



Motorized Electromechanical Swing Gate

WMD-05S

ASSEMBLY AND OPERATION MANUAL



CE EAC



**Motorized
Electromechanical
Swing Gate**

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Assembly and Operation Manual

CONTENTS

1	APPLICATION	3
2	OPERATION CONDITIONS	3
3	TECHNICAL SPECIFICATIONS	3
4	DELIVERY SET	4
	4.1 Standard delivery set	4
	4.2 Optional equipment supplied on request	4
5	PRODUCT DESCRIPTION	5
	5.1 Main features	5
	5.2 Design	6
	5.3 Control over the swing gate	9
	5.3.1 Operation from the RC panel	9
	5.3.2 Operation from a WRC	9
	5.3.3 Operation from ACS via an ACS connector	9
	5.4 Unblocking of the swing gate with a mechanical release key	10
6	MARKING AND PACKAGING	10
7	SAFETY REQUIREMENTS	11
	7.1 Installation safety	11
	7.2 Safety during operation	11
8	ASSEMBLY AND INSTALLATION	11
	8.1 General recommendations	11
	8.2 Tools and equipment required for installation	12
	8.3 Assembly and installation sequence	12
	8.4 Connection layout	14
9	OPERATION INSTRUCTIONS	16
	9.1 Power-up	16
	9.2 Operating modes when controlled from the RC panel and an ACS	16
	9.3 Operation from the built-in SPS	18
	9.4 Operation from external power supply	18
	9.5 Troubleshooting	19
10	MAINTENANCE	19
11	TRANSPORTATION AND STORAGE	19

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-05S** electromechanical motorized swing gate (hereinafter – the swing gate).

The product installation must be carried out by qualified installers in strict accordance with the Manual.

Abbreviations adopted in the Manual:

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

1 APPLICATION

The swing gate is 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.

2 OPERATION CONDITIONS

The swing gate with regard to resistance to environmental exposure complies with GOST 15150, category U4 (operation in premises with climate control). Operation of the swing gate is allowed at ambient air temperature from +1°C to +55°C and at relative air humidity of up to 70% at +27°C.

The control unit with regard to resistance to environmental exposure complies with GOST 15150, category NF4 (operation in premises with climate control). Operation of the control unit is allowed at ambient air temperature from +1°C to +55°C and at relative air humidity of up to 60% at +20°C.

3 TECHNICAL SPECIFICATIONS

AC 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 VDC
Throughput rate in the single passage mode	12 persons/min
Passageway width:	
with AG-650 swing panel	700 mm
with AG-900 swing panel	950 mm
with AG-1100 swing panel	1150 mm
Working hours from built-in SPS	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
Overall dimensions (L × W × H):	
Gatepost with AG-650 swing panel	773×145×1007 mm
Gatepost with AG-900 swing panel	1023×145×1007 mm
Gatepost with AG-1100 swing panel	1233×145×1007 mm
Control unit	295×290×76 mm
Net weight:	
Gatepost	max. 25 kg
AG-650 swing panel	max. 3 kg
AG-900, AG-1100 swing panel	max. 4 kg
Control unit	max. 10 kg

Electric shock protection class:

Swing gate post	III (IEC 61140)
Control unit	I (IEC 61140)

Ingress Protection Rating:

Swing gate post	IP41 (EN 60529)
Control unit	IP40 (EN 60529)



Important note:

The **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 deliver set and is customer supply. Power supply unit specifications: 24V DC, minimum 2.5A.

4 DELIVERY SET

4.1 Standard delivery set

Basic equipment:

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



Note:

Itemized separately in the price list. Size of the swing panel is chosen by a Client at the time of order. Three types of swing panels are available for the **WMD-05S**:

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

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

Spare parts:

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

Installation tools:

Screw 4×20	3
Plastic dowel	3
Hex-nut wrench SW5	1

Operational documentation:

Assembly and Operation Manual	1
Certificate	1

4.2 Optional equipment supplied on request

Anchor PFG IH 10	3
Intrusion detector	1
Siren (for alerts on unauthorized entry attempts)	1
WRC kit	1



Note:

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

* Maximum allowable cable length is 30 m

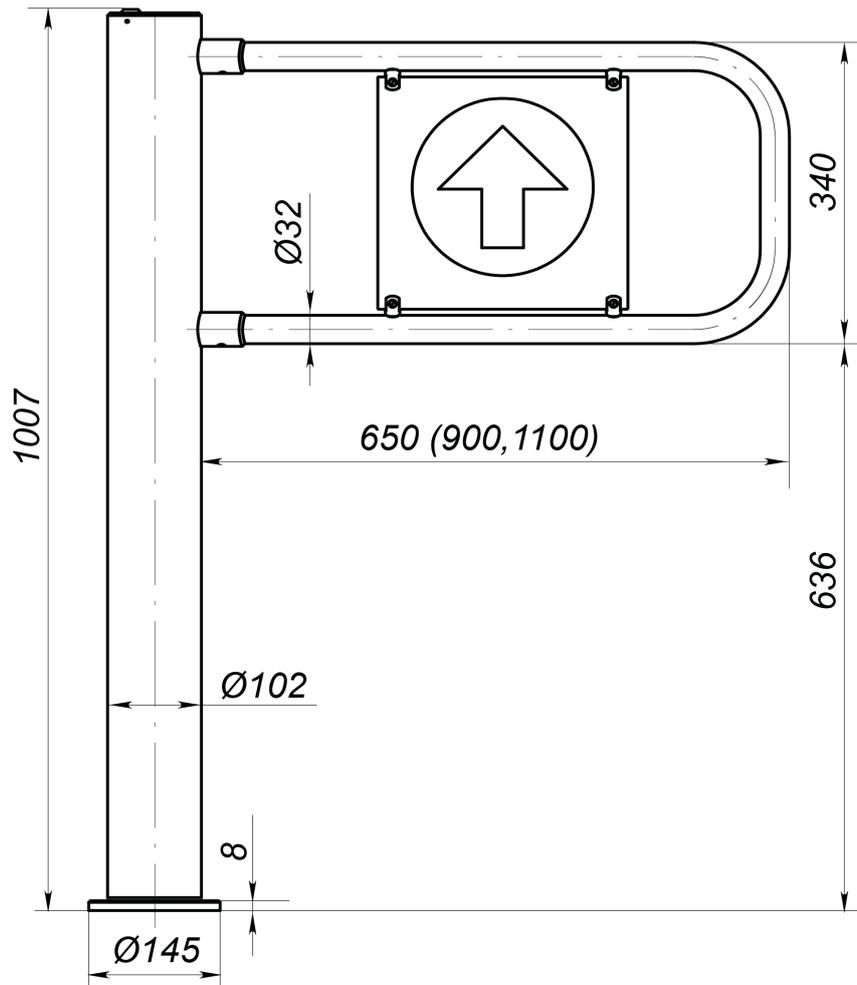


Figure 1 WMD-05S overall dimensions

5 PRODUCT DESCRIPTION

5.1 Main features

The swing gate can be operated autonomously from the RC panel or WRC as well as from an access control system (ACS).

When operated from the ACS, there are two variants of the gate control – pulse control mode and potential control mode.

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.

Main features of the swing gate:

- low power consumption – max 60 W;
- safe operating voltage – max. 28 V DC;
- a built-in SPS to keep 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 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, 900 or 1100 mm.
- Control unit of the swing gate features possibility of connecting emergency unblocking device to it;
- All elements of the swing gate apart from double-sided info sign are made of stainless steel.

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 **WMD-05S** consists of a rotary post (1), stationary post with flange (2), a swing panel (3) with an info sign (4).

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).

On the rotary post cover (5) there is a mechanical release lock (6) intended for unlocking the swing gate with a mechanical release key (7) in emergency cases.

The double-sided plastic info sign (4) is set into the swing panel (3) with fastenings (15).

The control unit (the CU) (8) is 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 with a cable (12). The CU (8) is responsible for the swing gate powering and control. The CU (see Fig. 3) comes as a stand-alone device in a metal case with pull-resistant fasteners for wall- or desk-mounting.

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 control unit (see Fig. 3 and Fig. 7).

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

If the swing gate installation is not standard (e.g. the operator's terminal is placed at the backside of the swing gate), the RC panel orientation towards the swing gate can be changed (comment 2 to Table 2).

The CU case contains a power transformer, a power supply module, a processor module and two 12 V SPS batteries. The CU front panel (Fig. 3) houses the following LED indicators:

- «**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).

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

- «**Power**» – to turn AC power on/off;
- «**Battery**» – to turn the respective standby DC power supply on/off;

The CU case houses the following:

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

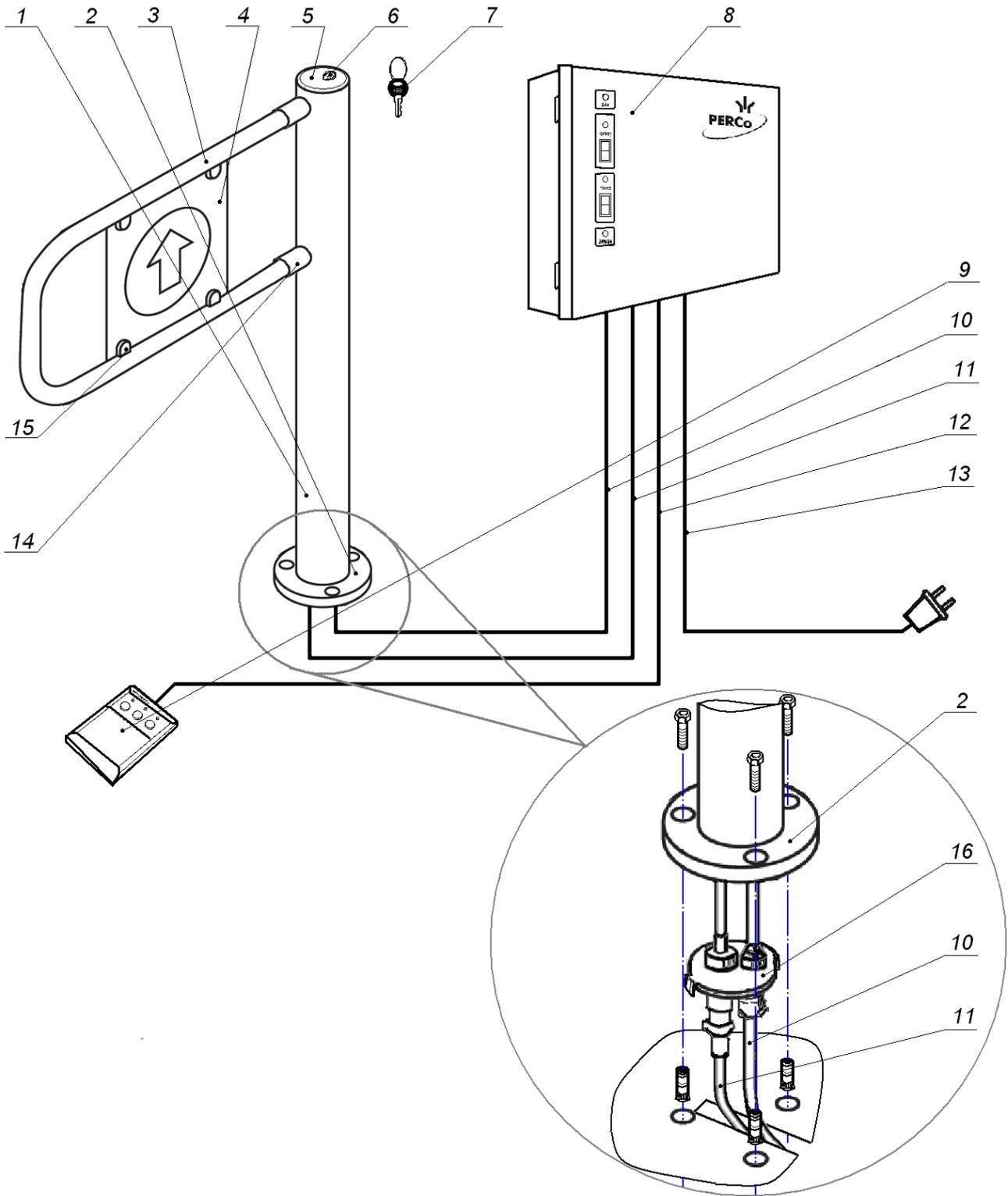


Figure 2 WMD-05S overall view

- 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 – control unit; 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

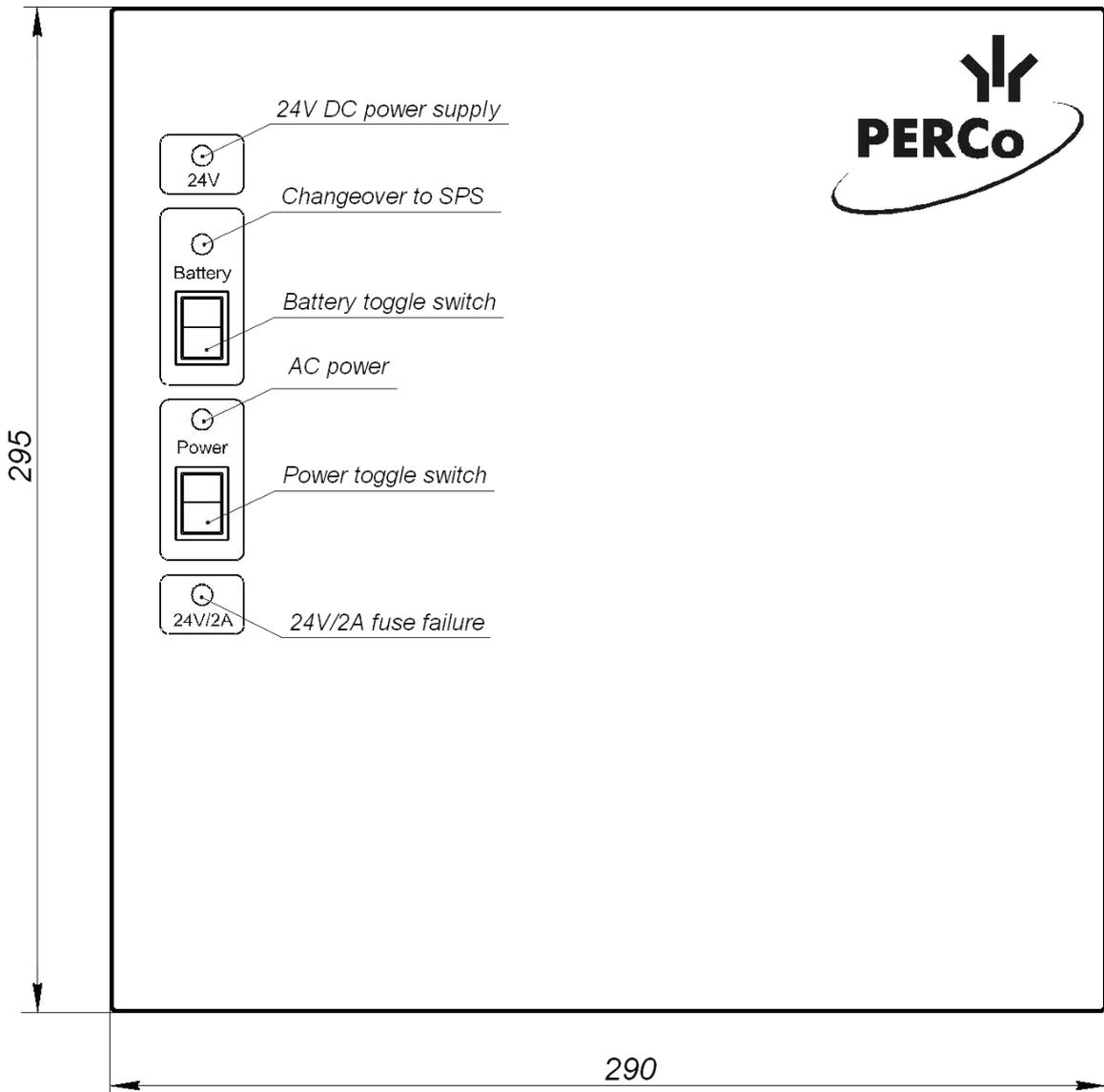
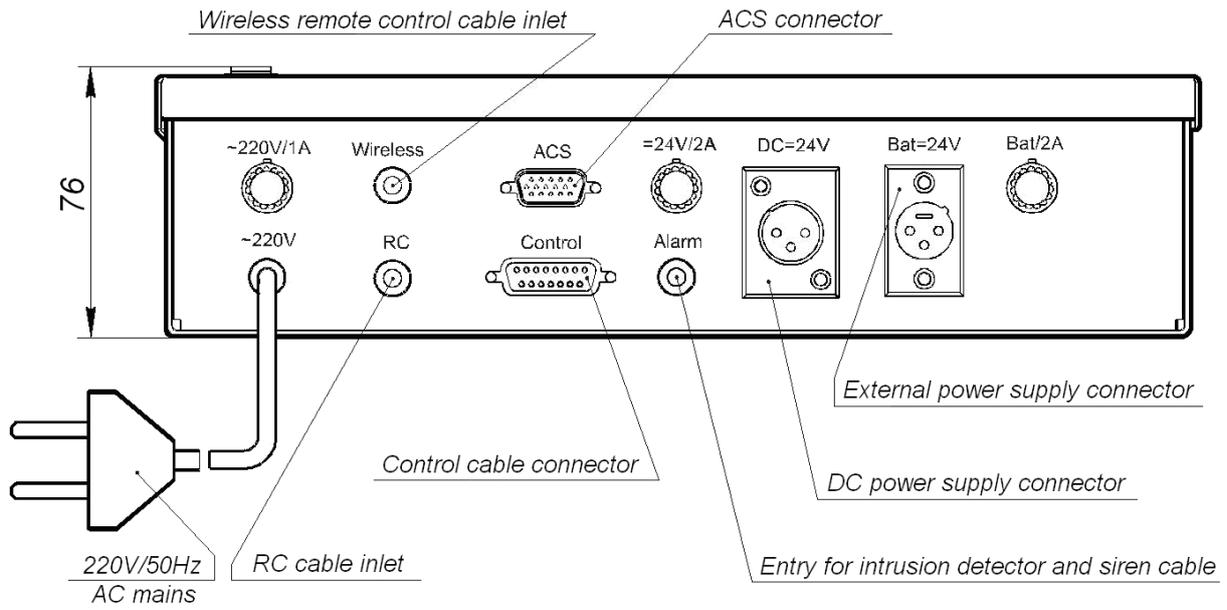


Figure 3 Control unit

5.3 Control over the swing gate

The swing gate can be operated from:

- the RC panel;
- a WRC;
- an access control system.

5.3.1 Operation from the RC panel

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

- always locked;
- always free;
- single passage in chosen direction.

For a “Single passage in chosen direction” mode it is possible to change passage waiting time by installing jumpers on the processor module (Fig. 7).

5.3.2 Operation from a WRC

Operation of the swing gate from a WRC is similar to that from the wired RC. Assembly and operation Manual for the MSRF-04 WRC is supplied with a delivery set of the WRC. Please refer to Figure 7 for connection layout.

5.3.3 Operation from ACS via an ACS connector

An ACS controller is cabled to the “ACS” connector of the CU (Fig. 3). The ACS connector is included in the set of spare parts of standard delivery set. “ACS” connector contacts assignment is given in Figure 4.

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**”/“**LEFT**” and “**GND**”. The “**STOP**” contact of the “**ACS**” connector is not used. The set operating mode is cancelled by removal of the low-level signal or by breaking of the contacts “**RIGHT**”/“**LEFT**” and “**GND**” of the “**ACS**” connector.

Either control mode is set by a jumper on the X5 connector of the CU processor module (Fig. 7). 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:

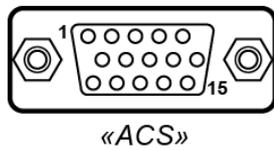
- voltage at the open contact 5±0,5 V;
- voltage at the closed contact (low-level) max 0,8V;
- current via the closed contact max 1,5 mA.

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. 4) 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.

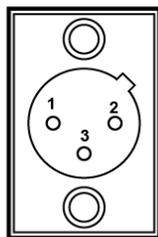
Additionally, the ACS is provided with the following signals:

- «**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).



«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	Purpose
1	+24V
2	GND
3	GND

Figure 4 Control unit connectors

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 voltage50 V;
- max current200 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 voltage25 V;
- max current50 mA.

5.4 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 key (7) into the lock (6) (see Fig. 2) and turn it 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.

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. To get access to the marking located under the cover (5) of the rotary post (1) unscrew 3 screws in the upper part of the swing gate post using S1,5 wrench and lift the cover (5) of the rotary post. The marking on the CU (8) is located on its backside.

The swing gate in the standard package is packed in two boxes that protect it from being damaged during transportation and storage. In box 1 is packed the swing gatepost and a control unit, in box 2 is packed the swing panel with fasteners and a plastic info sign.

Box dimensions (length × width × height):

Box #1	108×36×31 cm
Box #2 with AG-650 swing panel	84×38×7 cm
Box #2 with AG-900 or AG-1100 swing panel	125×38×7 cm

Gross weight:

box #1	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

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 CU 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 CU 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 CU or change the fuses unless the CU 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 advise you to study this Manual before installation work and follow the instructions to the latter.

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 450×450×200 mm for softer grounds;
- to mark the mounting holes according to the enclosed mounting hole pattern (see Fig. 5);
- to control the vertical position of the gate post during installation.

8.2 Tools and equipment required for installation

Use the following tools for the installation work:

- 1.2÷1.5kW 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;
- Phillips head screwdriver №2;
- Allen key SW5, SW8;
- Knife assembly;
- Plumb-line and level;
- Measuring tape 2m.

8.3 Assembly and 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.

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

Recommendations on 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.

Assembly and installation of the swing gate:

1. Unpack the box with equipment, check carefully the delivery set (sect. 4).
2. Mark the mounting holes as per Figure 5 and electric raceways for the control cable (10) and the power cable (11). Prepare electric raceways and mounting holes for PFG IH 10 anchor bolts to fix the swing gate. Put the anchor bolts sleeves into the mounting holes. Lay out the control cable (10) and the power cable (11) from the control unit to the gate post (1).

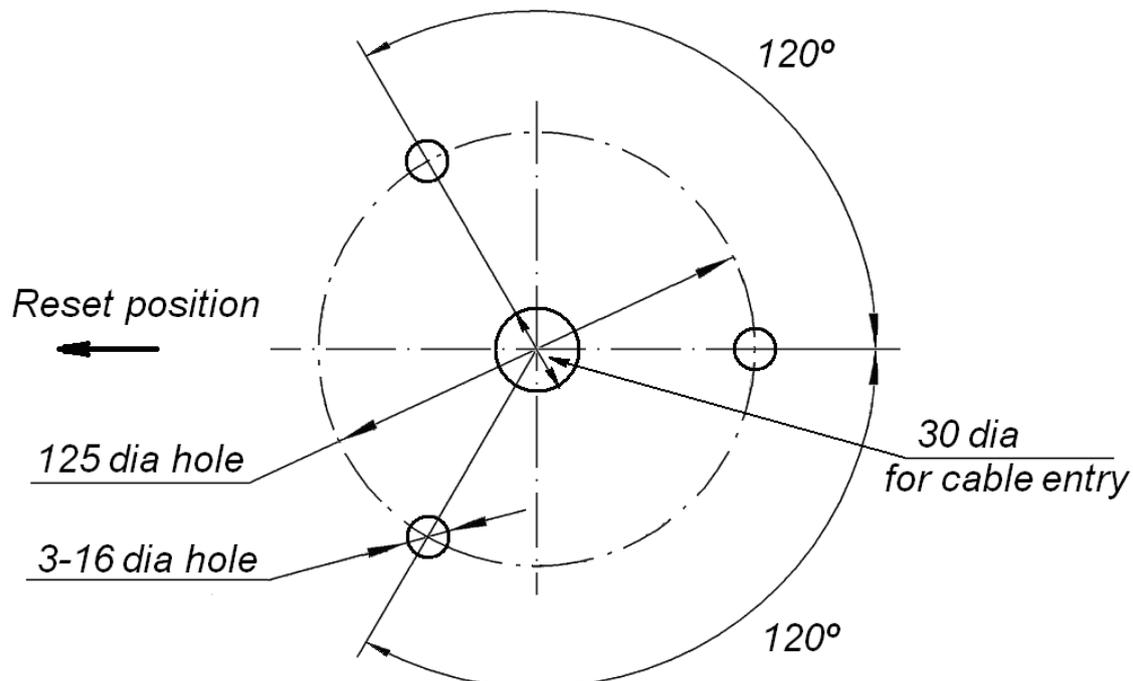


Figure 5 Mounting hole pattern

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 (16). Install the cable connector block (16) into the stationary post with flange (2) at height suitable for further installation.

4. Install the gate post (2) upright into the run position (it is recommended to use joint liners if need be). 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) of the rotary post (1). Tighten the mounting screws through the coupling fittings' holes with the S=5 hex-nut wrench. Check the swing panel (3) to be properly fixed.
6. Check free rotation of the swing panel. To do so unlock the swing gate with the mechanical release key (7) (sect. 5.4). The swing panel should be able to turn by hand easily in either direction. Lock the swing gate with the key after the check.
7. Unpack the control unit; open the cover by unscrewing the 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 (8) as shown in Fig. 6. Drill the holes and insert the plastic dowels included in the delivery set. Mount the CU (8) using two screws and fix it with the bottom screw to prevent accidental pulling off.

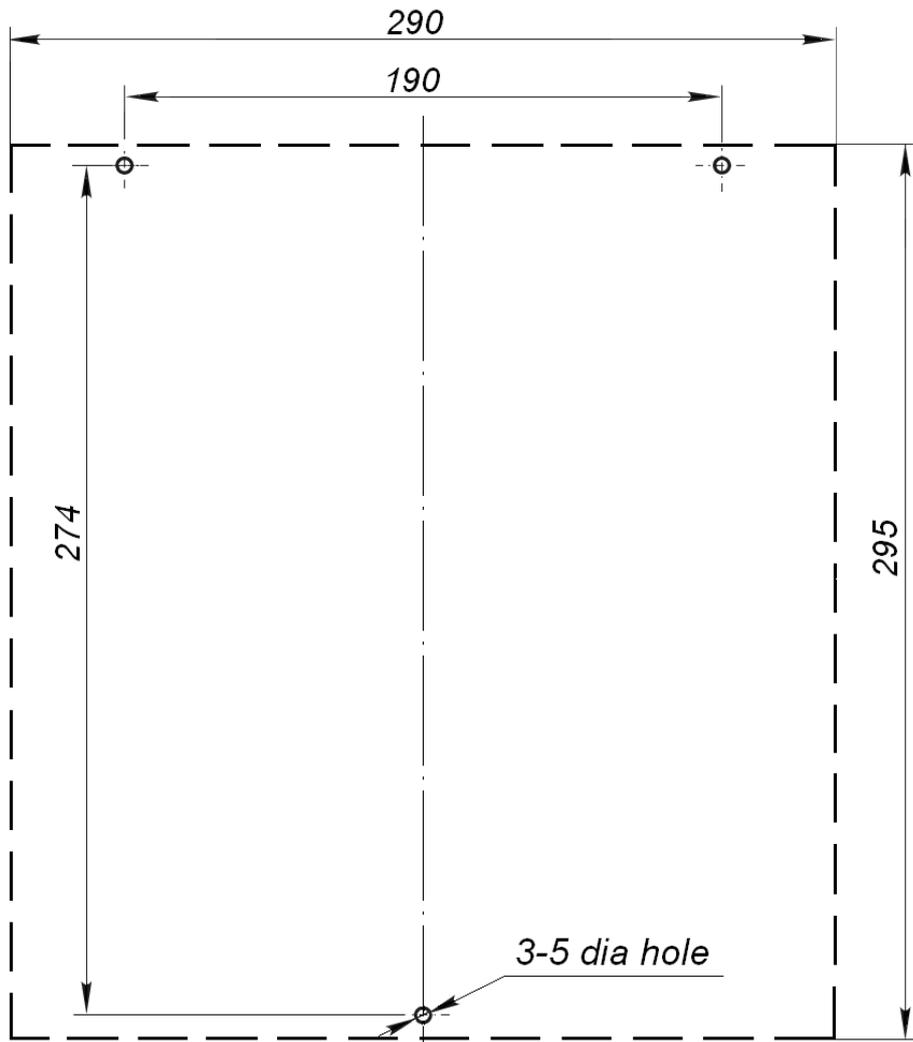


Figure 6 Hole pattern for the CU mounting

9. Installation of the control unit (8) should be carried out considering that the convenient access to the **“Power”** toggle switch is provided (Fig. 3). The CU (8) should be mounted on the wall upright with the connectors down. The AC power cable should easily reach the mains plug.
 - Connect the cable (10) to the CU **“Control”** connector (Fig. 3).
 - Connect the power cable (11) to the CU **“DC=24V”** connector (Fig. 3).
 - Pull the RC panel cable (12) through the RC cable entry inside the CU and connect to the X3, X4 connector blocks of the processor module (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. 7.
12. Connection of an intrusion detector* and a siren* to the CU (8) is carried out in accordance with Figure 7. The equipment location depends on the entrance layout.
13. We recommend you to mount the intrusion detector on a stationary railing post or a security officer cabin, the siren can be mounted inside the security officer cabin near the control unit. For additional info please contact the PERCo Technical Support Department.
14. Set the required operating modes of the swing gate by installing or removing jumpers on the processor module in accordance Figure 7. On delivery, all jumpers are set.
 - **X5**; (Pulse / potential control) jumper installed – pulse mode is selected, jumper removed – a potential control mode;
 - **X6**; (passage waiting time) with a jumper installed the passage waiting time will be 5 seconds, with jumper removed – swing panel will remain open until it receives stop signal from the RC panel or from the ACS;
 - **X13**; for 650 mm swing panel, the jumper is installed, for swing panels 900 (1100) mm the jumper should be removed. The jumper is installed at delivery. All jumpers are installed at delivery.
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.

The swing gate is assembled.

8.4 Connection layout

Table 1. List of elements on the wiring diagram

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

* Not included in the standard delivery set.

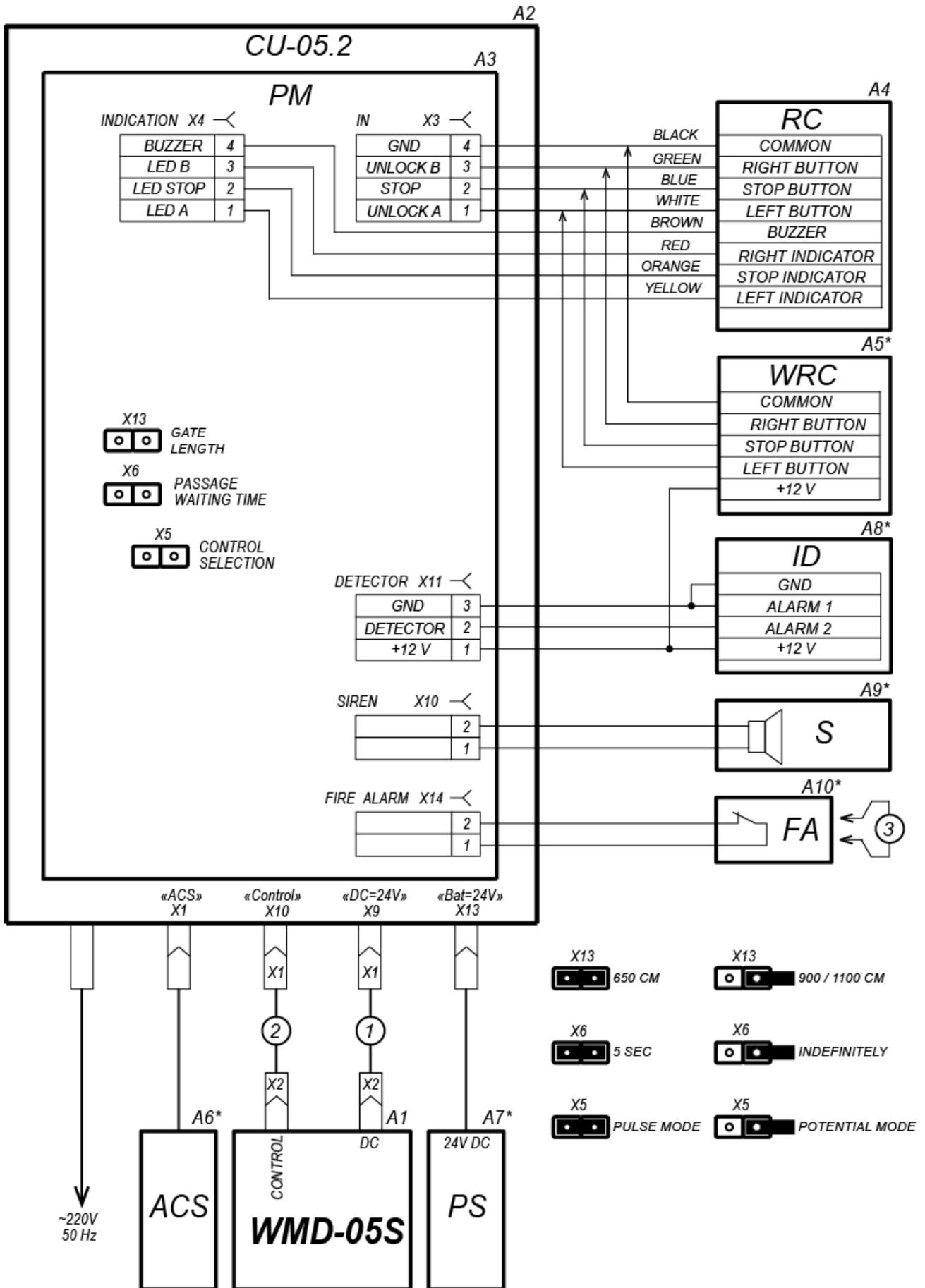


Figure 7 WMD-05S Wiring diagram

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

Always observe general electric safety requirements when operating the swing gate.

1. Make sure the power cable is intact, all the connections are correct and safe.
2. Prior to the swing gate power-up, make sure the CU “Power” toggle switch and the CU «Battery» toggle switch is in the “O” position.
3. Put the “Bat/2A” fuse included in the set of spare parts into its place.
4. Plug the CU power cable (13) into a 220 V / 50 Hz AC outlet.



Warning!

DO NOT connect the CU to the mains with characteristics that differ from those given in the section 3 of this Manual.

5. Set the CU «**Power**» toggle switch and the CU «**Battery**» toggle switch 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 when controlled from the RC panel and an ACS.

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.

Table 2 Setting of the operating modes

No	Operating mode	Your actions on the RC panel	Signals at the ACS connector of the RC panel	Indication on the RC panel
1	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, red light above the “STOP” button
2	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
3	Always locked (Locked for entry and exit)	Press the “STOP” button	Signal “STOP”	Red light above the “STOP” button

**Note 1:**

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 (sect. 5.4, then turn the swing panel in either direction 90° relatively to the home position and leave it open.

**Note 2:**

If the operator's terminal is placed at a backside of the swing gate, the RC panel orientation towards the swing gate can be changed. Proceed as follows when it is necessary to change orientation of the RC panel:

- set the CU (8) toggle switches «Power» and «Battery» into the «0» position (Fig. 3);
- disconnect the power cable (13) from the mains;
- change the wires of the RC panel cable (12) on the connector blocks X3, X4 of the CU processor module (Fig. 7) in the following way: the white wire with the green one and the yellow wire with the red one, i.e. connect the wires as follows:
 - a) the white – to the contact 3 on the connector block X3;
 - b) the green – to the contact 1 on the connector block X3;
 - c) the yellow – to the contact 3 on the connector block X4;
 - d) the red – to the contact 1 on the connector block X4;
- Check whether all the wires are connected properly. Turn the power on as per sect. 9.1;
- Check operation of the gate as per sect. 9.2.

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.
- At setting of the “Single passage in chosen direction” mode the locking device unblocks and the electrical drive rotates the swing panel (3) 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, please refer to Appendix A for instructions on how to change it);
- 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 panel rotates more than 83°.
- In an “Always free” mode passage waiting time is not counted; the swing gate remains open for infinite time and switches to the “Always locked” mode after the STOP button is pressed (on the RC panel or WRC tag) or till the “STOP” signal comes to the ACS connector contact;
- At entry of signals at “RIGHT”, “STOP”, “LEFT” contacts of the ACS connector the swing gates is controlled in accordance with Table 2;
- at simultaneous use of RC panel and signals of 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.

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 opening the contacts at the X14 connector block (FIREALARM) 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 (FIREALARM) 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.

9.3 Operation from the built-in SPS

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 ± 5 V, 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.

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



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 (see Fig. 3). Pin assignments of the “Bat=24V” connector are shown in Fig. 4.

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;
- set the “**Battery**” toggle switch to the “**I**” position.

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 user 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
	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 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.

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.

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.

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.

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