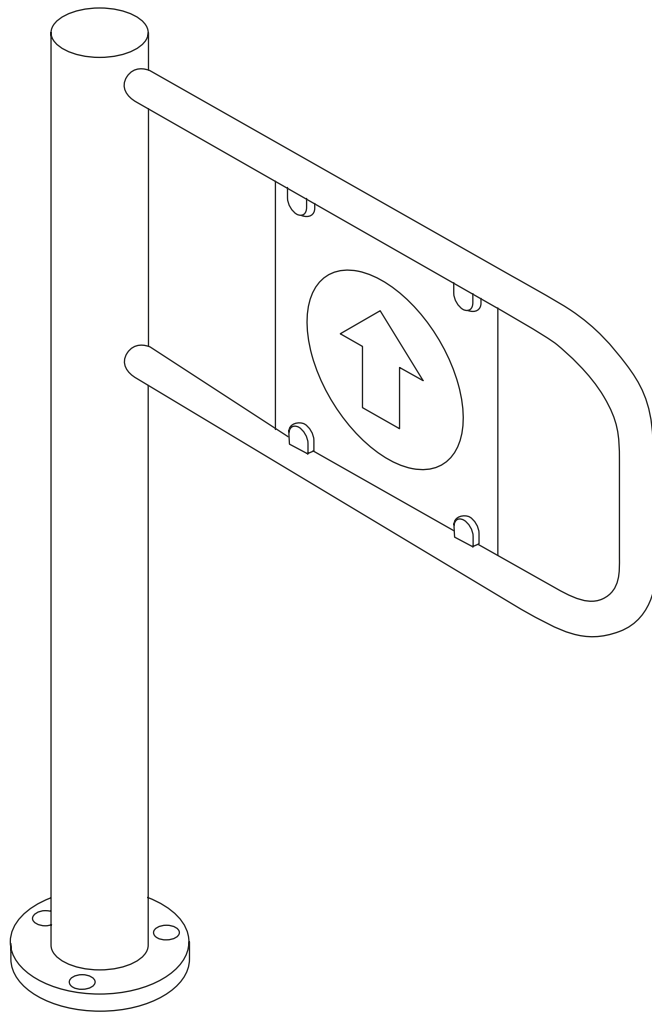


PERCo[®]

ASSEMBLY AND OPERATION MANUAL



WMD-05S

EAC
CE

Motorized electromechanical swing gate

CONTENTS

1	APPLICATION	2
2	OPERATING CONDITIONS	2
3	TECHNICAL SPECIFICATIONS	2
4	DELIVERY SET	3
	4.1 Standard delivery set	4
	4.2 Additional equipment (to be supplied upon request)	4
5	DESCRIPTION	4
	5.1 Main features	4
	5.2 Design	5
	5.3 RC panel	6
	5.4 CU design	7
	5.5 Control of swing gate	9
	5.5.1 Control via RC panel or WRC	9
	5.5.2 Control via ACS	9
6	MARKING AND PACKAGING	11
7	SAFETY REQUIREMENTS	11
	7.1 Installation safety	11
	7.2 Operation safety	11
8	ASSEMBLY AND INSTALLATION	12
	8.1 General recommendations	12
	8.2 Tools and equipment required for installation	12
	8.3 Connection layout of swing gate	12
	8.4 Installation procedure	14
9	OPERATION	16
	9.1 Power-up	16
	9.2 Operation modes of swing gate	16
	9.3 Operation from built-in SPS unit	18
	9.4 Operation from external PS unit	18
	9.5 Troubleshooting	18
10	EMERGENCY RESPONSE	19
	10.1 Mechanical unlocking of swing gate	19
	10.2 Fire Alarm mode	19
11	TECHNICAL MAINTENANCE	19
12	TRANSPORTATION AND STORAGE	19

Dear Customer!

Thank you for choosing the swing gate made by PERCo.

You have purchased a high-quality product, which will serve you for many years to come, if you carefully follow installation and operation rules.

The Assembly and Operation Manual for the WMD-05S Motorized electromechanical swing gate (hereinafter referred to as the swing gate) contains the instructions needed for the most effective operation of the swing gate, as well as sections on its packaging and installation.

The product shall be installed and maintained by qualified installers in strict accordance with the Manual.

Abbreviations adopted in the Manual:

- ACS – access control system;
- CU – control unit;
- RC panel – remote control panel;
- WRC – wireless remote control;
- PS unit – power supply unit;
- SPS unit – standby power supply unit.

1 APPLICATION

The **WMD-05S** Motorized electromechanical swing gate is designed for managing pedestrian flows at checkpoints of industrial facilities, banks, administrative buildings, retail outlets, railway terminals, airports, etc.

The number of swing gates required to ensure fast and convenient passage should be calculated based on the product's throughput rate (see Section 3). For example, it is recommended to install one swing gate per 500 people passing through the gate in a single day, or assuming that the peak load totals 12 persons/minute.

2 OPERATING CONDITIONS

In terms of resistance to environmental exposure, the swing gate post complies with GOST 15150-69, category U4 (operation in premises with climate control).

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

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

Operation of the control unit is allowed at an ambient air temperature from +1°C to +55°C and relative air humidity of up to 60% at +20°C.

3 TECHNICAL SPECIFICATIONS

AC operating voltage	220 ± 22 V AC
AC frequency	50 ± 1 Hz
Power consumption	max. 60 W
Swing gate's operating voltage from an external power supply unit	22-28 V DC
Throughput rate in the single passage mode	12 persons/min
Passageway width:	
with AG-650 swing panel (650 mm).....	700 mm
with AG-900 swing panel (900 mm).....	950 mm
with AG-1100 swing panel (1100 mm).....	1150 mm
Operating time when powered by a built-in SPS unit.....	min. 1.5 h
Number of passages when powered by a built-in SPS unit	min. 1200 passages
Mean time to failure	min. 500 000 passages
Mean lifetime	min. 8 years
Electric shock protection class:	
Swing gate post	III (IEC 61140)
Control unit	I (IEC 61140)
IP Code:	

Swing gate post	IP41 (EN 60529)
Control unit	IP40 (EN 60529)
Overall dimensions (L × W × H):	
Swing gate with AG-650 swing panel	773×145×1007 mm
Swing gate with AG-900 swing panel	1023×145×1007 mm
Swing gate with AG-1100 swing panel	1223×145×1007 mm
Control unit	295×290×76 mm
Net weight:	
Swing gate	max. 25 kg
AG-650 swing panel	max. 3 kg
AG-900 swing panel	max. 4 kg
AG-1100 swing panel	max. 4 kg
Control unit	max. 10 kg



Attention!

The **CU-05.2** control unit can be powered either by the 220V/50Hz AC mains or by an external 24V DC power supply unit (via the **Bat=24V** connector of the control unit). The external power supply unit is not included in the standard delivery set and has to be purchased by the customer on their own. Power supply unit requirements: rated DC voltage of 24V, the minimum current of 2.5A.

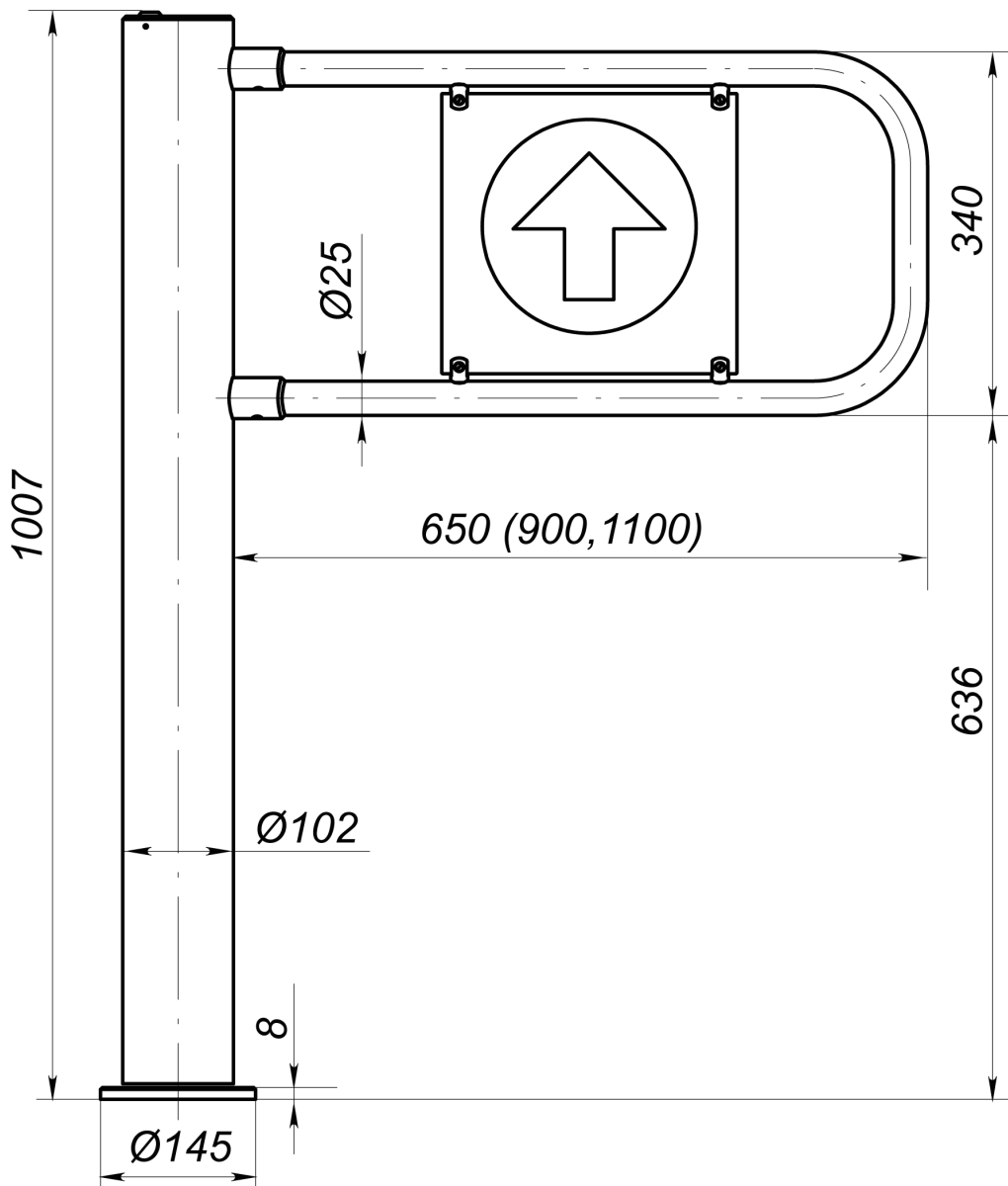


Figure 1. Overall dimensions of the swing gate

4 DELIVERY SET

4.1 Standard delivery set

Basic equipment:

Gate post	1
Swing panel with set of clips and filler panel	1



Note:

The swing panel is a separate item in the price list and is to be purchased separately. The swing panel type is selected by the customer when ordering the gate. Three types of swing panels are available for the **WMD-05S** swing gate:

- **AG-650** for a passageway width of 700 mm,
- **AG-900** for a passageway width of 950 mm,
- **AG-1100** for a passageway width of 1150 mm.

CU-05.2 control unit with 1.5 m mains cable	1
Control cable (12 m) ¹	1
Power cable (12 m) ¹	1
RC panel with cable (the minimum length of 6.6 m) ²	1
Mechanical release key	2

Spare parts:

Fuse 1A (5×20 mm)	1
Fuse 2A (5×20 mm)	1
DBH-15F ACS connector cable socket (to connect the ACS)	1
H-9 connector case (for DBH-15F)	1
XLR3 cable socket for external SPS unit connection	1

Installation and assembly tools:

4×20 screw as per GOST 1144-80	3
Plastic dowel	3
S5 Allen key	1

Operational documentation:

Assembly and Operation Manual	1
Certificate	1

4.2 Additional equipment (to be supplied upon request)

In addition to the standard delivery set, supplementary accessories and installation tools can be supplied upon request:

Anchor with M10 bolt and washer	3
Intrusion detector	1
Siren	1
WRC kit ³	1

5 DESCRIPTION

5.1 Main features

- The swing gate can operate both as a stand-alone unit (via an RC panel or WRC) and as part of an access control system (ACS).
- When controlled via the ACS, the gate can operate in pulse control mode or potential control mode.
- A human-safe operating voltage of max. 28 V is applied to the gate post from the control unit.
- The swing gate has low power consumption – max. 60 W.
- A built-in SPS unit ensures continuous operation of the swing gate in case of a mains failure for 1.5 hours or for 1200 passages. The built-in SPS unit is located in the control unit and consists of two 12 V sealed lead-acid batteries. When the mains power supply is on, these batteries are

¹ Power and control cables with a length of up to 30 m are available upon request.

² The maximum permissible length of the RC panel cable amounts to 40 m (available upon request).

³ The WRC kit consists of a receiver connected to the control unit and transmitters designed as radio fobs.

automatically recharged; when the power supply is off, the gate automatically starts to work on battery power.

- The swing gate is a normally-closed device, i.e., when all the power supplies are off, the closed swing gate is locked in the closed position.
- The swing gate features a rotary motor drive with an encoder, which allows for correct registration of opening of the swing gate when operated as part of an ACS.
- A mechanical release lock built in the gate post allows for unlocking of the swing gate with a key and ensures free rotation of the swing panel if necessary.
- The swing gate can be equipped with swing panels of 3 different lengths: 650, 900 or 1100 mm.
- A device generating an emergency unlocking signal can be connected to the control unit of the swing gate.
- External elements of the swing gate, except for its filler panel and bracket, are made of polished stainless steel.

5.2 Design

Design of the swing gate is shown in Figure 2. Herein, the numbers of the part and component items in brackets are given according to Figure 2 unless stated otherwise.

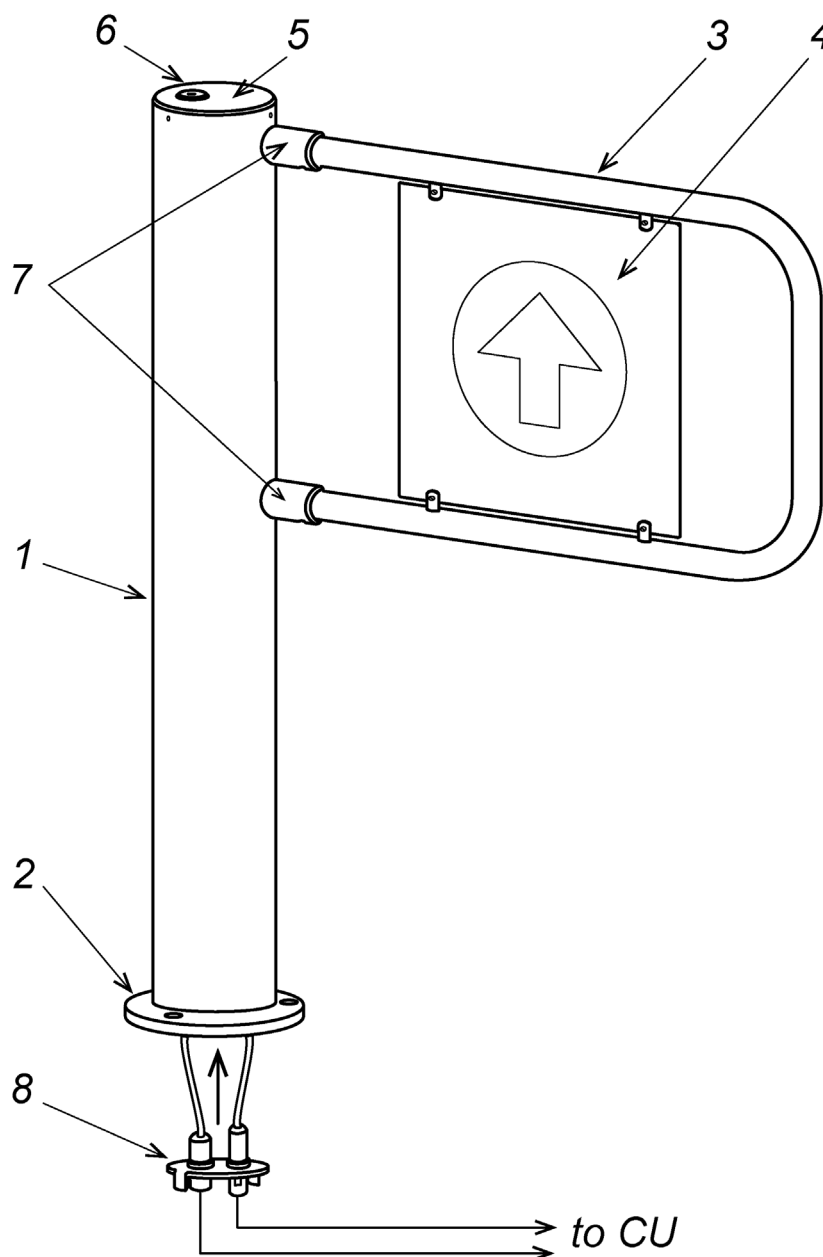


Figure 2. Overall view of the swing gate

1 – rotary post; 2 – stationary post with flange; 3 – swing panel; 4 – filler panel; 5 – top cover; 6 – mechanical release lock; 7 – coupling fitting; 8 – cable connector block

The **WMD-05S** swing gate consists of a rotary post (1), stationary post with a flange (2), as well as a swing panel (3) with a filler panel (4). The filler (4) is embedded in the swing panel with the use of clips. On the top cover (5) of the rotary post (1), there is a mechanical release lock (6) intended for unlocking the swing gate with a key in emergency cases. The gate post is mounted to the floor with a flange using M10×70 hexagonal socket bolts.

The gate post contains components that ensure its operation: a rotary motor drive, an electromagnetic stopper unit, bearing units, a power module to control the motor drive and transmit signals from sensors and the encoder, and a block of cable connectors (8).

The swing gate contains a control unit (CU), which is connected to the gate post with power and control cables and outfitted with an RC panel.

5.3 RC panel

The RC panel is a small desktop device made of shockproof ABS plastic that serves for manual setting and indication of the swing gate's operation modes. The RC panel is connected to the control unit with a flexible multicore cable through the cable inlet in the CU's lower panel (see Figure 4).

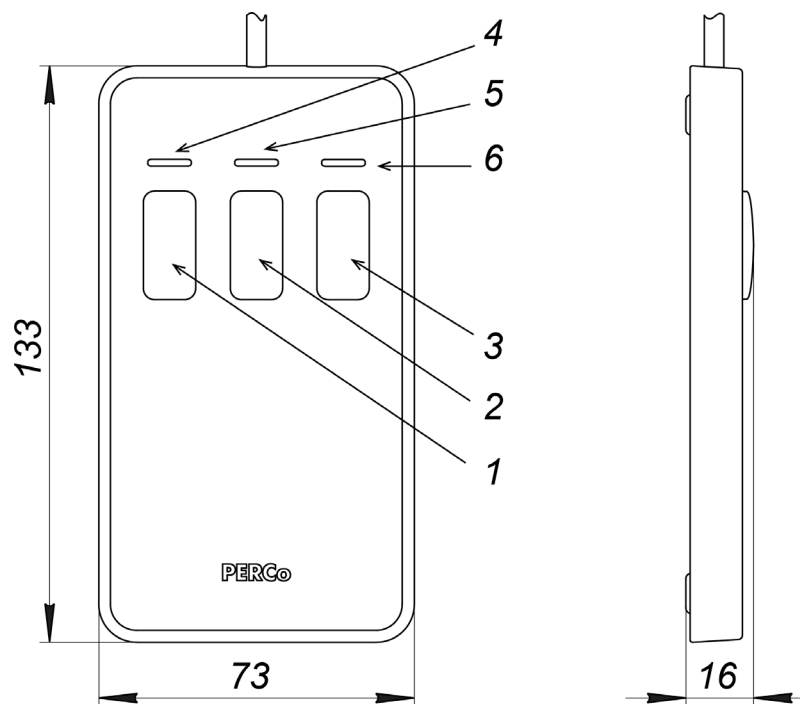


Figure 3. Overall view and dimensions of the RC panel

- 1, 2, 3 – **LEFT, STOP, RIGHT** buttons for setting of operation modes;
- 4, 6 – *Left and Right* green light indicators; 5 – *Stop* red light indicator

The RC front panel features three control buttons to set operation modes of the swing gate. There are indicators above the buttons. The middle button (**STOP**) is used to switch the swing gate to the *Passage denial* operation mode. The left and right buttons open the swing gate in the chosen direction. The RC panel is outfitted with a buzzer for generation of audio signals.

If it is required to change the orientation of the RC panel buttons relative to the opening direction of the swing panel, one needs to reverse the connections of the RC panel cable wires to contacts 1 and 3 of the **X3** terminal block as well as to contacts 1 and 3 of the **X4** terminal block in the CU (see Figure 5).



Attention!

All connections in the control unit may be performed only when the power is off (the **Power** and **Battery** switches must be put in position **0**, see Figure 4), and the mains cable is unplugged.

5.4 CU design

The CU is intended to supply electrical power to the swing gate's internal equipment and implement the control algorithm. It is a separate device in a closed metal housing with a top cover (see Figure 4), which can be wall-mounted and fixed so that it cannot be pulled off. The CU can be used as a desktop device.

The CU housing contains a power transformer, a power supply module, a processor module, and two 12 V internal SPS batteries. The CU front panel (Figure 4) houses the following LED indicators:

- **Power** – mains power supply is available (green);
- **24V** – secondary power supply of 24 V DC is available (green);
- **Battery** – the CU changeover to the internal SPS/external power supply (red);
- **24V/2A** – =24V/2A fuse failure (red).

In addition, the front panel features the following toggle switches:

- **Power** – to turn mains power supply on/off;
- **Battery** – to turn the internal SPS/external power supply on/off;

The CU's lower panel houses the following elements:

- mains cable inlet – ~**220V**;
- cable inlet for the WRC – **Wireless**;
- cable inlet for the RC panel – **RC**;
- ACS connector – **ACS**;
- control cable connector – **Control**;
- cable connector for an intrusion detector, siren, and emergency unlocking device – **Alarm**;
- power cable connector – **DC=24V**;
- external DC power supply connector – **Bat=24V**;
- fuse holder with the ~**220V/1A** fuse;
- **Bat/2A** fuse holder;
- fuse holder with the =**24V/2A** fuse.

A processor module board, which controls the swing gate, is embedded in the CU beneath the top cover (see Figure 5).

The board contains:

- **X3, X4** – terminal blocks for connecting the cable of the RC panel / WRC.
- **X10** – terminal block for connecting the siren.
- **X11** – terminal block for connecting the intrusion detector.
- **X14** – terminal block for connecting the emergency unlocking device.
- **XP3** "MODE" – connector for selecting the control mode. The jumper is installed in pulse control mode and removed in potential control mode. The jumper is installed by default.
- **XP4** "TIME" – connector for selecting the passage waiting time. If the jumper is installed, it totals 5 sec., and if removed, the time value is *Infinite*. The jumper is installed by default.
- **XP5** "LEAF" – connector for selecting the gate option for operation with different lengths of the swing panel. If the gate operates with the **AG-650** swing panel, the jumper needs to be installed; if it operates with the **AG-900** or **AG-1100** swing panel, the jumper needs to be removed. The jumper is installed by default.



Attention!

All connections in the control unit may be performed only when the power is off (the **Power** and **Battery** switches must be put in position **0**, see Figure 4), and the mains cable is unplugged.

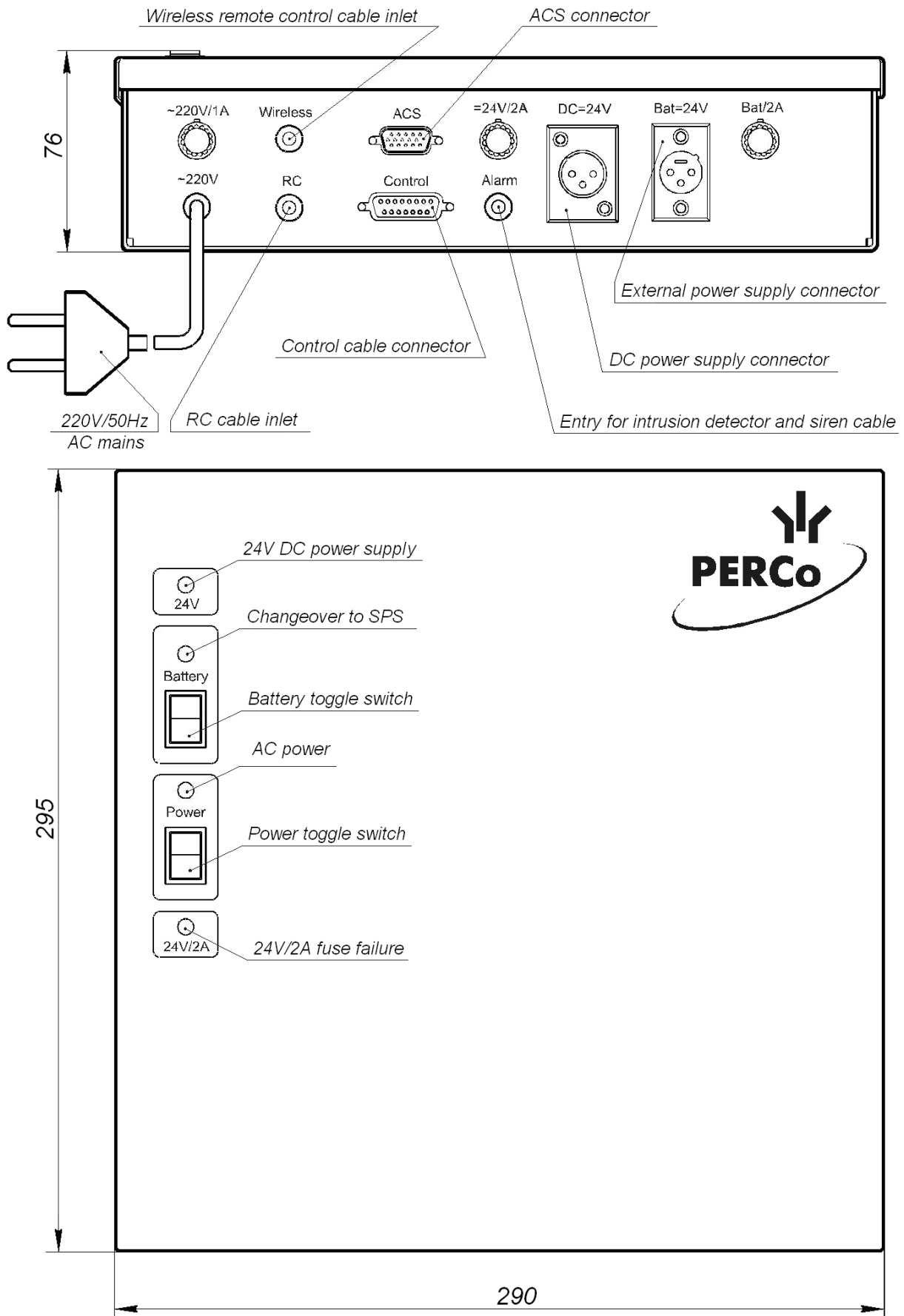


Figure 4 . Control unit

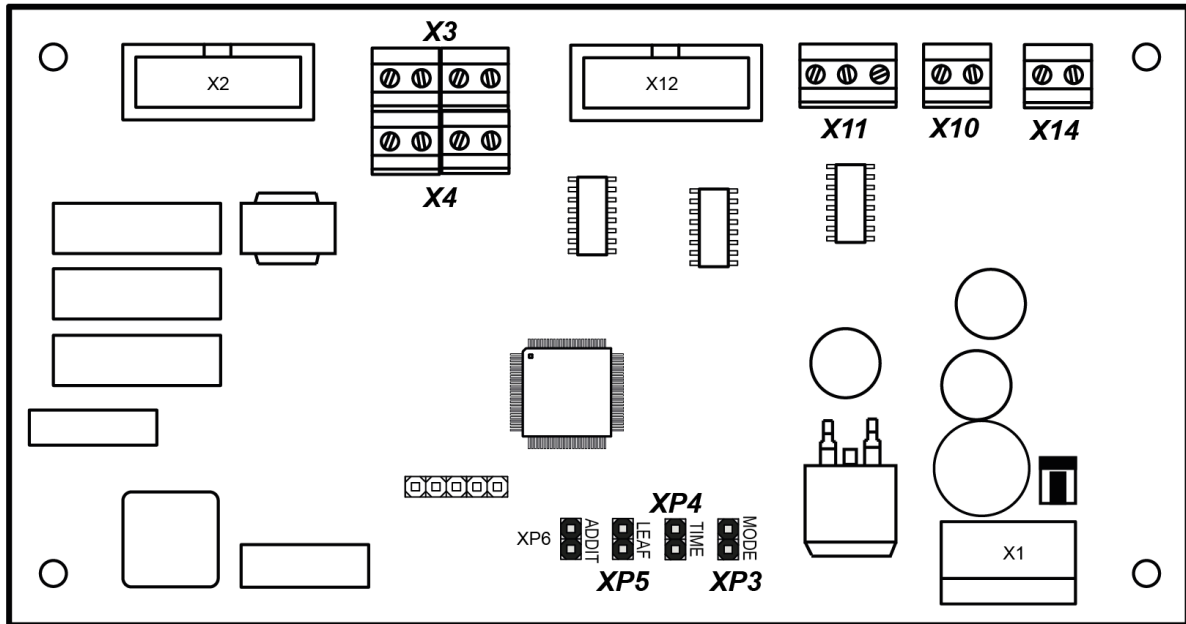


Figure 5 . Arrangement of elements on the processor module board

5.5 Control of swing gate

The swing gate can be controlled:

- by an operator using an RC panel or WRC (see section 5.5.1);
- by an ACS controller (see section 5.5.2).

5.5.1 Control via RC panel or WRC

The following operation modes can be set from the RC panel (ref. Table 2):

- *Passage denial;*
- *Single passage in chosen direction;*
- *Free passage.*

In the *Single passage in chosen direction* mode, the passage waiting time can be changed by installing jumpers on the processor module (Figure 5).

Operation of the swing gate using a WRC is similar to control via the wired RC. The assembly and operation manual for the WRC is supplied in the WRC delivery set. Please refer to Figure 7 for the device's connection layout.

5.5.2 Control via ACS

The ACS controller is cabled to the **ACS** connector of the CU (Figure 4). The ACS connector is included in the set of spare parts of the standard delivery set. Functions of **ACS** connector contacts are demonstrated in Figure 6.

When the swing gate is controlled by the ACS, there are two gate control options available:

- **Pulse control mode.** The passage modes are set by input of a low-level signal or by closing the **RIGHT**, **LEFT**, **STOP** contacts with the **GND (COMMON)** contact of the **ACS** connector. The minimum control signal duration shall amount to 100 ms.
- **Potential control mode.** The passage modes are set by input of a low-level signal or by closing the **RIGHT** and **LEFT** contacts with the **GND (COMMON)** contact. The **STOP** contact of the **ACS** connector is not used. The set passage mode is cancelled by removal of the low-level signal or by breaking the **RIGHT**, **LEFT**, and **GND** contacts of the **ACS** connector.

Either control mode is selected by installation of a jumper on the **X5** connector on the processor module board (Figure 5). The pulse control mode is preset by default.

The control element in the ACS can be a normally open relay contact or a circuit with an open collector output and the following signal characteristics:

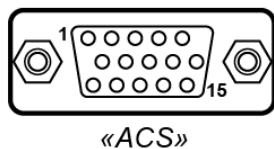
- voltage at the open contact 5 ± 0.5 V;
- voltage at the closed contact (low-level) max 0.8 V;
- current via the closed contact max 1.5 mA.

When the passage mode is set, the swing panel (3) will turn in the chosen direction. The swing panel's speed and turning direction are controlled by signals of the motor drive encoder.

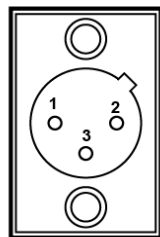
The **PASS R1(R2)** and **PASS L1(L2)** contacts of the CU's **ACS** connector (see Figure 6) are open in the initial state. When the swing panel is turned, depending on the set passage direction, either the **PASS R1** and **PASS R2** contacts or the **PASS L1** and **PASS L2** contacts are closed. Duration of the signals that are generated in this case depends on the time during which the swing gate stays open.

Additionally, the **ACS** connector for the CU ACS connection is provided with the following signals:

- **Pwr failure** – AC mains power failure. Collector (+) (Pwr failure C) and emitter (–) (Pwr failure E) of a transistor of the galvanic decoupling circuit. At AC mains power failure, a high-level signal is generated (the transistor is closed);
- **Bat failure** – built-in SPS or external power supply failure. Collector (+) (Bat failure C) and emitter (–) (Bat failure E) of a transistor of the galvanic decoupling circuit. At the SPS failure (voltage falls to 22.5 V), a high-level signal is generated (the transistor is closed);
- **Pass Sensor** – status of the intrusion detector. The data is transmitted to the ACS directly from the detector (if installed). Relay output (Pass Sensor 1 and Pass Sensor 2 contacts).



Contact number	Signal
1	RIGHT
2	STOP
3	LEFT
4	Pwr Failure E
5	GND
6	PASS L1
7	PASS R1
8	Pwr Failure C
9	PASS L2
10	PASS R2
11	Pass Sensor 1
12	Bat Failure C
13	Bat Failure E
14	Pass Sensor 2



Contact number	Function
1	+24V
2	GND
3	GND

Figure 6 . Functions of CU connector contacts

The output stages of the CU, generating the **PASS R**, **PASS L**, **Pass Sensor**, **Pwr failure**, and **Bat failure** signals, have the inbuilt galvanic decoupling.

To generate the **PASS R**, **PASS L**, and **Pass Sensor** signals, the output stages of the CU have circuits with relay outputs with the following signal characteristics:

- max voltage 50 V;
- max current 200 mA.

To generate the **Pwr failure** and **Bat failure** signals, the output stages of the CU have optoelectronic decouplings with the following signal characteristics:

- max collector-emitter voltage 25 V;
- max current 50 mA.

6 MARKING AND PACKAGING

The swing gate has the following marking:

- on the swing gate itself – the label is located inside the rotary post under the top cover (5) (Figure 2). To find the label, the top cover of the rotary post needs to be removed by unscrewing 3 set screws in the upper part of the swing gate post.
- on the CU – the label is located on its rear side.

The label contains the model and product name, manufacture date, serial number, and technical characteristics.

The inner side of the CU cover features a sticker with a connection layout.

The swing gate in the standard delivery set (Section 4.1) is packed in two transportation boxes.

Box dimensions (length × width × height):

Box 1 with the gate post and control unit	108×36×31 cm
Box 2 with AG-650 swing panel	94×38×7 cm
Box 2 with AG-900 or AG-1100 swing panel	126×39×7 cm

Gross weight:

Box 1 with the gate post	max. 43 kg
Box 2 with AG-650 swing panel	max. 4 kg
Box 2 with AG-900 swing panel	max. 5 kg
Box 2 with AG-1100 swing panel	max. 6 kg

7 SAFETY REQUIREMENTS

7.1 Installation safety

The product shall be installed by qualified personnel who have fully studied this *Manual* and have been instructed in safety, in compliance with the general rules of electrical and installation works.



Attention!

- All the installation works may be performed only after the power supply unit has been switched off and unplugged.
- Only serviceable tools may be used.
- When installing the gate post, please be particularly careful and focused and prevent it from falling down.
- Before the first activation of the gate, check whether its installation and all connections have been performed correctly.

The external power supply unit shall be installed in accordance with safety requirements specified in its operation manual.

7.2 Operation safety

Observe general electrical safety requirements for the use of electrical equipment when using the swing gate.



Warning!

- Do not use the swing gate in conditions different from those stipulated in Section 2 hereof.
- Do not install the CU on electrically conductive surfaces and in damp areas.
- Do not take the cover off the CU or change the fuses unless the CU is disconnected from the power supply.
- Do not operate the swing gate if the mains voltage exceeds 242 V or stands at below 198 V; in case of voltage surges beyond these limits, a voltage stabilizer needs to be installed.

8 ASSEMBLY AND INSTALLATION

When installing the electrical device, please observe safety measures specified in Section 7.1.



Attention!

The manufacturer shall not be liable for damage resulting from incorrect installation and declines any claims if the installation works are not performed in compliance with the instructions specified herein.

8.1 General recommendations

We recommend that you should:

- mount the swing gate on flat, solid concrete floors (grade 400 or higher, B22.5 strength class), stone or similar foundations at least 150 mm thick;
- make sure the mounting foundation is horizontal and even so that all the post and flange mounting points lie in the same horizontal plane;
- employ reinforcing elements (450×450×200 mm) when installing the gate on a less steady foundation;
- mark the mounting holes strictly according to the enclosed mounting hole pattern (see Figure 8); the recommendations are given assuming that the swing gate comes complete with anchor bolts for solid concrete floors;
- control the vertical position of the gate post during installation using a level.

8.2 Tools and equipment required for installation

Use the following tools for the installation work:

- 1.2÷1.5kW electric hammer drill;
- hard-alloy drill bit to create holes for anchor sleeves;
- Ø5 mm hard-alloy drill bit for dowels to mount the CU on the wall;
- Phillips-head screwdriver No. 2;
- SW5 Allen key;
- SW8 Allen key;
- hobby knife;
- level;
- 2m measuring tape.

8.3 Connection layout of swing gate

Table 1. List of elements on the connection layout

Key	Name	Qty, pcs
A1	Gate post	1
A2	Control unit	1
A3	Processor module	1
A4	RC panel	1
A5*	WRC	1
A6*	ACS controller	1
A7*	24 V DC external power supply unit	1
A8*	Intrusion detector	1
A9*	Siren	1
A10*	Emergency unlocking device (upon delivery, the jumper is installed on the connector's contacts)	1
1	Power cable	1
2	Control cable	1

* Not included in the standard delivery set.

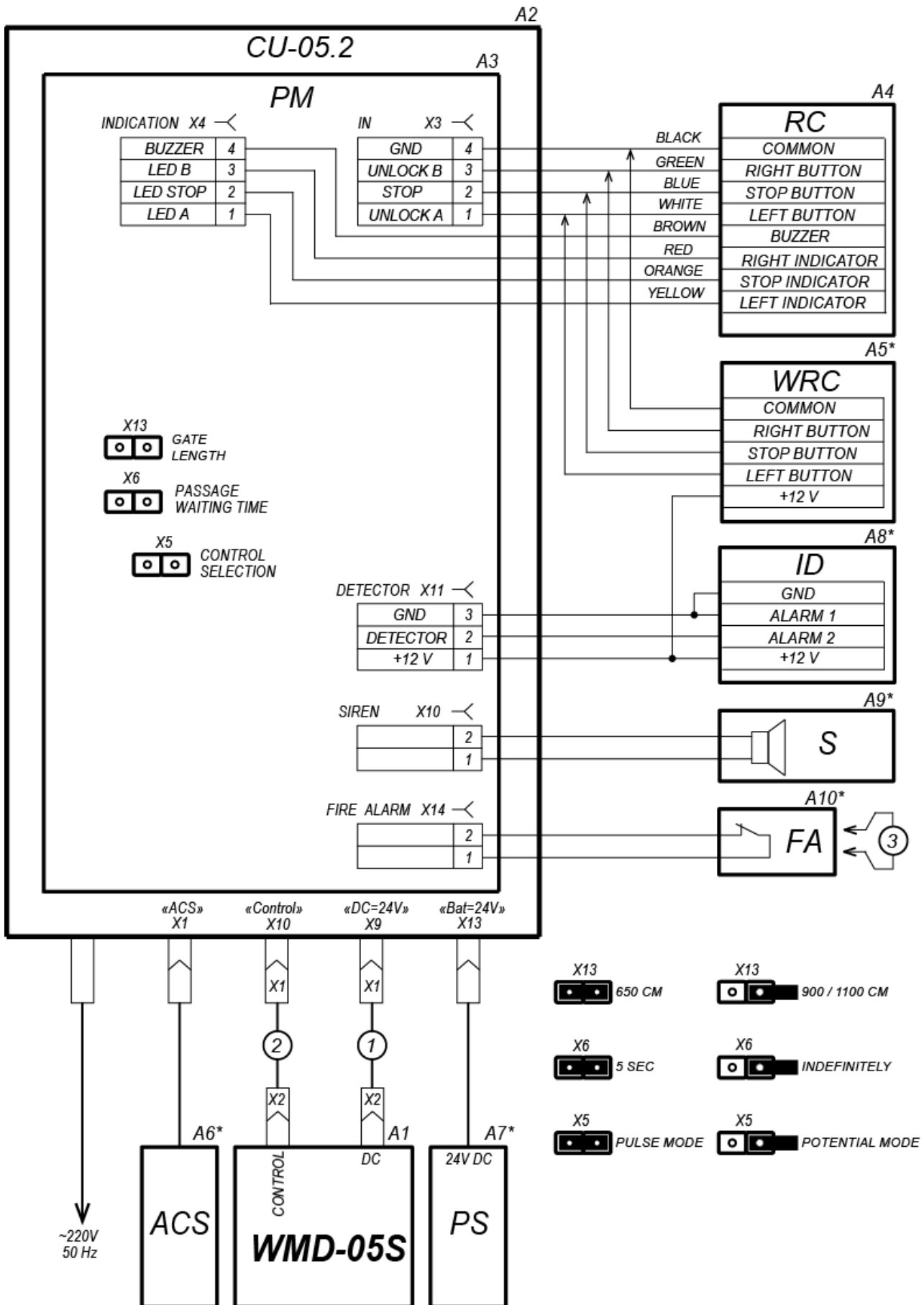


Figure 7 . Connection layout of the swing gate¹

¹ Legend is given in Table 1.

8.4 Installation procedure

All item numbers in the installation procedure are given according to Figure 2.

1. Unpack the box with equipment, check carefully the delivery set in accordance with the Delivery Set section of the swing gate certificate.
2. Make the marking for installation of the swing gate on the floor in accordance with Figure 8 and marking of cable ducts for laying the control cable and power cable. Prepare a cable duct in the floor and make mounting holes for anchors to fix the swing gate post. Insert the anchor sleeves into the prepared holes to the full depth. Guide the control cable and power cable through the cable duct from the control unit to the gate post.

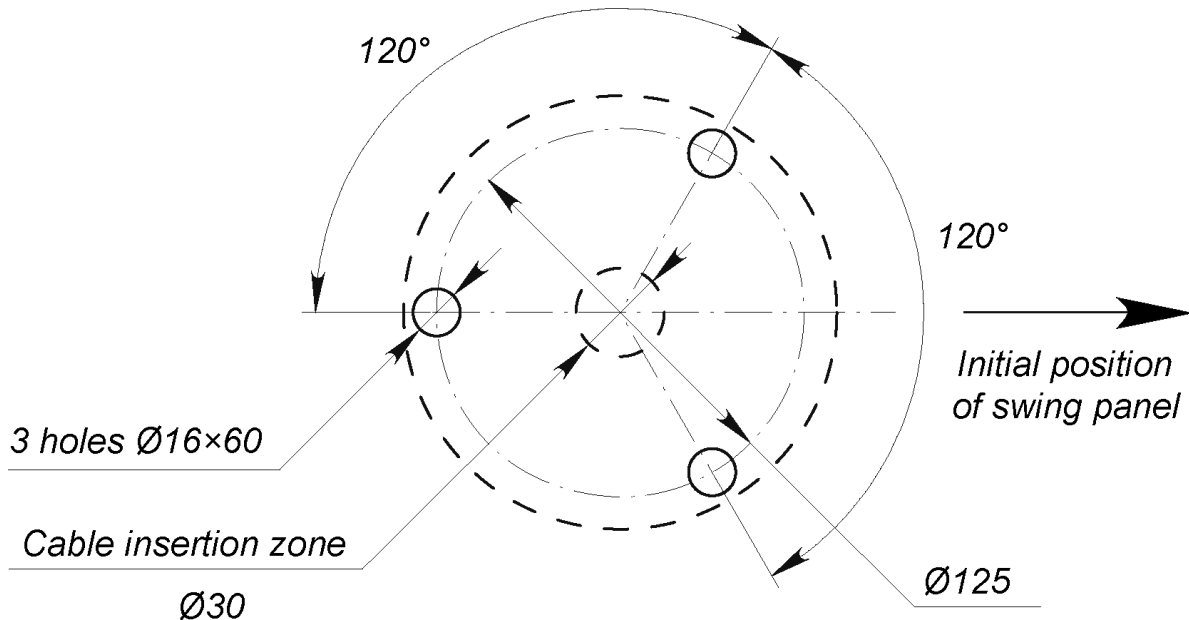


Figure 8 . Mounting hole pattern for installation of the swing gate¹

3. Take the cable connector block (8), mounted on the spring pins, out of the stationary post with a flange (2). Connect the control cable and the power cable to the cable connector block. After this connection, install the cable connector block into the stationary post with the flange (2) at a height suitable for further installation.
4. Install the gate post with its flange to be mounted on anchor sleeves. Make sure that the gate post is in the vertical position (it is allowed to use mounting gaskets). The gate post is quite heavy so please hold it and prevent it from falling. Fix the gate post flange with three M10 bolts in accordance with Figure 2.
5. Take the swing panel (3) out of the transportation box. Mount the swing panel into the coupling fittings (7) of the rotary post (1). Tighten the set screws for swing panel mounting through the coupling fittings' holes with the S5 Allen key. Check if the swing panel (3) is properly fixed.
6. Check free rotation of the swing panel. To do so, unlock the mechanical release lock (6) with the mechanical release key (see section 10.1). The swing panel is supposed to be turned by hand easily and smoothly in either direction. After the check, set the swing panel to the initial position and lock the gate rotation with the key.
7. Unpack the control unit; open the cover by unscrewing two screws, remove the protective insulation from the terminals and connect the wires to the batteries observing the polarity.
8. Mark out the holes for wall mounting of the control unit as shown in Figure 9. Drill the holes and insert the plastic dowels included in the installation delivery set into these holes. Insert two upper screws, hang the CU on those, and fix it with the bottom screw to prevent it from being pulled off accidentally.

¹ The hole sizes are specified in the pattern for anchors of the PFG IH 10 SORMAT type; if other anchor types are used, holes must be drilled with the diameter and depth appropriate for those.

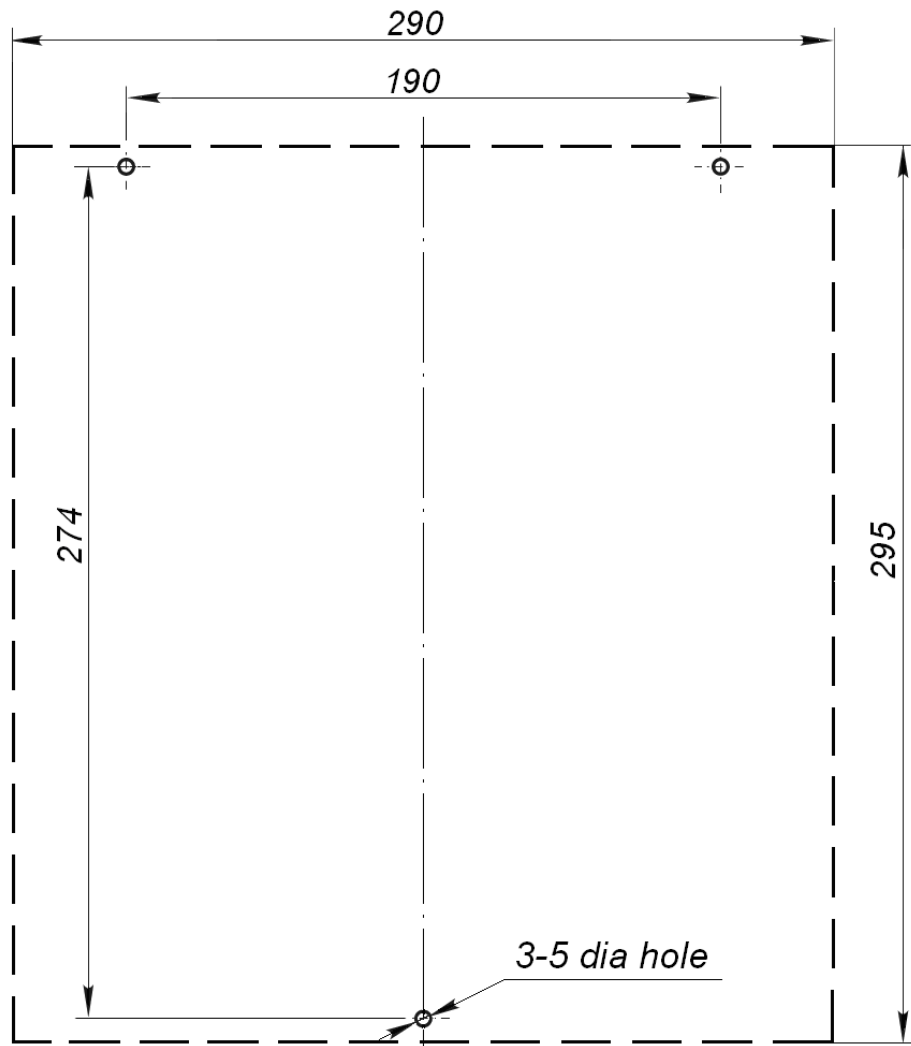


Figure 9. Hole pattern for the CU mounting on the wall

9. Install the control unit so that the **Power** toggle switch for mains power supply is easily accessible (Figure 4). The CU should be mounted on the wall upright with the connectors down. The mains cord should easily reach the socket.
10. Connect the cables to the control unit in the following manner (see Figure 4):
 - Connect the control cable to the CU **Control** connector (Figure 4).
 - Connect the power cable to the CU **DC=24V** connector.
 - Pull the RC panel cable through the RC cable entry inside the CU and connect to the **X3** and **X4** terminal blocks of the processor module in accordance with Figure 5 and Figure 7.
11. Set the CU **Power** toggle switch and the CU **Battery** toggle switch to the **O** position.
12. Connect an emergency unlocking device. To do so, pull the cable through the **ALARM** cable inlet inside the CU, remove the jumper from the **X14** terminal block of the processor module and connect the cable in accordance with Figure 5 and Figure 7.
13. Connection of an intrusion detector and a siren to the CU is carried out in accordance with Figure 5. The equipment location depends on the checkpoint layout.
14. We recommend that you mount the intrusion detector on a stationary railing or a security guard booth, and the siren can be mounted inside the security guard booth near the control unit. For additional information, please contact the PERCo Technical Support Department.
15. Set jumpers on the **XP3**, **XP4**, and **XP5** connectors of the processor module to the required positions (see Figure 5).
16. After the installation is complete, check carefully visually that all cables are undamaged and all connections are correct, and prepare the swing gate for the first power-up by freeing the passage.

9 OPERATION

When installing the electrical device, please observe safety measures specified in Section 7.2.



Warning!

- Do not use substances for cleaning of the swing gate that may cause mechanical damage of its surfaces or corrosion of its parts;
- Do not move any objects with dimensions exceeding the passageway width through the passage zone;
- Do not jerk and hit any elements of the swing gate so as to prevent their mechanical deformation.
- Do not dismantle or adjust mechanisms ensuring operation of the swing gate.

9.1 Power-up

When switching on the swing gate, please perform the following sequence of actions:

1. Make sure the mains power cable is intact, and all the connections are correct and safe.
2. Prior to the swing gate power-up, make sure the **Power** toggle switch and the **Battery** toggle switch of the CU are in the **O** position.
3. Install the **Bat/2A** fuse included in the set of spare parts into its holder on the CU's lower panel.
4. Plug the mains power cable into a 220 V / 50 Hz mains socket.
5. Set the CU **Power** toggle switch and the CU **Battery** toggle switch to the **I** position.
 - In this case, the **Power** and **24V** indicators on the CU will light up.
 - All indicators on the RC panel will light up, and a two-tone signal will sound.
 - 3 seconds later, only a red indicator above the **STOP** button will stay lit on the RC panel.
 - If the swing panel of the swing gate has not been in its initial position, the swing gate will search for the initial position and will switch to the *Passage denial* mode.

9.2 Operation modes of swing gate

After power-up, the initial state of the swing gate is the *Passage denial* operation mode (when the mechanical release lock is locked with the key).

In pulse control mode, setting of the operation modes of the swing gate via the RC panel and their indication are performed as per Table 2.

Table 2. Setting of the operation modes

No.	Operation mode	Your actions on the RC panel	Signals at the ACS connector	Indication on the RC panel
1	<i>Single passage in the chosen direction</i> (Open for passage of one person in the chosen direction)	Press the RC panel button corresponding to the chosen passage direction	LEFT or RIGHT signal	Green light above the button responsible for the chosen passage direction and red light above the STOP button are on
2	<i>Free passage</i> (The swing gate stays open in the chosen direction)	Press the STOP button and the button corresponding to the chosen passage direction simultaneously	Simultaneously coming LEFT (or RIGHT) and STOP signals in accordance with the chosen direction	Green light above the button responsible for the chosen passage direction is on
3	<i>Passage denial</i> (The swing gate is locked for entry and exit)	Press the STOP button on the RC panel	STOP signal	Red light above the STOP button is on



Attention!

When it is required to ensure free passage for more than one hour, **to avoid overheating of the magnet winding**, de-energize the swing gate, unlock it mechanically (see Section 10.1), and then turn the swing panel and leave it open.

The following shall be taken into account:

- any operation mode is set by pressing buttons on the RC panel (or WRC fob) in the respective combination;
- when the **STOP** button is pressed, the swing gate switches to the *Passage denial* operation mode, automatically returning the swing panel to its initial position, when it blocks the passageway;
- when the *Single passage in chosen direction* mode is set, the stopper unit is unlocked, and the motor drive rotates the swing panel in the selected passage direction;
- the swing gate remains open within the set passage waiting time (the factory-set passage waiting time totals 5 sec);
- if the waiting passage time is set as infinite, the swing gate will remain open until the **STOP** button on the RC panel is pressed, or the **STOP** signal is received on the **ACS** connector contact;
- after the passage waiting time elapses, the motor drive brings the swing panel into its initial position, and the swing gate switches to the *Passage denial* mode;
- the passage waiting time is counted after the swing panel rotates more than 83°;
- in the *Free passage* mode for the selected direction, the passage waiting time is not counted; the swing gate remains open for an infinite time and switches to the *Passage denial* mode after the **STOP** button is pressed (on the RC panel or WRC fob) or until the **STOP** signal comes to the **ACS** connector contact;
- upon entry of signals at the **RIGHT**, **STOP**, and **LEFT** contacts of the **ACS** connector, the swing gate is controlled in accordance with Table 2;
- if the RC panel and signals of the **ACS** connector are used simultaneously, the last received command is executed;
- when a new passage mode is set while the swing panel is still moving to the initial position:
 - if the new passage direction is the same as the one set before, the swing gate starts carrying out the new passage mode immediately, without resetting the swing panel;
 - if the new passage direction is opposite to the one set before, the set passage mode is recorded into a special command buffer, and the swing gate starts carrying out the new passage mode only after the swing panel has returned to the initial position;
 - if the *Free passage* mode is set while the swing gate is still in the *Single passage* mode, the swing gate switches to the *Free passage* mode, but the swing panel continues to open in the same direction, irrespective of the direction chosen for the *Free passage* mode.

In **potential control mode**, operation modes are set by holding the **RIGHT** or **LEFT** signals on the ACS connector in accordance with the chosen passage direction.

The following should be considered:

- When a signal is sent, the gate opens and remains open for as long as the signal is active.
- When the **STOP** button on the RC panel is pressed and held, the gate will lock, even if the **LEFT (RIGHT)** signal is present on the **ACS** connector.
- When the **LEFT (RIGHT)** signal is removed from the **ACS** connector, the gate will lock.
- The **STOP** contact of the **ACS** connector is not used.
- Upon pressing and holding a passage direction button on the RC panel, the gate will open in the selected direction and will remain open until you release the button on the RC panel.

Under any control mode:

- If contacts of the **X14 (FIREALARM)** terminal block of the CU's processor module board are opened by the control device generating an emergency unlocking signal, regardless of the set passage mode or passage denial, the swing panel unlocks, and the voltage is removed from the swing gate drive so that the swing gate can be rotated manually in any direction.
- If then contacts of the **X14 (FIREALARM)** terminal block are closed, the swing gate carries out the same actions as at its power-up and switches to the *Passage denial* mode.

To prevent failure of the swing gate's electromechanical parts due to prolonged overheating, the overload mode is activated when the swing panel is prevented from turning for over 10 seconds. In this case, all three indicators of the RC panel will be blinking, and the RC panel will generate a series of 3 short audio signals every 20 seconds as sound indication. To exit overload mode, manually return the swing panel to its initial position.

9.3 Operation from built-in SPS unit

The operating time of the swing gate powered by the built-in SPS unit amounts to 1.5 hours or 1200 passages provided that the built-in SPS batteries are fully charged.

In case of mains power failure, the swing gate remains in operation and automatically switches to power supply from the built-in SPS unit if the **Battery** switch is in the **I** position. When operating from the built-in SPS unit, the **Power** light indicator on the CU's front panel goes out, and the **Battery** light indicator on the CU is on. The **Pwr failure** signal, warning about the mains power failure, is transmitted to the CU's **ACS** connector. In about 5 seconds, an intermittent light indication at a 1 sec. interval is generated on the RC panel.

If the SPS batteries discharge down to 22 ± 0.5 V, the **Bat failure** signal, warning about the built-in SPS unit's failure, is transmitted to the CU's **ACS** connector. The RC panel gives a sound indication, warning that the battery is about to run out. The sound indication includes six short audio signals repeating every 30 sec, when the swing panel is set in the initial position.

If the built-in SPS or external PS batteries discharge down to 20 ± 0.5 V, the swing gate switches to the emergency mode, and the CU will automatically switch off.

When the mains power supply is restored, the swing gate returns to normal mains-powered operation if the **Power** toggle switch is in the **I** position. The built-in SPS batteries will recharge automatically if the **Battery** toggle switch is in the **I** position.



Attention!

The CU's SPS unit contains sealed lead-acid batteries, which are not recommended to be stored for a long time without recharge.

For recharge during the storage period, the CU needs to be switched on for 24 hours every 8 months, or every 2 months when stored at temperatures above $+30$ °C. There is no need to connect the swing gate or the RC panel to the CU during recharge within the storage period. The sequence of switch-on actions is listed in Clause 9.1.

9.4 Operation from external PS unit

An external power supply unit is connected via the **Bat=24V** connector on the CU's lower panel. Contact functions of the **Bat=24V** connector of the external power supply unit are shown in Figure 6.

The cable socket connector for the external power supply unit is included in the set of spare parts.

To connect the external power supply unit:

- set the **Power** and **Battery** switches to the **O** position;
- remove the **Bat/2A** fuse from its fuse holder on the CU's lower panel;
- connect the external power supply unit to the **Bat=24V** connector;
- set the **Battery** switch to the **I** position.

Operation from the external power supply unit is similar to operation from the built-in SPS unit as given in Section 9.3 of the Manual – *Operation from built-in SPS unit*.

9.5 Troubleshooting

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

In an unlikely event of other faults, please consult the PERCo Technical Support Department.

Table 3. Troubleshooting

Fault	Most possible cause	Remedy
When mains power supply is on, if the internal SPS or external power supply unit are not connected, the swing gate does not work, and indication on the RC and CU front panels is off	The connecting or mains cable is broken	Repair the cable
	No mains voltage	Check if the mains socket is in good order and if the mains voltage is available
	The 220V/1A fuse is burnt out	De-energize the CU, replace the fuse in the lower panel of the CU.

Fault	Most possible cause	Remedy
The CU indicators Power and 24V/2A are on, but the 24V indicator on the CU and indication on the RC panel are off	The =24V/2A fuse is burnt out due to possible external short circuit	De-energize the CU, remove the short circuit, and replace the fuse located in the lower panel of the CU.
When the CU is operated from the built-in SPS unit in the absence of mains power supply, the swing gate does not work, and the CU indicators are off	The =Bat/2A fuse is burnt out	De-energize the CU, and replace the fuse located in the lower panel of the CU.
In the absence of mains power supply, when the CU is operated from an external power supply unit connected via the Bat=24V connector, the swing gate does not work, and the CU indicators are off	External power supply failure	De-energize the CU, and remove the failure of the PS unit

10 EMERGENCY RESPONSE



Attention!

In case of fire, natural disasters, and any other emergency situations, it is necessary to provide an emergency exit to evacuate people from the facility urgently. For example, an anti-panic rotary railing section, such as **BH02**, can be used as an emergency exit.

The passage zone of the swing gate can be used as an additional emergency exit if its swing panel is unlocked.

10.1 Mechanical unlocking of swing gate

The mechanical unlocking function is used to unlock the gate in the emergency mode, in case of failure of all connected power supply units of the CU (in the absence of mains power supply and complete discharge of the built-in SPS unit, or in case of failure of the external PS unit).

To unlock the gate mechanically, insert the mechanical release key (see Figure 2) into the mechanical release lock (6), and turn the key 90° clockwise. After this, the swing panel can be easily rotated in any direction and left open.

The mechanical unlocking function of the swing gate is switched off in reverse order. Before this, the swing panel has to be manually returned to its initial position.

10.2 Fire Alarm mode

The swing gate can be switched to the *Fire Alarm* emergency unlocking mode. Under this mode, the swing panel of the gate gets unlocked and allows passage in both directions, while other control commands are ignored.

11 TECHNICAL MAINTENANCE

Technical maintenance of the swing gate should be performed only by the manufacturer.

We recommend using liquid non-abrasive cleaners containing ammonia to clean the swing gate's post and swing panel when dirty.

12 TRANSPORTATION AND STORAGE

The swing gate in the manufacturer's original packaging is allowed to be transported only in closed transport (railway cars, containers, closed motor cars, holds, etc.). During transportation, boxes with swing gates may be stacked no more than 7 layers high, and boxes with swing panels 10 layers high.

The swing gate should be stored in dry indoor facilities at ambient temperatures between -40°C and +55°C and relative air humidity of up to 98% at +25°C. When being stored, the product must be protected against atmospheric precipitation.

After transportation or storage at below-zero temperatures or high air humidity, the swing gate should be kept indoors for minimum 24 hours under normal climate conditions (+18°C, humidity – 60%) immediately prior to installation.

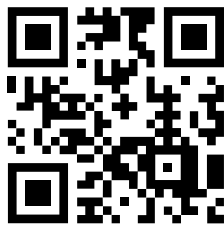
PERCo

Polytechnicheskaya str., 4, block 2
194021, Saint Petersburg
Russia

Tel: +7 812 247 04 64

**E-mail: export@perco.com
support@perco.com**

www.perco.com



www.perco.com