

# Electromechanical Swing Gate

## WHD-04

ASSEMBLY AND OPERATION MANUAL





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## *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 (the Manual) contains the instructions you need for safely transportation, storage, installation, operation and maintenance of the **WHD-04** electromechanical swing gate (hereinafter – the swing gate). The product installation should be carried out with strict accordance to the Manual.

Abbreviations adopted in the Manual:

- SPU – switching and power unit;
- CB – control board;
- SPS – standby power supply;
- ACS – access control system;
- WRC – wireless remote control;
- RC panel – RC panel.

## **1 APPLICATION**

The **WHD-04** electromechanical swing gate is designed for management of pedestrian flows and presents an ideal solution for indoor applications that require free access in one direction and banned access in the other.

Its elegant contemporary design blends perfectly into interiors of offices, shopping malls and exhibition centres, airports and other passenger terminals, etc.

## **2 OPERATING CONDITIONS**

The swing gate, in accordance with the resistance to environmental exposure, complies with GOST 15150-69, category NF4 (operation indoors with climate control).

Operation of the swing gate is allowed at ambient temperatures from +1°C to +55°C and relative air humidity of up to 98% at +25°C.

The switching and power unit (the SPU) complies with 15150-69, category NF4 (operation indoors with climate control).

Operation of the SPU is allowed indoors at ambient temperatures from +1°C to +40°C and relative air humidity of up to 80% at +25°C.

### 3 TECHNICAL SPECIFICATIONS

AC operating voltage .....	220 ± 22 V AC / 50 ± 1 Hz
Power consumption .....	max. 12 W
Swing gate operating voltage from an external power supply unit .....	11.5 -13.2 V DC
Operational voltage to the gate post .....	12V DC
Voltage of the built-in SPS .....	12V DC
Number of operating modes .....	4
Throughput in the single passage mode .....	25 persons/min
Average daily throughput in the single passage mode .....	3000
Passageway width .....	700 mm
Minimum duration of operation when powered by built-in SPS .....	2 hr
Number of passages when powered by built-in SPS .....	min 2000
Mean time to recover, max .....	1 hr
Mean time to failure .....	3,000,000 passages
Mean lifetime, min .....	8 years
Overall dimensions (L × W × H) .....	785×160 ×1040 mm
Net weight the swing gate, max .....	24
Overall dimensions the SPU (L × W × H) .....	270×190×60 mm
Net weight the SPU, max .....	3.2
Overall dimensions RC panel (L × W × H) .....	120×80×21 mm
Net weight RC panel .....	max. 0.2 kg
Electric shock protection class:	
SPU .....	I according to GOST R IEC 335-1-94
swing gate post .....	III according to GOST R IEC 335-1-94
Ingress Protection Rating:	
SPU .....	IP40 under EN 60525
swing gate post .....	IP41 under EN 60525



**Important Note:**

The CU-02.3 power supply can be effected either from the AC mains 220V/50Hz or from an external DC power supply 12V via the SPU “Bat=12V” connector. External power supply unit is not included in the standard deliver set and is customer supply. Power supply unit specifications: 12V DC, minimum 1A.

## 4 DELIVERY SET

### 4.1 Standard delivery set

#### Basic equipment:

Gate post with indication module.....	1
Swing panel with info sign and fittings.....	1
SPU CU-02.3.....	1
Power cable (12 m*) .....	1
Control cable (12 m*) .....	1
RC panel with 6.6 m cable .....	1

#### Operational documentation:

Certificate .....	1
Assembly and Operation Manual.....	1

#### Spare parts:

Cable receptacle DBH 15-F in H9 case (ACS connector) .....	1
Cable plug DC 2.1/ 5.5/ 9.5 mm (external SPS connector) .....	1
Hexagon key S6 .....	1
Fuse:	
– BП1-1-250-1A .....	1
– BП1-1-250-2A .....	2

#### Installation tools and accessories:

Mounting plate with the screw holes.....	1
Screw M8×30 (for swing panel mounting) .....	2
Washer 8 (for swing panel mounting) .....	2
Mechanical rotation limiter (M8×12 bolt) .....	1
Screw 4×20 for SPU mounting .....	3
Plastic dowel for SPU mounting .....	3

#### Package:

Box.....	1
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#### **Attention!**

To prevent accidental power-up of the standby power supply when in transit, the "Bat/2A" fuse is not installed in the SPU.

### 4.2 Optional equipment supplied on request

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

Anchor PFG IH 10 .....	3
Hexagon key S8 (for anchor bolts M10) .....	1
Wireless remote control kit .....	1



#### **Note:**

WRC kit consists of a receiver and 2 transmitters (tags) with operation range up to 40m.

\* Power and control cables up to 30 m available on request.

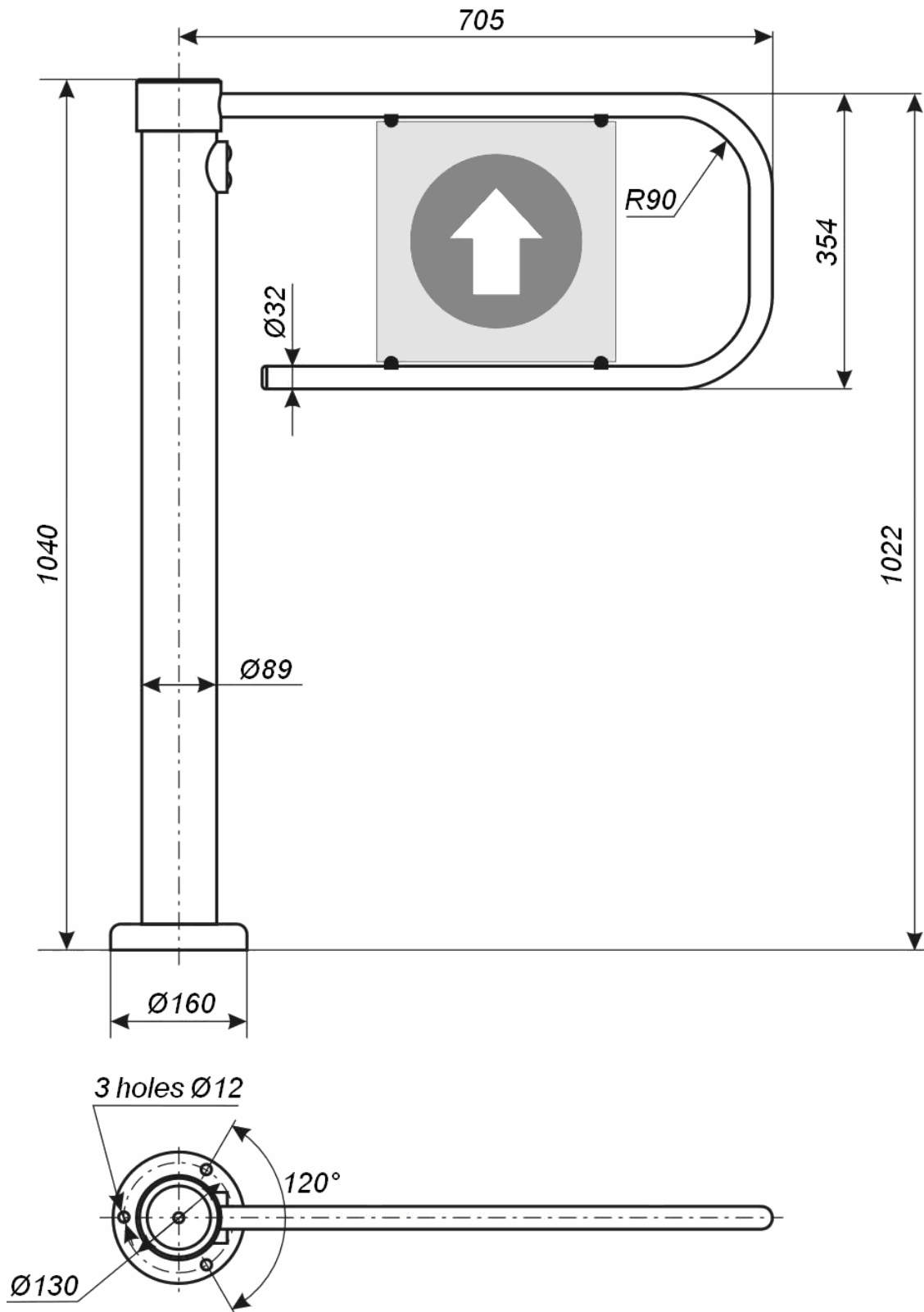


Figure 1 WHD-04 overall dimensions

## 5 DESIGN AND OPERATION

### 5.1 Main features

The swing gate meets current requirements to such equipment in compliance with GOST P 51241-2008.

The WHD-04 is a normally open unit, i.e. in the event of a complete power failure it automatically enters the “Anti-panic” mode – free passage in both directions.

The swing gate can be operated as either a stand-alone device from the RC panel / WRC or by an access control system via an ACS controller.

Main features of the swing gate:

- mechanically durable;
- high throughput capacity;
- built-in indication module (Red/Green status lights);
- low power consumption;
- safe operational voltage 12V DC;
- a hydraulic damper to ensure smooth return of the swing panel into the home position;
- choice between single- and bi-directional operation (one of the passage directions can be blocked by a removable mechanical rotation limiter included in the standard delivery set);
- a built-in SPS to keep the swing gate operative during a mains failure;
- easy installed and maintained.

### 5.2 Design

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

Overall and mounting dimensions are given in Figure 1.

The gate post (1) comes as a round tube with a foot to be floor installed by three anchor bolts.

The top part of the gate post contains a rotation unit (11) with a fixed swing panel (2).

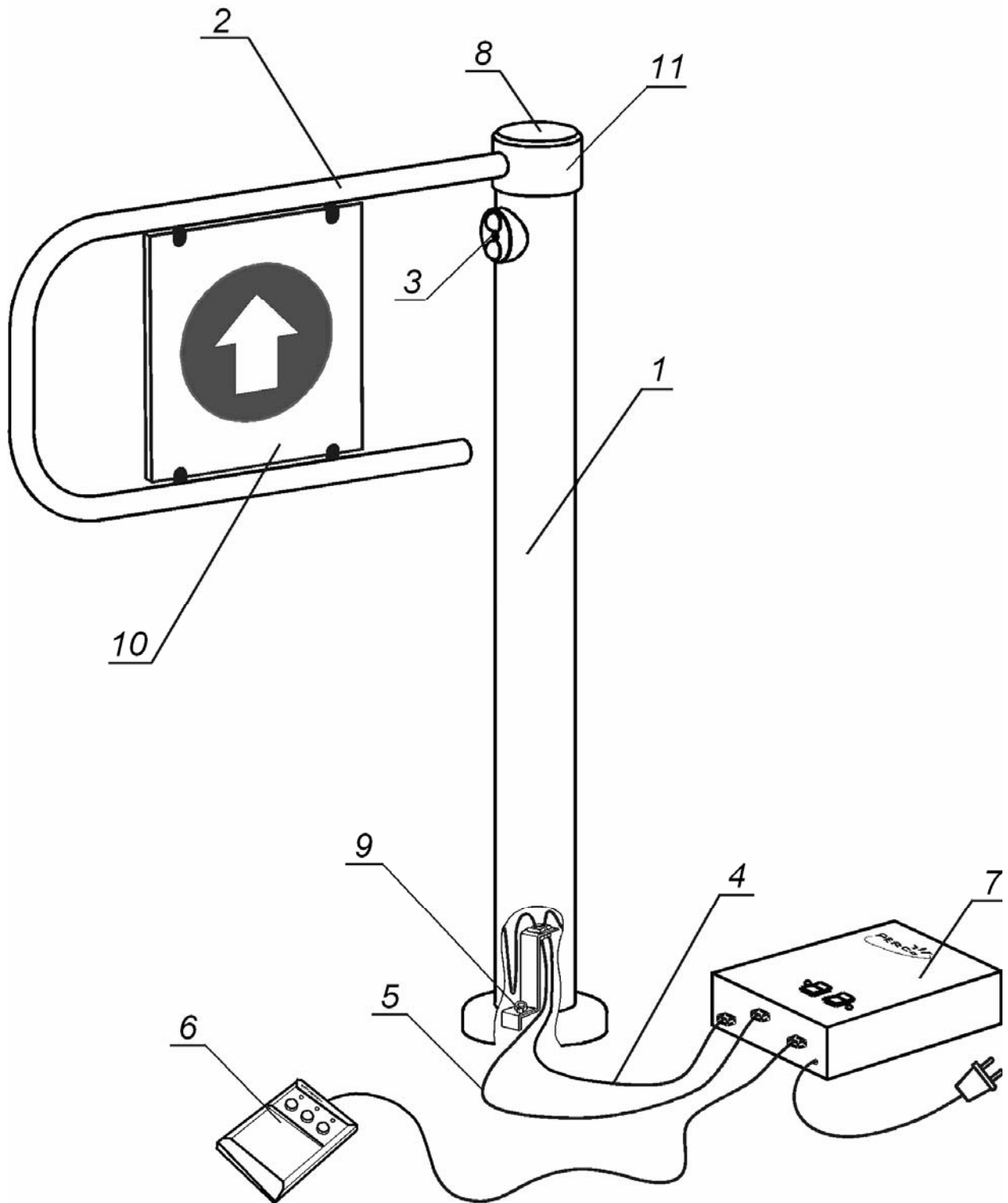
Inside the gate post are a reset unit (a spring and a hydraulic damper), an electromagnetic locking device, a control logic board, optical rotation sensors, and an optical sensor of the locking device.

The indication module (3) on the gate post displays the gate.

The control board (the CB) comes as a printed circuit board inside the gate post. The CB is connected according to the wiring diagram (Fig. 4).

The power cable (4) and the control cable (5) from the SPU to the CB run through an electric raceway (Fig. 6).





**Figure 2 WHD-04 general view:**

- 1 — gate post, 2 — swing panel, 3 — indication module, 4 — power cable,
- 5 — control cable, 6 — RC panel with cable, 7 — SPU, 8 — cover,
- 9 — mount bracket, 10 — double-sided info sign with fasteners;
- 11 — rotation unit

The SPU (7) is designed as a separate device in a powder coated metal case with pull-resistant fasteners for wall mounting. Alternatively, the SPU can be desk-mounted.

The SPU housing contains a power transformer, an SPU board and a 12V battery of the standby power supply (the SPS).

Located on the SPU front panel (Fig. 3):

- **“Power”** — AC mains (green);
- **“12V”** — gate post power supply 12V DC (green);
- **“Battery”** — the SPU changeover to the SPS (red);
- **“Mode”** — the SPS charge status (green).

Besides the LED indicators, there are the following toggle switches:

- **“Power”** (ON/OFF) — to turn AC power on/off;
- **“Battery”** (Internal/External) — to turn the respective standby DC power supply on/off.

The SPU (Fig. 3) case houses the following:

- three fuseholders (one 1A and two 2A);
- AC power cable input **“Power”**;;
- RC panel socket connector **“RC”**;
- ACS socket connector **“ACS”**;
- gate power supply socket connector **“DC=12V”**;
- control cable socket connector **“Control”**;
- external power supply socket connector **“Bat=12V”**;
- WRC socket connector **“Wireless”**.

The RC panel (6) serves for manual setting of the operating modes of the swing gate and indication thereof.

It comes as a compact desktop device with a shockproof plastic case and a flexible multicore cable with a header to connect to the SPU. The massive steel base to compensate for the cable weight and small antifriction feet do not let the RC panel skid.

The front of the RC panel houses three control buttons. The «STOP» in the middle serves for setting the “Blocked passage» mode, the right and left buttons - for allowing passage in either chosen direction to one person or a group.

LED indicators are located above the buttons. The RC panel features a built-in piezoelectric buzzer for audio signals generation.

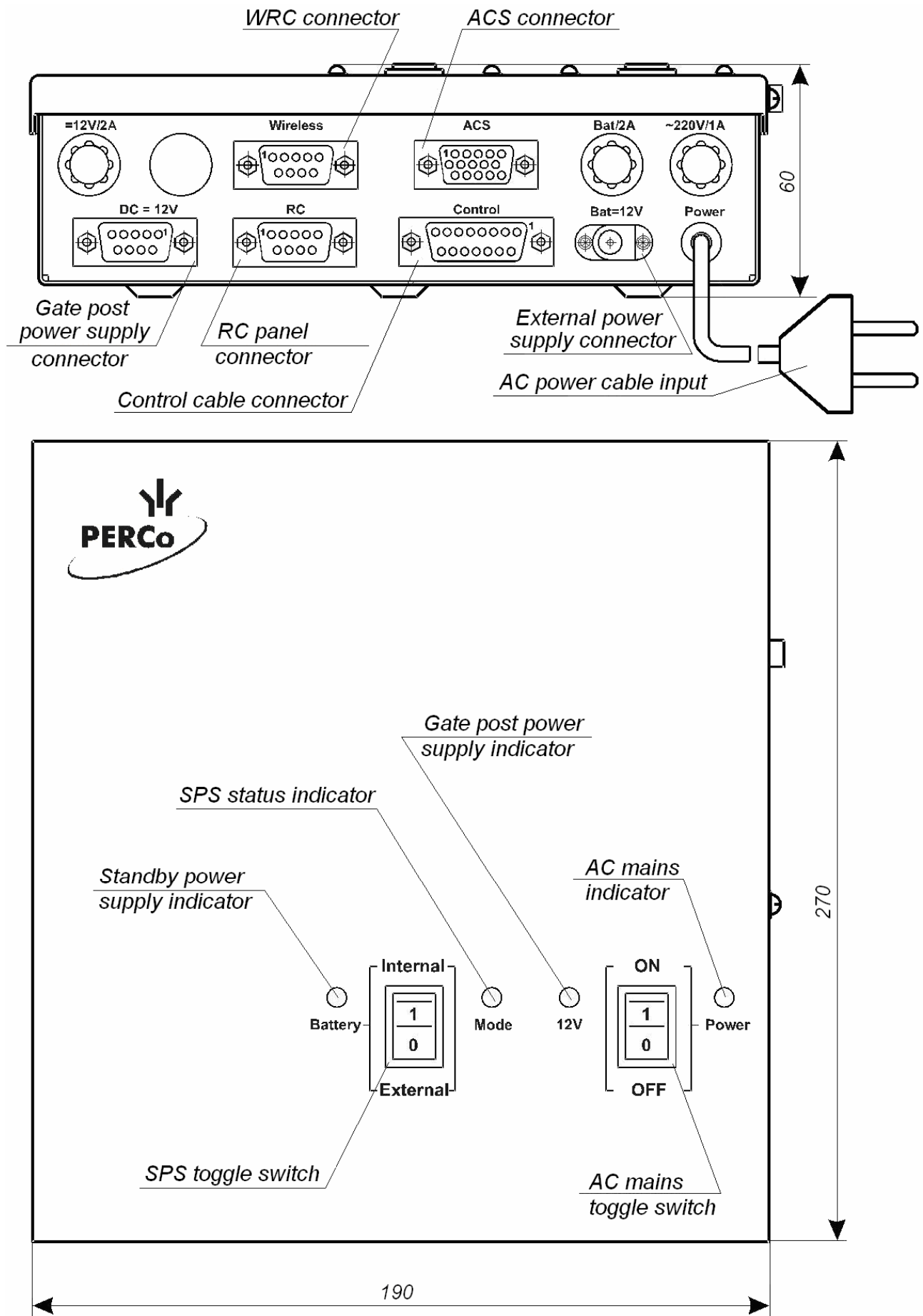


Figure 3 Switching and power unit

### 5.3 Control over the swing gate

The swing gate is a normally open unit, i.e. it is always unlocked unless unauthorized entry is attempted.

The swing gate can be operated from:

- the RC panel;
- WRC;
- an access control system via an ACS controller.

The above devices can be connected to the swing gate either independently or simultaneously.

Operating modes can be set from the RC panel or by respective ACS commands.

The swing gate operating modes are shown in Table 2 and described in section 5.5 herein.

The swing gate is operated by the CB inside the gate post.

When the power supply of the gate is on, the CB performs the following test sequence:

- within the first 5 seconds generates a dual-tone audio signal from the RC panel, runs the self-test program and initial setting of the processor;
- verifies whether the swing panel is in the initial position (the swing panel blocks the passageway).

If the testing is successful, the CB allows to set the operating modes from the RC panel. Otherwise, it generates an audio alert from the RC panel and intermittent light indication at 0.5 sec intervals on the RC panel and the indication module.

When operative, the CB performs the following:

- operates the electromagnetic locking device and the indication module (3);
- signals the ACS about passages through the swing gate (i.e. rotation of the swing panel);
- observes the sequence of commands, in such a way that the operator can immediately override from the RC panel an erroneous permission for passage given by either themselves, or from the ACS;
- follows the AC power status and automatically switches the gate power supply to the built-in SPS in the event of AC power failure (intermittent light indication at 1 sec intervals on the RC panel and the indication module);
- monitors the SPS voltage and generates an intermittent audio alarm from the RC panel when the voltage falls 11.3 V;
- if the SPS voltage falls below 10.5 V, the CB turns off all indication on the swing gate and the RC panel and keeps them off until the AC voltage is restored;
- switches the swing gate power supply back to the AC mains when the AC voltage is restored, reestablishes continuous indication on the RC panel and the indication module;
- in the “Single passage” operating mode starts countdown of the passage waiting time (the factory-set time interval of 5 sec over which the passage through the swing gate is allowed) and if the swing panel is not turned within this timeout period (no respective signals from the optical rotation sensors), switches the swing gate into the “Blocked passage” operating mode;



**Note:**

After malfunction repair, the normal operation of the swing gate is resumed by setting the “Blocked passage» operating mode from the RC panel.

- generates an audio alarm from the RC panel and intermittent light indication at 0.5 sec intervals on the RC panel and the indication module if the swing gate operation sequence fails;
- generates an audio alarm from the RC panel and intermittent light indication at 0.5 sec intervals on the RC panel and the indication module if the swing panel does not return to the home position within 30 seconds after the beginning of its turn.

### 5.4 The swing gate power supply

The swing gate is powered by an SPU-located power supply unit with the following characteristics:

- input voltage — 220V / 50Hz single phase AC mains or 11.5–20.0 V DC from external power supply;
- output voltage — unregulated voltage 10.5-20 V DC, max. current 1.5 A.

In the event of the AC power failure\*, the CB automatically switches the gate power supply to the built-in SPS (sect. 5.3.4); the “**POWER**” green light on the SPS front panel goes out and the “**Battery**” red light flashes on. When the AC voltage is restored, the SPS battery is automatically recharged.

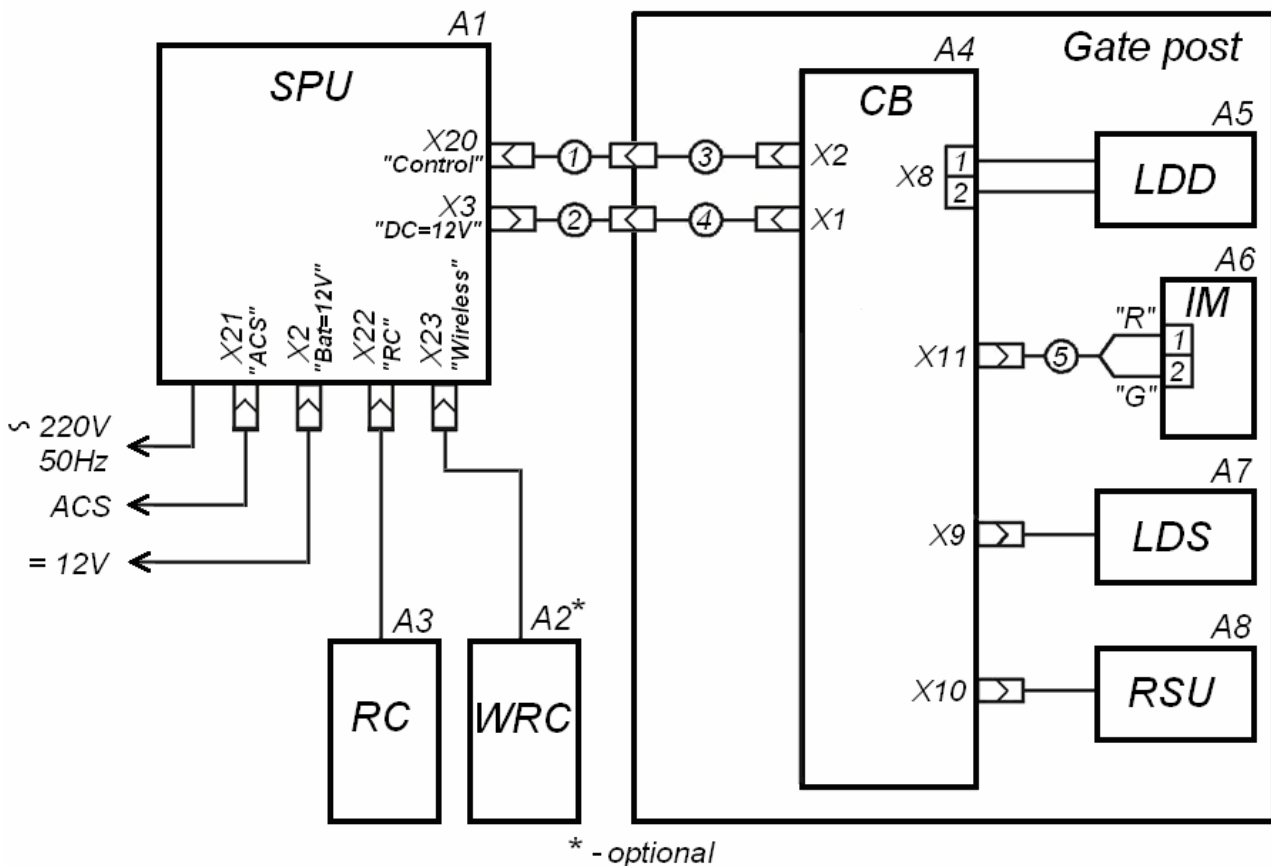


Figure 4 WHD-04 connection layout

\* In the event of the power failure, when the swing gate is powered from an external power supply, the SPU power supply can be switched to the built-in SPS manually by setting the SPU toggle switch "Power" to the "OFF" position and the "Battery" toggle switch to the "External" position.

**Table 1 Connection layout description**

Legend	Description	Quantity	Notes
A1	Switching and Power Unit	1	
A2	WRC Unit	1	MSRF-4
A3	RC Panel	1	
A4	Control Logic Board	1	
A5	Tractive Electromagnet	1	
A6	Indication Module	1	
A7	Locking Device Sensor	1	
A8	Rotation Sensors Unit	1	
1	Control Cable	1	
2	Power Cable	1	
3	Extension Control Cable	1	
4	Extension Power Cable	1	
5	Indication Cable	1	

## 5.5 Operation of the swing gate from the RC panel

Setting of the gate operating modes is carried according to the Table 2.

Principle of operation in the single passage mode:

a). When the button corresponding to the chosen passage direction is pressed on the RC panel, the green lights above the side buttons and the red light above the “**STOP**” button on the RC panel flash on; also the green light on the gate indication module flashes on which signals that the passage through the swing gate is available.

Meanwhile, the CB temporarily deactivates the electromagnetic locking device over the time designated for a single passage (the passage waiting time).

b). Once the passage is completed, the mechanical gate closer returns the swing panel to the home position; the green lights on the gate indication module and the RC panel go out, the red light above the RC panel “**STOP**” button and on the indication module flash on — the swing gate is ready for the next command.

In the multiple passage modes the CB temporarily deactivates the electromagnetic locking device over the time designated for the mode completion. The swing gate is switched into the “Blocked passage” operating mode by pressing of the "STOP" button on the RC panel.

In the event of unauthorized entry attempt, as soon as the swing panel is turned about 5°, the angular position sensor signals the CB to activate the electromagnetic locking device to block any further turn of the swing panel. When the swing panel returns to the home position, the electromagnetic locking device also resumes its initial state.

When all power supplies including the SPS are off, the swing gate remains unlocked i.e. free passage through the swing gate is available in both directions (unless either direction is blocked by the mechanical rotation limiter).

The speed of the passage through the swing gate depends on the value of the force applied to the swing panel to push.

**Table 2 Setting of the operating modes**

No	Operating mode	RC panel actions	RC panel indication	Indication module status	Swing gate status
1	Single passage	Press «→» or «←» buttons	Green lights above the buttons «→» and «←» and red light above the «STOP» button	Green light	Single turn of the swing panel in either direction is available
2	Double passage	Press «→» and «←» buttons simultaneously	Green lights above the buttons «→» and «←» and red light above the «STOP» button	Green light	Double turn of the swing panel irrespective of the direction is available
3	Free passage	Press the «STOP» and «→» or «←» buttons simultaneously OR: all three buttons at once	Green lights above the buttons «→» and «←»	Green light	Multiple turn of the swing panel in either direction is available
4	Blocked passage	Press the «STOP» button	Red light above the «STOP» button	Red light	Turn of the swing panel in either direction is blocked



**Commentary:**

The passage through the swing gate is available only when the green light on the indication module is on.

If in the “Single passage” mode the passage does not take place within the passage waiting time (5 sec) from the moment permission for passage is given, the CB switches the swing gate into the “Blocked passage” mode which is signaled by the red light on the gate indication module.

## 5.6 Operation of the swing gate from an ACS

The swing gate can be connected to and operated as part of an ACS.

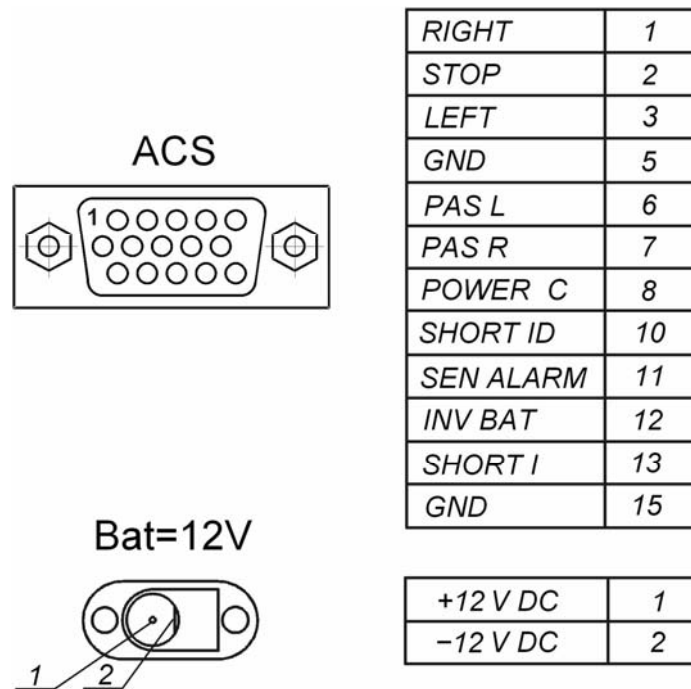
An ACS controller should be cabled to the «ACS» socket connector of the SPU according to the wiring diagram (Fig.4). Assignment of the contacts on the «ACS» connector is given in Figure 5.

When the swing gate operates as part of an ACS, the CB executes commands by the ACS. In order to maintain the correct operation, the CB transmits the gate status signals to the ACS via the SPU.

The control element in the ACS can be a normally open relay contact or an NPN-transistor with open-collector output:

- a. no command (“1”) — open relay contacts or closed transistor ( $U_{max} < 15 \text{ V}$ ,  $I_{max} < 0.1 \text{ mA}$ );
- b. command (“0”) — low level DC voltage or a negative polarity pulse with duration min. 100 ms (closed relay contacts or open transistor,  $U_{max} < 0.8 \text{ V}$ ,  $I_{max} < 15 \text{ mA}$ ).

Each passage through the swing gate is registered by the rotation sensors. When the swing panel turns  $35^{\circ} \div 40^{\circ}$ , the CB generates signals at the “PAS R” or “PAS L” outputs and transfers them to the ACS.



**Figure 5 The SPU socket connectors**

Parameters of the "**PAS R**" and "**PAS L**" signals:

- the swing gate is locked ("**0**") — an open transistor collector ( $U_{max} < 0.8 B$ ,  $I_{max} < 25 \text{ mA}$ );
- the swing gate is unlocked ("**1**") — high-level DC voltage or a positive polarity pulse with duration min. 100 ms (closed transistor,  $U_{max} < 25 \text{ V}$ ,  $I_{max} < 0.1 \text{ mA}$ ) at the output relevant to the "**RIGHT**" or "**LEFT**" command.

The signal is removed once the passage is completed. The swing panel returns to the home position, the swing gate status is:

- "Blocked passage" in the single passage mode;
- "Passage is allowed" in the multiple passage modes.

In the "Free passage" operating mode set by 3 simultaneous commands (similar to simultaneous pressing of all the three buttons on the RC panel), the CB always generates the "**PAS R**" signal.

In the "Double passage" operating mode, the "**PAS R**" signal is generated for the first passage, the "**PAS L**" signal – for the second

Additionally, the ACS is provided with the following status signals:

- "**Power C**" — switchover to the SPS power supply (high-level signal, open collector);
- "**Short ID**" — the system connector works (low-level signal, a jumper is installed on the "**GND**" contact);
- "**INV BAT**" — inadmissible SPS discharge (high-level signal, open collector, closed transistor).

The ACS generates the "**Short I**" control signal setting the passage waiting time as infinite. The "**Short I**" signal must be transmitted prior and kept upon the SPU power-up.

To set the passage waiting time from the ACS it is necessary to fix a jumper between contacts 5 and 13 of the ACS cable header. For all operating modes the timeout period is set from the ACS.



## 6 MARKING AND PACKAGING

The swing gate has the marking on the CU (8) and under the cover (5) of the rotary post (1). The marking contains the product name, the manufacture date, the serial number, the technical characteristics, the warranty term.

The swing gate in the standard package is packed in box that protects it from being damaged during transportation and storage.

Box dimensions (length × width × height) ..... 114×41×25 cm

## 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!**

- Only serviceable tools should be used.
- All the connections should be performed only after the SPU is disconnected from the power supply.
- Cables should be laid in accordance with electrical safety requirements.
- The gate post is heavy, hold it to prevent the fall!

### 7.2 Safety during operation

Observe general safety requirements for use of electrical equipment.

The swing gate is designed to use 220±22 V AC / 50Hz mains. Use a voltage stabilizer to prevent possible malfunction in the event of a voltage surge.



#### **DON'TS!**

- Do not install the SPU on electrically conductive floors and in damp areas, or use it in environments different from those given in sect. 2 of the Manual.
- Do not take the cover off the SPU or change the fuses unless the SPU is disconnected from the power supply.
- Do not let bulky objects with overall dimensions exceeding the passageway width be carried through the passageway area.
- Do not let the swing panel or the gate post be subjected to jerks and jolts that can cause mechanical deformation.
- Do not use abrasive or chemically active substances to clean surfaces.

## 8 ASSEMBLY AND INSTALLATION

### 8.1 General recommendations

Proper installation is critical to performance and serviceability of the swing gate. We strongly advise to study this Manual before installation work and follow the instructions to the letter.

We recommend:

- to mount the swing gate on flat, solid concrete floors (grade 400 or higher), 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 250×250×400 mm for softer grounds;
- to mark the mounting holes according to the enclosed mounting hole pattern (see Fig. 6);
- to control the vertical position of the gate post during installation.

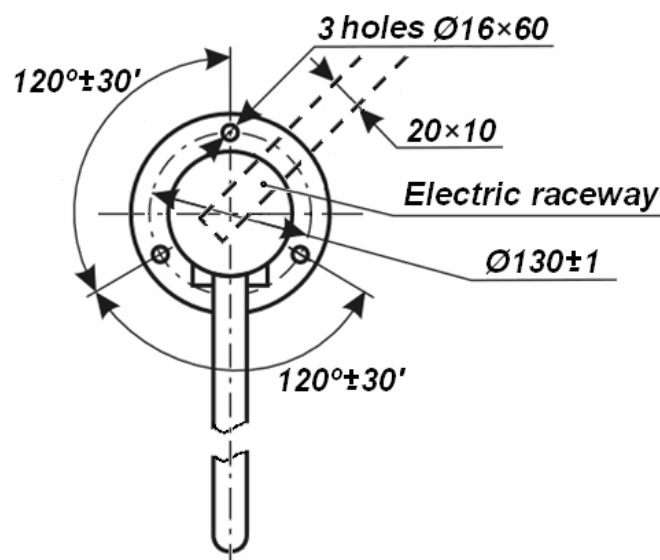


Figure 6 Mounting hole pattern

### 8.2 Tools and equipment required for installation:

Use the following tools for the installation work:

- 1.2÷1.5 kW hammer drill;
- Ø16 mm hard-alloy drill bits for anchor bolts sleeves;
- Ø 5 mm hard-alloy drill bits for dowels to mount the CU on the wall;
- №2 cross-tip screwdriver, 150 mm long;
- №5 straight- slot screwdriver, 150 mm long;
- S13; S17 horn wrenches;
- S6 hex-nut wrench;
- plumb-line and level gauge;
- 2 m tape measure;
- trammel.



**Note:**

Use of similar tools is allowed providing it will not reduce quality of the installation work.

## 8.3 Installation sequence



### **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 this Manual.

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

Recommendations how to prepare mounting holes in the foundation (the mounting surface) are given with regard to metal anchor bolts for solid concrete floors or similar foundations. Use relevant mounting hardware for installation on different foundations.

The SPU should be mounted in accordance with the control (4) and power (5) cables length.

The swing panel (2) should be mounted after all the installation work has been completed.

We recommend the following work sequence:

1. unpack the box with equipment, check carefully the delivery set (sect. 4.1);
2. verify the swing gate serial number on inner side of the cover (8) against the serial number in the warranty coupon;
3. prepare the installation surfaces as recommended in sect. 8.1);
4. prepare mounting holes according to the Figure 6;
5. prepare the raceways and drill the anchor holes to mount the swing gate;
6. designate the location of the SPU (7) and mark the mounting holes according to Figure 7;
7. lay the power cable (4), the control cable (5) and the ground bus;
8. undo the M8 bolt of the mount bracket (9) at the gate bottom, take out the mount bracket and connect the power cable and the control cable;
9. restore the mount bracket (9), connect the ground bus to the M8 bolt;
10. mount the gate post (1) upright into service position, anchor it temporarily;
11. connect the power cable (4) and the control cable (5) to the SPU (7);
12. connect the RC panel cable (6) to the SPU;
13. take off the cover (8);
14. turn the rotation unit (11) in either direction at an angle of approx. 90° relatively to the central position;
15. mount the swing panel (2) into the respective mounting seat of the rotation unit (11), fix the swing panel by two M8×30 screws with washers 8;
16. return the rotation unit (11) into the initial position;
17. make sure all the electrical connections are correct and safe, conduct a trial power-up of the SPU and the swing gate according to sect. 9;
18. tighten the anchor bolts fixing the swing gate to the mounting surface, take on the cover (8).

To install the mechanical rotation limiter:

- take the cover (8) off the rotation unit (11);
- install the limiter (M8×12 screw) into the opening oriented in the direction to be blocked (a banned passage direction), screw the limiter into the rotation unit up to the stop;
- check operation of the swing gate;
- take the cover (8) back on.

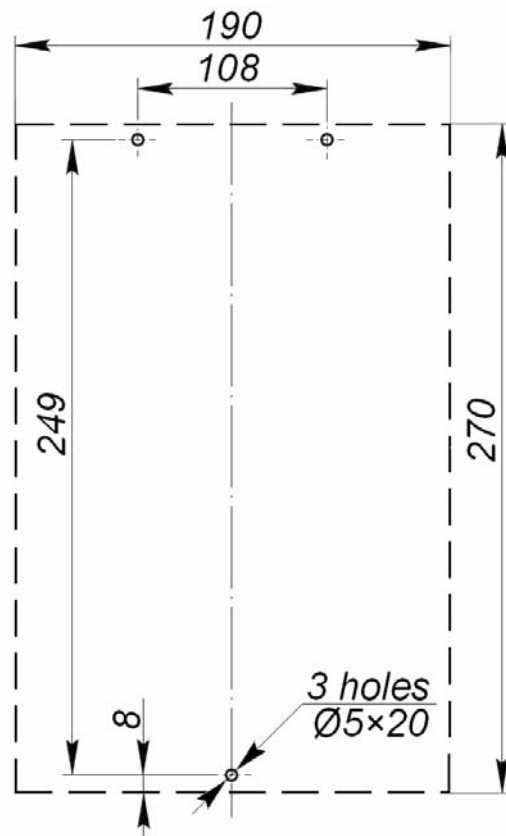


Figure 7 . Hole pattern for SPU mounting)

## 9 OPERATION INSTRUCTIONS



### **Warning!**

- Do not use substances for cleaning of the swing gate that may cause mechanical damage or corrosion of the surfaces;
- Do not move through the swing gate passage area any objects with dimensions exceeding the width of the passageway;
- 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

Prior to the gate power-up, set the SPU toggle switch "**Power**" to the "**OFF**" position and the "**Battery**" toggle switch to the "**External**" position.

Put the "Bat/2A" fuse included in the set of spare parts into its place.

Plug the SPU power cable into a 220 V / 50 Hz AC outlet.

Switch on the power by setting the "**Power**" toggle switch to the "**ON**" position and the "**Battery**" toggle switch to the "**Internal**" position.

At the same time:

- the "**Power**", "**12V**" and "**Mode**"\* green indicators on the SPU front panel light up;
- over 5 seconds the CB runs the self-test program and initial setting of the processor: the RC panel buzzer sounds a dual tone signal, the lights of gate post indication module and above the "**STOP**" button on the RC panel flash with intervals of 0.5 sec.

After 5 seconds that the swing gate is ready for operation.

Set a desired passage mode according to Table 2.



### **Note:**

To switch the swing gate off, set the SPU "**Battery**" toggle switch to the "**External**" position, then the "**Power**" toggle switch to the "**OFF**" position.

### 9.2 Operation from external DC power supply

Follow the below sequence when the gate SPU is powered from an external DC power supply:

- observing polarity according to Fig.5, solder the plug cable connector included in the set of spare parts (DC-type 2,1/5,5/9,5) to the external power supply cable;
- before power-up of the swing gate, set the SPU "**Power**" toggle switch to the "**OFF**" position and the "**Battery**" toggle switch to the "**Internal**" position;
- insert the cable connector into the "**Bat=12V**" socket connector on the SPU;
- switch the external power supply on\*\*;

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\* The "**Mode**" indicator on the SPU is off if the SPS battery is charged or absent, or the swing gate is powered by an external power supply.

\*\* The SPU power cable must not be plugged into the AC mains

- set the **"Power"** toggle switch to the **"ON"** position — the corresponding light indicators on the SPU will flash on as described in sect. 9.1);
- set a desired passage mode according to Table 2.

**Note:**

To switch the swing gate off, set the SPU **"Power"** toggle switch to the **"OFF"** position

### 9.3 Reset state of the swing gate after the SPU power-up

- the swing panel blocks the passageway;
- red light on the gate indication module is on;
- red light above the **"STOP"** button on the RC panel is on;
- **"Power"**, **"12 V"** and **"Mode"**\* green indicators on the на SPU are on.

### 9.4 Troubleshooting

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

**Table 3**

<b>Fault</b>	<b>Most possible cause</b>	<b>Remedy</b>
When powered-up, the swing gate does not work, lights on the RC panel and the SPU are off	«220V/1A» fuse is burnt	Replace the fuse
	No supply voltage	Restore the supply voltage
	The power cable is broken	Repair the cable
When powered-up, the swing gate does not work, the "12 V" indicator on the SPU is off	"12 V/2 A" fuse is burnt due to short circuit in the power cable or the CB	Remove the short circuit and replace the fuse
When powered-up, the swing gate does not work; all lights on the swing gate indication module are off	The control or power cable break	Repair the break
No lights on the SPU when the «Power» toggle switch is in the «OFF» position and the «Battery» toggle switch is in the «Internal» position	«Bat/2A» fuse is burnt	Replace the fuse
	Malfunction or discharge of the SPS battery	Replace the battery

In the unlikely event of other faults consult with the PERCo Technical Support Department or your local dealer.

## 10 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.

\* The **"Mode"** light on the SPU is off if the SPS battery is charged or absent, or the swing gate is powered by an external power supply

## 11 TRANSPORTATION AND STORAGE

The swing gate 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 5 layers high.

The swing gate should be stored in dry indoor facilities at ambient temperatures between  $-50^{\circ}\text{C}$  and  $+50^{\circ}\text{C}$ . The environment should be free of acid and alkali vapours and gases that cause corrosion.

The swing gate storage term is 12 months. If the swing gate is to be stored for a long time, we advise keeping the SPU battery separately, observing requirements to storage of hermetic unserviceable batteries.

If the SPU with battery is stored at temperatures from  $-20^{\circ}\text{C}$  to  $+30^{\circ}\text{C}$ , we advise to recharge the battery at least once in 6 months, following the below sequence:

- set the SPU **"Power"** toggle switch to the **"OFF"** position and the **"Battery"** toggle switch to the **"External"** position;
- install the 2A fuse into the "Bat/2A" slot;
- plug the power cable into  $\sim 220\text{ V} / 50\text{ Hz}$  AC mains;
- set the **"Power"** toggle switch to the **"ON"** position and the **"Battery"** toggle switch to the **"Internal"** position; check whether the **"Power"**, **"12V"** and **"Mode"** indicators are on;
- keep the SPU powered for at least one hour from the moment the **"Mode"** indicator is off;
- set the **"Power"** toggle switch to the **"OFF"** position, the **"Battery"** toggle switch — to the **"External"** position, plug the power cable out of  $\sim 220\text{V} / 50\text{Hz}$  AC mains, take the 2A fuse out of the SPU.



**Note:**

If the "Mode" indicator does not become dim for more than 4 hours, it means that either the battery or the SPU is faulty.





# **PERCo**

P.O. Box 87,  
Saint Petersburg, 194295,  
Russia

Tel: +7 812 321 61 72

Fax: +7 812 292 36 08

E-mail: [export@perco.ru](mailto:export@perco.ru)  
[support@perco.ru](mailto:support@perco.ru)

***[www.perco.com](http://www.perco.com)***



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