

433 MHz WIRELESS SYSTEM CONTROLLER

MTX-300

Firmware version 1.00

WARNING

The device should be installed by qualified personnel.

Prior to installation, please read carefully this manual in order to avoid mistakes that can lead to malfunction or even damage to the equipment.

Disconnect power before making any electrical connections.

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

SATEL's goal is to continually upgrade the quality of its products, which may result in some changes of their technical specifications and firmware. The current information on the introduced modifications is available on our website.

Please visit us:
<http://www.satel.eu>

Hereby, SATEL sp. z o.o., declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The declaration of conformity may be consulted at www.satel.eu/ce

The following symbols may be used in this manual:



- note;



- caution.

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1. Introduction

The MTX-300 controller can be used for expansion of an alarm system or an automation system by adding wireless devices and keyfob control capability. The controller interacts with the alarm system or automation system by means of outputs and inputs/zones.

The controller supports the following devices:

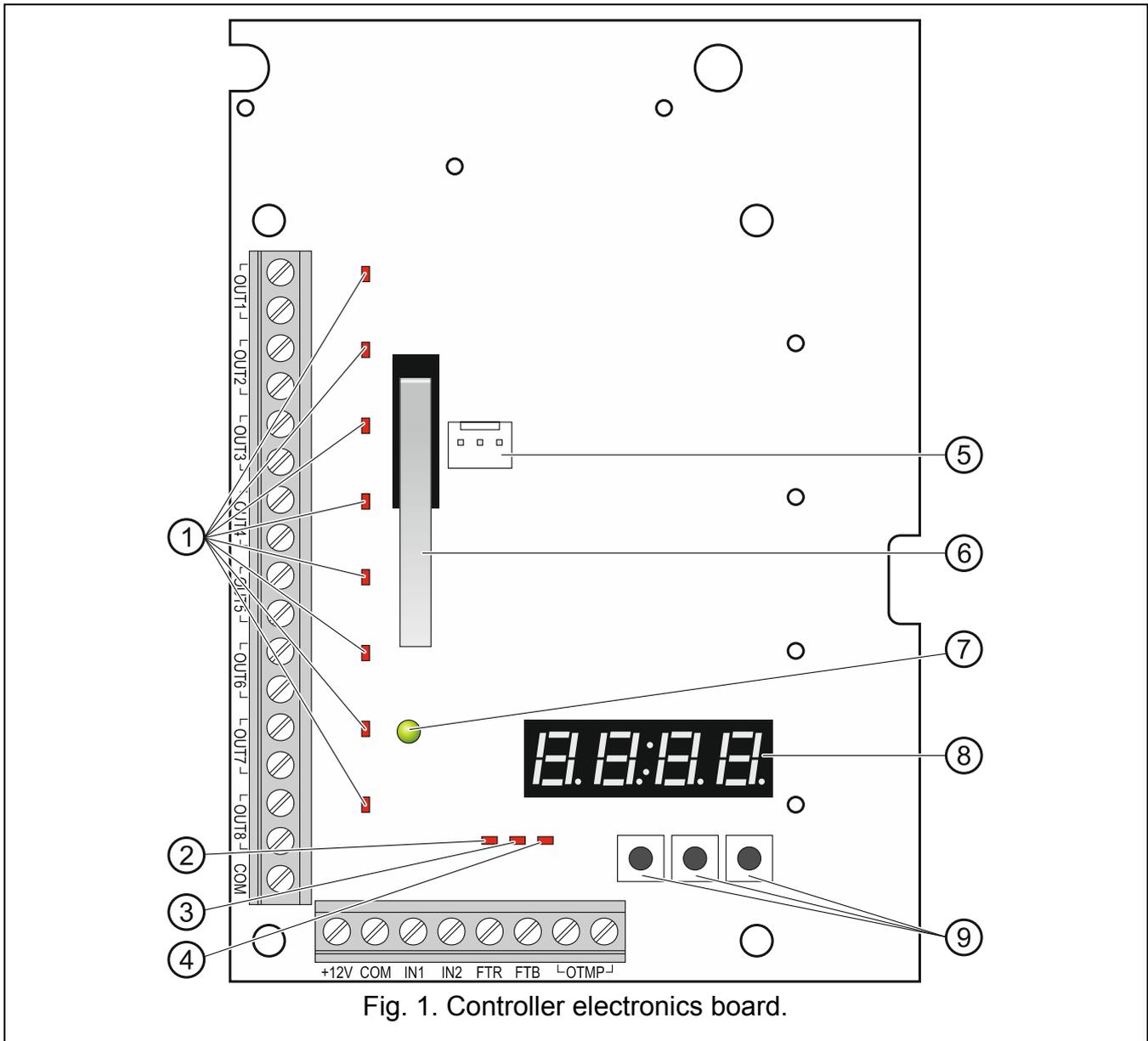
- keyfobs
 - MPT-300** – 5-button keyfob
 - T-4** – 4-button keyfob
 - T-2** – 2-button keyfob
 - T-1** – 1-button keyfob
 - P-4** – 4-button keyfob
 - P-2** – 2-button keyfob
- detectors
 - MFD-300** – wireless water flood detector
 - MGD-300** – wireless glass-break detector
 - MMD-300** – wireless magnetic contact
 - MMD-302** – wireless magnetic contact with input for roller shutter detector
 - MPD-300** – wireless passive infrared detector
 - MSD-300** – wireless smoke and heat detector
- siren
 - MSP-300** – wireless outdoor siren

2. Features

- Built-in 433 MHz radio transceiver.
- Support for 433 MHz radio devices manufactured by SATEL:
 - up to 32 keyfobs,
 - up to 16 detectors,
 - up to 4 sirens.
- Encrypted transmissions from wireless detectors.
- Two-way encrypted communication with wireless sirens.
- Transmissions from keyfobs dynamically secured with KeeLoq rolling code.
- Up to 6 control functions available from keyfob.
- 8 programmable relay outputs:
 - control by means of detectors or keyfobs,
 - ability to simultaneously control several outputs with a single keyfob button.
- Relay output to provide information about tamper of controller and wireless devices.
- OC type output to indicate loss of communication with wireless devices.
- OC type output to indicate low battery in keyfob, detector or siren.
- 2 programmable inputs to control sirens.
- 4-character LED display for easy programming and diagnostics.
- Programming by means of on-board buttons or MTX SOFT program.
- Tamper memory.

- Opto-isolated electronic relays.
- Tamper switch activated upon cover removal.

3. Electronics board



- ① LEDs indicating the status of programmable relay outputs (LED is ON when relay contacts are shorted).
- ② LED indicating the status of FTR output (LED is ON when the output is connected to common ground).
- ③ LED indicating the status of FTB output (LED is ON when the output is connected to common ground).
- ④ LED indicating the status of OTMP relay output (LED is ON when relay contacts are shorted).
- ⑤ RS-232 port (TTL standard) for programming of the controller and updating of controller firmware. To connect the controller to a computer, you can use the USB-RS converter, which is offered by SATEL.

- ⑥ tamper switch.
- ⑦ bi-color LED to indicate the following states:
 - steady on green – the controller and wireless devices running normally (a red flash indicates that transmission has been received from a wireless device),
 - flashing green – service mode is on or connection with MTX SOFT program is in progress,
 - flashing alternately green and red – a problem with wireless device (low battery, not available or tamper).
- ⑧ display.
- ⑨ buttons (see: Fig. 2, p. 7).

Description of terminals:

OUT1...OUT8 - programmable relay outputs.

COM - common ground.

+12V - power input (+12 V DC).

IN1, IN2 - programmable inputs for signaling control (control from OC type outputs or relay outputs).

FTR - OC type output indicating that there is no radio communication with wireless devices for which the "Presence control" option is enabled (the output is active until the controller receives transmission from the device).

FTB - OC type output indicating that there is low battery in keyfob, detector or siren (the output is active until the controller receives transmission with OK battery information).

OTMP - relay output indicating that there is tamper of controller or wireless devices (the output is active until tamper restore).

4. Installing the controller



Disconnect power before making any electrical connections.

The electrical installation must be provided with a 2-pole disconnecter.

Be careful not to make any damage to the antenna printed on the controller electronics board.

The controller should be installed indoors, in spaces with normal air humidity. Before starting installation, it is advisable to plan out the arrangement of all wireless devices which are to be operated by the controller. Select the installation place so that these devices are within the controller range. Remember that thick walls, metal partitions etc. may diminish the range of radio signal. It is recommended that the controller be mounted high above the floor. This will allow you to get a better range of radio communication and avoid the risk of the controller being accidentally obstructed by personnel moving around the premises. Installing the controller in the immediate vicinity of electrical installations is not recommended, as it may cause malfunctioning of the device.

1. Loosen the cover locking screws and remove the enclosure cover.
2. Remove the fixing screws of electronics board and take out the electronics board.
3. Make openings for controller power cables and inputs / outputs cables in the enclosure base. The openings must not have sharp edges.

4. Run the cables through the opening made. Nominal cross-section area of the power conductors shall be $\geq 0.5 \text{ mm}^2$.
5. Using wall plugs (screw anchors) and screws, secure the enclosure base to the wall. Use the wall plugs (screw anchors) suitable for the specific mounting surface (concrete wall, drywall, etc.). The screw anchors must ensure adequate mechanical strength.
6. Using screws, install the electronics board in the enclosure.
7. Screw the wires to the terminals on the electronics board.
8. Power on the controller. The device must be supplied from a limited power source.
9. Program the controller (register wireless devices in the controller and configure them).
10. Replace the cover and lock it with screws.

5. Installing wireless devices

Do not install the wireless detectors and sirens permanently before registering them in the controller. After registering a wireless device, you can check the level of radio signal received by the controller from that device (see section “Diagnostics” p. 20). This will enable you to select the installation location which is optimal in terms of radio communication. If the radio signal level at the planned installation place is too low, select another location. Sometimes it is sufficient to move the device ten or twenty centimeters to obtain a significant improvement of signal quality.

For detailed description of how to install the wireless devices, please refer to the manuals attached to respective devices.

6. Programming the controller

The controller can be programmed by using:

- buttons available on the electronics board (service mode),
- computer with MTX SOFT program installed, connected to controller RS-232 (TTL) port.



When the service mode is on or communication with MTX SOFT program is in progress, you cannot control the sirens by using inputs and tamper alarm signaling on the sirens is blocked.

6.1 Service code

Before starting programming, authorization is required by means of the service code. The code consists of 4 characters. By default, the 1111 code is preprogrammed. You should change the factory code as soon as possible. The new code may consist of digits and letters from A to F.

6.2 Programming using buttons

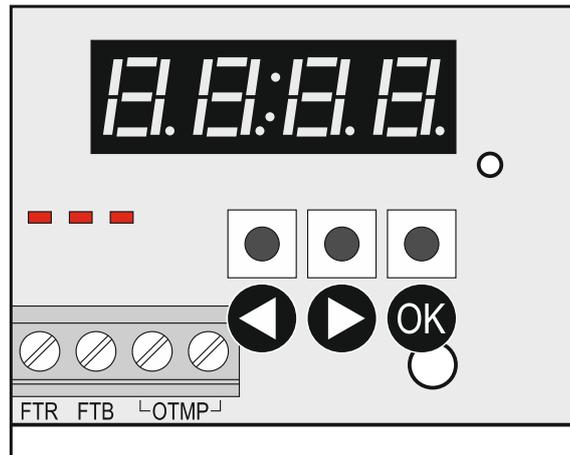


Fig. 2. Symbols of controller buttons which are used in this manual.

6.2.1 Entering service mode

1. Press simultaneously the ◀ and OK buttons (see Fig. 2) and hold them down for about 4 seconds, until flashing digit 1 appears in the first position on the display.
2. Press repeatedly the ◀ or ▶ button to enter the first character of service code.
3. Confirm the first character using the OK button. Flashing digit 1 will appear in the next position on the display.
4. Repeat steps 2 and 3 to enter next characters of the code.
5. After entering the whole 4-character code you will get access to the menu (F. 1 function will be displayed).



Entering a wrong code three times will block access to the service mode for 90 seconds (entering a wrong code again, after this time has elapsed, will block the service mode at once).

6.2.2 Button functions



- press to display the previous function or value.



- press to display the next function or value.



- press to run function or confirm selection.

6.2.3 Exiting service mode or function

1. Scroll through the list using the ◀ or ▶ button until E n is displayed.
2. Press the OK button.



If no wireless siren is registered in the controller, the service mode will be automatically terminated 5 minutes after the last button press.

6.2.4 List of service functions



The F. 2, F. 3 and F. 4 functions are available, if configurable devices are registered in the controller. If no device of the given type (keyfob / detector / siren) is registered,

the HOME message will be displayed after running the function and you will be taken back to the main menu.

<i>F. 1</i>		adding keyfobs, detectors and sirens
<i>ADD</i>		add keyfob, detector, siren
<i>END</i>		exit function
<i>F.2</i>		configuring keyfobs
<i>F. [+number]</i>		select keyfob
<i>INFO</i>		check serial number of keyfob
<i>CFG</i>		configure keyfob
<i>CF. [+number]</i>		information that keyfob copies the keyfob with indicated number
<i>OR IG</i>		assign outputs to buttons (configure keyfob with individual settings)
<i>b 1.</i>		define response of outputs to pressing button 1 (graphic information on controlled outputs is displayed after dot)
<i>b 2.</i>		define response of outputs to pressing button 2 (graphic information on controlled outputs is displayed after dot)
<i>b 3.</i>		define response of outputs to pressing button 3 (graphic information on controlled outputs is displayed after dot)
<i>b 4.</i>		define response of outputs to pressing button 4 (graphic information on controlled outputs is displayed after dot)
<i>b 5.</i>		define response of outputs to pressing button 5 / buttons 1 and 2 (graphic information on controlled outputs is displayed after dot)
<i>b 6.</i>		define response of outputs to pressing buttons 1 and 3 (graphic information on controlled outputs is displayed after dot)
<i>END</i>		exit function
<i>COPY</i>		select keyfob to be copied
<i>END</i>		exit function
<i>DEL</i>		delete keyfob
<i>END</i>		exit function
<i>END</i>		exit function
<i>F.3</i>		configuring detectors
<i>d. [+number]</i>		select detector
<i>INFO</i>		check serial number of detector
<i>CFG</i>		configure detector
<i>a.</i>		define response of output to detector violation (graphic information on controlled output is displayed after dot)
<i>RG.</i>		enable/disable presence control (information on whether function is enabled or not is shown after dot)
<i>END</i>		exit function
<i>DEL</i>		delete detector
<i>END</i>		exit function
<i>END</i>		exit function
<i>F.4</i>		configuring sirens
<i>S. [+number]</i>		select siren
<i>INFO</i>		check serial number of siren

<i>CFG</i>	configure siren
<i>in.</i>	select inputs which trigger signaling (information on which inputs trigger signaling is displayed after dot)
<i>rc.</i>	enable/disable presence control (information on whether function is enabled or not is shown after dot)
<i>End</i>	exit function
<i>DEL</i>	delete siren
<i>End</i>	exit function
<i>End</i>	exit function
<i>F.5</i>	programming times
<i>t.o 1</i>	program 1. output cut-off time
<i>t.o 2</i>	program 2. output cut-off time
<i>t.o 3</i>	program 3. output cut-off time
<i>t.o 4</i>	program 4. output cut-off time
<i>t.o 5</i>	program 5. output cut-off time
<i>t.o 6</i>	program 6. output cut-off time
<i>t.o 7</i>	program 7. output cut-off time
<i>t.o 8</i>	program 8. output cut-off time
<i>t.rc</i>	program maximum no-communication time (presence control)
<i>t.s 1</i>	program maximum signaling time for siren 1
<i>t.s 2</i>	program maximum signaling time for siren 2
<i>t.s 3</i>	program maximum signaling time for siren 3
<i>t.s 4</i>	program maximum signaling time for siren 4
<i>End</i>	exit function
<i>F.6</i>	configuring outputs and inputs
<i>o 1.</i>	configure output OUT1 (information on whether it is programmed as NO or NC is displayed after dot)
<i>o 2.</i>	configure output OUT2 (information on whether it is programmed as NO or NC is displayed after dot)
<i>o 3.</i>	configure output OUT3 (information on whether it is programmed as NO or NC is displayed after dot)
<i>o 4.</i>	configure output OUT4 (information on whether it is programmed as NO or NC is displayed after dot)
<i>o 5.</i>	configure output OUT5 (information on whether it is programmed as NO or NC is displayed after dot)
<i>o 6.</i>	configure output OUT6 (information on whether it is programmed as NO or NC is displayed after dot)
<i>o 7.</i>	configure output OUT7 (information on whether it is programmed as NO or NC is displayed after dot)
<i>o 8.</i>	configure output OUT8 (information on whether it is programmed as NO or NC is displayed after dot)
<i>o t.</i>	configure output OTMP (information on whether it is programmed as NO or NC is displayed after dot)
<i>o r.</i>	configure output FTR (information on whether it is programmed as NO or NC is displayed after dot)

<i>o b.</i>	configure output FTB (information on whether it is programmed as NO or NC is displayed after dot)
<i>i 1.</i>	configure input IN1 (information on whether it is programmed as NO or NC is displayed after dot)
<i>i 2.</i>	configure input IN2 (information on whether it is programmed as NO or NC is displayed after dot)
<i>E n d</i>	exit function
<i>F. 7</i>	programming signaling parameters
<i>1 A.</i>	program signaling triggered by input IN1 (information on selected signaling type is displayed after dot)
<i>2 A.</i>	program signaling triggered by input IN2 (information on selected signaling type is displayed after dot)
<i>1 P.</i>	enable/disable priority for signaling triggered by input IN1 (information on whether priority is enabled or not is displayed after dot)
<i>2 P.</i>	enable/disable priority for signaling triggered by input IN2 (information on whether priority is enabled or not is displayed after dot)
<i>E n d</i>	exit function
<i>F. 8</i>	changing service code
<i>d i A G</i>	run diagnostic menu (see "List of diagnostic functions" p. 21)
<i>E n d</i>	exit function

6.3 Programming using MTX soft program

6.3.1 Establishing connection

1. Connect the controller RS-232 (TTL) port with the computer using the USB-RS converter offered by SATEL.
2. Run the MTX SOFT program.
3. In the "Times/outputs" tab, "Service code" field, enter the code programmed in the controller (you do not need to enter the factory default code).
4. Click on the  button.
5. Select the port through which communication is to take place and click on the OK button.
6. The program will establish communication with the controller and a prompt asking whether to read the data will be displayed. The *P I* message will show up on the controller display.



*When the *P I* message is being displayed, the controller buttons are inactive.*

6.3.2 Program description

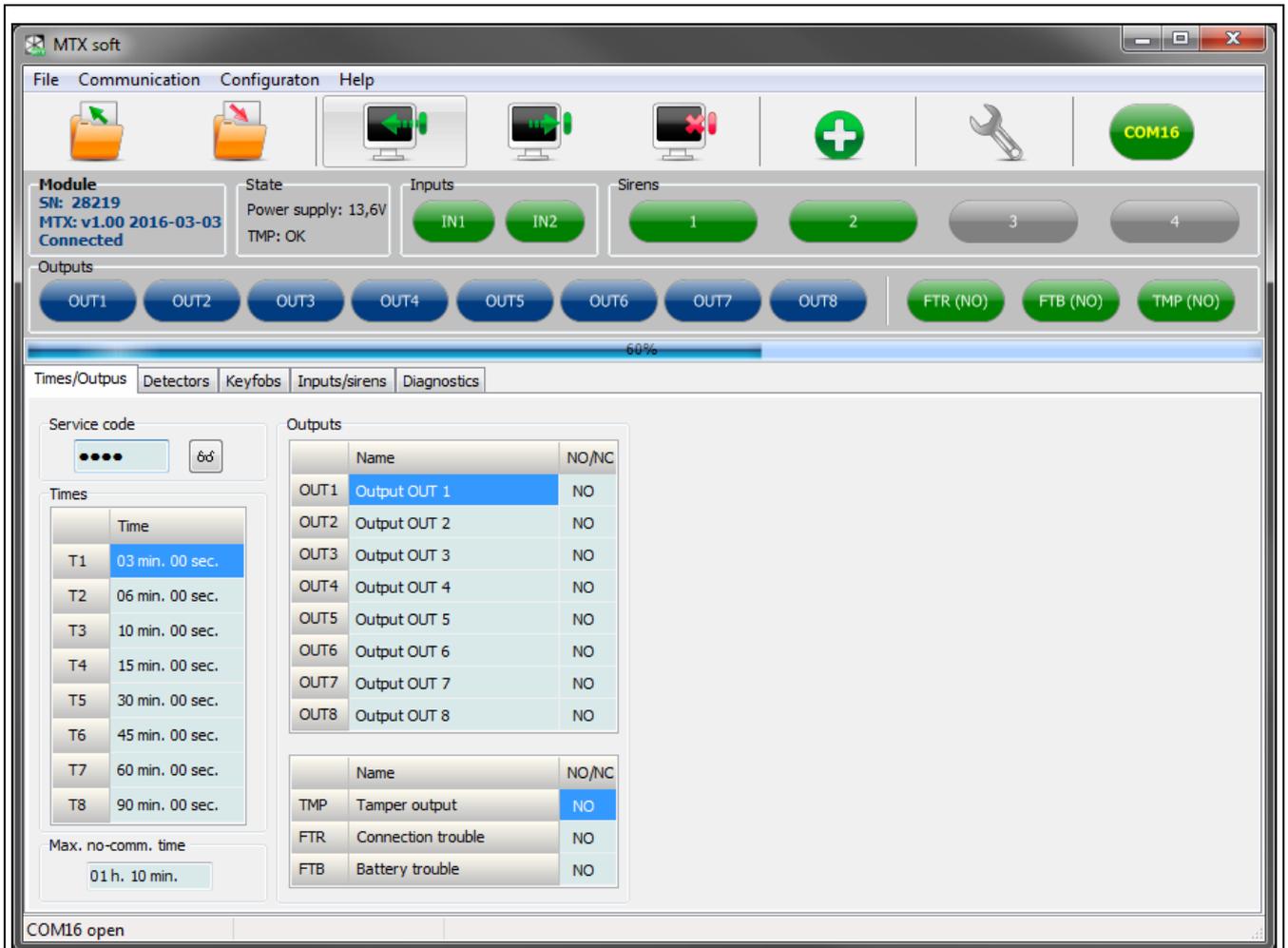


Fig. 3. Window of MTX SOFT program.

Buttons



click to open controller data file



click to write controller data to file



click to read controller data



click to write data to controller (after making any changes e.g. after adding device, configuring device etc.)



click to interrupt read / write process



click to add new device (keyfob, detector, siren)



click to indicate computer port through which communication with controller is to take place



After data have been written to the controller, the status of programmable relay outputs may change (they will be turned off).

Status information

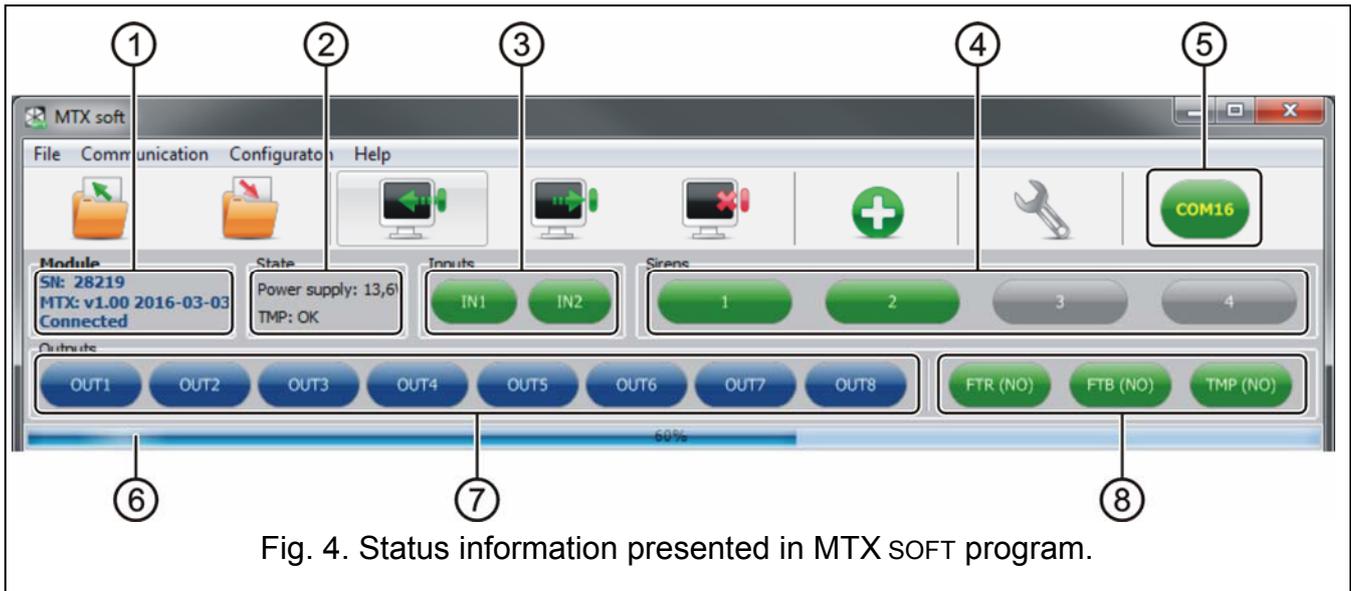


Fig. 4. Status information presented in MTX SOFT program.

- ① controller serial number and firmware version.
- ② current supply voltage and status of tamper switch.
- ③ input status:
green – normal,
red – violation.
- ④ siren status:
gray – not added,
green – standby,
light-green – communication in progress,
red – signaling in progress,
yellow – no communication.
Click on the indicator to trigger the selected type of signaling for testing purposes.
- ⑤ number of COM port through which communication takes place, and port status:
gray – disabled,
green / light-green (alternately) – communication in progress.
- ⑥ information on data read / write progress.
- ⑦ status of programmable relay outputs:
blue – off,
orange – on.
- ⑧ status of FTR, FTB and OTMP outputs (information on current output configuration in brackets):
green – off,
red – on.

Tabs

In the tabs, you can configure the controller, detectors, keyfobs and sirens, as well as use diagnostic tools.

Times/Output						Detectors	Keyfobs	Inputs/sirens	Diagnostics
	Name	Serial no.	Detector type	Output	Presence c.				
1	Entry door	0000135	1: MMD-300 (Magn.	...					
2	L. room window	0000134	1: MMD-300 (Magn.						
3	Kitchen window	0000145	1: MMD-300 (Magn.						
4	L. room PIR	0005628	2: MPD-300 (PIR)						
5	Bedroom PIR	0006739	2: MPD-300 (PIR)						
6	Kitchen	0989873	3: MSD-300 (Smoke						
7	Bathroom	0002443	5: MFD-300 (Flood [
8									
9									
10									
11									
12									
13									
14									
15									
16									

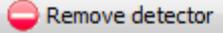
 Remove detector

Fig. 5. "Detectors" tab.

Times/Output										Detectors	Keyfobs	Inputs/sirens	Diagnostics
	Name	Serial no.	Config.	1	2	3	4	1+2	1+3				
1	John Smith	0169432	ORG.	OUT1,7	OUT1,7	OUT2, On	OUT2, Off	OUT3, On					
2	Mary Smith	0034526	1	OUT1,7	OUT1,7	OUT2, On	OUT2, Off	OUT3, On					
3	Peter Smith	0054245	ORG.	OUT1, On	OUT1, Off								
4	Mark Smith	0097896	3	OUT1, On	OUT1, Off								
5	Fiona Smith	0074128	ORG.	OUT1,4	OUT1,4	OUT5, 1 mir	OUT6, PULSI						
6	Eve Smith	0006325	5	OUT1,4	OUT1,4	OUT5, 1 mir	OUT6, PULSI						
7	Daniel Smith	0024914	5	OUT1,4	OUT1,4	OUT5, 1 mir	OUT6, PULSI						
8			ORG.										
9			ORG.										
10			ORG.										

 Remove keyfob

Add Edit Remove

Fig. 6. "Keyfobs" tab.

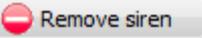
Times/Output		Detectors	Keyfobs	Inputs/sirens	Diagnostics	
Inputs						
	Name	NO/NC	Acoust./opt.signaling		Priority	
IN1	Status	NO	14: Arm/Disarm sign. (acoustic+c...		X	
IN2	Alarm	NO	7: Sound A + optic.			
Sirens						
	Name	Serial no.	IN1	IN2	Time	Presence c.
1	MSP-300: 700488	0700488	X	X	1 min. 00 sec.	X
2	MSP-300: 700489	0700489	X	X	1 min. 00 sec.	X
3					0 min. 10 sec.	
4					0 min. 10 sec.	
						

Fig. 7. "Inputs/sirens" tab.

6.4 Description of parameters and options

Output cutoff time – time during which the relay output will be on. You can program 8 different cutoff times ranging from 1 second to 99 minutes 59 seconds [minutes:seconds]. Additionally, 4 non-editable cutoff times are available.

Maximum no-communication time – if the period of no communication with a detector or siren exceeds the preprogrammed time, the FTR output will turn on ("Presence control" option must be enabled for the detector or siren). You can program the time within the range of 20 minutes to 49 hours 50 minutes [hours:minutes].



After a new "Maximum no-communication time" value has been programmed in the service mode, a restart of the presence control function will follow.

Maximum signaling time – signaling will be stopped automatically by the siren after the preprogrammed time has elapsed (even if the input is still on). The parameter is to be programmed individually for each siren. You can program the time within the range of 10 seconds to 3 minutes [minutes:seconds].

NO / NC – inputs / outputs can work as NO (normally open) or NC (normally closed).

Priority – option available for inputs. If the option is enabled, the input will always trigger signaling, i.e. even when signaling triggered by the other input is taking place (that signaling will be stopped). If the option is disabled, the input will not trigger any signaling, as long as signaling triggered by the other input is taking place.

Presence control – if the option is enabled, availability of detector / siren is monitored (see "Maximum no-communication time").

Name – individual name of the input, output or wireless device. You can only program the name using the MTX SOFT program.

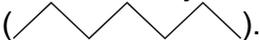
6.5 Description of signaling

6.5.1 Acoustic signaling

Sound A – two sound frequencies (1450 Hz/2100 Hz) alternating within 1 second
.

Sound B – sound with rising frequency (from 1450 Hz to 2100 Hz) within 1 second
.

Sound C – sound with falling frequency (from 2100 Hz to 1450 Hz) within 1 second
.

Sound D – sound with smoothly rising and falling frequency (1450 Hz – 2100 Hz – 1450 Hz) within 1 second
.

Fire signal – intermittent sound with 1450 Hz frequency.

Arming / disarming signal – triggering the input will trigger an arming signal (1 squawk), end of triggering – a disarming signal (2 squawks) / alarm clearance signal (4 squawks – if, when the input was triggered, another input became triggered, which trigger alarm signaling).

6.5.2 Optical signaling

Alarm signal – flashing fast (if its fire alarm: flashing fast for one second – one second pause – flashing fast for one second – one second pause, etc.).

Arming / disarming signal – triggering the input will trigger an arming signal (1 flash), end of triggering – a disarming signal (2 flashes) / alarm clearance signal (4 flashes – if, when the input was triggered, another input became triggered, which trigger alarm signaling).

6.6 Adding keyfob, detector or siren

6.6.1 Using controller buttons

1. Run the $F. 1$ function and then $F. 2 2$ function.
2. Within 30 seconds (time countdown is shown on the display), press a keyfob button or open the tamper switch on detector or siren.
3. Part of the serial number of device from which transmission has been received will appear on the display. Press the  button to see next digits of the serial number. A dot is displayed after the last digit of the serial number.



If transmission from an already registered device is received, suitable information will be displayed and the countdown will be restarted.

4. If the serial number is correct, press the  button on the controller (when adding a keyfob, you can press the keyfob button instead of the  button and thus skip the step 5).
5. When $H E 5$ is displayed, press the  button again.
6. This will automatically start the function that allows you to configure the device ($F. 2$ - keyfob, $F. 3$ - detector, $F. 4$ - siren).

6.6.2 Using MTX soft program

1. Click on the  button. This will open the “New device” window.

2. Press the keyfob button or open the tamper switch in detector or siren. Information on the device from which transmission has been received will be displayed: device type and its serial number.



If transmission is received from an already registered device, suitable information will be displayed. Click on the “Retry” button to proceed with adding the device.

3. If the type and serial number of the device are correct, press the keyfob button again after the “Repeat” message is displayed, or open again the tamper switch in detector or siren. A message will be displayed to inform you that the device has been added.
4. Click on the “OK” button to close the window. You can also press the “Next” button to proceed at once to adding another wireless device.

6.7 Configuring keyfobs

Having added a keyfob, define which controller outputs and how are to respond to pressing a button (combination of buttons). You can always assign one controller output to a button (combination of buttons). It is possible to assign up to eight outputs. Each next output to be controlled by a button is an additional assignment. The limit of additional assignments is 100. For example, if the button controls 5 outputs, this means that 4 additional assignments have been used up. After the limit has been used up, programming any additional assignments will be impossible (in the case of programming using controller buttons, the $F \square \square \square \square$ message will be displayed).

When configuring the keyfob you can decide that it is always to operate in the same way as the keyfob previously configured. Such a solution makes it possible to reduce the time intended for configuring keyfobs. If the keyfob has no own settings, but operates in exactly the same way as another keyfob, you will be informed of it by the $\square \square F_i [+number]$ message on the controller display, and in the MTX SOFT program – by the keyfob number displayed in the “Config.” column.

6.7.1 Using controller buttons

Programming individual settings

1. Run the $F \square \square$ function.
2. Select the keyfob you want to configure and press the **OK** button.
3. Run the $\square F \square$ function and then the $\square \square \square \square$ function.
4. Select the keyfob button to be configured and press the **OK** button.
5. Select the output to be controlled using keyfob button, and then press the **OK** button.
6. Select how the output is to respond to pressing a keyfob button ($\square \square \square \square$ - no response, $\square \square$ - output will be on, $\square F F$ - output will be off, $\square \square$ - output status will change to opposite, $\square \square \square \square$ - output will be on as long as keyfob button is pressed, [minutes:seconds] – output will be on for a selected period of time (the dot after seconds means that this time setting can be edited using functions $F \square \square$), and then press the **OK** button.
7. If the button is to control several outputs, repeat steps 5-6.
8. Repeat steps 4-7 to configure the other keyfob buttons.



Starting the $\square \square \square \square$ function in the event of keyfob whose operation copies another keyfob (of which you are informed by the $\square \square F_i [+number]$ message) will save individual settings based on the settings of copied keyfob. If, after the $\square \square \square \square$ function is started, the $F \square \square \square \square$ message is displayed for a while, the settings cannot

be saved because the limit of additional assignments has been used up. Restarting the $\square \square \square \square$ function will allow to configure the keyfob settings anew.

Indicating keyfob whose operation is to be copied by the keyfob

1. Run the $F. \square \square$ function.
2. Select the keyfob you want to configure and press the **OK** button.
3. Run the $\square \square \square \square$ function and then the $\square \square \square \square$ function.
4. Select keyfob whose operation is to be copied by the keyfob and press the **OK** button.



The $\square \square \square \square$ function is available, if individual settings are programmed in at least one keyfob.

6.7.2 Using MTX soft program

Keyfobs are configured in the “Keyfobs” tab.

Programming individual settings

1. Click on the field in a column designated by number / button symbol (combination of buttons).
2. Click on the “Add” button. Context menu will be displayed.
3. Select the output and define how it should respond to pressing the keyfob button (ON – output will be on, OFF – output will be off, BI – output status will be changed to opposite, Mono – output will be on for the specified time period (if you select “PULSE”, the output will be enabled as long as the keyfob button is pressed)).
4. If the button is to control several outputs, repeat steps 2-3.
5. Repeat the above steps to configure the remaining buttons.

Indicating keyfob whose operation is to be copied by the keyfob

1. Click on the keyfob you want to configure.
2. Click on the $\square \square \square$ button in the “Config.” column. Context menu will be displayed.
3. Select keyfob whose operation is to be copied by the keyfob.

6.8 Configuring detectors

Detector can control one controller output. Having added a detector, select the output to be controlled by the detector and specify how it should respond violation of the detector. Additionally, decide if the controller is to supervise the presence of the detector.

6.8.1 Using controller buttons

1. Run the $F. \square \square$ function.
2. Select the detector you want to configure and press the **OK** button.
3. Run the $\square \square \square \square$ function and then the $\square \square$ function.
4. Select the output which is to respond to detector violation and press **OK**.
5. Select how the output is to respond to detector violation ($\square \square \square \square$ - no response, $\square \square \square \square$ - output will be on, $\square \square \square \square$ - output will be off, $\square \square \square \square$ - output status will change to opposite, $\square \square \square \square$ - output will be on as long as detector is violated, [minutes:seconds] – output will be on for selected period of time (dot after seconds means that the time can be edited using function $F. \square \square$)), and then press the **OK** button.
6. Run the $\square \square \square \square$ function.

7. Define whether detector presence is to be monitored (\square Γ - yes, \square \bar{F} \bar{F} - no) and press the **OK** button.

6.8.2 Using MTX soft program

1. Click on the “Detectors” tab.
2. Click on the detector you want to configure.
3. Click on the  button, “Output” column. Context menu will be displayed.
4. Select the output and define how it is to respond to detector violation (ON – output will be on, OFF – output will be off, BI – output status will change to opposite, Mono – output will be on for indicated period of time (if you select “PULSE”, the output will be on as long as the detector is violated)).
5. Double click on the field in “Presence c.” column to enable / disable detector presence control (symbol “x” indicates that the control is enabled).

6.9 Configuring sirens

Define for a newly added siren:

- which controller inputs will trigger signaling,
- whether the controller is to supervise the siren presence,
- maximum signaling time.

6.9.1 Using controller buttons

1. Run the \bar{F} . \bar{H} function.
2. Select the siren to be configured and press the **OK** button.
3. Run the \bar{F} \bar{L} function and then the Γ function.
4. Select the input which is to trigger signaling ($\bar{_}$ - none, \bar{I} - input IN1, $\bar{_}$ \bar{I}^2 - input IN2, \bar{I} \bar{I}^2 - inputs IN1 and IN2) and then press the **OK** button.
5. Run the \bar{I} \bar{L} function.
6. Define whether siren presence is to be controlled (\square Γ - yes, \square \bar{F} \bar{F} - no) and press the **OK** button.

6.9.2 Using MTX soft program

1. Click on the “Inputs/sirens” tab.
2. Click on the selected siren.
3. Double click on the field in the “IN1” column to define whether the input IN1 is to trigger signaling or not (symbol “x” means that the input will trigger signaling).
4. Double click on the field in the “IN2” column to define whether the input IN2 is to trigger signaling or not (symbol “x” means that the input will trigger signaling).
5. Enter the maximum signaling time in the “Time” column.
6. Double click on the field in the “Presence c.” column to enable / disable the siren presence control (symbol “x” means that the control is enabled).

6.10 Programming signaling parameters

The signaling parameters (signaling method, signaling priority) should be defined when configuring the inputs. Each of the controller inputs may trigger different type of signaling.

6.10.1 Using controller buttons

1. Run the $F. 7$ function.
2. Run the $I F$ function.
3. Select the signaling type to be triggered by input IN1. Available settings are presented by means of two characters. The first character: $_$ - no optical signaling, \square - optical alarm signaling, \square - optical arming / disarming signaling. The second character: $_$ - no acoustic signaling, F - alarm signaling using sound A, \square - alarm signaling using sound B, \square - alarm signaling using sound C, \square - alarm signaling using sound D, F - fire alarm signaling, \square - acoustic arming / disarming signaling (see: "Description of signaling" p. 15).
4. Press the  button to confirm your choice.
5. Run the $\square F$ function.
6. Proceed in the same way as when you programmed signaling triggered by input IN1 (steps 3-4).
7. Run the $I F$ function.
8. Define whether signaling triggered by input IN1 is to have priority ($\square \square$ - yes, $\square F F$ - no) and press the  button. If signaling has priority, it will be triggered if signaling triggered by the other input is going on.
9. Run the $\square F$ function.
10. Proceed in the same way as when enabling / disabling priority for signaling triggered by input IN1 (step 8).

6.10.2 Using MTX soft program

1. Click on the "Inputs/sirens" tab.
2. Click on the selected input.
3. Click on the  button in "Acoust./opt. signaling" column. Context menu will be displayed.
4. Select the signaling type to be triggered by input (see "Description of signaling" p. 15).
5. Double click on the field in "Priority" column to define whether signaling to be triggered by the input is to have priority or not (symbol "x" means that signaling has priority). If signaling has priority, it will be triggered if signaling triggered by the other input is going on.

6.11 Deleting keyfob



You cannot delete a keyfob, if its operation is copied by another keyfob. In order to delete such a keyfob, you must first change the settings of each keyfob copying its operation (to individual settings, or indicate another keyfob that will be copied).

6.11.1 Using controller buttons

1. Run the $F. \square$ function.
2. Select the keyfob you want to delete and press the  button.
3. Run the $\square E L$ function.
4. When $\square E \square$ is displayed, press the  button. The keyfob will be deleted.

6.11.2 Using MTX soft program

1. Click on the "Keyfobs" tab.
2. Click on the keyfob you want to delete.

3. Click on the “Remove keyfob” button. The “Confirm” window will open.
4. Click on the “Yes” button. The keyfob will be deleted.

6.12 Deleting detector

6.12.1 Using controller buttons

1. Run the $F. \exists$ function.
2. Select the detector you want to delete and press the  button.
3. Run the $\exists E L$ function.
4. When $\exists E S$ is displayed, press the  button. The detector will be deleted.

6.12.2 Using MTX soft program

1. Click on the “Detectors” tab.
2. Click on the detector you want to delete.
3. Click on the “Remove detector” button. The “Confirm” window will open.
4. Click on the “Yes” button. The detector will be deleted.

6.13 Deleting siren

6.13.1 Using controller buttons

1. Run the $F. \exists$ function.
2. Select the siren you want to delete and press the  button.
3. Run the $\exists E L$ function.
4. When $\exists E S$ is displayed, press the  button. The siren will be deleted ($\exists E L$ will be flashing for a few seconds on the display).

6.13.2 Using MTX soft program

1. Click on the “Inputs/sirens” tab.
2. Click on the siren you want to delete.
3. Click on the “Remove siren” button. The “Confirm” window will be displayed .
4. Click on the “Yes” button. The siren will be deleted.

7. Diagnostics

Information to be used for diagnostic purposes can be presented:

- on controller display,
- in the “Diagnostics” tab, MTX SOFT program.

7.1 Controller display

7.1.1 Entering diagnostic menu

Press the  button and hold down for about 4 seconds, until the $\exists \exists \exists$ message shows up on the display. The message will disappear after a while and the first of available diagnostic functions will be displayed.

You can also enter the diagnostic menu from the service menu ($\text{d} \text{ r} \text{ E}$ function). The controller remains then in the service mode, i.e. you cannot trigger signaling using inputs and tamper alarm signaling in sirens is blocked.

7.1.2 Exiting diagnostic menu

1. Scroll through the list using the ◀ or ▶ button, until $\text{E} \text{ r} \text{ d}$ is displayed.
2. Press the **OK** button.



5 minutes after the last button press, automatic exit from the diagnostic menu will follow.

If the diagnostic menu is entered from the service mode, automatic exit from the diagnostic menu will only follow, if no siren is registered in the controller.

7.1.3 List of diagnostic functions

$\text{F} \text{ E} \text{ b}$	check which wireless device reports low battery (the function is available when FTB output is on)
$\text{F} \text{ E} \text{ r}$	check with which detector or siren there is no communication (the function is available when FTR output is on)
$\text{E} \text{ r} \text{ P}$	check which device (detector or siren) has reported tamper (if device is not already reporting tamper, this is indicated by the P symbol displayed in the leftmost position – after exiting the function, the tamper memory will be cleared)
$\text{L} \text{ E} \text{ U} \text{ L}$	check the level of radio signal received from wireless devices
$\text{S} \text{ r} \text{ E}$	check siren status (the function is available, if at least 1 siren is registered in the controller)
$\text{F} \text{ r} \text{ P}$	check information on the controller firmware version
$\text{S} \text{ E} \text{ r} \text{ U}$	return to service menu (the function is available, if the diagnostic menu has been entered from the service menu)
$\text{E} \text{ r} \text{ d}$	exit the menu (if the diagnostic menu has been entered from the service menu, this will also exit the service mode)

$\text{L} \text{ E} \text{ U} \text{ L}$ function

After starting the function:

- the first character on the display presents graphically information on the level of radio signal:
 - E - very good signal level,
 - = - good signal level,
 - - - poor signal level,
 - blank – very poor signal level.
- next characters provide information on the device to which presented signal level refers:
 - F . [+number] – keyfob,
 - d . [+number] – detector,
 - S . [+number] – siren.

You can scroll through the list using the ◀ or ▶ button.

Press the **OK** button repeatedly to get detailed information about the level of signal received from the given device:

1. Radio signal level presented as percentage..
2. Average strength of the radio signal, based on 3 last received transmissions, expressed in dBm (dot is displayed after the indicated value).

3. Strength of the radio signal of the last received transmission, expressed in dBm.

5 1 r E function

Information on the status of the first registered siren is presented in the leftmost position, on the status of the second siren – in the second position from the left, etc. Displayed symbols have the following meaning:

- l - registered, but has not received all configuration data yet,
- r - standby,
- c - communication in progress,
- F - signaling triggered by transmission from the controller is in progress,
- E - signaling triggered by opening of the siren tamper switch is in progress,
- cl - opening of the tamper switch will not trigger alarm signaling (device is running in service mode),
- E - no communication.

7.2 MTX soft program

Some diagnostic information is presented in the upper part of the program window (see “Status information” p. 12), and some in the “Diagnostics” tab.

7.2.1 “Diagnostics” tab

The following information is displayed in the table:

Type – device type: MTX-300, keyfob, detector or siren.

No. – number of device on the list of devices of given type.

Name – name of device.

Tamper – status of the device tamper switch:

 - OK (switch closed),

 - tamper (switch open),

 - tamper memory (switch closed) [red square against green background on the right].

FTB – status of the device battery:

 - OK,

 - low battery.

FTR – communication status:

 - OK,

 - no communication.

Level – information on level of radio signal of the last received transmissions.

On the right-hand side of the window, the following buttons are available:

Clear measur. – click to reset the data related to radio signal level.

Clear tmp memory – click to clear the tamper memory.

RF review – click to see the radio band occupancy diagram. It presents both noise level and signals received from other radio devices operating on the same frequency band.

8. Default factory settings

Service code: 1111

Configuration of all inputs and outputs: NO

1. output cutoff time: 3 minutes
2. output cutoff time: 6 minutes
3. output cutoff time: 10 minutes
4. output cutoff time: 15 minutes
5. output cutoff time: 30 minutes
6. output cutoff time: 45 minutes
7. output cutoff time: 60 minutes
8. output cutoff time: 90 minutes

Maximum no-communication time: 1 hour 10 minutes

Maximum signaling time (for each siren): 10 seconds

No registered wireless devices

Inputs do not trigger signaling

Priority option enabled for inputs

8.1 Restoring default settings



Restoring the default factory settings means removal of all registered wireless devices.

If wireless sirens are registered in the controller, they must be deleted before restoring the default settings.

8.1.1 Using buttons

1. Power off the controller.
2. Press simultaneously the  and  buttons and power on the controller.
3. Hold the  and  buttons down for about 4 seconds.
4. When  is displayed, press the  button.
5. This will enter the service mode (the  function will be displayed).

8.1.2 Using MTX soft program

Click “Communication” ► “Manufacturer settings”.

9. Specifications

Supply voltage	12 V DC ±15%
Standby current consumption	65 mA
Maximum current consumption	70 mA
Operating frequency band	433.05 ÷ 434.79 MHz
Radio communication range (in open area)	depending on device
Relay output rating (resistive load)	60 mA / 30 V DC
OC type output rating	50 mA / 12 V DC
Environmental class according to EN50130-5	II
Operating temperature range	-10 °C...+55 °C
Maximum humidity	93±3%
Enclosure dimensions	126 x 158 x 32 mm

Weight.....210 g