PERCo

Motorized Electromechanical Swing Gate

WMD-05SW

ASSEMBLY AND OPERATION MANUAL

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Motorized Electromechanical Swing Gate

WMD-05SW

Assembly and Operation Manual

Contents

Dear Customer!

Thank you for purchasing the PERCo product.
Please follow instructions given in this Manual carefully, and this quality product will provide many years of trouble-free use.

The Assembly and Operation Manual (hereinafter – the Manual) contains the instructions you will need for safe transportation, storage, installation, operation and maintenance of the ***WMD-05SW*** electromechanical motorized swing gate.

The product installation must be carried out 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 – power supply;
SPS – standby power supply;
ID – intrusion detector.

1 APPLICATION

Motorized electromechanical swing gate WMD-05SW (hereinafter – *the swing gate*) is an outdoor model of motorized swing gate ***WMD-05S*** designed for managing pedestrian flows at entrance points of industrial facilities, banks, administrative buildings, retail outlets, railway terminals, airports, etc.

To ensure fast and convenient passage it is recommended to install one swing gate per every 500 entrants, or on the basis of maximum working load 12 entrants per minute.

2 OPERATION CONDITIONS

The swing gate with regard to resistance to environmental exposure complies with GOST 15150-69, category U1 (outdoor operation).

Operation of the swing gate is allowed at ambient air temperature from –20°C to +45°C (under shelter – to +55°C and at relative air humidity of up to 80% at +25°C.

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

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

3 TECHNICAL SPECIFICATIONS

Operating voltage ..... 220 ± 22 V AC / 50 ± 1 Hz
Power consumption ..... max 60 W
Swing gate operating voltage from an external power supply unit ..... 24±2.4 V DC
Throughput rate in the single passage mode ..... 12 persons/min
Passageway width, mm*:*
with ***AWG-650*** swing panel ..... 700 mm
with ***AWG-900*** swing panel ..... 950 mm
with ***AWG-1100*** swing panel ..... 1150 mm
Minimum duration of operation ..... 1.5 h
Number of passages when powered by built-in SPS ..... 1200 passages
Mean time to failure ..... min 500 000 passages
Mean lifetime ..... min 8 years[1]
Overall dimensions (L × W × H)*:*
with ***AWG-650*** swing panel ..... 773×145×1012 mm
with ***AWG-900*** swing panel ..... 1023×145×1012 mm
with ***AWG-1100*** swing panel ..... 1223×145×1012 mm
CU ..... 295×290×76 mm
Electric shock protection class:
swing gate post ..... III according to GOST R IEC 335-1-94
CU ..... I according to GOST R IEC 335-1-94
Ingress Protection Rating:
swing gate post ..... IP44 under EN 60529
CU ..... IP40 under EN 60529
Net weight*:*
swing gate ..... max 25 kg
AWG-650 swing panel ..... max 3 kg
AWG-900 swing panel ..... max 4 kg
AWG-1100 swing panel ..... max 4 kg
CU ..... max 10 kg

Attention!

The control unit ***CU-05.2*** power supply can be effected either from the AC mains 220V/50Hz or from an external DC power supply 24V via the CU “Bat=24V” connector. External power supply unit 24V DC is not included in the standard delivery set and is customer supplied. Power supply unit specifications: 24V DC, minimum 2.5A.

[1] Lifetime of accumulators of the CU SPS is 5 (five) years.

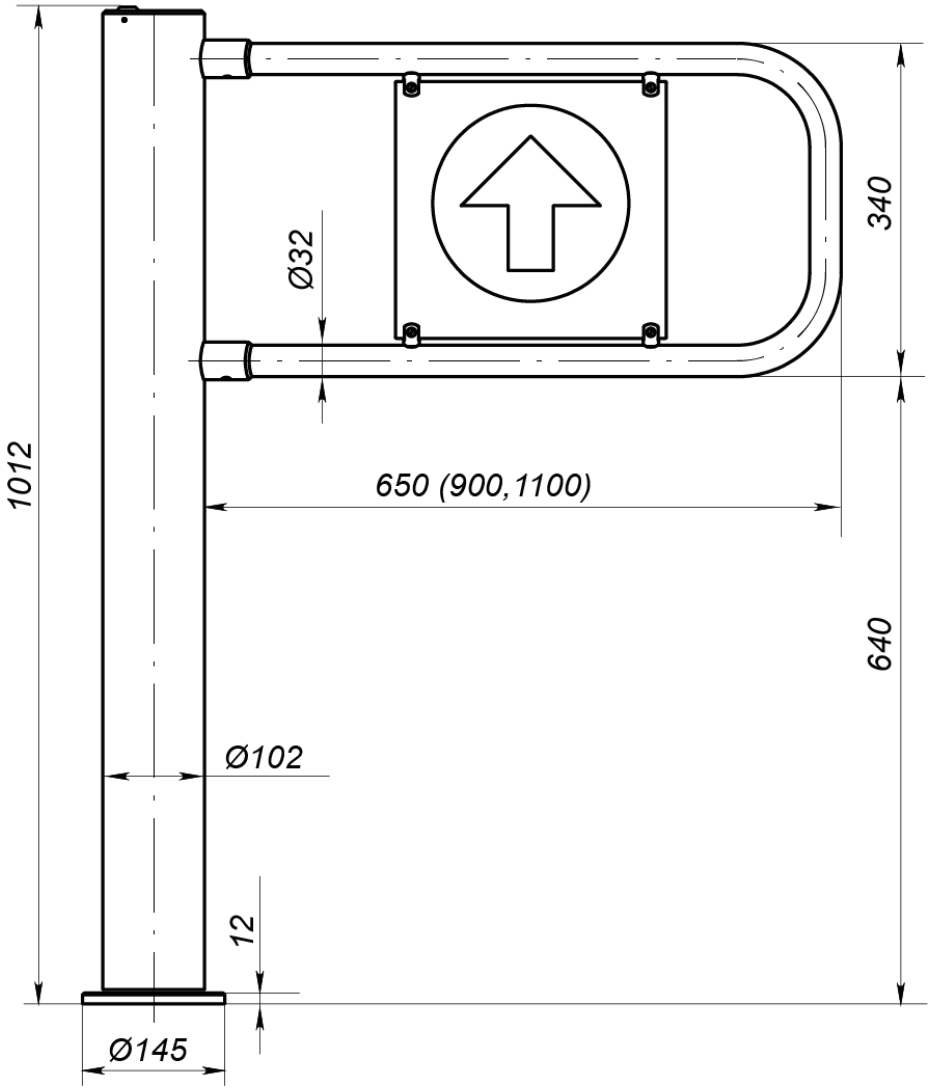


Figure 1. WMD-05SW overall dimensions

4 DELIVERY SET

4.1 Standard delivery set

Basic equipment:

Gatepost 1
Swing panel with fasteners and double-sided plastic info sign 1

Note:

Size of the swing panel ***AGW-650***, ***AGW-900*** or ***AGW-1100*** (650 mm, 900 mm or 1100 mm long) is chosen by a Client at the time of order.

Control unit ***CU-05.2*** with 1.5 m power cable 1
Control cable (12 m)[1] 1
Power cable (12 m)[1] 1
RC-panel with cable 6.6 m long[2] 1
Mechanical release key 2

Operational documentation:

Certificate 1
Assembly and Operation Manual 1

Spare parts:

Fuse 1 A (5×20 mm) 1
Fuse 2 A (5×20 mm) 1
ACS connector DBH 15F cable socket (to connect the ACS) 1
H9 connector case (for DBH-15F) 1
XLR3 cable socket for external power supply connection 1
Fixed brace rod (100 mm) 3

Installation tools:

Screw 4×20 3
Plastic dowel 3
Allen key SW5 1

Package:

Box 1 (a swing gate post and a CU) 1
Box 2 (a swing panel with a double-sided info sign) 1

4.2 Optional equipment supplied on request

Anchor bolt PFG IH 10 («SORMAT», Finland) 3
M10×70 A2 hex socket head bolt 3
S8 hex key (for M10 bolts) 1
Intrusion detector 1
Siren (for alerts on unauthorized entry attempts) 1
Wireless remote control kit[3] 1

[1] Maximum allowable cable length is 30 m.
[2] Maximum allowable RC-panel cable length is 40 m.
[3] WRC kit consists of a receiver connected to the CU and transmitters (tags) with operation range up to 40 m.

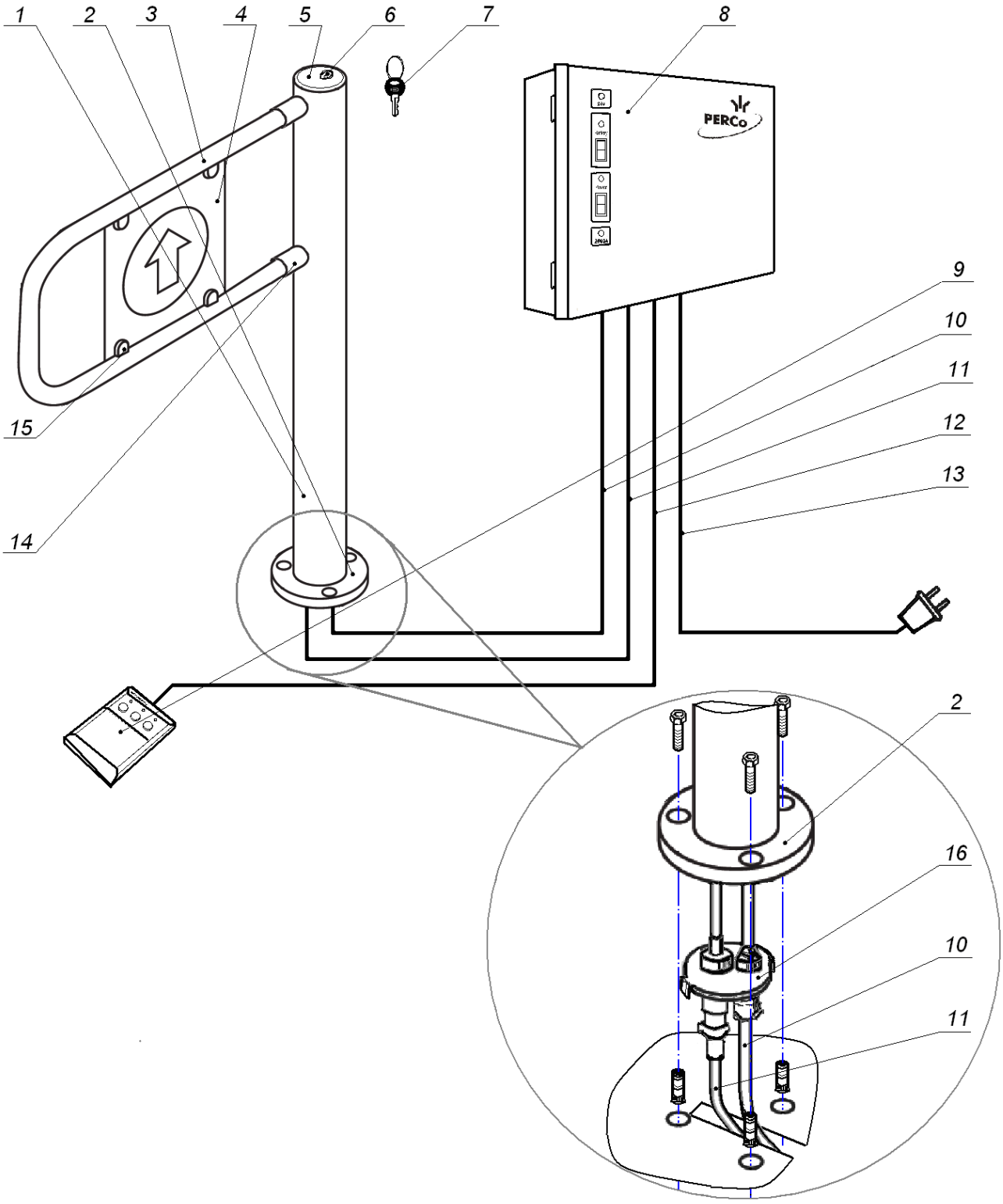


Figure 2. WMD-05SW overall view

1 – rotary post; 2 – stationary post with flange; 3 – swing panel;
4 – double-sided plastic info sign; 5 – cover; 6 – mechanical release lock;
7 – mechanical release key; 8 – CU;
9 – RC-panel; 10 – control cable; 11 – power cable;
12 – RC-panel cable; 13 – AC mains cable; 14 – coupling fitting;
15 – fastening; 16 – cable connector block

5 PRODUCT DESCRIPTION

5.1 Main features

- Motorized electromechanical swing gate ***WMD-05SW*** being an outdoor model of ***WMD-05S*** has stainless steel outer and inner parts, upper cover is equipped with a ring seal, outdoor mechanical release key and a number of other construction solutions.
- The swing gate can be operated autonomously from the RC-panel or WRC as well as from an ACS.
- When operated from the ACS, there are two variants of the gate control – pulse control mode and potential control mode.
- The CU powers the swing gate post with a safe operation voltage – max 28 V DC.
- The swing gate has a low power consumption – max 60 W;
- A built-in SPS keeps the swing gate operative during a mains failure (uninterrupted operation is minimum 1.5 hours or 1,200 passages). Inbuilt SPS consists of two 12 V batteries which automatically charge when the power supply is on. When the power is off the swing gate automatically switches to operation from the batteries.
- The swing gate is a normally closed unit i.e. when the power is off the swing gate is “locked for entry and exit” – the swing panel is locked in home position.
- The swing gate features electrical drive with an encoder, which allows for correct registration of opening of the swing gate when operated in an ACS.
- A mechanical release lock built in the gate post to unlock the swing gate with a key and provide free rotation of the swing panel in emergency cases.
- The swing gate can be equipped with swing panels of 3 different sizes: 650 mm (***AWG-650***), 900 mm (***AWG-900***) or 1100 mm (***AWG-1100***).
- CU of the swing gate features possibility of connecting emergency unblocking device to it.

5.2 Design

Design of the swing gate is shown in Figure 2. The numbers of the items in brackets are given according to Figure 2 unless stated otherwise.

The swing gate consists of a rotary post (1), stationary post with flange (2), a swing panel (3). On the swing panel there is an info sign (4) fixed with the fastenings (15). On the cover (5) of the rotary post (1) there is a mechanical release lock (6) intended for unlocking the swing gate with a mechanical release key (7) in emergency cases. The gate post is floor mounted, fixed with bolts M10×70 with recessed hexahedron.

In the gate post there are a rotor electric drive, an electromagnetic stopper unit, bearing units, a power module to control the electric drive and transmit signals from sensors and encoder, and a block of cable connectors (16).

The swing gate consists of the CU (8) connected to the gate post with a DC power cable (11) and a control cable (10). The RC-panel (9) is connected to the CU (8).

5.3 RC-panel

The RC-panel (9) serves for manual setting of the operating modes and indication thereof. It comes as a compact desktop device with a shockproof plastic case and a flexible multicore cable (12) to connect to the CU (8) via the cable input in the bottom part of the CU (see Fig. 4).

The front of RC-panel houses three buttons to set passage modes of the swing gate. Above the buttons there are LED indicators. The middle button (hereinafter – **STOP** button) serves for setting the **"Always locked"** operating mode. The right and the left buttons serve for allowing passage in the chosen direction. The RC-panel features a built-in piezoelectric buzzer for audio signals generation.

In case of necessity to change the orientation of the CU panel buttons in relation to the opening direction of the swing panel it is necessary to interchange the connection of wires of RC-panel cable to contacts 1 and 3 of ***X3*** connector block and to contacts 1 and 3 of ***X4*** connector block on the CU (Fig. 5).

Attention!

All switching operations on the CU can be done only when the power is off (switches ***«Power»*** and ***«Battery»*** are in the position ***«0»***, Fig. 4), and when the RC-panel cable is disconnected from the mains.

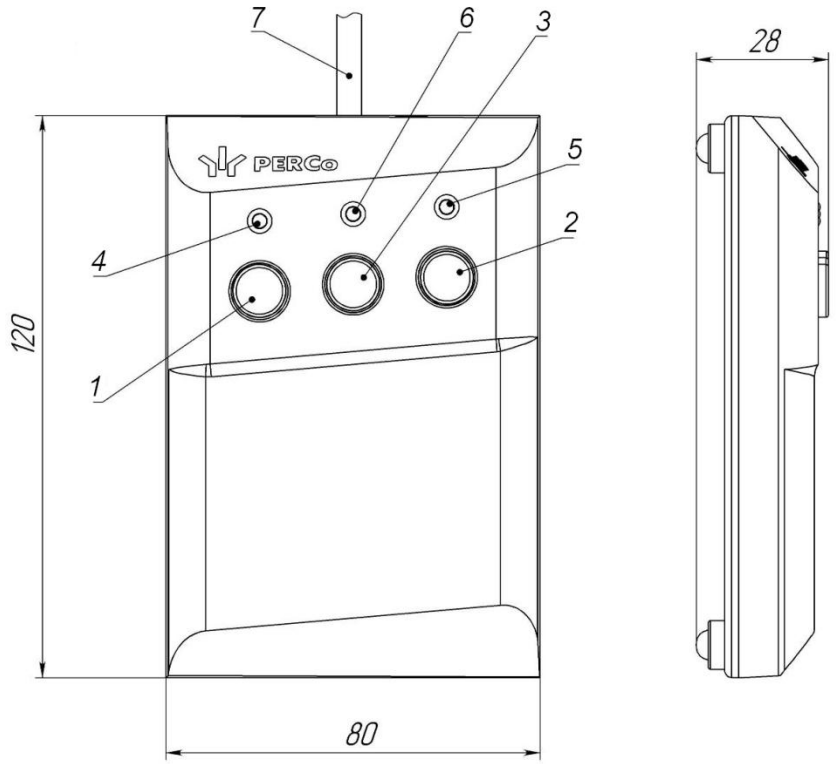


Figure 3. RC-panel overall view and dimensions

1, 2, 3 – buttons **LEFT**, **RIGHT**, **STOP** for setting the operating modes;
4, 5 – green LED indicators *«Left»*, *«Right»*;
6 – red LED *«Stop»;* 7 – RC-panel cable

5.4 Control unit

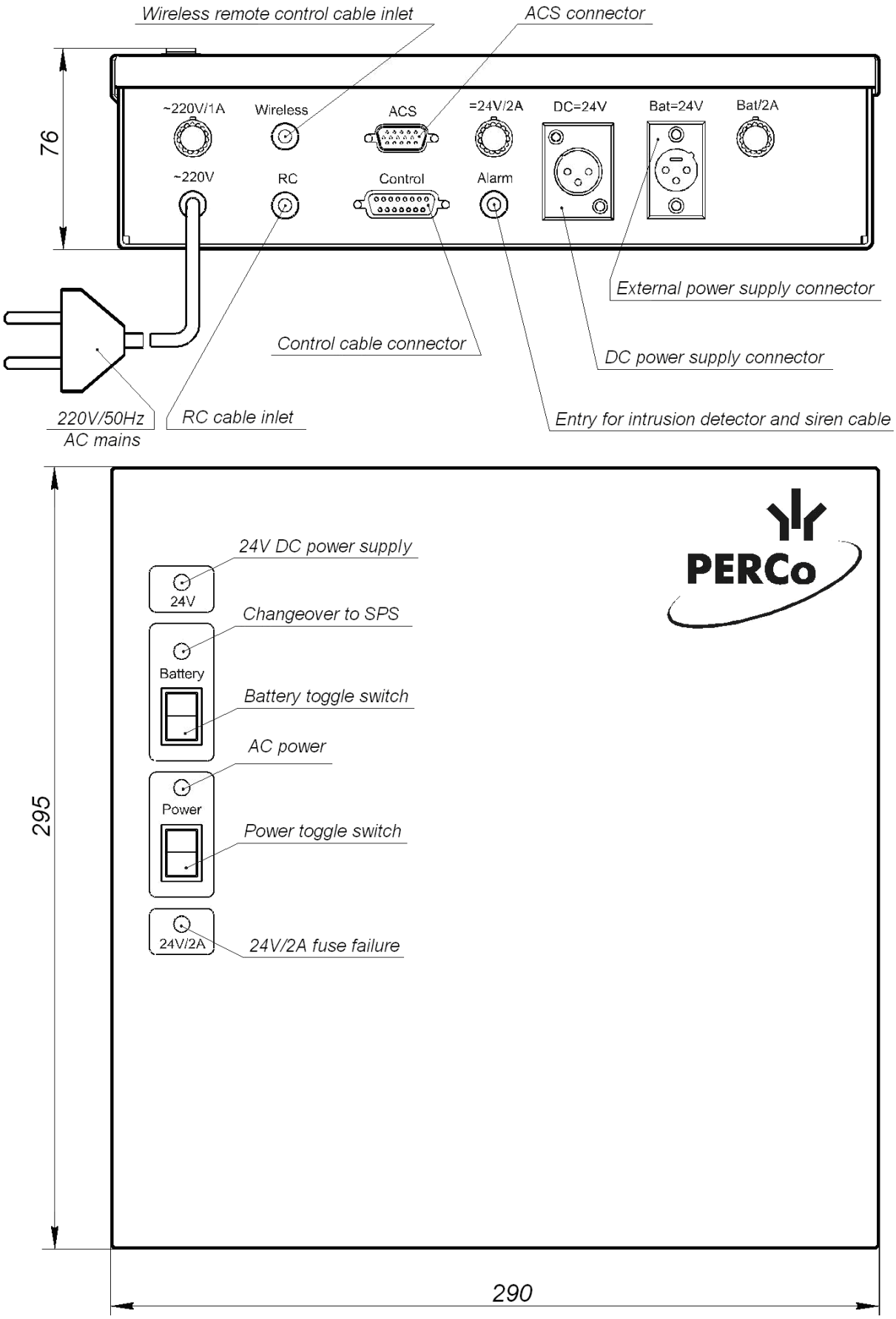


Figure 4. CU

The CU (8) is responsible for the swing gate powering and control. It comes as a stand-alone device in a metal case (see Fig. 4) with pull-resistant fasteners for wall- or desk-mounting.

The CU (8) contains: a power transformer, a power supply module, a processor module and 12 V SPS batteries. The CU front panel houses the following LED indicators (see Fig. 4):

«Power» – AC mains (green);
«24V» – secondary power supply 24 V DC (green);
«Battery» – the CU changeover to the SPS/external power supply (red);
«24V/2A» – 24V/2A fuse failure, red.

Also there are the following toggle switches on the front panel:

«Power» – to turn AC power on/off;
«Battery» – to turn the SPS/external power supply on/off;

The lower CU panel houses the following:

- fuse holder with **«~220V/1A »** fuse;
- **«Bat/2A»** fuse holder;
- fuse holder with **«=24V/2A»** fuse;
- cable entry for RC-panel **«RC»**;
- cable connector for WRC **«Wireless»**;
- ACS connector **«ACS»**;
- control cable connector **«Control»**;
- gate power supply connector **«DC=24V»**;
- external power supply connector **«Bat=24V»**;
- AC power cable input **«~220V»**;
- cable connector for intrusion detector, siren and emergency unblocking device - **«Alarm»**.

Under the CU cover there is a processor module (see Fig. 5) that performs the swing gate control.

The processor module contains:

- ***X3, X4*** – connector blocks for connection of cable of RC-panel / WRC.
- ***X10*** – connector block for connection of a siren.
- ***X11*** – connector block for connection of an intrusion detector.
- ***X14*** – connector block for connection of an emergency unblocking device.
- ***X5*** – connector for selection of control mode. The pulse and potential control modes are switched over by jumpers at ***X5*** connector. At delivery the jumper is installed.
- ***X6*** – connector for selection of passage waiting time, either 5 seconds or infinity can be set by means of a jumper. At delivery the jumper is installed.
- ***X13*** – recommendations on position of a jumper at ***X13*** connector: install the jumper for the swing gate with a ***AWG-650*** swing panel; remove the jumper for the swing gate with ***AWG-900*** or ***AWG-1100*** swing panel. At delivery the jumper is installed.

Attention!

All switching operations on the CU can be done only when the power is off (switches ***«Power»*** and ***«Battery»*** are in the position ***«0»***, Fig. 4), and when AC cable is disconnected from the mains.

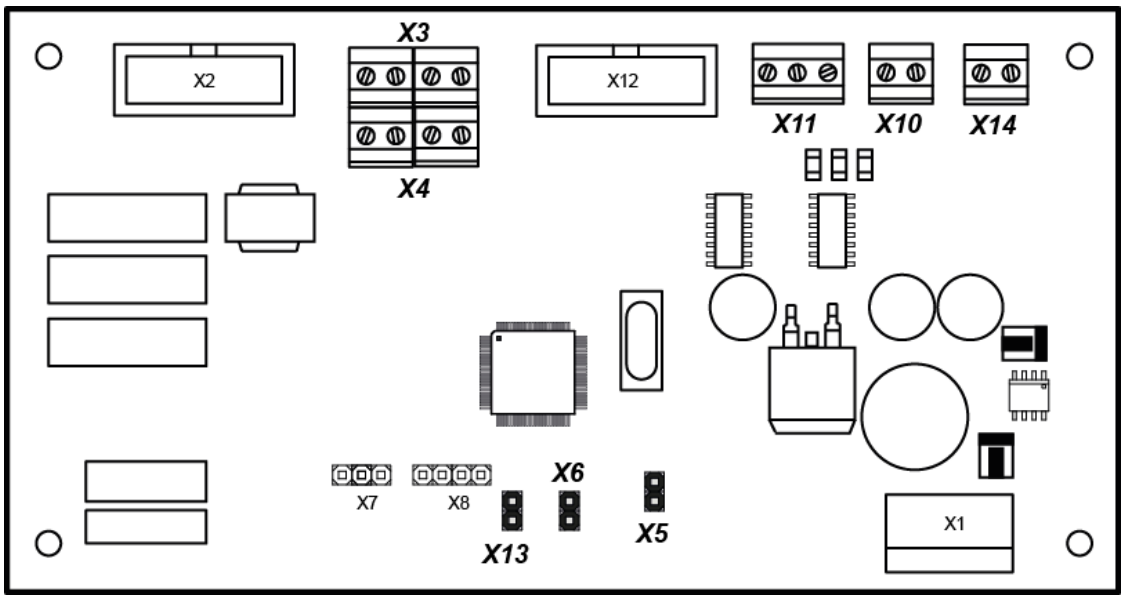


Figure 5. Processor module of the CU

5.5 Control over the swing gate

The swing gate can be operated from:

- by operator from the RC-panel or WRC (see Section 5.5.1);
- access control system (see Section 5.5.2).

5.5.1 Operation from the RC-panel and from a WRC

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

- *«Always locked»*;
- *«Single passage in chosen direction»*;
- *«Always free»*.

For *«Single passage in chosen direction»* mode it is possible to change passage waiting time by installing jumpers on the processor module (see Figure 5).

Operation of the swing gate from a WRC is similar to that from the wired RC-panel. Assembly and operation manual for the WRC is supplied with a delivery set of the WRC. Please refer to Figure 7 for connection layout.

5.5.2 Operation from ACS

An ACS controller is cabled to the **«ACS»** connector of the CU (see Fig. 4). **«ACS»** connector contacts assignment is given in Figure 6. The ACS connector is included in the set of spare parts of standard delivery set.

Control over the swing gate can be carried out in either pulse or potential control mode:

- **Pulse control mode**. The swing gate is operated by input of a low-level signal, or by closing of the contacts **«RIGHT»**, **«LEFT», «STOP»** with the **«GND»** contact of the **«ACS»** connector. The minimum control signal duration should be 100 ms..
- **Potential control mode**. The swing gate is operated by input of a low-level signal or by closing of the contacts **«RIGHT»** and **«LEFT»** with the contact **«GND»**. The set operating mode is cancelled by removal of the low-level signal or by breaking contacts **«RIGHT»**, **«LEFT»** and **«GND»** of the **«ACS»** connector. The **«STOP»** contact off the «**ACS»** connector is not used.

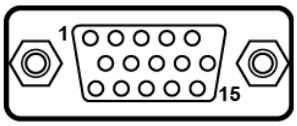
The control mode is set by a jumper on the ***X5*** connector of the CU processor module (see Figure 5). The pulse control mode is preset at the factory.

The control element in the ACS can be a normally open relay contact or a circuit with 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

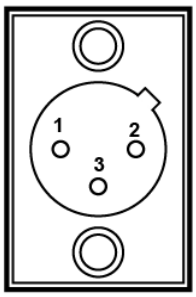
When the passage mode is set the swing panel (3) will turn in chosen direction. Speed and turn direction of the swing panel are controlled by signals of electrical driver encoder.

The **«PASS R1(R2)»** and **«PASS L1(L2)»** contacts of the CU **«ACS»** connector (see Fig. 6) are open in the reset state. At the swing panel turn, depending on the set passage direction, either the contacts **«PASS R1»** and **«PASS R2»** or the contacts **«PASS L1»** and «**PASS L2»** are closed. Duration of the generated signals depends on the time period the swing gate stays open.



«ACS»

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



«Bat=24V»

Contact number	Designation
1	+24V
2	GND
3	GND

Figure 6. CU connectors

Additionally, the ACS is provided with the following signals:

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

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

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

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

To generate the signals “**Pwr failure**” and “**Bat failure**”, the output cascades of the CU have the optoelectronic decoupling 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 – the marking is under the cover of the rotary post (5) (see Fig. 2). To get access to the marking located under the cover of the rotary post unscrew 3 screws in the upper part of the swing gate.
- on the CU – the marking is located on its backside.

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

The inner side of the CU cover has the marking with connection diagram.

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

Box dimensions (length × width × height):

box №1 (with the swing gate post and the CU) ..... 108×36×31 cm
box №2 (with ***AWG-650*** swing panel) ..... 84×38×7 cm
box №2 (with ***AWG-900*** or ***AWG-1100*** swing panel) ..... 125×38×7 cm

Gross weight of the standard package*:*

box №1 (with the swing gate post) ..... max 29 kg
box №2 (with ***AWG-650*** swing panel) ..... max 4 kg
box №2 (with ***AWG-900*** swing panel) ..... max 5 kg
box №2 (with ***AWG-1100*** swing panel) ..... max 6 kg

7 SAFETY REQUIREMENTS

7.1 Installation safety

Installation should be performed by qualified personnel only, in strict accordance with the Manual and general electrical safety requirements for electrical and installation work.

Attention!

- All the connections should be performed only after the CU is disconnected from the power supply.
- Only serviceable tools should be used.
- During the installation before fixing the swing gate pay particular attention to prevent it from falling.
- Before the first switching on of the swing gate make sure that the installation and all connections are done correctly.

7.2 Safety during operation

Observe general safety requirements for use of electrical equipment.

DON'TS!

- Do not connect the CU to the mains with voltage and frequency different from those given in Section 3 of the Manual.
- Do not operate the swing gate in conditions not corresponding to requirements given in Section 2.
- Do not install the CU on electrically conductive surfaces and in damp areas.
- Do not take the cover off the CU unless the CU is disconnected from the power supply.
- Do not change the fuses unless the CU is disconnected from the power supply.
- Do not operate the swing gate if the voltage is higher than 242 V and lower than 199 V; in case of voltage jolts exceeding the given limits the installation of the voltage stabilizer is required.

8 ASSEMBLY AND INSTALLATION

During assembly and installation observe safety requirements given in the Section 7.1.

Attention!

The manufacturer shall not be liable for any damage caused in the result of improper installation and declines any claims arising thereof in case if the installation is not in compliance with the instructions provided in the Manual.

8.1 General recommendations

We recommend:

- to mount the swing gate on flat, solid concrete floors (not lower than 400, grade B22,5), stone or similar foundations at least 150 mm thick;
- to make sure the mounting foundation is horizontal and flat, so that all the mount points lie in the same plane;
- to employ reinforcing elements 450×450×200 mm for softer grounds;
- to mark the mounting holes according to the enclosed mounting hole pattern (see Fig. 8), the recommendations are given in view of the use of anchor bolts «SORMAT» for solid concrete floors;
- to control the vertical position of the gate post during installation.

8.2 Tools and equipment required for installation:

- 1,2-1,5 kW hammer drill;
- Ø16 mm hard-alloy drill bits for anchor bolts sleeves;
- Ø5 mm hard-alloy drill bits for dowels to mount the CU;
- Philips head screwdriver №2;
- Allen keys SW5, SW8;
- Knife assembly;
- Plumb-line and level;
- Measuring tape 2m.

8.3 Connection layout of the swing gate

Table 1. List of connection layout elements

Legend	Item	Qty
A1	Gate post	1
A2	Control unit	1
A3	Processor module	1
A4	RC-panel	1
A5[1]	WRC	1
A6[1]	ACS controller	1
A7[1]	External power supply 24VDC	1
A8[1]	Intrusion detector	1
A9[1]	Siren	1
A10[1]	Emergency unblocking device (at delivery there is a jumper installed on contacts of the connector)	1
1	Power cable	1
2	Control cable	1

[1] Equipment is not included in standard delivery set

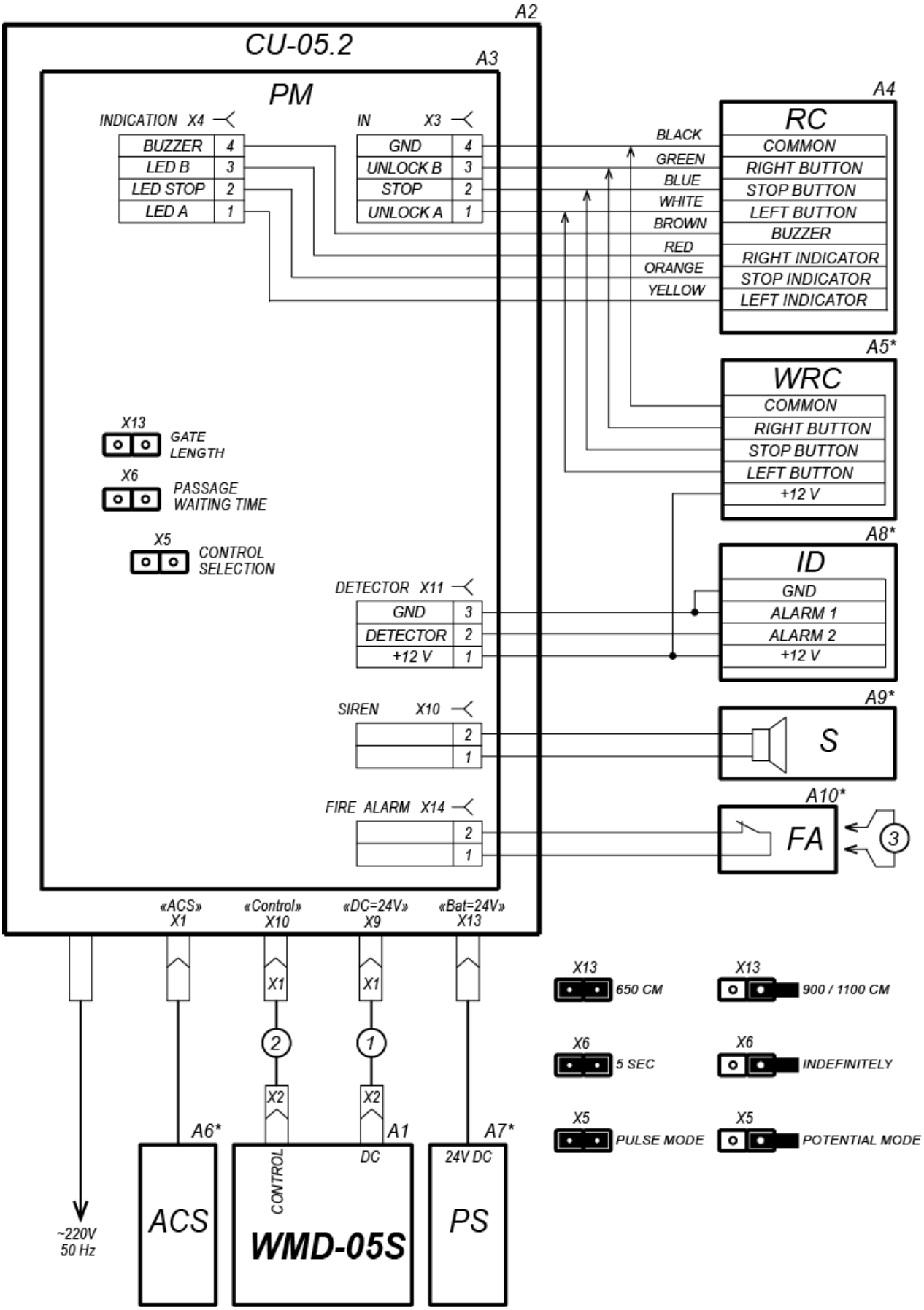


Figure 7. Connection layout of the swing gate[1]

[1] Designation of elements is given in Table 1.

8.4 Assembly and installation sequence

Items numbers in the installation sequence are given according to Figure 2.

1. Unpack the box with equipment and check carefully the delivery set according to Section 4.1.
2. Mark the mounting holes on the floor as per Figure 8 and electric raceways for the control cable (10) and the power cable (11). Prepare electric raceways and mounting holes on the floor for anchor bolts to fix the gate post. Put the anchor bolts sleeves into the mounting holes. Lay out the control cable (10) and power cable (11) from the CU to the gate post.
3. Take the cable connector block (16), mounted on the spring pins, out of the stationary post with flange (2). Connect the control cable and the power cable to the cable connector block. Install the cable connector block (16) into the stationary post with flange (2) at height suitable for further installation.
4. Install the gate post flange on the anchor bolt sleeves. Install the gate post upright (it is allowed to use joint liners). The gate post is heavy, hold it to prevent the fal! Fix the gate post flange with three screws M10x70 in accordance with Figure 2.
5. Take the swing panel (3) out of the transportation box. Mount the swing panel into the coupling fittings (14) on the rotary post (1). Tighten the mounting screws through the coupling fittings' holes with the S5 hex-nut wrench. Check the swing panel (3) to be properly fixed.
6. Check the rotation of the swing panel. To do so unlock the swing gate with the mechanical release key (7) (see Section 10.1). The swing panel should be able to turn by hand easily in either direction. Put the swing gate into a reset position and lock it with the key after the check.
7. Mark out the holes for wall mounting of the CU (8) as shown on Fig. 9. Drill the holes and insert the plastic dowels included in the delivery set. Mount the CU (8) using two upper screws and fix it with the bottom screw to prevent accidental pulling off.
8. Mount the CU (8) in a way to have an easy access to the power switch «**Power»** (see Fig. 4). The CU (8) should be vertically mounted on the wall with connectors downward, the power cable (13) should freely reach AC outlet.
9. Connect the cables (10-12) to the CU (8) as shown on Fig. 4:
   - control cable (10) to **«Control»** connector (Fig. 4);
   - power cable (11) to **«DC=24V»** connector;
   - pull the RC-panel cable (12) through the RC-panel cable entry inside the CU and connect to the ***X3*** and ***X4*** connector blocks of the processor module in accordance with Fig. 5 and Fig. 7.
10. Set the CU **"Power"** toggle switch and the CU **"Battery"** toggle switch to the «**O»** position.
11. Connect an emergency unlocking device. To do so pull the cable through the cable inlet **«ALARM»** inside the CU, remove the jumper from the connector block ***X14*** of the processor module and connect the cable in accordance with Fig. 5 and 7.
12. Connect an intrusion detector and a siren to the CU in accordance with Figure 5. The equipment location depends on the entrance layout.
13. We recommend mounting the intrusion detector on a stationary railing post or a security officer cabin near the CU. For additional info please contact the PERCo Technical Support Department.

14. Install the jumpers on the processor module ***X5***, ***X6***, ***X13*** connectors in required positions (see Fig. 5).
15. 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.

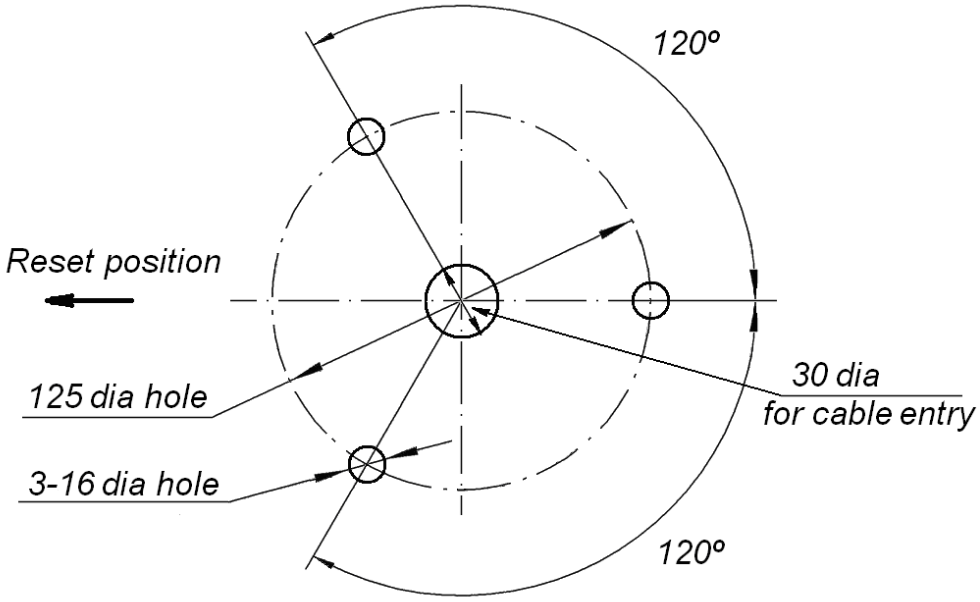


Figure 8. Mounting hole pattern

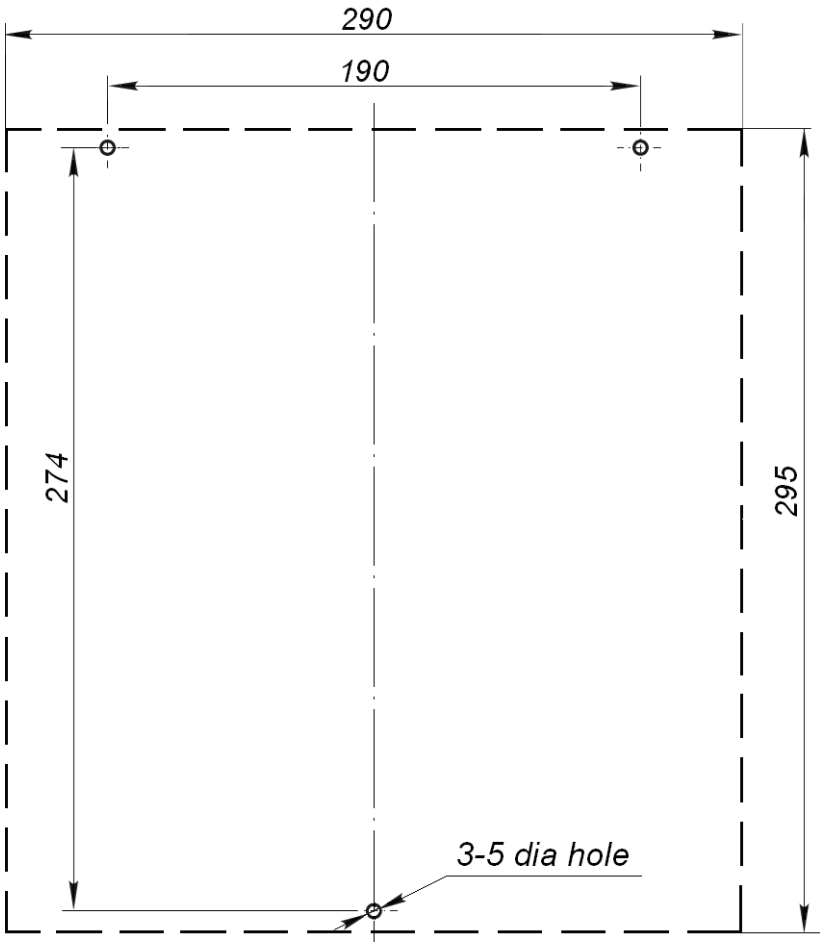


Figure 9. Hole pattern for the CU mounting

9 OPERATION INSTRUCTIONS

Always observe general electric safety requirements (see Section 7.2) when operating the swing gate.

Warning!

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

9.1 Power-up

When powering up the swing gate observe the following sequence of actions:

1. Make sure the power cable is intact, all connections are correct and safe.
2. Prior to the swing gate power-up, make sure the CU (8) **«Power»** toggle switch and the CU (8) **«Battery»** toggle switch are in the **«0»** position.
3. Put the **«Bat/2A»** fuse included in the set of spare parts in the fuse holder on the lower CU panel.
4. Plug the CU power cable (13) into 220 V / 50 Hz AC outlet.
5. Set the CU **«Power» and «Battery»** toggle switches to the **«I»** position.
   - At the same time the indicators **«Power»** and **«24V»** on the CU will light up**.**
   - All indicators on the RC-panel (9) will light up and a two-tone signal will sound.
   - Three seconds later only **STOP** indicator on the RC-panel will stay lit, red.
   - If the swing panel of the swing gate was not in a reset state, the swing gate will search for the reset state and will switch to *«Always locked»* mode.

9.2 Operating modes of the swing gate

After power-up the reset state of the swing gate is *«Always locked»* mode (when the mechanical release lock is locked).

At a pulse control setting of the operating modes of the swing gates from the RC-panel and their indication are as per Table 2.

Attention!

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

At this take into account the following:

- Any operating mode is set by pressing buttons on the RC-panel (or WRC tag) in respective combination;
- When the **STOP** button is pressed, the swing gate switches into the *«Always locked»* operating mode, automatically returning the swing panel to the reset state closing the passage;
- When setting of the “Single passage in chosen direction” mode the locking device unblocks and the electrical drive rotates the swing panel in the direction of the permitted passage;
- The swing gate remains open within passage waiting time (the factory-set passage waiting time is 5 sec);

- With a waiting passage time set as infinite the swing gate will remain open until **STOP** button on the RC-panel is pressed or «***STOP***» signal is received on the ***«ACS»*** connector contact.
- After the passage waiting time elapses electrical drive brings the swing gate into a reset state and the swing gate switches to *«Always locked»* mode;
- The passage waiting time is counted after the swing gate panel rotates more than 83°;
- In an *«Always free»* mode passage waiting time is not counted; the swing gate remains open to infinite time and switches to the *«Always locked»* mode after the **STOP** button on the RC-panel (or on WRC tag) or **«STOP»** signal is received on the **ACS** connector contact;
- At entry of signals at **«RIGHT», «STOP»**, **«LEFT»** contacts of the **ACS** connector the swing gate is controlled in accordance with Table 2;
- At simultaneous use of RC-panel and signals on the **ACS** connector the last received command is executed;
- When a new operating mode is set while the swing panel has not yet returned to the reset state:
    - if the new passage direction is the same as the one set before, the swing gate starts carrying out the operating mode immediately, without resetting the swing panel;
    - if the new passage direction is opposite to the one set before, the operating mode is recorded into the memory buffer register of the CU and the swing gate starts carrying out the operating mode only after the swing panel has returned to the reset state;
    - if the "Always free" mode is set while the swing gate is still in the "Single passage" mode, the swing gate switches into the "Always free" mode but the swing panel holds the same open position, irrespective of the direction chosen for the "Always free" mode.

At potential control mode operating modes are set by holding signals **«RIGHT»** or **«LEFT»** on the ACS connector in accordance with the chosen passage direction.

At this it should be considered:

- When a signal is sent, the gate opens and remains open for the duration of the presence of the signal;
- 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;
- At pressing and keeping a direction button on the RC-panel pressed the gate will open in the corresponding direction and will remain open until you release the button on the RC-panel.

At any operating mode:

- At opening the contacts at the ***X14*** connector block (*Fire Alarm*) of the processor module board by the control device generating emergency unblocking signal, regardless of the set passage mode, or ban of passage, the swing panel unblocks and the voltage from the swing gate drive is removed, the swing gate can be rotated manually in any direction;
- At closing contacts of the ***X14*** connector block (*Fire Alarm*) the swing gate acts as at power-up and switches to “Always locked mode”.

To prevent failure of the electromechanical parts of the gate, in case of continuous overheating due to forcing the swing gate against rotating for more than 10 seconds, overload mode turns on. At the same time all three indicators of the RC-panel will start blinking and the RC-panel will generate a series of 3 short audio signals every 20 seconds. To exit overload mode manually return the swing gate to its reset state.

Table 2. Setting of the operating modes

№	Operating mode	Your actions on the RC-panel	Signals at the ACS connector of the RC-panel	Indication on the RC-panel
1	*«Always locked»* (locked for entry and exit).	Press the **"STOP"** button.	Signal **«STOP».**	Red light above the **"STOP"** button.
2	*«Single passage in chosen direction»* (Open for a single passage in chosen direction).	Press the button corresponding to the chosen passage direction.	Signal **"LEFT"** or "**RIGHT".**	Green light above the button responsible for the chosen passage direction and red light above the **"STOP"** button.
3	*«Always free»* (Stays open in chosen direction).	Press the **"STOP"** button and the button corresponding to the chosen passage direction simultaneously.	Simultaneously coming signals **"LEFT"** (or **"RIGHT"**) and **"STOP"** in accordance with chosen direction.	Green light above the button responsible for the chosen passage direction.

9.3 Operation from the built-in SPS

Operation time with the built-in SPS is 1.5 hours or 1,200 passages provided that the battery is fully charged.

In case of AC mains failure the swing gate remains in operation, the CU automatically switches to the built-in SPS (the CU "**Battery"** toggle switch is due to be in the **"I"** position). When operating from the SPS, the CU **"Power"** light indicator goes out; the **"Battery"** light indicator on the CU is on.

The **"Pwr failure"** signal, notifying of the AC mains failure, is transmitted to the CU **"ACS"** connector. In about 5 seconds an intermittent light indication at 1 sec intervals is generated on the RC-panel.

At the SPS battery discharge down to 22±0.5 V, the "Bat failure" signal is transmitted to the CU "ACS" connector. An intermittent audio signal with 30 seconds interval (six short audio signals per every 30 sec), warning about the discharge, is generated from the RC-panel.

At the SPS battery discharge down to 20±5V, the swing gate switches to the malfunction mode, the CU will automatically switch off.

When the AC mains is restored, the swing gate returns to normal operation if the «**Power»** toggle switch is in the **«I»** position. The built-in SPS battery will recharge automatically if the **«Battery»** toggle switch is in the **«I»** position.

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Caution!

The CU SPS contains the lead-acid batteries, which are not recommended to be stored for a long time without recharge.
For recharge during the storage period the CU should 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. Sequence of actions is given in Clause 9.1.

9.4 Operation from external power supply

An external power supply is connected via the CU **«Bat=24V»** connector. Pin assignments of the «Bat=24V» connector are shown in Fig.6.

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

To connect the external power supply:

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

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

9.5 Troubleshooting

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

Table 3. Potential problems and their remedies

Fault	Most possible cause	Remedy
When powered-up, if the internal SPS or external power supply unit are not connected, the swing gate does not work, lights on the RC-panel and the CU are off.	The power cable is broken.	Repair the cable.
	No supply voltage.	Check the supply voltage and the AC mains socket.
	The “220V/1A” fuse is burnt out.	De-energize the CU, replace the fuse in the bottom part of the CU.
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 external short circuit.	De-energize the CU, remove the short circuit and replace the fuse located in the bottom part of the CU.
When operated from the built-in SPS, the swing gate does not work, the CU indicators are off.	The “=Bat/2A” fuse is burnt out.	De-energize the CU, replace the fuse located in the bottom part of the CU.
At absence of power supply from mains, when operated from an external power supply connected via “Bat=24V” connector the swing gate does not work, the CU indicators are off.	External power supply failure.	De-energize the CU, remove the failure.

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

10 EMERGENCY PROCEDURES

Attention!

For emergency evacuation of people from the premises in case of fire, natural disasters and other emergency situations it is required to make provisions for an emergency exit. For this purpose the «Anti-panic» rotary railing section (for example, ***BH-02***) can be used.

The passageway of the swing gate after unblocking of the swing panel can be used as a supplementary emergency exit.

10.1 Unblocking of the swing gate with a mechanical release key

Mechanical unlocking of the swing gate with a release key is intended for unblocking the swing gate in the event of emergency or malfunction (e.g. in absence of power supply and outage of an external power supply or the SPS batteries discharge).

To unlock the swing gate it is necessary to insert the mechanical release key (7) (see Fig. 2) into the lock (6) and turn the key 90° clockwise. When unlocked, the swing panel can be easily turned in each direction and left open.

The mechanical locking of the swing gate is performed in the reverse order. Turn it manually in reset position before locking it back with mechanical release key.

10.2 *Fire Alarm* Mode

The swing gate can be switched to the *Fire Alarm* emergency unblocking mode. At this mode the swing gate panel is unblocked allowing passage in both directions, all other commands are ignored.

11 MAINTENANCE

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

We recommend using liquid non-abrasive cleansers containing ammonia to clean a swing gate post and a swing panel when dirty.

12 TRANSPORTATION AND STORAGE

The swing gate in the original package should be transported only in closed freight containers and other closed type transport units (railway carriages, containers, closed cars, ship's holds etc.).

During storage and transportation boxes with swing gate posts can be stacked no more than 3 layers high, boxes with swing panels – no more than 10 layers high.

The swing gate should be stored in dry indoor facilities at ambient temperatures between –40°C and +55°C and at relative air humidity of up to 98% at +25°C.

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