close 2 – alarm when open 3 – keyboard blockage when close 4 – keyboard blockage when open

F9	0	0..4	Control Input 2 operation: 0 – operation disabled 1 – alarm when close 2 – alarm when open 3 – keyboard blockage when close 4 – keyboard blockage when open
F10	99	0..99	Speed setpoint corresponding to 20mA on the current output
F11	1	0..1	Output range selection: 0 – 0..20 mA 1 – 4..20 mA
F12	0	0..1	Base time selection: 0 – hours : minutes 1 – minute : seconds

## **10. Alarms**

Err 1 – Control Input 1 alarm  
Err 2 – Control Input 2 alarm

The controller is quipped with two control inputs. If alarm is enabled (in controller Setup) for the given input the process is stopped after an alarm is activated and alarm message is displayed.

The alarm shall be acknowledged by pressing OK. Should the cause of alarm is not cleared, the controller indicates the alarm once again.

Alarms are configured with the SF8 and SF9 Setup items.

## **11. Notes**