

**INSTRUCTION FOR INSTALLATION FOR SWING GATES
OF THE TYPE:**

PEGAS

**(PEGAS-GLE, PEGAS-GLE-M, PEGAS-GL, PEGAS-GL-M,
PEGAS-HG, PEGAS-SF-S, PEGAS-SF, PEGAS-J)**

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Annexes at the end of these Instructions:

- CLAIM REPORT FORM

1. INTRODUCTION

These Instructions are intended for the workers of the COMINFO company Service department or workers, who possess a certificate of installation schooling from the COMINFO company. Instructions describe installation procedure, electronic construction, function and connection of individual components of the whole PEGAS system gates, which is intended for checking and control of passage of persons.

Chapters dealing with connection of control electronics are for illustrative purposes intentionally compiled in a way so that the colour design of interconnecting cables is clear. In case of a printed version of these Instructions, the manufacturer strongly recommends to print them in colour.

Gate installation must always be performed in accordance with approved project documentation!

Integral part of these Instructions is also the separate *Instruction Manual of the PEGAS Swing Gate*, which contains basic description of the gate, description of gate performance and a chapter dealing with solution of problems and malfunctions.

These Installation Instructions employ the following categories of safety instructions:



DANGER!

Mechanical danger. Omission of these instructions may cause personal injuries or device damage.



WARNING!

Important information or important procedure.



NOTICE!

Information or procedure recommending, how to use the device or its equipment optimally and thus prolong its lifetime, prevent potential damage and optimize work in relation to the safety standards.

2. GATE TRANSPORT AND MANIPULATION

Gate is wrapped in a transport wrapping and transported to the place of destination in its transport boxing by means of a pallet jack. After unwrapping, the gate it is taken to a specified place. At least two persons should cooperate on manipulation with the gate. During manipulation with the gate, pay increased attention with regard to the safety of persons and potential damage of the gate.

Table of Weights of Individual PEGAS Gates:

Gate	External Turning Case	
	Ø168 mm	Ø204 mm
PEGAS-GLE	48 kg	51 kg
PEGAS-GLE-M	49 kg	52 kg
PEGAS-GL	60 kg	66 kg
PEGAS-GL-M	61 kg	67 kg
PEGAS-HG	X	69 kg
PEGAS-SF-S	42 kg	46 kg
PEGAS-SF	49 kg	53 kg
PEGAS-J	40 kg	44 kg

Gate weight depends on dimensions and shape of the wing. Gate weights shown in the table above apply for standard dimensions and shapes of the wings.

Table of Standard Gate Dimensions [mm]:

Gate	Width of the Wing	Upper Edge of the Wing	Lower Edge of the Wing
PEGAS-GLE	850	1020	160
PEGAS-GLE-M		1030	
PEGAS-GL		1000	
PEGAS-GL-M		1010	
PEGAS-HG		1800	
PEGAS-SF-S		1015	
PEGAS-SF			605
PEGAS-J		1010	280

3. GATE INSTALLATION

Gates are supplied in three control modifications that must be specified during its ordering

SINGLE Separate gate with control electronics.

TWIN Two gates equipped with control electronics placed with their wings next to each other, gates can be controlled either simultaneously or separately.



Twin gates are not motion synchronized, which means that one of the gates may be delayed in the course of its opening and closing.

DOUBLE Two gates placed with their wings next to each other with synchronized control by only one control electronics. The MASTER gate is equipped with control electronics and controls the SLAVE gate, which is equipped only with a drive unit.



Double gates cannot be controlled separately so that only one of the gates open.

Each gate modification can be changed for one another upon ordering kits for its conversion in compliance with the chapters:

- *DOUBLE Gate - Conversion from Two Single Gates*
- *TWIN Gate - Conversion from a DOUBLE gate*



Gates with a glass wing or glass filling are supplied partly dismantled. Glass assembly and installation require technical knowledge, command of technological assembly procedures and skilfulness.



Gate may be installed only by an employee of the COMINFO company Service department or a worker, who possesses the certificate of installation schooling from the COMINFO company.



Mains connection may be performed only by an authorized person with relevant qualification.



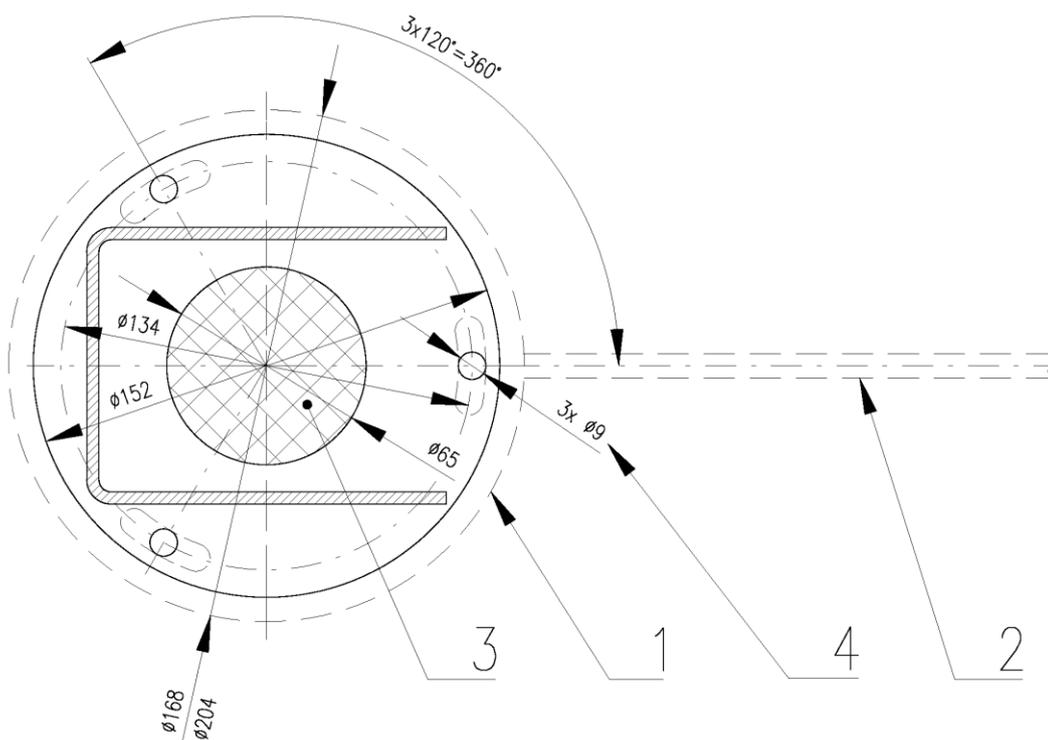
When putting the gate into operation, it is necessary to perform an initialization, during which the home position of the gate wing is calibrated, afterwards the wing is stopped in its home position. In order that the path of the gate wing is correctly read, there must be no object or person in the whole path of the gate wing during the initialization.

3.1. ANCHORING DIMENSIONS

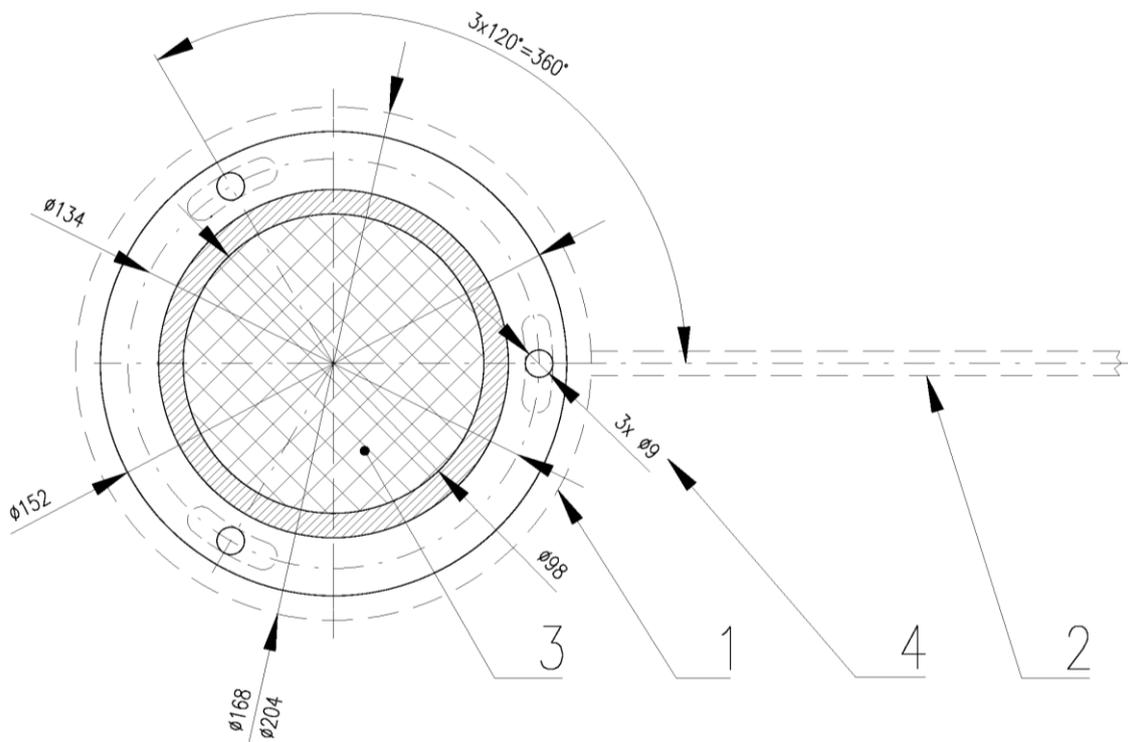
LEGEND OF THE PICTURES:

1. Contour of the external turning case of the gate– $\varnothing 168$ or $\varnothing 204$ (dashed lines)
2. Contour of the gate wing in its home (closed) position (dashed lines)
3. Holes for cabling supply (cross-hatching)
4. Holes for anchoring bolts M8

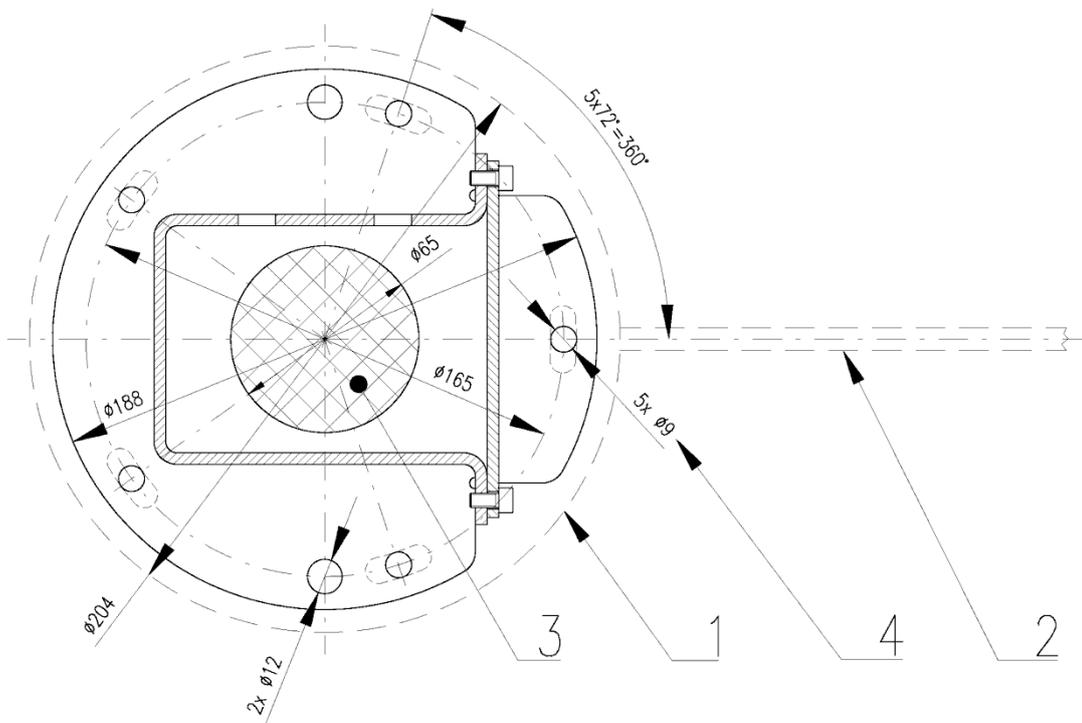
3.1.1. PEGAS-GL-E / PEGAS-GL-E-M



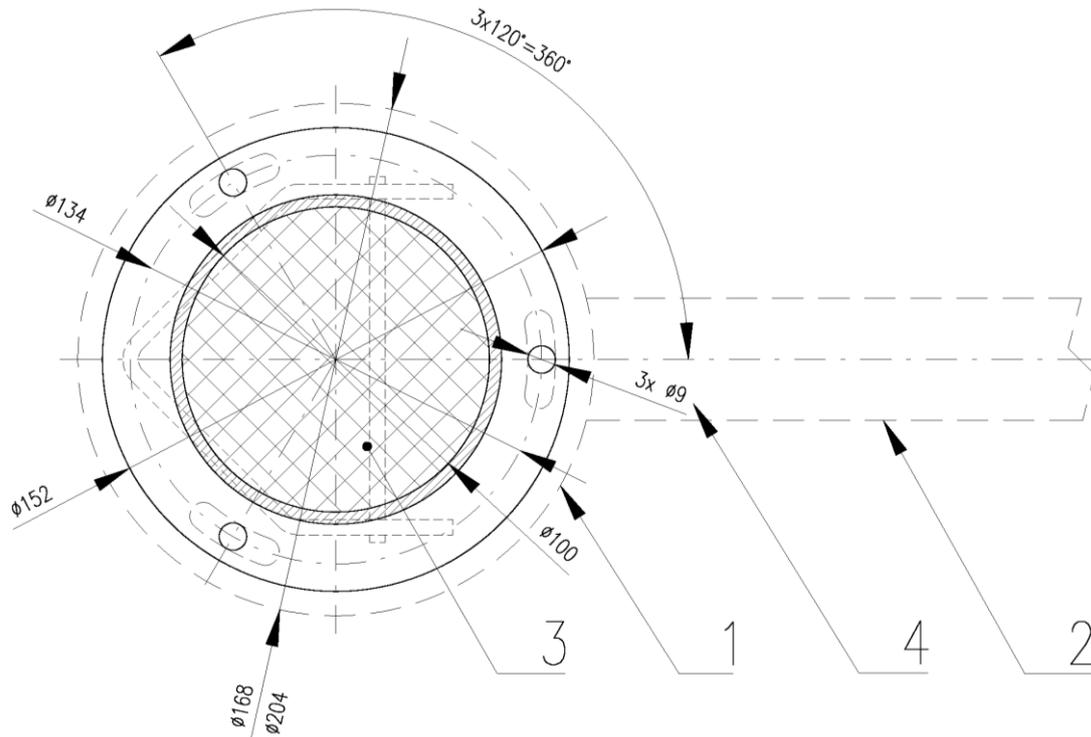
3.1.2. PEGAS-GL / PEGAS-GL-M



3.1.3. PEGAS-HG

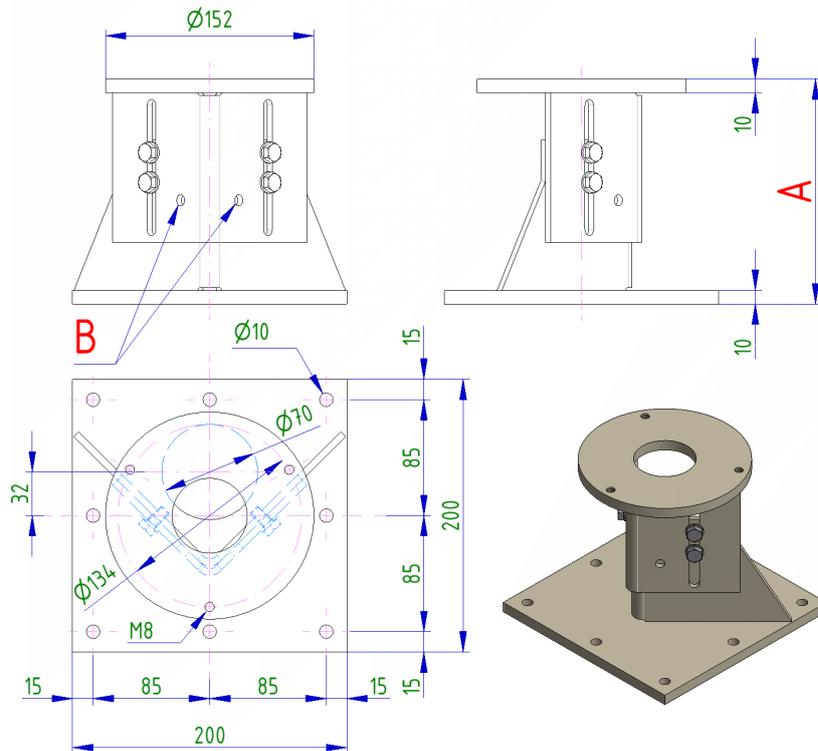


3.1.4. PEGAS-SF-S / PEGAS-SF / PEGAS-J



3.1.5. ANCHORING BASE

In case of PEGAS gates, the anchoring base is used during installation to interlocking pavers or double flooring. Anchoring bases are height adjustable in different "A" extents (75-112mm, 90-142mm, 130-200mm, 180-280mm, 215-350mm). After the base is anchored and height adjusted, it is necessary to join the lower part of the base with the upper part of the base by drilling the "B" spot and secure it with M8 bolt nut.



3.2. DESCRIPTION OF INSTALLATION

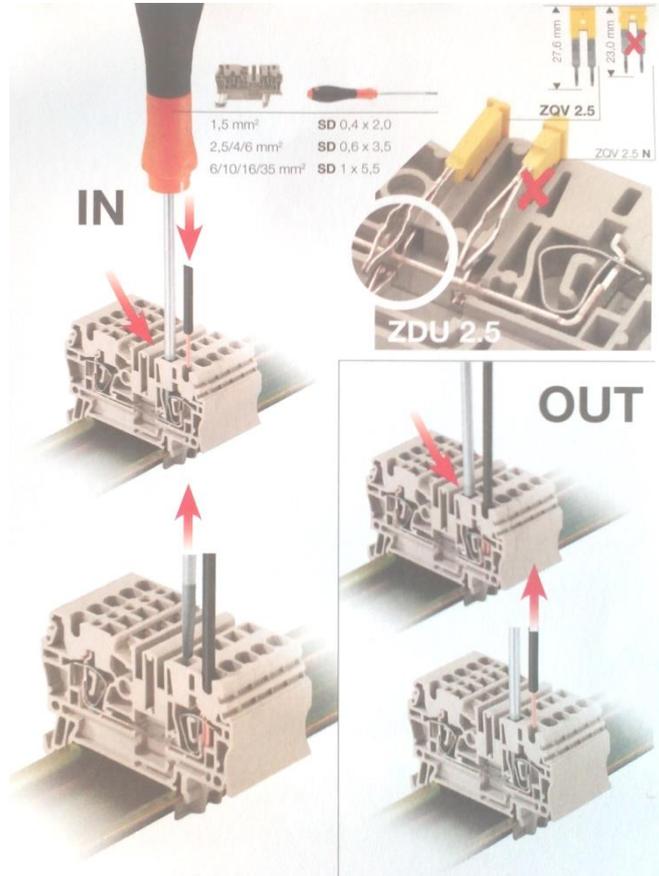
3.2.1. TOOLS NECESSARY FOR INSTALLATION

- Installation Instructions and Instruction Manual for the particular gate type
- hammer drill
- Accu screwdriver with adjustable torque
- manual angle grinder
- set of drill bits for concrete drilling with diameter of 8 to 12 mm (for drilling to a depth of at least 100mm)
- set of drill bits for iron drilling with diameter of 2 to 10 mm
- step drill bit for metal plate drilling of 6 to 30 mm
- M3 to M8 screw tap
- set of Allen keys from 2.5 to 6 mm
- PH1, PH2, PZ2 cross-point screw drivers
- 2.5 and 3.5mm flat screwdrivers
- set of nut combination spanners from 5.5 to 19 mm
- TX spanner T30
- ratchet wrench with 5.5 to 19 mm nuts, TX T30 and TX T45
- combination pliers
- sika pliers
- pincers
- pliers for cable stripping
- pliers for conductor stripping
- crimping pliers
- knife
- round and angular file
- 500g hammer
- pencil (not a chalk or brick)
- tape measure and steel tapeline
- ruler (long straight lath or wiring slat)
- 2 strings of needed length for determination of installation axes
- water-level
- try square
- extension cable for electrical manual tools
- multimeter
- pair of tweezers
- ladder
- broom and dustpan
- brush for dusty parts cleaning
- rag and detergent for glass and stainless steel cleaning
- chemical anchors or different anchoring material
- quick-hardening concrete
- Loctite 243 (for bolts fixation)
- silicon cement
- expanding foam
- Vaseline
- electrical tubes of sizes (0,25; 0,5; 0,75; 1; 1,5)
- draw tapes
- insulating tape
- set of M3 to M10 spare bolts, nuts and washers

3.2.2. DESCRIPTION OF CONNECTION OF TERMINAL BOARDS AND CRIMP CONNECTORS

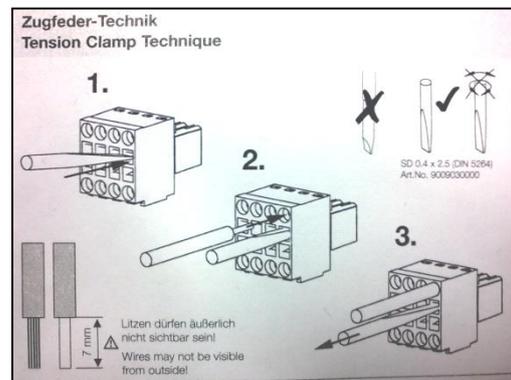
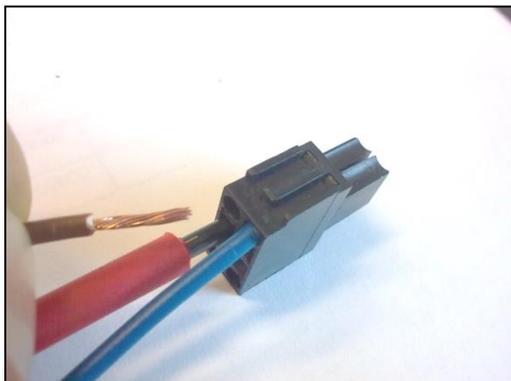
Procedure for connection of wires into flexible clamps of X2 and X3 lineal terminal boards:

Weidmüller terminal boards with flexible clamps are connected in accordance with the following picture:



Procedure for wires connection into connectors:

Weidmüller connectors with flexible clamps are connected in accordance with the pictures below. Flexible clamps are opened using the 2.5 mm screwdriver inserted in the window next to the clamp. When inserting the wire into the connector, make sure that all strands of plaited core were inserted into the connector and wire insulation was inserted in the recess.



3.2.3. GENERAL DESCRIPTION OF INSTALLATION

Before commencement of installation, the area of installation must be free and flat. Anchoring base must be adequately firm so that the stability of the gate is ensured. In case of large unevennesses of the ground, special mounting consoles are placed under the anchoring flange of the gate. If the anchorage is to be performed on interlocking pavers, a special anchoring frame is used. This frame must be anchored in the foundation concrete surface before laying the interlocking pavers. These consoles and the anchoring frame are produced with regard to the real state of the terrain after its precise measurement.



When measuring, marking and drilling, it is essential to work with precision of 2 mm. Especially in the initial phase of assembly, a cooperation of at least 2 workers is essential for observing the accuracy.

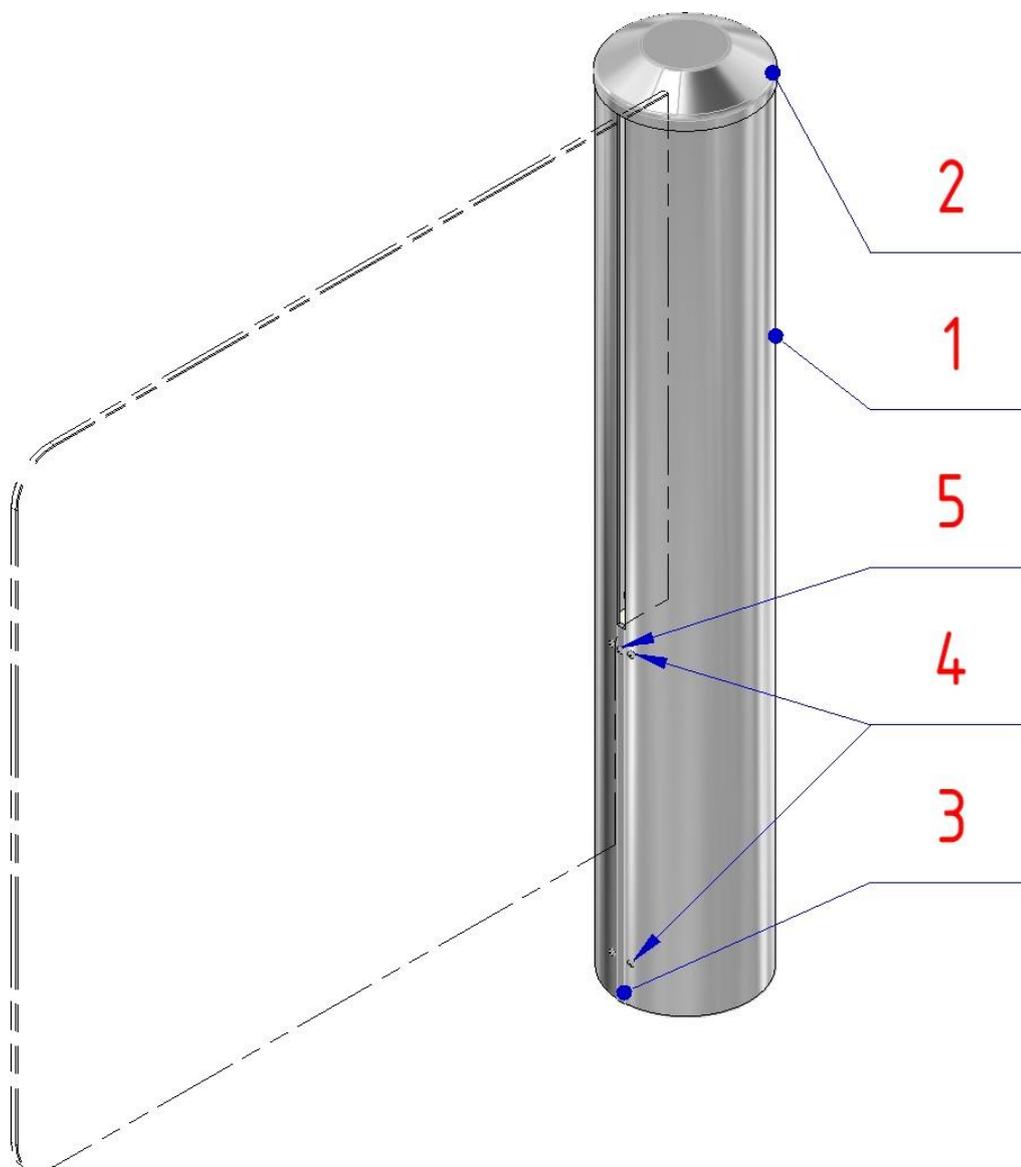
1. Axis (axes) of the gate system and other components (e.g. turnstiles and barriers) is set.
2. Respective gates or other components of the system are aligned on this axis in required distances. Depending on the undulation of the floor the anchoring flange of the gate is underlaid so that it is in a vertical position.
3. After lining up, the centres of the holes are marked in compliance with the dimensions stated in the chapter: *Anchoring Dimensions* and holes are drilled according to the used anchoring material:
 - **Chemical anchors M8x100** (recommended by the manufacturer) - drill at least 12mm x 100mm. Clean the hole carefully - clean the dust.
 - **Bolt anchors M8x100** - drill 8mm x 100mm. Clean the hole and check on sufficient depth.
 - **Other anchoring material** (e.g. Turbo bolts) - proceed in accordance with the instructions of the manufacturer of the anchoring material.
4. Lead the power supply cable and the control cable to the gate control electronics.
5. Anchor the gate to the floor by anchor M8 bolts. Anchor bolts must be perpendicular to the floor.
6. Check the verticality of the gate.
7. Perform the electrical connections in compliance with the chapter: *Description of Connection of Control Electronics and Accessories*.
8. In case of gates with the frameless glass wing, fix the glass into the inner mechanism of the gate (see chapter: *Assembly of Frameless Glass Wing*).
9. Fit the external turning case of the gate.
10. In case of PEGAS-SF-S type, fix the glass filling into the frame of the wing (see the chapter: *Assembly of Glass Filling of the Wing*).

3.3. DESCRIPTION OF ACCESS TO ANCHORING HOLES AND DRIVE UNIT WITH CONTROL ELECTRONICS

3.3.1. PEGAS-GL-E / PEGAS-GL-E-M / PEGAS-HG

Disassembly of the external turning case:

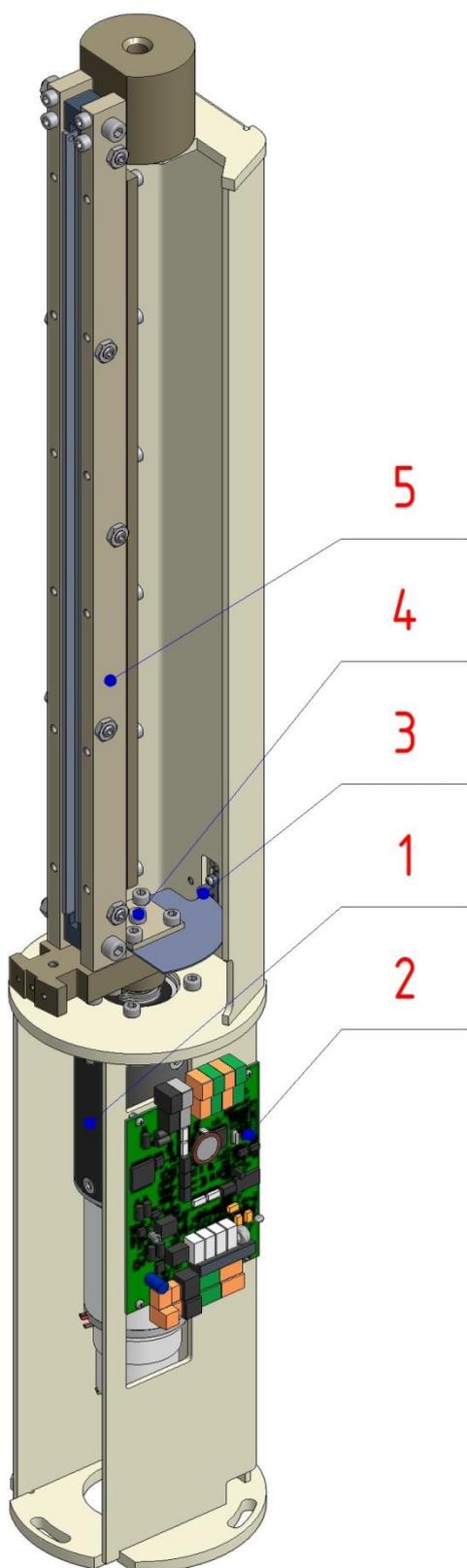
Upper lid (Pos. 2) is part of the external turning case (Pos. 1). After unscrewing 4 pieces of M4 bolts (Pos. 4), in the lower part of the case, pull the external turning case with upper lid upwards. Do not unscrew the M4 bolt (Pos. 5) as it serves for attachment of the lower cover strip (Pos. 3). In the process of assembling the external turning case back, heed so that the control electronics is not damaged.



Description of the inner mechanism of the gate:

LEGEND OF THE PICTURE:

1. Motor drive unit
2. Control electronics (MLU)
3. Home position sensor
4. Bolt that anchors the glass bracket to the drive unit
5. Glass bracket
6. Motor drive unit cover
7. Bolt that fixes the cover of the drive unit

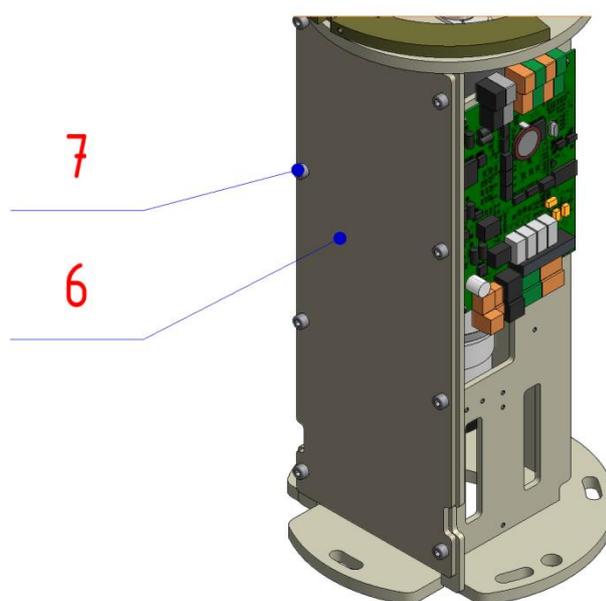


After dismantling the external turning case of the gate, the access to drive unit (Pos. 1), control electronics (Pos. 2) and home position sensor (Pos. 3) is enabled.

To access the drive unit and the hole for cabling supply in case of PEGAS-HG gate, it is necessary to dismantle the cover of the drive unit (Pos. 6) by unscrewing eight M5 bolts (Pos. 7).

In the course of replacement of the home position sensor (Pos. 3), adjust its position so that it does not touch the covering screen, when the gate is rotating, and was in the middle position of the gate rotation.

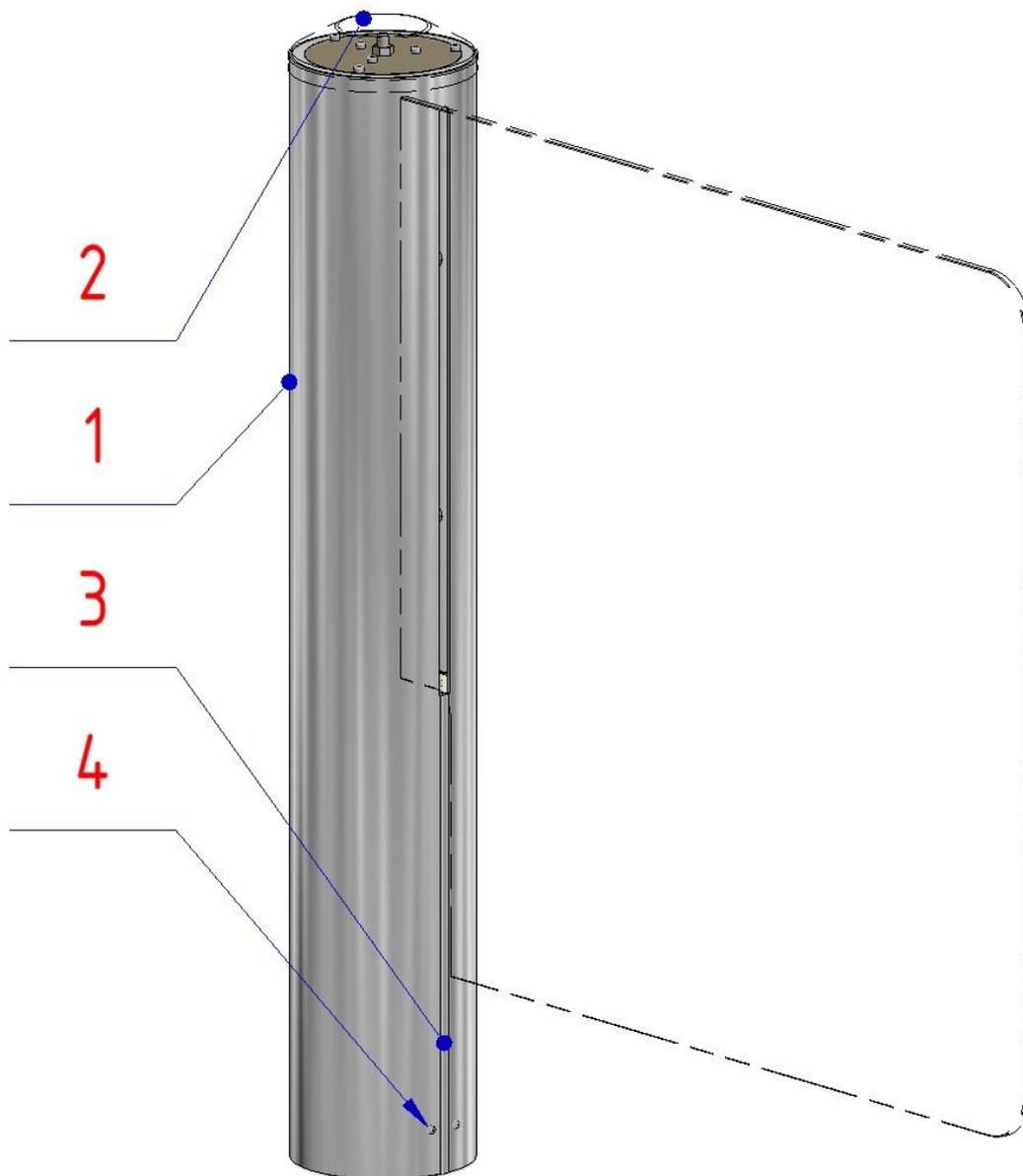
After unscrewing 1 piece of M6 central bolt (Pos. 4), the whole glass holder (Pos. 5) may be dismantled by pulling it upwards. This way we gain access to disassemble the drive unit (Pos. 1).



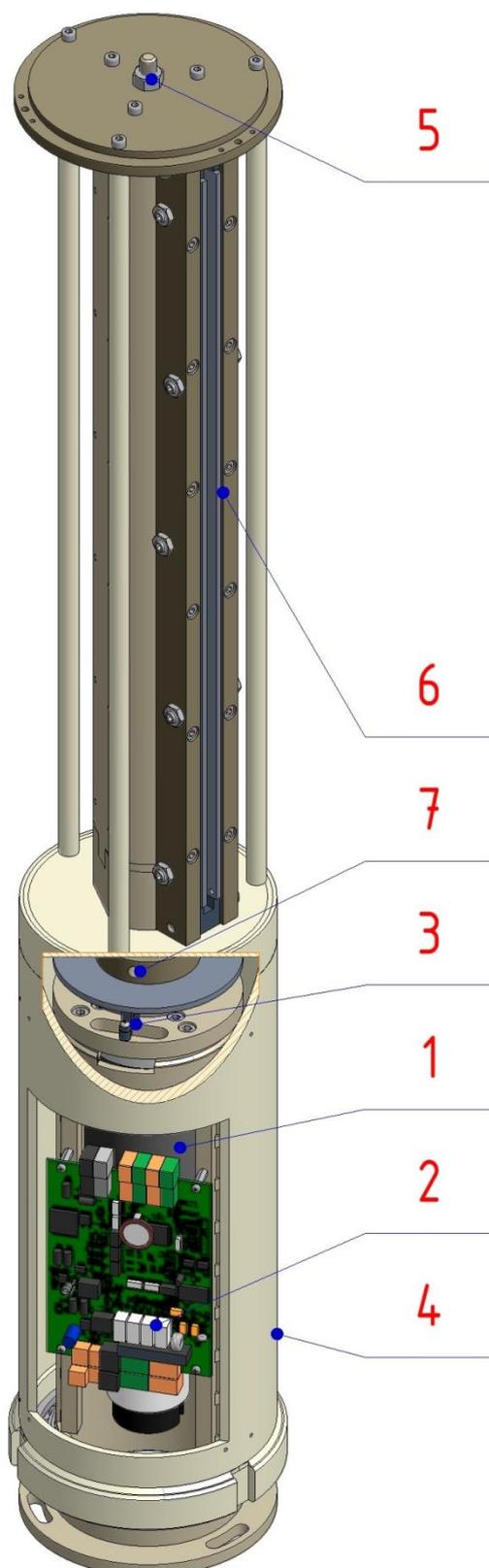
3.3.2. PEGAS-GL / PEGAS-GL-M / PEGAS-HG

Disassembly of the external turning case:

Disassemble the upper lid by its levorotatory turning (Pos. 2). After unscrewing 2 pieces of M4 bolts (Pos. 4) in the lower part of the case, pull the external turning case (Pos. 1) upwards. Lower covering batten (Pos. 3) remains in its place during the disassembly.



Description of the inner mechanism of the gate:



LEGEND OF THE PICTURE:

1. Motor drive unit
2. Control electronics
3. Home position sensor
4. Turning supporting cylinder of the gate
5. Nut fixing the glass holder to the drive unit
6. Glass holder
7. Secure pin

After dismantling the external turning case of the gate, the access to control electronics (Pos. 2) is gained. Turn the turning supporting cylinder of the gate (Pos. 4) in a way so that the hole in the cylinder is in a fitting position to access the control electronics.

After unscrewing the M10 nut (Pos. 5), the whole glass holder (Pos. 5) can be dismantled with turning supporting cylinder (Pos. 4) by pulling it upwards. In the course of back assembly, it is possible to mount the turning supporting cylinder in two different positions. It is desirable to mount the cylinder in a position so that the gate wing is in the correct home position.

To access the drive unit (Pos. 1) and the home position sensor (Pos. 3), firstly it is necessary to knock out the secure pin $\varnothing 6 \times 35$ (Pos. 7). In order not to damage the gate's mechanism, it is recommended to use the *Universal Dismounting Tool* (optional accessories) for disassembling the shafts of the drive unit.

3.3.3. PEGAS-SF-S / PEGAS-SF / PEGAS-J

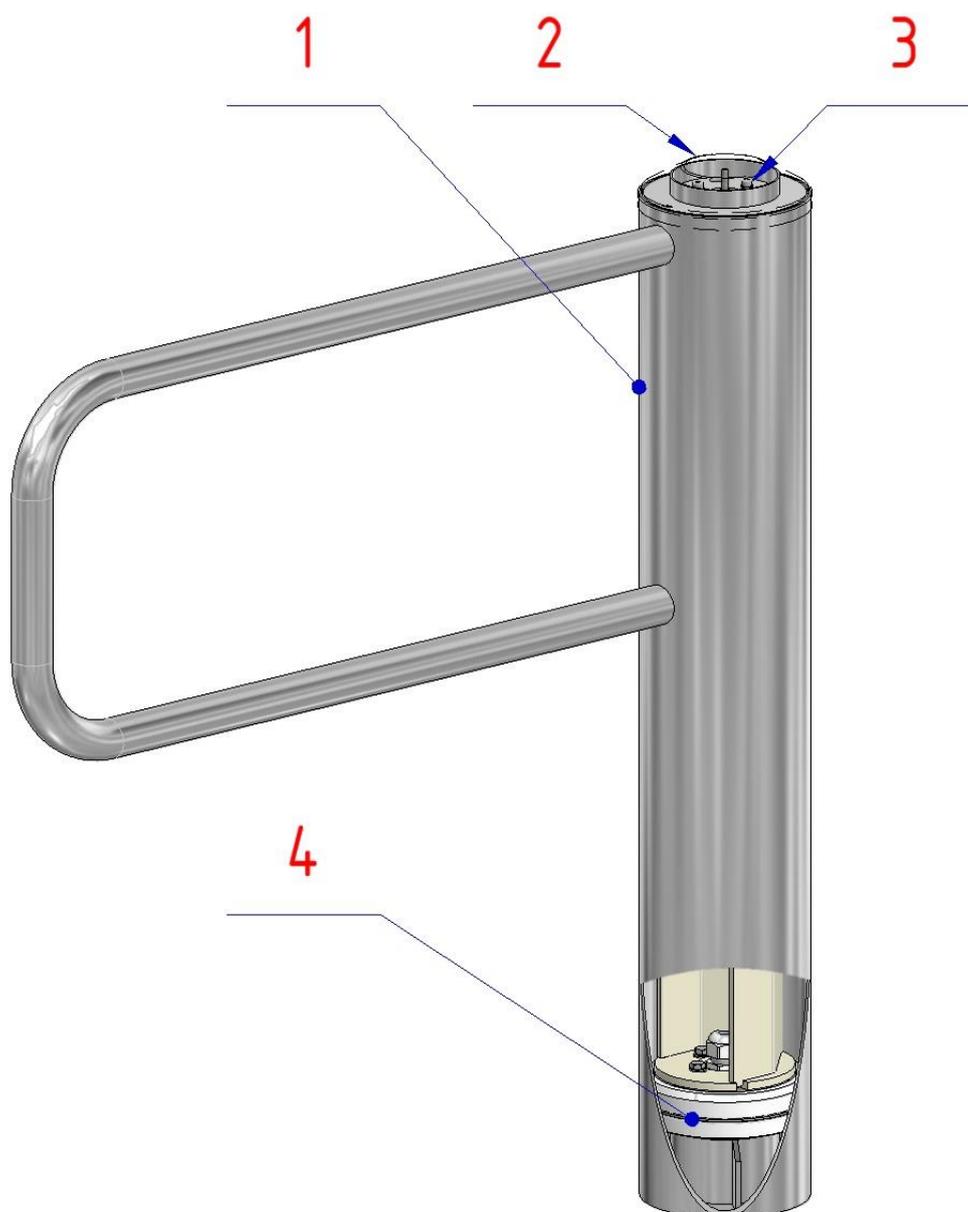
Disassembly of the external turning case:

Disassemble the upper lid by its levorotatory turning (Pos. 2). After unscrewing 4 pieces of M8 bolts (Pos. 3) in the upper flange of the case, pull the external turning case (Pos. 1) with the wing upwards. In the process of back assembly, heed increased caution while sliding the external turning case over the O-ring (Pos.4). It is recommended to replace the O-ring in case of repeated disassembly.

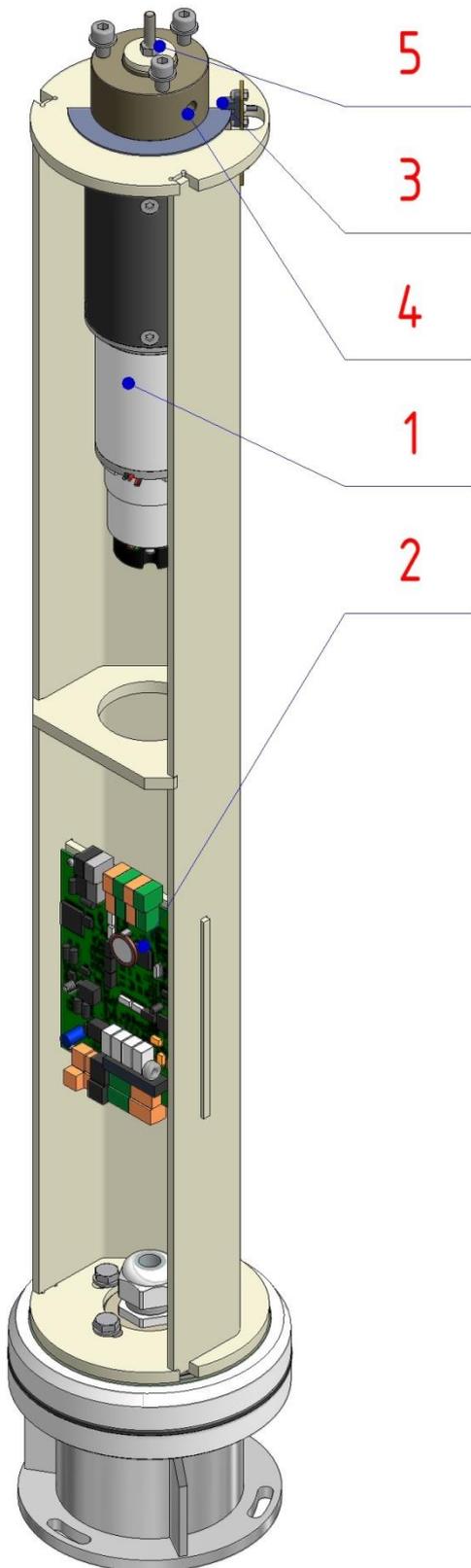
O-rind dimensions (ISO 3601-1):

Outer casing diameter 168mm: E 1450 G (ø145x7) NBR 70

Outer casing diameter 204mm: E 1800 G (ø180x7) NBR 70



Description of the inner mechanism of the gate:



LEGEND OF THE PICTURE:

- 1. Motor drive unit
- 2. Control electronics
- 3. Home position sensor
- 4. Secure pin in the holder of the external turning case
- 5. Nut fixing the holder of the external turning case

After disassembly of the external turning case of the gate, the access to control electronics (Pos. 2) and home position sensor (Pos. 3) is enabled.

In the process of home position sensor (Pos.3) replacement, adjust its position so that it does not touch the covering screen while rotating.

To access the drive unit (Pos. 1), firstly it is necessary to knock out the secure pin $\varnothing 6 \times 35$ (Pos. 4). After unscrewing the M6 nut (Pos. 5), take off the holder of the external turning case.

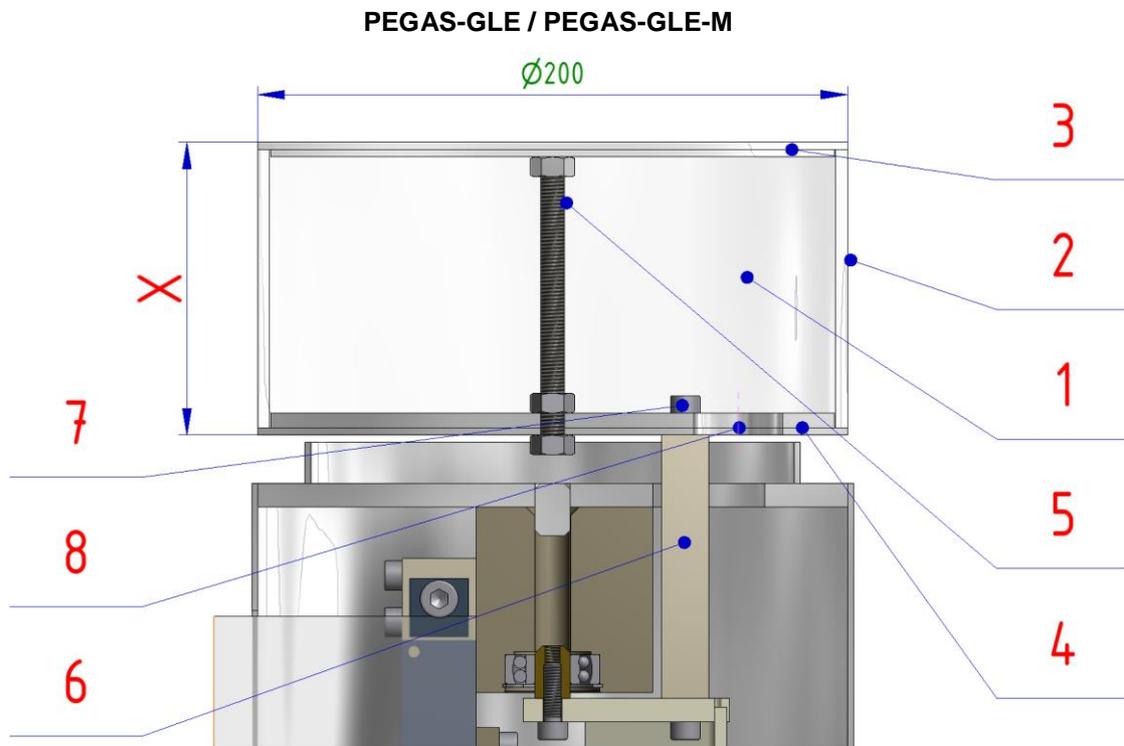
3.3.4. GATES WITH TOP PANEL DESIGNATED FOR RADAR DEVICE OR RFID READER ADD-ONS

Top Panel of the gate serves for placement of a radar or RFID readers. Top Panel is firmly fixed with the strong inner construction and does not turn during the wing opening. Top Panel cannot be placed on PEGAS-GL and PEGAS-GL-M gates. If the Top Panel is put on PEGAS-SF-S, PEGAS-SF and PEGAS-J gates, the maximal opening angle would be reduced to $\pm 90^\circ$.

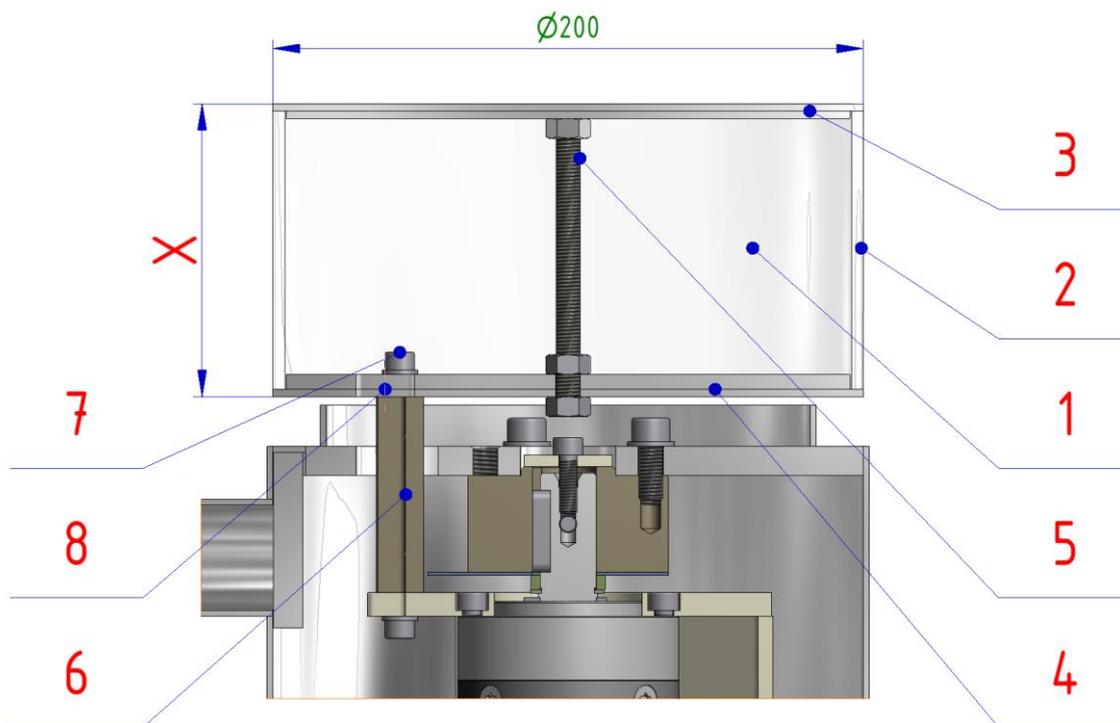
Height "X" of the Top Panel equipped with a radar is 100 mm. If the Top Panel is equipped with a RFID reader, the height is designed in compliance with the real size of the reader. Diameter of the Top Panel is 200 mm, its utilization is recommended for gates with external turning case 204 mm in diameter.

LEGEND OF THE PICTURES:

1. Available space for radar or RFID readers placement
2. Opal perspex
3. Upper flange of the Top Panel
4. Lower flange of the Top Panel
5. Threaded M8 bar (length depends on the height of the Top Panel)
6. Holder of the Top Panel
7. M6x16 bolt fixing the Top Panel
8. Hole for cabling supply



PEGAS-SF-S / PEGAS-SF / PEGAS-J



Disassembly of the Top Panel:

- Unscrew the upper flange (Pos. 3) from the threaded bar (Pos. 5)
- Take out the opal perspex (Pos. 2)
- Unscrew two bolts (Pos. 7)
- Take off the lower flange (Pos. 4) with the threaded bar (Pos. 5)

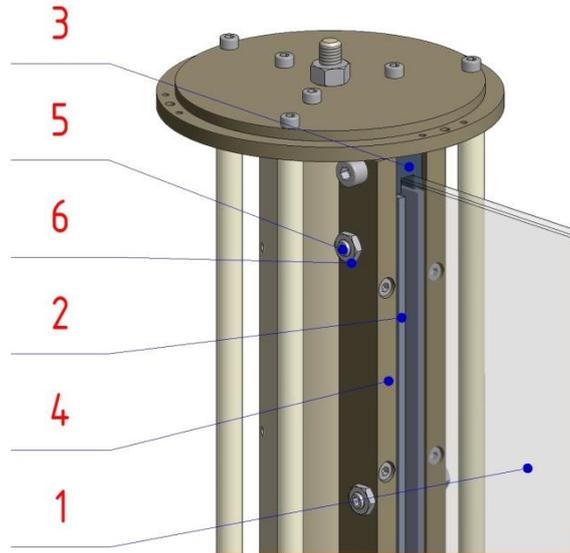
If you need to gain access to anchoring holes or to the drive unit with control electronics, follow the instructions stated in previous chapters in accordance with the gate type.

Back assembly of the Top Panel is performed by a reverse procedure.

3.4. ASSEMBLY OF FRAMELESS GLASS WING

Frameless glass wing is used in case of PEGAS-GL-E, PEGAS-GL-E-M, PEGAS-GL and PEGAS-GL-M gates.

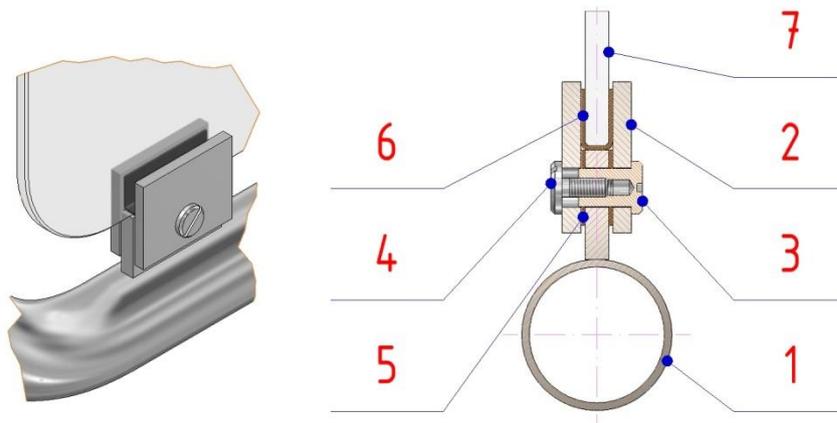
In the bottom and on top, slide the frameless glass wing (Pos. 1) with pasted pressure shims (Pos. 2) into the plastic elements (Pos.3) and simultaneously into vertical slats of the glass holder (Pos. 4). Glass is tightened via setscrew with M8 point (Pos. 5). Secure by M8 locknut (Pos. 6).



3.5. ASSEMBLY OF GLASS FILLING OF THE WING

Glass filling of the wing frame is used only in case of PEGAS-SF-S gate.

Start the assembly in the lower pipe of the wing (Pos. 1). Insert the nut (Pos. 3) into the shim (Pos. 2) and then insert both into the hole in the clamp on the gate wing (Pos. 1), on which a rubber is glued by manufacturer (Pos. 5). Adjust the provided rubber (Pos. 6) measuring 38x46 mm into U-shape and appose it along with the glass (Pos. 7) to the clamp (Pos. 2). Appose the bolt (Pos. 4) with the second shim from the other side and clasp the glass between the shims by gradual tightening of the nut and the bolt. Repeat the process with the hitches on the upper wing pipe until the glass is completely fixed.



Cooperation of minimum two technicians is required when mounting the frameless glass or glass filling.

3.6. MAGNETIC ARRESTING OF THE WINGS

Magnetic arresting of the wings is employed in case of TWIN and Double gates. Magnetic arresting delimits the gear free place in home position and thus secures that wings always stop in the same position side by side.

Magnetic arresting of the wing can be used in case of the following gate types:

- PEGAS-GLE, PEGAS-GLE-M
- PEGAS-GLE, PEGAS-GLE-M with a Top Panel for radar device or RFID reader
- PEGAS-SF-S
- PEGAS-SF
- PEGAS-J

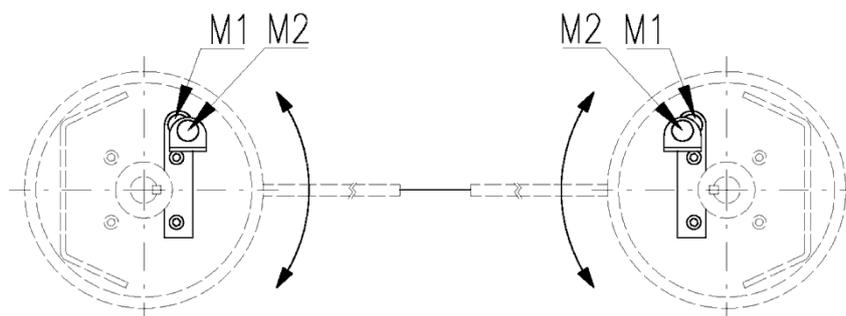
3.6.1. MAGNETS LOCATION

In two opposite gates, magnets are placed specularly so as the delimitation of the gear box free play is always directed the same direction while the gate is in its home position. **M1** and **M2** magnets are placed face to face so that they repulse each other. **M2** magnet is located on the holder, by which the mutual distance between magnets and simultaneously the power of magnetic arresting can be adjusted.

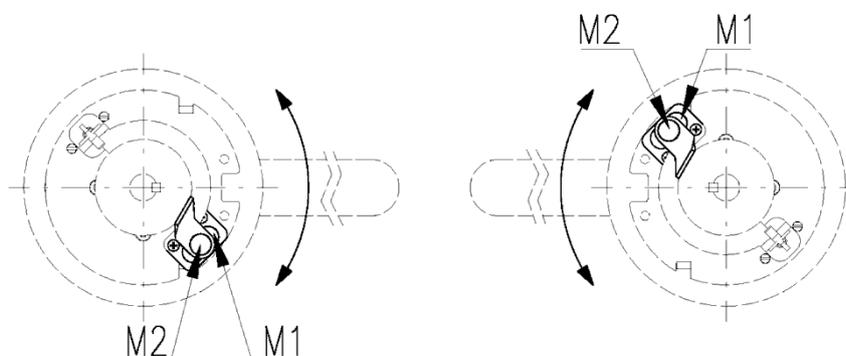
M1 Fixed magnet on the fixed inner construction

M2 Adjustable magnet on the turning inner construction

PEGAS-GLE / PEGAS-GLE-M



PEGAS-SF-S / PEGAS-SF / PEGAS-J



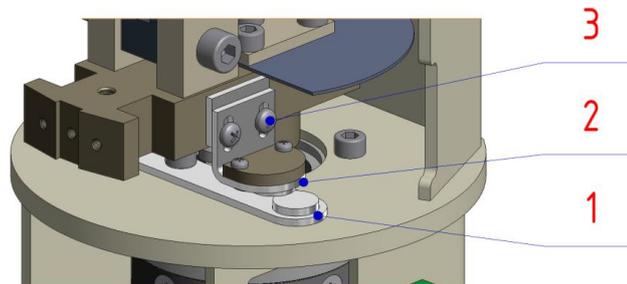
3.6.2. MAGNETS ADJUSTMENT

Magnets distance is adjusted by the manufacturer. Magnets adjustment depends on the wing weight. Check the correct functioning of magnetic arresting of the wings during installation:

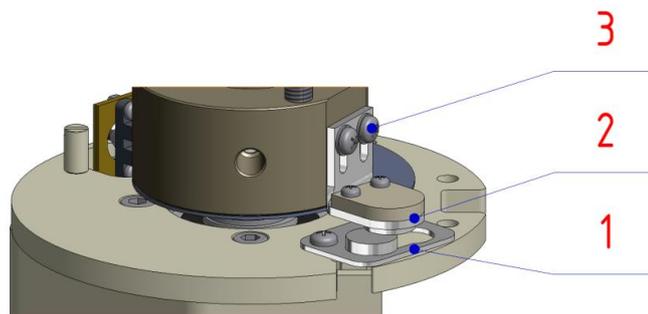
- In case of correct functioning, the magnets must delimit the gear free play and the wing is always pushed to the same home position
- If the wing is not pushed to the correct home position, put the magnets further from each other.
- If the distance between magnets in relation to the wing weight is too short, the wing movement is either slowed down or stopped, when the wing is nearing its home position from the direction of magnets placement. In this case, increase the distance between magnets.

M1 Magnet is located in a holder (Pos. 1) on the fixed inner construction, **M2** magnet is located in a holder (Pos. 2) on the turning inner construction.

PEGAS-GLE / PEGAS-GLE-M



PEGAS-SF-S / PEGAS-SF / PEGAS-J



Description of magnets adjustment :

1. In accordance with the chapter: *Description of Access to Anchoring Holes and Drive Unit with Control Electronics*, dismantle the external turning case
2. Turn the gate wing outside its home position so that the magnets does not influence each other
3. Loosen two bolts (Pos. 3) and adjust the distance between magnets
4. Tighten both bolts (Pos. 3) and check the correctness of the adjustment



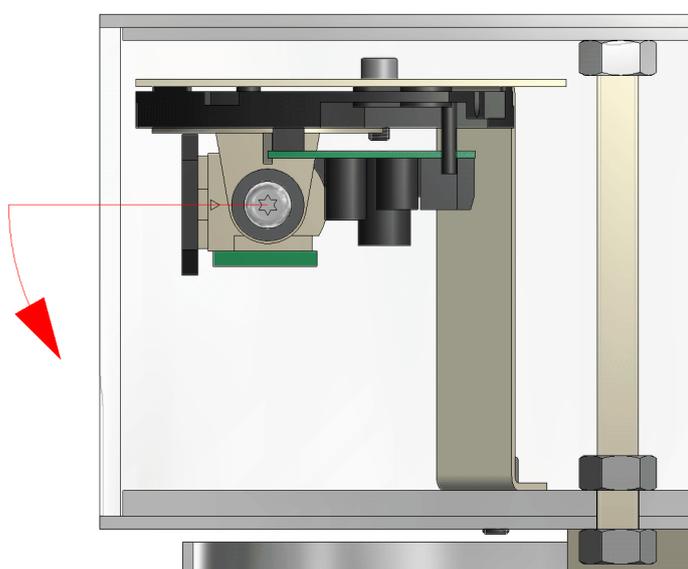
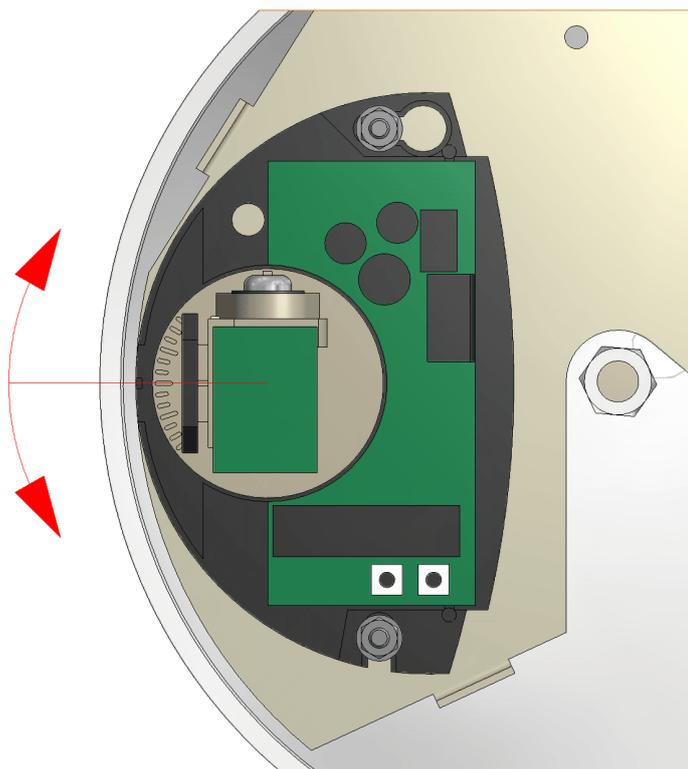
PAY AN INCREASED ATTENTION WHILE MANIPULATING WITH THE MAGNETS IN ORDER TO AVOID INJURIES OR DAMAGE OF MAGNETS, WHICH ARE VERY FRAGILE

3.7. DIRECTIONAL RADAR ADJUSTMENT

If the gate is complemented with the Top Panel with integrated radar, it is essential to adjust the radar optimally during its installation with regard to the surroundings of the gate.

Radar is equipped with a directionally adjustable antenna, by which it is possible to set dimensions of the detected area in front of the gate and by this also the distance, at which the gate opens for an approaching person.

Radar antenna should be adjusted in a way so that the passage does not open, if a person walks past the gate, but only after the given person stands closely to the gate with the intention of entering.



3.8. CONFIGURATION OF GATE OPERATION CHOVÁNÍ BRANKY



It is possible to configure the gate operation in the course of its installation and adjust it to customer demands by different configuration using a PC. This setting may be performed only by an employee of the COMINFO company Service department or a worker, who possesses the certificate of installation schooling from the COMINFO company.

Individual configurable functions are described in the separate *Instruction Manual for the PEGAS Swing Gates* in the chapter: *Description of Gate Operation in other than Factory Settings*.

When configuring some of the functions, we must obey the following rules:

Setting of the gate opening and closing speed:

When setting other than factory set speed, it is necessary to adjust the braking angle so that the wing does not brake too soon and does not turn past the end position. Braking must be adjusted to the gate version.

Setting other opening angle than 90°:

When setting other opening angle than 90° with standard factory speed of opening, it is also necessary to adjust the braking angle:

- In case of PEGAS-GLE, PEGAS-GLE-M, PEGAS-GL, PEGAS-GL-M and PEGAS-HG gates it is necessary to set the braking angle **30°** smaller than opening angle.
- In case of PEGAS-SF, PEGAS-SF-S and PEGAS-J gates it is necessary to set the braking angle **20°** smaller than opening angle.

Braking angle must always be adjusted to a smaller opening angle. If the gate, for example, opens in the INL direction in the angle of 120° and in the INR ° direction in the angle of 90°, it is essential to adjust the braking angle of the INR direction to 90°.



If the opening angle is set differently and the gate wing is nearing a firm obstacle, there is a danger of collision with the obstacle, during which the wing may be damaged or the glass gate wing may be broken.

Preferably choose the following method:

- Measure the required opening angle.
- Firstly set a smaller opening angle and try opening of the gate.
- Increase the opening angle step by step and adjust it to optimal opening with safe distance from any obstacle.

4. DESCRIPTION OF CONNECTION OF CONTROL ELECTRONICS AND ACCESSORIES

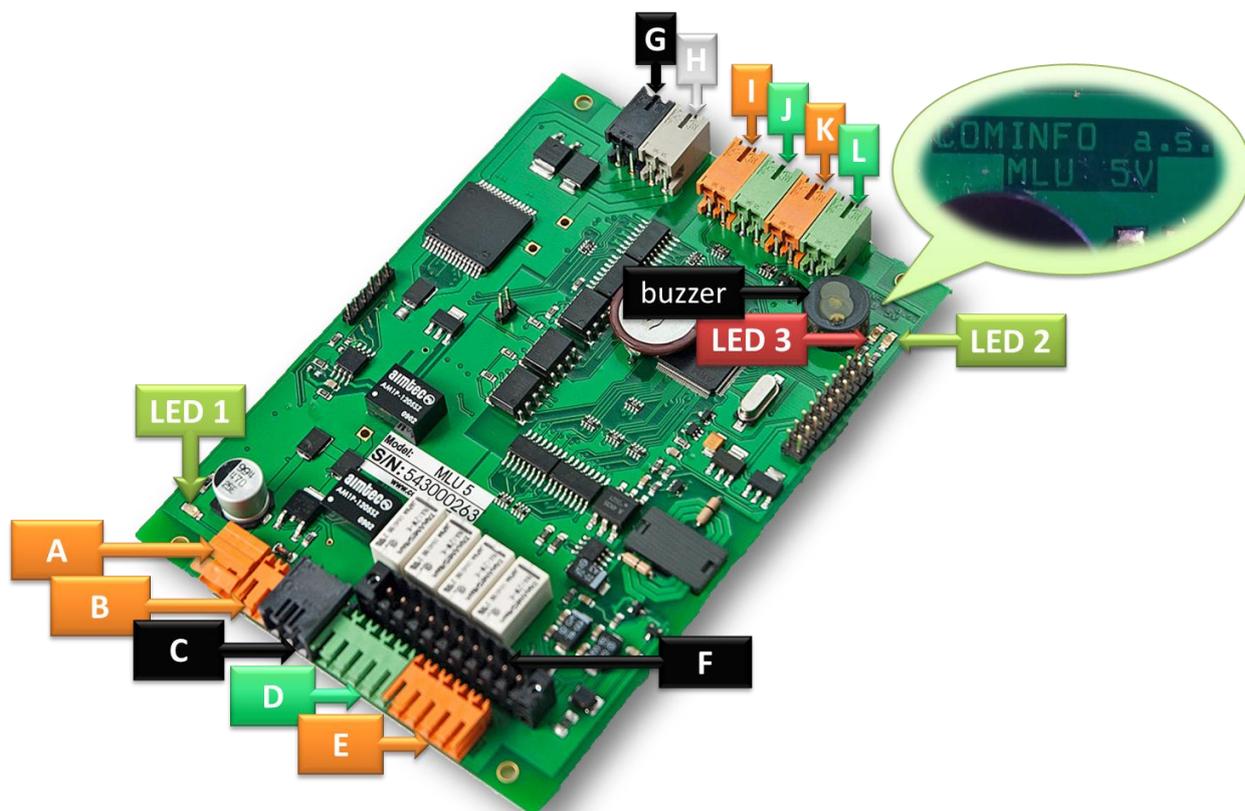


This chapter deals with the basic connection of a gate equipped with accessories and its connection to the superior system. Instructions are intended for gates fitted with MLU control electronics of 5V6 version or higher. For more information, ask for a separate manual for control electronics: *MLU electronics - Service Manual*.

For more specific information on accessories, ask for separate manuals:

- **Control panel** – see **Manual:** *Touch Panel CPT*
- **Lane Light** – see **Manual:** *UBD Alphanumerical Point Display*
- **TCONF** (application that enables to change the configuration of control electronics) – see **Manual:** *Instruction Manual for the Use of TCONF Application*
- **TMON** (application that enables to control and monitor the swing gate operation via PC) – see **Manual:** *Instruction Manual for the Use of TMON Application*

4.1. DESCRIPTION OF CONTROL ELECTRONICS



Connectors description:

- A - power supply unit 13.8 VDC
- B - connection of back-up accumulator
- C - communication lines RS485
- D - input signals
- E - output signals
- F - expander
- G - motor drive unit 2
- H - motor drive unit 1
- I - encoder 1
- J - home position sensor 1
- K - encoder 2
- L - home position sensor 2

Description of signalling LEDs

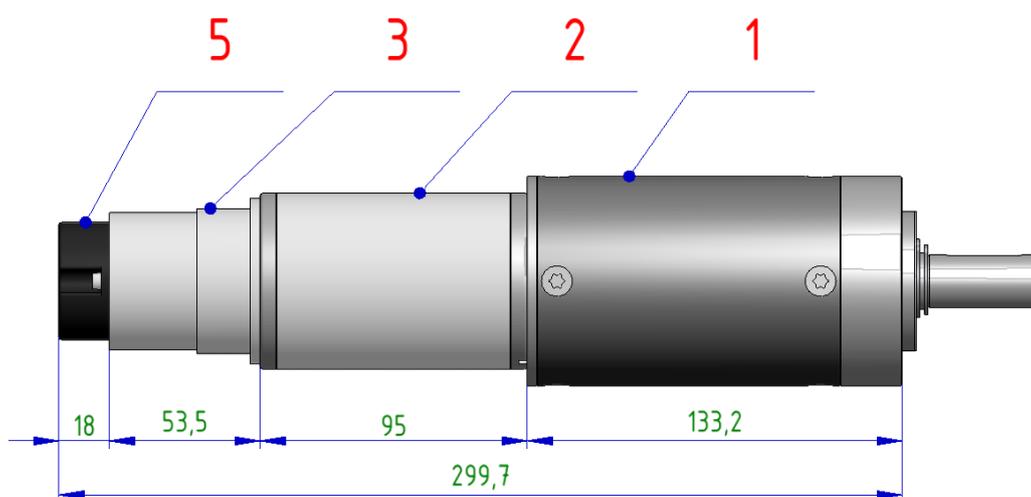
- LED 1 - signalling of connection of power supply voltage (green)
- LED 2 - signalling of statuses (green)
- LED 3 - signalling of statuses (red)

buzzer - Buzzer **B1** - operational alarm

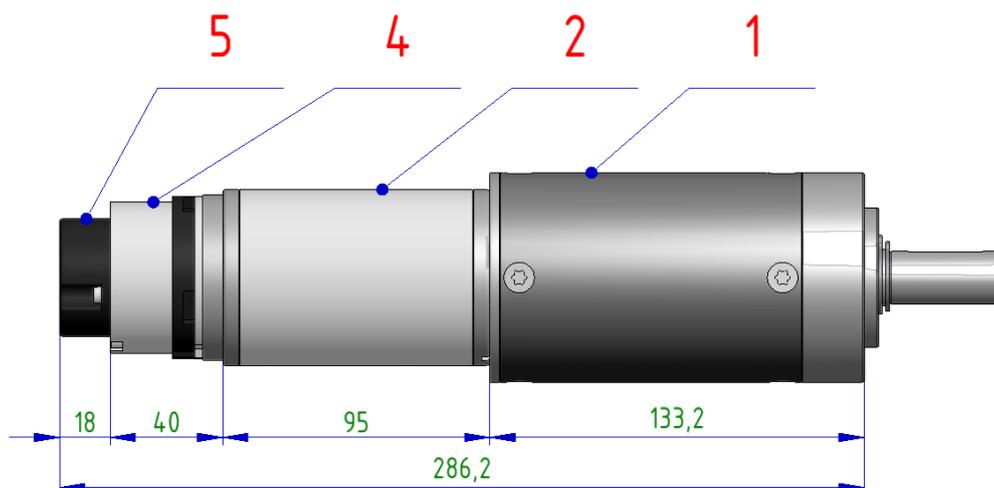
4.2. TYPES OF MOTOR DRIVE UNITS

1. Planetary gear
2. Electromotor
3. Electromechanical brake - **FAIL-SAFE** (free to move without power supply voltage)
4. Electromechanical brake - **FAIL-LOCK** (locked without power supply voltage)
5. Revolution sensor (magnetic encoder)

FAIL-SAFE



FAIL-LOCK

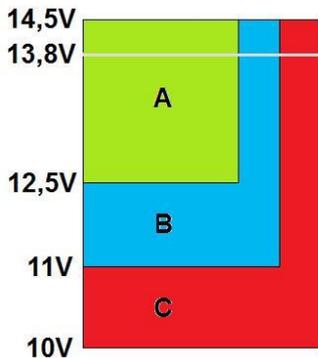


4.3. CONNECTION OF EXTERNAL POWER SUPPLY VOLTAGE (13,8VDC)



BEFORE CONNECTING THE CONTROL ELECTRONICS TO THE POWER SUPPLY UNIT, IT IS NECESSARY TO CHECK THE MAGNITUDE OF THE SUPPLY VOLTAGE ON THE TERMINAL BOARD INSIDE THE GATE AND KEEP THE SPECIFIED VOLTAGE POLARITY. IN CASE OF AN INCORRECT SUPPLY VOLTAGE MAGNITUDE AND MISTAKING THE POLARITY, THE CONTROL ELECTRONICS MAY BE DAMAGED OR DESTROYED. POWER SUPPLY UNIT MUST COMPLY WITH THE REQUIREMENTS OF THE SELV POWER NETWORK.

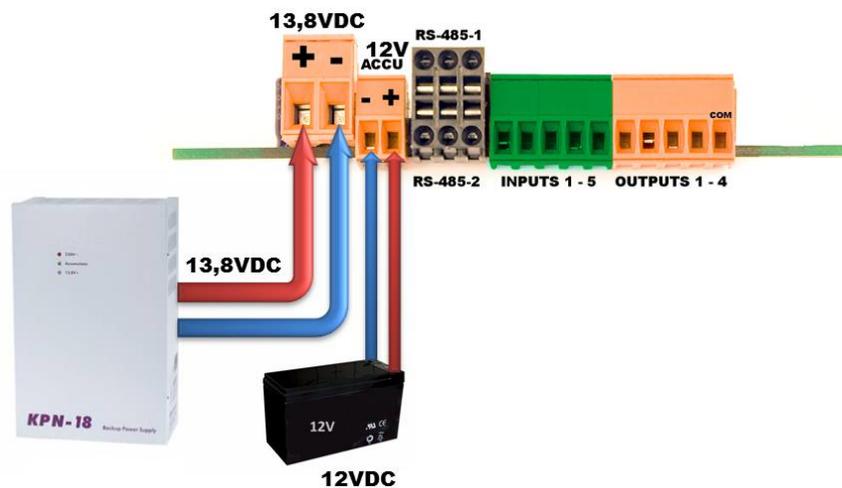
10VDC..... Minimum power voltage - device may show signs of a very low level of power supply (incoherent operation, very slow reactions, stopping, inability to perform the emergency function etc.)
 11VDC..... Low power voltage - normal device functioning (except for initialization starting up, which with this level of power voltage ends up with an error message and device non-functionality)
 12,5VDC..... Lower limit of standard power voltage - normal device functioning without limitations (manufacturer does not recommend device operation with lower power voltage)
13,8VDC..... Standard power voltage - normal device functioning without limitations
 14,5VDC..... Absolute maximum of power voltage - normal device functioning without limitations (this limit must not be exceeded)



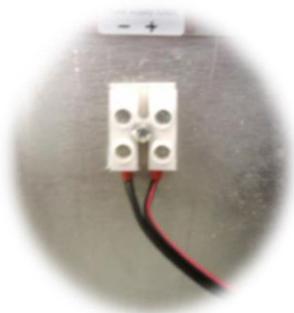
PEGAS gates permitted range of power voltage is the **B** area.



Size of a cross-section of power supply cables depending on the length of power supply cables is stated in the chapter: *Dimensioning of Power Supply Cables* and has to be strictly observed.



On the picture you may see the basic connection of the gate power voltage. Connection of the accumulator directly to the control electronics connector is intended only for service purposes.



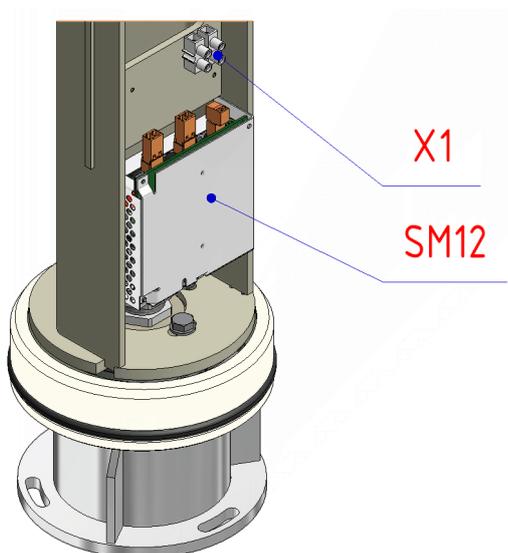
Power supply cables coming out from the power supply are to be connected directly to the supply connector of the control electronics or to the terminal board located inside the gate (see the picture)

4.4. CONNECTION OF EXTERNAL POWER SUPPLY (24VAC/50-60Hz)

Applies only for these gate types:

- PEGAS-SF
- PEGAS-SF-S
- PEGAS-J

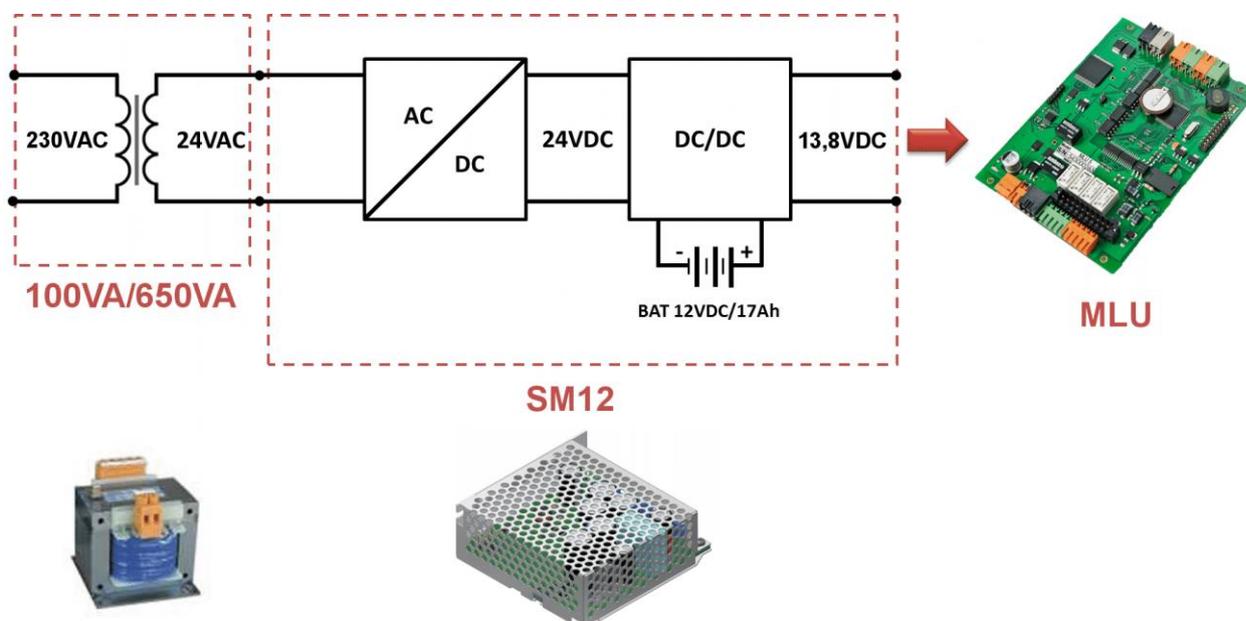
These gates can be optionally equipped with SM12 power supply unit.



For easier running of the supply cables through the gate's base, it is convenient to disassemble the SM12 power supply from the gate.



BEFORE CONNECTING THE EXTERNAL POWER SUPPLY, IT IS NECESSARY TO CHECK THE MAGNITUDE OF THE SUPPLY VOLTAGE ON THE TERMINAL BOARD INSIDE THE GATE. IN CASE OF AN INCORRECT SUPPLY VOLTAGE MAGNITUDE, THE SM12 POWER SUPPLY MAY BE DAMAGED OR DESTROYED.

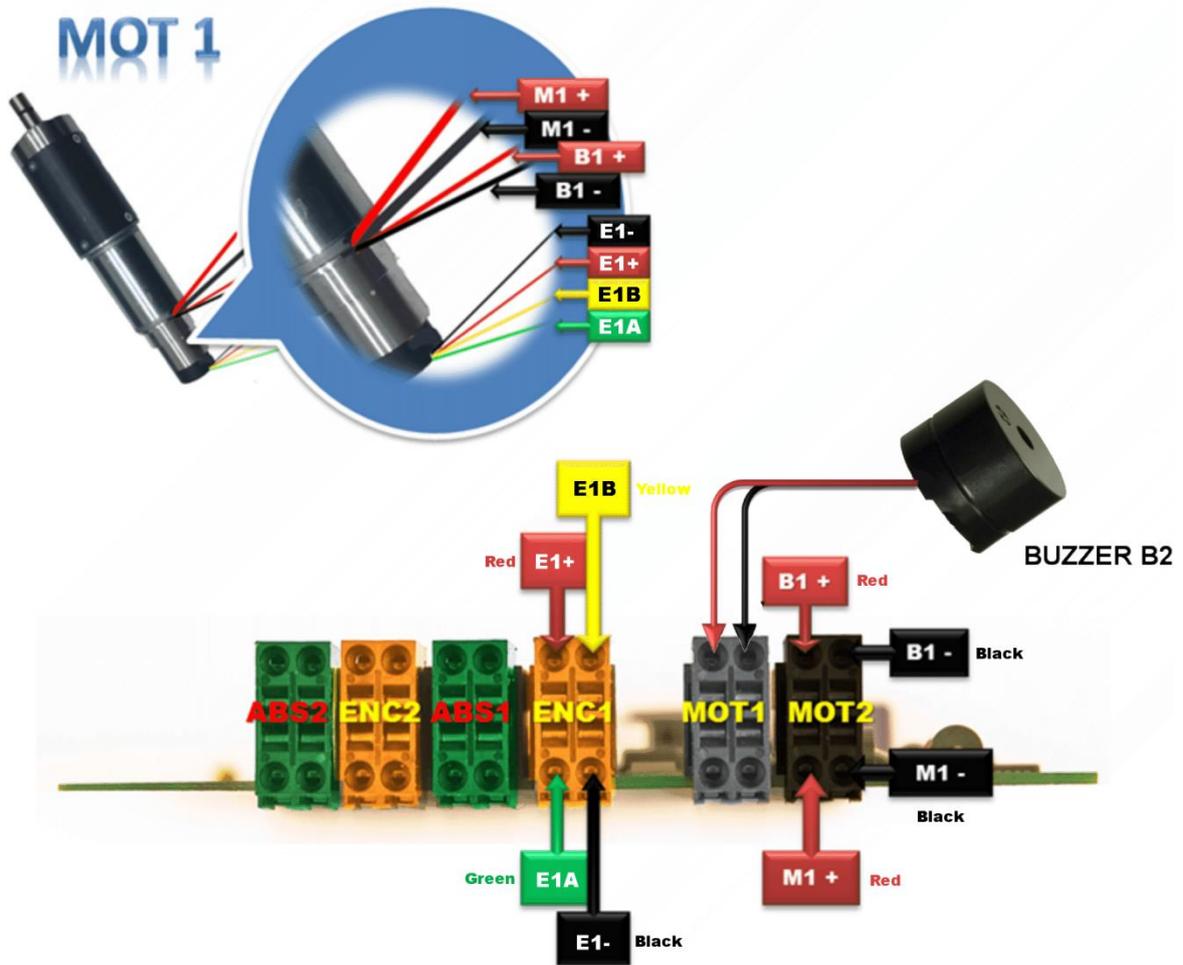


Main supply voltage distribution is applied by means of a 24 VAC alternating voltage. Owing to this fact, we may use smaller cross-sections or more precisely bigger lengths of supply voltage cables. Main 230 VAC/24 VAC transformer is supplied in compliance with the type and amount of connected gates in two performance-related versions - 100 VA/650 VA. This transformer is located e.g. nearby 230 VAC distribution board. 24 VAC voltage is connected to the main terminal board X1. Output of the SM12 power supply is the voltage of 13.8 VDC.



Transformer meeting the SELV power supplies requirements must be used.

4.5. SINGLE GATE - CONNECTION OF POWER PARTS



On the picture above you may see the standard **FAIL-SAFE** drive unit.

Power supply of the motor drive unit is executed by a pair of thicker cables of red and black color (**M1 +**, **M1 -**) coming out from the middle part of the drive unit and connected in accordance with the picture above. Red wire is connected to the **MOT2** connector into the **M1+** clamp. Black wire is connected to the **MOT2** connector into the **M1-** clamp.

Pair of the thinner red and black cables (**B1 +**, **B1 -**) coming out from the middle part of the drive unit serve for connection of electromechanical brake. Red wire is connected to the **MOT2** connector into the **B1+** clamp. Black wire is connected to the **MOT2** connector into the **B1-** clamp.



In case of the **FAIL LOCK** drive unit, the wires of the brake are coming out from the end part of the drive unit and are both grey. These wires are connected to the **MOT2** connector into the **B1+** and **B1-** clamps regardless the polarity.

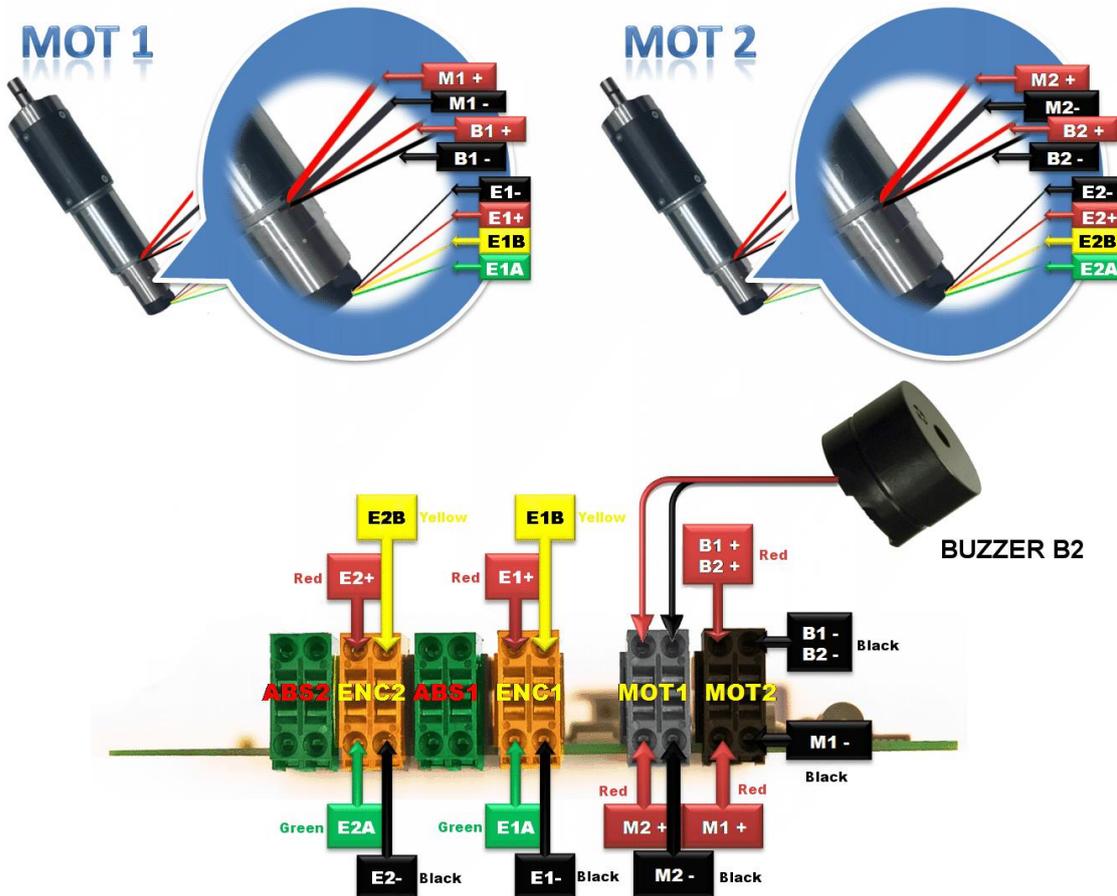
Four thin cables (**E1**) coming out from the end part of the motor serve for the magnetic encoder connection. Red wire is connected to the **ENC1** connector into the **E1+** clamp. Black wire is connected to the **ENC1** connector into the **E1-** clamp. Green wire is connected to the **ENC1** connector into the **E1A** clamp. Yellow wire is connected to the **ENC1** connector into the **E1B** clamp.

B2 buzzer is connected to the **MOT1** connector. Buzzer is not standardly supplied. Gate may be equipped with a buzzer upon customer's request.

4.6. DOUBLE GATE - CONVERSION FROM TWO SINGLE GATES

Gates, which are installed side by side and thus form a two-wing gate, are standardly supplied with two independent control electronics. If synchronized gate control via one control electronics is required (received input signals simultaneously open both gate wings), the conversion of two separate gates to a double gate is performed. Prerequisite of the conversion to a double gate is the **MLU5V5.0R** firmware version. Gate will not function with older firmware versions. Newer firmware versions has to be consulted with the manufacturer. PEGAS-GL and PEGAS_GL-M gates cannot be adjusted into a double gate.

4.6.1. CONNECTION OF POWER PARTS



Motors are powered by a pair of thicker cables in red and black colour (**M1 +, M1 -**) or (**M2 +, M2 -**) that are coming from the middle part of the drive unit. Motor drive unit 1 is connected directly to the **MOT2** connector. Motor drive unit 2, placed in the second -SLAVE, gate, is connected to control electronics to **MOT1** connector via relevant clamps of **X2** and **X3** terminal boards with using a required type of cabling.

Pair of thinner cables in red and black colour (**B1 +, B1 -**) or (**B2 +, B2 -**) that are coming from the middle part of the drive unit, serve as a connection of the electromechanical brake. Respective clamps of the **MOT2** connector serving for brake connection, are connected to brake distributor **BD1**. Brake of the motor drive unit 1 is connected form here directly to the control electronics. Brake of the motor drive unit 2 is connected to the control electronics via relevant clamps of **X2** and **X3** terminal boards with usage of the required type of cabling.

Four thin cables (**E1**) or (**E2**) coming out from the end part of the motor serve for the connection of the motor encoder. Motor 1 Encoder is connected to the **ENC1** directly to the control electronics. Motor 2 encoder is connected to the **ENC2** connector via respective clamps of **X2** and **X3** terminal boards with usage of the required type of cabling.

Buzzer **B2** is connected to the **MOT1** connector.

4.6.3. COMPONENTS NECESSARY FOR CONVERSION

Order number of the kit necessary for conversion of SINGLE or TWIN gates to a DOUBLE gate is 19999937.

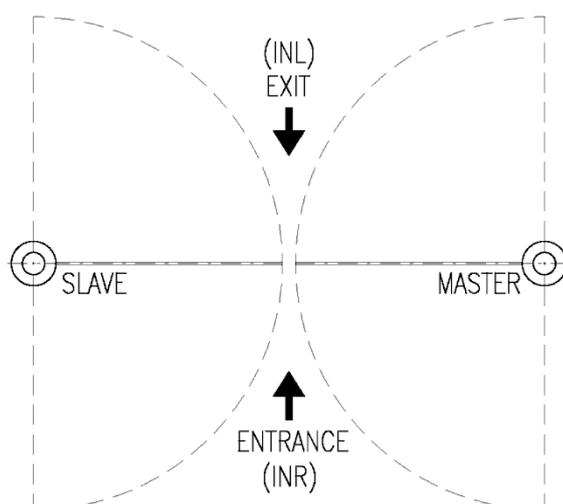
	Components	Pcs.
1	Connection cable of motor drive unit and CYSY brake 4x1mm with pressed electrical tubes	1
2	Connection cable of encoder and V03VH-H sensor 2x1mm equipped with pressed electrical tubes	1
3	Connection cable of V03VH-H heating system 2x1mm equipped with pressed electrical tubes (if heating system is used)	1
4	Connection cable of V03VH-H power supply 2x1mm equipped with pressed electrical tubes for connection of MLU5-X2	1
5	Brake distributor BD1	1
6	Control distributor 485 D1	1
7	Black connector 485	2
8	Orange connector with screw clamps for connection of motor drive unit brake of MASTER gate	1
9	Orange crimp connector with connected wires without electrical tubes for connection of BD1-MLU5	1
10	Orange crimp connector with connected wires with electrical tubes for connection of BD1-X2	1
11	Green connector with connected wires with electrical tubes of the home position sensor of SLAVE gate for connection of MLU5-X2	1
12	Orange connector with wires without electrical tubes of the encoder of SLAVE gate for connection of MLU5-X2	1
13	Grey connector with wires with electrical tubes of motor drive unit of SLAVE gate for connection of MLU5-X2	1
14	Terminal board X2 of MASTER gate	1
15	Terminal board X3 of SLAVE gate	1
16	Screw for fixation of terminal boards M3x12	4
17	Distance column M3x for distributor fixation	3
18	Screw for distributor fixation M3x6	3
19	Blue pressed electrical tube 0,25	3
20	Red pressed electrical tube 0,5	6
21	Yellow pressed electrical tube 1	6
22	Plastic draw tapes	4
23	Adhesive cable cleats	2
24	Label of control circuits connection	1
25	Label of assigned physical address	1
26	Manual for testing device of MLU5 electronics	1

4.6.4. TOOLS NECESSARY FOR CONVERSION

1	Pliers for wire stripping or a knife
2	Press pliers for electrical tubes
3	Pincers
4	Screwdriver 2,5x75 for opening of Weidmueller flexible clamps
5	Screwdriver 3,5 for screw clamps
6	Scraper for taking the covering foils off
7	Testing device for MLU5 electronics that simulates the function of superior system
8	Alcohol marker

4.6.5. DESCRIPTION OF CONVERSION TO DOUBLE GATE

Conversion of two separate gates to a double gate causes that these gates are divided and thus differentiated into a MASTER gate and a SLAVE gate:



CONVERSION TO A DOUBLE GATE IS PERFORMED WITH THE SUPPLY VOLTAGE OFF

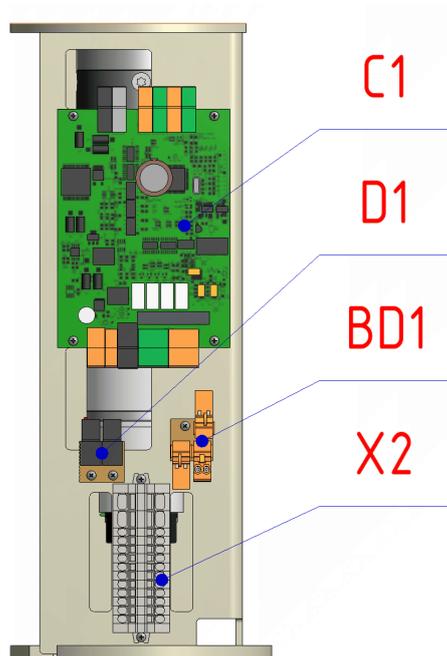
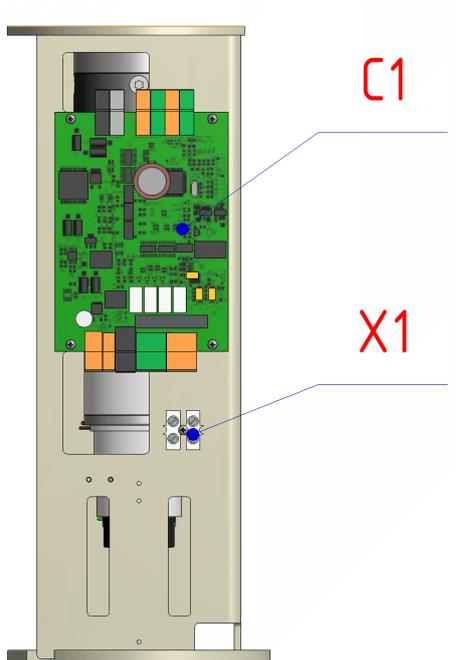
Conversion of the MASTER gate

1. Dismount the external turning case of the gate in compliance with the chapter: *Access to the Anchoring Holes and Drive Unit with Control Electronics*
2. Slide out all the power supply and gate control connectors
3. If the gate is equipped with heating, clip off the line-to-line electronics power supply wires and the heating wires behind the ending electrical tube using the pincers and disassemble the input terminal board
4. Use the scraper to remove the pasted scheme and electronics address from the MASTER gate
5. Use two M3x12 bolts to fix the **X2** MASTER terminal board
6. Use the distance column and M3x6 bolt to fix the **BD1** brakes distributor
7. If 485 control needs to be looped, fix the 485 **D1** distributor by means of distance columns and M3x6 bolts
8. Slide out the black connector of motor drive unit with brake and disconnect brake wires from the MASTER gate
9. Slide the connector of the lead-in distributor wires into the **BD1** brakes distributor and connect the wires in place of the original wires to the black connector and insert it into the MLU5 control electronics.
10. End the brake wires of the MASTER gate with electrical tubes and connect them to the connector with screw clamps. Insert the connector to the **BD1** brakes distributor.
11. Insert the brake connector of the SLAVE gate to **BD1** brakes distributor and connect the wires in accordance with the connection scheme to the **X2** MASTER terminal board
12. Insert the grey connector of the SLAVE gate motor drive unit into the MLU5 control electronics and connect the wires to the MLU5 control electronics
13. Insert the orange connector of the SLAVE gate encoder into the MLU5 control electronics and connect the wires to the **X2** MASTER terminal board
14. Insert the green connector of the SLAVE gate home position sensor to the MLU5 control electronics and connect the wires to the **X2** MASTER terminal board
15. Insert the orange power supply connector to the MLU5 control electronics and connect the wires to the **X2** MASTER terminal board
16. If the gate is equipped with heating, end the wires with electrical tubes and connect them to the **X2** MASTER terminal board
17. If the 485 **D1** distributor is used, insert the connector with wires into it. Connect the wires to the lower clamps of the 485 connector on the MLU5 control electronics.
18. By means of adhesive cable cleats and draw tapes, fix the wires so that they do not reach the movable parts of the gate. Lead the wires of the motor drive unit and the brake separately from the wires of the encoder and the home position sensor
19. Paste the label of control circuits connection on a suitable place
20. Paste the label of assigned physical address on a suitable place and fill in the used address by an alcohol marker

PEGAS-GLE / PEGAS GLE-M / PEGAS-HG

Original

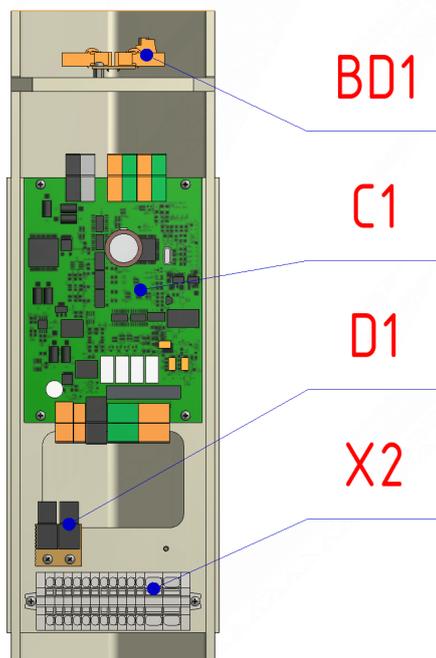
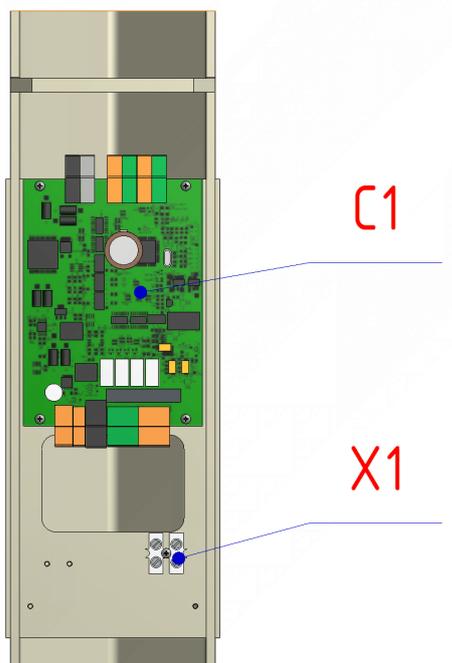
After conversion- MASTER



PEGAS-SF-S / PEGAS SF / PEGAS-J

Original

After conversion- MASTER



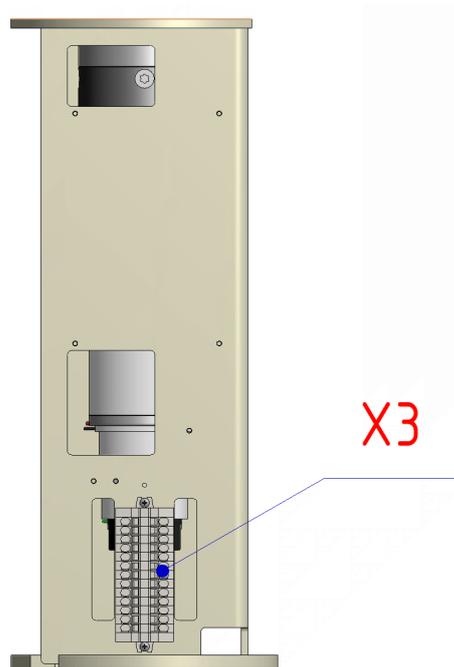
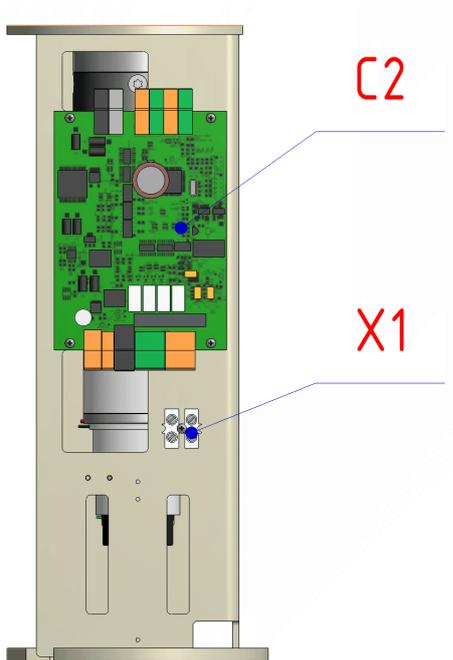
Conversion of the SLAVE gate

1. Dismount the external turning case of the gate in compliance with the chapter: *Description of Access to Anchoring Holes and Drive Unit with Control Electronics*
2. Disconnect all wires from power supply connectors and gate control
3. Dismount original cables of power supply and gate control
4. If the gate is equipped with heating, clip off the line-to-line electronics power supply wires and the heating wires behind the ending electrical tube using the pincers and disassemble the input terminal board
5. Slide the black connector of the motor with brake out from the control electronics, orange connector from the encoder and green connector from the **ABS2** home position sensor
6. Dismount the SLAVE gate control electronics
 - push the lock on the plastic fixing column with a small screwdriver
 - by a light pull, gradually lift all corners of the control electronics over the lock
 - remove the control electronics
 - unscrew the plastic columns and remove the plastic safety insulation foil
7. Using a scraper, remove the pasted electronics scheme and address on the SLAVE gate
8. Disconnect all wires from connectors
9. Insert connectors to the control electronics, which can be used as a spare electronics for a single or MASTER gate
10. Use two M3x12 bolts to fix the **X3** SLAVE terminal board
11. End the wires of the motor drive unit, brake, encoder and alternatively heating with electrical tubes
12. Connect all wires in compliance with the connection scheme to the flexible clamps of the **X3** terminal board
13. By means of adhesive cable cleats and draw tapes, fix the wires so that they do not reach the movable parts of the gate. Lead the wires of the motor drive unit and the brake separately from the wires of the encoder and the home position sensor

PEGAS-GLE / PEGAS GLE-M / PEGAS-HG

Original

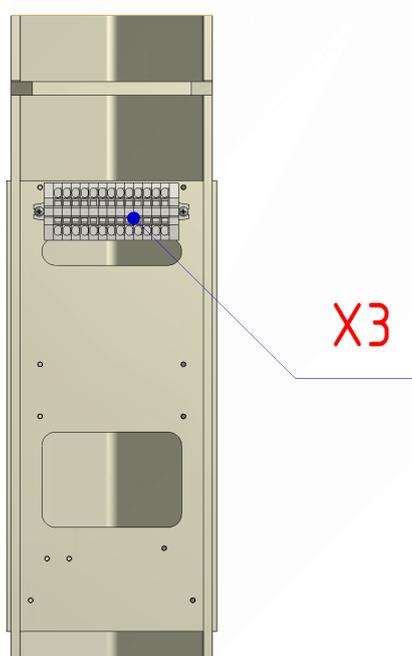
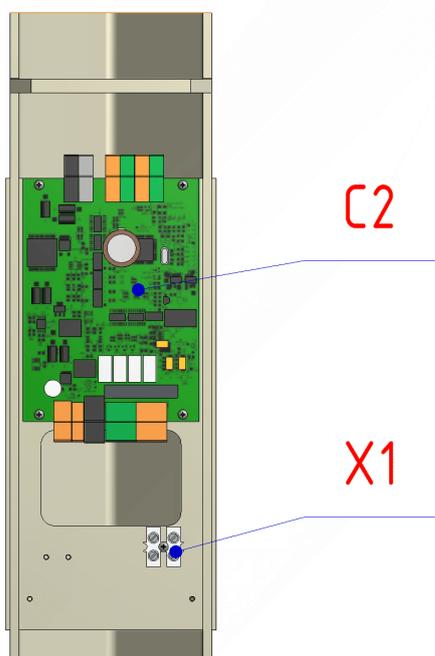
After conversion - SLAVE



PEGAS-SF-S / PEGAS SF / PEGAS-J

Original

After conversion - SLAVE



Linking of MASTER and SLAVE gate

1. Run all necessary linking cables between gates
2. Connect the wires in accordance with colour marking of the connection scheme to the **X2** MASTER terminal board on the one side and to the **X3** SLAVE terminal board on the other side
3. Fix the wires using the adhesive cable cleats and draw types so as they do not reach the movable parts of the gate

4.6.6. PUTTING THE DOUBLE GATE INTO OPERATION

Initialization and testing of a DOUBLE gate by means of the MLU5 device for electronics testing

Following operations are performed on a gate without its external turning case.



1. Connect the MLU5 electronics testing device, which simulates a function of superior system, to the gate's electronics
2. Carefully check the connection of all wires in compliance with the connection scheme
3. Pull the grey connector of the SLAVE gate motor out of the MLU5 electronics



ELECTRONICS IS INITIALIZED BY MANUFACTURER TO CONTROL A SINGLE GATE. IF GREY CONNECTOR REMAINS CONNECTED, ELECTRONICS WOULD BE DAMAGED AFTER SWITCHING THE POWER SUPPLY VOLTAGE ON.

4. Connect cables of the power supply to the **X2** MASTER terminal board
5. Turn the power supply on
6. When the MASTER gate reaches the home position after quintuple activation and deactivation of the ON/OFF input, which must be done within 20 seconds, run the initialization. Activation of initialization is signalled by red LED diode on the MLU5 electronics.
7. Right after the red LED diode is switched on, interrupt the initialization by turning the power supply voltage off



INITIALIZATION MUST BE ACTIVATED AND INTERRUPTED BEFORE ITS COMPLETION SO THAT AFTER CONNECTION OF THE SECOND GATE, THE ELECTRONICS AUTOMATICALLY IDENTIFIES CONNECTION OF THE GATES IN THE DOUBLE GATE MODE.

8. Insert the grey connector of SLAVE gate motor to the MLU5 electronics
9. Activate the interrupted initialization by turning the power supply voltage on.



ELECTRONICS AUTOMATICALLY IDENTIFIES CONNECTION OF TWO GATES IN DOUBLE GATE MODE BY ACTIVATING THE INTERRUPTED INITIALIZATION AND

PERFORMS PATH INITIALIZATION OF BOTH GATES.

10. Using the device for electronics testing, test all gate's functions

Testing of the gate with superior system

1. Turn the power supply voltage off
2. Disconnect the device for electronics testing
3. Connect all wires of the superior system in compliance with the adhesive label of control circuits connection
4. Connect power supply voltage and test the right functionality of the gate with superior system

Putting the gate into operation

1. Turn the power supply voltage off
2. Install external turning cases on both gates in accordance with the chapter: *Description of Access to Anchoring Holes and Drive Unit with Control Electronics*
3. Gate is ready for operation after turning the power supply voltage on

4.7. TWIN GATE - CONVERSION FROM A DOUBLE GATE

This conversion is requisite, if a customer was supplied with a DOUBLE gate with synchronized control via one control electronics and subsequently demands independent control of both gates installed next to each other.



In case of conversion to a TWIN gate, it is essential that both gates operate on the same firmware and are identically configured. Otherwise it is very likely that gates will operate differently. Manufacturer does not bear responsibility for such distinct operation.



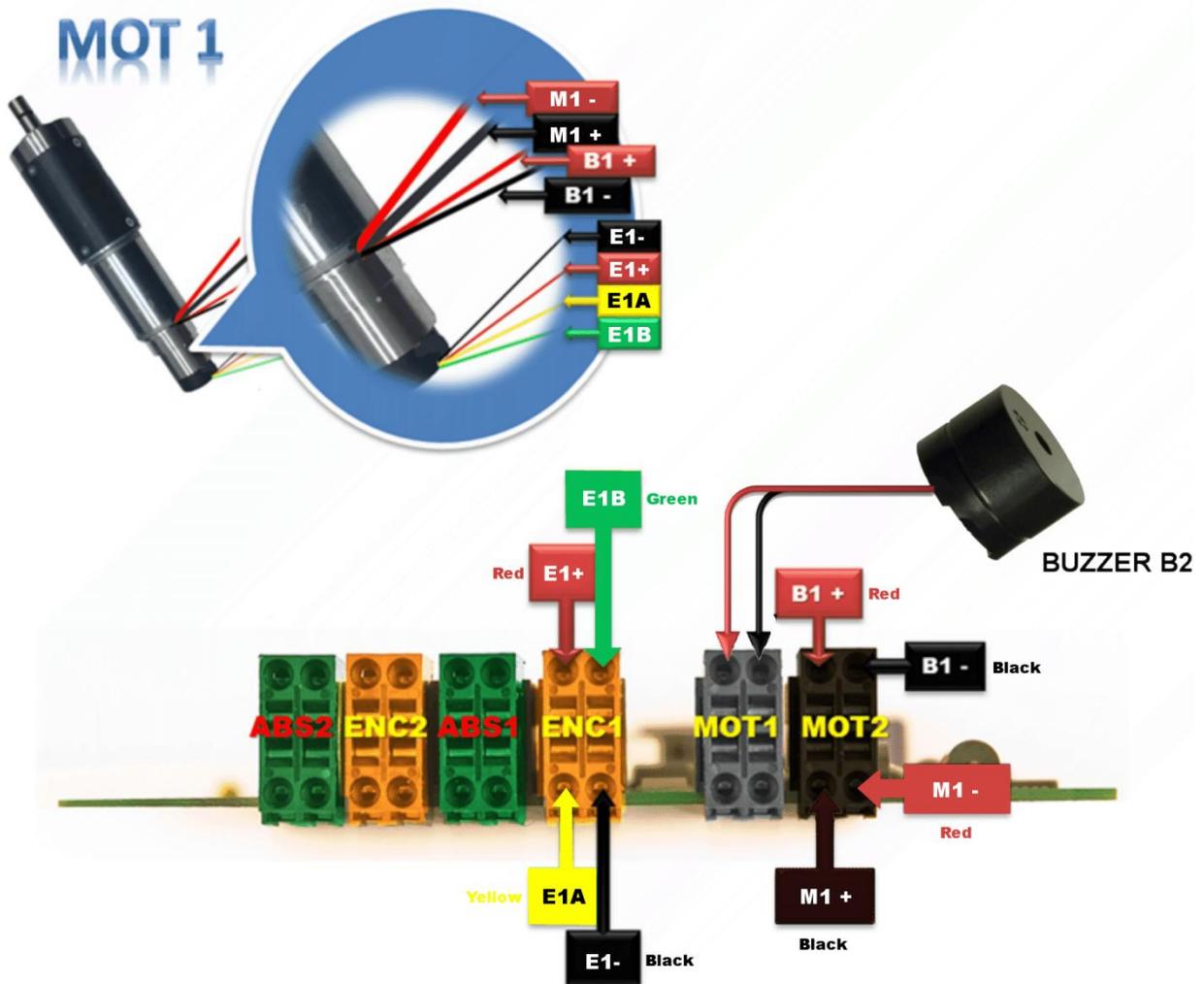
If gates are controlled by separate status signals from a superior system and at the same time shared control is demanded (e.g. key controller), which would enable simultaneous gate opening, it is necessary to separate this signal from others by means of diodes.

4.7.1. CONNECTION OF TWIN GATE'S POWER PARTS

If shared control of TWIN gate by means of one LANE on a Touch panel is demanded, the connection scheme of power parts is identical with the SINGLE gate scheme described in the chapter: *Single Gate - Connection of Power Parts*. In case of this connection, gates are controlled separately via two LANES on a Touch panel.

4.7.2. CONNECTION OF TWIN GATE'S POWER PARTS - TOUCH PANEL - SHARED CONTROL

If shared control of TWIN gate by means of one LANE is demanded, motor and encoder wires of one gate must be connected oppositely in compliance with the following picture. Brake connection remains the same.



Change in the motor connection:

Red wire is connected to the **MOT2** connector into the **M1-** clamp. Black wire is connected to the **MOT2** connector into the **M1+** clamp.

Change in the encoder connection:

Green wire is connected to the **ENC1** connector into the **E1B** clamp. Yellow wire is connected to the **ENC1** connector into the **E1A** clamp. Both red and black wire remain connected the same way.

In case of this connection, gates may be controlled separately by means of two LANEs and at the same time simultaneously by means of another separate LANE.

4.7.3. ASSIGNING OF TWIN GATE'S CONTROL SIGNALS DURING CONTROL VIA STATUS SIGNALS

If needed so as both gates open in the same direction, reverse control signals must be used in the process of connection of control circuits.

If INR input signal is used for clockwise opening of one gate, INL signal must be used at the second gate so that the gate opens in the same entrance direction, which means counterclockwise.

4.7.4. COMPONENTS NECESSARY FOR CONVERSION

	Components	Pcs.
1	MLU5 electronics equipped with connectors for SLAVE gate conversion	1
2	Insulation, plastic, transparent foil under MLU5 SLAVE gates	1
3	Distance M3 column for MLU5 SLAVE gate fixing	4
4	X1 terminal board for MASTER and SLAVE gates conversion	2
5	Adhesive label of control circuits connection	1
6	Adhesive label for 13,8VDC power supply	2
7	Adhesive label of assigned physical address	1
8	Manual for testing device of MLU5 electronics	1
9	Interconnecting cable for MLU5 power supply and X1 SLAVE gate terminal box	1
10	Plastic draw tapes	2

4.7.5. TOOLS NECESSARY FOR CONVERSION

1	Pliers for wire stripping or a knife
2	Electric pincers
3	Screwdriver 2,5x75 for Weidmueller flexible clamps opening
4	Screwdriver 3,5 for screw clamps
5	Scraper for taking the stick-on foils off
6	Testing device for MLU5 electronics that simulates the function of a superior system
7	Alcohol marker

4.7.6. PROCEDURE OF TWIN GATE CONVERSION

By conversion of DOUBLE gate to a TWIN gate, two SINGLE gates are created from MASTER and SLAVE gate. Single gates differ from a standard gate only by magnetic arresting that ensures mutual position of wings facing each other.



TWIN GATE CONVERSION IS PERFORMED WITH THE SUPPLY VOLTAGE OFF

MASTER gate conversion

Follow the pictures stated in the chapter: *Description of Conversion to a DOUBLE Gate* in the section *Conversion of MASTER gate* inversely during the conversion.

1. Dismount the external turning case in accordance with the chapter: *Description of Access to Anchoring Holes and Drive Unit with Control Electronics*.
2. In case of PEGAS-GLE gate, clip off all draw tapes, which fix the wires to adhesive cable cleats using pincers. It is necessary to proceed with caution so as the wires are not damaged.
3. Disconnect all wires from the **X2** MASTER terminal board and dismount the terminal board.
4. Disconnect all connectors from the brake distributor **BD1** and dismount the distributor.
5. Slide out the black connector of the MASTER gate motor and brakes, grey connector of the SLAVE gate motor, orange connector of the SLAVE gate encoder and green connector of the SLAVE gate sensor.
6. Disconnect wires leading to the **BD1** brake distributor from the black connector.
7. Remove all disconnected wires ended with slid out connectors. Remove MASTER and SLAVE gate interconnection wires from the gate.
8. Clip off the brake wires of the MASTER drive unit right at the screw connector using pincers, insulate the wires and connect them to the black connector instead of wires that led to the **BD1** distributor.
9. Insert the black connector to the electronics and fix all wires with draw tapes to the adhesive cable cleats in a way so that they do not reach the movable parts of the gate. Lead the wires of the motor drive unit and the brake separately from the wires of the encoder and the home position sensor.
10. Fix the **X1** terminal board using one M3x12 bolt from the dismantled **X2** MASTER terminal board.
11. Connect wires of the MLU5 power supply disconnected from the **X2** MASTER terminal board to the X1 terminal board from above. If the gate is equipped with heating, connect wires to the same clamps.
12. If there is no need to loop the 485 control, disconnect wires from the black 485 connector on electronics and dismount the 485 distributor.
13. Paste the Power supply 13.8VDC label under the **X1** terminal board. Paste the label of assigned physical address on a suitable place and fill in the used address by an alcohol marker.

SLAVE gate conversion

Follow the pictures stated in the chapter: *Description of Conversion to a DOUBLE Gate* in the section *Conversion of SLAVE gate* inversely during the conversion.

1. Dismount the external turning case in accordance with the chapter: *Description of Access to Anchoring Holes and Drive Unit with Control Electronics*.
2. Disconnect all wires from the **X3** SLAVE terminal board and dismount it.
3. Remove MASTER and SLAVE gate interconnection wires from the gate.
4. Fix the plastic insulation foil using four plastic distance columns tightened manually.
5. Slide the MLU5 electronics carefully on the distance columns and push it gradually with small pressure on the columns so that all four locks on distance columns audibly clicks.

6. Connect the wires of the home position sensor equipped with electrical tubes to the green connector, insert the connector to the MLU5 electronics.
7. Clip off the press electrical tubes of the encoder wires using pincers, insulate the wires and connect them to the orange connector, insert the connector to the MLU5 electronics.
8. Clip off the press electrical tubes of the wires of the motor and brake, insulate the wires and connect them to the black connector, insert the connector to the MLU5 electronics.
9. Fix the **X1** terminal board using the second M3x12 bolt from the dismantled **X2** MASTER terminal board.
10. Connect wires of the interconnection cable of the MLU5 power supply and X1 to the **X1** terminal board from above. If the gate is equipped with heating, connect wires to the same clamps.
11. Paste the Power supply 13.8VDC label under the **X1** terminal board. Paste the label of control circuit connection and label of assigned physical address on a suitable place and fill in the used address by an alcohol marker.

4.7.7. PUTTING TWIN GATE INTO OPERATION

Initialization and testing of a twin gate by means of the MLU5 device for electronics testing



Following operations are identical for both gates and are performed on gates with dismantled external turning cases.

1. Connect the MLU5 electronics testing device, which simulates a function of a superior system, to the gate's electronics
2. Carefully check the connection of all wires in compliance with the connection scheme
3. Connect the power supply wires to the **X1** terminal board
4. Turn the power supply on
5. When the gate reaches the home position after quintuple activation and deactivation of the ON/OFF input, which must be done within 20 seconds, run the initialization. Activation of initialization is signalled by the red LED diode on the MLU5 electronics.
6. Test all functions of the gate using the electronics testing device

Testing of the gate with superior system

1. Turn the power supply voltage off
2. Disconnect the device for electronics testing
3. Connect all wires of the superior system in compliance with the adhesive label of control circuits connection
4. Connect power supply voltage and test the right functionality of the gate with superior system

Putting the gate into operation

1. Turn the power supply voltage off
2. Install external turning cases on both gates in accordance with the chapter: *Description of Access to Anchoring Holes and Drive Unit with Control Electronics*
3. Gate is ready for operation after turning the power supply voltage on

4.8. INPUTS CONNECTION



- **Input 1** is a modifiable input for needs of the manufacturer - **DO NOT CONNECT ANY CIRCUITS**
- **Input 2** is destined for connection of the EMERGENCY switch (emergency state). This switch switches the input with the ground.
- **Input 3** is destined for connection of the ON/OFF switch. This switch switches the input with the ground. This switch must be switched on during control via status signals so that the control via INR and INL inputs is enabled.
- **INR input** is destined for connection of passage directions control. It can be connected to an output of a superior system or any switch that switches the input with the ground.
- **INL input** is destined for connection of passage directions control. It can be connected to an output of a superior system or any switch that switches the input with the ground.



All inputs must be switched by a potential-free contact.

In case the input is not potential-free, it is necessary to arrange the input by means of a relay.

Input signals are set to NO by the manufacturer. It is possible to invert any of the inputs independently of other inputs to NC using the TCONF application.

4.8.1. EMERGENCY (EMERGENCY STATE)

Emergency state may be activated by two types of signals on the Input Pos. 2. Signal type can be set via TCONF application.

Option 1 (factory setting):

Input is disconnected in the idle state. For activation of the emergency state, it is necessary to ground the input.

Option 2:

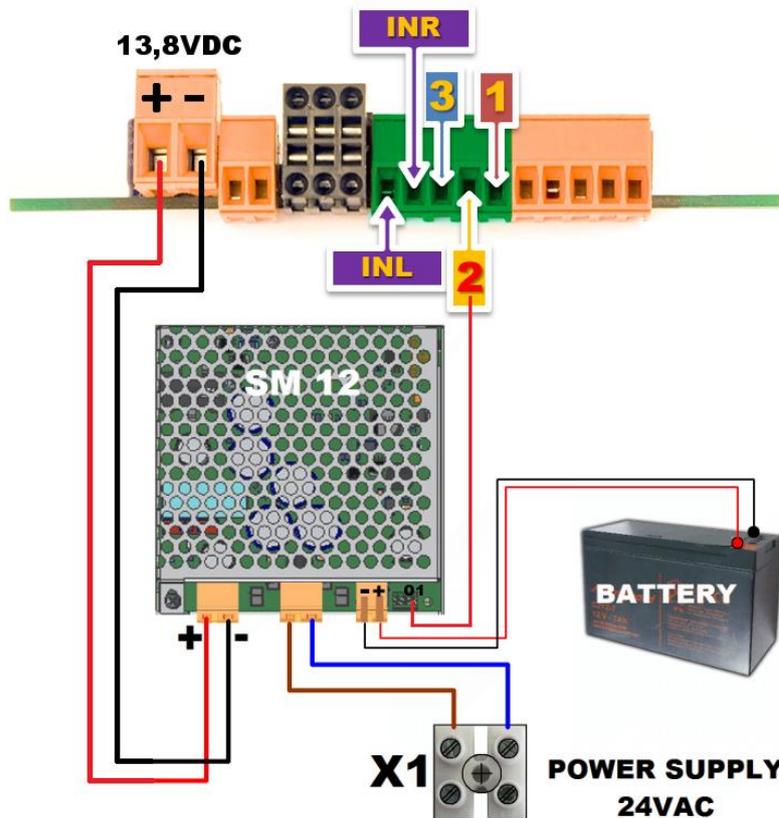
Input is grounded in the idle state. For activation of the emergency state, it is necessary to disconnect the input.

4.8.2. ACTIVATION OF THE EMERGENCY STATE (EMERGENCY) IN CASE OF POWER FAILURE

In some cases, when the gate is used as a fire escape, it is required so that the gate opens after the power failure in the course of the transition of the power supply to the back-up accumulator.

CONNECTION WITH THE BACK-UP COMINFO SM12 POWER SUPPLY:

SM12 back-up power supply is equipped with an open collector output, which is activated in the process of transition to an accumulator power supply. O1 clamp of the K5 connector of the SM12 back-up power supply is simply interconnected with the EMERGENCY electronics input (Input Pos. 2). MLU5 electronics does not need to be configured. After a loss of power supply voltage, the gate immediately opens in beforehand defined direction using the back-up accumulator. After a restoration of power supply voltage, the gate automatically closes after 10 seconds. This time period can be configured.



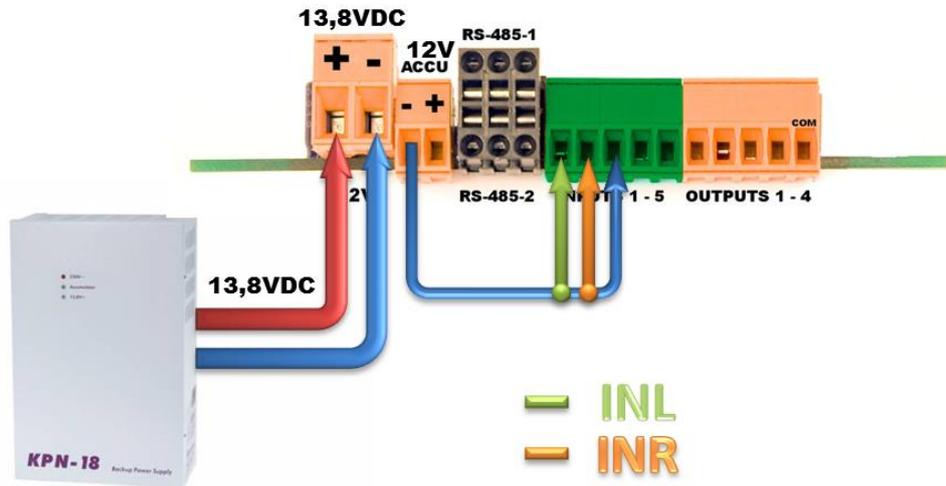
CONNECTION WITH BACK-UP POWER SUPPLIES FROM OTHER MANUFACTURERS:

Back-up power supplies are usually equipped with open connector outputs. However they are not equipped with an output indicating back-up accumulator operation. For this reason, an output signalling inlet AC voltage must be used. In this case it is necessary to change the EMERGENCY input and NC signals using the TCONF application.

4.8.3. PERMANENT OPENING OF THE GATE IN A REQUIRED DIRECTION

Mode of the permanent opening of the gate in a requested direction can be preset using a permanent signal by three ways:

1. Using the control panel - CPT Touch panel (see separate manual)
2. Using the TMON application (see separate manual)
3. By earthing proper INL or INR input as required (see the picture below)



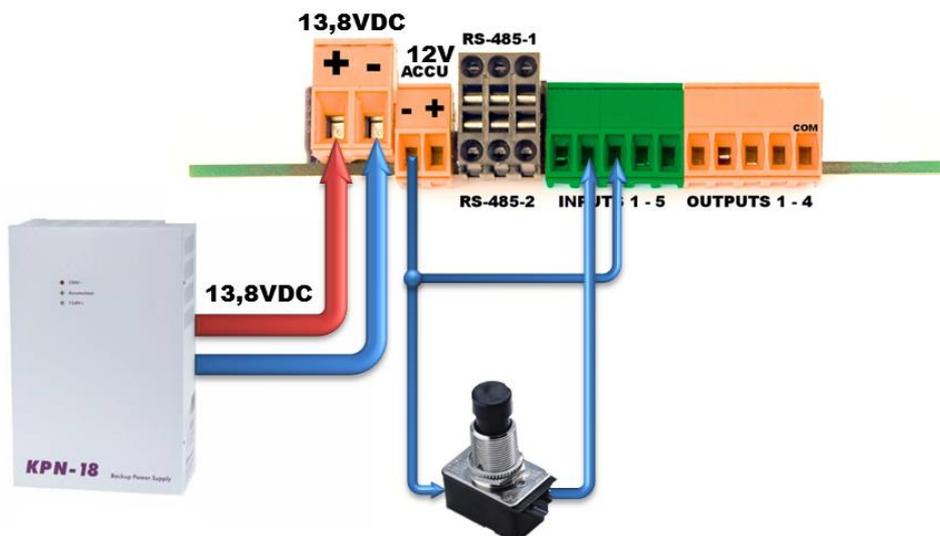
4.8.4. PERMANENT BLOCKING IN ONE DIRECTION

For permanent blocking in one direction, it is necessary to connect the RS485 communication interface and induce this state via control panel (CPT Touch panel) or TMON application (see separate manuals).



This state cannot be induced in case of connection, where only status signals are used.

4.8.5. CONTROL OF THE GATE BY AN EXTERNAL BUTTON



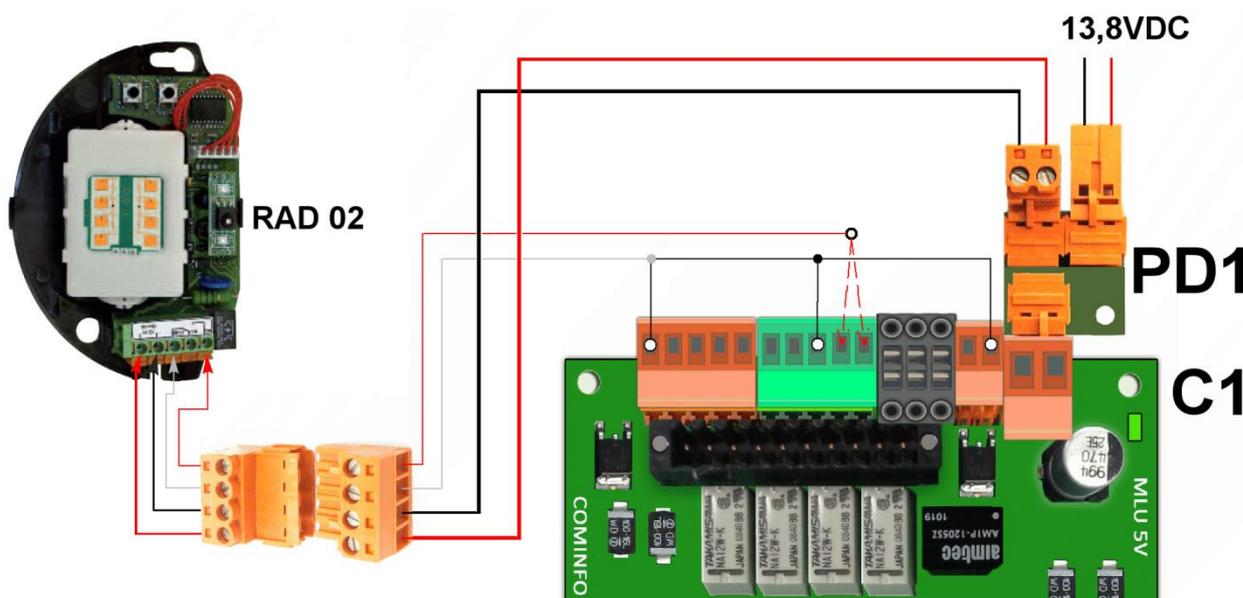
4.8.6. CONTROL OF THE GATE BY RADAR



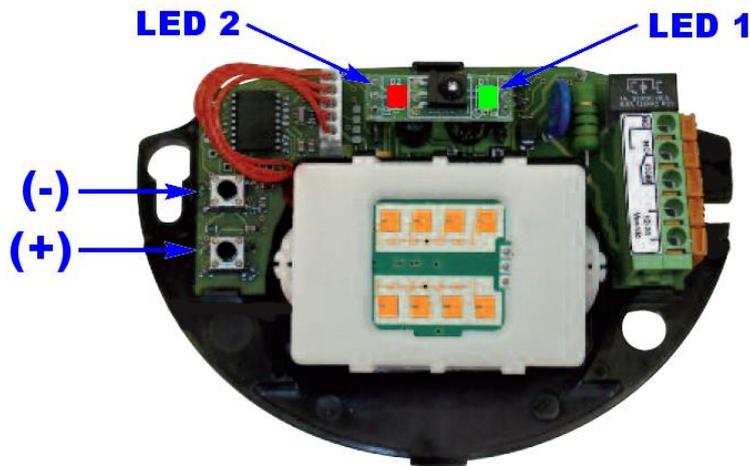
This chapter describes connection and setting of the **RAD 02** radar of the CARLO GAVAZZI made.

RADAR CONNECTION:

Power supply of the radar is realized from the **C1**electronics through the **PD1** power distributor. Control wires are connected in accordance with required direction into **INR** or **INL** input. Between the radar and the control electronics, there is a linking connector that is used during installation or service of the gate.



RADAR SETTING:



LED 1 - Green LED

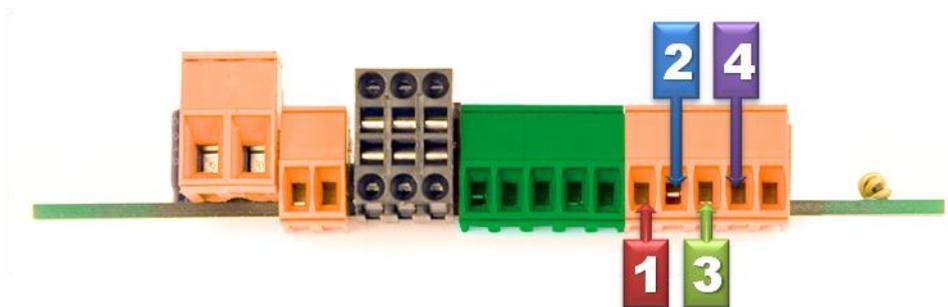
LED 2 - Red LED

(-) - Button (-)

(+) - Button (+)

1. Turn the power supply voltage on and wait until the red flashing LED turns off - radar start-up.
2. Press both buttons for 1 s - green LED turns on - entering the programming mode.
3. Press both buttons for 1s within 20 s - red LED flashes 1x - entering the radar sensitivity settings.
Using + and - buttons, set the parameter so as the red LED flashes **1x** (the lowest sensitivity).
4. Press both buttons for 1 s within 20 s - red LED flashes 2x - entering the setting of duration of gate opening .
Using + and - buttons, set the parameter so as the red LED flashes **1x** (the shortest duration).
5. Press both buttons for 1 s within 20 s - red LED flashes 3x - entering the detection mode setting.
Using + and - buttons, set the parameter so as the red LED flashes **1x** (switching on only when a person approaches).
6. Press both buttons for 1 s within 20 s - red LED flashes 4x - entering the IMM/QP setting.
Using + and - buttons, set the parameter so as the red LED flashes **3x** (IMM and QP in the ON mode).
7. Press both buttons for 1 s within 20 s - red LED flashes 5x - entering the relay setting.
Using + and - buttons, set the parameter so as the red LED flashes **1x** (relay in the NO mode)
8. Wait 20 s - radar will automatically switch into operational mode.

4.9. CONNECTION OF LOGICAL OUTPUTS



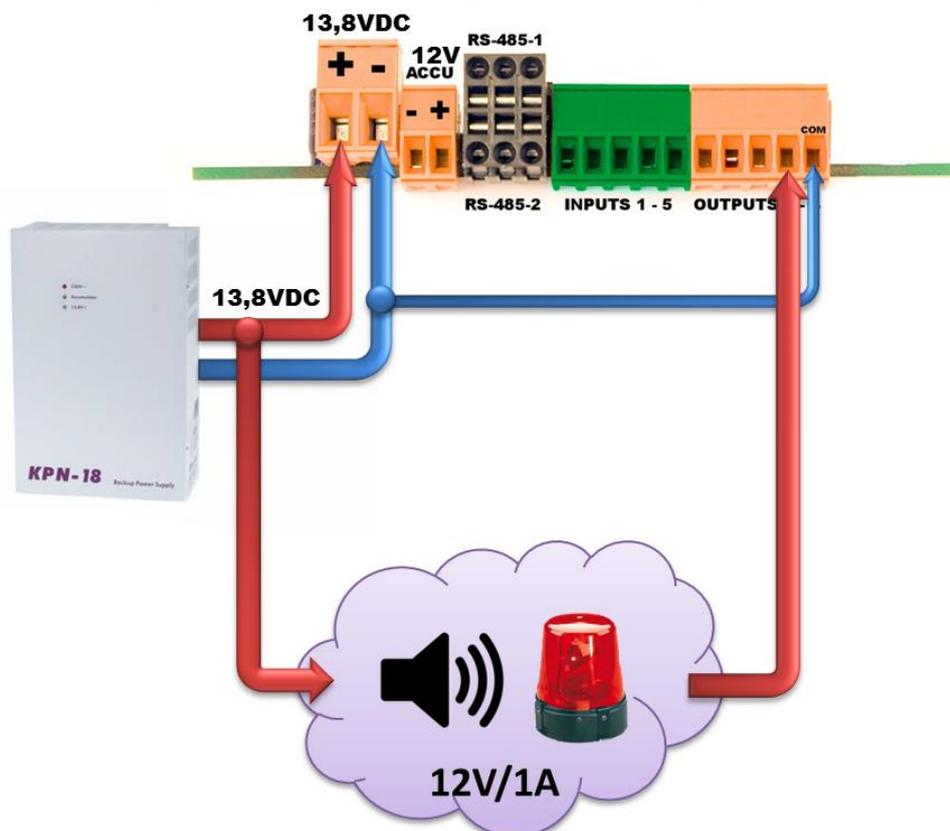
- **Output 1- ROTL** signal for the superior system informing about full opening of the gate in the L direction
- **Output 2- ROTR** signal for the superior system informing about full opening of the gate in the R direction
- **Output 3- BUSY** signal for the superior system informing about released or ongoing passage
- **Output 4- ALARM** unauthorized passage attempt or an attempt of forcible turning of the gate wing.



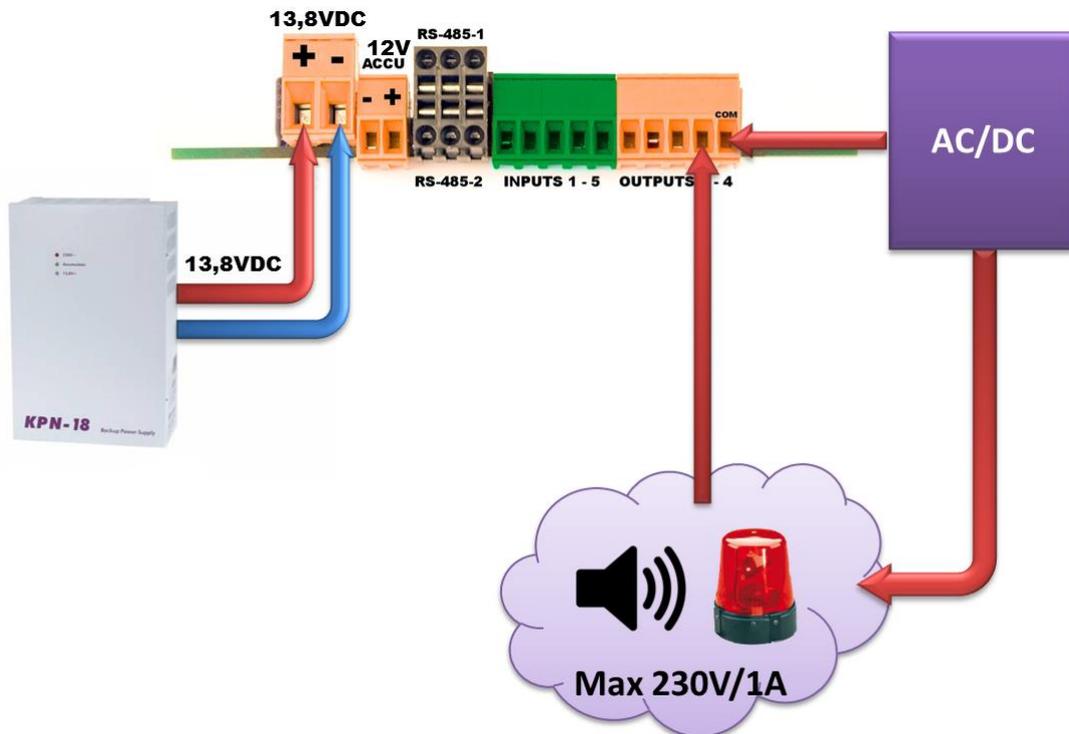
Output signals are set to NO by the manufacturer. It is possible to invert any of the outputs independently of other outputs to NC using the TCONF application.

4.9.1. CONNECTION OF EXTERNAL ALARM OUTPUT (BUZZER, LIGHT)

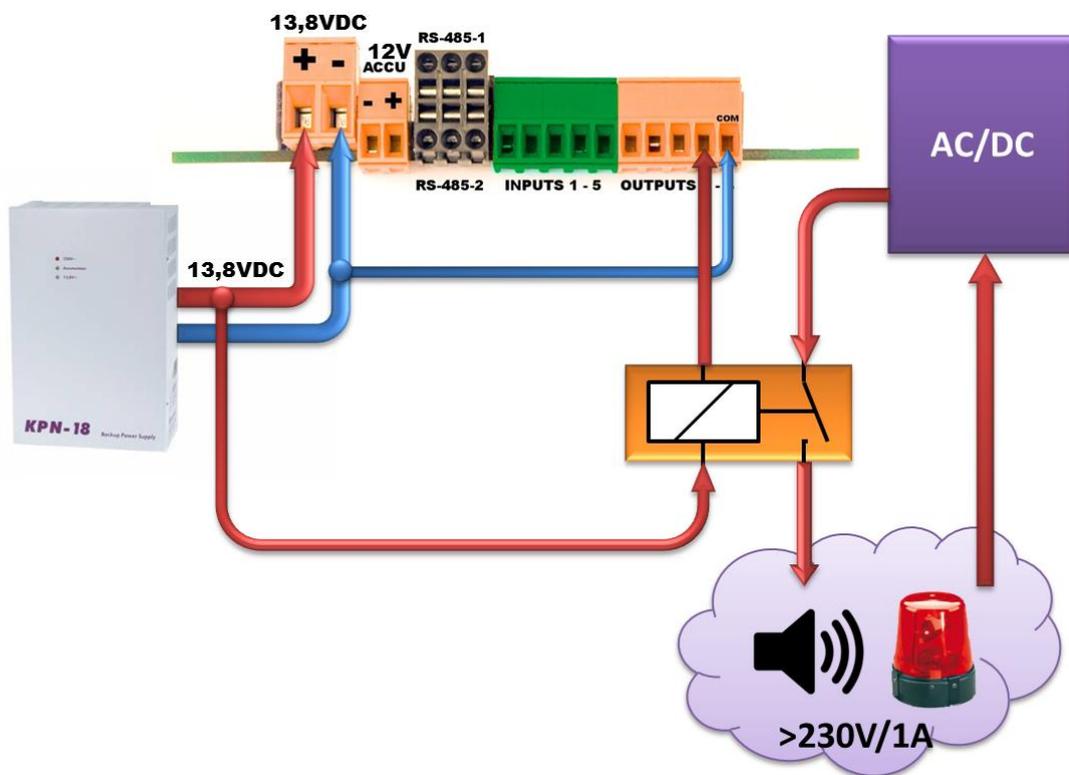
Option 1: if the external alarm device is designed for 12VDC power supply voltage, it can be connected in accordance with the following picture and thus use the gate's power supply.



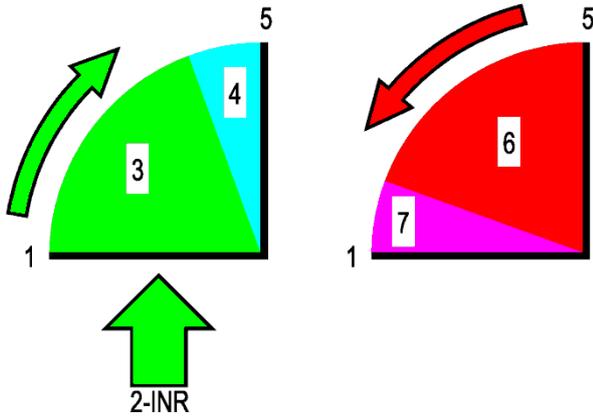
Option 2: if the external alarm device is designed for power supply voltage bigger than 12VDC with current consumption up to 1 S, it can be connected in accordance with the following picture.



Option 3: if the external alarm device is designed for power supply voltage bigger than 12VDC with current consumption bigger than 1 A, it is essential to use an external relay designed for relevant current load.



4.10. DURATION OF INPUT AND OUTPUT SIGNALS



1. Home position of the gate - device is waiting for passage permission (INL, INR input activation)
2. Input activation - passage permitted
3. Phase of gate opening
4. Phase of braking during opening of the gate
5. Open position of the gate - device is waiting for TIME OUT elapse
6. Phase of gate closing
7. Phase of braking during closing of the gate

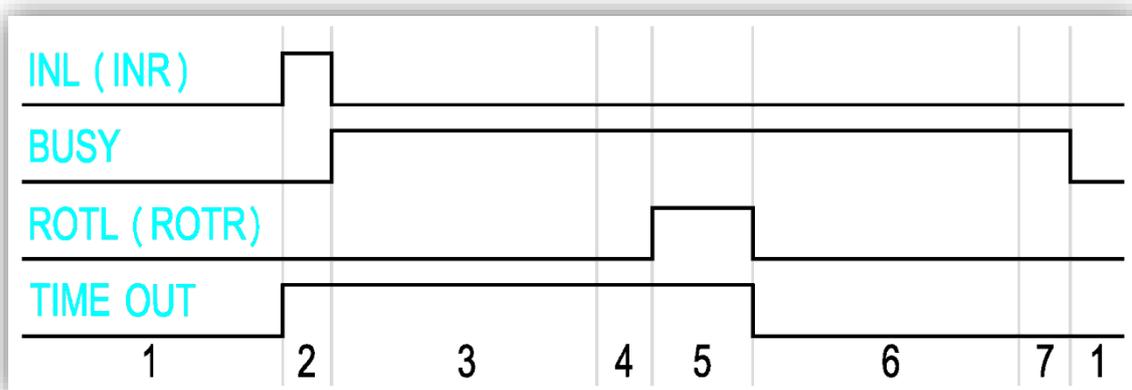
Input signals duration:

Name of the Input Signal	Single Passage	Permanent Passage
INL	>100ms <2000ms	>2000ms
INR	>100ms <2000ms	>2000ms
ON/OFF	FOR THE DURATION OF THE INPUT ACTIVATION	
PANIC/EMERGENCY	FOR THE DURATION OF THE INPUT ACTIVATION	

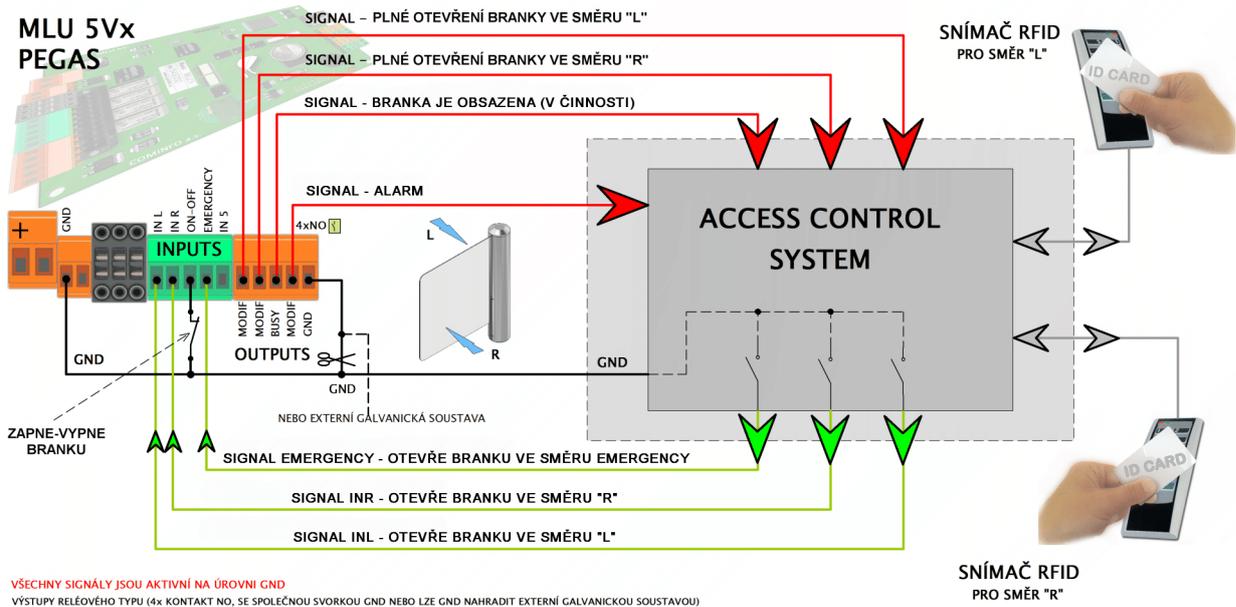
Output signals duration:

Name of the Output Signal	Signal Duration
ROTL	>200ms
ROTR	>200ms
BUSY	FOR THE DURATION OF PASSAGE

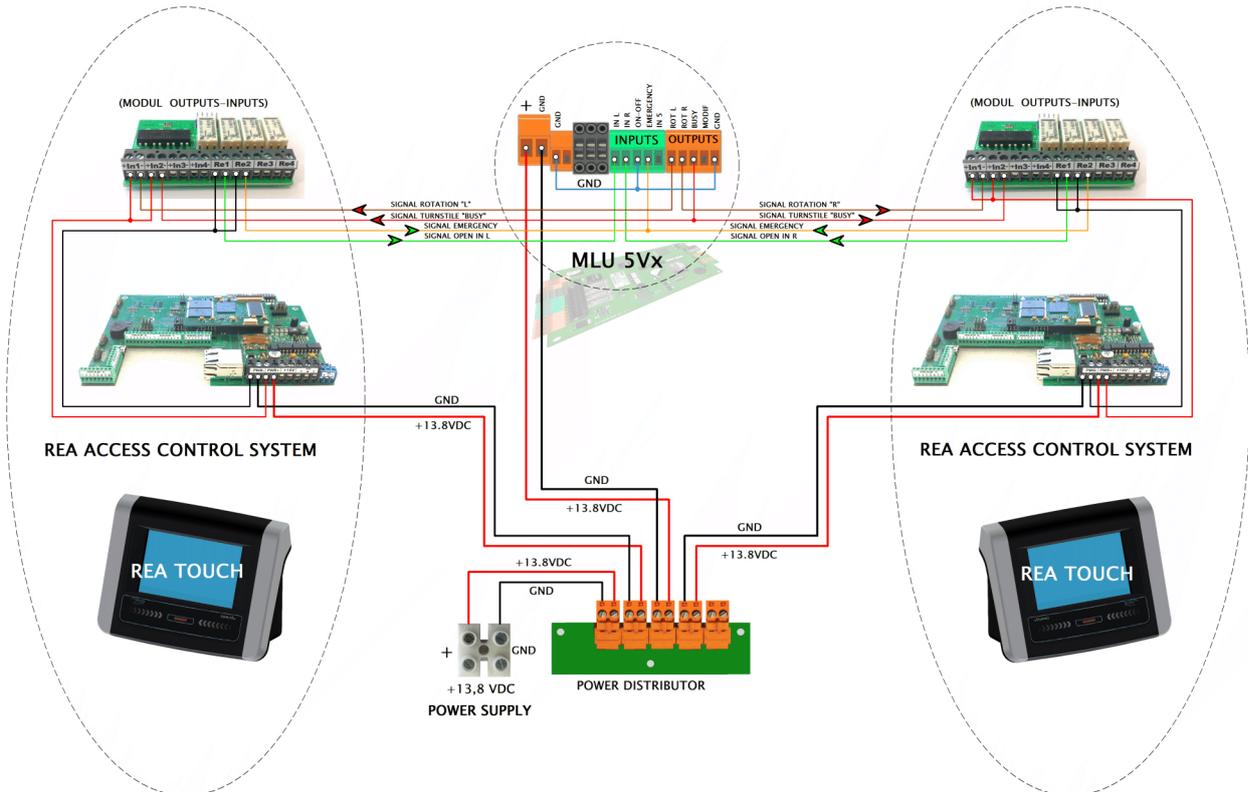
Progress chart of passage through the device:



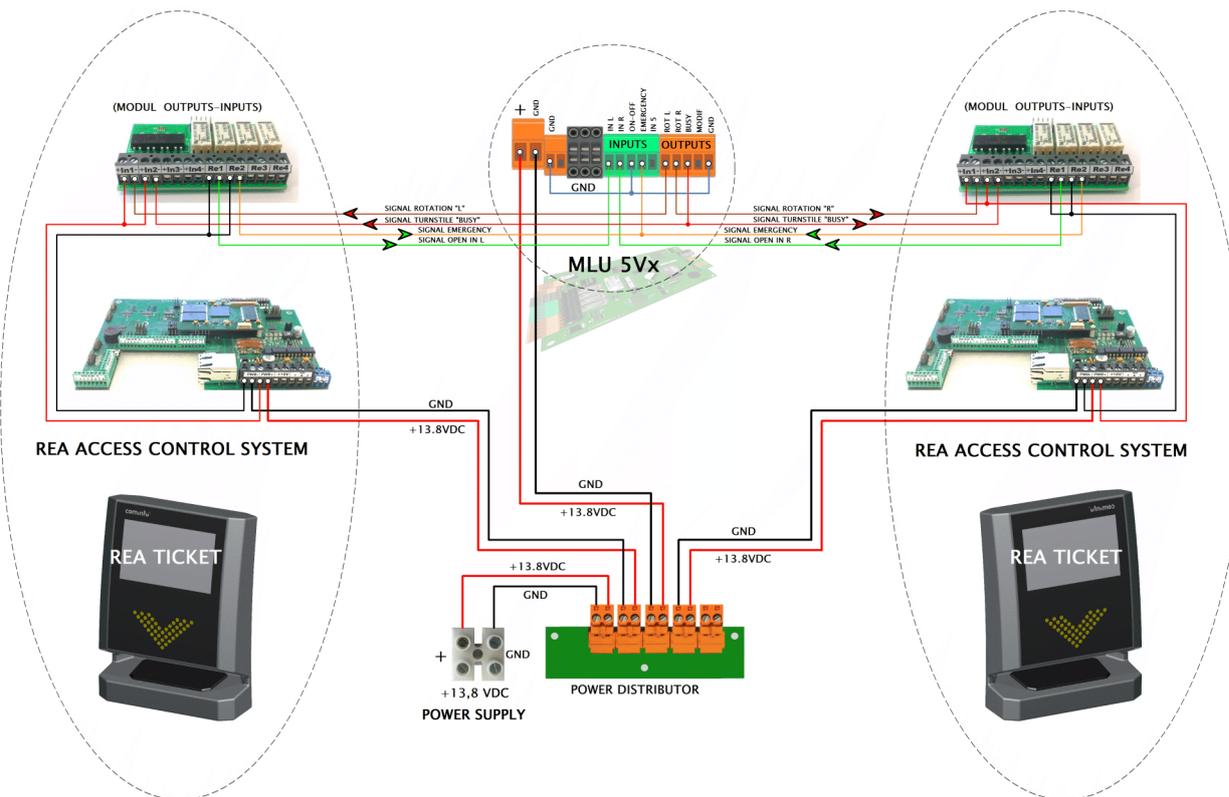
4.1. EXAMPLE OF GATE CONTROL BY SUPERIOR SYSTEM



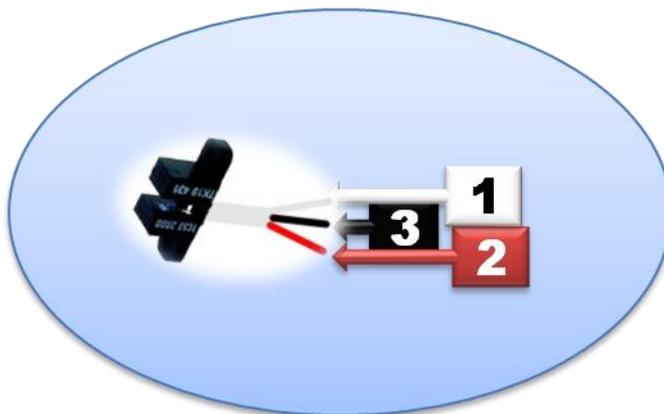
4.1.1. GATE CONTROL - REA::TOUCH



4.1.2. GATE CONTROL - REA::TICKET

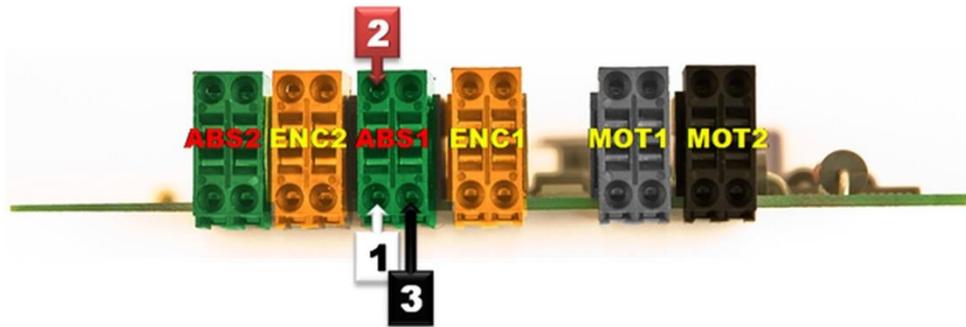


4.2. HOME POSITION SENSOR CONNECTION



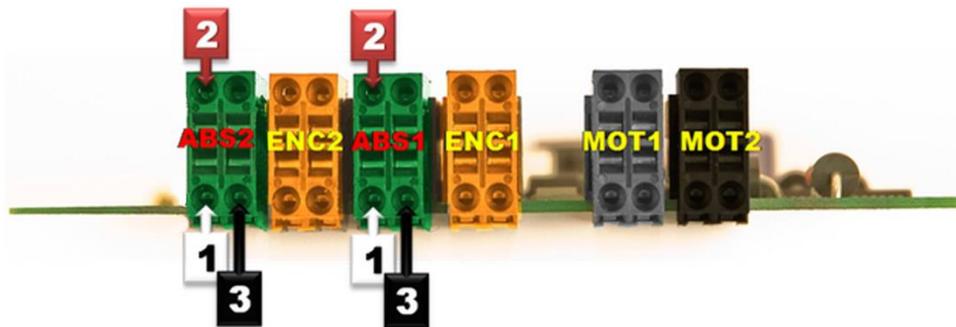
1. White wire
2. Red wire
3. Black wire

4.2.1. SINGLE GATE



Home position sensor is connected directly to the control electronics to the **ABS1** connector.

4.2.2. DOUBLE GATE



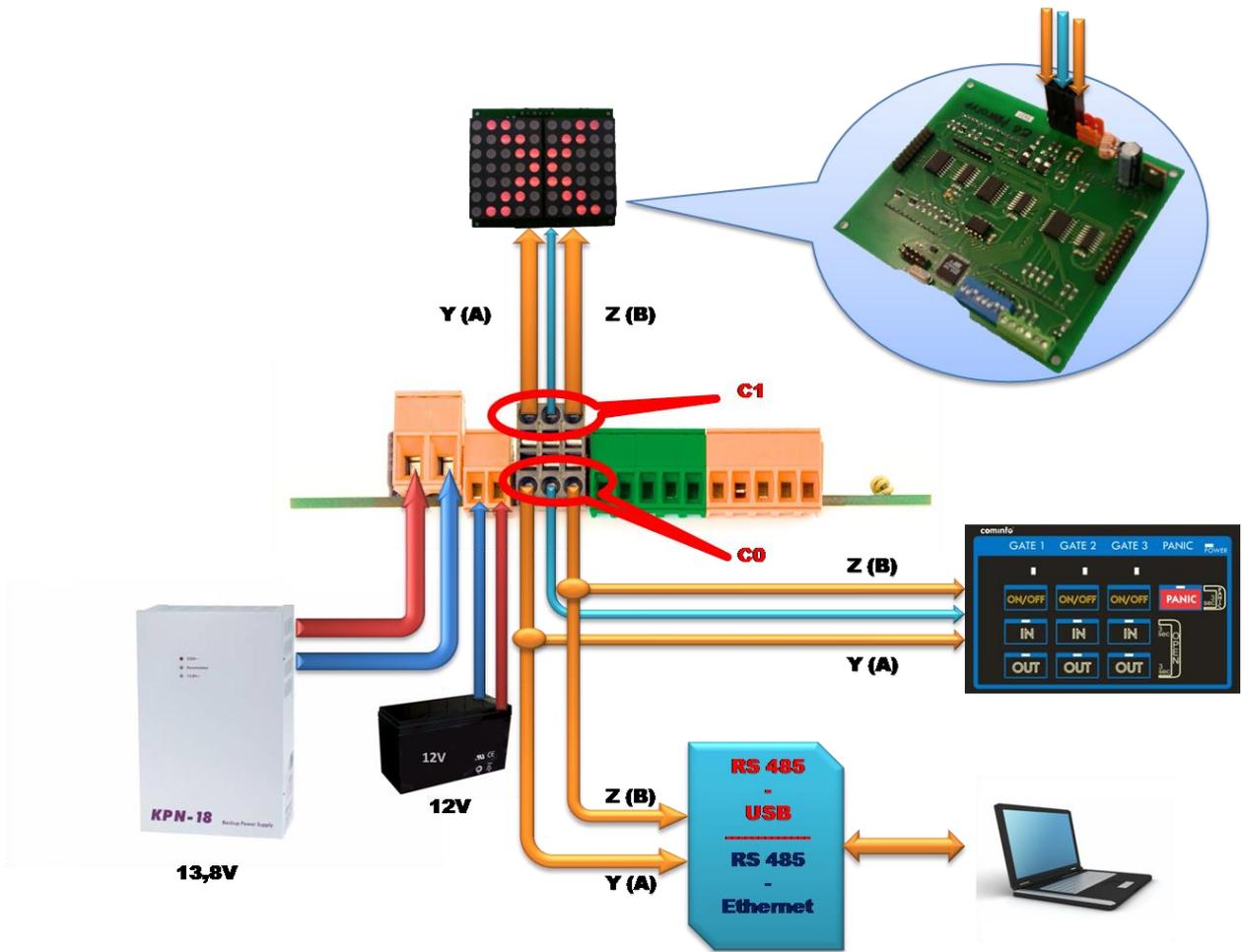
MASTER gate:

Home position sensor is connected directly to the control electronics to the **ABS1** connector.

SLAVE gate:

Home position sensor is connected through the interconnecting **X2** and **X3** terminal boards to the control electronics to the **ABS2** connector.

4.3. CONNECTION OF COMMUNICATIONS



Control electronics is equipped with two communication channels C0 and C1 with RS 485 interface.

- C0 is destined for PC connection via RS485-USB converter or RS485_Ethernet and also for control panel (CPT Touch panel) connection
- C1 is destined for Lane Light connection. Lane Light for the gate is installed on a separate column.

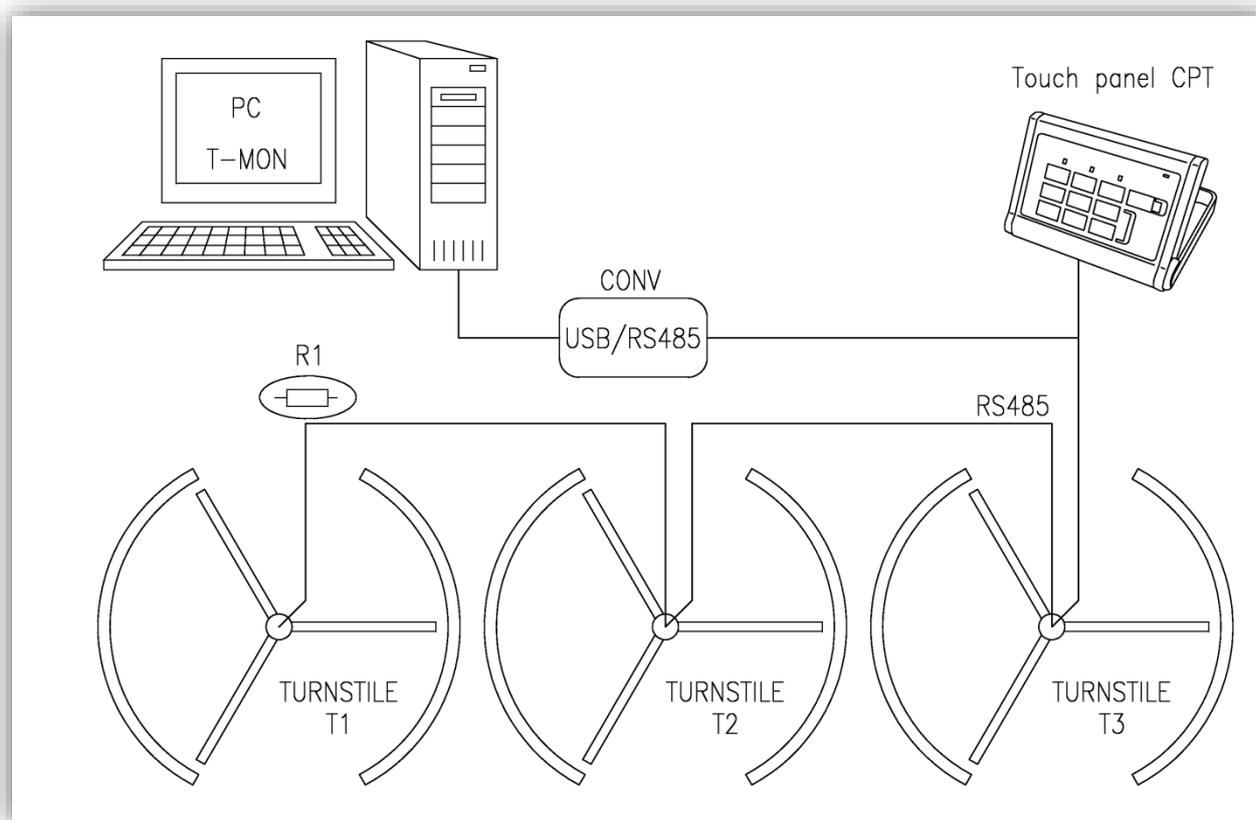
Connection is realized using a twisted twin-lead.



In order to easily change configuration, upgrade the firmware and control by means of PC, it is suitable to lead the RS485 communication channels to an accessible place (e.g. power supply).



To ensure a reliable PC connection via RS485-USB converter or RS485 Ethernet, it is necessary to use the converter supplied by the COMINFO company. If a different converter is used, the manufacturer does not guarantee correct functioning.

Example of RS485 communication line connection:

On the picture you may see connection of PC, CPT Touch panel and turnstiles via RS485 line. Only R1 terminating resistor is connected to the T1 turnstile at the end of the line. At the beginning of the line, the terminating resistor is connected to the CONV converter. Resistors that ensure idle state of the line are also placed in the CONV converter. In case of CONV converter disconnection, the resistors for defining the idle state and the terminating resistor must be set using the DIP-Switch in the CPT panel. When changing the MLU control electronics in the T1 turnstile, it is necessary to set also the terminating resistor on the MLU electronics.



For more detailed information, request a separate manual: *RS485 Connection Principles*.

Prescript for shielding connection of 485 communication interface

Shielding connection in case of internal devices of **C1** channel:

Do not connect the shielding for internal devices such as AccessLight and Lane Light.

Shielding connection for external device of **C0** channel:

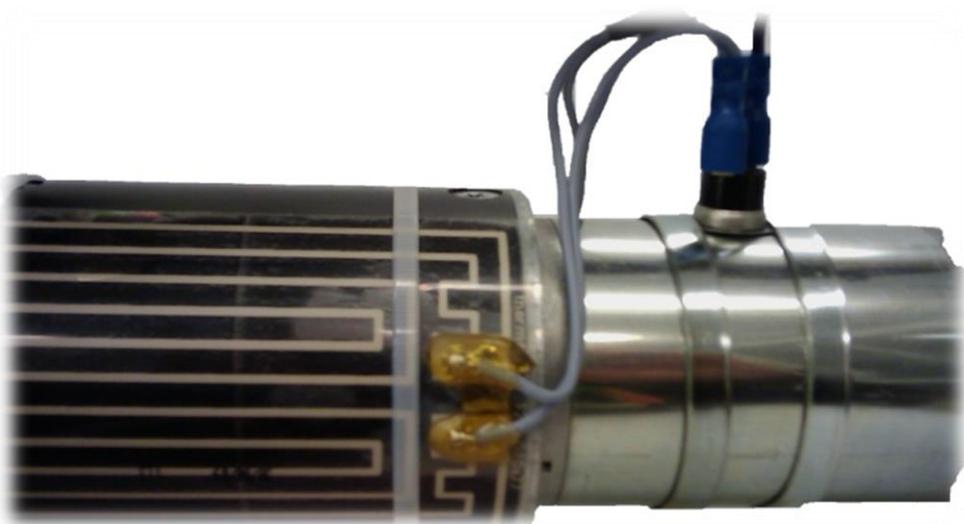
In case of external Touch panel device, always connect the shielding to the MLU5 electronics in the turnstile that powers the Touch panel. In case of external device, do not connect the 485/USB converter for PC control of shielding. If there is an intense interference of the cable leading to the 485/USB converter, connect the shielding only to the MLU5 electronics.

4.4. HEATING SYSTEM

Applies only for the following gate types:

- PEGAS-SF
- PEGAS-SF-S
- PEGAS-J

This optional accessory serves for the gate operation up to the minimum temperature of **-25°C**. Its starting is procured by a mechanical thermostat attached on the motor. Thermostat switches on, when temperatures drop below **15°C** and switches off when temperatures reach **21°C**.



Heating system with usage of 13.8 VDC external power supply:

Heating foils are mutually connected in a parallel way. Heating system is connected directly to the control electronics power supply connector or to the terminal board placed inside the gate.

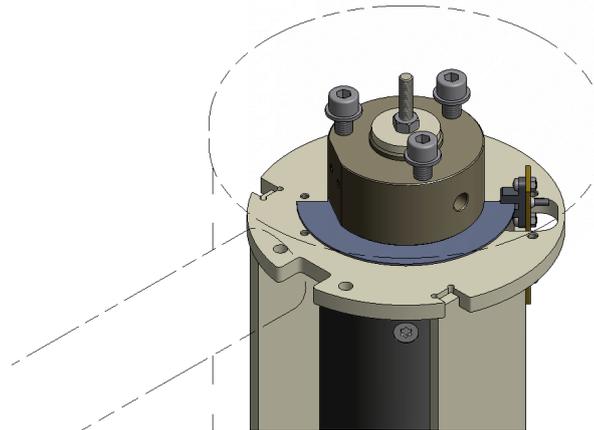




In the course of reset and initialization procedure, the gate operation must not be anyhow interfered.



PEGAS SF-S, PEGAS SF and PEGAS J gates can be turned 360°. Covering screen of these gate types must be in its home position before starting up the initialization, see the picture below.



If the gate is initialized in a reverse covering screen position, gate's home position will be turned in 180°.

If, for any reason, this wrong initialization happens, it is necessary to perform a correction initialization with an interruption of supply voltage. After starting up the initialization, intermit the supply voltage during the initialization process, after that turn the drive unit of the gate to the home position in accordance with the previous picture and reconnect the supply voltage.



Reset and initialization procedure cannot be performed during operation powered by a back-up accumulator or if the voltage on the terminal board of the gate drops below 12.5 VDC (owing to a decrease of voltage on the lead-on cabling - see chapter: *Dimensioning of Power Supply Cables*)

Activation of the reset and initialization procedure can be performed as follows:

1. After supply voltage connection - Activate and deactivate the ON/OFF input five times within 20 seconds after stabilization of the device in its home position
2. After supply voltage connection - Activate and deactivate the ON/OFF button on the touch panel ten times within 20 seconds after stabilization of the device in its home position
3. After supply voltage connection - Activate and deactivate the ON/OFF switch on the testing device for turnstiles five times within 20 seconds after stabilization of the device in its home position
4. Press the RESET icon in the TCONF application - anytime during the device operation
5. Upload new configuration in the TCONF application - anytime during the device operation
6. Upload new firmware in the TCONF application - anytime during the device operation

After activation and execution of the reset and initialization procedure (ca. 10 s), the device stabilizes in its home position.

5. PUTTING THE GATE INTO OPERATION - INITIALIZATION OF THE GATE



While putting the gate into operation, it is necessary to perform an initialization, during which malfunction detection and track calibration take place. In the course of initialization, it is forbidden to anyhow interfere the gate's operation.

Perform the initialization in accordance with the chapter: *RESET - INITIALIZAITON Function*



Initialization of a double gate is performed in accordance with the chapter: *Putting Double Gate into Operation*

6. DIMENSIONING OF POWER SUPPLY CABLES



GATE INSTALLATION MUST ALWAYS BE PERFORMED IN ACCORDANCE WITH APPROVED PROJECT DOCUMENTATION!

Current consumptions are valid for factory settings of the gate opening speed.

6.1.1. CURRENT CONSUMPTIONS - SINGLE GATE

Table of maximal current consumptions during operation of a gate with FAIL-SAFE drive unit with 13.8 V power supply voltage:

	Process	Current [A]	Note
FAIL - SAFE	Gate initialization	2,0	For one passage (motor drive unit)
	Gate opening or closing	1,7	For one passage (motor drive unit)
	Gate idle state	0,8	Locked in home position
	Gate idle state	0,2	Unlocked in home position

Table of maximal current consumptions during operation of a gate with FAIL-LOCK drive unit with 13.8 V power supply voltage:

FAIL - LOCK	Process	Current [A]	Note
	Gate initialization	2,0	For one passage (motor drive unit)
	Gate opening or closing	2,5	For one passage (motor drive unit)
	Gate idle state	0,2	Locked in home position
	Gate idle state	0,8	Unlocked in home position

6.1.2. CURRENT CONSUMPTIONS - DOUBLE GATE

Table of maximal current consumptions during operation of a gate with FAIL-SAFE drive unit with 13.8 V power supply voltage:

FAIL - SAFE	Process	Current [A]	Note
	Gate initialization	2,8	Gate with two motor drive units and one control electronics
	Gate opening or closing	4,2	Gate with two motor drive units and one control electronics
	Gate idle state	1,5	Locked in home position
	Gate idle state	0,2	Unlocked in home position

Table of maximal current consumptions during operation of a gate with FAIL-LOCK drive unit with 13.8 V power supply voltage:

FAIL - LOCK	Process	Current [A]	Note
	Gate initialization	2,8	Gate with two motor drive units and one control electronics
	Gate opening or closing	5,5	Gate with two motor drive units and one control electronics
	Gate idle state	0,2	Locked in home position
	Gate idle state	1,5	Unlocked in home position

If the gate opening speed is set by configuration Pos. 5, the current consumption during opening and closing of the gate increases by 1.3 A.

6.1.3. CURRENT CONSUMPTIONS - OPTIONAL ACCESSORIES

Table of increases of current consumptions with usage of optional accessories with 13.8 V power supply voltage:

Optional accessories	Current [A]	Note
Heating	+2,4	For one passage (motor drive unit) – with temperatures below 15°C
Lane Light	+0,4	Permanently (for 1x Lane Light)

6.1.4. MAXIMAL LENGTHS OF POWER SUPPLY CABLES

Table of maximal lengths [m] of power supply cables depending on cross-section and current consumption with 13.8 VDC external power supply voltage:

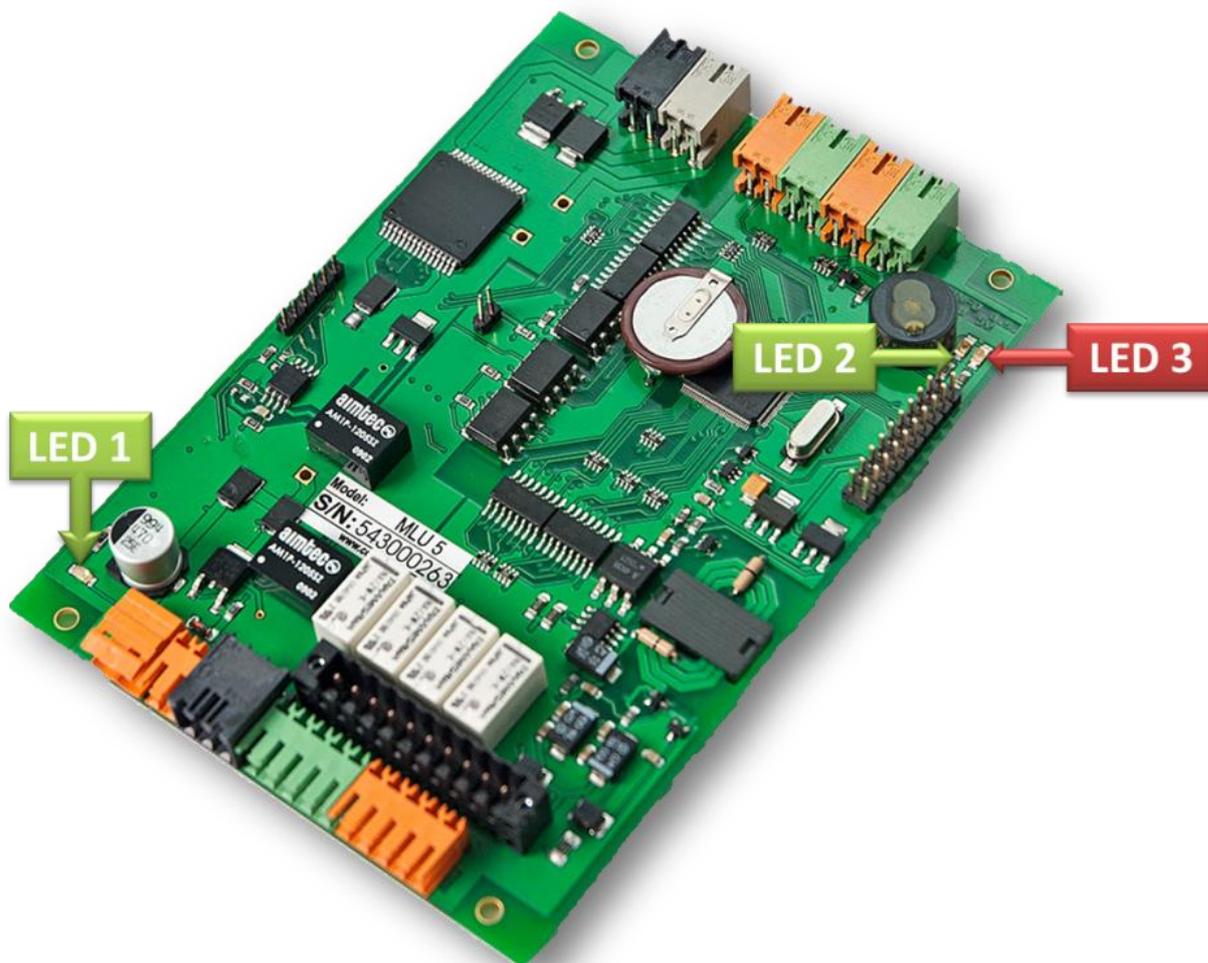
		Current – maximal consumption [A]												
		3	4	5	6	7	8	9	10	11	12	13	14	15
Cable cross-section	2,5 mm ²	33m	25m	20m	17m	14m	12m	11m	14m	9m	8,5m	7,5m	7m	6,5m
	4 mm ²	53m	40m	32m	27m	23m	20m	18m	16m	14m	13m	12m	11m	10m
	2 x 2,5 mm ²	66m	50m	40m	33m	28m	25m	22m	20m	18m	17m	15m	14m	13m

Table of maximal lengths [m] of power supply cables depending on cross-section and current consumption in case of power supply from an external power supply with input voltage of 24 VAC, minimum of 20 VAC:

		Current – maximal consumption [A]												
		3	4	5	6	7	8	9	10	11	12	13	14	15
Cable cross-section	2,5 mm ²	101m	77m	62m	52m	45m	40m	35m	32m	29m	27m	25m	23m	21m
	4 mm ²	162m	124m	100m	84m	72m	63m	56m	51m	46m	43m	39m	37m	34m
	6 mm ²	243m	185m	150m	126m	108m	95m	85m	76m	70m	64m	59m	55m	51m

7. SOLUTION OF PROBLEMS AND MALFUNCTIONS

Control electronics is fitted with three LED diodes signalling electronics status. After the initialization is carried out, the electronics is capable of detecting some of the gate's malfunctions described in this chapter by means of LED signalling.



LED1 (green) – power supply status

LED2 (green) – indication of initialization progress and termination

LED3 (red) – malfunction detection



For quick removal of gate’s malfunction, it is necessary to fill out a *Claim Report Form* when contacting the Service department of the COMINFO company. Report should indicate serial number of the gate in accordance with the production label and a description of the malfunction. Along with the completed form a video, which clearly shows the occurring malfunction and LED signalling of the electronics state before and after carrying out an initialization, should be sent. *Claim Report Form* can be found at the end of these Instructions.



Before carrying out an initialization, it is necessary to download Logs (list of errors and events) to your computer using the TCONF application. Logs must be sent to the Service department. Running the initialization deletes the Logs from the electronics memory.

7.1. CONTROL ELECTRONICS STATE AFTER TURNING THE POWER SUPPLY ON

LED (state)			MALFUNCTION	REMOVAL OF MALFUNCTION
1	2	3		
■	■	■	Power failure of the gate (green LED1 does not emit light)	Measure the power supply. Check or replace the circuit breaker of the power supply unit. Check and tighten all clamps.
■	■	■ 4Hz	Firmware is not uploaded (red LED3 blinks in frequency of 4Hz)	Upload an updated firmware after consulting the Manufacturer.
■	■	■	Timeout for automatic gate blocking is activated (red LED3 permanently emits light)	Request a code for unblocking from the manufacturer and unblock the gate using the TCONF application.

7.2. MALFUNCTION ANALYSIS AFTER GATE INITIALIZATION

- Malfunctions are detected only after prior initialization in compliance with the chapter: *Reset - Initialization Function*
- Start of initialization is confirmed by one blink of the red LED3
- Course of initialization is indicated by blinking green LED 2 (frequency of 4 Hz)
- Completion of initialization is signalled by lighting of the green LED2.
- Malfunctions are detected by the number of blinks of the red LED3 according to the following table (frequency of 2 Hz + pause).

LED (state)			MALFUNCTION	REMOVAL OF MALFUNCTION
1	2	3		
		 1 x blink	Motor drive unit malfunction or a mechanical failure.	- Inspect the mechanical state of the gate - Replace the motor drive unit.
		 2 x blink	Home position sensor malfunction.	Replace the home position sensor or adjust the switching distance.
		 3 x blink	Low power supply voltage on electronics clamps.	Measure the power supply voltage, which must not drop below 12.5 VDC, during gate initialization. Check the lead-in mains. Check the cross-section dimensioning of power supply cables.
		 4 x blink	Correct initialization was not completed.	Repeat initialization process.



After first opening of the gate by an input signal, the green LED2 will turn off and thus signal the end of initialization.

Cominfo, a.s.
Nábřeží 695
760 01 Zlín – Prštné
Czech Republic

Hotline: +420 603 151 334
e-mail: cominfo@cominfo.cz

COMINFO INC. NABREZI 695, 760 01 ZLIN, CZECH REPUBLIC

In the case that CRF will not be filled in enough, be returned for completion.

CLAIM REPORT FORM

registration form number
intended for the Cominfo needs

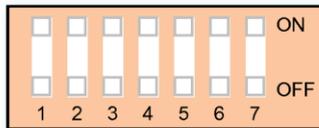
1. Product serial number (necessary):
 * PICTURE 1

2. Send to hotline@cominfo.cz a movie sample of the issue.

3a. Control Electronic Round 4V3 (4V2) serial No.: /
 * PICTURE 2

SW1 DIP switch setting:

* PICTURE 3



Firmware version:

* PICTURE 4

3b. Control Electronic MLU5 serial No. :
 (Supplied since August 2009) * PICTURE 5

4. Drive unit type:

 (FAIL-SAFE / FAIL-LOCK)

* PICTURE 6

* PICTURE 7

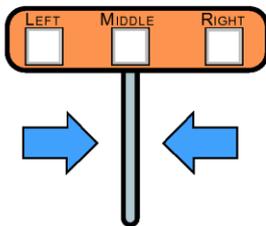
Gearbox type:

* PICTURE 8

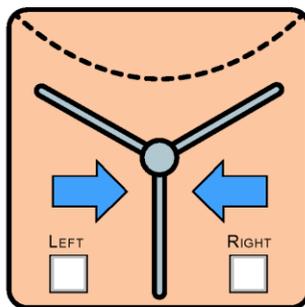
5. Traffic light (please check box):

Traffic lights are O.K.

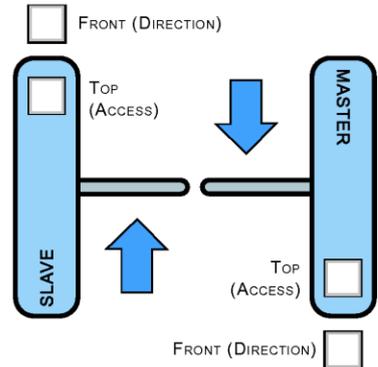
Turnstile BAR



Turnstile REXON



EASY-GATE



C L A I M R E P O R T F O R M

C L A I M R E P O R T F O R M

Claim description:

Customer:

Address:

Contact person:

Phone no.:

Date:

Email:

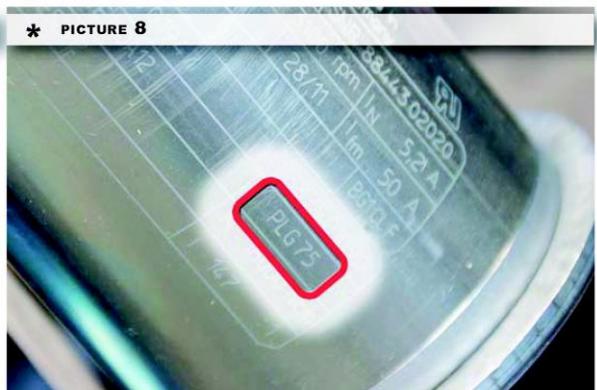
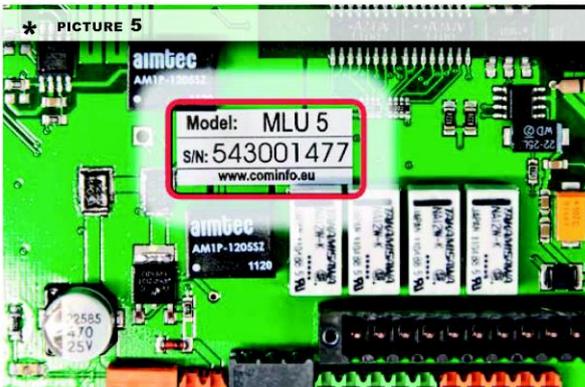
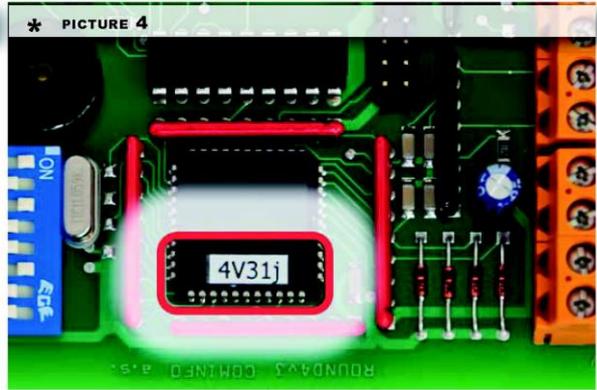
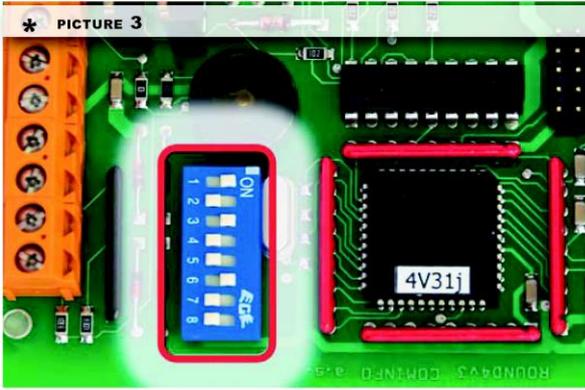
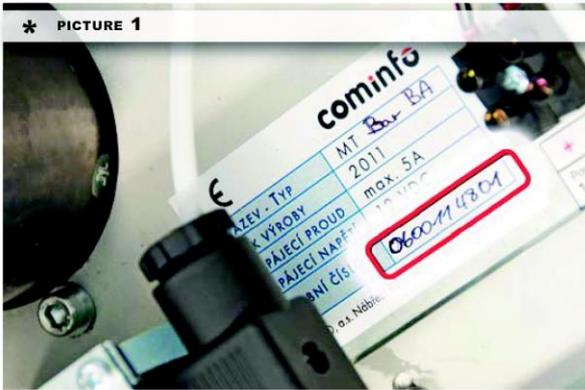
Info:

If you need remote online support, it is necessary to interconnect the turnstile with the laptop. The laptop must be connected to the internet and you have to allow remote administration to your laptop via the application TeamViewer. Then send to hotline@cominfo.cz your ID and password and our technician will connect to your laptop.

In the case that CRF will not be filled in enough, be returned for completion.

C L A I M R E P O R T F O R M

C L A I M R E P O R T F O R M



C L A I M R E P O R T F O R M