

1. APPLICATION

LB-85.1 is a normally-closed electromechanical mortise door lock (hereinafter – the lock), designed to be used as an operating device as a part of access control system (hereinafter – ACS) to control light and medium office doors.

Lock features:

- the lock has a unique construction, allowing to connect lock control cable through the strike plate in the door frame, not through the door leaf, which makes installation easier;
- the lock can be installed in wooden and non-metallic doors 38-50 mm thick;
- a universal lock construction enables its installation on both right-handed and left-handed doors;
- the lock is designed for use with standard lock cylinders;
- all components of the lock and strike plate have corrosion-resistant coating;
- the lock is resistant to self-opening (for instance, as a result of a hard kick on the door);
- the lock has low power consumption (max 2 W);
- the design of the lock does not require preventive maintenance and lubrication from the customer for the entire period of operation;
- the lock closes automatically at shutting the door;
- the lock can be released with the key or by a signal from ACS;
- de-energized lock can be released with the key only.

The lock with regard to resistance to environmental exposure complies with GOST 15150-69, category NF4 (operation in premises with climate control).

Operation of the lock is allowed at ambient air temperature from +1°C to +40°C and at relative air humidity of 75% at +15°C.

The lock has a marking in the form of label located on its housing. The label contains product name, its serial number, the manufacture date and its main technical specifications.

The product is packed in a carton box, protecting it from being damaged during transportation and storage.

Box dimensions (L × W × H) 12×22×4 cm
Gross weight max. 0.7 kg

Lock storage is allowed indoors at ambient air temperature from -50°C to +50°C. Storage time in closed package is 12 months.

The lock in the original package can be delivered by means of land (railway and road), sea and air transport. It is allowed to stack the boxes while in transit.

2. TECHNICAL SPECIFICATIONS

Attention!

Due to the continual product improvement the manufacturer reserves the right to introduce amendments in product design without previous notice.

Technical parameters of the lock comply with GOST 538-2001 and GOST 5089-2011.

DC voltage	11 – 13 V
Operational current	0.08 - 0.12 A
Power consumption	max. 2W
Type (fail-safe performance)	normally-closed
Bolt throw, not less than	15 mm
Centre-to-centre spacing	85 mm
Dimensions	85×22×187 mm
Weight	not more than 0.5 kg
Lock type ¹	cylinder
Unauthorized access protection (UAP)	normal, GOST R 51241-2008
Resistance to opening	I as per GOST 5089-2011
Safety requirements	GOST R IEC 335-1-94
Electric shock protection class	III as per GOST R IEC 335-1-94
MTBF	200000 number of operations
Average lifetime	8 years

Design and composition of the lock are shown in Fig. 1.

3. STANDARD DELIVERY SET²

Attention!

Check the delivery set upon product receipt.

Lock	1
Strike plate	1
Terminal block	1
Lock cylinder fastening screw M5×50	1
Screw 2.9×13 DIN7982	2
Screw 3.9×25 DIN7982	4
Installation template	1
Certificate and operation manual	1
Package box	1

¹ The universal construction provides use of standard pin-type lock cylinders, standard EuroDIN (V DIN 18254), e.g. type 8809, 8209, 8259 produced by company ISEO (Italy), or lock cylinders of D series by Wilco Supply (type 254 – 274 – 294, 453, 454, 554). **The length of lock cylinder fastening screw should not exceed 50 mm.**

² The lock cylinder with a set of keys, door levers with fixing elements, reed switch, control and reed switch cables are not included in the delivery set.

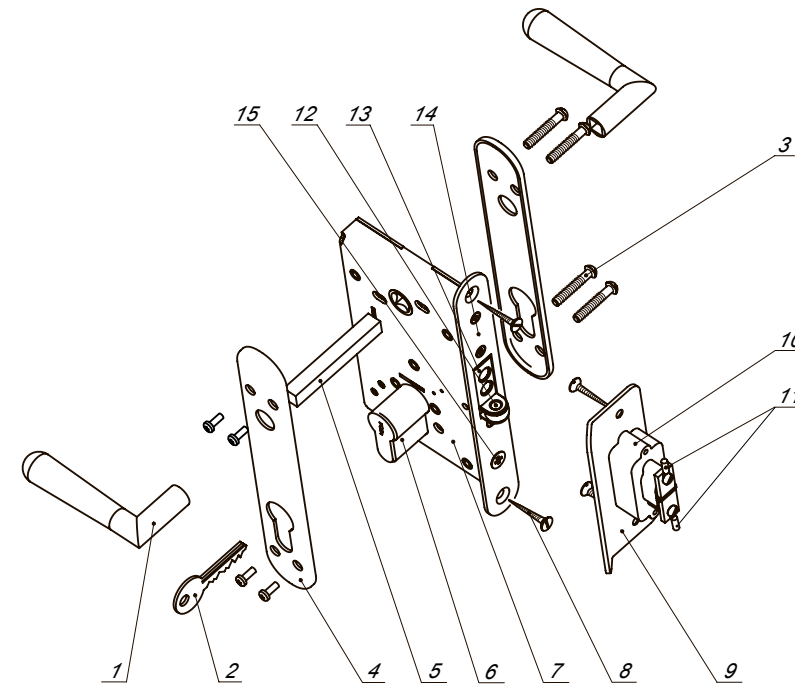
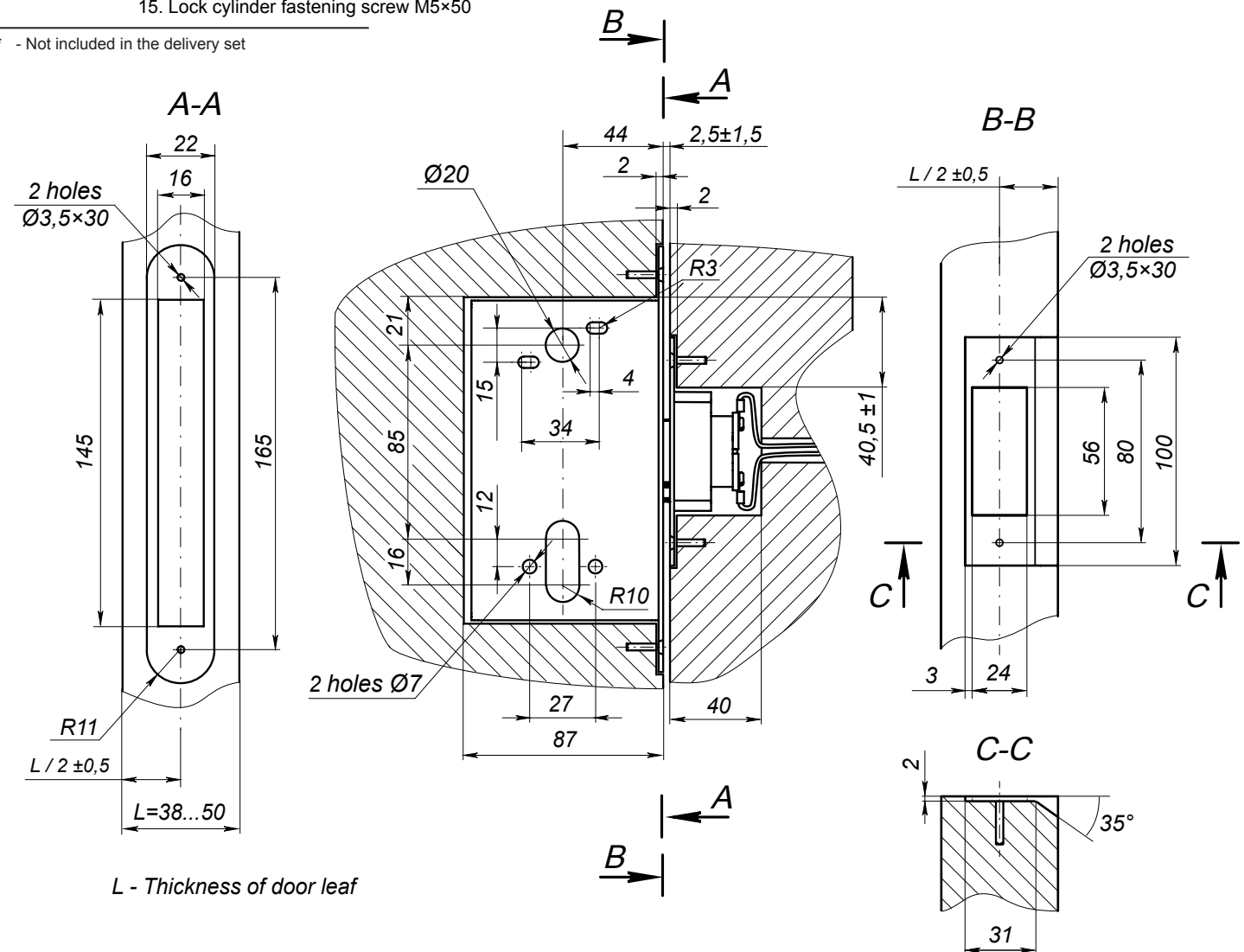


Fig. 1. LB-85.1 electromechanical lock design

1. Lever*; 2. Key; 3. Escutcheon plate fastening screw; 4. Escutcheon plate*; 5. Lever rod*; 6. Lock cylinder*; 7. Lock; 8. Screw 3.9×25; 9. Strike plate; 10. Terminal block; 11. Terminal clamps; 12. Locking mechanism roller; 13. Locking bolt; 14. Forend plate; 15. Lock cylinder fastening screw M5×50

* - Not included in the delivery set



L - Thickness of door leaf

Fig. 2. LB-85.1 electromechanical lock installation layout

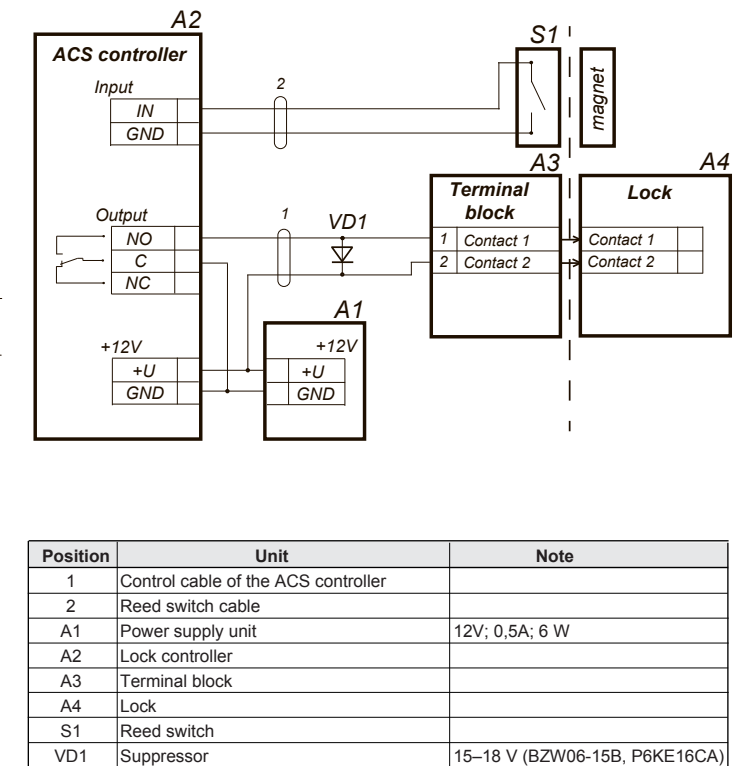


Fig. 3. LB-85.1 electromechanical lock layout

Cutting line

WARRANTY CARD

Cutting line

WARRANTY REPAIR COUPON

Electromechanical Mortise Door Lock LB-85.1



Certificate and Operation Manual
www.perco.com



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4. ASSEMBLY AND INSTALLATION

4.1 General recommendations

The lock shall be installed by qualified professionals who have studied this Manual before the installation work.

Attention!

In order to provide stable lock operation an accurate $\pm 1,5$ mm vertical mounting of the strike plate with terminal block regarding locking bolt is required. The lock operates normally if the spacing between the forend plate and the strike plate is 2.5 ± 1.5 mm.

4.2 Cable length

Table 1. Cables used.

	Application	Max length	Type of cable	An example of cable
1	ACS controller cable	30m	Twin cable with 0.75 mm ² cross-section	HO3VV-F, HO5VV-F 2x0.75
2	Reed switch cable	30m	Twin cable with 0.2 mm ² cross-section	RAMCRO SS22AF-T 2x0.22 or QQR-2

4.3 Installation order

Reference numbers are given in accordance with Figure 1. Cables used at the installation are stated in table 1.

Install the lock in the following order:

- Unpack the lock and check the delivery set.
- Carve out the installation template, which is included in the standard delivery set. Make the hole marking for lock cylinder (6), lever rod (5) and, if needed, of a location slot for lock forend plate (14) in the door leaf in the place of lock installation using the template. Template marking corresponds to the one in Fig. 2.
- If necessary, select the locating pocket for the lock.
- Carve out holes and choose the location slot for lock forend plate in accordance with the marking.
- Install the lock (7) in the locating pocket of the door and fasten it with two screws 3.9x25 DIN7982 from the delivery set.
- Mount the lock cylinder inside the lock and fix it with the screw through the hole on the lock forend plate.

Attention!

Lock cylinder fastening screw length should not exceed 50 mm.

- Adjust the door levers (1) with escutcheon plates (4) in accordance with manufacturer recommendations. Tighten them with the screws with threaded bushing (3). After the installation levers are to turn easily.
- Check the lock operation at the opened door.
 - Sink the locking mechanism roller (12) inside the lock housing. The bolt will move out of the lock housing (13). The lock will be closed.
 - Insert the key (2) inside the lock cylinder and turn it against stop to check the mechanical unlocking. The bolt will return into an initial position inside the lock housing.
 - Energize lock flank contacts with 12V power supply to check the automatic unlocking. The bolt will return into an initial position inside the lock housing.
 - Check several times.
- Fix the strike plate (9) on the terminal block housing (10) with two screws 2.9x13 from the delivery set.
- Make carving in the door according to the marking (Fig. 2).
- Lay the control cable from the ACS to the terminal block installation place inside the door frame. Use cable №1. The cable laying method is determined by lock installer and the Customer.
- Connect the control cable with terminal clamps (11) from the terminal block. In order to do that, tighten cable ends into terminal clamps.

Attention!

If the lock is operated as a part of access control system (ACS) it is recommended to install voltage regulator diode BZW06-15B or P6KE16CA, or another model with equal parameters on contact clips (Fig. 3). The voltage regulator diode is used for maintaining the device which sends the control signal.

- Mount the strike plate with the terminal block in the door frame providing 2-3 mm spacing between the strike plate and the forend when the door is closed. The channel of the strike plate must lay symmetrical to bolt's cross section.

Attention!

The locking mechanism roller should not get into the channel of the strike plate! Otherwise, at closing the door, it can get locked with the moving roller and then it will be impossible to open the door without damaging the lock.

- Mount the strike plate on the door frame with two screws 3.9x25 from the delivery set.
- Install and connect the reed switch. Use cable №2 in table 1 for connection. Installing the reed switch ensure firm contact closure at closing the door.

Disassembling of the lock should be made in the reverse order.

5. MAINTENANCE

Warning!

- Do not use the lock at power supply voltage other than specified in its technical specifications.
- Do not use the lock in operation conditions other than specified in the following Manual.
- Do not use the lock in hostile environment with atmospheric content of acids, bases, oils, etc.

The lock is a normally-closed device, which means that in normal condition it is locked at the closed door. In this case lever turning is blocked. After lock release the door is opened by turning the lever (approximately at 20°).

Unlocking is performed by:

- Turning the key in the lock cylinder. The key is to be turned against stop and kept in such a position until the door opens.
- Terminal block clamps' energizing until the door opens. Energizing is operated by the ACS controller. At that the potential operation mode should be set for lock control output. Door opening detection is performed according to the reed switch status.

At lock release the bolt moves inside the housing and the door can be opened. At door opening the locking mechanism roller automatically moves out of the lock housing.

At door closing the locking mechanism roller is sunk into the lock housing, which initiates bolt moving-out and automatic locking.

6. PERCo WARRANTY

PERCo (the Manufacturer) warrants that the LB85.1 electromechanical mortise door lock (the Product) complies with applicable statutory safety requirements, electromagnetic compatibility provided that the instructions on storage, installation and operation, given in the Assembly & Operation Manual are observed.

The warranty period is **5 (five) years** commencing from the date of sale.

Should there be no date of sale on the warranty card, the warranty period shall commence from the date of manufacture.

Within the warranty period the Product is repaired free of charge at the Manufacturer's site.

The Warranty does not cover Products with external mechanical damages or disassembled by the Customer.

Transportation cost to and back from the place of repair shall be borne by the Customer.

Upon lock purchase request the date of sale stamp in the warranty certificate and check the completeness of the delivery set as per the Manual.

In case any questions arise during the Product assembly or operation, PERCo Company is always ready to give you necessary technical support.



WARRANTY CARD

Electromechanical Lock LB-85.1

Serial number	6	6	5			
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Date of manufacture _____ 201__

Quality Control Seal

Date of sale « » _____ 201__

(signature, seal)



WARRANTY REPAIR COUPON

Electromechanical Lock LB-85.1

Serial number	6	6	5			
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Date of manufacture _____ 201__

Quality Control Seal

Date of sale « » _____ 201__

(signature, seal)