

# Installation guidelines

## Praktika K-01 card collector





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## List of abbreviations

|     |                         |
|-----|-------------------------|
| PS  | – power supply          |
| ACS | – access control system |
| OD  | – operating device      |
| NC  | – normally connected    |
| NO  | – normally opened       |

*Software FW v1.52*

## 1. Basic specifications

*Table 1. Basic specifications*

| Specification                                                          | Value                |
|------------------------------------------------------------------------|----------------------|
| Dimensions (WxHxL), mm                                                 | 200x1045x200         |
| Weight, kg                                                             | 24                   |
| Temperature range,, °C:<br>- operation<br>- transportation and storage | +1...+40<br>+1...+40 |
| Atmosphere relative humidity, no more than %                           | 80                   |
| Supply voltage, V:<br>- nominal<br>- working                           | 12<br>8...18         |
| Average current in standby mode * A                                    | 0,2                  |
| Maximal current *, A                                                   | 1,5                  |
| Maximal dimensions, mm                                                 | 155x40x55            |
| Capacity of cards, pcs                                                 | More than 500        |
| Lifetime, years                                                        | 8                    |

\* - values mentioned at a nominal supply voltage

*The manufacturer reserves the right to change the packaging, specifications and appearance without notice*

## 2. Product design

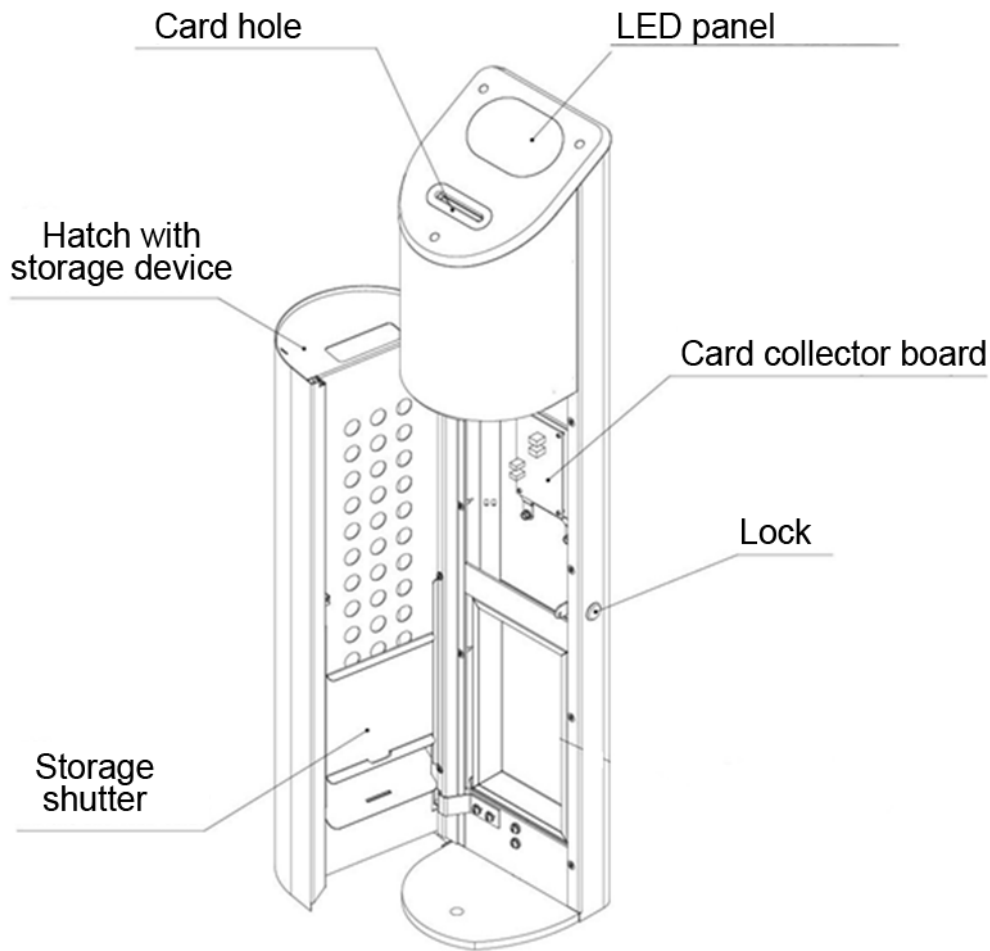


Fig 1. *General view of card collector*

The housing is made of brushed stainless steel. In front of the housing there is a hatch with lock for quick access to collected cards and to the board where PS, OD and ACS cables are connected. The hatch includes a card storage device. The lower part of housing is equipped with a hole for cables inlet.

Overall dimensions of the card collector are shown in Fig. 2

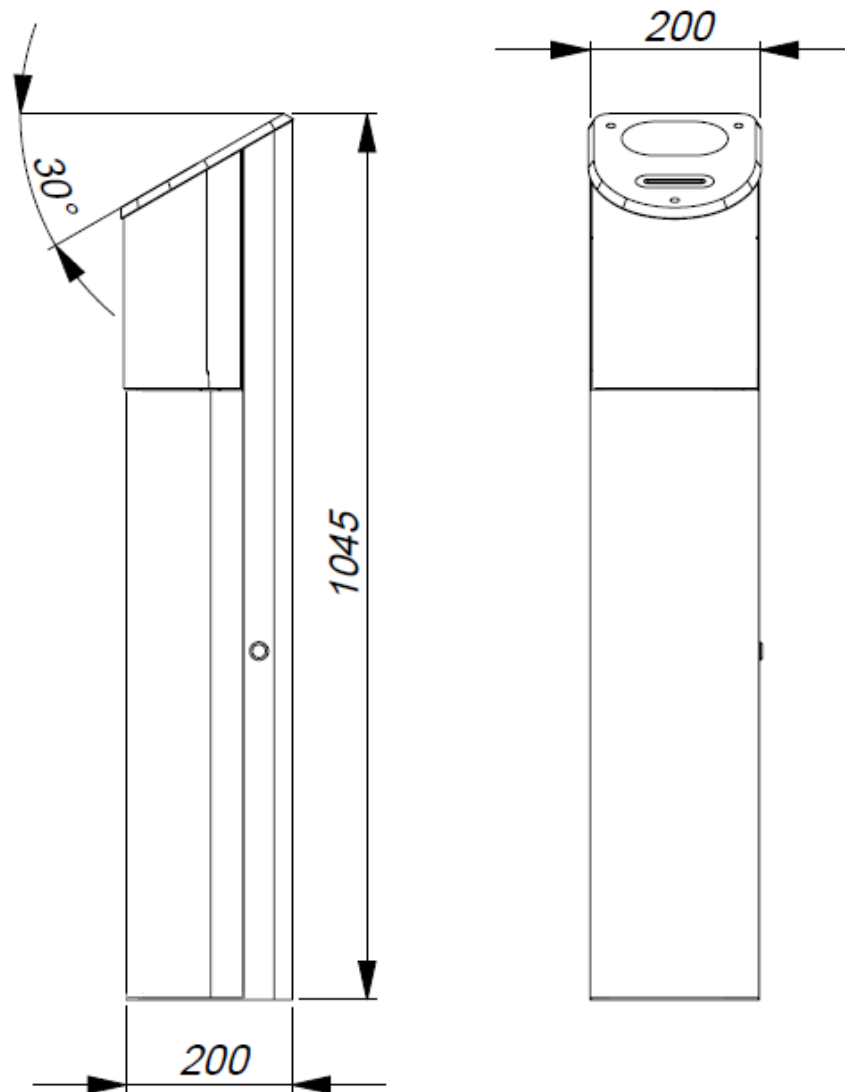


Fig 2. *Dimensions*

ATTENTION (!) Card reader is not included in the delivery set.  
Customer can choose reader model suitable for the existing system.

The reader is mounted on a universal adjustable bracket, located under the top cover of the card collector. This solution provides maximum flexibility for installation and connection of the card reader.

### 3. Safety requirements

**CAUTION!** Failure to comply with the safety requirements specified in this section may result in damage to human life and health, total or partial loss of workability of products and (or) auxiliary equipment.

**CAUTION!** The producer disclaims any liability for damage to human life and health, total or partial loss of workability of products and (or) auxiliary equipment for non-compliance of the safety requirements specified in this section, as well as terminate the product warranty.

#### **IT IS NOT ALLOWED TO:**

- Set the power supply inside the card reader housing, as this could lead to electric shock to persons;
- Set the card collector other than in dry and heated places;
- Apply chemically aggressive cleaning detergents as pastes and liquids.



## 4. Installation of card collector

**CAUTION:** The card collector should be installed securely to avoid swinging and (or) overthrow during operation. In case of installation on the low strength floors - take action to strengthen the floor at the installation site.

Before verify of operability of the card reader carefully read this section of the Regulations.

### *4.1. Required equipment*

Tools used for card reader mounting:

- Electric perforator;
- 20mm diameter carbide drill for drilling holes in the floor for anchors (recommended anchor - SORMAT PFG LB 12-50);
- S10 wrench for hexagon socket head screws;
- slotted screwdriver;
- plumb line or level;
- steel liner for card collector alignment
- side cutters

### *4.2. Installation of card collector*

4.2.1. Prepare a horizontal surface at the installation site of card collector.

4.2.2. Prepare cable channel from the site to the installation site of PS, RC, as well as, if required, to the point of ACS and fire alarm connection.

4.2.3. According to the dimensions shown in Fig. 3, prepare three 20mm diameter holes in the floor for anchors (the location of the mounting holes regarding to the dimensions of the card reader is shown in Annex 2). Depth of the hole should exceed the length of the anchor for more than 5mm. Put the anchors in the holes.

4.2.4. Cable routing is carried out through 32 mm diameter hole (Fig. 3) in the lower plate of the card collector.

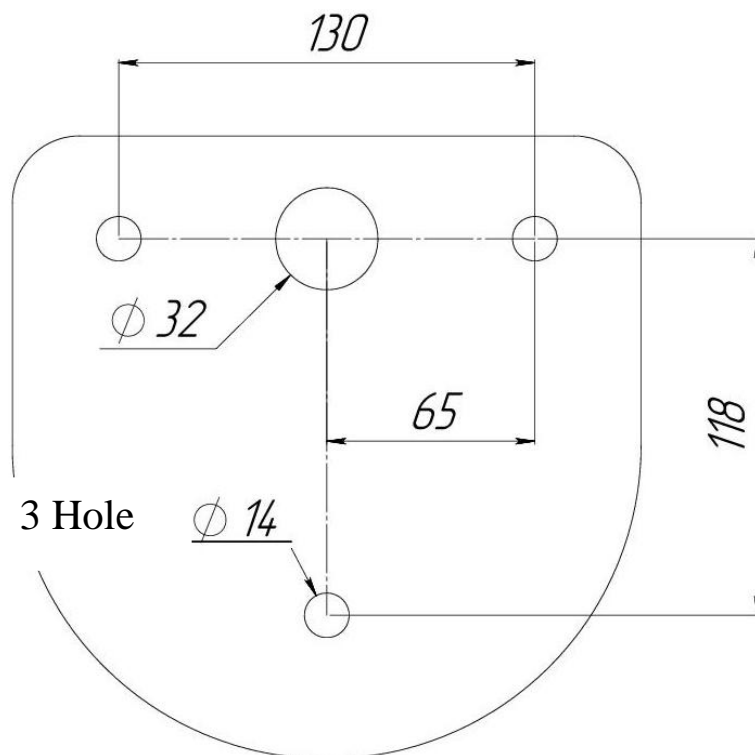


Fig 3. *Linkage dimension*

4.2.5. Open the box, unpack the product and check for completeness.

4.2.6. Route PS, OD and ACS cables into cable conduit.

4.2.7. Set the housing of card collector on the prepared area (Fig. 3). Open the hatch using the wrench. Bring the PS, OD and ACS cables inside the card collector housing. Secure the cables with cable ties.

4.2.8. Align together the holes in the housing of card collector and anchors in the floor. Check the vertical installation in 2 planes. If necessary, use appropriate steel underlayers for proper installation of the card collector. Fix the housing of card reader with three M12 screws, tightening them to the corresponding anchors by using S10 hexagon wrench. Close the hatch of card reader with a key.

4.2.9. Remove the protective film from the card reader housing.

## 5. Installation of proximity card reader

MatrixIII proximity card reader is used as an example of installation. Installation of other models of readers may differ.

5.1. Remove the decorative cover and undo the M4 screw at the rear of the card collector (Fig. 4).

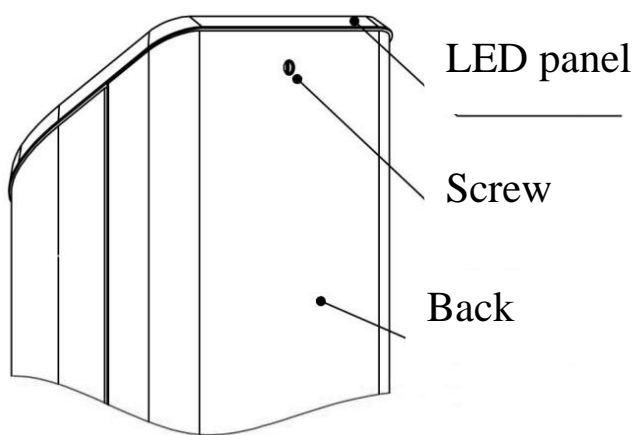


Fig. 4

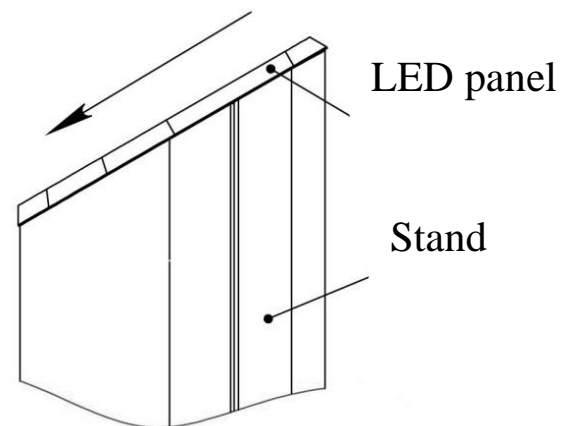


Fig. 5



5.2. Slide the LED panel to the stop in the direction indicated in Fig. 5. Carefully lift the panel.

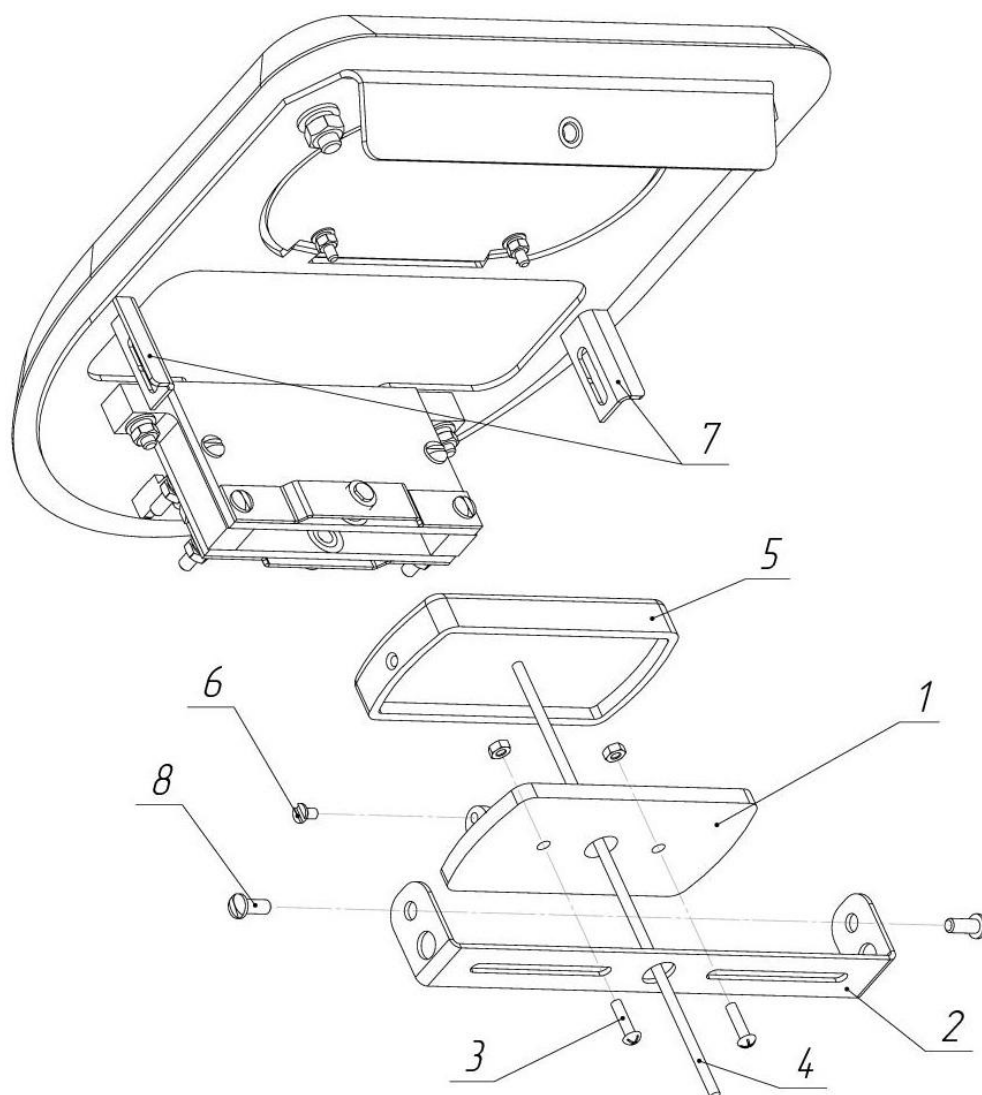
5.3. Remove two M4 screws (8, Fig. 6) and remove the universal bracket for readers (2, Fig. 6).

5.4. Disassemble the reader, removing the M3 screw (6, Fig. 6), and set its lower part (1, Fig. 6) on the bracket using the fasteners, two M4 screws with nuts, washers and lockwashers (3, Fig. 6) .

5.5. Put the cable (4, Fig. 6) in the bracket, install the top cover of the reader (5, Fig. 6). Tighten the M3 screw (6, Fig. 6).

5.6. Fix the bracket to the clip (7, fig. 6) using the M4 screws (8, Fig. 6). It is recommended to install a reader at an angle of  $40 \dots 50^{\circ}$  to guiding bars for cards (Fig. 7). In this case, both the guest and permanent card will be read equally well.

5.7. Put the cable of reader in the housing of the card collector.



*Fig.6 Installation of proximity card reader*

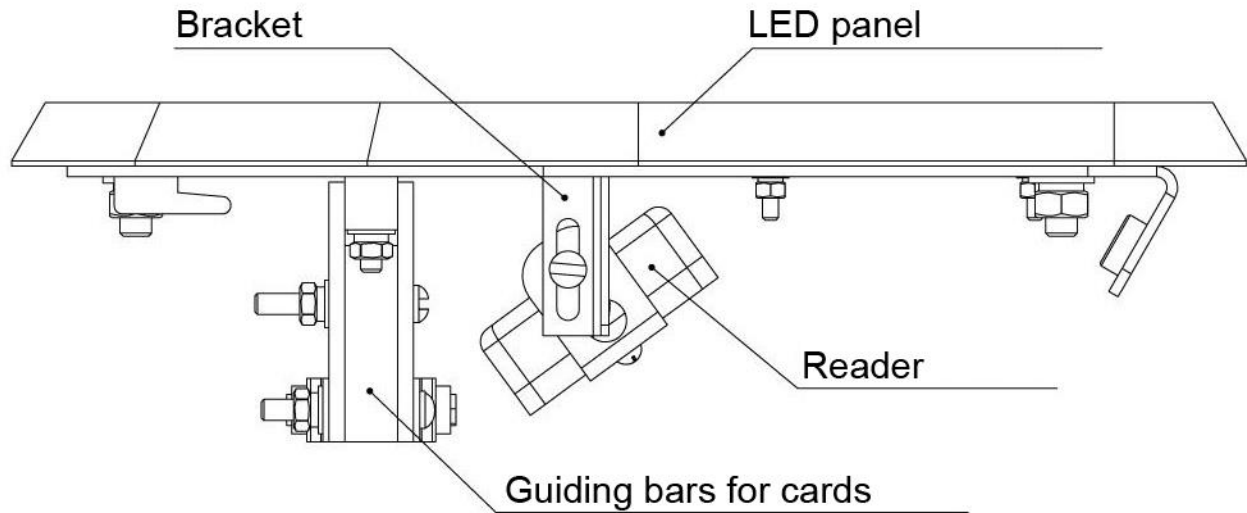


Fig. 7 *Recommended option to install proximity card reader*

5.8. CAREFULLY (!) set the LED panel in its original position. Tighten the M4 screw and set the decorative cover.

**CAUTION!** When installing the LED panel in its original position, make sure that wires of optical sensors mounted on the guiding bars for cards will not be damaged by other elements.

5.9. If necessary, the LED panel board can be inverted. Detailed description of the operation is given in Section 6.

## **6. Inversion of the LED panel board**

In some cases, for correct displaying of card collector modes, you need to invert the indication board by 180° depending on the installation site. It is necessary to perform the following operations.

6.1. Remove the LED panel following actions listed in Sections 5.1 and 5.2.

6.2. Disconnect the cable connector (1, fig. 8) on the LED panel board (2, Figure 8).

6.3. Remove four M3 nuts (3, Fig. 8), remove lockwashers and washers.

6.4. Rotate the board by 180°.

6.5. Assemble in reverse order.

6.6. Install the LED panel in its original position, following the instructions in Section 5.8.

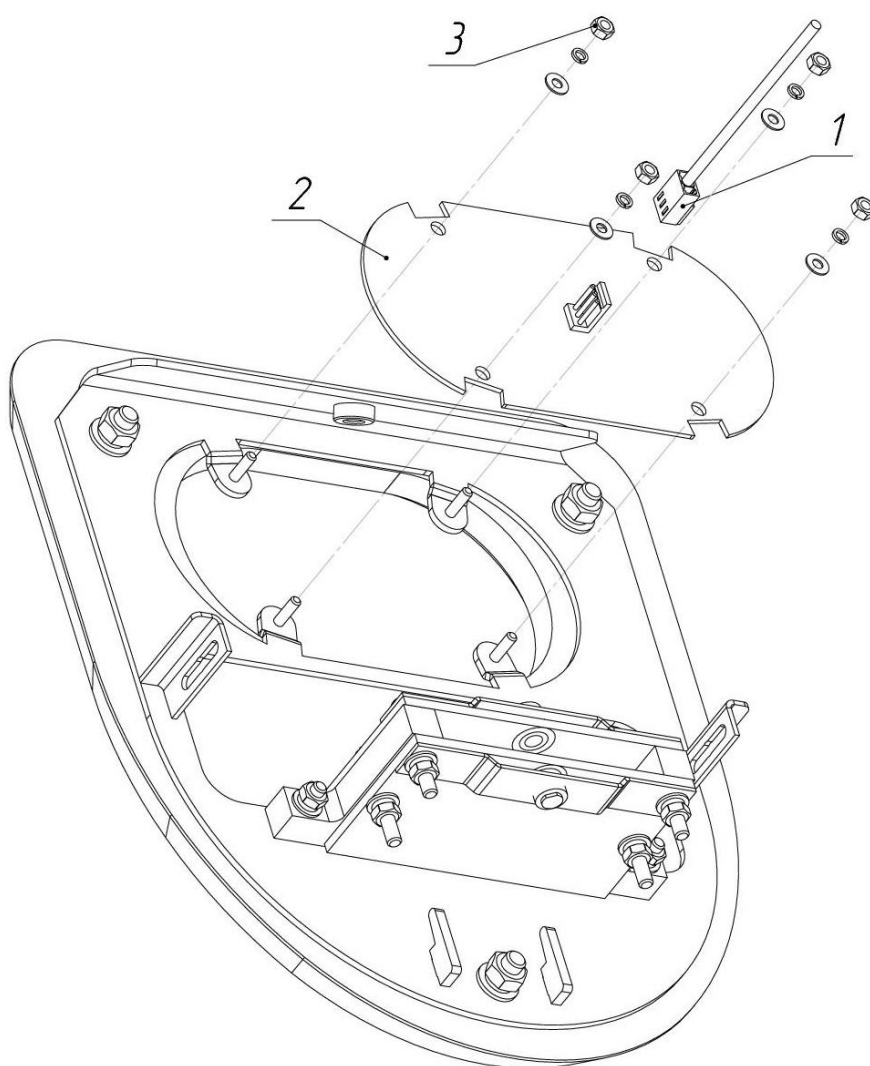


Fig. 8. *LED panel installation diagram*



## 7. Connecting card collector

Connection of PS, OD and ACS cables is made with the use of card collector board. In order to do it open the hatch of the housing using the wrench. Fig. 1 shows the location of the board in card reader housing.

Fig. 9 shows layout of board, and connectors for PS, OD and ACS.

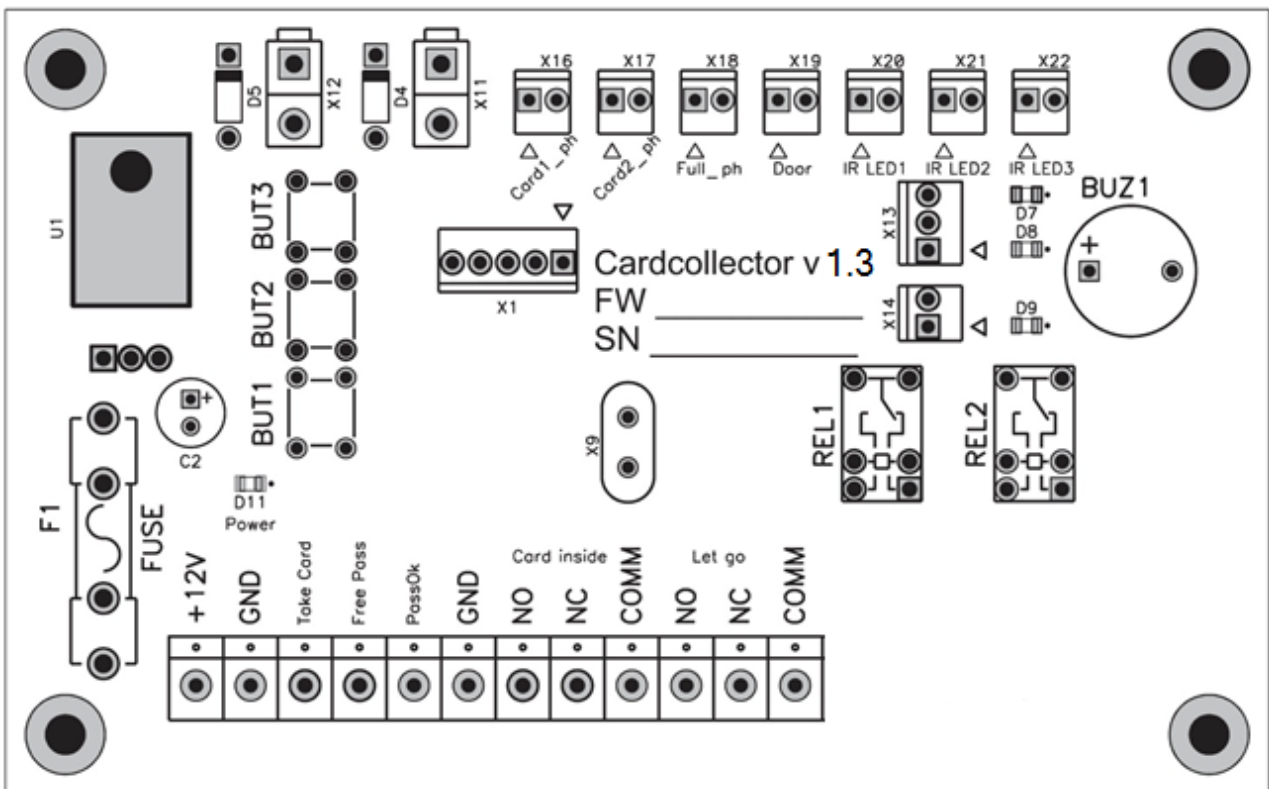


Fig. 9 *Layout of board*

### 7.1. Connecting power supply

Card collector is powered by a 12 V DC voltage source. Maximum consumption is present in the mode of card collection - 1.5A.

Locate the PS unit to be accessible for operator. Connect PS cable to the card collector board. Connect (+) and (-) contacts of power supply to

(+ 12V) and (GND) contacts on the board respectively. When the card collector board is powered, D11 LED indicator will turn on.

Make sure that cable is connected securely.

## **7.2. Connecting operating device**

Connection of OD to the card collector is performed with the use of two contact sets: "Let Go" and "Pass Ok-GND". Contacts location is shown in Fig. 9.

### *7.2.1. "Let Go" contact set*

NC, NO, and COMM contacts. Relay output operating on a "dry contact" principle, which closes / opens, transmitting passage authorizing signal to OD. NC and COMM - normally closed connection, NO and COMM - normally open connection.

### *7.2.2. "Pass Ok-GND" contact set*

Pass Ok and GND contacts. Pulse input that receives a signal from OD, confirming that the passage was performed. The operating principle is based on normally open contacts. Passage is detected by a contact closure for at least 200 ms.

When authorized card is presented the card collector transmits a signal (see. article 7.2.1) and unlocks the OD for 5 seconds. During this time interval other cards are not accepted. When a signal (a closing between

Pass Ok and GND), confirming the passage, is received, the card collector switches into standby mode and can collect the next card. For these reasons, the connection of this contact set is essential to the system capacity

### **7.3. Connecting ACS controller**

Block diagrams of ACS controller with the use of card collector are shown in Appendix 1.

Connection of ACS controller to the card collector provided by three contact sets: "Take Card-GND" - the signal authorizing collection of guest card, "Free Pass-GND" – the signal authorizing passage and "Card Inside" – the signal confirming card collection. Contacts location is shown in Fig. 9.

#### *7.3.1. "Take Card-GND" contact set*

Take Card and GND contacts. Pulse input that receives a signal from ACS controller allowing the collection of the card (guest pass). The operating principle is based on normally open contacts. Passage is detected by a contact closure for at least 200 ms.

The signal for collection shall be transmitted no sooner and no later than 2 seconds after putting the card into the card hole of the card collector, otherwise it will be ignored. After receiving the signal within the mentioned time interval card collector opens the shutter and the card is collected. If card collection is confirmed by internal sensors, card collector

generates a signal to the OD via "Let Go" contact set (see. article 7.2.1) and to ACS via "Card Inside" contact set. In such case a green arrow indicator on the LED panel turns on.

### *7.3.2. "Free Pass-GND" contact set*

Free Pass and GND contacts. Input that receives a signal from the ACS controller and allows the passage without card collection (permanent pass). In the case of receiving the signal allowing the passage without card collection, the card reader generates a signal to the OD via "Let Go" contact set (see. Article 7.2.1). In this case a green arrow indicator on the LED panel turns on.

Free Pass input of the card collector shall operate in pulse mode (activation upon contact closure). In pulse mode the voltage is applied to Free Pass input for a short moment and it authorizes the passage. Another passage becomes non-authorized when the passage is performed or after 5 seconds. Pulse mode is set by default, in such case the card collector provides 1 audio signal upon turn-on.

If the card collector provides 2 audio signals, it means that it is set in potential mode.

Potential mode of the turnstile is not provided, the card collector shall be set to pulse mode.

In order to switch into pulse mode:

- Turn off the power
- Wait until LED D11 turns off
- Press and hold BUT1 button on the card collector board
- Turn on the power;

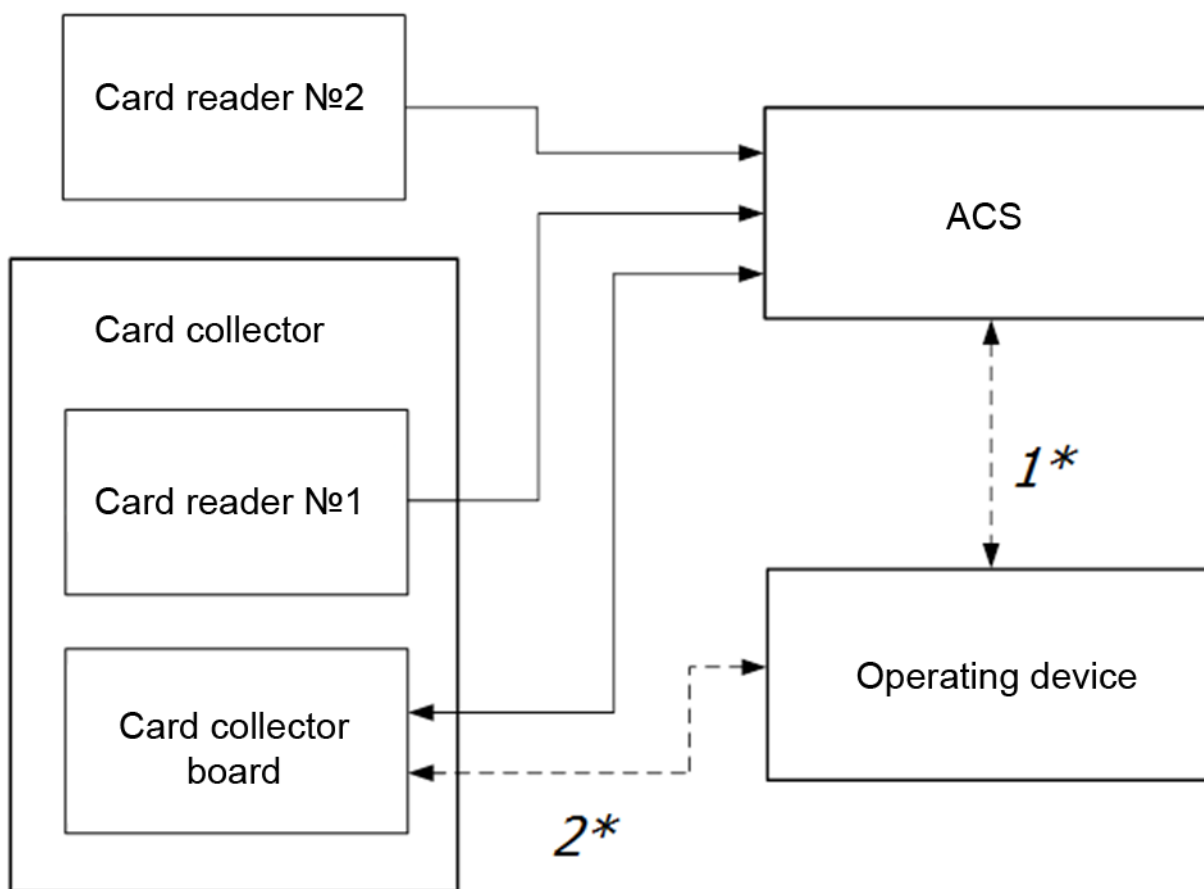
- Press and hold BUT1 button until the card collector provides 1 audio signal, indicating that it is switched to pulse mode of operation;

Set mode is saved when power is turned off. In order to return to the pulse mode repeat the above sequence.

### *7.3.3. "Card Inside" contact set*

NC, NO, and COMM contacts. Relay output operating on a "dry contact" principle which closes / opens for 1 second transmitting a confirmation signal of card collection to the ACS controller. NC and COMM - normally closed connection, NO and COMM - normally open connection.

## Appendix 1. Block diagram of ACS using the card reader



*Fig. 10 Block diagram №1*

Fig. 10 shows the most common connection circuit of card collector. OD can be controlled either by ACS controller or by the card collector directly, that is why connections 1\* and 2\* are drawn by dotted lines. This scheme features two readers. The second reader shall be installed outside the card collector, which is not always aesthetically and practically acceptable. If installed close to each other, proximity readers can create mutual interference.

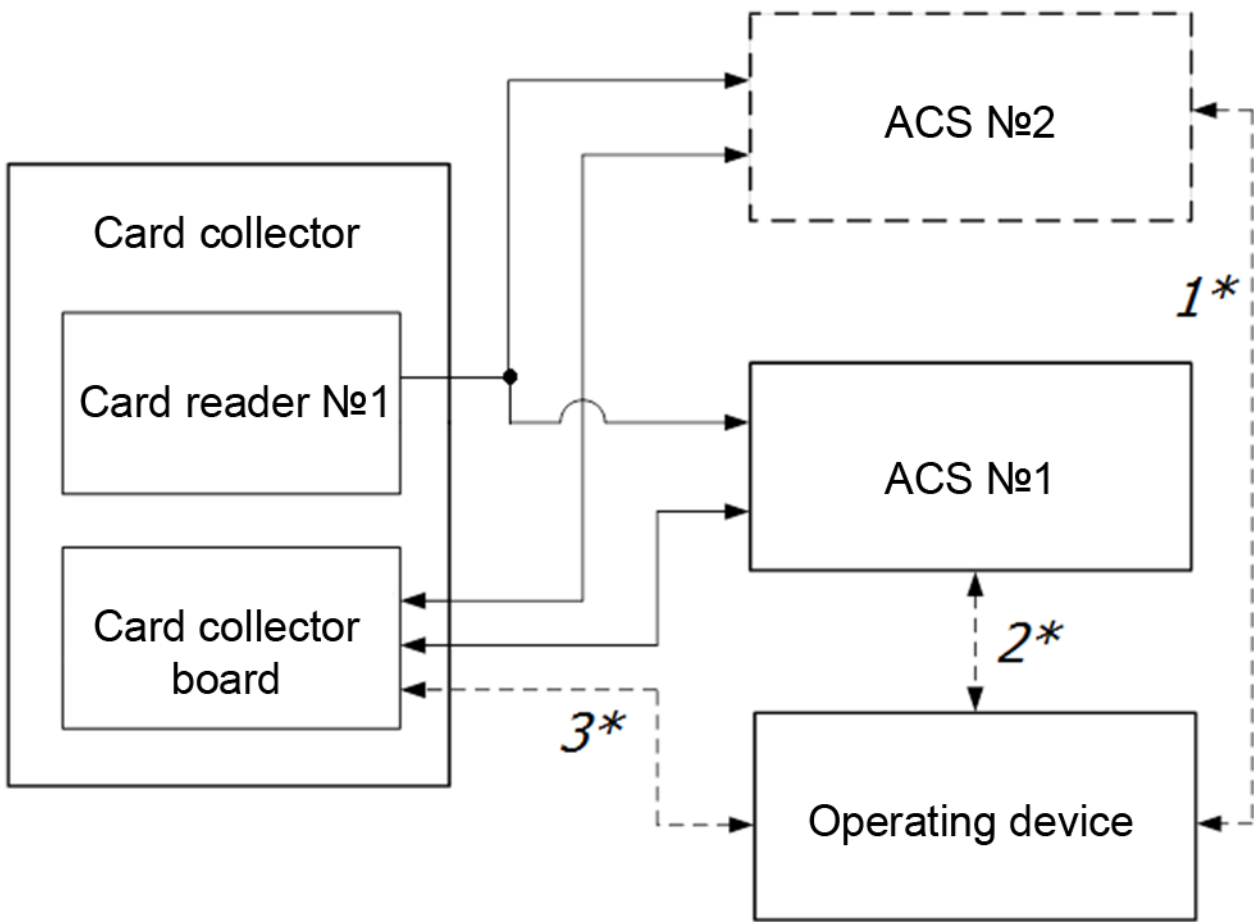
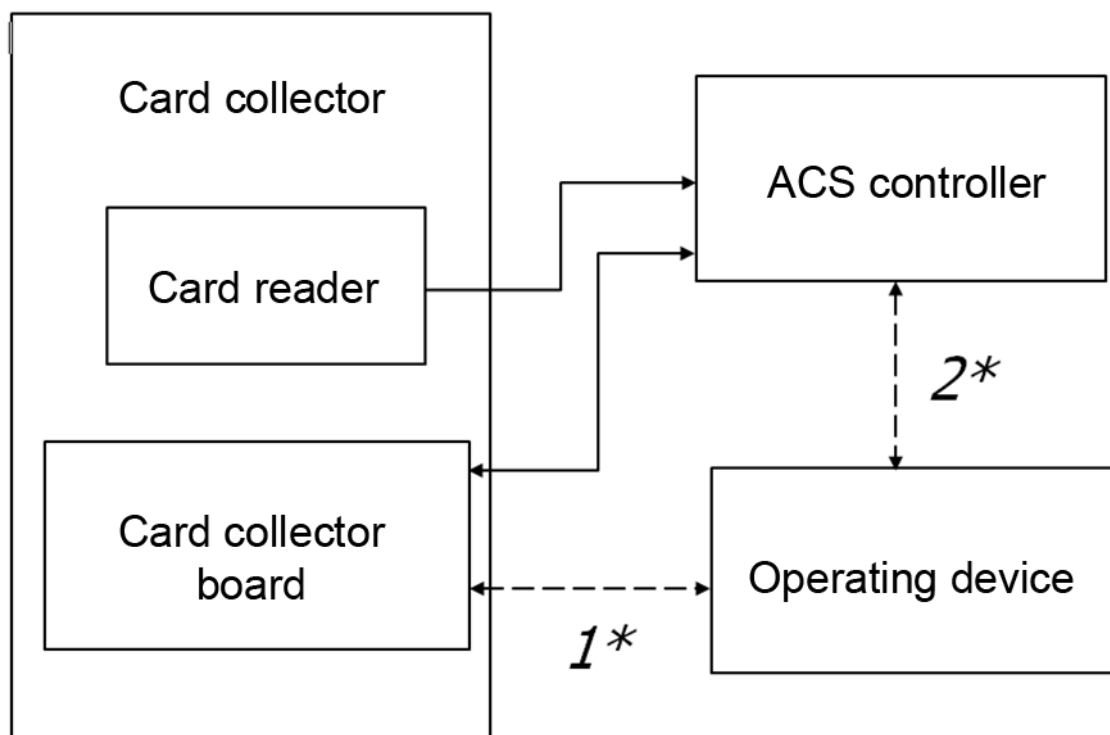


Fig.11 *Block diagram №2*

Fig. 11 shows a more advanced but also a more high-cost circuit connection. The advantage of this scheme is that it uses only one reader installed in the card collector. Wiegand interface provides a possibility to connect several identical ACS controllers to one reader in parallel.

ACS controllers are connected to different inputs of the card collector. Memory of one of the controllers contains data on permanent card; memory of the second controller - on guest card. Reader transmits card code to both controllers and the card collector receives a corresponding signal depending on the type of card.



*Fig. 12 Block diagram №3*

The block diagram #3 can be considered to be a logical development of the block diagram #2. It reduces the cost of installed system. For this purpose the controller with two output signals to one input of a reader (i.e., the controller can distinguish the guest cards and permanent cards transmitting a signal to the corresponding output) is used.



## Appendix 2: Location of mounting holes in relation to the overall dimensions of the card collector

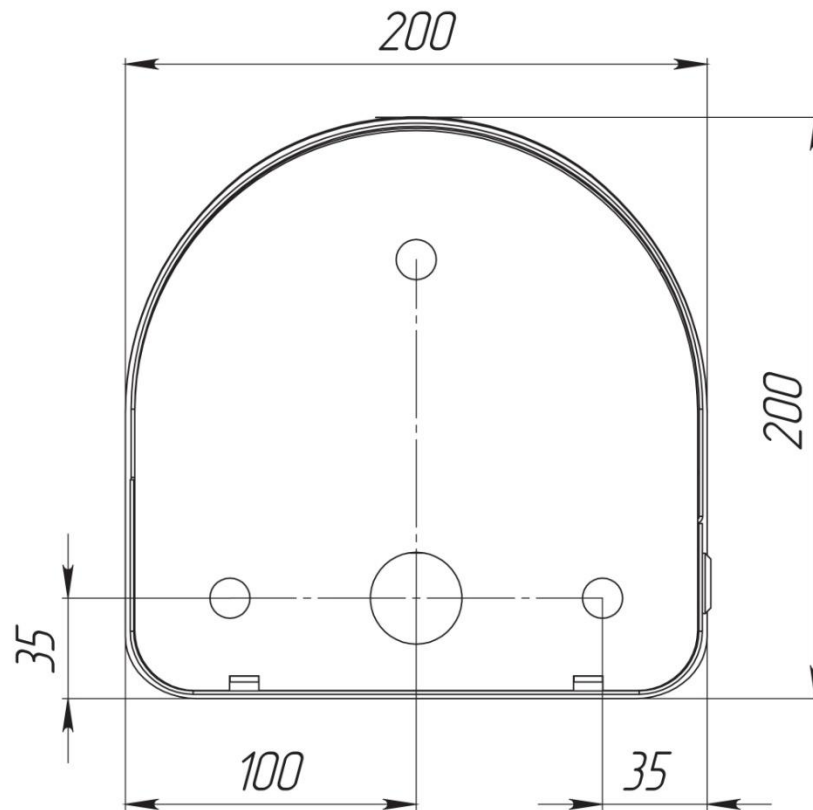


Fig. 13. *Location of mounting holes in relation to the overall dimensions of the card collector*





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