



Card Capture Reader **IC-05**

ASSEMBLY AND OPERATION MANUAL

CE EAC



Card Capture Reader

IC-05

Assembly and Operation Manual

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Dear Customers!

*Thank you for choosing a card capture reader manufactured by PERCo.
By making this choice, you have purchased a high-quality product, which will serve you for
years to come if you follow installation and operation recommendations.*

The **IC-05 Assembly and Operation Manual** (hereinafter – the Manual) contains information on transportation, storage, installation and operation of the **IC-05** card capture reader. The installation must be carried out by qualified installers in strict accordance with the Manual.

Abbreviations adopted in the Manual:

ACS – access control system;

OD – operating device.

1 APPLICATION

The **IC-05 card capture reader** (hereinafter – the *card capture reader*) is designed to operate within **PERCo-Web** system as a device for reading, capturing and keeping proximity cards issued to visitors and meant for return at exit (hereinafter – guest cards). It allows you to withdraw cards along with the standard clips for badges.

The card capture reader should work in conjunction with card reader, ACS-controller and blocking device (OD: turnstile, swing gate, door lock, etc.). The card reader is installed inside of the card reader; selection, purchase and installation of the reader is performed directly by the customer (installer).

When used in **PERCo** access control systems, the data is transferred via **RS-485** interface from built-in reader of the card capture reader to the **PERCo** ACS-controller. The ability to operate the card reader is supported by the **CT/L-04** and **CT/L-04.2** controllers, and IP-Stiles built-in controllers **CT-03**, **CT-03.2**.

Also the card capture reader can work with third-party controllers. In this case, transmission of data from the reader of the card capture reader to the controller is done via *Wiegand* interface (interface type depends on equipment that is used in ACS).

To ensure quick and easy passage of people it is recommended to install one card capture reader together with an OD for every 500 people.

2 OPERATION CONDITIONS

The card capture reader with regard to resistance to environmental exposure, complies with GOST 15150-69, category U4 (operation in premises with climate control).

Operation of the card capture reader is allowed at an ambient air temperature from +1°C to +55°C and relative air humidity up to 70% at +27°C.

3 TECHNICAL SPECIFICATIONS

DC operating voltage	12±1.2 V DC
Current consumption	not more than 3.0 ¹ A
Power consumption	max. 36 W
Card container capacity	350 cards
Interface of the reader's connection with a controller	RS-485 , <i>Wiegand</i>
Mean time before failure	1,000,000 card captures
Mean lifetime	8 years
Electric shock protection class	III (IEC 61140)
Ingress Protection Rating	IP41 (EN 60529)
Overall dimensions (L × W × H) (see Fig. 1)	197×157×990 mm
Weight (net)	max. 15 kg

¹ The power supply must reserve margin of current consumption at least 20%.



Attention!

This model of the card capture reader is not equipped with a built-in card reader. Selection of the reader and installation into the card capture reader is performed by the customer (installer) in accordance with the project of the checkpoint and the characteristics of ACS and controller.

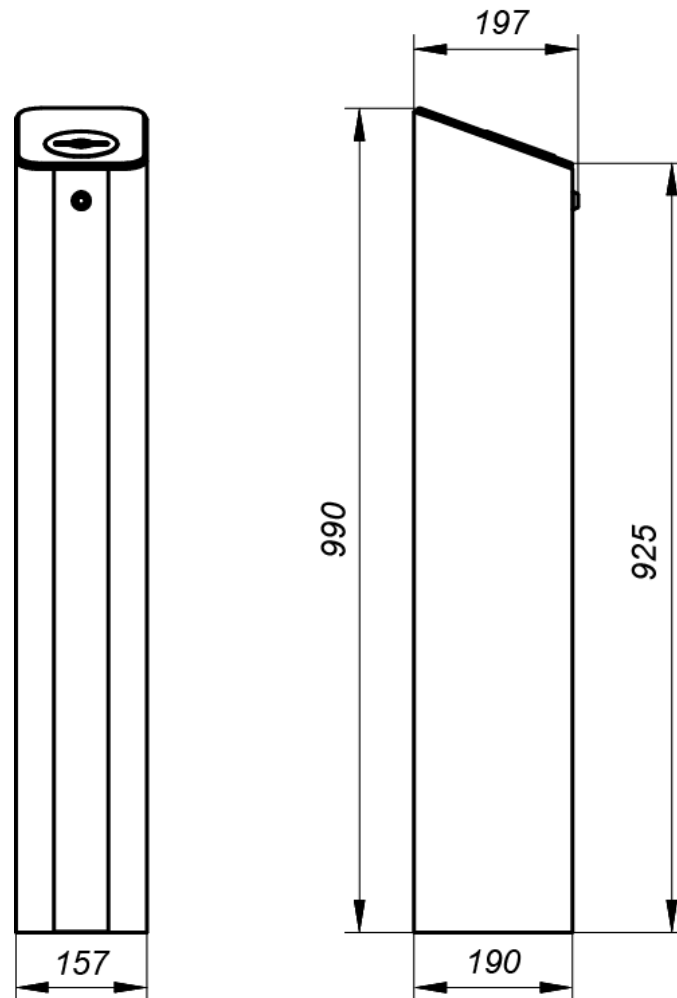


Figure 1. Overall dimensions of the card capture reader

4 DELIVERY SET

4.1 Standard delivery set

Main equipment:

Card capture reader	1
Container lock key	2

Mounting hardware:

Nylon cable tie 100 mm	4
Self-adhesive cable tie mount	3

Technical documentation:

Certificate	1
Assembly and operation manual	1

Package:

Box	1
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4.2 Optional equipment supplied on request

The following optional items can be included in the delivery set on customer request:

Anchor PFG IR 10 ("SORMAT", Finland)	4
Hexagon key SW8 (for anchor bolts M10)	1

5 PRODUCT DESCRIPTION

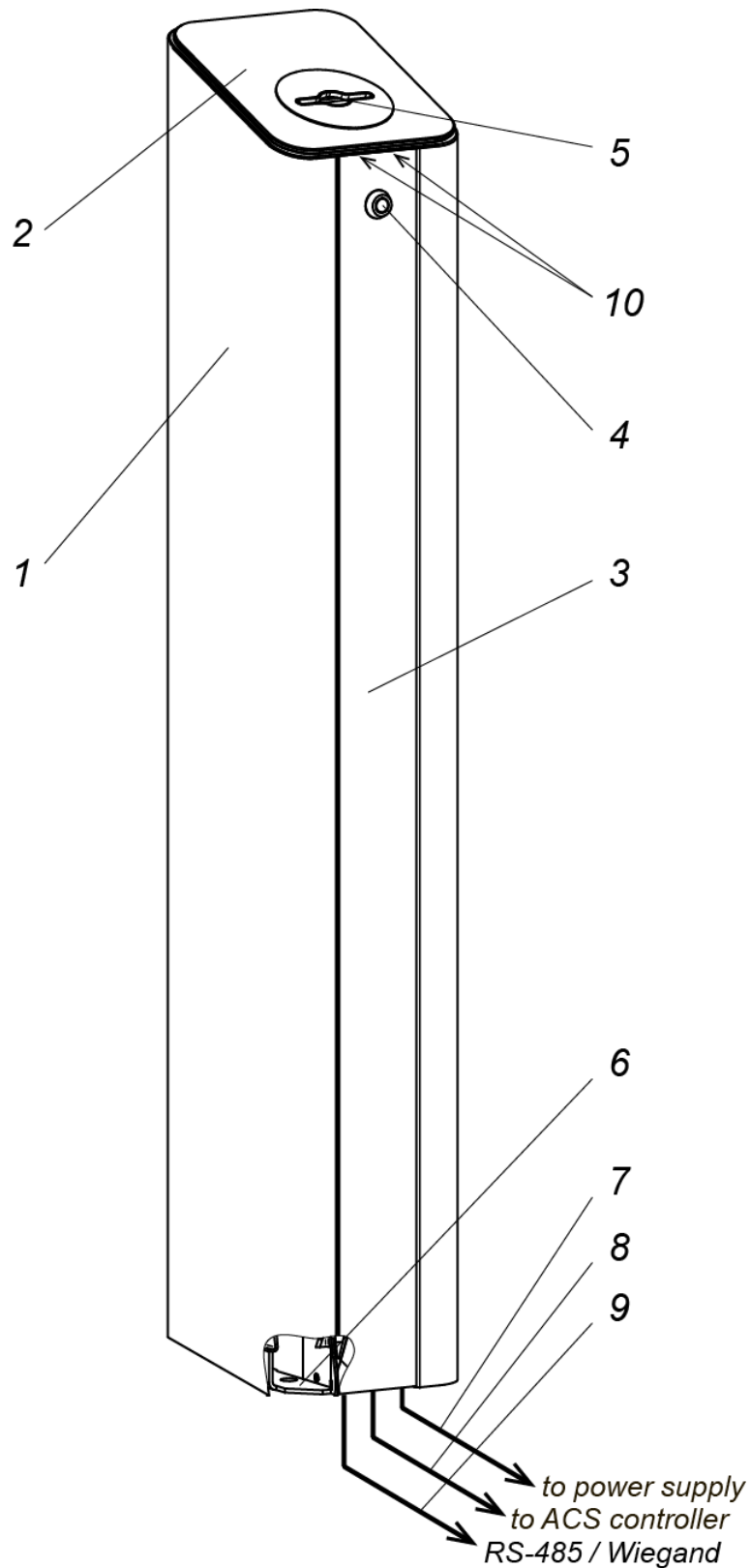


Figure 2. Overall view

Standard delivery set:

1 – housing; 2 – cover; 3 – card container; 4 – card container lock; 5 – slot for guest cards capture;
6 – base; 10 – cover fixing screws (located under the container)

Not included in the standard delivery set:

7 – card capture reader power cable; 8 – cable for ACS-controller connection;
9 – cable for connection of the card reader

5.1 Main features

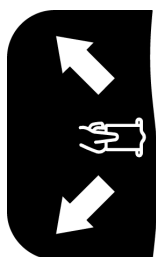
- External elements of the card capture reader (panels) are made of polished stainless steel, the cover of the card capture reader is made of tempered glass.
- Front panel of the card capture reader is locked and ensures authorized access to the card container.
- Card reader (purchased separately) is mounted under the cover of the card capture reader on a special bracket. The identifier is read from the access card that is inserted in the slot of the card capture reader.
- On the cover there is an indication module with mnemonic indicators, as well as LED backlight of the slot for capturing cards.
- The slot for card acceptance has a form that allows the card capture reader to withdraw cards with the standard clips for badges.
- The slot for card acceptance is equipped with a protective shutter, preventing the ingress of foreign objects into the container as well as cards that are not subject for withdrawal.
- The card capture reader features optical sensors allowing to correctly record the fact of capture of access cards, as well as the filling of the container of the card capture reader.
- The card capture reader is supplied with the safe voltage – no more than 14 V.
- The card capture reader has low power consumption – no more than 22 W.

5.2 Design

The design of the card capture reader is shown in Figure 2. Numbers of the items hereinafter refer to the item numbers as shown in Figure 2.

The **housing** of the card capture reader (1) is fixed on **the base** (6) with the screws. The front side of the housing holds **the container** for receiving cards (3) and has a lock (4). Removal of the container provides the access to screws (10) that secure the **cover** of the card capture reader to the **control board** (located on the rear panel).

The **cover** of the card capture reader is fixed on the housing with two screws (10). **Indication module** with three mnemonic indicators is integrated into the cover of the card capture reader (2) (see Fig. 3). During installation, you must choose which of the two green indicators will be used to permit the passage (depends on the side where the card capture reader is installed)¹.



- Green indicator “Permission of passage”
- White indicator “Insert the card into the slot for cards capturing”
- Green indicator “Permission of passage”

Figure 3. Mnemonic indicators display unit

As well as the cover has a slot (5) for guest cards capturing.

Control board view is shown on Figure 4. The board has terminal blocks:

XT1 – “*Capture card*” input of the card capture reader (*INPUT* and *GND* contacts). Withdrawal of a card that is inserted in the slot is performed when the control signal is sent from the output of the ACS-controller to the input.

XT2 – “*Card captured*” outputs of the card capture reader (*OUT* and *COM* contacts) and “*Alarm*” (*Alarm* and *COM* contacts). The “*Card captured*” control signal is sent by the card capture reader to the input of the ACS-controller after withdrawal of the card and confirms the permission of passage. The “*Alarm*” control signal is generated by the card capture reader at fault, malfunction, or when the container is filled with cards.

¹ It's allowed to use both green indicators simultaneously to permit passage.

XT4 – “LED” indication control inputs that permit the passage of the card capture reader. When the signal is sent to the selected input of card capture reader (contact *L* for left or contact *R* for right indicator) from the output of the ACS-controller, the corresponding indicator of passage permission will light up on the indication module of the card capture reader.

XT5 – connector with *RS-485* interface for wiring from the ACS-controller (terminals *A* and *B*).

XT6 – connector for connection of the PS of the card capture reader (contacts +12V and *GND*).

XT8 – connector for connection of the reader of the card capture reader to the lines with *RS-485* interface (terminals *A* and *B*).

XT9 – connection for the power supply of the reader of the card capture reader (contacts +12V and *GND*).

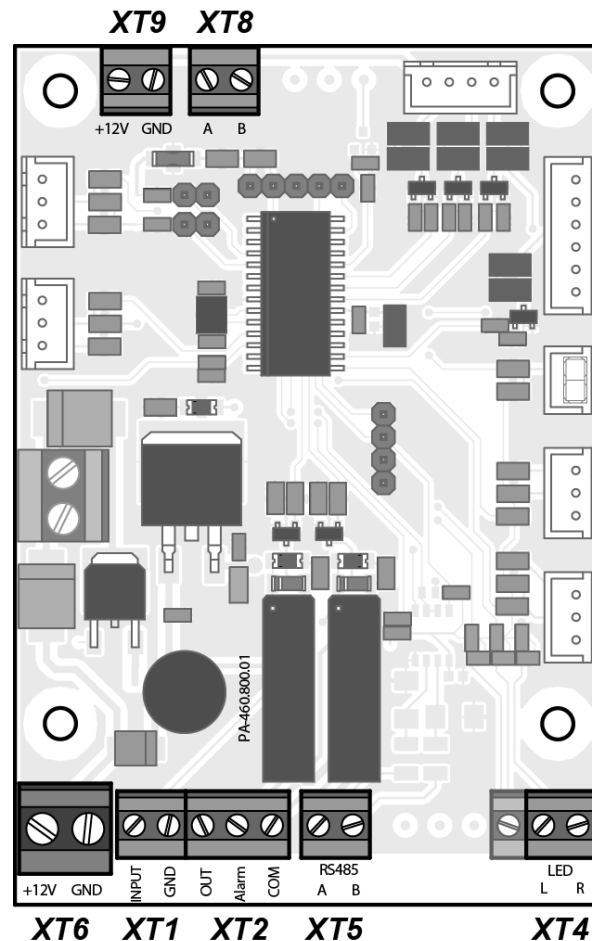


Figure 4. Card capture reader control board

5.3 Parameters of signals

“Capture card” input (contact 1 of **XT1** connector block) is controlled by the output of the ACS-controller, type “dry contact” or “open collector”. The input is “normally opened”, i.e. activation of the input will be done by a low voltage level (short) relative to the *GND* (contact 2 of **XT1** connector block).

“Capture card” input parameters:

the voltage at the open contact relates to *GND* 5 ± 0.5 V
the voltage at the closed contact in relation to *GND* not more than 0.8 V
current through the closed contact not more than 1.5 mA

“Card captured” and “Alarm” outputs (contacts 1 and 2 of **XT2** connector block) – type “dry contact”. Each of these outputs represent one of the relay contacts. The other contacts of both relays are combined together for “COM” output (contact 3 of **XT2** connector block). The outputs are “normally opened”, i.e., the activation of each output will be its closure with the *COM* contact via the appropriate relay.

Parameters of “*Card captured*” and “*Alarm*” outputs:

the maximum voltage between the correspondent output and contact <i>COM</i>	42 V
the maximum switching current	200 V

“*LED*” inputs that control indication for passage permission (the contacts *L* and *R* of **XT4** connector block) are controlled by the output of ACS-controller, type “dry contact” or “open collector”. The input is “normally opened”, i.e. activation of the input will be done by a low voltage level (short) relative to the *GND* (contact 2 of **XT1** connector block). *L* and *R* input contacts are independent; it is possible to send control signal on both inputs simultaneously (simultaneous activation of both “arrows”).

“*LED*” inputs parameters:

the voltage at the open contact relates to <i>GND</i>	5±0.5 V
the voltage at the closed contact in relation to <i>GND</i>	not more than 0.8 V
current through the closed contact.....	not more than 1.5 mA



Note:

If PERCo turnstile is used as an OD, then it is possible to control “*LED*” inputs of the card capture reader directly from the external indicator control output (**XT5** “*Light B*” or **XT4** “*Light A*”) of the turnstile CLB. Similarly, you can connect the turnstile manufactured by a third party, if the control output of the external indication meets the above-mentioned parameters.

5.4 Operation algorithm



Notes:

1. The operation of the card capture reader is only possible after correct configuration of the ACS-controller. Configuration procedure is described in the maintenance documentation for the controller and ACS software. Configuration procedure in PERCo systems – see Appendix 1 and Appendix 2.
2. Operation algorithm of the card capture reader doesn't depend on the type of interface used for data exchange between the reader of the card capture reader and the ACS-controller.

1. Initial state.

In the initial state, “Insert the card into the slot” white indicator and blue LED are lit on the cover of the display unit.

2. The presentation of the access card.

To present the card to the reader, insert it in the slot (5) that is located on the cover of the card capture reader. The ACS-controller sends the control signal to the “*Capture card*” input of the card capture reader control board if the presented card should be withdrawn, upon that, the led backlight of the slot will switch to a flashing mode with a period of 0.5 seconds.

If the optical sensor detects the presence of the card in the slot, the solenoid opens the shutter that blocks access inside the card reader and the card falls into the container (3) – thus the withdrawal procedure is finished.

If the optical sensor doesn't detect the presence of a card in the slot, then the card slot remains blocked by the shutter and the led backlight of the slot continues to flash. If the ACS-controller receives the “*Capture card*” signal (for example, upon expiration of the confirmation waiting period), then the backlight of the slot will be switched to the constant indication mode.

If the user has inserted the card and pulled it back out (thus refusing to pass), the mechanism of the card capture reader will not open the shutter and will not withdraw the card. In order to withdraw the card, it is necessary to remove the card from the reader and repeat the presentation of the card (insert in the slot).

3. Withdrawal of the card.

The second optical sensor registers the fact of withdrawal when you drop the card into the container. In this case, the “*Card captured*” control signal is sent from the output of the Control board of the card capture reader to the ACS-controller and serves as a confirmation of the

withdrawal of the card and activates the passage permission. Upon receiving the signal, the ACS-controller permits the passage in a specified direction and deactivates the "Capture card" signal from the input of the control board of the card capture reader. The LED backlight of the slot will switch from flashing mode to the constant indication mode.

4. Permission of the passage indication.

Control of indication for passage permission is carried out irrespectively from the operation of the card capture reader mechanism. After the card has been withdrawn, the ACS-controller sends the control signal that permits the passage through the OD (e.g., a turnstile) and simultaneously sends the control signal that controls the indication to the board of the card capture reader. The arrow with the corresponding direction will light up on the cover of the display unit (depending on the selected input of the card capture reader: contact *L* is for the left arrow, the contact *R* is for the right, it is also possible to send a signal simultaneously to both inputs).

5. Indication that informs about the full container and malfunction of the card capture reader.

The container is filling as the cards are withdrawn. The third optical sensor activates and LED backlight of the slot and switches to flash mode when the container is filled: 2 seconds on / 2 seconds off indication warns the operator that it is necessary to empty container from cards. The "Alarm" control signal is formed at the output of the card capture reader control board, which can be used to indicate the overfill of the container.

The card capture reader operation will be blocked after it receives another 9 cards if the container is not emptied. Unblocking of the card capture reader and deactivation of the "Alarm" signal will occur automatically when the container is emptied from cards (see sect. 9.4).

If the container is emptied from cards, but the "Alarm" signal from the output of the card capture reader control board is not deactivated, then there might be a malfunction of the card capture reader. In this case, it is recommended to contact your nearest **PERCo** service center. The list of **PERCo** service centers is given in the datasheet.

5.5 The use of the card capture reader in a third-party ACS (with Wiegand interface)

When you use a card capture reader in a third-party ACS, the data exchange between the reader of the card capture reader and the ACS-controller is performed via *Wiegand* interface (the type of interface depends on the equipment that is used in the ACS). In this case, it is necessary to connect the reader of the card capture reader to the ACS-controller directly, i.e. bypassing the Control board of the card capture reader. It is possible to power the reader with 12VDC by connecting it to the **XT9** connector of the card capture reader board.

6 MARKING AND PACKAGING

The card capture reader has a marking - a label placed on the internal side of the back panel. It contains the name of the product, designation, the date of manufacture, the serial number.

The card capture reader in the standard delivery set is packed in a transportation box that protects its components from damage during transportation and storage.

Box overall dimensions (L × W × H)..... 112×23×28 cm
 Box weight max. 23 kg

7 SAFETY REQUIREMENTS

7.1 Installation safety requirements

Installation should be carried out by qualified personnel after careful study of this Manual in accordance with general rules for electrical and installation works.



Attention!

While installation:

- all works should be performed only with the power supply switched off from the AC mains;
- only serviceable tools should be used for installation;
- while the installation of the card capture reader until it is fixed, be extra cautious and protect it from falling down;
- before the first switching of the card capture reader make sure it is installed correctly.

Installation of the power supply unit should be done in compliance with safety measures described in its certificate.

7.2 Operation safety requirements

Observe general electrical safety rules when operating the card capture reader.



Warning! Not allowed to operate the card capture reader:

- under conditions that do not comply with the requirements of Chapter 2 of this Manual.
- at supply voltage that does not comply with the requirements of Chapter 3 of this Manual.

The operation of the power supply should be done in compliance with safety measures described in its certificate.

8 INSTALLATION INSTRUCTIONS



Attention!

The manufacturer will not accept liability for any damage to the card capture reader or otherwise loss caused as a result of improper installation, and will dismiss any claims by the customer should the installation work be carried out not in accordance with this Manual.

8.1 General recommendations

When installing the equipment, observe precautions (see Clause 7.1).

Installation to be carried out by at least two persons qualified to perform assembly and electric works.

Proper installation is critical to performance and serviceability of the card capture reader. We strongly advise to study this section before installation work, and follow the instructions to the latter.

The card capture reader should be placed in front of the OD at the exit from the enterprise. It is necessary to enable access to the container for operating personnel.

We recommend:

- mount the card capture reader on flat, solid concrete floors (grade 400 or higher, SCS B22.5), stone or similar foundations at least 150 mm thick;
- use reinforcing elements 300×300×150 mm for installation on less steady foundations;
- make sure the mounting foundation is horizontal and flat; the flatness deviation must not exceed 1,5 mm;
- use “SORMAT” anchor bolts to fix the card capture reader.

8.2 Installation tools

We advise to use the following tools for the installation work:

- hammer drill 1.2÷1.5 kW;
- Ø16 mm, Ø30 mm hard-alloyed drill bits;
- cross-head screwdriver No. 2 (150 mm);
- knife;
- measuring tape (1 m);
- level gauge.



Note:

Other tools can be used that don't deteriorate the quality of installation work.

8.3 Cables parameters

The cables used for connection of the card capture reader are given in Table 1.

Table 1. Recommended cable types

No	Connection	Max. length, m	Cable type	Example
1	IC-05 – power supply	30	Twisted pair cable with cross section min. 0.75 mm ²	AWG 18; HO3VV-F 2×0.75 bi-coloured
		50	Twisted pair cable with cross section min. 1.5 mm ²	AWG 15; 2×1.5 bi-coloured
2	IC-05 – ACS-controller	50	24AWG – 18AWG (0.2 – 0.8 mm ²)	RAMCRO SA82BI-T, W8ekw CABS8/EC, 8C.SEC-SC,
3	Reader board – ACS-controller, RS-485	50	Twisted pair cable, min. Cat5	2×2×0.52, F/UTP2-Cat5e
4	Reader board – ACS-controller, Wiegand	50	24AWG – 18AWG (0.2 – 0.8 mm ²)	RAMCRO SA82BI-T, W8ekw CABS8/EC, 8C.SEC-SC,

8.4 Installation

Further installation instructions are given with the earlier mentioned recommendations (see Clause 8.1 taken into account. Types of cables are stated in Table 1.

Recommendations on preparation of mounting holes in the mounting surface are given with regard to “SORMAT” PFG IR 10 anchor bolts for solid concrete floors.

Follow this sequence during reader installation:

1. Unpack the card capture reader, check the delivery set completeness.
2. Mark and prepare mounting holes for anchor bolt sleeves on the installation surface according to Figure 5.
3. Mount the card capture reader power supply according to instructions in its operation documentation.
4. Prepare the underfloor raceway matching the feed-through hole in the card capture reader housing, in case it is needed and lay the cables in it.
5. Set the anchors all the way down the prepared holes.
6. Remove the container (3) of the card capture reader in the order described in section 9.4.
7. Place the card capture reader on the mounting surface so that the four holes in the base are aligned with the holes on the mounting surface. Pre-route the cables inside the card capture reader through a hole in its base. Fasten the card capture reader by using anchor bolts and controlling its position vertical position with a level.

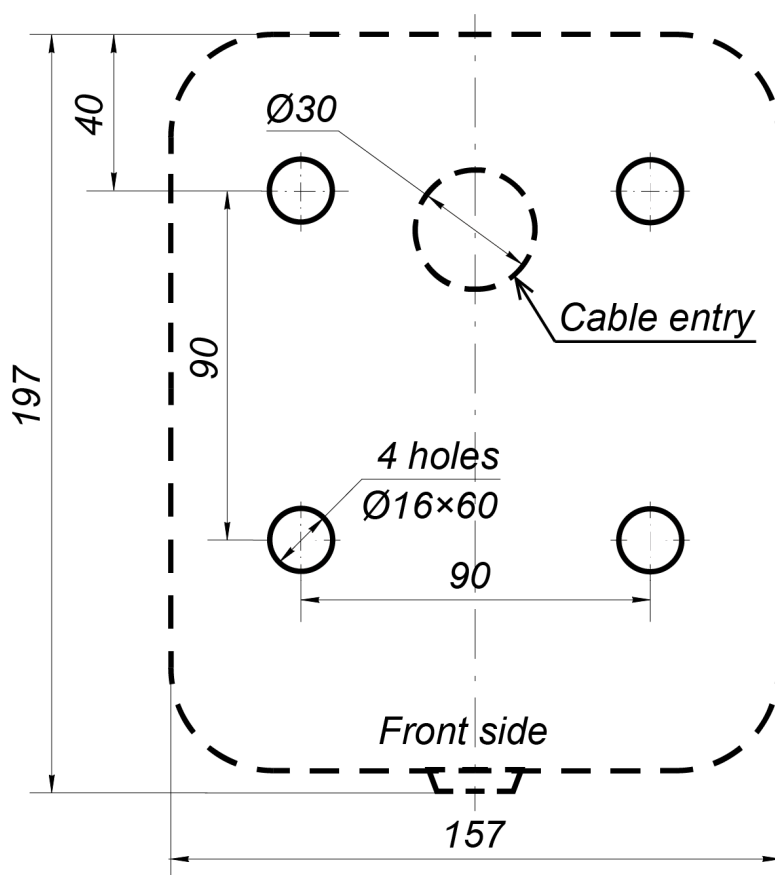


Figure 5. Hole pattern for mounting of the housing



Note:

There is a removable base designed for easy mounting of the card capture reader. The housing of the card capture reader is fixed on the base with eight screws (you can reach them in the lower part within the housing).

8. Remove the cover of the card capture reader (2). To do this, unscrew the two set screws (10) and lift the cover up by holding the front edge. Be careful, do not damage the cable of the indication module that is installed in the cover! Disconnect the cable from the indication module and take off the cover.
9. Mount the card reader (purchased separately) on a special bracket¹ under the cover of the card capture reader to provide reading of the access card that are inserted in the slot of the card capture reader mechanism.



Attention!

Built-in reader should be purchased separately.

Inside the card capture reader, it is possible to mount all PERCo readers. It is also possible to mount the readers by third-party manufacturers if they comply to the following technical requirements:

- dimensions (length - width - height) not more than 140×50×28 mm
- reading range of identifiers not less than 40 mm

Drill the holes for screws in the bracket plate in order to fix the reader or use the mounting tape. It is possible to adjust the bracket, therefore, you can change the distance between the reader and the slot so the ID card is readable.

¹ There are two brackets for mounting the reader - with a metal and with a plastic base (Fig. 6). The choice of the bracket is made depending on the reader's reading range: if it exceeds 10 cm, use a metal base, if the range is less than 10 cm - plastic base.

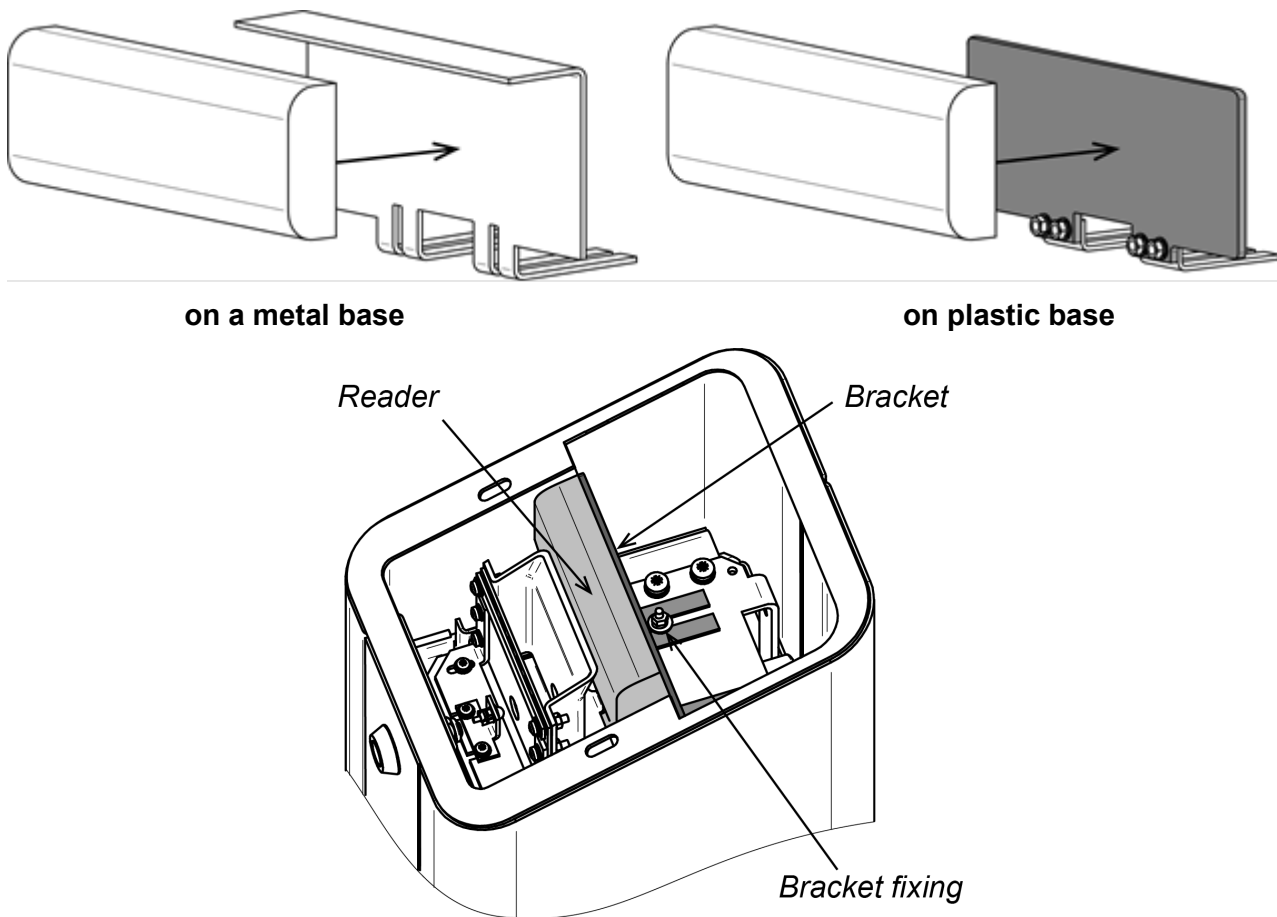
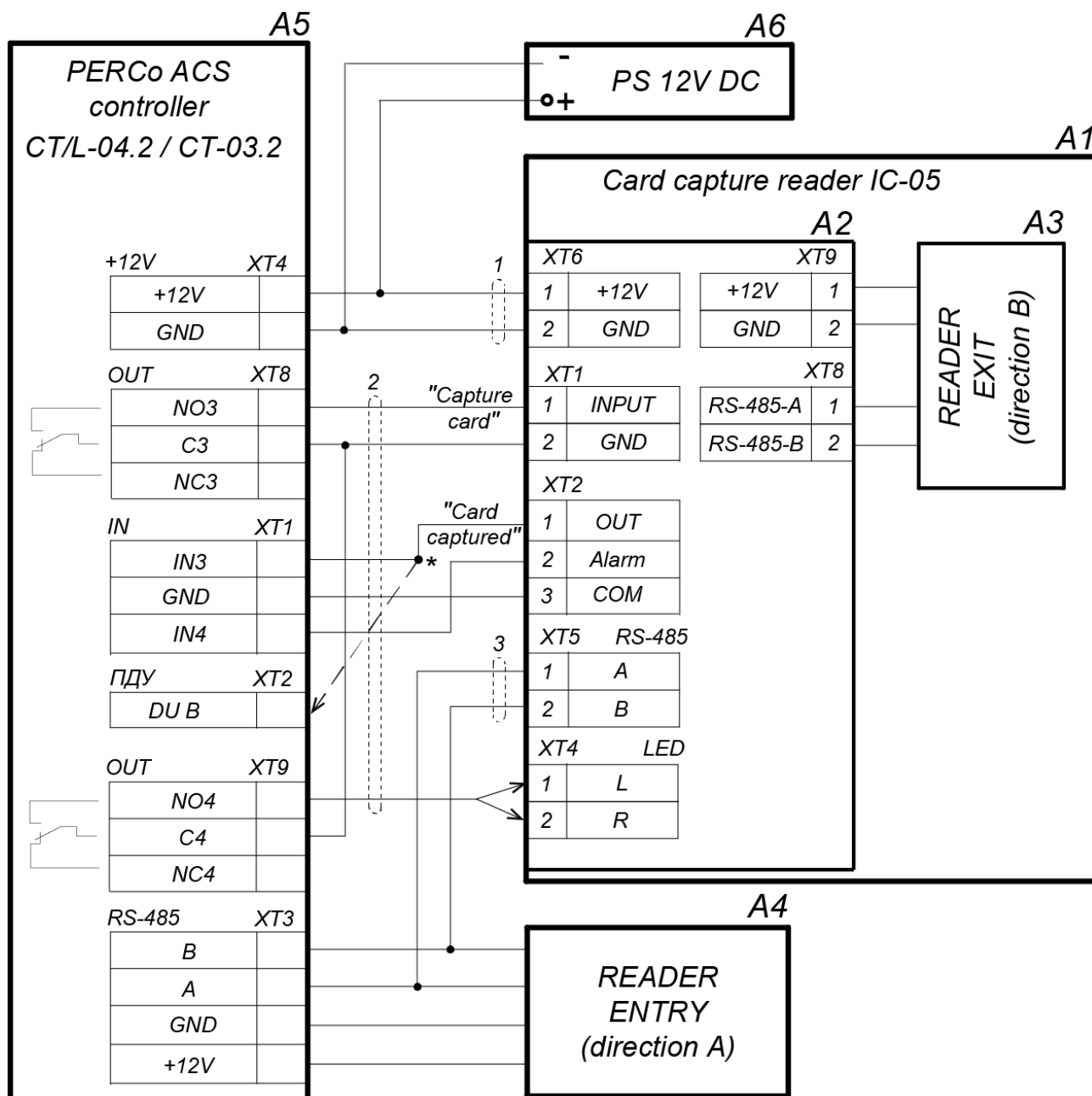


Figure 6. Installing the reader on the bracket

10. Route the cables up the back wall, lead them to the control board of the card capture reader and to the reader and connect them according to the wiring diagram (Fig. 6, Fig. 8). Secure all cables inside the card capture reader housing by using the cable ties and self-adhesive plates included in the delivery set, ensure that it is possible to remove the container freely.
11. Check the proper routing and integrity of all cables. Subsequently, check the correctness and reliability of the electrical connections of the card capture reader with the PS and the ACS-controller.
12. Mount the cover (2) in the working position after connecting the indication module cable.
13. Install container (3) in the working position, by closing the lock with key (4).

After installation, turn on the power of the card capture reader (see sect. 9.1) and configure the ACS-controller in accordance with the card capture reader operation algorithm (see sect. 5.4) and with the service documentation of the ACS-controller.

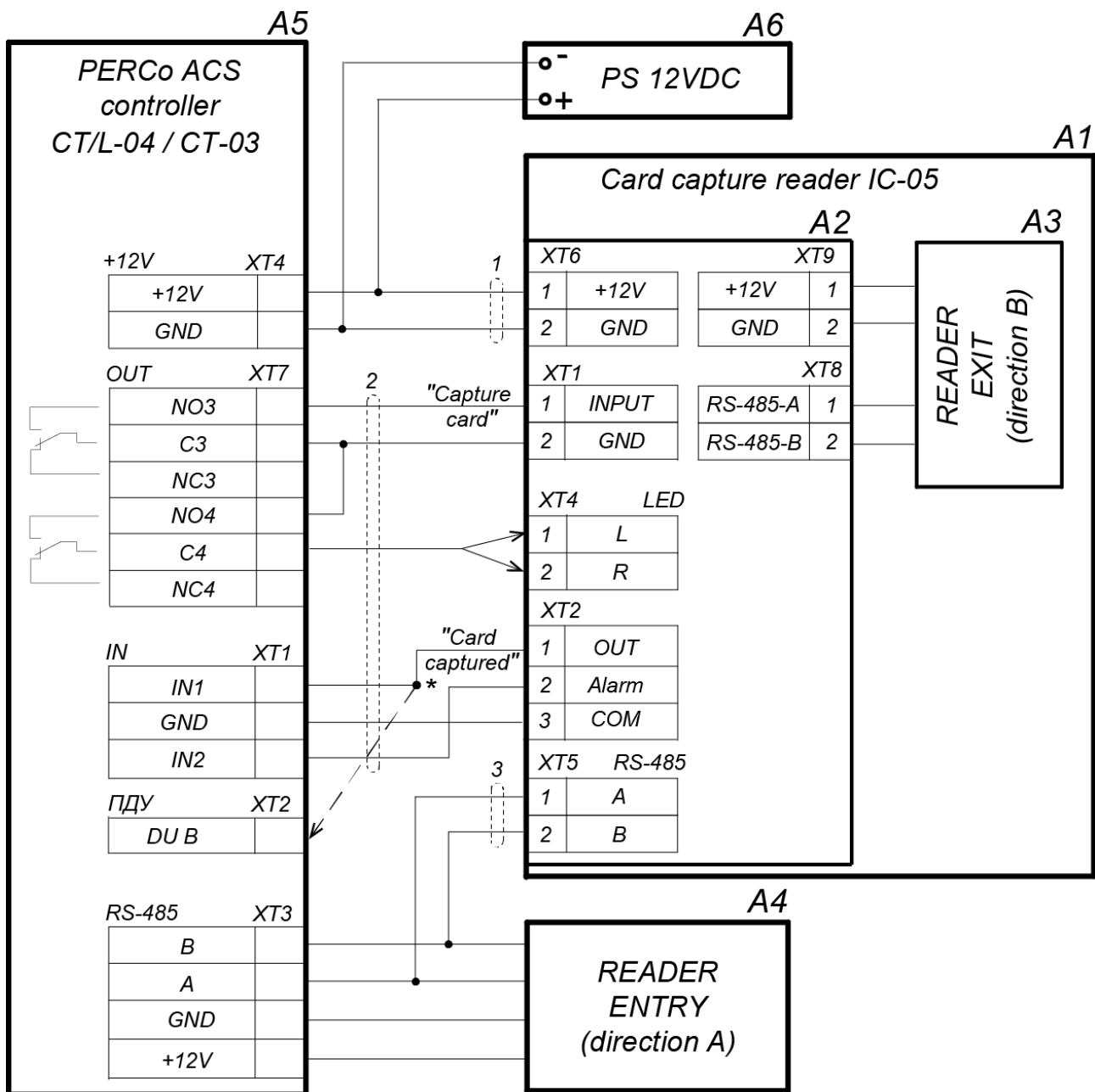
8.5 Connection layouts



* If all additional inputs of the controller are occupied, then the "Card captured" output is connected parallel with the RC-panel to the input of the controller "DU B" (or "DU A", depending on the direction of the passage).

Figure 7. Diagram for connecting the card capture reader to the CT/L-04.2, CT-03.2 controllers via the RS-485 interface ¹

¹ The list indicated elements is given in the Table 2.



* For CT/L-04 controllers with firmware version x.0.0.19 and below, the "Card captured" output is connected in parallel with the RC-panel to the input of the controller "DU B" (or "DU A", depending on the direction of the passage). The same connection method can be used if all additional controller inputs are occupied.

Figure 8. Diagram for connecting the card capture reader to the CT/L-04, CT-03 controllers via the RS-485 interface ¹



Attention!

If **PERCo** turnstile is used as an OD, then it is possible to control the indication of passage permission directly from the control board of the turnstile. In this case, connect the turnstile CLB Board output **XT5**, "Light B" (or **XT4** "Light A" depending on the direction of the passage) to the input of the card capture reader **XT4** "LED" (L or R contact). Similarly, you can connect a third party turnstile, if its indication control output satisfies the parameters of the "LED" input (see sect. 5.3).

¹ The list indicated elements is given in the Table 2.

****** *The reader can be powered from the control board.*

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Table 2. The components list of the connection layout for IC-05

Legend	Item	Qty
A1	IC-05 card capture reader	1
A2	Card capture reader control board	1
A3*	Reader installed in a card capture reader (direction B)	1
A4*	Reader for opposite to the card capture reader direction (direction A)	1
A5*	ACS-controller	1
A6*	Power supply 12 VDC/2.5A	1
1*	Card capture reader power cable	1
2*	Cable for ACS-controller connection	1
3*	Cable for connection of the reader installed in a card capture reader	1

* - equipment is not included in the standard delivery set.

9 OPERATION INSTRUCTIONS

When operation the equipment, observe precautions (Clause 7.2).



Warning! Don'ts:

- dismantle and/or adjust operational units of the card capture reader;
- clean the card capture reader with substances that may cause damage or corrosion;
- keep the card capture reader out of jerking and thrusting.

9.1 Power-up

1. Switch on the ACS-controller in accordance with its service documentation.
2. Connect power supply unit to the mains with voltage and frequency given in its Certificate. Switch on the power supply unit.
3. The white indicator "Insert the card into the slot" and LED backlight of the slot will switch on the indication module.
4. Check operation of the card capture reader together with the ACS-controller in all modes according to the operation algorithm (see Clause 9.2).



Note:

The operation of the card capture reader is only possible after the configuration of the ACS-controller. The configuration procedure is described in the service documentation for the controller and ACS software, the card capture reader operation algorithm – see sect. 5.4. Configuration in the system PERCo – see Appendix 1 and Appendix 2.

9.2 Presenting an access card

The access card is presented by inserting it into the slot (5) of the cover (2) in card capture reader.

9.2.1 Temporary guest card

If visitor's card is valid (i.e. meets all access criteria) and should be withdrawn, then LED indication of the slot will switch to flash mode, the shutter will open mechanism of card capture reader and the card will fall into the container.

After withdrawal of the card, the indication of the slot will switch to the initial constant light mode, the green arrow will light up on the indication module – the passage permission indication, OD will unblock in the direction of the passage.

If the card is not valid, then the LED backlight of the slot will not switch to a flashing mode and the passage will not be unblocked.

If a valid card for some reason has not been withdrawn by the card capture reader (for example, a visitor didn't let it fall down in the slot after the presentation), then the passage through the OD is denied, the card capture reader will switch to the initial state before the next presentation of a valid card.

9.2.2 Permanent card of staff

Employee should present a permanent card by inserting it in the slot (5) located in the cover of the card capture reader (2).

If the card is valid, then the permission of the passage indication will light up on the module of the card capture reader, the shutter mechanism of the slot will remain closed, the card will not be withdrawn. OD will unblock.

If the card is not valid, then the indication of the card capture reader will remain in its initial state, the passageway will not be unblocked.

9.3 Blocking of card capturing when filling the card container

When the container of the card capture reader is filled with withdrawn access cards, the backlight of the slot will switch to a flashing mode: 2 seconds on / 2 seconds off. This warning signal informs technicians that the container must be emptied from cards. If the container is not empty, then withdrawal of the access cards will be blocked after the card capture reader receives another 9 cards.

When the container is full, the card capture reader generates an *"Alarm"* signal, which can be used by the ACS-controller for further system response to this signal (e.g., switching on the alarm).

To resume capturing of guest cards it is necessary to extract the full container from the card capture reader and empty the cards (the order of the container extraction and installation is described in Clause 9.4).



Note:

While the capturing of guest cards is blocked the permanent cards are operated in normal order.

If the container is free from cards but the card capture reader is still blocked a likely reason for this could be failure of the card capture reader units. It is recommended to apply to the PERCo Technical Support Department.

9.4 Removal and installation of the card container

To take out the card container (3) from the card capture reader proceed as follows:

- 1 Insert the key into the card container lock (4).
- 2 Turn the key all the way (open the lock).
- 3 Pull the container toward you.
- 4 Lightly lift the card container and take it out.

To insert the card container into the card capture reader, proceed as follows:

1. Insert the card container upright with a slight inclination towards oneself into the card capture reader so that the groove in the base of the card container get on the ledge in the lower part of the card capture reader. Install the container completely into the housing, the correct installation of the container does not require significant effort.
2. Turn the key in the lock all the way (*close* the lock); after the lock closing the card container should lean tightly on the housing (3) without distortions.

10 TRANSPORTATION AND STORAGE

The card capture reader in the original package should be transported only in closed freight containers or other closed type cargo transport units.

During storage and transportation, the boxes can be stacked no more than 6 layers high.

The card capture reader should be stored in dry indoor facilities at ambient temperatures between -40°C and $+55^{\circ}\text{C}$ and at relative air humidity of up to 98% at $+25^{\circ}\text{C}$. The storage room should be free from vapors of acids, alkalis, and gases that cause corrosion.

After transportation or storage at below-zero temperatures or high air humidity, the card capture reader should be kept unpacked for no less than 24 hours under normal climate conditions.

11 TROUBLESHOOTING

Possible faults to be corrected by the customers themselves are listed in Table 3.

For faults not listed in Table 3 we advise to consult PERCo Technical Support Department.

Table 3 Possible failures and troubleshooting

Fault	Probable cause	Remedy
Power supplies are on, but the card capture reader does not function, the LED indicators are off	Faulty connection or breakdown of power supply cable (7). Faulty power supply unit.	Replace the cable (7). Replace the power supply unit.
The LED indicators are on but the card capture reader is not controlled by the ACS-controller	Faulty connection or breakdown of connection cable (8) of the ACS-controller	Replace the connection cable (8)

12 MAINTENANCE

Maintenance of the card capture reader during operation is reduced to periodic cleaning of its outer surfaces. To remove dirt, it is recommended to use liquid cleaners without abrasives containing ammonia.

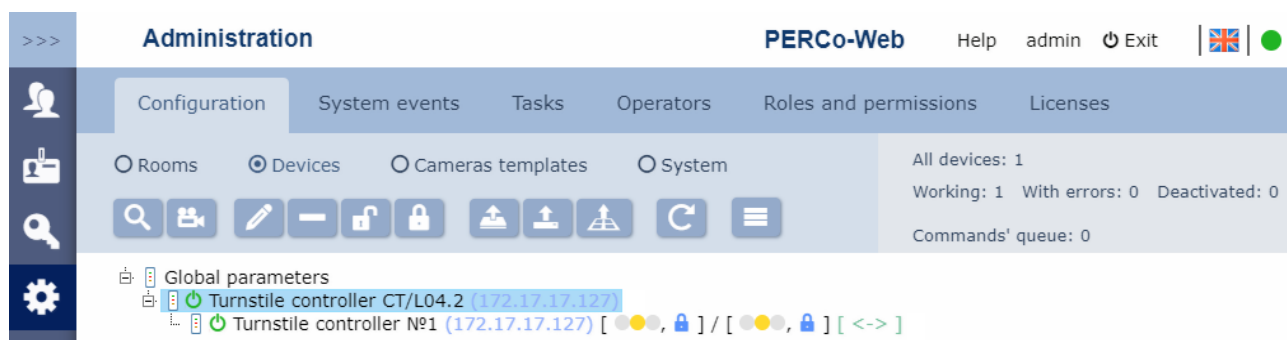
Appendix 1. Configuring the ACS-controller to work with the card reader in the PERCo-Web software



Attention!

- It deals with only the parameter settings of the controller regarding the operation of the card capture reader.
- Visitor's cards that should be withdrawn, must be set to obligatory verification process upon presentation to the reader in the direction controlled by the card capture reader.

1. Log into the system by using a Web browser (see *PERCo-Web Administrator's manual*).
2. Go to **"Administration" → "Configuration"** section by using the navigation bar.
3. On the page working area select the main controller that is physically connected to the card capture reader:



4. Click  **"Edit"** button on the page toolbar. The **"Device properties"** window will appear.
5. In the appeared window select **"Additional outputs"** tab.
6. In the window working area, select **"Additional output №..."** (number of the output must match the output of the controller that is physically connected to *"Capture card"* input of the card capture reader).
7. Specify the following parameters by using the drop-down list on the window working area:
 - set **"Standard"** value for **"Type"** parameter;
 - set **"Not energized"** value for the **"Normal state"** parameter:

Device properties

Device name: Turnstile controller CT/L04.2

Device type: Turnstile controller CT/L04.2

General

Additional inputs

Additional outputs

Status

External connections

Additional output № 3

Additional output № 4

Additional output № 5

Additional output № 6

Additional output № 3

Type: Standard

Normal state: Not energized

Output operation instructions: Normalize, Activate

All in the device(s)

Save

Save and close

8. Switch to **"Additional inputs"** tab.
9. If the card capture reader acts as an external verification device for the controller ("Card captured" signal is sent to a separate input of the controller), then select **"Additional input №..."** (number of the input of the controller that is physically connected to the *"Card captured"*

output of the card capture reader) and set the following parameters by using the drop-down menu:

- set **"Confirmation from external verification device"** value for the **"Type"** parameter;
- set **"Disconnected"** value for the **"Normal state of the contact"** parameter;
- set **"Device ... direction ..."** value for the **"Device number"** parameter (the number of OD and direction number must match those that are controlled by the card capture reader):

Device properties
✕

Device name:

Device type: **Turnstile controller CT/L04.2**

General

Additional inputs

Additional outputs

Status

External connections

Additional input No.3

Additional input No.4

Additional input No.5

Additional input No.6

Additional input No.3
 Type

Normal condition of the contact

Device number

All in the device(s) ▼

Save

Save and close

10. If necessary, configure the system response to the **"Fault"** signal sent by the card capture reader. To do this: select **"Additional input №..."** (number of the input must match the input of the controller that is physically connected to the **"Fault"** output of the card capture reader) and set the following parameters by using the drop-down menu:

- set **"Standard"** value for **"Type"** parameter,
- set **"Disconnected"** value for the **"Normal condition of the contact"** parameter:

Device properties
✕

Device name:

Device type: **Turnstile controller CT/L04.2**

General

Additional inputs

Additional outputs

Status

External connections

Additional input No.3

Additional input No.4

Additional input No.5

Additional input No.6

Additional input No.4
 Type

Normal condition of the contact

Additional inputs, masked on OD activation
 Masking out criterion

☐ Additional input № 2
☐ Additional input No.3

All in the device(s) ▼

Save

Save and close

- configure response of the controller to the activation of the input number 5 by using the activation or normalization parameters of the outputs, for example, the activation of an additional output of the controller number 5 that is connected to the alarm system:

11.



Attention!

If the passage permission indication of the card capture reader is controlled directly from the control board of the turnstile, then, it is not necessary to fulfill the requirements of this paragraph.

To do this: select **"Additional output №..."** (number of the output must match the output of the controller that is physically connected to the **"LED"** input of the card capture reader) and set the following parameters by using the drop-down menu:

- set **"Standard"** value for the **"Type"** parameter;
- set **"Not energized"** value for the **"Normal state"** parameter.

12. Click **"Save and close"** button. The **"Device properties"** window will be closed.

13. Within the main controller, select the controller of the OD which is controlled by a card capture reader:

14. Click **"Edit"** button on the page toolbar. The **"Device properties"** window will appear.

15. Switch to **"Reader № ..."** tab (number of the reader must match the reader, which is controlled by the card capture reader).

16. The **"Card captured"** signal sent by the card capture reader is considered as a confirmation of withdrawal of the card. To configure the confirmation parameters, select the group of **"Verification"** parameters and set the following values:

- for **"Verification"** parameter:
 - set **"External verification device"** value, if the card reader acts as an external verification device for a controller (**"Card captured"** signal is sent to a separate input of the controller),
 - set **"Remote control"** value, if the **"Card captured"** output of the card capture reader is connected to the controller in parallel with the RC. In this case, it is also necessary to check **"In 'Control' mode"** box from the left side of the **"Remote control permission"** window:

Additional outputs activated on VISITORS valid identifiers presentation

Remote control permission

Withdraw the identifiers of the visitors after the passage

Verification

Remote control permission

☒ In "Control" mode

- Check boxes of the **"Verify VISITORS IDs from the external verification devices"** parameter (or, respectively, **"...from the remote control"**):
 - **"When passing"**;
 - **"When passing with VIOLATED TIMING"**;
 - **"When passing with ZONALITY VIOLATION"**.
- specify the desired value for the **"Waiting period for verification confirmation from the external verification device"** parameter (or, respectively, **"...from the remote control"**) which will be used by the controller for waiting of a "Card captured" signal.

Device properties [X]

Device name: Turnstile controller №1

Device type: Turnstile controller

Exit from: Undefined [X]

Entry to: Undefined [X]

Alarm generator Turnstile Reader 1 **Reader 2** Double-check access cards list

Additional outputs activated on EMPLOYEES valid identifiers presentation

Additional outputs activated on VISITORS valid identifiers presentation

Remote control permission

Withdraw the identifiers of the visitors after the passage

Verification

Verification: External verification device

Verify VISITORS IDs from the external verification device

☒ When passing

☒ When passing with VIOLATED TIMING

☒ When passing with ZONALITY VIOLATION

Waiting period for verification confirmation from external verification device: 5 Seconds

In case of no response from the external verification device: Ban

Reader commands

Set the "Open" operating mode

Set the "Control" operating mode

Set the "Closed" operating mode

Open (unblock) device

Close (block) the device

All in the device(s) [v] [Save] [Save and close]

17. Select the group of parameters **"Additional outputs activated upon VISITORS valid identifiers"** and set:

- set **"For the operation time"** value for the **"Activation criteria"** parameter by using the drop-down list.
- in the appeared list of additional outputs check **"Additional output № 3"** (number of the output that is connected to the "Capture card" input of the card capture reader):

Device properties✕

Device name:

Device type: **Turnstile controller**

Exit from: ⋮ ✕

Entry to: ⋮ ✕

Alarm generator
Turnstile
Reader 1
Reader 2
Double-check access cards list

Additional outputs activated on VISITORS valid identifiers presentation

Additional outputs activated on VISITORS valid identifiers presentation

Remote control permission

Withdraw the identifiers of the visitors after the passage

Verification

Additional outputs activated on VISITORS valid identifiers presentation

Activation criterion

☐ Additional output № 2
☒ Additional output № 3
☐ Additional output № 4
☐ Additional output No.5
☐ Additional output No.6
☐ Additional output No.7
☐ Additional output No.8
☐ Additional output No.9

Reader commands

Set the "Open" operating mode

Set the "Control" operating mode

Set the "Closed" operating mode

Open (unblock) device

Close (block) the device

All in the device(s) ▼

Save

Save and close

18. In the left part of the tab, select **"Withdraw the identifiers of the visitors after the passage"** parameter and check the box:

Device properties✕

Device name:

Device type: **Turnstile controller**

Exit from: ⋮ ✕

Entry to: ⋮ ✕

Alarm generator
Turnstile
Reader 1
Reader 2
Double-check access cards list

Additional outputs activated on EMPLOYEES valid identifiers presentation

Additional outputs activated on VISITORS valid identifiers presentation

Remote control permission

Withdraw the identifiers of the visitors after the passage

Verification

Withdraw the identifiers of the visitors after the passage

☒ Withdraw the identifiers of the visitors after the passage

Reader commands

Set the "Open" operating mode

Set the "Control" operating mode

Set the "Closed" operating mode

Open (unblock) device

Close (block) the device

All in the device(s) ▼

Save

Save and close

19.



Attention!

If the passage permission indication of the card capture reader is controlled directly from the control board of the turnstile, then, it is not necessary to fulfill the requirements of this paragraph.

In the left part of the working area, select the **"Additional outputs, activated during the OD unblocking"** parameter and set:

- set **"For the operation time"** value for the **"Activation criteria"** parameter by using the drop-down list.
- in the appeared list of additional outputs check **"Additional output №..."** (number of the output that is physically connected to the **"LED"** input of the card capture reader).

Now, the ACS-controller will always switch on the permission indication on the card capture reader when you unlock the OD in this direction.

20. Click **"Save and close"** button. The **"Device properties"** window will be closed all settings will be saved.

Appendix 2. Configuring in the Web interface CT/L-04.2, CT-03.2 for working with the card capture reader



Attention!

You can configure the most basic algorithm of cards withdrawal by using the Web interface. Advanced options are available in **PERCo-Web** software. **CT/L-04 (CT-03)** controllers don't support operation with the card capture reader via Web-interface.

1. In **"Configuration" → "Edit" → "Operating devices"** section, select the OD that is physically connected to the card capture reader, then select **"Reader 1"** or **"Reader 2"** depending on the direction of the passage that is controlled by the card capture reader. Set the following parameters for the reader:
 - set the **"External verification device"** value for the **"Verification"** parameter,
 - within the **"External device verification in ACM "Control"** group of parameters set **"Yes"** value for the **"Visitor pass verification"** parameter and also set the required values for **"Visitor verification activation"** and **"External device verification waiting period"** parameters.
2. Set the following parameters in **"Configuration" → "Edit" → "Physical contacts"** section:
 - set the following parameter values for input that is physically connected to the "Card captured" output of the card capture reader:
 - **"Normal state:"** – **"Cut"**,
 - **"Function:"** – **"External verification device confirmation input"**,
 - **"Operating device:"** – **"1"** (number of OD that is physically connected to the card capture reader),
 - **"Direction:"** – **"1"** or **"2"** (depending on the passage direction that is controlled by the card capture reader):

Physical contact Input 6 (loop)

Normal state: Cut

Function: External verification device confirmation input

Operating device: 1

Direction: 1

Save Cancel

- Set the following parameter values for the output that is physically connected to the "Capture card" input of the card capture reader:
 - **"Normal state:"** – **"Not energized"**,
 - **"Function:"** – **"Output"**:

Physical contact Output 3

Normal state: Not Energized

Function: Output

Save Cancel

3. Add the following Internal response in **"Configuration" → "Edit" → "Internal response"** section:
 - **"Source type:"** – **"Visitor ID card presentation"**,
 - **"Source number:"** – **"1"** (number of OD that is physically connected to the card capture reader),
 - **"Source direction:"** – **"1"** or **"2"** (depending on the passage direction that is controlled by the card capture reader),
 - **"Receiver type:"** – **"Activate output"**,
 - **"Receiver number:"** – **"3"** (number of the output that is physically connected to the "Capture card" input of the card capture reader),
 - **"Response characteristic:"** – **"Response time"**:

Internal response 1

Number: 1

Source type: Visitor ID card presentation

Source number: 1

Source direction: 1

Receiver type: Activate output

Receiver number: 3

Receiver direction: 1

Response time: No

Response characteristic: Response time

Reset of the guard zone output in «ALARM» mode: No

Save Cancel

4. Any free input of the controller can be used for receiving the *"Alarm"* signal sent by the card capture reader. It is necessary to set the type of response on the activation of this input, for example, blocking of the reader in the passage direction that is controlled by the card capture reader:

Internal response 2 ✕

Number:

Source type:

Source number:

Source direction:

Receiver type:

Receiver number:

Receiver direction:

Response time:

Response characteristic:

Reset of the guard zone output
in «ALARM» mode:

5

**Attention!**

If the passage permission indication of the card capture reader is controlled directly from the control board of the turnstile, then, it is not necessary to fulfill the requirements of this paragraph.

Set the following values in the **"Configuration" → "Edit" → "Physical contacts"** section for the output of the controller that is physically connected to the **"LED"** input of the card capture reader:

- **"Normal state:"** – **"Not energized"**,
- **"Function:"** – **"Output"**.

Add the following Internal response in **"Configuration" → "Edit" → "Internal response"** section:

- **"Source type"** – **"Unblock device"**,
- **"Source number"** – **"1"** (number of OD that is physically connected to the card capture reader),
- **"Source direction"** – **"1"** or **"2"** (depending on the passage direction that is controlled by the card capture reader),
- **"Receiver type"** – **"Activate output"**,
- **"Receiver number"** - number of the output that is physically connected to the **"LED"** input of the card capture reader),
- **"Response characteristic:"** – **"Response time"**:

Internal response 3
✕

Number: 3 ▼

Source type: Unblock device ▼

Source number: 1 ▼

Source direction: 1 ▼

Receiver type: Activate output ▼

Receiver number: 4 ▼

Receiver direction: 1 ▼

Response time: No ▼

Response characteristic: Response time ▼

Reset of the guard zone output in «ALARM» mode: No ▼

Save
Cancel

Example of a overview of the sections **"Internal response"** and **"Physical contacts"** after configuration (template – "Turnstile" card capture reader controls the direction number "1", "Input 6" and "Output 3" are used to control the card capture reader, "Input 5" is used receive the "Alarm" signal, "Output 4" is used to control the indication of the card capture reader:

Add						
Number	Source			Receiver		
	Type	Number	Direction	Type	Number	Direction
1	Visitor ID card presentation	1	1	Activate output	3	1
2	Input	5	1	Block reader	1	1
3	Unblock device	1	1	Activate output	4	1

Contact	Function	Operating device	Direction	Normal
Input 1	Pass input	1	1	Closed
Input 2	Pass input	1	2	Closed
Input 3	Not specified			Cut
Input 4	Not specified			Cut
Input 5 (loop)	Input			Cut
Input 6 (loop)	External verification device confirmation output	1	1	Cut
Input 7	Remote control	1	1	Cut
Input 8	Remote control	1	3	Cut
Input 9	Remote control	1	2	Cut
Input 10	Fire alarm input			Closed
Output 1	Operating device control output	1	1	Not energized
Output 2	Operating device control output	1	2	Not energized
Output 3	Output			Not energized
Output 4	Output			Not energized
Output 5	Not specified			Not energized
Output 6	Not specified			Not energized
Output 7	Remote control indication output	1	1	Energized
Output 8	Remote control indication output	1	3	Energized
Output 9	Remote control indication output	1	2	Energized

6. Temporary cards for visitors can be issued in **"Access cards"** section of the Web-interface. First, include them into the main list of cards in the **"Input"** subsection, then in the **"List"** subsection, select the access card that should be issued for a visitor, and in the appeared window:
- on the **"General"** tab select **"Temporary"** value for the **"Card type"** parameter, then determine the period of validity of the card,
 - on the **"Access rights"** tab set the **"Yes"** value to **"Verification"** parameter for reader 1 or 2 (depending on the direction of the passage is controlled by the card capture reader), in this case, the **"Status"** of this set of rights should be **"Unblocked"**.

65555

General

Access rights

Card type: Temporary

Valid from: 01/10/2018 Hour: 10 Min.: 15

Valid till: 01/10/2018 Hour: 17 Min.: 30

Stop list: No

Vehicle card: No

Full name: Visitor

Delete Save Cancel

65555

General

Access rights

Card rights number: 1

Access time interval: Time zone

Time criteria number: 0

Guard zone number: 1

Access permissions: Permitted

Other cards double-check: No

Antipassback: No

Verification: Yes

Status: Unblocked

Delete Save Cancel

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