GASTOP®

DEVICE DESCRIPTION

FOR TURNSTILES EQIPPED WITH MECHANISM

ZABR3/ZA2AL/BR2AL

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DESCRIPTION OF DEVICES EQUIPPED WITH BR2AL MECHANISM

TM - BR2AL	TM2 - BR2AL
F1 - BR2AL	**N2 - BR2AL**
T - BR2AL	**T2 - BR2AL**
STI - BR2AL	**STI2 - BR2AL**

DESCRIPTION OF DEVICES EQUIPPED WITH ZA2AL MECHANISM

TM - ZA2AL	F1-ZA2AL	T - ZA2AL
TMS - ZA2AL	**N2S - ZA2AL**	**TS - ZA2AL**
TM2-ZA2AL	**N2 - ZA2AL**	**T2 - ZA2AL**
TM2S - ZA2AL	**STI2 - ZA2AL**	**STI - ZA2AL**

DEVICE MARKINGS

DEVICE MARKINGS	HOUSING	MECHANISM		FUNCTION
Marking example	TMS	BR2AL	ZA2AL	DA (DROP ARM)

Example of marking:
- TMS-BR2AL-DA - housing type TMS (slim), mechanism BR2AL, function DA (Drop Arm).

***WARNING:** Standard finish includes AISI 304 (INOX) stainless steel.

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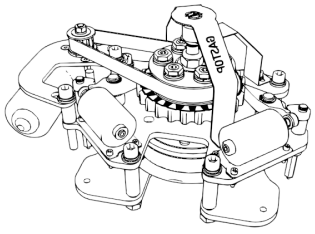
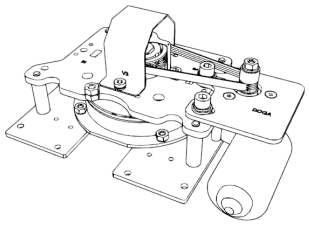
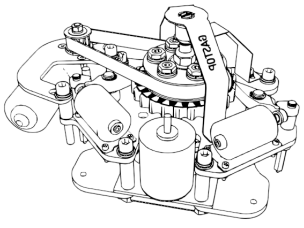
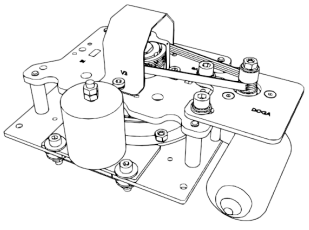
DEVICE MODEL	T-BR2AL	N2-BR2AL	TM-BR2AL	F1-BR2AL	STI-BR2AL	STI2-BR2AL	T2-BR2AL	F1-ZA2AL	STIS-ZA2AL	TS-ZA2AL	TMS-ZA2AL	N2S-ZA2AL
1 rotor, 1 mechanism, electronic chip	•	•	•	•	•			•	•	•	•	•
2 rotors, 2 mechanisms, controller						•	•					
Emergency unlocking	•	•	•	•	•	•	•	•	•	•	•	•
The ability to implement the DA function (Drop Arm)	•	•	•	•	•	•	•	•	•	•	•	•
Internal use - under a roof	•	•	•	•	•	•	•	•	•	•	•	•
Application external - without roofing			•		•	•						

TYPES OF MECHANISMS USED IN TURNSTILES

Mechanism BR2AL	Mechanism ZA2AL	Mechanism BR2AL-DA	Mechanism ZA2AL-DA
			

TECHNICAL SPECIFICATIONS OF BR2AL AND ZA2AL MECHANISMS

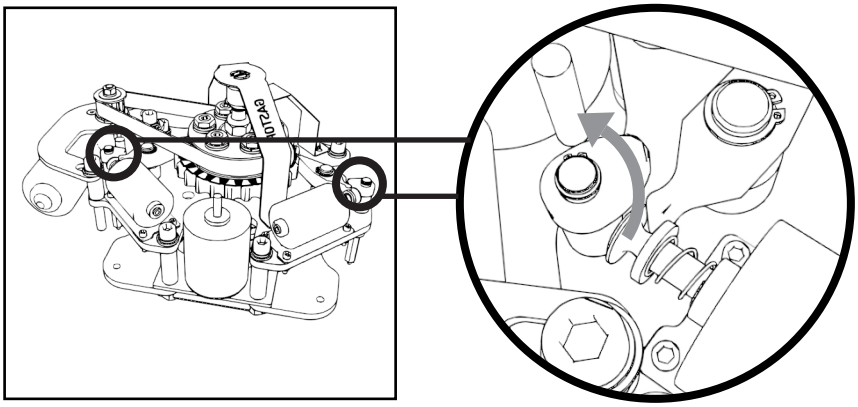
PARAMETER	BR2AL	ZA2AL
Function - compatibility with external electronic access control system	•	•
Function - mechanical locking of pedestrian traffic for a pre-selected direction	•	•
Function - option to support two directions of pedestrian traffic	•	•
Continuous (industrial) load mechanism	•	•
Rotor booster (electromechanical, electric-motor based)	•	•
Magtronic controller, 24V	•	•
Electronic positioning/detection system (encoder)	•	•
Double lock system	•	
Mechanism locking in case of a power failure	•	
Automatische Entriegelung der Durchgangsrichtung bei Stromausfall	•	•
Mechanical lane unlocking in case of a power failure	•	•
Reverse movement lock	•	•
Mechanism designed for two-directional traffic	•	

TECHNICAL SPECIFICATIONS

Parameter	T-BR2AL	N2-BR2AL	TM-BR2AL	F1-BR2AL	STI-BR2AL	STI2-BR2AL	T2-BR2AL	F1-ZA2AL	STI-ZA2AL	TS-ZA2AL	TM-ZA2AL	N2S-ZA2AL	TM2-ZA2AL	TM2S-ZA2AL	N2S-ZA2AL
Power supply voltage: ~24VDC	•	•	•	•	•			•	•	•	•	•			
Power supply voltage: (2x) ~24VDC						•	•						•	•	•
Maximum power consumption: 120 VA	•	•	•	•	•										
Maximum power consumption: 70 VA								•	•	•	•	•			
Maximum power consumption: (2x) 120 VA						•	•								
Maximum power consumption: (2x) 70 VA													•	•	•
Minimum power consumption: 5 A	•	•	•	•	•										
Minimum power consumption: 3 A								•	•	•	•	•			
Minimum power consumption: (2x) 5 A						•	•								
Minimum power consumption: (2x) 3 A													•	•	•

RULE OF OPERATION

Gates are equipped with a mechanism controlled by an electronic processing unit. As soon as the processor receives the signal from an external device (e.g. card reader, switch/button) in the form of 0V signal (max 1 s) and verifies the position of rotor arms, it takes over control over locking & unlocking of arm movement. The arm position detection system ensures smooth operation of the device. The electronic processor sends a feedback signal which reports a rotor turn for a single act of passing. The device mechanism is equipped with a bi-directional pedestrian traffic control system, which means that separate controllers for each direction may be connected to the device. The device is also equipped with a mechanism that locks rotor movement in the direction opposite to the one selected by the traffic direction controller. It is also equipped with a rotor booster (BR2AL, ZA2AL - electric motor). LEDs show rotor lock/unlock status (green arrow - unlocked, red cross - locked).

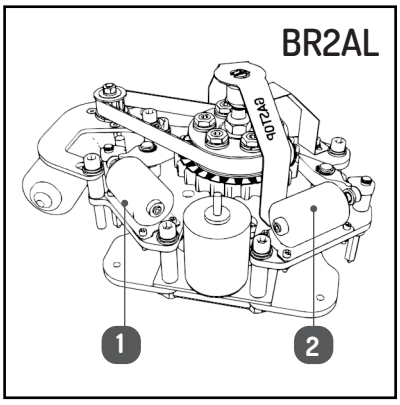


MANUAL UNLOCKING THE MECHANISM IN CASE OF A POWER FAILURE (BR2AL)

In order to manually unlock the mechanism for a given direction, turn the lock depending on the selected direction.

OPTION - applicable to BR2AL mechanisms with reversible coils.

In case of a power failure, the reversible coil automatically unlocks the mechanism for a given direction of traffic (entry reversible coil - entry to the controlled area or exit reversible coil - exit from the controlled area).



1. LEFT COIL

2. RIGHT COIL

NOTE: In order to define the entry/exit direction one should assume that the exit through the gate takes place from the side of the guarded/controlled area in the building, i.e. the side at which the inspection cover in the gate's roof should be located.

NOTE: Reversible coils may only be installed during the production process (their installation requires additional arrangements during the ordering process).

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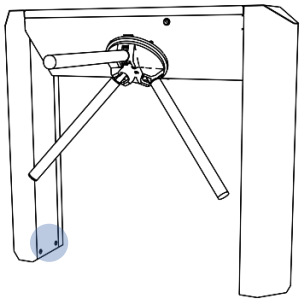
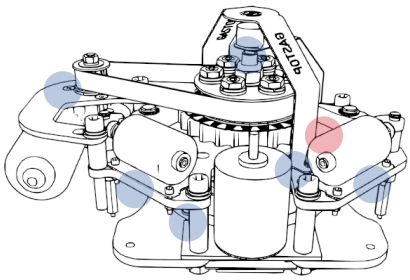
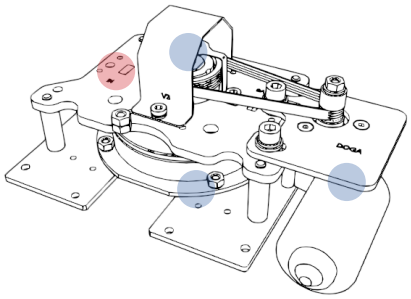
PLACES WHERE MARKINGS (WARRANTY SEALS AND SERIAL NUMBER) MAY BE FOUND		
Housing	BR2AL	ZA2AL
		
ID plate (CE mark, device series, rated voltage, operating temperature, production year, manufacturer mark).	Warranty seals (BLUE) and device serial number (RED).	

NOTE: To keep device manufacturer's warranty valid never remove or damage any warranty seals and device serial numbers. Removal or damage to the warranty seals and device serial numbers makes the warranty null and void.

TRANSPORT

MEANS OF TRANSPORT

Devices must be transported using covered means of transport. During the transport the devices must be secured against moving and must be in a vertical position, unless otherwise specified by warning signs. Transport safeguards must be installed before transport.

SAFEGUARDS

By safeguards we mean fastening the load to a vehicle with straps/belts, ropes etc. Any device must be tied down to a truck on all sides. Safe tiedown with ropes depends on the presence of adequate tiedown points in a means of transport. We recommend using high--strength textile ratchet straps with dedicated lifting hooks.

TRANSPORT RISKS

While using forklift trucks for transport pay special attention to maximum load and fork size. Use special equipment for any overhead work. Never use any parts of the device for climbing.

PACKING & UNPACKING

For the sake of transport our devices are put in a protective plastic package. A single package contains a single unit.
The table below shows approximate weights of such packages, including the base and devices.

MODEL	T-BR2AL	N2-BR2AL	TM-BR2AL	F1-BR2AL	STI-BR2AL	STI2-BR2AL	T2-BR2AL	F1-ZA2AL	STI-ZA2AL	T-ZA2AL	TM-ZA2AL	N2-ZA2AL
MASA - [kg/lbs]	75/165	60/132	75/165	70/154	60/132	75/165	75/165	44/97	60/132	49/108	49/108	34/75

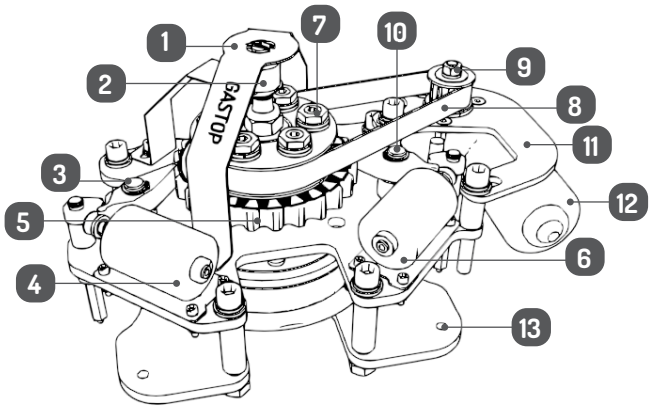
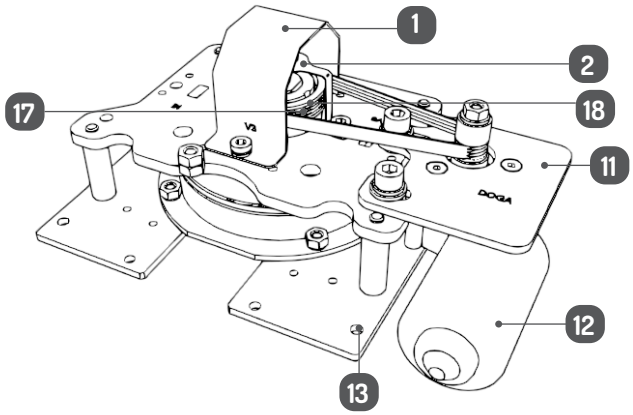
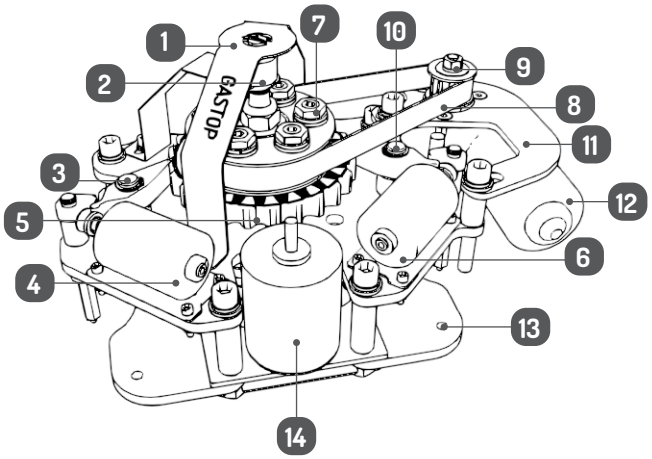
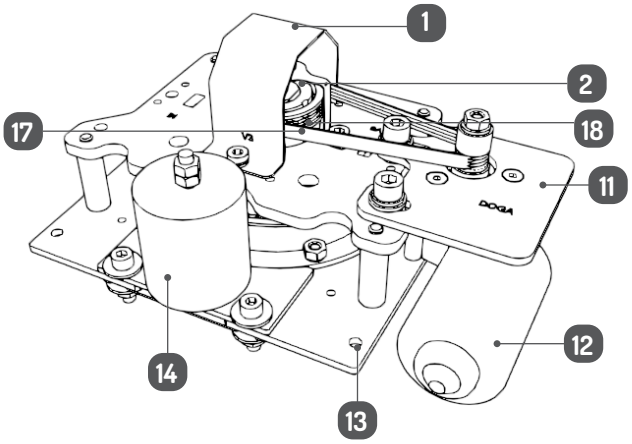
Packing procedures:

Device components must be packed in a vertical position only. Any points of contact with a forklift truck or other lifting machines must be protected against damage. Check the package for completeness.

Unpacking procedures:

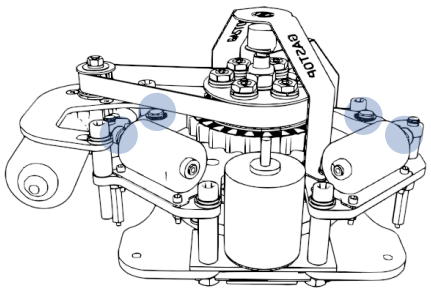
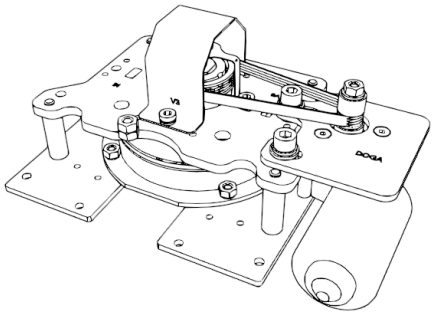
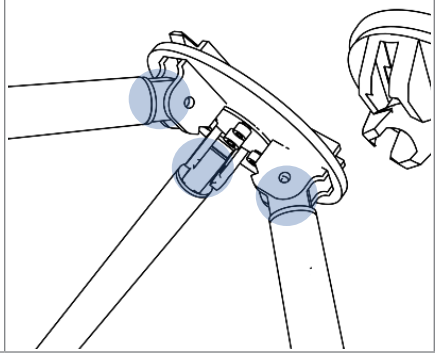
Make sure all transport safeguars have been removed. Check the device for any transport damage. Check the device for completeness. In case of transport damage or lack of completeness inform the seller or shipping agent immediately. Use adequate tools to remove the package (e.g. scissors or knives). The package must be removed in accordance with environment protection regulations.

SPECIFICATION OF BR2AL AND ZA2AL ELECTROMECHANICAL SYSTEM COMPONENTS

Mechanism BR2AL	Mechanism ZA2AL
	
Mechanism BR2AL-DA	**Mechanism ZA2AL-DA**
	

ITEM	NAME	ITEM	NAME
1.	Arm position sensor cover	**10.**	Arm movement locking pawl for the 2nd direction
2.	Arm position sensor (encoder)	**11.**	Motor mount
3.	Arm movement locking pawl for the 1st direction	**12.**	Motor
4.	Pawl's electromagnetic coil for the 1st direction	**13.**	Holes for mechanism mounting screws
5.	Ratchet wheel	**14.**	Cewka elektromagnetyczna mechanizmu opadania
6.	Pawl's electromagnetic coil for the 2nd direction	**15.**	Shock absorber
7.	Clutch	**16.**	Controller mount
8.	Drive belt	**17.**	V-belt
9.	Motor gear	**18.**	Engine pulley

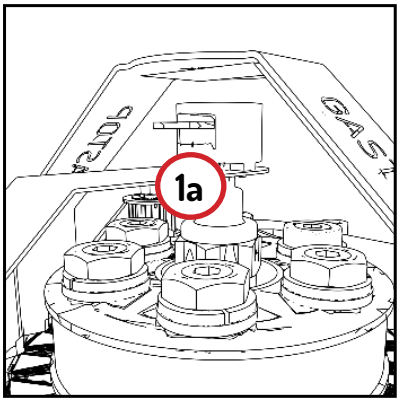
LUBRICATION POINTS

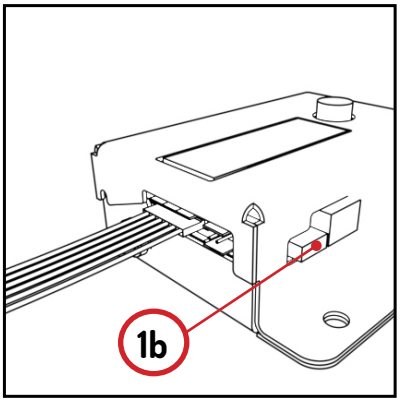
BR2AL	ZA2AL	Drop arm
		

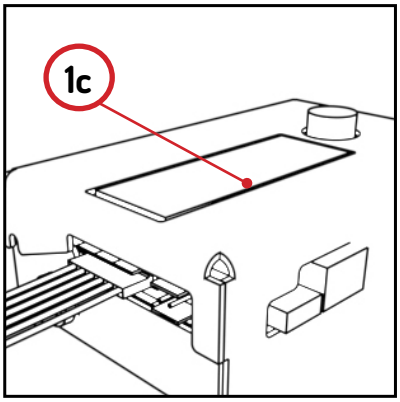
Drawing: Periodic lubrication points for the electric mechanism and rotor leg bearing.
Lubrication frequency and recommended oils and greases are specified in the **MAINTENANCE** section.

ENCODER - OPERATING CHECKLIST (BR2AL, ZA2AL)

1. Check whether the plugs on the cable connecting the encoder (1a) to the controller (1b) fit properly, and whether the main interface of the controller (1c) shows the (enc_error) message indicating damaged encoder or bad connection.
2. Go to the „Parameters" submenu in the controller's main interface which shows current value of readings from the encoder. To verify, turn encoder shaft to see whether the readings vary from 0 to 1023.

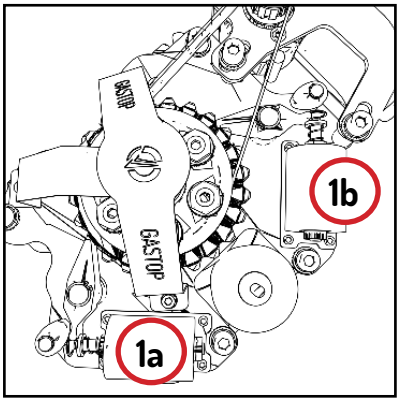


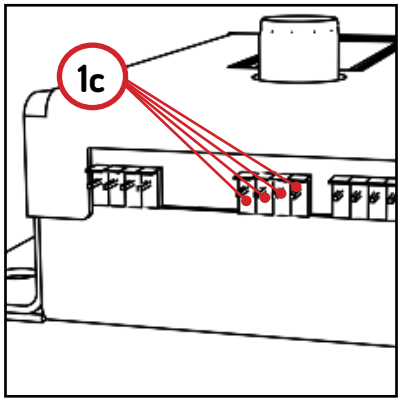


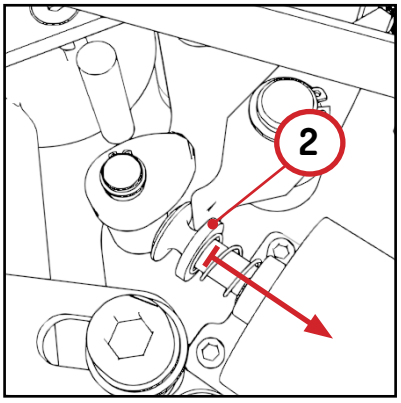


ELECTROMAGNETIC LOCKS - OPERATING CHECKLIST (BR2AL)

1. Check whether electromagnetic locks (1a, 1b) are connected to proper output terminals of the controller (1c) (whether they are not reversed).
2. Manually check (when the device is disconnected from the power outlet) whether the coil's core is free to move and the coil's internal spring automatically moves the core out of the coil.

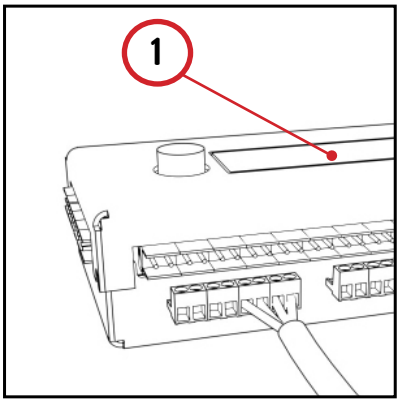


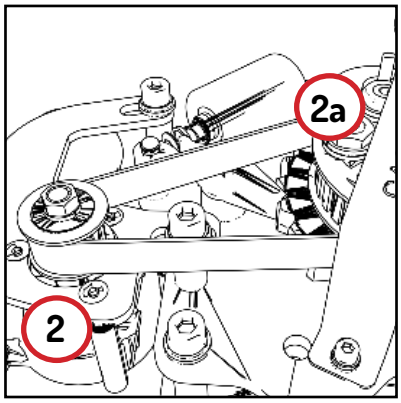


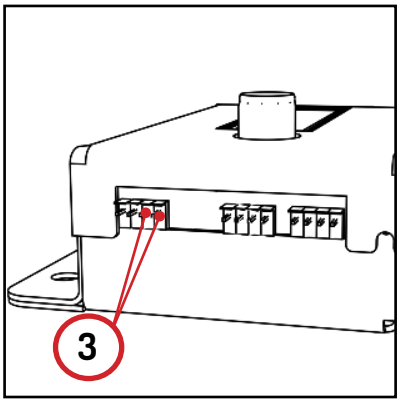


MOTOR - OPERATING CHECKLIST (BR2AL, ZA2AL)

1. Check whether the controller display shows a „motor error" message which may indicate bad connection between the controller and the motor.
2. Check whether the motor, when turned, generates sounds indicating mechanical damage to the internal transmission which may have resulted from excessive tension of the v-belt or over-tightening of the mounting bolts (2a) resulting in the clutch being inoperable.
3. Check motor cables. If motor cables are reversed, the motor may operate non-stop or turn in the opposite direction. Frequent changes in motor direction may also occur.

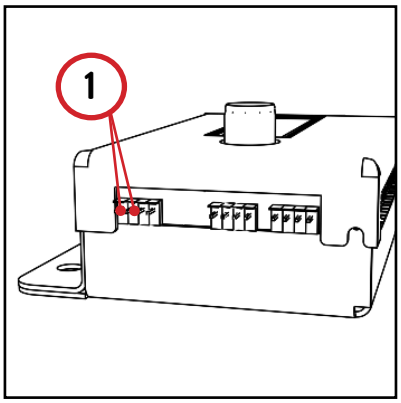


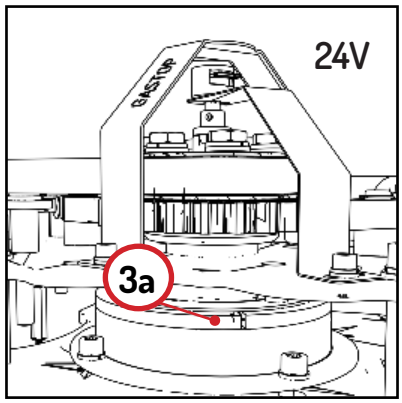


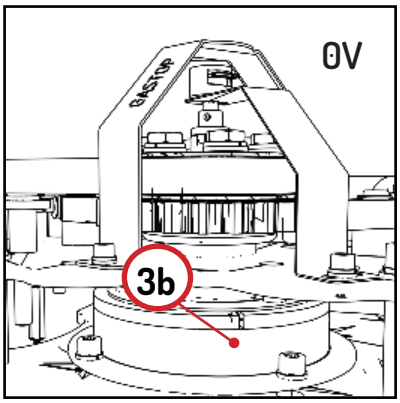


ELECTROMAGNETIC BRAKE - OPERATING CHECKLIST (BR2AL, ZA2AL)

1. Check whether the brake is properly connected to the controller.
2. Use the ohmmeter to check the resistance of the electromagnetic brake which should be above 5 Ohm.
3. Check whether, when the device is disconnected from the power outlet, there is a gap between the upper and lower elements of the brake (make sure the „free output" option is deactivated in the „SETTINGS" menu of the controller).

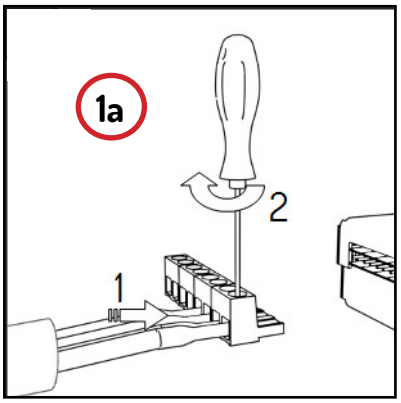


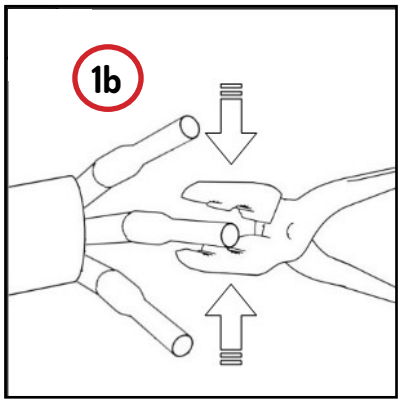


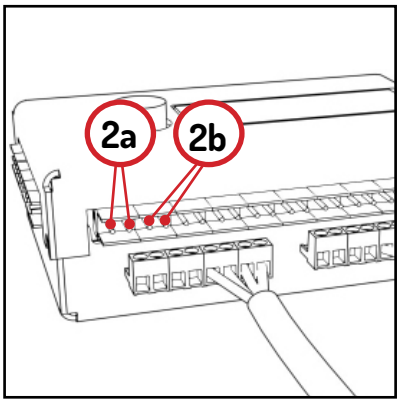


EXTERNAL SIGNAL INPUT (GREEN) - OPERATING CHECKLIST (BR2AL, ZA2AL)

1. Check whether connected external signal cables are not damaged and properly fit the sockets (1a) and whether they are equipped with anti-slippage terminals (1b).
2. Conduct a single authorization process by shorting 1 & 2 (2a) or 3 & 4 (2b) inputs of the controller (make sure the „free output" option is deactivated in the „SETTINGS" menu of the controller).

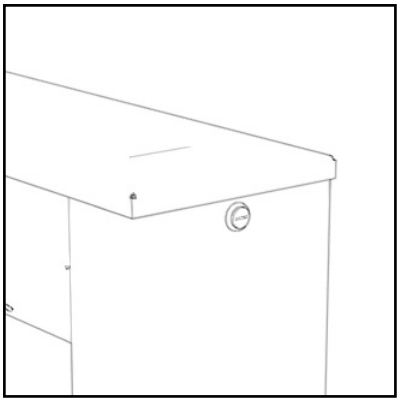


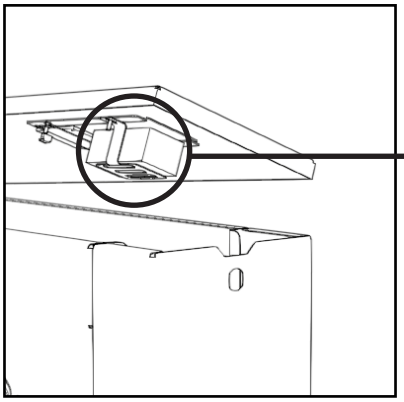


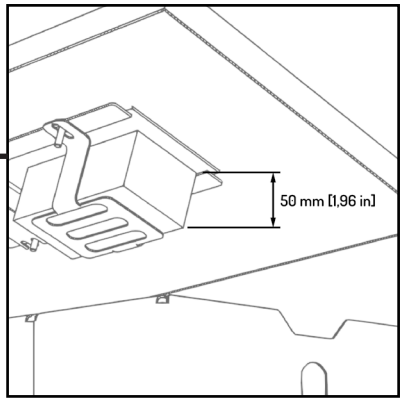


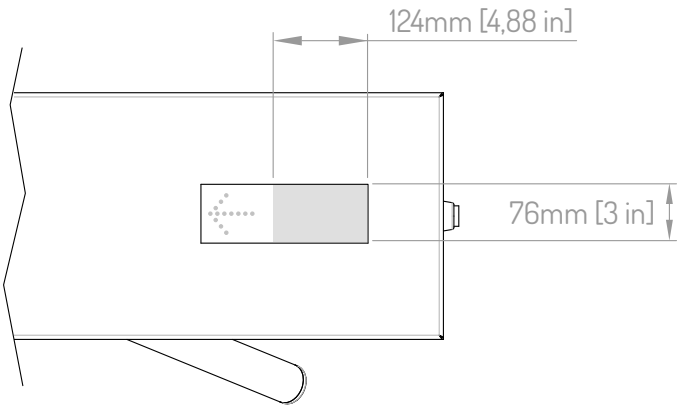
INSTALLING THE CARD READER UNDER THE DEVICE COVER

The device has a space under the cover dedicated to mounting card readers.









The dimensions of the reader mounting area do not apply to the STI-BR2AL and STI-ZA2AL devices.

FAQ – FREQUENTLY ASKED QUESTIONS

QUESTION 1 (BR2AL, ZA2AL): No response to external activation signals sent to external signal inputs – when activation signals are sent to the device, it does not turn on the LEDs to indicate a passage option and/or the motor does not respond to the rotor being pushed (no boost to rotor movement)..

Check whether the 5A fuse has blown in the controller. If the fuse keeps blowing even when all the cables (save power) are disconnected, the controller must be replaced (by authorized service personnel only).
Check whether the controller is connected to the power source (LEDs should be on, displaying various symbols).
Check whether external signal cables are properly connected to external signal (green) inputs and whether clamps fit sockets properly.
Verify motor to controller connection and operation.
Verify encoder to controller connection and operation.
Set the zero position and calibrate the device.

QUESTION 2a (BR2, ZA2): Arms move non-stop irrespective of activation signals. When connected to power, the rotor turns steadily or changes the direction without any reasons.

Verify motor to controller connection and operation.
Verify encoder to controller connection and operation.
Motor-controlling transistor is damaged – if motor control cables are shorted, a transistor may be damaged. In such a case the controller must be replaced.

QUESTION 2b (BR2, ZA2): When the device is fed with power, the rotor turns non-stop in one direction.

Verify encoder to controller connection and operation.

QUESTION 2c (BR2, ZA2): When the device is fed with power but without any open/unlock signal, the rotor turns non-stop and LEDs are dimmed.

Likely cause – excessive voltage fed to the device. To diagnoze the cause, disconnect the LEDs. The device should work properly when the LEDs have been disconnected. To eliminate the cause, adjust input voltage to the parameters specified in the technical & operation manual.

QUESTION 3 (BR2, ZA2): Coil vibration or strange behavior – lock coils go up and down very quickly.

Verify coil type configuration in the controller menu. If reversible coils had been installed in the device, check whether they have been set up properly in the controller menu.
Verify electromagnetic lock connection and operation.
Check whether the zero position has been set up properly – setting up the zero position incorrectly may result in constant contact of the lock with the ratchet wheel and subsequent vibrations. Such a situation occurs mainly in connections based on reversible coils.

QUESTION 4 (BR2AL, ZA2): When an activation signal is sent from an external system (ARK connector - green plugs), the activation signals allow more than one person to pass (i.e. allow more than one pass cycle based on one signal) or, for instance, allow the rotor to move in the opposite direction.

Check the ARK connector (green plugs).
Check input signal configuration 1-4. If the problem occurs in 1-2 or 1-4 inputs, it may indicate that they have been configured to function as lock or free passage. Instructions on how to modify input functions are specified in the technical & operation manual.
Verify motor to controller connection and operation.
Verify encoder to controller connection and operation.
Manually check (when the device is disconnected from the power outlet) whether the coil's core is free to move and the coil's internal spring automatically moves the core out of the coil.

QUESTION 5 (BR2, ZA2): Bad rotor operation, jerkiness, too fast, too slow, zero position skipping/missing.

Zero position has not been set. No calibration. When the controller has been reprogrammed or replaced, zero position must be re-set and motor calibration carried out again. The process is specified in the controller section of the technical & operation manual. After the calibration, the rotor speed may be adjusted in the controller menu.

QUESTION 6 (BR2, ZA2): No feedback signal is sent; it is too short or sent at a wrong time.

Check external signal connectors (green plugs).
Verify feedback signal configuration in the controller menu. The Magtronic controller allows setting the time when the feedback signal is sent. It may indicate activation signal reception confirmation or rotor movement start or finish. Feedback signal duration can also be configured. The settings for this function are specified in the controller section of the technical & operation manual.

QUESTION 7 (BR2, ZA2): Electromagnetic brake vibrations. As soon as the electromagnetic brake is on, it generates loud vibrations.

Electromagnetic brake disc has been installed incorrectly. Too large a gap between the disc and electromagnet armature or improper (non-paralell) alignment of these elements may result in vibrations when the voltage is reduced. Make sure the disc and electromagnet armature are aligned properly. This procedure may only be performed by authorized service personnel.

QUESTION 8 (BR2, ZA2): No response to signals. When signals are sent, the passage stays closed (locked) and/or LEDs do not show that passing is possible.

Check the ARK connector (green plugs).
Check the configuration in the controller menu. The gate's inability to operate properly may result, for instance, from setting it to operate in the "locked" mode in which the gate does not respond to any activation signals.

QUESTION 9 (BR2 , ZA2): When the external signal is sent, the gate gets unlocked in the proper direction, but when a person has passed, the rotor/arm does not return to the zero position; it remains still and motor noise can be heard.

Check the tension of the cogged belt in the mechanism or adjust the clutch (the procedures may only be performed by authorized service personnel).

QUESTION 10 (BR2AL, ZA2AL): The gate operates non-stop and regularly changes the direction.

Deactivate the "test mode" in the controller's main menu. .

QUESTION 11 (BR2AL, ZA2AL): Despite checking and a failure to identify any problems in the mechanism and controller, the device still does not operate properly. For instance, it may sometimes start or stop on its own.

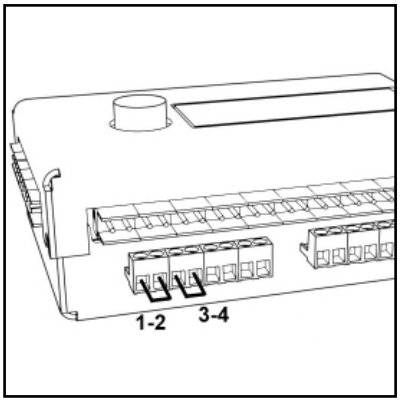
1. Check whether the device receives proper voltage.
2. Check whether the devices are not powered by the same source (phase) with high distortions (the same source powers, for instance, three-phase devices, inverters, such as elevators, escalators, boom barriers).
3. Check whether any antennas/aerials which may emit EM fields are located near the device.
4. Check for any friction in the rotor rotational movement caused by, for instance, a failure to lubricate the bearings..

QUESTION 12 (BR2, ZA2): The fuse is blown as soon as the power is on.

When the power is off, disconnect any cables from the controller. Then restore the power to the controller and start connecting cables one by one. A blown fuse indicates a bad component.

QUESTION 13 (BR2, ZA2): The gate stays locked when the card or chip is brought near the access control sensor. The gate is connected to the access control system.

To check gate operations, activate gate unlock by shorting controller's 1-2 or 3-4 inputs. If the gate is unlocked properly, then the problem lies outside the device.



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