

OUTDOOR PANEL  
METAKOM  
MK2008.2-TM4



Version 2

PASSPORT  
USER`S MANUAL

Valid for filling

**To be completed by the repair company**

Contents of the repair. Name and number according to the scheme of the replaced part or unit. The place and nature of the defect:

Signature of the person who carried out repairs

Date of repair \_\_\_\_\_  
(date, month, year)

Signature of the owner of the product, confirming the repair

Repair company stamp with the city

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## APPENDIX 1

## 1. PURPOSE

The outdoor panel of METAKOM MK2008.2-TM4 (version 2) (hereinafter called the outdoor panel) is a specialized microprocessor system intended for installation in multi-apartment buildings, offices, as well as for organizing a system of selector communication with up to 20 subscribers, using a modification with an index N (network) number of subscribers served up to 999.

The electronic keys (hereinafter TM keys) of METAKOM TM2002, METAKOM TM2003 (A, B) or Dallas Sutton4 "I-DS1990A are used as subscriber keys.

As terminal devices installed at the subscribers, we recommend TKP-01, TKP-05M, TKP-05M, TKP-10M, TKP-10M, TKP-12M, TKP-14M or other interphone handsets designed for doorphones with coordinate addressing system produced by METACOM.

The outdoor panel provides a call signal to the subscriber's TKP, a duplex communication of the visitor with the subscriber, remote lock opening upon a signal from the TKP.

The lock can also be opened using a TM-key, using the code dialed on the outdoor panel, or by pressing the EXIT button, installed at the entrance door inside the entrance.

To ensure the possibility of using different types of locks, the METAKOM outdoor panel MK2008.2-TM4 is available in two versions:

Full name of the model	Lock type	Terminal marking of terminal blocks	Description of the output node
MK2008.2-TM4E	Electromagnetic lock without control board	LOCK - a line normally closed to the common lock wire GND	Powerful key transistor. When you open the lock, it turns off.
MK2008.2-TM4M	Electromechanic lock without control board	LOCK – a line normally open to the common lock wire GND	Powerful key transistor. When you open the lock, it turns on.

Valid for filling

**Tear-off coupon N1**

For the warranty repair of the outdoor panel

METAKOM MK2008.2-TM

**To be completed by the manufacturer**

Serial number of the product \_\_\_\_\_

Release date \_\_\_\_\_  
( date, month, year )

Representative of the QC of the manufacturer \_\_\_\_\_  
(QC stamp)

Address for return of the coupon to the manufacturer:  
Russia, 241024, Bryansk city, Delegate street, 68, LTD "Metakom"

**To be completed by a trade or installation organization**

Sale date \_\_\_\_\_  
(date, month, year)

Seller \_\_\_\_\_  
(signature or stamp)

Trade organization stamp:

Date of commissioning \_\_\_\_\_  
(date, month, year)

Seller \_\_\_\_\_  
(signature or stamp)

The stamp of the organization that conducted the installation:

# Annex 1. Code tables.

Table 1

flat №	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Code	0529	7970	8740	1362	9813	4966	8801	2433	0899	2307	4628	0278	3352	6961	9538	3923	0356	9077	4727	2039
flat №	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Code	5377	5379	0562	2085	2644	8022	2663	3426	4226	4339	7940	8469	0565	5416	3137	8786	6002	0372	2964	1029
flat №	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Code	7943	1794	9521	6707	3396	0853	0117	6775	6288	9729	0500	3348	0308	5942	4920	9553	2673	8066	6547	1796
flat №	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Code	4614	9495	4897	5682	2115	0837	1140	2181	2951	5376	2050	5666	0036	2628	0853	7526	0880	4978	4739	4867
flat №	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Code	2309	3335	4662	1841	6737	5986	8804	3686	9350	0247	9744	9249	0803	4901	4662	4950	2151	2673	8578	9971
flat №	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Code	8452	3861	6438	0823	7248	3922	7538	1908	4500	2565	9479	3330	1058	8499	3667	1350	7270	2664	1394	3585
flat №	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
Code	1554	9492	3892	4165	3128	3921	2402	7810	0132	5877	2069	0294	6960	4131	6979	3939	9573	2949	2680	5120
flat №	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Code	5634	9491	8755	5414	5190	9318	6753	0385	8850	0003	3845	4871	6198	3377	8273	7522	0341	5478	9621	0744
flat №	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Code	1296	4882	1571	9027	3638	1125	3672	0369	9873	1011	1013	1798	8230	1094	7745	5473	2915	3941	5268	2294
flat №	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
Code	9223	1312	4371	4147	8275	5717	1141	7558	2177	7154	1539	7971	6437	8005	0086	1090	2387	1892	3445	1525
flat №	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
Code	6677	0264	7201	1345	2883	2885	3670	0103	3222	8192	0785	4868	0789	0836	3142	4951	7521	0114	8594	3587

Table 7

flat №	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Code	2065	4627	3605	0053	9542	0102	5488	6273	5266	8436	6149	4118	0039	2338	0819	2643	4723	0358	6549	6135
flat №	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Code	6913	3361	2851	0805	5445	0598	3446	2929	833 7	2788	2052	4614	7989	4663	9537	4419	8035	1381	1684	7173
flat №	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Code	3335	2306	1811	5442	0068	5732	8294	1670	0129	3570	0515	4628	2597	8517	9031	8785	3426	0371	4484	2293
flat №	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Code	3093	3366	6448	0065	5202	0581	8820	2181	93 66	8192	3857	8211	2852	9796	2118	0614	9313	7794	9618	1539
flat №	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Code	3845	4871	0536	9280	1602	0098	8804	4228	1911	7159	1040	8466	4131	2883	9541	1351	3943	5474	4497	0228
flat №	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Code	4853	8725	0023	6711	1074	6241	4180	7540	2934	2294	7687	5408	7714	3138	0821	6229	5237	9847	2433	3058
flat №	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
Code	6930	8227	3124	3623	2104	3921	9058	8834	7300	7684	4885	6950	1298	5185	7762	8020	9829	0630	2695	1280
flat №	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Code	0273	3603	6436	4646	7238	3174	6753	4993	0146	8436	0788	7446	9255	0049	5171	3667	6771	4213	2950	2566
flat №	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Code	5904	3075	2580	6211	0837	6501	9063	2432	3955	4083	3332	4614	8230	1576	1872	0579	7794	9347	2196	3318
flat №	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
Code	1814	0514	0787	3876	4435	8036	0102	0646	2960	2561	4626	8980	3621	0566	4679	2641	1619	8066	5764	2293
flat №	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
Code	3334	0279	4385	5411	1076	9827	4694	7030	5014	2048	2050	5907	5924	1062	2630	6758	6000	4737	0116	8195

The output stage with a transistor is designed for direct control of the lock winding without the use of any additional control card or demagnetization. The power supply of the call and lock unit can be provided from the METACOM BP-2U power supply.

The full name of the outdoor panel consists of the following elements: MK2008.2 - TM4 E N

1. MK2008.2 - model number;
2. TM4 - support for electronic keys METAKOM TM2002, METAKOM TM2003(A,B) и Dallas iButton4"1;
3. E - for the electromagnetic lock,  
M - for electromechanical lock,
4. N - doorphone supports networking

## 2. DISTINCTIVE FEATURES

- Possibility to set up a 4 Master / 16 Slave doorphone network (when using a COM-Net4 network switch);
- Possibility to connect the second outdoor panel to organize the parallel operation with subscriber handsets;
- Auto-collection of keys mode;
- Disable reading of certain types of keys (prohibition of reading keys using the Dallas or TM2002 protocol);
- Use of special keys with individual coding;
- Transfer of all doorphone settings to a personal computer (or other doorphone) and back via the METAKOM adapter MKA-02U and TM-lononaDS 1996 (b);
- the number of served subscribers when arranging the doorphone network - up to 999;
- the ability to diagnose the system during commissioning (subscriber tube test);
- parameters adjustment of the tube position determination for each subscriber separately;
- anti-vandal performance - special keypad design, installation on object with a special key;
- waterproof keyboard with illumination of each key, backlight of the contactor of electronic keys;
- return to the factory settings of the outdoor panel, while retaining the recorded keys;
- self-test on power-up or on reset.



## **11. OUTDOOR PANEL COMPLETENESS**

1. Outdoor panel ..... 1pc.
2. Passport ..... 1pc.
3. Fixing kit ..... 1pc.
4. Special key ..... 1pc.
5. Packing box ..... 1pc.

## **10. WARRANTY OF THE MANUFACTURER**

The manufacturer guarantees the compliance of the METAKOM outdoor panel MK2008.2-TM4E (M) N with the requirements of MTKM.420570.004 TU when the user applies the rules of use, storage and transportation.

Warranty period - 12 months from the date of sale, but not more than 18 months from the date of manufacture.

Service life is 5 years from the date of manufacture.

Without presentation of a coupon for warranty repair and (or) violation of the integrity of seals, mechanical, electrical or other types of damage caused by improper transportation, storage, operation or actions of third parties, no claims to quality are accepted and no warranty repair is performed.

The address of the manufacturer:

Russia, 241024, Bryansk city, Delegate street, 68,

OOO "Metakom"

Tel./fax: (4832) 68-28-26

Tel. (4832) 68-28-25

Http://www.metakom.ru E-mail: [os@metakom-plus.ru](mailto:os@metakom-plus.ru)

## **9. TRANSPORTATION AND STORAGE**

Packaged products can be transported by all modes of transport, except for unsealed aircraft compartments and open decks of ships and ships, in accordance with the rules for the carriage of goods operating on this mode of transport.

As a transport container used boxes wooden, group and other containers, ensuring the safety of the goods during transportation.

Products should be stored only in a packed form in the absence of acidic, alkaline and other aggressive impurities in the ambient air.

### 3. OPERATING FUNCTIONS

- Indication of the operation modes of the LEDs and the illumination of the keyboard buttons;
- sound control buttons;
- Call a subscriber by dialing his number on the outdoor panel;
- sound control of making a call to the subscriber (sending a ringtone of another key, if the subscriber's handset is not packed);
- Duplex communication subscriber-visitor;
- remote lock opening from the subscriber's TKP;
- local lock opening with a set of a general or individual access code;
- local lock opening by an individual TM-key;
- local lock opening from the entrance by pressing the EXIT button;
- sound signaling the use of an individual subscriber code or TM -key on the TKP of the corresponding subscriber (function included on request);
- Ability to prohibit the maintenance of a subscriber's TKP while maintaining access by an individual code;
- code lock operation in common code mode, in individual code mode or jointly (programmable);
- setting up all operating parameters to meet the requirements set at the installation object;
- use the master TM-key to quickly enter the programming mode.

### 4. SELF-TEST

When you turn on the power of the outdoor panel or press the "C" (RESET) button, the self-test procedure is performed. When an error is detected, an appropriate sound signal and a light indication are output.

If the EEP110M chip fails to initialize, the 4 LEDs flash on the top of the outdoor panel and an error signal is sent. If the error is caused by the fact that a new or previously used chip was installed in the other device, complete the **initialization with EEPROM** (see and 7.3 "Restoring the factory settings"). If the error message continues to appear, replace the EEP110M chip.

When the keyboard malfunctions (the keypad backlight goes off), its operation is blocked, while the function of opening the door lock from the exit button and the TM-keys is workable.

When the audio line is short-circuited, a two-time beep is sounded, if the line is broken, a single beep is heard.

## 8. USER`S USE OF THE OUTDOOR PANEL

After the power is turned on, the outdoor panel is in standby mode. The LED "dial the number, press B" on the top of the housing lights up.

After subscriber dialing the subscriber number and pressing "B", the connection with the subscriber's TKP is established and the set number of ringtones is applied. At the time of ringing, the "wait for a response" LED is illuminated.

If the subscriber does not pick up the handset, after the set number of ringtones has been exhausted, the outdoor panel returns to the standby mode. When the receiver is off, the call signals are given in a different key. In this case, for the conversation of the subscriber with the visitor, it is necessary to hang up, wait for the call signal of another key, and lift the handset.

When the subscriber picks up the handset, the "talk" LED lights up, indicating that the call has been established and the visitor can talk.

The lock is opened by pressing the button on the TKP of the subscriber. The LED "door open" lights up and the corresponding sound signal sounds.

If the subscriber has hung up, the conversation is interrupted and the outdoor panel returns to standby. You can also interrupt the conversation by pressing the "C" button on the outdoor panel.

After the set time limit has expired, the conversation will be interrupted automatically (see section 7.).

If the "common" or "individual" codes function is turned on, pressing the "B" button from the standby mode, the button "B" backlight will flash. After this, it is necessary to enter the code (the factory common code is 1234, the individual code is taken from the table). If the code is entered correctly, the lock is opened.

The lock can also be opened by pressing the "Exit" button or the stored key.

If the network protocol is activated, the "wait for response" LED (red) will flash at the time of the call and the conversation on the "Slave" outdoor panel. In this case, dialing the number on the keyboard is blocked. The door is opened by the exit button or TM-key.

When the outdoor panel is operating on the network or when two outdoor panels are running in parallel, when the subscriber line is busy, the outdoor panel operating in the "Master" mode will be reset to standby mode when an attempt is made to call the subscriber. It is necessary to wait a while and repeat the call of the subscriber.

1. The starting number for the 3 switches.
2. The end number for the 3 switch.
3. The starting number for the 4 switch.
4. The end number for the 4 switch.
5. The starting number for the 5 switch.
6. The end number for the 5 switch.
7. The starting number for the 6 switch.
8. The end number for the 6 switch.
9. The starting number for the 7 switch.
10. The end number for the 7 switch.
11. The number of switches connected to the network switch.
12. Setting the threshold for determining the position of the user's handset for the network switch.
13. Setting the threshold for the opening of the lock button on the subscriber's handset for the network switch.
14. Time of conversation of the visitor with the subscriber.
15. Caller's signal duration.

After entering the function, enter the value of the function and press "B". In case of incorrect input or error when transmitting data to the network switch, an error message will be issued, in this case it is necessary to re-enter the data. For more details on working with the network switch, see the network switch.

## 5. TECHNICAL SPECIFICATIONS

Maximum resistance of the access line	Max 30 Ohm
Maximum number of subscribers served	20
The maximum number of subscribers served for the modification of "No."	999
Maximum subscriber number	999
Maximum number of TM-keys	3000
Number of TM-keys per apartment	To 3000
Subscriber number offset	1...999*
Number of ringing signals applied to the TKP	2...62*
Lock opening duration	2... 102sec.*
Restriction of the conversation duration	40...240 sec.*
Maximum number of individual codes	999
Maximum number of the code table	255
Number of the subscriber code digits	4
Number of the total code digits	4
Number of the master code digits	6
Operating temperature range	-30...+40°C
Relative air humidity (at 35 ° C)	95%
Supply voltage (DC)	15...18 V
Maximum current consumption in standby mode, max	280 mA
Peak consumption current (when a call signal is applied to a subscriber's TKP)	300 mA
Overall dimensions of the block, max (height x width x thickness)	180 x 85 x 35 mm
Block weight without package, max	0,5 kg

## 6. INSTALLATION PROCEDURE

*7. ATTENTION! There is a dangerous voltage in the power supply - 220V. Do not perform installation and maintenance work when the power is on. In the outdoor panel and other doorphone devices, except for the power unit, there are no voltages exceeding 18V.*

8. The following sequence of actions is recommended:

9. 1. Carefully study this instruction manual and block diagram.

10. 2. Prepare a niche for installing the outdoor panel (see the markup in Figure 1).

11. 3. Install the power supply, lock, switch and opening button from the room. Connect the outdoor panel housing to the protective ground wire.

12. 4. Set the apartment's lodging in the apartment's lodging rooms (TKP).

13. 5. Install the wiring. Make taps from the loops and connect the TKP of all the subscribers (Fig. 2). When implementing projects for fenced areas with one entrance to the territory, there are two possible connection schemes: using network switches (Fig. 4) and without using network switches (Fig. 3). When implementing projects with multiple entrances to the territory, it is necessary to use network switches (Fig. 4). To switch video signal in projects for fenced areas, it is necessary to use network video switches.

14. 6. Check that the connections are correct.

15. 7. Turn on the power, the blue LED at the top of the outdoor panel should light up, enter the programming mode (see and 7.2) and perform the following actions:

16. A) Change the access code to the programming mode and, if necessary, program the master TM- key. Be careful when entering the code. WRITE THE MASTER CODE!

17. B) If required, set the number offset and disconnect unattended subscribers (see section 7.3). This parameter should always be set first, since all further operations with subscriber numbers will depend on the set value.

18. C) Program the subscriber TM-keys.

19. D) In parallel operation of the two outdoor panels, it is necessary to configure the Master and Slave outdoor panels, while the handsets are connected only to the Slave outdoor panel.

20. E) If the doorphone will be used on the network, then you need to enter:

21. - for the Slave doorphones the network number (from 1 to 16);

22. - for the Master doorphones, specify the range of the serviced numbers of each Slave doorphone. Be sure to close the LN jumper near the terminal block, (see section 7.3).

23. - when using network switches for network organization, it is necessary to configure the network switches according to the network switch passport and point 7.3 of this passport.

24. F) If a common code is used in the code lock mode, then change the common code and switch the outdoor panel to the common code mode. Write down the general code (see section 7.3).

Network number "1" will serve the initial numbers of subscribers, and with the network number "16" - the last numbers of subscribers.

If the doorphone works in the "Master" mode, then it is necessary to establish the correspondence of the range of serviced subscribers with the network number of the doorphone "Slave". After entering the section, it is necessary to enter the network number of the doorphone "Slave", press "B", then enter the lower number of the range of serviced numbers, press "B", then enter the upper number of the range of serviced numbers, press "B". After, if necessary, enter a new network number and continue entering the range of serviced numbers.

If network switches are used instead of output panels, the setting is similar.

These settings affect the performance of the entire system. It is necessary to configure these parameters correctly, otherwise the system may malfunction.

Example.

It is necessary to configure the interphone network with the following parameters: 1 "Master" doorphone, 5 "Slave" doorphones. The total number of serviced rooms is 180. Each "Slave" doorphone serves 36 numbers.

Setting of "Slave" doorphones:

Serving doorphone 1 ... 36 subscribers - network number "1";

Serving doorphone 37 ... 72 subscribers - network number "2";

Serving doorphone 73 ... 108 subscribers - network number "3";

Serving doorphone 109 ... 144 subscribers - network number "4";

Serving doorphone 145 ... 180 subscribers - network number "5";

Setting the doorphone "Master":

The network number is "1", the lower number is "1", the upper number is "36";

The network number is "2", the lower number is "37", the upper number is "72";

The network number is "3", the lower number is "73", the upper number is "108";

The network number is "4", the lower number is "109", the upper number is "144";

The network number is "5", the lower number is "145", the upper number is "180";

### **Chapter №33 Configuring the Network Switch**

Used to configure network switch settings. Before you start working with the network switch, you need to configure the network switch settings. On the network switch it is necessary to provide access to the parameter setting mode (for switches COM-Net2, COM-Net4 it is necessary to close the jumper M1 before power supply is applied, the network switch must have a network number on the jumpers, see the network switch's passport for details).

After entering the section, you must enter the number of the network switch you want to configure. Next, enter the number of the custom function. For network switches COM-Net2, COM-Net4, the sequence of configurable functions is as follows:

1. The starting number for 1 switch.

2. The end number for 1 switch.
3. The starting number for the 2 switches.
4. The end number for the 2 switch.

Used to set one of 2 variants of a ringtone. After entering the section, you need to dial the number of the subscriber where you need to change the call melody, press "B", then press "1" "B" - to set the first melody, "2" "B" to set the second melody. If it is necessary to conduct actions for all subscribers, then instead of the subscriber number, press "O" next "B".

#### **Chapter №27 Enabling the mode for reading copies of the TM2002 key.**

Used to allow reading copies of the TM2002 key based on the TM2004 key. After entering the section, you must press "1" "B" to allow reading the copies of the key TM2002 or "O" "B" for the prohibition. The factory setting is that reading copies is prohibited.

#### **Chapter №28 Internal Switch Test**

Used when installing or failing the outdoor panel operation. After entering the section, press "B" to start the test. After the start, the subscriber's pipes will alternately be connected and a short beep will be delivered.

#### **Chapter №29 Opening the lock for the set time.**

Used to test the operation of the lock opening circuit. When you enter this point, the lock will open for the specified time.

#### **Chapter №30 Enabling the Network Protocol**

It is used to turn on the network protocol and set the functional parameters of doorphones (Master or Slave) working in the network, and also when two outdoor panels are connected to the same subscriber line. After entering the section, press: "0" - to disable all protocols; "1" - the outdoor panel operates in the "Slave" mode with parallel connection of 2 outdoor panels; "2" - the outdoor panel operates in the "Master" mode with parallel connection of 2 outdoor panels; "3" - the outdoor panel operates in the "Slave" mode (access) with a network connection; "4" - the outdoor panel operates in the "Master" mode (wicket) with a network connection.

#### **Chapter №31 Number of subscribers served.**

Used to set the number of subscribers served. It is set when the outdoor panel is operating in the "Master" or "Slave" mode with a network connection to prevent false alarms from serving unattended subscriber numbers.

After entering the section, enter the number of subscribers to be served and press "B".

#### **Chapter №32 Setting up the network protocol**

Used to set parameters and configure the network protocol.

If the doorphone works in "Slave" mode, then after entering the section it is necessary to set the network number of the doorphone. It can be from 1 to 16. The network number is set in accordance with the customer numbers that are serviced, that is, the doorphone with



G) If individual codes are used, create a code table (see and. 7.3). Record the code table number.

H) If necessary, change the ringing signal duration, the lock opening duration, the time limiting the call time, etc. The factory settings are in most cases optimal.

NOTE: items a) ... g) are desirable to be performed in a laboratory environment in order to minimize the time for installation of the panel on the site. Also, the settings can be made previously using a personal computer. In this case, the prepared information is transferred to the outdoor panel memory via the METAKOM adapter MKA-02U and the TM-key DS1996 (L).

1. Check the operation of the outdoor panel in the interphone mode and in the code lock mode.

2. Secure the outdoor panel to a previously prepared niche using the supplied hardware kit.

3. Make a note in the tear-off coupons about the date of putting the panel into operation.

E [Due to the insufficient volume of the call, adjust the required parameters (microphone sensitivity and speaker volume) by trimmer resistors on the back side of the outdoor panel.

Install power supply and switch, if possible, in boxes, niches, at the ceiling. The power supply must be installed within 15 meters. The "EXIT" button provides lock opening when leaving the entrance and is installed near the entrance door inside the entrance.

In parallel operation of two outdoor panels, the length of the communication link between the panels should not exceed 30 meters.

To reduce the influence of climatic factors (low temperature, high humidity, frost, dew), the outdoor panel and the lock should be installed on the second door of the entrance located in the vestibule.

The cross-sections of the wires connecting the power supply unit to the outdoor panel and the lock must be at least 0.35mm<sup>2</sup> (XOEZ 2x0.64 or IIIBBEI 2x0.5), the rest - not less than 0.12mm<sup>2</sup>. As a connecting wire, it is recommended to use a wire with colored insulation of cores. To reduce the influence of external influences, the connection is desirable to be carried out by a shielded cable (KSPEE 4x0.2 or KSPEV 4x0.5). For the installation of video equipment, use a coaxial cable of the type RK-75.

When using the network function, when installing a digital communication line (AV), use a twisted-pair wire with copper conductors. On long communication lines on the "Master" and the last "Slave" doorphone, install 120 ohm resistors between the terminals AB.

The "+" terminal of the TKP is connected to "D0" or "III", and the "-" TKP is connected to "E1" ... "E10", And to D0 subscribers are connected from 1 to 10, to D1- from 11 to 20. Before connecting the TKP, the line must be checked for a short circuit. The resistance of the communication link between the outdoor panel and the subscriber handsets should not exceed 30 ohms.

The outdoor panel has a short circuit protection. At this time, communication with the TKP will be impossible. All other functions are available. The installation of additional equipment is carried out in accordance with the passports for this equipment.

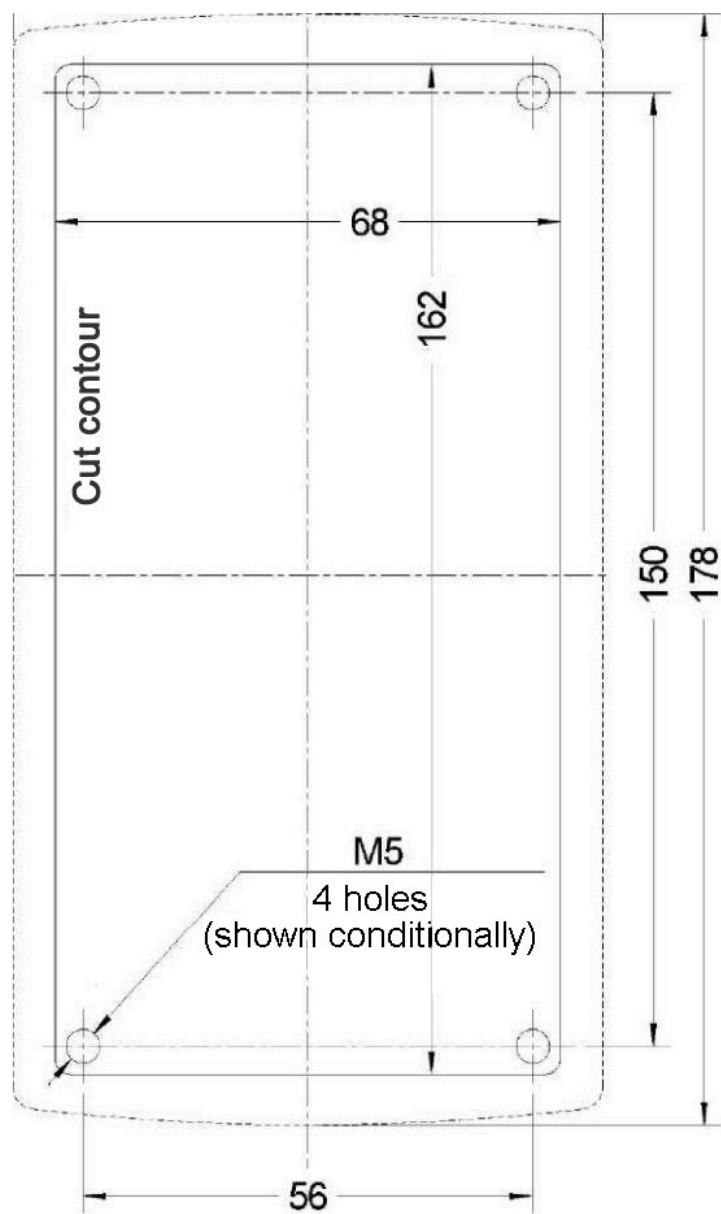


Fig. 1 Markup for outdoor panel installation

Information is the audio signal of the end of the recording and the output into the standby mode.

To record the subscriber base database, the key addition mode is used in the outdoor panel memory. In the key addition mode, the keys from DS 1996 (b) are appended to the stored keys. If you want to overwrite keys instead of those already present in memory, you must first perform the key erase procedure in accordance with and. 4 of Section 7.3 of this passport.

To record subscriber keys in the memory of the outdoor panel, you need to press: "2" "B" - to record the first thousand keys,

"3" "B" - for recording the second thousand keys,

"4" "B" - to record the third thousand keys,

The DS 1996 keys (b) containing the subscriber keys will have numbers 2 through 4. Then, attach the DS 1996 (b) key to the reader, the data transfer will start. If an error occurs, an error signal will sound. A sign of the end of the transmission of information is the audio signal of the end of the recording, and the output to the recording selection mode.

If the number of subscriber keys read exceeds 1000, then the subsequent reading of DS 1996 (b) keys is necessary. In this mode, there may be a situation of memory full of keys, in this case, before the key is written, an error message will be issued and the number of keys that will not result in memory overflows will be recorded.

Warning: be sure to wait until the reading is completed correctly, otherwise the outdoor panel may fail.

### **Chapter №23 Changing the system code**

Used to change the access code to programming mode. After entering the section, you must type the new system code. After dialing the 6th digit, you must press "B", then the new code will be saved. The factory code is -123456.

### **Chapter №24 Master key recording**

Used to record a master key for quick access to the programming mode. As a master key, a key supporting the Dallas protocol (TM2003, DS1990, DS1996) should be used. After entering the section, you need to press: "1" - to record the master key, "O" - to delete the master key. After entering the recording mode, you must attach the key to the reader, if the key is read correctly, the master key will be recorded.

### **Chapter №25 Return to factory settings.**

Used to set the factory settings. After entering the section, you must press "1" to confirm the installation, then the parameters will be automatically changed, and the subscriber key database will not change.

### **Chapter №26 Select the melody of the sound signal.**

The threshold shift is in the range 1 ... 100. Correctness of the adjustment can be verified using A.18. The factory offset value is 50.

After entering the section, you need to dial the number of the subscriber for which you need to change the threshold and press "B", then type the threshold offset value and press "B". If it is necessary to conduct actions for all subscribers, then instead of the subscriber number, press "0" next "B".

## **Chapter №21 Recording of electronic media DS1996 (L)**

Used to transfer information from the memory of the outdoor panel to the TM-key DS1996 (L).

Recording of system settings is carried out on one DS1996 (L) key.

To record the system settings key in DS1996 (L), press "1" "B". Then attach the key DS1996 (L) to the reader, the data transfer will begin. If an error occurs, an error signal will sound. A sign of the end of the information transfer is the audio signal of the end of the recording and the output to the recording selection mode.

If an error occurs, an error signal will sound. A sign of the end of the information transfer is the audio signal of the end of the recording and the output to the recording selection mode.

To record the subscription database in DS1996 (L), you need to press:

"2" "B" - a record of the first thousand keys,

"3" "B" - a record of the second thousand keys,

"4" "B" - a record of the third thousand keys,

To record the maximum number of subscriber keys (3000), you need 3 keys DS1996 (L). The DS1996 (L) key numbers will be numbered from 2 to 4. Next, you must attach the DS1996 (L) key to the reader, the data transfer will start. If an error occurs, an error signal will sound. The end of the recording is a sign of the end of the information transfer. If you pressed the record button of an existing thousand keys, an error message will be displayed. Example: the number of subscriber keys 1500. To write this database, you need two keys DS1996 (L). To record the first thousand, you need to press "2B", to record the remaining 500 keys, you must press "3B".

Warning: be sure to wait for the correct end of the record, otherwise later when reading incorrect information in the work of the outdoor panel there may be failures.

## **Chapter №22 Reading the electronic media DS1996 (L)**

Used to transfer information from the TM-key DS1996 (L) to the memory of the outdoor panel.

To read the system settings key from the DS1996 (L), press "1" "B". Then attach the key DS1996 (L) to the reader, the data transfer will begin. If an error occurs, an error signal will sound. A sign of the end of the information transfer is the sound signal of the end of the recording and the output to the standby mode. Then attach the key DS1996 (L) to the reader, the data transfer will begin. If an error occurs, an error signal will sound. A sign of the end of the transfer

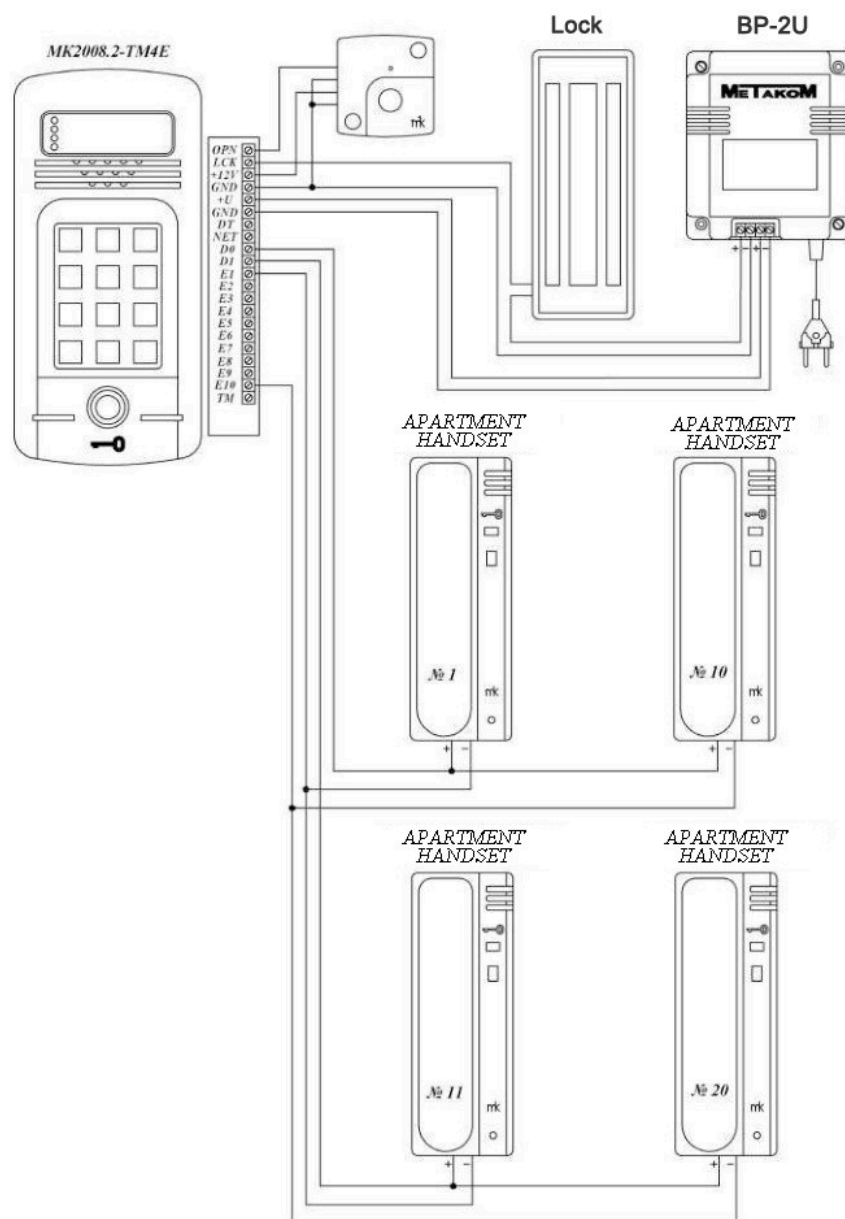


Fig. 2 Example of mounting the outdoor panel MK2008.2-TM4E

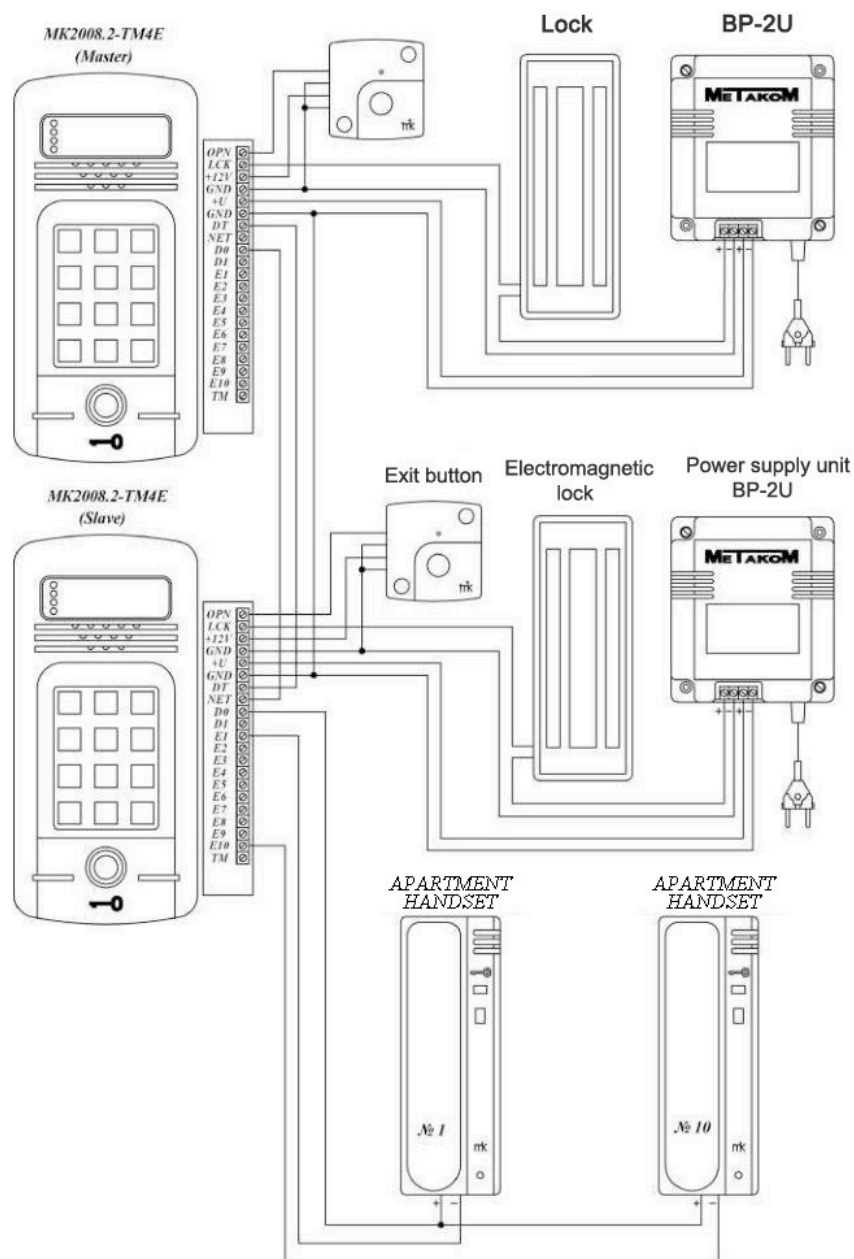


Fig. 3 An example of the installation of outdoor panels MK2008.2-TM4E with parallel operation of two outdoor panels.

Dial a new individual code. After dialing the 4th digit, you must press "B", then the new code will be saved.

#### **Chapter №17 Activation of subscriber notification by code or key.**

Used to activate the alert mode of the subscriber when using an individual code or key. After entering the section, you need to dial the number of the subscriber for which you want to turn on the notification mode, press "B", then press "O" "B" - to turn off the mode, "1" "B" - to activate the mode. If it is necessary to conduct actions for all subscribers, then instead of the subscriber number, press "O" "B".

#### **Chapter №18 Test of subscriber handsets**

Used to determine the position of the handset at the subscriber during installation or the failure of the outdoor panel. After entering the section, it is necessary to dial the number of the subscriber for which you need to check the handset, press "B", the connection will be established and the buttons showing the value of the tube position will be highlighted on the keyboard: "1" - short circuit, "2" - the tube lies, "3" - the tube is removed, "4" - the line is broken.

If the threshold values are different, then correction is necessary. To automatically correct the threshold for determining the position of the subscriber tube, it is necessary to lay the tube on the stand, then press "B". To automatically correct the threshold for the opening of the lock on the subscriber tube, it is necessary to remove the tube from the stand, press the lock release button and hold it in the pressed state, then press "B". Manual correction is described in Chapter 19, 20.

#### **Chapter №19 Setting the threshold for determining the position of the subscriber tube**

Used to adjust the threshold for determining the position of the tube. If there is an incorrect positioning of the tube (long line, use of some video monitors with adapters, etc.), then the threshold for determining the position of the tube can be adjusted in a certain range.

The threshold shift is in the range 1 ... 100. Correctness of the adjustment can be verified using A.18. The factory offset value is 50.

After entering the section, you need to dial the number of the subscriber for which you want to change the lower threshold and press "B", then dial the threshold offset value and press "B". If it is necessary to conduct actions for all subscribers, then instead of the subscriber number, press "O" next "B".

#### **Chapter №20 Setting the threshold for the lock opening button on the subscriber's handset**

Used to adjust the threshold for the opening of the lock button on the subscriber tube. If there is an incorrect detection of the lock opening signal (long line, use of some video

monitors with adapters, etc.), then it is possible to adjust the threshold of operation of the lock opening button on the subscriber tube in a certain range.

#### **Chapter №10 Deactivating the sound signals on the outdoor panel**

Used to mute the audio signal in the caller's dynamics in the call mode. When this function is enabled, the ringing tone is only given to the subscriber. All other sounds of the outdoor panel are not disabled. After entering the section to mute the sound, you need to dial "1" "B", to turn on the sound - "0" "B".

#### **Chapter №11 Number of ringtones**

Used to set the number of ringtones applied to the TKP. The call signal to the subscriber's TKP consists of an alternation of a musical fragment and a pause. This function determines the number of music fragments to be sent to the TKP. After entering the section, you need to dial the number of signals on the keyboard and press "B", the maximum value is 60.

#### **Chapter №12 Ringing volume in the subscriber unit**

Used to set the audio level in the subscriber handset. There are two variants of loudness - "quietly", "loudly". After entering the section, you need to dial the number of the subscriber for which you need to change the volume of the call, press "B", then press: "1" "B" - to set the minimum volume level, "2" "B" - to set the maximum volume level. If it is necessary to conduct actions for all subscribers, then instead of the subscriber number, press "0" next "B".

#### **Chapter №13 Incorporation of a common or individual code**

Used to allow the work of a common or individual code. After entering the section, you need to press: "1" - to allow the work of the general code, "3" - to prohibit the work of the common code, "4" - to allow the work of the individual code, "6" - to prohibit the work of the individual code. For simultaneous work of the general and individual code it is necessary to allow the work of the general, then individual code.

#### **Chapter №14 Changing the General Code**

Used to enter a new common code. After entering the section, you need to type a new common code. After dialing the 4th digit, you must press "B", then the new code will be saved. The factory setting is -1234.

#### **Chapter №15 Changing the code table number**

Used to generate a new table of individual codes. After entering the section, you need to dial the table number and press "B", the maximum value is 250. Some code tables are in Appendix 1.



## Chapter № 16 Changing the individual code

Used to enter a new individual code in the set individual codes table. After entering the section, you need to dial the number of the subscriber, for which you need to change the code, press "B". Further it is necessary

Fig. 4 Example of mounting the outdoor panel MK2008.2-TM4EN for fenced areas with one entrance to the territory. (On the Master outdoor panel, close the jumper LN).

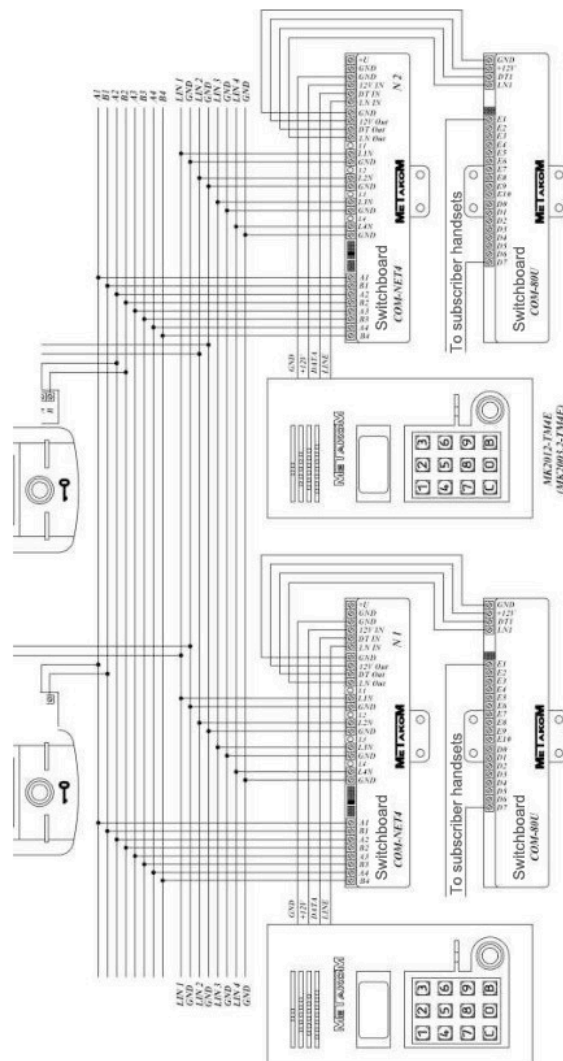


Fig. 5 An example of installing a outdoor panel MK2008.2-TM4EN for fenced areas with multiple entrances to the territory using network switches. (On the Master outdoor panel, the LN jumper must be closed).

#### **Chapter №4 Deleting electronic keys**

Used to delete TM keys from the memory of the outdoor panel.

Removal is carried out in 3 modes: deleting "shared" keys, deleting "individual" keys and deleting all keys. After entering the section, you need to press: "4" "B" - to delete "common" keys, "5" "B" - delete "individual" keys, "6" "B" - delete all keys. After entering the subsection of deleting "individual" keys of the subscriber, it is necessary to enter the subscriber's number and press "B". When removing the keys, an audible signal will sound and alternate flashes of LEDs will appear at the top of the panel.

#### **Chapter №5 Including key coding**

Used to specify an individual key number. Using the adapter MKA-02U, you can write the individual code into the TM-key MK2004. If the same code is recorded in the doorphone, the doorphone will only react to keys with such a code, so it becomes possible to exclude the use of non-original TM keys.

After entering the section, enter the code (number from 1 to 255) and press "B". If the input is correct, a beep will sound. To disable this function, after entering the section, enter "O" and "B".

#### **Chapter №6 Disabling the reading of electronic keys**

Used to block the operation of the electronic keys reading protocols.

After entering the section, you need to press: "1" - to enable reading of TM2002 keys, "3" - to disable TM2002 keys reading, "4" - read permission for TM2003 and Dallas, "6" for reading TM2003 and Dallas.

#### **Chapter №7 Activation of electronic key collection mode**

Used to automatically record subscriber keys when the key is applied to the reader. This opens the door. After entering the section, you need to press "1" "B" to allow autoscore or "O" "B" to disable auto-collection.

#### **Chapter №8 Time of opening the lock**

Used to set the required duration of the lock opening. After entering the section, you need to dial the opening time in seconds and press "B", the maximum time for input is 100 seconds. If you enter a value greater than 100, the type of the sound melody (short beep) will be changed when the lock is opened (for example, if 110 is entered, the lock opening time will be 110-100 = 10 seconds)

## **Chapter №9 Talk duration**

Used to set the required duration of the call of the visitor to the subscriber. Input range 0 ... 200 s. After entering the section, dial the talk time in seconds and press "B", the maximum value is 200.

subscriber and press "B". A sign of the parameter is the alternate flashes of LEDs at the top of the outdoor panel. This setting affects all subsequent changes in the parameters of the outdoor panel, so it must be carried out at the beginning of modifying the outdoor panel parameters

## **Chapter №2 Disconnecting subscribers**

Used to disconnect the subscriber's service. When you call a disconnected subscriber, an erroneous beep will sound. After entering the section, dial the number of the subscriber to be switched off, press "B", then press:

"O" "B" - if it is necessary to turn off the service

"1" "B" - if it is necessary to turn on the service If the input is correct, a beep will sound. If it is necessary to conduct actions for all subscribers, then instead of the subscriber number, press "O" next "B".

This setting affects all subsequent changes in the parameters of the outdoor panel, so it must be performed at the beginning of the change of the subordinate parameters of the outdoor panel.

## **Chapter №3 Recording electronic keys**

Used to enter TM keys in the memory of the outdoor panel. Record TM keys is carried out in 2 modes:

- the mode of "common" keys,
- mode of "individual" keys.

In the mode of "common" keys, TM keys are written to the common database without pointing to a specific subscriber, and the function of giving the subscriber's alert signal is not available. In the mode of "individual" keys TM key is written to the number of a particular subscriber.

If a key overflow occurs during the recording of TM keys, an error signal will be issued and further key recording will not be possible.

After entering the section, you need to press: "1" "B" - to write the public keys, "2" "B" - to record individual keys. In the common key registration mode, attach the key to the reader, the key will be recorded, if the key is already written, an error signal will sound. In the mode of recording individual keys, it is necessary to dial the number of the subscriber to which the keys will be recorded, press "B" and attach the key to the reader, the key will be recorded, if the key is already recorded, then an erroneous signal will sound. If the key is correctly recorded, a beep will sound and alternate flashes of LEDs will appear at the top of the unit.

In this paragraph you can see the number of recorded keys, for this you need to press "3" "B". The number of recorded keys will be displayed on the screen, with the backlighting of the digits alternating, the first highlighted value being the highest digit of the number of keys and then the remaining 3 values of the four-digit number of keys are lit in order. Press "C" to exit.

## 7. PREPARATION FOR WORK

Preparing the doorphone for work consists in programming the parameters for the system's compliance with the requirements set at the installation site, and entering subscriber TM keys. Programming is carried out directly from the outdoor panel keypad or on a personal computer using a special program, the METAKOM MKA-02U adapter and the Dallas iButton DS 1996 TM-key (b). All parameters are stored in the non-volatile memory of the device (hereinafter EEPROM), which ensures the safety of data in the absence of supply voltage.

When the outdoorpanel is delivered, the EEPROM contains the initial settings shown in the table.

N	Parameter	Value
1	Offset of subscribers	No
2	Service number range	1 ... 20
3	Ban of subscribers	All are allowed
4	Key types	All are allowed
5	Reading copies of TM2002 key	Disabled
6	On autoset key mode	Disconnected
7	Opening time of the lock	4 sec
8	Talk duration	90 seconds
9	Number of ringtones	12
10	Ring volume in the subscriber device	Maximum
11	Using generic or individual code	Codes are disabled
12	Number of code table	1
13	Enable subscriber notification by key or code	Disabled
14	Subscriber Tube Position Threshold	50
15	The threshold level of the button for opening the lock on the tube	50
16	System code	123456
17	Master key	Not programmed
18	Networking	Disabled

In programming mode, it is possible to repeatedly change any of these parameters, as well as return all settings to their original state.

In the outdoor panel, you can view the serial number. The serial number is set at the factory and is not subject to change in the future. To view, you must press and hold the "C" button, after the sound signal on the keyboard, the number illumination will alternately light up, the

first highlighted value will be the highest digit of the serial number and then the next seven values of the eight-digit serial number will light up in order.

## 7.1 OUTDOOR PANEL PROGRAMMING MODE

In the programming mode, access to the sections is made by typing the corresponding section number on the keyboard and pressing the "B" button, if there is a subsection, access to it is done by pressing the corresponding buttons. Exit the sections and the programming mode by pressing the "C" button. If no changes have been made or the buttons are pressed, the partition or programming mode will automatically exit after a while. When you enter incorrect data, an erroneous alarm sounds. The table shows the names of the sections and the combination of buttons for accessing them

N menu	Menu name	Enter the menu	Submenu	Enter the submenu
1	First subscriber number	«1» «B»	-	-
2	Disconnecting subscribers	«2» «B»	-	-
3	Recording keys	«3» «B»	Shared keys	«1» «B»
			Individual keys	«2» «B»
			Number of recorded keys	«3» «B»
4	Deleting keys	«4» «B»	Shared keys	«4» «B»
			Individual keys	«5» «B»
			All keys	«6» «B»
5	Enabling key encoding	«5» «B»	-	-
6	Turn-off key reading	«6» «B»	Read permission for	«b»
			Prevent reading of TM2002	«3»
			Read permission of TM2003	«4»
			Prevent reading of TM2003	«6»
7	On autoset key mode	«7» «B»	-	-
8	Opening time of the lock	«8» «B»	-	-
9	Talk duration	«9» «B»	-	-
10	Ringing time	«10» «B»	-	-
11	Ringing volume	«11» «B»	-	-
12	Deactivate the ringtone on the outdoor panel	«12» «B»	-	-
13	Include a single or shared code	«13» «B»	Enable shared code	«1»
			Disable shared code	«3»
			Enabling the in-line code	«4»
			Disable the in-line code	«6»
14	Changing the General Code	«14» «B»	-	-
15	Changing the code table	«15» «B»	-	-
16	Changing individual code	«16» «B»	-	-
17	Notification by code or key	«17» «B»	-	-
18	Subscriber Tube Test	«18» «B»	-	-

19	Setting the threshold for determining the position of the subscriber tube	«19» «B»		
20	Setting the threshold of the lock button on the tube	«20» «B»		
21	Recording of electronic media 081996	«21» «B»	Recording System Settings	«1»
			Recording of keys (1st thousand)	«2»
			Recording of keys (2nd thousand)	«3»

## 7.2 ENTER TO PROGRAMMING MODE

To enter the programming mode, you need to know a special master code or a programmed master key.

A) Enter the programming mode using the master code.

When the outdoor panel is in standby mode, you must press and hold the "B" button for 5 seconds before the blinking of the keypad flashes, then dial the master code ("123456" - the factory master code) on the keyboard, each press is accompanied by an audio Signal and LED illumination at the top of the outdoor panel. After that, if the code is entered correctly, the outdoor panel goes into the programming mode, the flashing lower LED (green) is a sign of being in the programming mode.

B) Enter the programming mode using the master key.

When the outdoor panel is in standby mode, you must press and hold the "B" button for 5 seconds before the blinking of the keypad flashes, then type "O", "O", "O", "O", "O" on the keyboard, "O", attach a master key to the reader. After the master key is identified, it will enter the programming mode.

## 7.3 DESCRIPTION OF THE SECTIONS OF THE PROGRAMMING MODE

### Chapter №1 First subscriber number

Used to set the offset of subscriber numbers if the number range exceeds 20. After entering the section, dial the first subscriber number