GKS – Pressure Sensor Safety Edge System

GKS

User Manual V2.0

KONTAL ELEKTRONİK

Please read the user manual carefully before using your device. Pay attention to the installation, electrical connection and initial start sections and follow the specified steps. The product owner/user should keep this user manual in a known and visible place throughout the life of the product.

- Use the product only indoors and in dry environments. This product is designed for indoor use and protection against water and dust is not guaranteed.
- Store and apply GKA in a dry environment.
- Battery is out of warranty for products that work with batterie. Likewise, the battery and the malfunctions caused by the discharge or leakage of the battery in products that have reached the end of their shelf life are not covered by the warranty.
- All service and repair operations can only be done by Kontal Elektronik technical service. The product should not be interfered with by other persons.
- The operating voltage of each product is indicated on the label on it. Do not supply the product with a source other than this voltage value.

If the product is used in violation of the above-mentioned items, it may cause fire, personal injury, or damage to the product or the structure in which the product is installed. Kontal Elektronik Ltd does not accept any responsibility for such situations caused by the user.

✓ This mark will be used for key points in future chapters.

Do not touch the electrical supply points of the product with bare hands.

✓ This sign will be used for warnings related to voltage in future sections.

✓ This sign on the label indicates that the supply voltage of the product is DC.

This symbol on the product or its box indicates that this product cannot be treated as normal household waste. Instead, the product should be delivered to designated collection points for the recycling of electronic equipment. Incorrect disposal of the product can have negative consequences for the environment and human health.

1. DEFINITION

The security edge system works with a receiver and transmitter and is used in roller shutters, barriers, sliding doors and industrial doors. The purpose of use is to prevent the door/shutter in motion from hitting people or other living creatures and causing harm.

2. TECHNICAL FEATURES

The technical features of the product, the things to be done before installation and the information about the operation of the product are gathered under this title.

TECHNICAL FEATURES		
Model	:	GKA
Product Code	:	K165-01
Operating Voltage	:	12/24V DC
Operating Current	:	30mA@24V
Operating Frequency	:	433,92MHz
Contact Type	:	Dry Contact NO/NC
Max. Contact Power	:	250V 5A
Auto Learning	:	✓
GKV Capacity	:	2
Weight	:	57gr
Dimensions (Width x Length x Depth)	:	57 x 85 x 24mm

Model	:	GKVB	GKV
Product Code	:	K166-02	K166-01
Battery Type	:	3V DC	3V DC
Code Type	:	Fixed	Fixed
Frequency	:	433,92MHz	433,92MHz
Output Power	:	~0,05W	~0,05W
Maximum Current	:	17mA	17mA
Max Magnet Working Distance	:	2cm	2cm
Pressure Range	:	2mbar	2mbar
Weight	:	125,4gr	125,4gr
Dimensions (Width x Length x Depth)	:	100 x 65 x 28,5mm	100 x 65 x 28,5mm

- The battery life of the GKV-B (transmitter) card is approximately 2 years.

2.1. SETTING THE TRANSMITTER CARD(GKV-B) DIP SWITCH SETTINGS

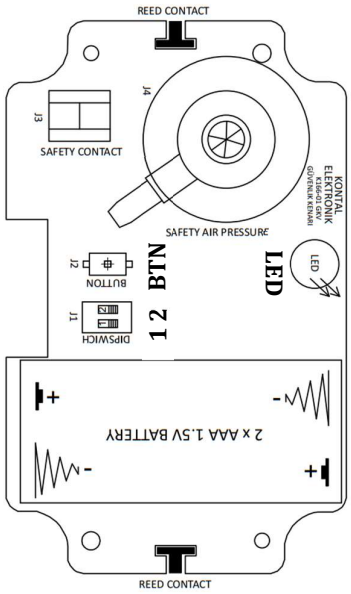


Figure 1 - Safety Edge Transmitter (GKV-B)

DIPSWITCH NUMBER	DIPSWITCH POSITION	FUNCTION DESCRIPTION
DIP Switch No 1	**ON**	The system is ready for operation.
	OFF	No power in the system.
DIP Switch No 2	**ON**	The system will operate in normally closed (NC) mode.
	OFF	The system will operate in normally open (NO) mode.

- First, DIP switch number 1 must be set to ON in order to activate the system. When this DIP switch is in the OFF position, the system will not be powered.
- When **DIP switch 2** is set to **ON**, the system will operate in normally closed **(NC)** mode, and when set to **OFF**, the system will operate in normally open **(NO)** mode. When the position of **DIP switch 2** is changed, **DIP switch 1** must also be turned off and on.

2.2. ID ASSIGNMENT OF SAFETY EDGE TRANSMITTER (GKV-B)

If the LED on the safety edge transmitter card is lit steadily, it indicates that the ID has not been assigned to the transmitter card. A transmitter card that has not been assigned an ID does not work.

Each of the transmitter cards in the security edge system has a unique ID. These IDs can be assigned to the transmitter cards by the user. Initial ID assignment and subsequent ID assignment processes are done in different ways.

INITIAL ID ASSIGNMENT

- In order for the first ID assignment to be made, first of all, DIP switch 1 must be in the ON position. If DIP switch 1 is not in the ON position, set it to this position.
- If the product has not been assigned an ID before, the LED on the product will light up steadily.
- Then press and hold the button on the Safety Edge Transmitter (GKV) card, shown in ***Figure 1***. Continue this process for a while. When the LED on the GKV starts to blink at regular intervals, remove your finger from the button. You will have performed the first ID assignment.

SUBSEQUENT ID ASSIGNMENTS

- In order to reassign the ID of the products that have been assigned an ID before, first turn the DIP switch 1 OFF.
- Then press the button. While your hand is on the button, turn the DIP switch 1 ON, during this time the led on the transmitter card will start to blink. This indicates that the ID assignment is complete. After these operations, raise your finger over the button.

2.3. MAGNETIC DETECTION MODE OF THE SAFETY EDGE RECEIVER(GKA) CARD SYSTEM

When GKA be on, the card will enter magnetic detection mode for about 2 minutes. In this time, if there is a magnet by sensor sensing, led will be on, or else led will be off. Thanks to this mode, you can find working distance for magnet easily. When you want to exit this mode, you can press the button one time, or wait about 2 minutes automatically break mode. After this stage, GKA will be ready for use.

2.4. THE START OF THE SAFETY EDGE RECEIVER (GKA) CARD SYSTEM

When the receiver card is opened, the buzzer on the card will beep at certain numbers and give you a warning.

- **3 beeps;** This means that no safety edge transmitter (GKV-B) has been previously taught to the control card.
- **Single beep;** It means that the safety edge transmitter (GKV-B) has been taught to the control card before.

2.5. TEACHING(PROGRAMMING) THE SAFETY EDGE TRANSMITTERS (GKV-B) TO THE RECEIVER (GKA)

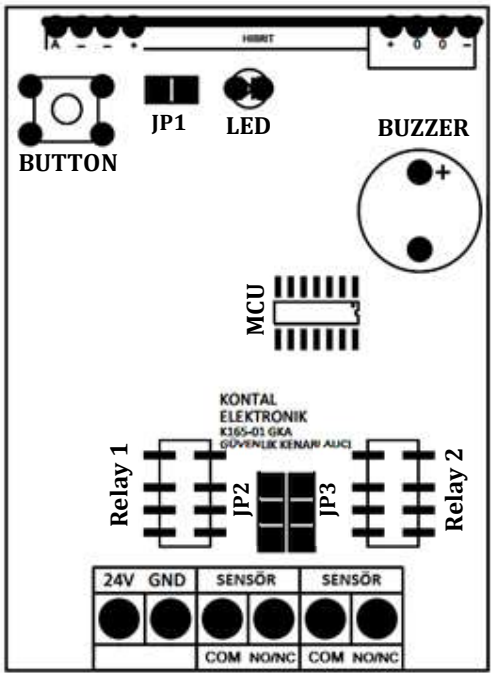


Figure 2 – Safety Edge Receiver (GKA)

➢ Teaching the Safety Edge Transmitters (GKV-B) to the Receiver

1. To teach a new Safety Edge Transmitter (GKV) to GKA, your transmitter's **ID assignment** phase must be completed.
2. Connect the appropriate supply voltage (24V DC) to GKA.
3. Press the button on the GKA card for about 3 seconds **(Figure 2).** The buzzer will sound when the receiver enters the learning mode. This process will take up to 10 seconds. During this time, press the button on the GKV card **(Figure 1)** that you want to teach. The buzzer on GKA will beep twice to indicate that it has learned the transmitter. If GKV has been taught before, it will exit the learn mode directly.
4. GKA will exit the learning mode when the button of the last GKV device taught is pressed again or when the button on the GKA is pressed again. In addition, if no action is taken again within 10 seconds, GKA will exit learning mode at the end of the specified time.
5. If you are late in teaching your transmitter, follow the same steps to enter learning mode again.

2.6. DELETING THE MEMORY OF GKA CONTROL CARDS

1. Disconnect the power of the GKA receiver card.
2. When there is **no electric connection** in the system, press the button on the GKA and do not lift your finger from the button.
3. **While your finger is on the button,** turn on the power of the receiving card. When the receiving card is turned on, the LED on it will light and the buzzer will sound. This will continue until the deletion is complete. When the deletion completed, while your finger is on the button, the LED will flash quickly, and the buzzer will beep briefly. In this case, GKVs in the memory of the GKA card will be deleted.

2.7. GKA JUMPER SETTINGS

- **JUMPER 2 (JP2):** It is used to control the outputs (NO / NC) of the 1st Relay used for GKV. If the jumper cap to be used is attached as in figure 3, the NO leg of the relay is given to the terminal. But if it is used as in figure 4, the NC leg of the relay is given to the terminal.

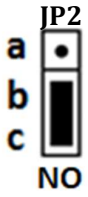


Figure 3 – Normally Open (NO)

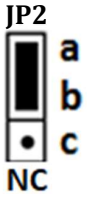


Figure 4 – Normally Closed (NC)

- **JUMPER 3 (JP3):** It is used to control the outputs (NO / NC) of the 2nd Relay used for GKV. If the jumper cap to be used is attached as in figure 5, the NO leg of the relay is given to the terminal. But if it is used as in figure 6, the NC leg of the relay is given to the terminal.

Figure 5 –Normally Open (NO)

Figure 6 – Normally Close (NC)

2.8. GKA ALERTS AND WARNINGS

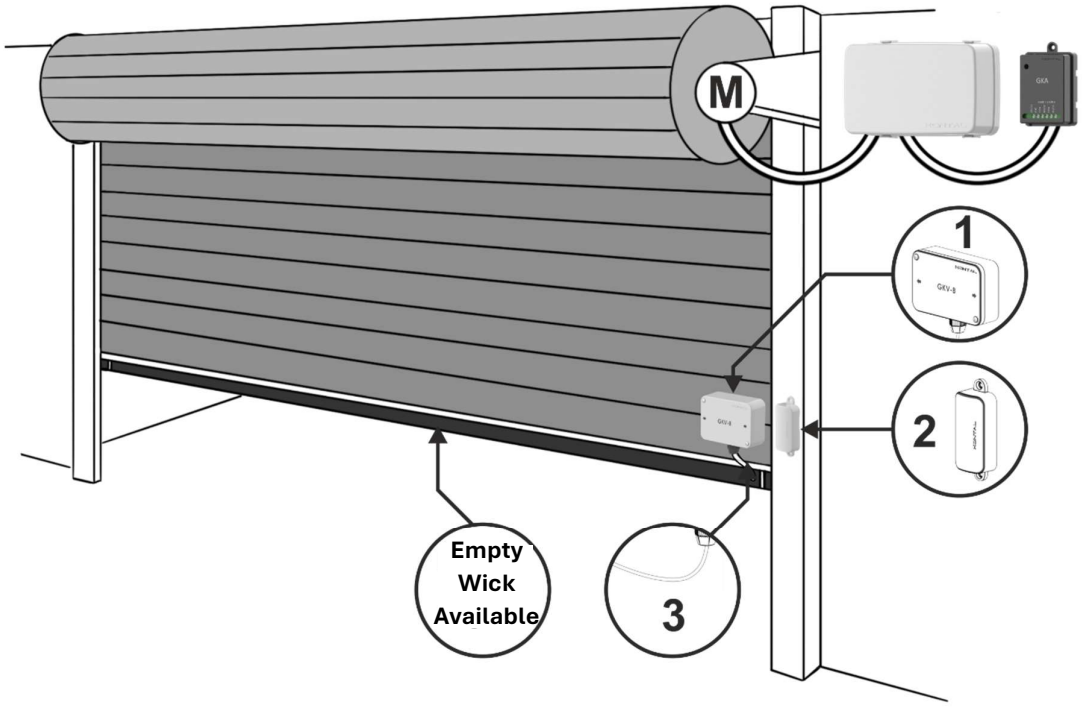
Time Out	If no data is received from the transmitter to the receiver for 210 seconds, the system beeps once per second and the output is triggered. In case of communication with the transmitter again, the alarm will stop, and the output trigger will return to its original state. It continues to operate normally.
Low Battery	This is the alert when the battery of the GKV product starts to get low. An alert is given once every 10 seconds. The system continues to run, the output is not triggered. Indicates that it is time to change the battery.
Dead Battery	If the battery of the transmitter card runs out, the buzzer on the receiver will beep 3 times per second. In this case, the output is triggered. Battery replacement is a must. Otherwise, the output stays on trigger. After replacing the battery, the alarm stops when GKV communicates with GKA.
Low Battery + Loss of Communication	Indicates that communication with the transmitter with a low battery has been lost. The system goes into alarm state and beeps 2 times per second. In this case, it is necessary to replace the battery.
Safety Edge Warning	As long as the safety edge input is short-circuited, the receiver board will be in an alarm state. In this case, the output is triggered, and the buzzer beeps continuously.
Safety Edge Registration	2 short beeps will sound when learning is completed. If the same GKV is attempted to be re-learned, the GKA will exit the learning mode. If the GKV you want to teach takes the receiver out of learning mode, it means the GKV has already been taught.

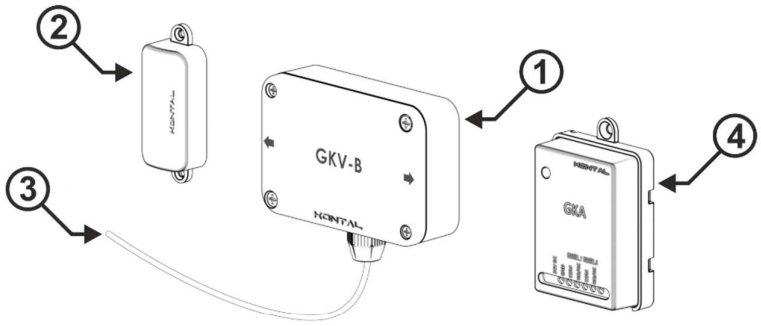
When the magnet and the GKV-B are side by side, the output is not triggered while audible alarms are given. The main purpose of this is to prevent the fully closed shutter or door from opening by itself.

When the magnet and the GKV-B are side by side, the systems to which the GKV / GKV-B is connected (blinds, roller shutters, barriers, sliding doors, etc.) will not react. For example, **when the shutter is closed, as in Figure 7**, when the magnet comes closer to the GKV / GKV-B card less than 2 cm, the system will understand that the shutter is closed, and will not open the shutter and will not give an audio warning even if the safety edge detects reactions. This process will work in the same way in other systems where you have installed your product **(see 3. Application Areas).**

3. APPLICATION AREAS

Safety Edge System can be used in roller shutters, 90° gates, swing gates, sliding gates and barriers. The purpose of the system is to prevent damages that may occur if an object or living creatures enters while the system is shutting down in these areas used. As soon as the safety edge is triggered during closing, this data is sent to the GKA wirelessly, and the GKA command the motor to move in the opposite direction, preventing collision and jamming.





1	2	3	4
GKV-B	MAGNET	PIPE	GKA

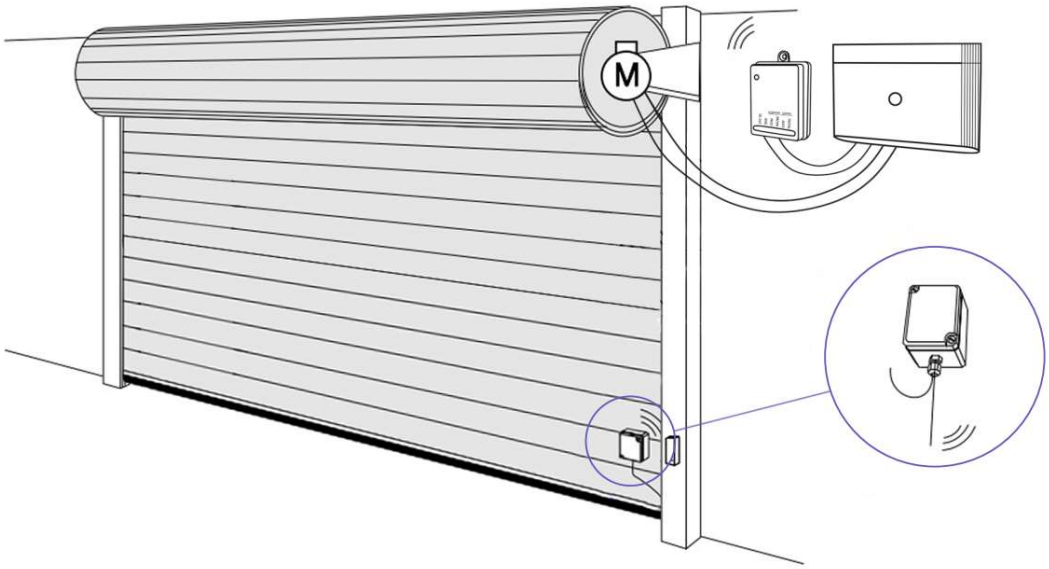


Figure 7 – Usage in Roller Shutters

Figure 7 shows the use of the safety edge system in roller shutters. The safety edge is placed at the bottom of the shutter. The GKV, which is connected to the safety edge, is mounted on a point of the shutter close to the edge. The most important point here is that if the magnet is to be used, the magnet and the GKV should be side by side when the shutter is in the fully closed position. The distance between them should be less than 2 cm. In this system, when the edge detects something, GKV sends data to GKA. GKA, which receives the data, triggers the card that runs the shutter motor, such as UPS, and stops the system.

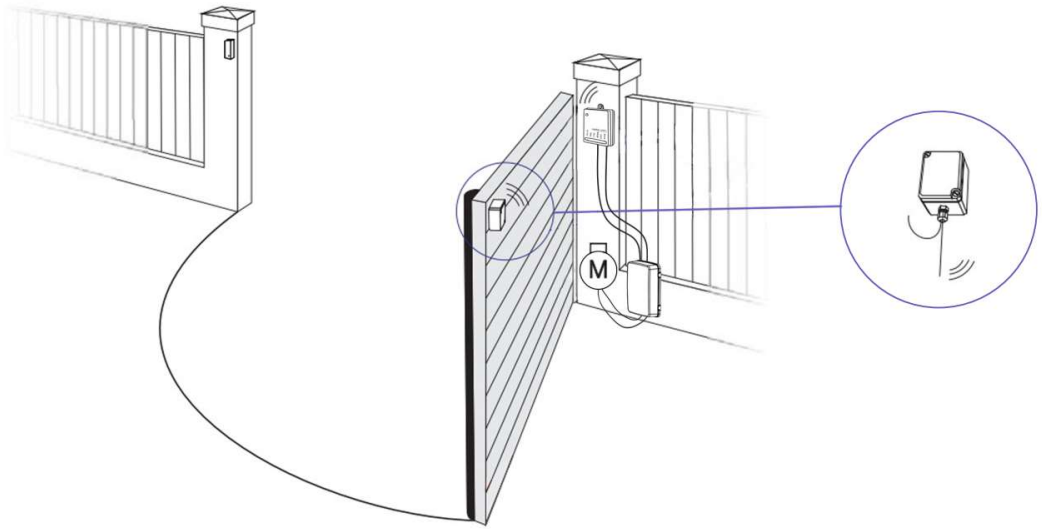


Figure 8 – Usage in 90° Gates

Figure 8 shows the 90° gates usage and installation of the system. The safety edge and GKV are mounted on the movable door. When the door is completely closed, the magnet and the GKV come together as in the roller shutter. The distance between the magnet and the GKV should be no more than 2 cm. Here, too, if the door hits something, the triggered GKV sends data to the GKA receiver card. The GKA that receives the data triggers the motor control card used here, causing the movement to stop and the door to be opened again.

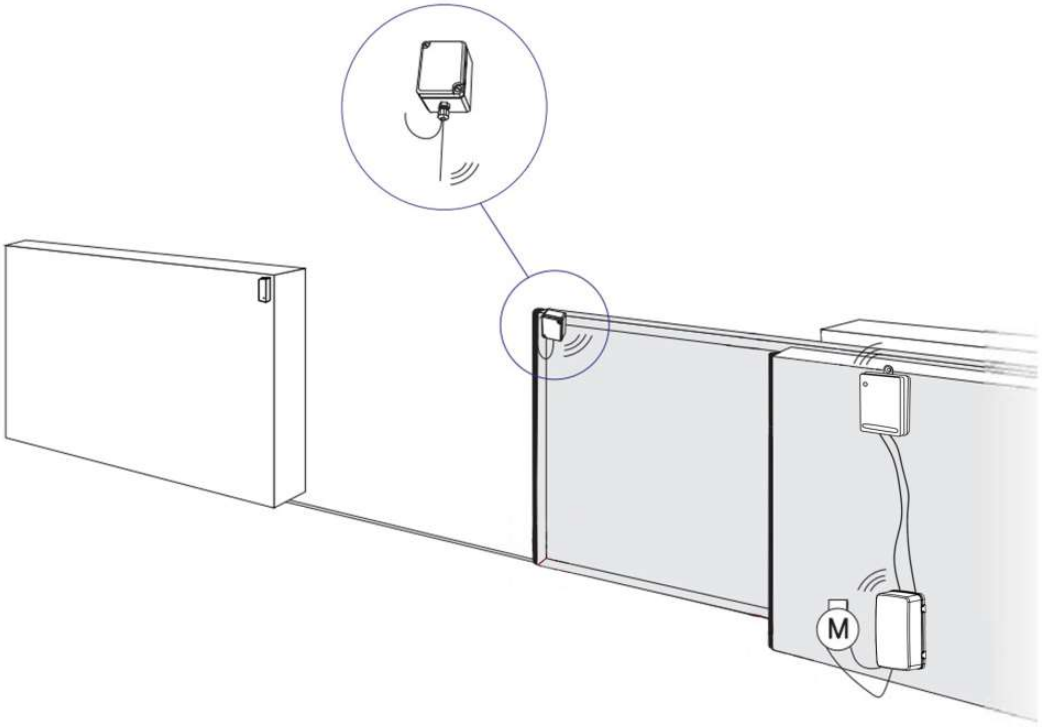


Figure 9 – Usage in Sliding Gates

Figure 9 shows the system's usage in sliding doors. The safety edge and GKV are mounted on the movable gate. When the gate is completely closed, the magnet and the GKV come together. The distance between them should be at most 2 cm. In the event that the gate hits someone or something gets stuck while the gate is closing, the GKV detects the situation and sends data to GKA. After the GKA receives the data, it triggers the motor control driver used in the system, stops the movement, and moves it in the opening direction.

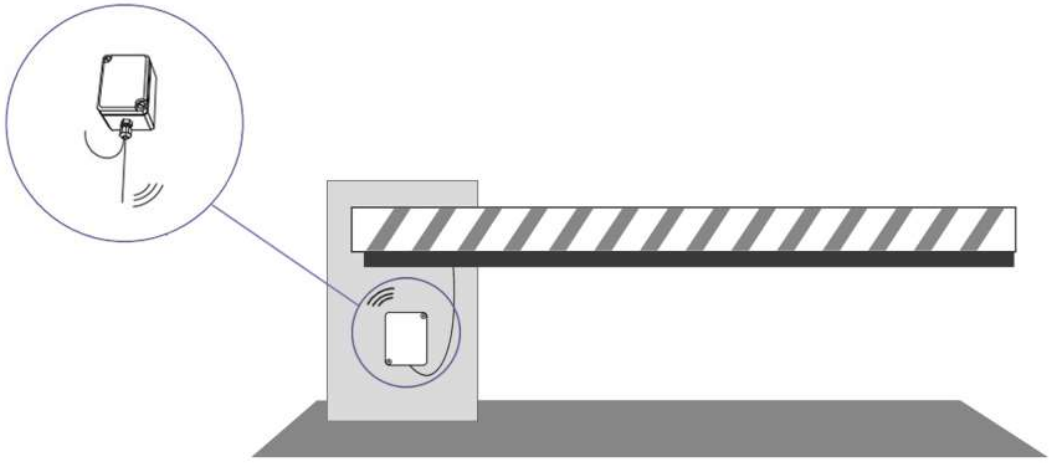


Figure 10 - Usage in Barriers

Figure 10 shows the use and installation of the system in barriers. In case of contact of the safety edge mounted under the barrier with the passing vehicle, the barrier will immediately stop and open back. In such cases, there is no need to use magnets. The GKA card is placed inside the panel next to the barrier control card.

4. CONNECTION DIAGRAM

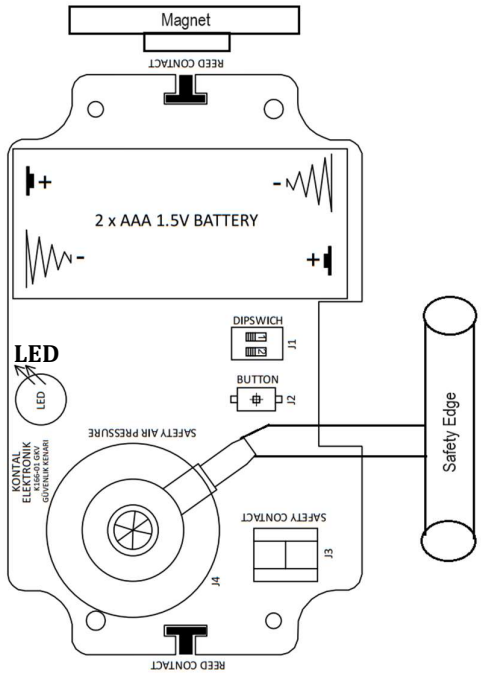


Figure 11 - GKV-B Connection Diagram

Figure 11 shows the GKV connection diagram. It becomes ready for use when 2 cables from the edge are connected to the terminal section.

It is recommended to be used with magnets in places such as roller shutters. When the shutter is fully closed, the magnet and the GKV should be side by side and the distance between them should be less than 2 cm. The main purpose of using the magnet is that the GKV keeps the shutter closed when the edge is triggered while the shutter is in the closed position. In addition, in case of use with a magnet, the battery life is significantly extended.

When the roller shutter or gate is completely closed, the magnet and the GKV / GKV-B should be side by side. The distance between them should be less than 2 cm. The edge of the magnet that should be near is marked on the box.

When the magnet is brought closer to the GKV / GKV-B, the LED on it will flicker briefly. In addition, GKA gives a buzzer sound if it is recorded on the GKA card. In this way, you can measure the detection distance of the magnet at the place where you mount it.

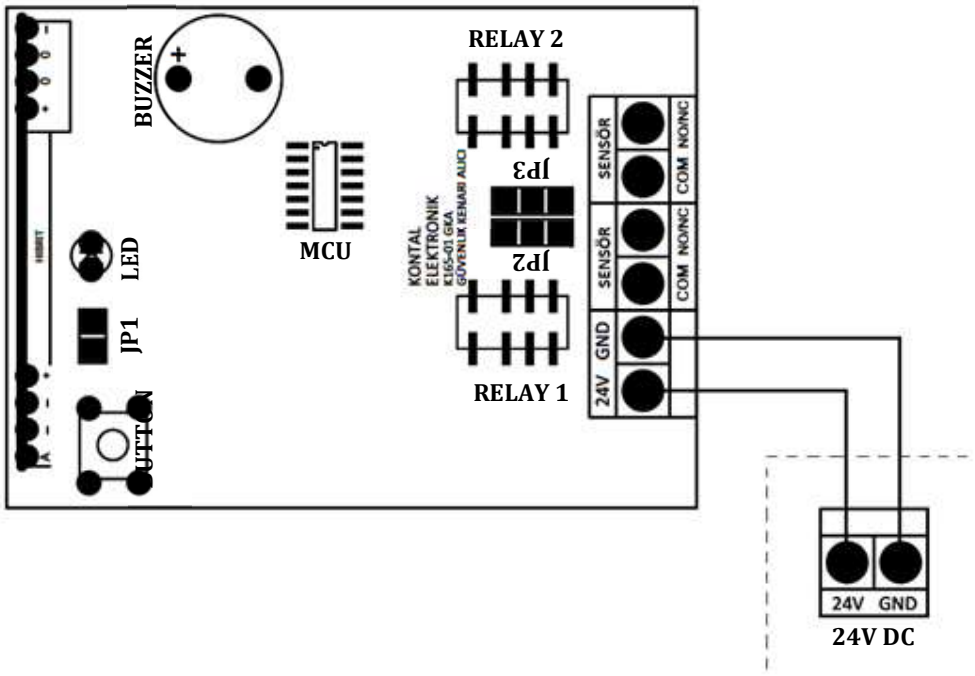


Figure 12 - GKA Connection Diagram

Turn off the electricity when connecting the product.
Do not touch the terminal points of the product with your bare hands after the system is energized.

- Use a 2x1.5 mm2 cable to power the device.
- Make the installation by paying attention to the connection figures and diagrams and make sure that the supply voltage is correct.
- If there is a problem with your control card even though you have made all the connections correctly, contact our technical service.

When the magnet and the GKV – GKV-B are side by side, the systems to which the GKV / GKV-B is connected (blinds, roller shutters, barriers, sliding doors, etc.) will not react. For example, **when the shutter is closed, as in Figure 7**, when the magnet comes closer to the GKV / GKV-B card less than 2 cm, the system will understand that the shutter is closed, and will not open the shutter and will not give an audio warning even if the safety edge detects reactions. This process will work in the same way in other systems where you have installed your product **(see 3. Application Areas).**

5.INSTALLATION

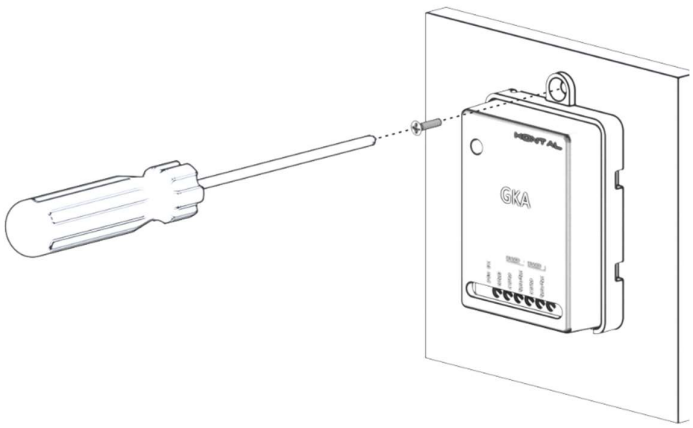


Figure 13 – GKA Installation to Wall

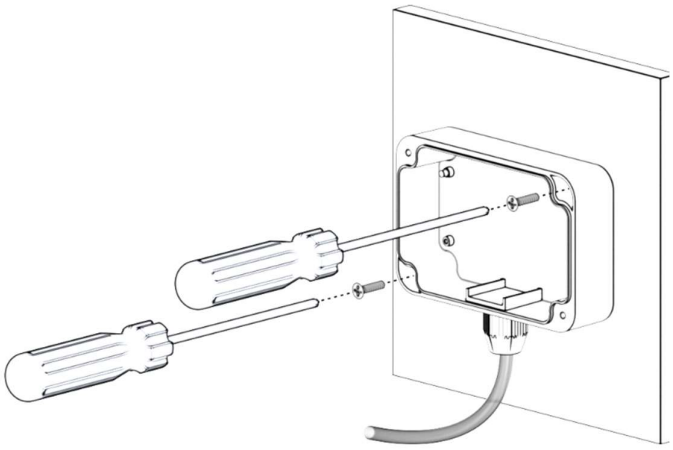


Figure 14 - GKV Installation to Wall

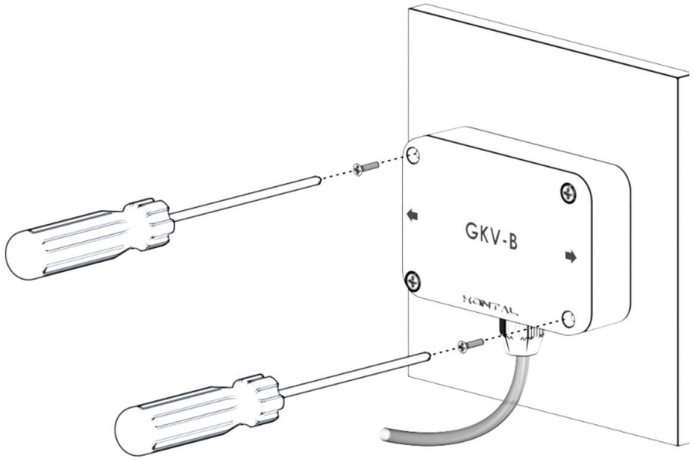


Figure 15 – GKV-B Top Cover Assembly

Note ; Install GKV-B on a flat surface with its top cover attached (Figure 14).

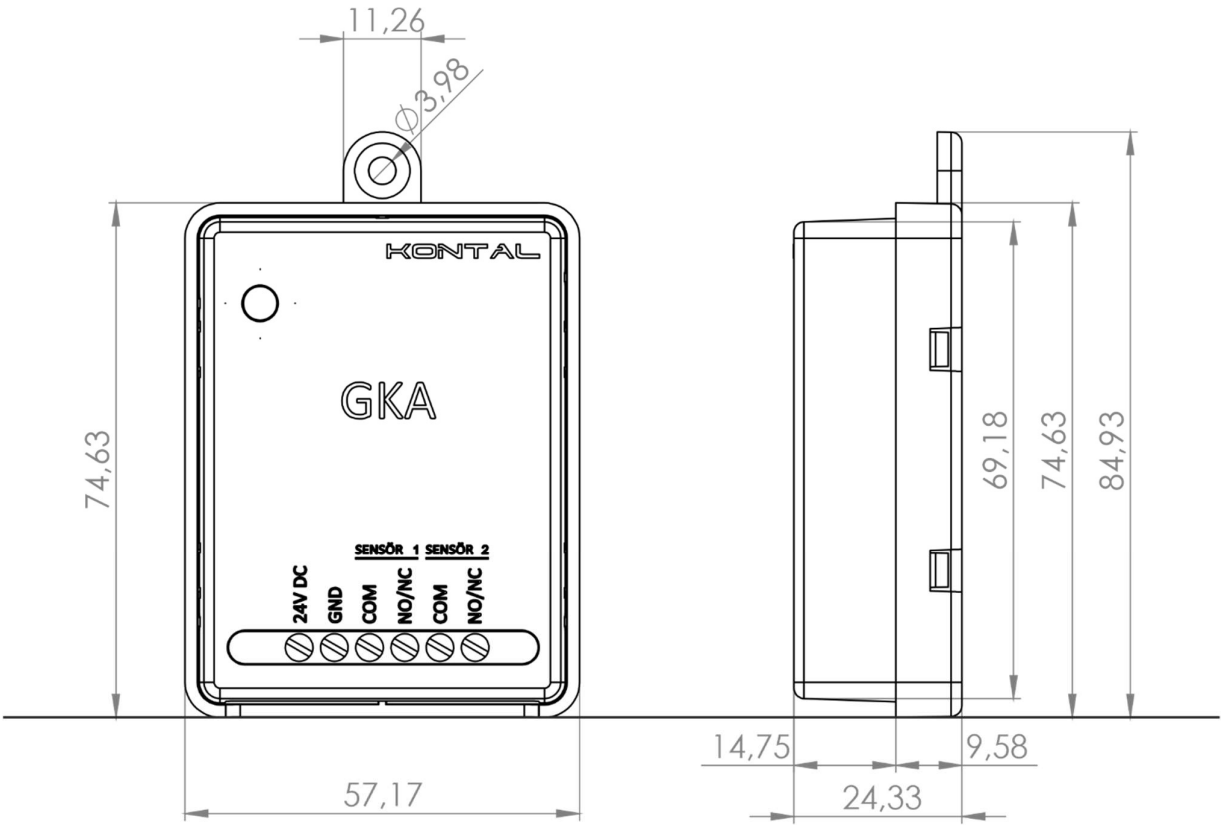


Figure 16 - GKA Dimensions

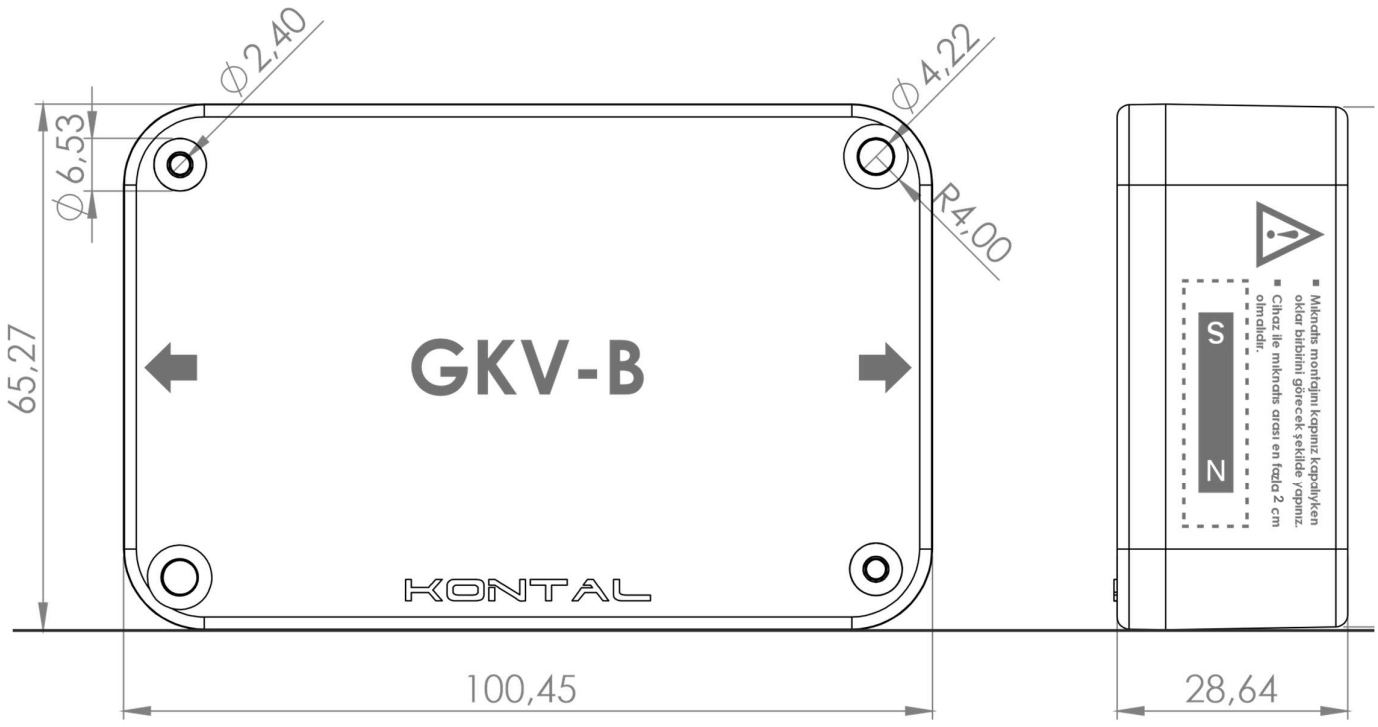


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Figure 17 - GKV / GKV-B Dimensions

Please install the device in an easily accessible place.

Manufacturer / Authorized Service

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