

## OPERATING MANUAL

Technical description. Installation manual. Certificate.

ПШБА.304268.101 РЭ

## PATENT FOR INVENTION

No.2382861

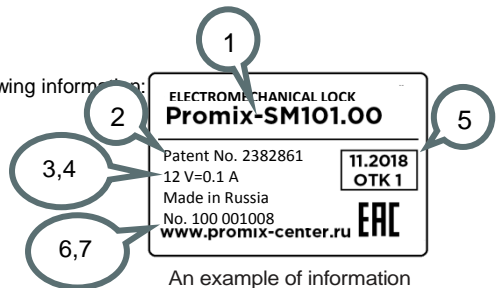
## 1. PURPOSE

Electromechanical locks series Promix-SM101 with a ball locking mechanism (hereinafter referred to as the locks) are intended for locking of swing doors that open both inward and outward, which can be opened remotely by energizing/de-energizing (depending on the version) the lock with DC supply voltage by means of switches (buttons) or controllers of access monitoring and control systems, audio and video intercoms, code panels or other devices. The lock design and mounting method allow them to be installed inside or outside the protected premises on practically any door types.

## 2. LABELING

The label stuck to the lock body contains the following information:

1. Lock model.
2. Patent number.
3. Nominal supply voltage.
4. Nominal consumed current.
5. Date of manufacture and QCD mark
6. Identification number.
7. Manufacturer's website.



An example of information layout on the label.

### Promix-SM101.XX.X

Availability of built-in sensors:

0(Absence) - no sensors. 3 - door and lock sensors

Supply voltage:

0 - 12V. 1 -24V

Version:

0 - normally opened, 1 - normally closed

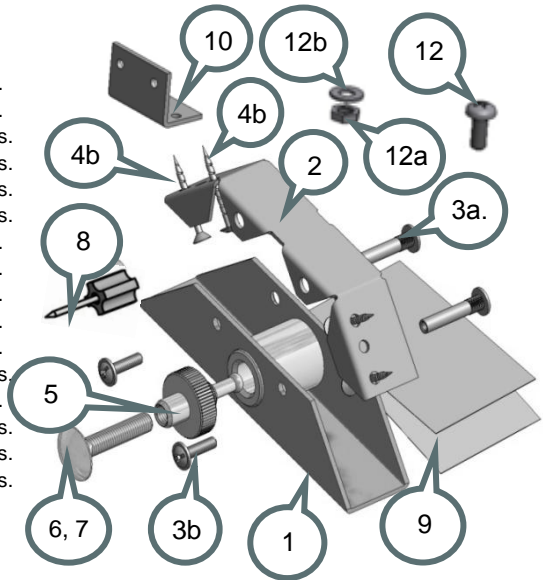
For the list of lock modifications that can be ordered, see 5.2.

The color of the product is shown on the sticker stuck to the box, after the product name. Series colors: **Silver, White, Brown.**

Other colors are provided optionally.

### 3. SET OF DELIVERY

- |                                    |        |
|------------------------------------|--------|
| 1 – Lock                           | 1 pc.  |
| 2 – Bracket                        | 1 pc.  |
| 3a – Lock fixture tie M4           | 2 pcs. |
| 3b – Screw M4x16 (pan head)        | 2 pcs. |
| 4a – Self-tapping screw 4x30 (cup) | 2 pcs. |
| 4b – Self-tapping screw 4x30       | 2 pcs. |
| 5 – Latch, assembled               | 1 pc.  |
| 6 – Bolt M8x35                     | 1 pc.  |
| 7 – Bolt M8x60                     | 1 pc.  |
| 8 – Marking tool                   | 1 pc.  |
| 9 – Operating manual               | 1 pc.  |
| 10 – Angular bracket with marking  | 2 pcs. |
| 11 – Bracket fixing template       | 1 pc.  |
| 12 – Screw M4x8 (pan head)         | 4 pcs. |
| 12a – Nut M4                       | 4 pcs. |
| 12b – Retainer washer for M4       | 4 pcs. |



**Check completeness of the lock set when buying! After buying, the manufacturer will not accept claims related to incomplete set.**

### 4. DESIGN AND PRINCIPLE OF OPERATION

The locks are produced in two versions: normally opened (NO), and normally closed (NC). NO lock is in the open state when de-energized and in the closed state when the latch is inserted and voltage is supplied. NC lock is in the closed state when the latch is inserted and no voltage is supplied, and in the open state when the lock is energized. For opening the door, it is necessary first to de-energize NO lock or to supply voltage to NC lock; only after that the door can be opened. A lock of NC version includes additionally “an emergency exit rod” located on the side opposite to the aperture for latch insertion. For emergency opening the lock, pull the “emergency exit rod”.

Depending on modification, **NO lock** may be provided with sensors: a door position sensor and a lock state sensor. The built-in door position sensor consists of a sealed-contact reed relay mounted on the lock body and a magnet mounted on the mobile sleeve of the lock and displaced by the latch. The reed relay contacts open when the door is opened (the latch is withdrawn from the lock) and close when the door is closed (the latch is inserted into the lock to a stop).

The built-in lock state sensor consists of a sealed-contact reed relay fixed to the electromagnetic coil of the lock. The reed relay contact open when the lock is de-energized, and close when current is flowing through the coil.

Thus, when both sensors are connected in the circuit in series, the circuit will be closed only when the latch is inserted into the lock (the door is closed) and the lock consumes current (is in the closed state).

## 5. TECHNICAL DATA

### 5.1 OPERATING CONDITIONS

The lock operation environment must be explosion-safe, free of current-conducting dust or gases that cause metal corrosion and destroying insulation of current conductors and electric elements, free of current-carrying dust or water vapor, and preventing ingress of water, steam, fuel and lubricants.

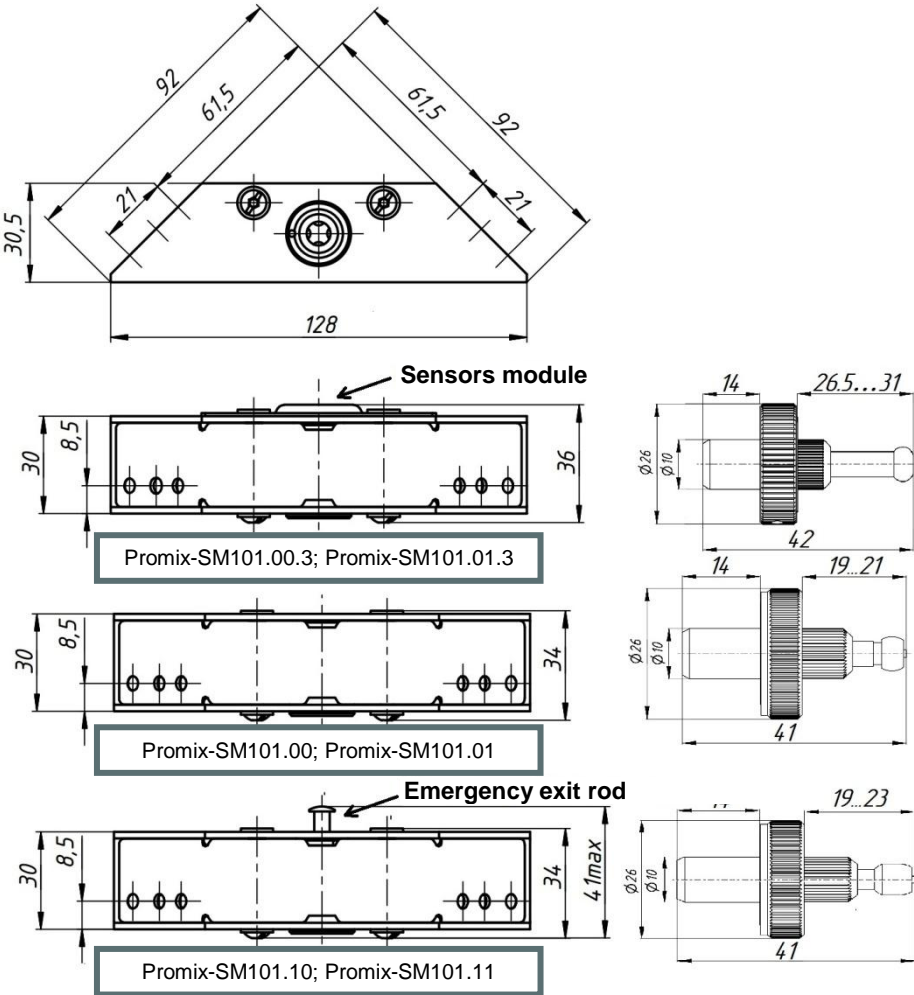
Climatic conditions of operation – Y3.1 as per GOST 15150-69 with extended temperature range:

- ambient temperature: from -30 to +50 °C;
- Relative air humidity: not higher than 98% at 25°C or lower temperatures without moisture condensation and hoar-frost formation;
- installation indoors or outdoors excluding ingress of moisture, dust, dirt, etc. inside the lock.

### 5.2 TECHNICAL DATA

Modification	Promix-SM101.00	Promix-SM101.00.3	Promix-SM101.01.3	Promix-SM101.01	Promix-SM101.11	Promix-SM101.10
Version	normally opened				normally closed	
DC supply voltage U, V	12±2		24±2		12±2	
Current consumed, A	0.1 (at 12V)		0.05 (at 24V)		0.1 (at 12V)	
Operating mode	continuous					
Built-in sensors	-	door sensor and lock sensor		-		
Maximum switch current of the sensor (DC), A:	-	0.5		-		
Maximum switch voltage of the sensor (DC), V:	-	36		-		
Sensor output signal type	-	“dry contact”		-		
Lock weight (not more than), kg	0.45					
Holding force (not less than), kg	400					
Power wire length, m	0.1					

**Lock and latch overall and mounting dimensions.**

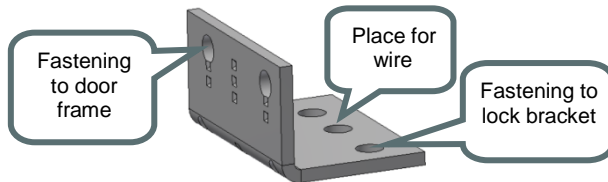
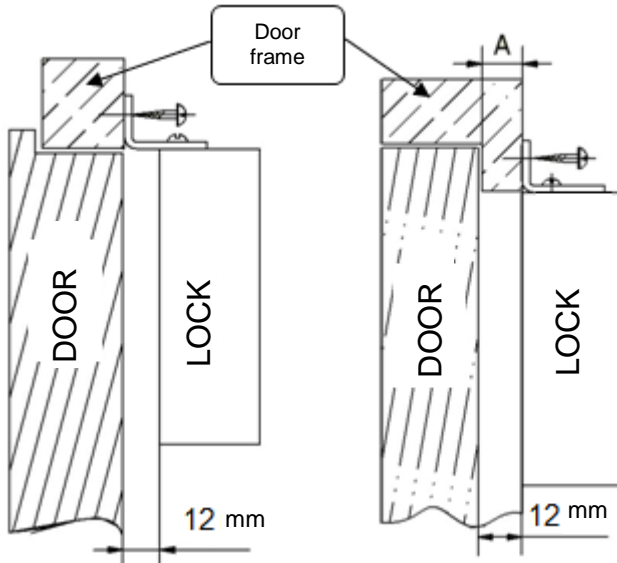


## 6. INSTALLATION AND CONNECTION

### 6.1 LOCK MOUNTING

Lock mounting depends on door frame ledge width **A**. If the ledge width is **less than 25.5mm**, use angular brackets **10**. At the place shown (see Fig. below), drill five holes in the angular bracket: for fastening the lock to the bracket (2 holes), for lead-out of wires (1 hole), for fastening to the door frame (2 holes). Connect angular brackets to the lock bracket by screws **12** (M4x8) using nuts **12a** and retaining washers **12b**.

**Door frame ledge width A (see Fig.) 0...17 mm**

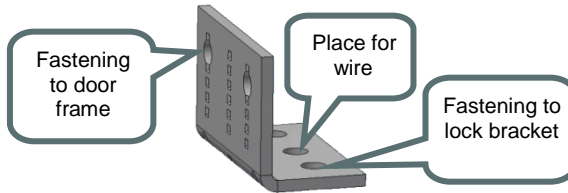
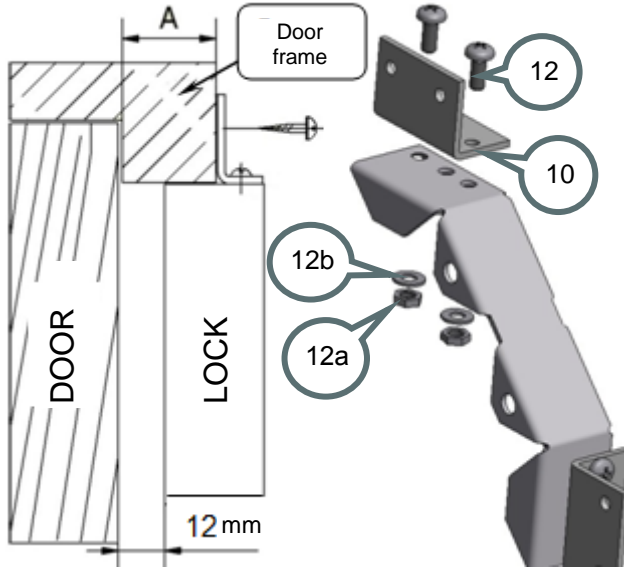


Drill five holes 4.2...4.7 mm in diameter at the shown places of the angular bracket. **The wide side of the angular bracket adjoins the lock, and the narrow side - to the door frame.**

<b>A, mm</b>	<b>0...2.5</b>	<b>2.5...5.0</b>	<b>5.0...7.5</b>
<b>Place of drilling</b>			
<b>A, mm</b>	<b>7.5...10.0</b>	<b>10.0...12.5</b>	<b>12.5...17.0</b>
<b>Place of drilling</b>			

Mounting of the latch on the door is described at the end of this section.

**Door frame ledge width A (see Fig.) 17...25.5 mm**

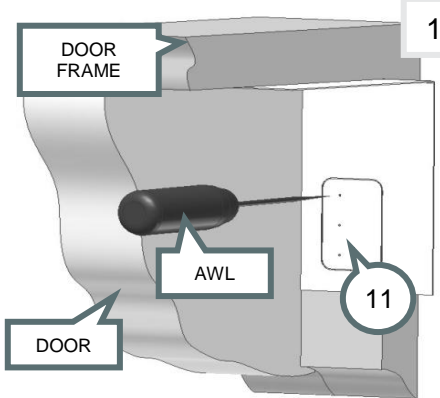


Drill five holes 4.2...4.7 mm in diameter at the shown places of the angular bracket. **The narrow side of the angular bracket adjoins the lock, and the wide side - to the door frame.**

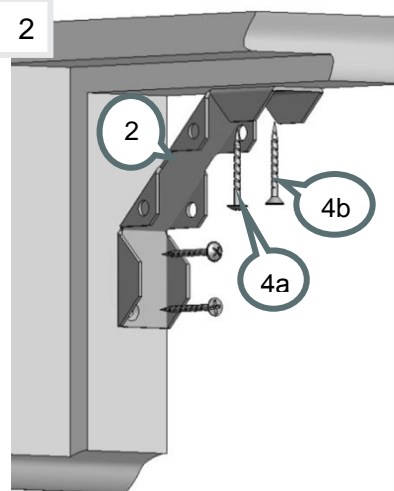
A, mm	17.0...20.5	20.5...23.0	23.0...25.5
<b>Place of drilling</b>			

Mounting of the latch on the door is described at the end of this section.

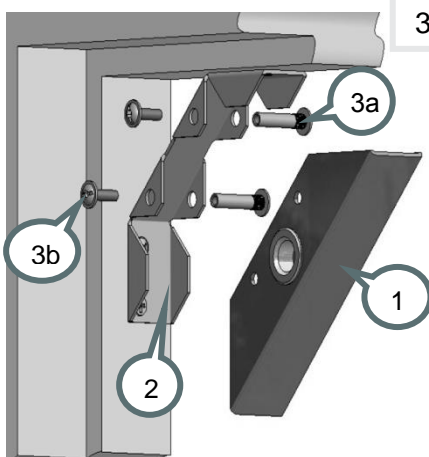
**Door frame ledge width A exceeds 25.5 mm**



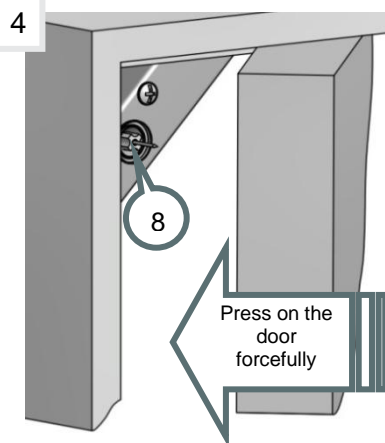
1. Close the door firmly.
2. Apply the template **11** to the upper corner of the door frame, on the door handle side. Press the marked edge of the template snugly to the door leaf.
3. By piercing the template with an awl, mark hole centers on the door frame.
4. At marked points, drill 2-mm diameter holes in the door frame for bracket fixing and a central 5-mm diameter hole for wires.



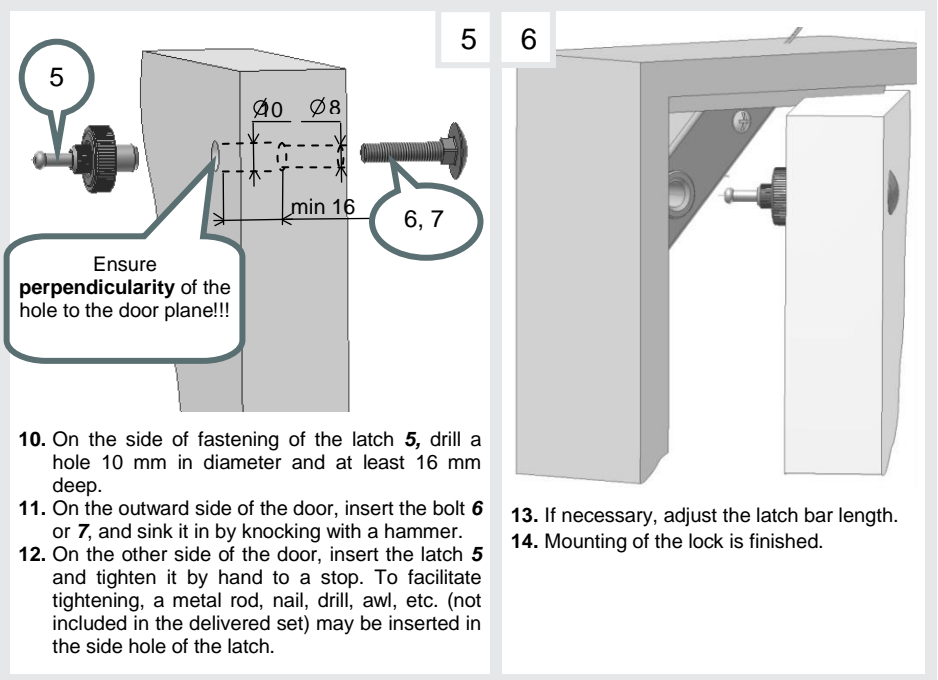
5. Fix the bracket **2** using two pan-head screws **4a** and two countersunk screws **4b**.



6. Having passed the lock wires through the prepared hole, mount the lock **1** on the bracket **2**, rotating about ties **3a** axis, reach their easily entering the holes and fix them with screws **3b**.



7. Insert the marking tool **8** in the opening of the lock **1**.
8. Close the door and press on it.
9. An imprint of the place where a through hole 8 mm in diameter to be drilled will remain on the door.



## 6.2 CONNECTING PROCEDURE

The lock operation is controlled by means of energizing and de-energizing. For this purpose, a controller (control board) or a switch (button) is generally used. The controller is mounted in accordance with its certificate.

Connect the lock power wires adhering to the following polarity:

**Red (black with a red stripe) – positive pole of the power supply;**

**Black – negative pole of the power supply;**

Application of voltage of reverse polarity does not provide the lock operability but does not make it unserviceable.

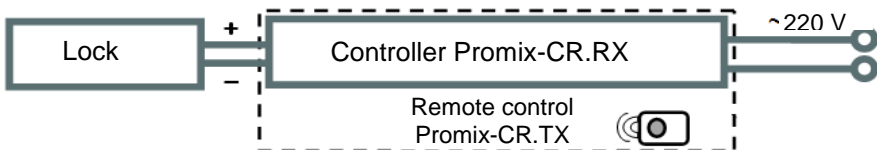
**See operating voltage range in 5.2. Avoid supply of overvoltage.**

Connect sensor leads:

**White, Green – output of the lock state sensor**

**Brown, Yellow – output of the door position sensor.**

An example of the lock connection to the remote control system Promix-RDS.



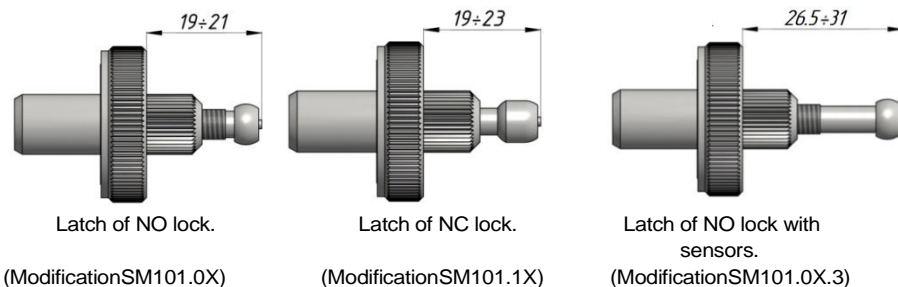


**Provide a reliable electric contact. To prevent short-circuit, insulate places of connection.**

## 7. SPECIAL ASPECTS OF INSTALLATION AND OPERATION

- 1) The possibility of using of the locks for restriction of access to the premises and the place of installation (outdoors or indoors) are determined by the **installation organization** on the basis of the design features and the mounting method, room criticality level, the purpose of the access restriction regime and other factors (the presence of security providers, video surveillance, etc.).
- 2) When mounting the lock and the latch, it is necessary to ensure their coaxial alignment within the latch free movement allowance.
- 3) Length (without the head) of the latch fastening bolt **6** or **7** (selection depends on the door thickness) must be 3...7 mm shorter than the door thickness; if necessary, shorten the bolt.
- 4) When the door is closed, the latch must be inserted in the lock **to stop**. The lock does not open when the door is in a "tension" condition, i.e., when some external force is applied to open the door, e.g., someone pulls the door handle.
- 5) The properly mounted lock provides the necessary free motion (play) of the door of 2.5-3 mm. If the free play is less, NC lock may **fail to open** when energized, and NO lock may **fail to close** when energized (see section 8).
- 6) During mounting the NC lock, take care that some person is always on the side of the lock placement during start-up and adjustment! To open the NC lock manually, press the door against the door frame and pull the "emergency exit rod".
- 7) During operation of the NC lock, availability of the "emergency exit rod" is obligatory! Since it is necessary to ensure people's leaving the room in case of emergency.

For all versions of the lock fastening, the distance between the door and the lock body must be within 12...15 mm for modifications without sensors (10...13.5 mm for modifications with sensors). The latch bar length is provided for 12-mm distance between the door and the lock body (10mm for the modification with sensors) and is 19 mm (26.5mm for the modification with sensors). In case of a longer distance, it is necessary to adjust the length by rotating the latch bar. The latch bar length must not exceed 21 mm for NO lock, 23 mm for NC lock and 31 mm for NO lock with sensors.



## 8. TROUBLE-SHOOTING

<b>Troubles and problems</b>	<b>Remedies</b>
<p>NC lock does not open when supply voltage is applied.</p>	<p>Using a tester, check integrity of the lock power circuit.</p> <p>Press the door against the door frame and pull the emergency exit rod, or apply an elevated voltage of 20-30V to the lock for a short time. After opening the lock, increase the latch bar length. To do this, fix the knurled nut with one hand, and screw the latch bar out of the nut to the required length with the other hand (or with flat-nose pliers).</p>
<p>Increased free play of the latch (more than 3 mm) while the lock is in the closed state.</p>	<p>Decrease the latch bar length. To do this, fix the knurled nut with one hand, and screw the latch bar into the nut to the required length with the other hand (or with flat-nose pliers).</p>
<p>A large clearance between the door and the door frame as the door is closed (the latch stops against the inside of the lock).</p>	
<p>The lock does not fix the latch (the door is not closed).</p>	<p>Transfer the lock to the “closed” state (apply or remove supply voltage, depending on the lock version). Check polarity and conformity of the lock supply voltage to the required one.</p> <p>Fix the knurled nut with one hand, and screw the latch bar out of the nut to the required length with the other hand (or with flat-nose pliers).</p>
<p>The door is not opened when transferred to the “open” state. To open the door, one has to press it more snugly to the door frame.</p>	<p>Remove the causes of the non-tight door bearing against the door frame.</p> <p>Use a door closer.</p> <p>Increase the latch length.</p>
<p>The door has sunk during use (automatic latch alignment is insufficient), therefore, the latch does not enter the lock aperture or hits the lock as enters.</p>	<p>Restore the door position. If this is impossible, remove the latch fixture from the door. Drill the hole in the door to increase its diameter. Fasten the latch to the door ensuring alignment with the lock aperture.</p>
<p>In a NO lock, the latch is not inserted completely into the lock (“balls are seized”).</p>	<p>De-energize the lock. Insert a steel rod 3-5 mm in diameter (screw-driver, drill, etc.) into the lock aperture to a positive stop and pull it out.</p>

## 9. MAINTENANCE

Maintenance of the lock is performed at least once every two months and includes:

- Visual inspection of the lock to check reliability of fastening. If necessary, tighten fasteners of the lock and the latch.
- Check the latch bar length. If the latch bar abuts against the lock body and this leads to gapping between the door and the door frame, or if the latch is not fixed when the door is closed, adjust the latch bar length (see section 8).

**The lock does not need lubrication!**

## 10. STORAGE AND TRANSPORTATION

Prior to putting into operation, the locks must be stored in the manufacturer's packing, in rooms with an ambient temperature of -30 to +50 °C and a relative humidity not higher than 98% at 25° C in compliance with storage conditions as per GOST 15150-69.

Locks transportation conditions must comply with group C as per GOST 23216-78 in terms of exposure to mechanical factors, and Ж2 as per GOST 15150-69 in terms of exposure to climatic factors.

## 11. SAFETY REQUIREMENTS

The design of the locks ensures safety of personnel involved in mounting and maintenance.

Due to low DC supply voltage, the products correspond to class III as per ГОСТ 12.2.007.0-75 and are electrically safe.

Fire safety of the locks is ensured by use of non-combustible or hardly combustible materials, and low supply voltage.

## 12. DISPOSAL

The product is not hazardous for human life and health or for the environment; disposal after its service life is performed without taking any special measures for environment protection.

## 13. WARRANTY LIABILITIES

The manufacturer, ETC PROMIX LLC, warrants conformity of Promix-SM101 locks to requirements of current Technical Specifications provided that transportation, storage, installation and operation rules established in this Manual are followed.

**The warranted operation period is 12 months from the date of sale but not longer than 18 months from the day of acceptance by the manufacturer's QCD.**

Within the period of warranty, ETC PROMIX LLC undertakes to repair defective products free of charge. Expenses for transporting the product to the place of repair and back will be borne by the Buyer.

Warranty liabilities do not cover any defects and damages caused by:

- Improper maintenance by the Buyer;
- Use of the product under conditions that do not comply with the operation requirements;
- Mechanical damages or disassembly of the products by the Buyer;
- Non-observance of the transportation and storage rules.

**Faulty products are accepted for repair only together with the latch, on the obligatory condition that factory labels are retained on the product body.**

On expiration of the warranty service period, the manufacturer provides after-warranty service on a contractual basis.

**To improve product quality the manufacturing plant reserves the right to make modifications to the product design without prior notice.**

## **14. ACCEPTANCE AND PACKING CERTIFICATE**

Electromechanical lock Promix-SM101 in quantity of \_\_\_\_ pieces (1 pc. by default) bearing the manufacturing date and QCD mark on the body, was manufactured and accepted in compliance with Specifications ПШБА.304268.001 ТУ, obligatory requirements of state standards and current technical documentation, recognized as fit for operation and packed by ETC PROMIX LLC.

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