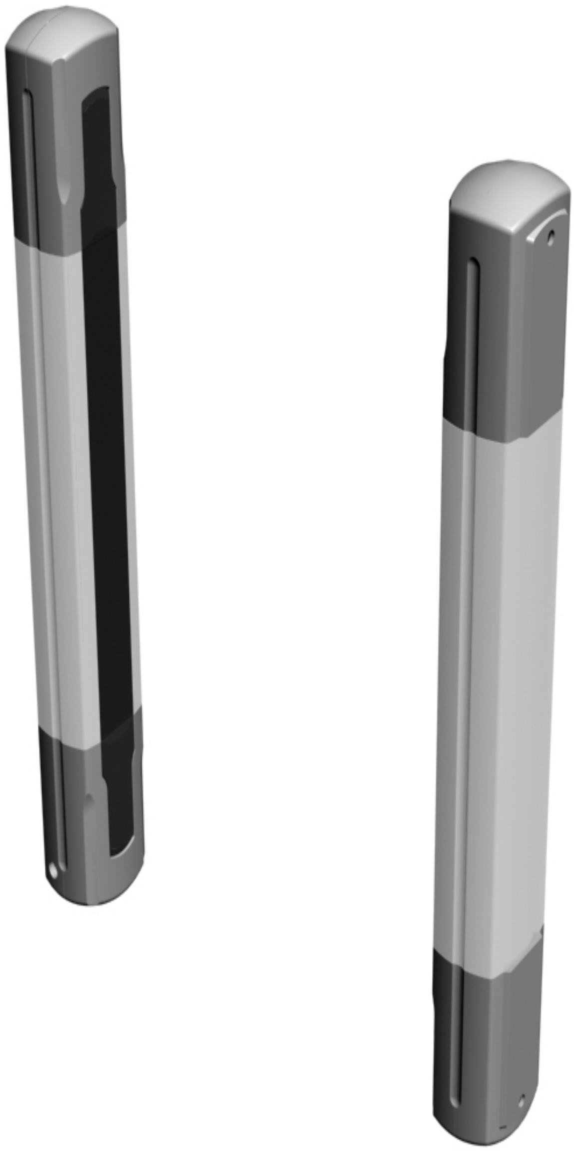
LIGHT CURTAINS

BF90 / BF180

User Manual V1.0



Please read the instructions carefully before you start using your device. You fulfil step by step necessary specifications like installing settings, electrical connections and first operate system configurations carefully. After this stage, product owner/user have to keep this manual on known and visible place throughout product life.

- Use the product only indoors and in dry environments.
- Keep the product in a dry place.
- All service and repairs can only be done by Kontal Elektronik technical service. The product should not be intervened by any other persons.
- Each product working voltage is described on own label. Do not supply the product with a different source outside this voltage range.

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 exclamation mark will be used to highlight important points.

Do not touch supply input of the product with bare hands.

- ✓ This electric mark will be used to highlight electricity hazard.

- ✓ 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.

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Please make sure that grounding is done for the product to work properly.

1. DEFINITION

Light Curtain (BF90 & BF180) is a product that operates using an infrared communication protocol and is typically used for safety purposes. It is available in two models: BF 90 (90 cm) (6 eyes) and BF 180 (180 cm) (12 eyes). The technical specifications for these products are listed below.

2. TECHNICAL FEATURES

The features of the 90cm size light curtains are as follows:

TECHNICAL FEATURES	90CM LIGHT CURTAIN TRANSMITTER	90CM LIGHT CURTAIN RECEIVER
Model	BF90V	BF90A
Product Code	K104-01	K103-01
Operating Voltage	15-40V DC	15-40V DC
Operating Current	65mA @24V DC	50mA @24V DC
Number of Beams (Zones)	6pcs	6pcs
Distance between two zones	15cm	15cm
Signal Cycle Time	50ms	-
Receiver Reaction Time	-	60ms
Operating Distance	15m	15m
Min. Contact Reaction Time	-	80ms
Infrared Signal Frequency	38kHz	38kHz
Operating Temperature	-20 °C +55 °C	-20 °C +55 °C
Contact Type	-	Dry Contact NO / NC
Max. Contact Power	-	60V DC 100mA, 42V AC 100mA
Weight	565gr	577gr
Dimensions	3,7 x 107 x 3cm	3,7 x 107 x 3cm

The features of the 180cm size light curtains are as follows:

TECHNICAL FEATURES	180CM LIGHT CURTAIN TRANSMITTER	180CM LIGHT CURTAIN RECEIVER
Model	BF180V	BF180A
Product Code	K106-01	K105-01
Operating Voltage	15-40V DC	15-40V DC
Operating Current	70mA @24V DC	65mA @24V DC
Number of Beams (Zones)	12pcs	12pcs
Distance between two zones	15cm	15cm
Signal Cycle Time	100ms	-
Receiver Reaction Time	-	110ms
Operating Distance	15m	15m
Min. Contact Reaction Time	-	80ms
Infrared Signal Frequency	38kHz	38kHz
Operating Temperature	-20 °C +55 °C	-20 °C +55 °C
Contact Type	-	Dry Contact NO / NC
Max. Contact Power	-	60V DC 100mA, 42V AC 100mA
Weight	1040gr	1056gr
Dimensions	3,7 x 197 x 3cm	3,7 x 197 x 3cm

2.1. Transmitter Module Control Board

The control board of the light curtain transmitter module is shown in Figure 1. This board has 3 terminal connections and 1 Trimpot for adjusting the transmitter signal strength.

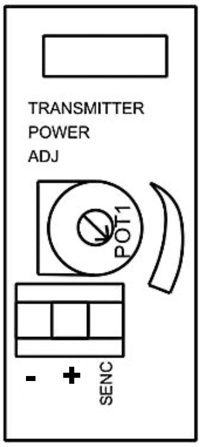


Figure 1 - Transmitter Module

Two of the terminals on the transmitter module are designated for the required supply voltage for the board. The terminal labelled "SENC" is used for the synchronization cable connection between the RECEIVER and TRANSMITTER modules.

With the trimpot on the transmitter module, you can increase or decrease the strength of the signal sent by the transmitters. By adjusting it clockwise, you increase the signal strength, and by adjusting it counter clockwise, you decrease the strength. During these adjustments, you will observe a change in the brightness of the signal strength LED on the height photocell. Increasing the signal strength will extend the operating distance.

When making the synchronization cable connection, ensure that the negative terminals of the RECEIVER and TRANSMITTER modules are common.

2.1. Receiver Module Control Board

The control board of the light curtain receiver module is shown in Figure 2. This board has 6 terminal connections and 2 function jumpers.

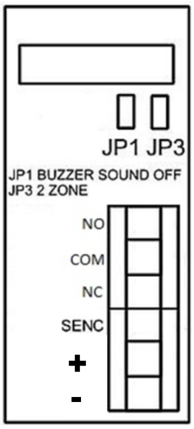


Figure 2 – Receiver Module

Two of the terminals on the receiver module are designated for the required supply voltage for the board. The terminal labelled "SENC" is used for the synchronization cable connection between the RECEIVER and TRANSMITTER modules.

The other three terminals are for output from the receiver module. The maximum contact capacities that can be obtained from these terminals are shown in the **TECHNICAL FEATURES** table.

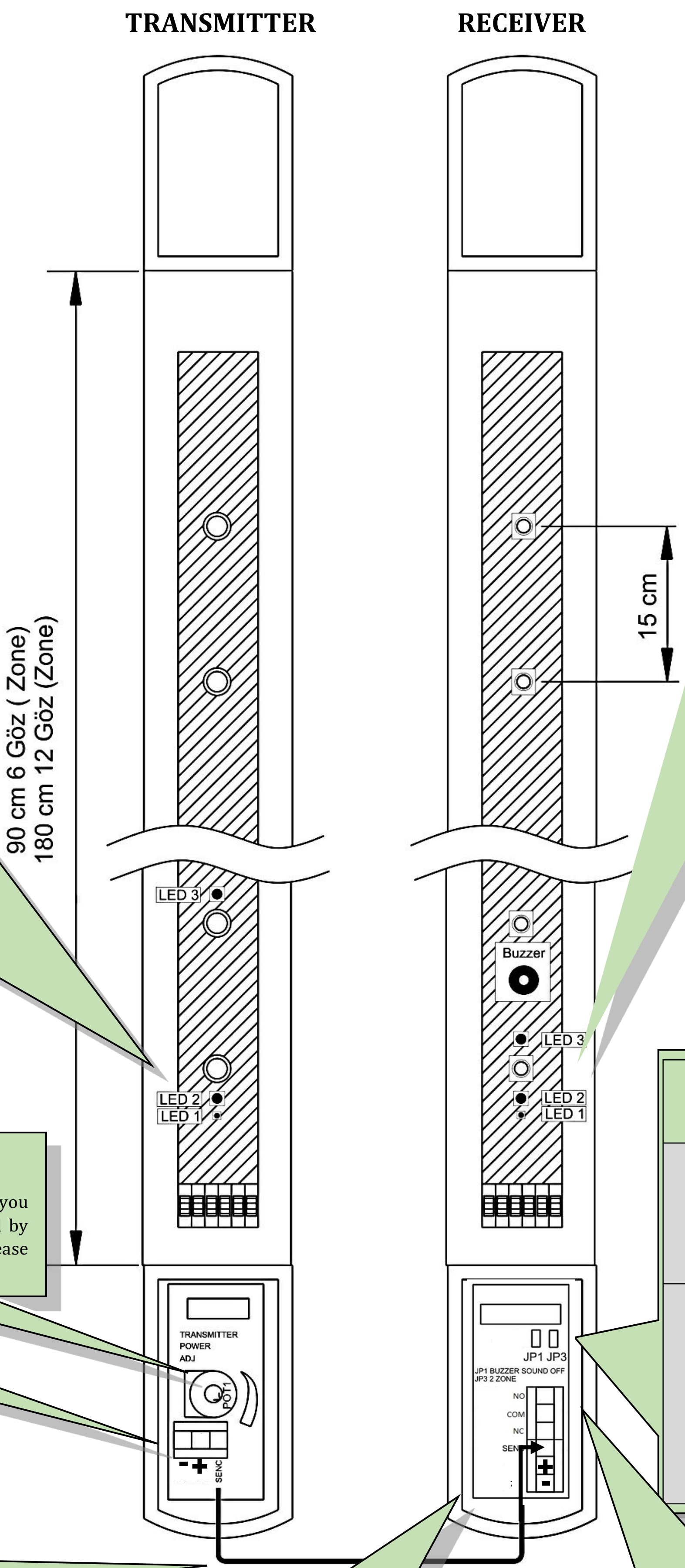
The two jumpers on the receiver module serve different functions, as shown below:

	JUMPER IS SHORT-CIRCUITED	**JUMPER IS NOT SHORT-CIRCUITED**
JP1	Buzzer is active	Buzzer is inactive
JP3	Output is given when two beams are interrupted	Output is given when one beam is interrupted

When making the synchronization cable connection, ensure that the negative terminals of the RECEIVER and TRANSMITTER modules are common.

After changing the jumper positions, you MUST turn off and on the system's power.

3. CONNECTION SCHEMA



Transmitter:

	FUNCTION
LED 3	Transmitter Signal Strength Indicator LED
LED 2	5V Power Indicator LED
LED 1	Power supply voltage indicator LED

Receiver:

	FUNCTION
LED 3	When there is no obstacle between the photocells, LED3 is ON. When there is an obstacle, it is OFF.
LED 2	5V Power Indicator LED
LED 1	Power supply voltage indicator LED

	JUMPER IS SHORT-CIRCUITED	JUMPER IS NOT SHORT-CIRCUITED
JP1	Buzzer is active	Buzzer is passive
JP3	Output is given when two beams are interrupted	Output is given when one beam is interruptedg

Adjustment Signal Strength

By turning the trimpot to the LEFT, you can reduce the working distance, and by turning it to the RIGHT, you can increase it.

15/40V DC Supply Terminals

SENC connection for synchronization between the RECEIVER and TRANSMITTE.

15/40V DC Supply Terminals

NO and NC output with terminal blocks on the receiver card.

4. INSTALLING

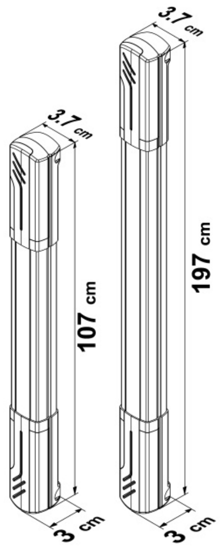


Figure 3 - Dimensions

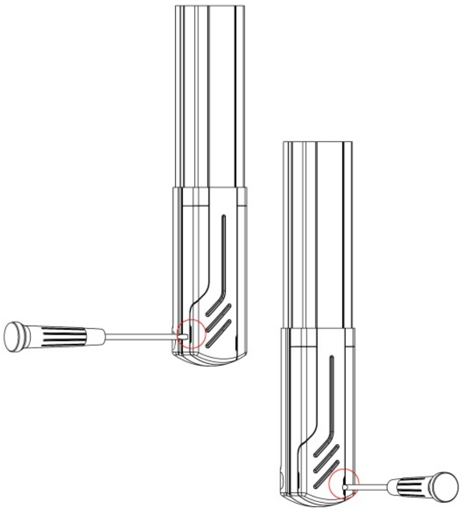


Figure 4 – Removing Front Cover

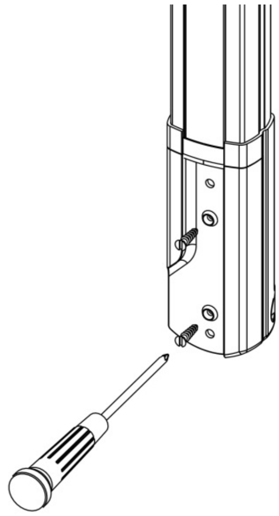


Figure 5 – Removing Screw

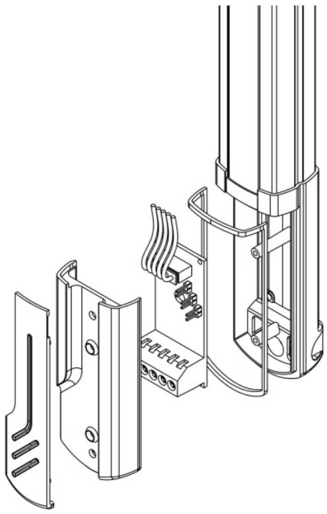


Figure 6 – Plastic Case and Terminals

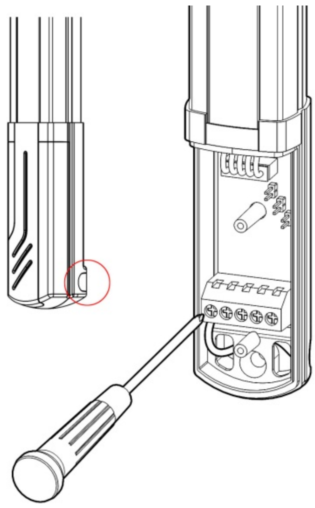


Figure 7 – Terminal Connections and Cabling

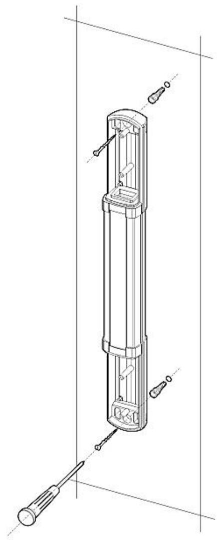


Figure 8 –Mounting Example

After making the necessary adjustments and connections of the receiver and transmitter modules, you can install your photocells as shown in Figures 7 and 8, ensuring that the receiver and transmitter beams are perfectly aligned with each other.

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