

## OPERATING MANUAL

Technical description. Installation manual. Certificate.

## PATENT FOR INVENTION

No.2474661

## 1. PURPOSE

Electromechanical locks series Promix-SM104 with a ball locking mechanism and a built-in pusher (below called the locks) are intended for restriction of access to trade and office furniture, luggage locker cells, cabinets, chests, various cases and other equipment, 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 makes it possible to eliminate mounting a handle on the door since, as the lock is opened, the door opens slightly by itself.

## 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.

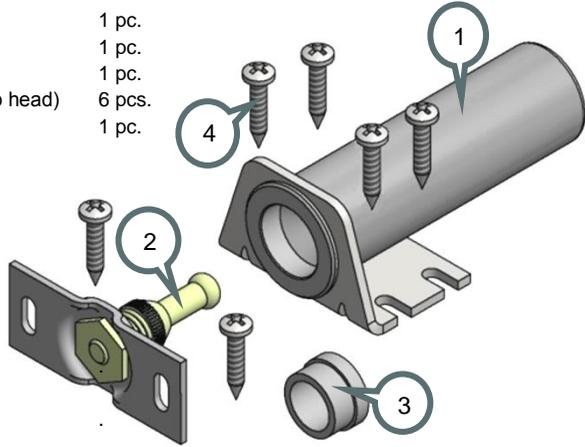
Promix-SM104.XX.X

Availability of built-in sensors:  
0(Absence) - no sensors. 1 - 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.

### 3. SET OF DELIVERY

- |  |        |
|--|--------|
| 1 – Lock                                 | 1 pc.  |
| 2 – Latch with adjustment plate          | 1 pc.  |
| 3 – Alignment piece                      | 1 pc.  |
| 4 – Self-tapping screw 3.5x15 (cup head) | 6 pcs. |
| 5 – Operating manual                     | 1 pc.  |



**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 manufactured in one version based on the normally closed (NC) principle. 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. To open the door, the lock must be energized. When opened, the lock pushes out (shoots off) the latch, which leads to the door opening slightly. The lock operates as well when the door is in a "tension" condition, i.e., when some external force is applied to open the door (see 5.2)(e.g., someone pulls the door handle).

The locked may be equipped with a door position sensor. The built-in door position sensor consists of a magnetically controlled sensor (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 sensor is on the back side of the lock.

### 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.

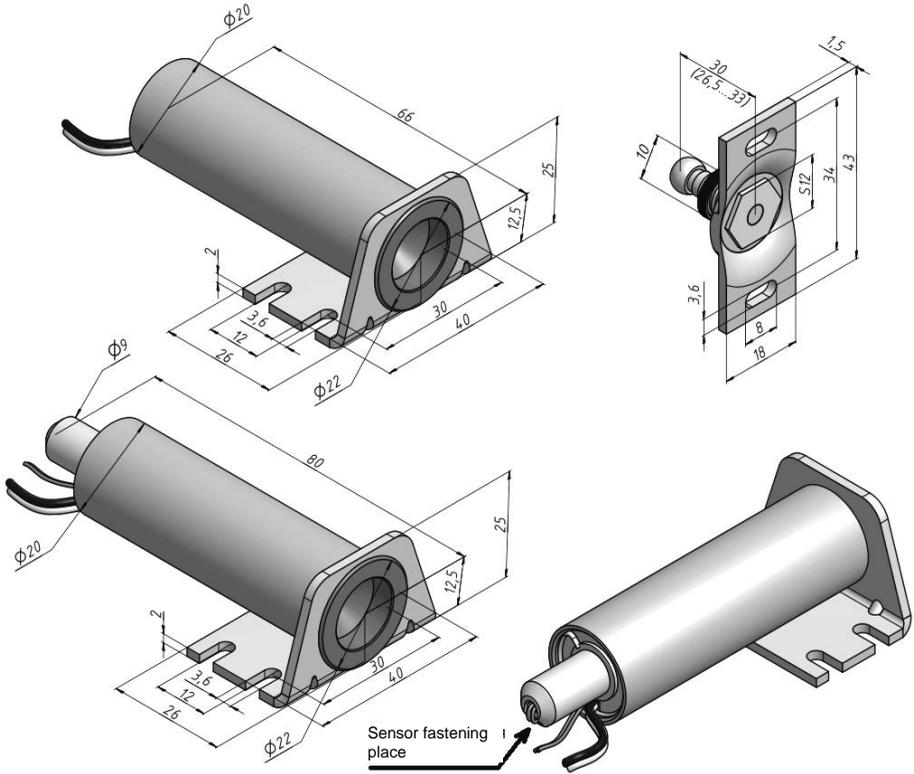
Climatic conditions of operation – Y3.1 as per GOST 15150-69 with extended temperature range:

- 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-SM104.10	Promix-SM104.10.1	Promix-SM104.11.1	Promix-SM104.11
Version	normally closed			
Initial latch pushing out force (not less than), kg	0.7			
Maximum "tension" of the door before opening (not more than), kg	1.5			
DC supply voltage U, V	12±2		24±2	
Current consumed, A	0.35 (at 12V)		0.22 (at 24V)	
Supply pulse duration (not more than), s	0.5-3			
Minimum pause between pulses, s	15			
Built-in sensors	-	door position 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	0.15			
Holding force (not less than), kg	300			
Power wire length, m	0.13			

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

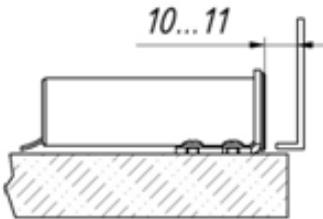


## 6. INSTALLATION AND CONNECTION

### 6.1 LOCK MOUNTING

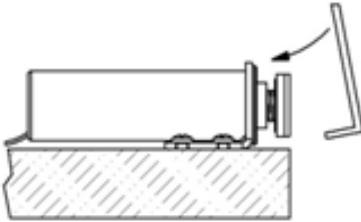
#### Mounting of the lock on a swing door.

1



Mount the lock on an immobile surface. The distance between the inner surface of the closed door to the lock nut must be 10-11 mm, which guarantees the necessary free movement of the door within 3-4 mm with the lock closed. Connect the lock in accordance with 6.2.

2



Insert the latch in the lock after prior centering the latch bar and fitting the alignment piece 3 over the bar (see section 3).

Apply voltage to the lock and make sure that the latch is pushed out of the lock.

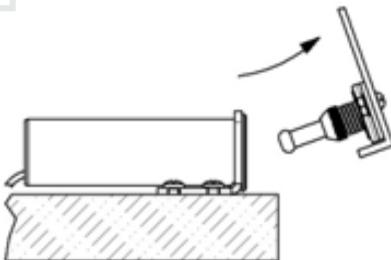
3



De-energize the lock.

Remove the protective film from the two-sided adhesive tape on the latch plate and snap the latch into the lock. Close the door and press it tightly to the cabinet.

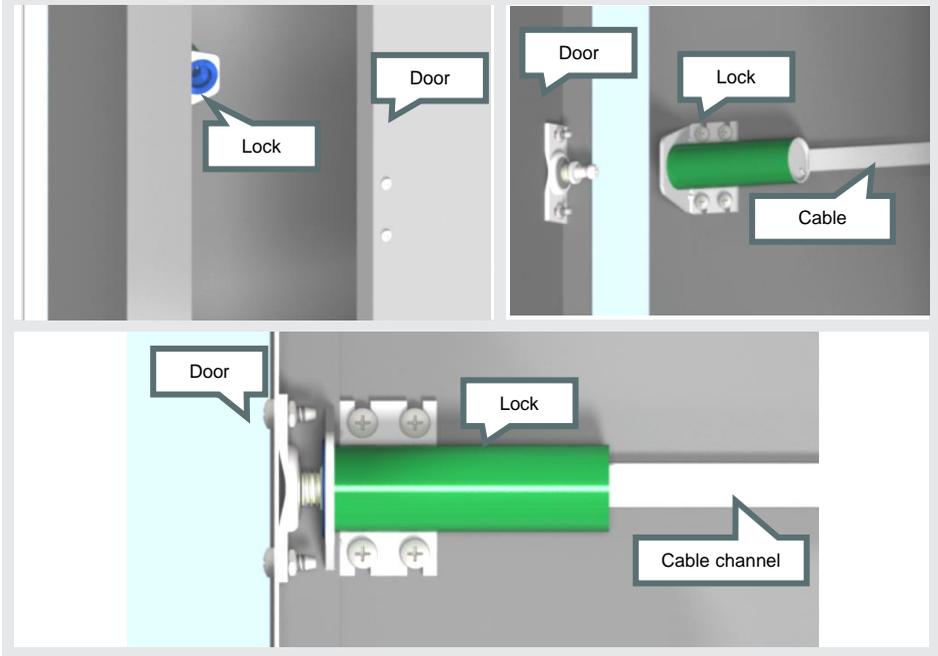
4



Energize the lock. The door must become slightly open.

Fasten the latch to the door with self-tapping screws. Remove the alignment piece. The lock is ready for operation.

### Example of lock mounting on a metal cabinet with a swing 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;**

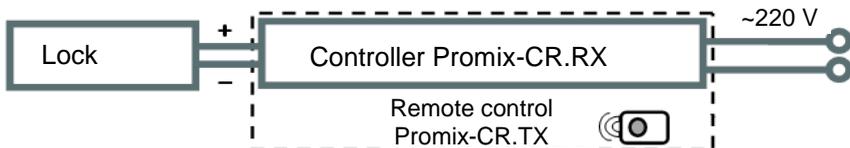
Application of voltage of reverse polarity does not provide the lock operability but does cause its failure.

**See operating voltage range in 5.2. Avoid application of a higher voltage or excessive pulse duration.**

Connect sensor leads:

**Colored wires (yellow, green, etc.) – door position sensor output.**

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

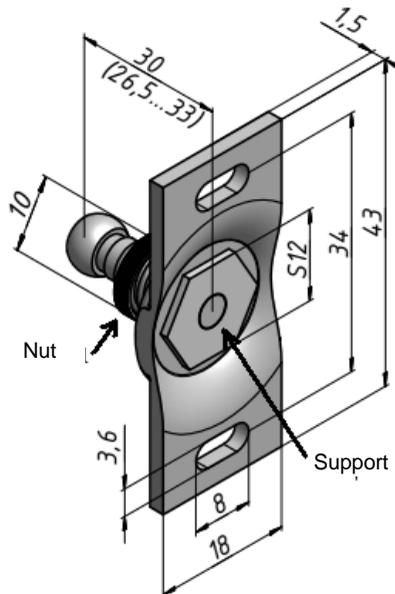


**Provide a reliable electric contact. To prevent short-circuit, insulate places of connection.**

## 7. SPECIAL ASPECTS OF INSTALLATION AND OPERATION

- 1) The possibility of using of the locks for restriction of access to the premises or to equipment and the place of installation (outside or inside) 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) When the door is closed, the latch must be inserted in the lock **to stop**. The lock may fail to open when the door is an excessive "tension" condition, i.e., an excessive external force for opening is applied (see 5.2).
- 4) The properly mounted lock provides the necessary free motion (play) of the door of 3-4 mm. If the free play distance is shorter, the lock may **fail to open** when energized (see section 8).
- 5) Operation of an installed lock should be tested only if the supply voltage can be applied thereto.

In all lock fastening versions, the latch bar length must not exceed 33 mm. The latch length adjustment is performed as follows: fix the latch support with a wrench, loosen the latch nut, screw in/out the latch bar to the required length, rotate the latch nut to a stop, and tighten reliably.



## 8. TROUBLE-SHOOTING

Troubles and problems	Remedies
<p>The lock does not open when supply voltage is applied.</p>	<p>Using a tester, check integrity of the lock power circuit.</p> <p>Close the door, case, etc. tightly and press on it at the latch fastening place, and apply voltage to the lock. If the lock does not open, apply an elevated voltage of 20-30 V (up to 36 V for a 24 V modification) for a short time.</p> <p>After the lock opening, increase the latch bar length. To do this, fix the latch support with a wrench, loosen the latch nut, screw out the latch bar, tighten the latch nut.</p>
<p>Excessive free play of the latch (more than 4mm) while the lock is in the closed state.</p>	<p>Decrease the latch bar length. To do this, fix the latch support with a wrench, loosen the latch nut, screw in the bar, tighten the latch nut.</p>
<p>A large clearance between the door and the base 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>Check polarity and conformity of the lock supply voltage to the required one.</p> <p>Check the distance between the latch and the lock; if necessary, increase the latch bar length. To do this, fix the latch support with a wrench, loosen the latch nut, screw out the bar, tighten the latch nut.</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, dismantle the latch from the door. Fasten the latch to the door ensuring alignment with the lock aperture.</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 base, 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 GOST 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-SM104 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-SM104 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, obligatory requirements of state standards and current technical documentation, recognized as fit for operation and packed by ETC PROMIX LLC.

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