

HFB - M

180° Adjustable & Long-Range
Safety Photocell



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CE

Before operating the device, be sure to read this user manual carefully. Follow the steps described in the installation, electrical connection, and initial startup sections with attention. After completing these steps, the product owner/user must keep this manual in a known and easily accessible location for the entire service life of the product.



- Store the product in a dry environment. Otherwise, malfunctions may occur.
- In battery- or accumulator-powered products, batteries and accumulators are not covered under warranty. Similarly, failures caused by battery discharge or leakage in products that have exceeded their shelf life are not covered under warranty.
- All service and repair operations must be carried out exclusively by Kontal Elektronik technical service. The product must not be tampered with by unauthorized personnel.
- The operating voltage of each product is indicated on the label. Do not supply the device with a voltage different from the specified value.



- ✓ Failure to comply with the above-mentioned conditions may result in fire, serious personal injury, or damage to the product or the structure in which it is installed. In such cases caused by user negligence or misuse, **Kontal Elektronik San. ve Tic. Ltd. Şti.** assumes no responsibility.
- ✓ This symbol will be used to highlight important notes in the following sections.



- ✓ Do not touch the power supply terminals of the device with bare hands.
- ✓ This symbol will be used to indicate warnings related to voltage in the following sections.



- ✓ This symbol on the label indicates that the device operates with a DC supply voltage.



- ✓ This symbol on the label indicates that the device is equipped with reinforced insulation.



- ✓ This symbol on the product or its packaging indicates that the product must not be disposed of as household waste. Instead, it should be delivered to designated collection points for the recycling of electrical and electronic equipment. Improper disposal or destruction of the product may have adverse effects on the environment and human health.



- ✓ This document and its revisions are the legal property and responsibility of **KONTAL ELEKTRONİK SAN. VE TİC. LTD. ŞTİ.** Any unauthorized modification or alteration is strictly prohibited.



- ✓ Ensure that the system is properly grounded for the device to operate reliably.

1. DEFINITION

HFB-M is an infrared signal-based transmitter–receiver system used in safety and control applications. The units can be mounted on different surfaces with $\pm 90^\circ$ angle adjustment, and when positioned to directly face each other, they provide a reliable operating range of up to 70 meters. When an object interrupts the signal, the receiver generates an output control signal.

1.1 BOX CONTENT

1x HFBM-V – Transmitter Safety Photocell 1x HFBM-A – Receiver Safety Photocell	2x Waterproof gasket 2x Cable protection plugs 4x Screw plug 4x 2.9 X 13 YHB Sheet Metal Screw
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**For special orders, the box contents may vary depending on the project or customer requirements.*

2. TECHNICAL SPECIFICATION

	HFBM-V TRANSMITTER SAFETY PHOTOCELL	HFBM-A RECEIVER SAFETY PHOTOCELL
Product Code	K211-01	K211-02
Working Voltage	24V DC	24V DC
Working Current	70Ma @24V DC	25mA @24V DC
Working Distance	70m(max.)	70m(max.)
Working Temperature	-20 °C +55 °C	-20 °C +55 °C
Contact Type	-	Dry Contact (NO / NC)
Contact Response Type	-	150ms(min.)
Contact Capacity (max.)	-	30V DC 1A / 125V AC 0,3A
Weight	114gr $\pm$ 5gr	116gr $\pm$ 5gr
Dimensions	57 x 142 x 51mm	57 x 142 x 51mm

3. ADJUSTMENT COMPONENT

3.1 HFB – V ADJUSTMENT COMPONENT

- LED : This component allows you to monitor the signal status of your transmitter module.
- POT : This component allows you to adjust the operating range of your system.

3.2 HFB – A ADJUSTMENT COMPONENT

- LED : This component allows you to monitor the contact status of your receiver module.

4. HFBM – V CONTROL BOARD

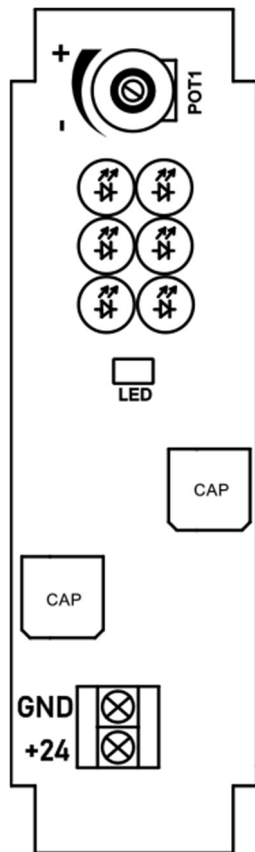


Figure 4.1 HFBM – V Control Board

4.1 HFBM – Initial Startup;

1. Remove the front cover of the HFBM-V.
2. Then, make the power connections to the HFBM-V terminals.



Pay attention to the "+" and "-" polarities when connecting the power supply to the product!



Do not supply power to the product other than the specified operating voltage. Otherwise, the device may be damaged!



Do not touch the connection points after the power supply to the product has been connected!

3. You can adjust the detection (operating) range of the system using **POT1** located on the HFB-V transmitter module. Turning **POT1** clockwise increases the detection range, while turning it counterclockwise decreases it. The system can be used at a maximum distance of 70 meters.

5.HFBM – A CONTROL BOARD

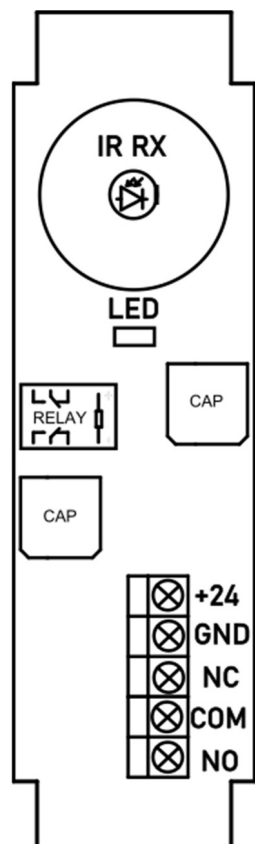


Figure 5.1 HFBM – A Control Board

5.1 HFBM – A Initial Startup;

1. Remove the front cover of the HFBM-A
2. Then make the power connections to the HFBM-A terminals.



Pay attention to the "+" and "-" polarities when connecting the power supply to the product!



Do not supply power to the product other than the specified operating voltage. Otherwise, the device may be damaged!



Do not touch the connection points after the power supply to the product has been connected!



In some motor driver circuits, it is recommended to short-circuit the (-) line of the HFBM-A to a metal surface to prevent the system from being affected by interference originating from the driver.

5.2 HFB - A LED Status

The relay output status of the module can be monitored via the **LED1** indicator on it.

If LED1 is ON: The relay is active, and the NO (Normally Open) contact is providing an output.

If LED1 is OFF: The relay is inactive, and the NC (Normally Closed) contact is providing an output.

6.MOUNTING

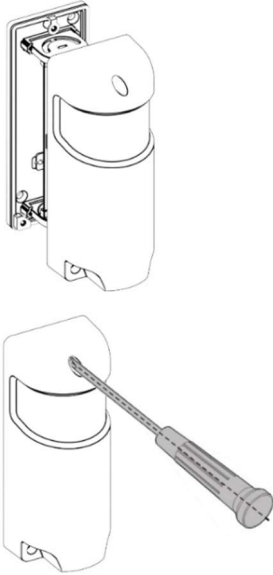


Figure 6.1 – Removing the front cover of the HFBM.

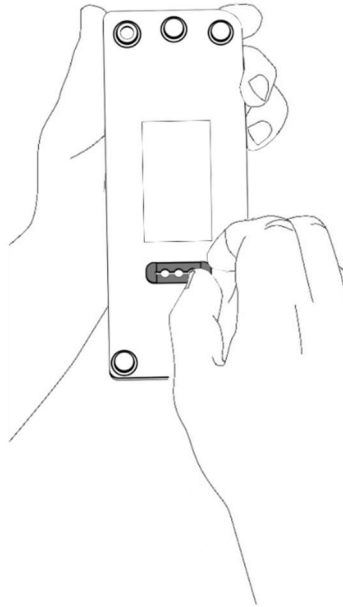


Figure 6.2 – Installing the rear waterproof gasket of the HFBM.

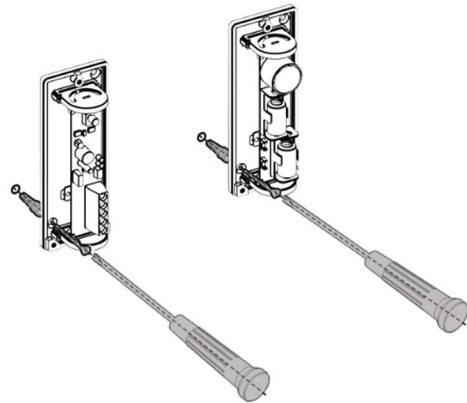


Figure 6.3 – Securing the HFBM to a flat surface with screws.

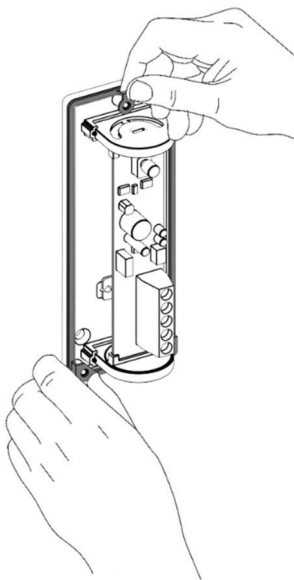


Figure 6.4 – Installing the internal waterproof gasket of the HFBM.

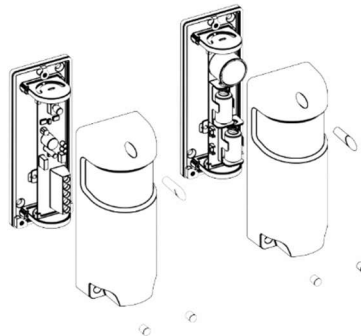


Figure 6.5 – Installing the screw plugs of the HFBM.

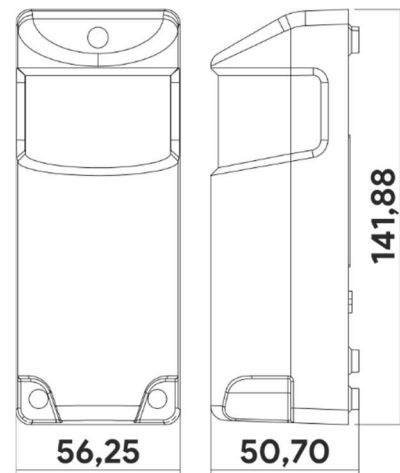
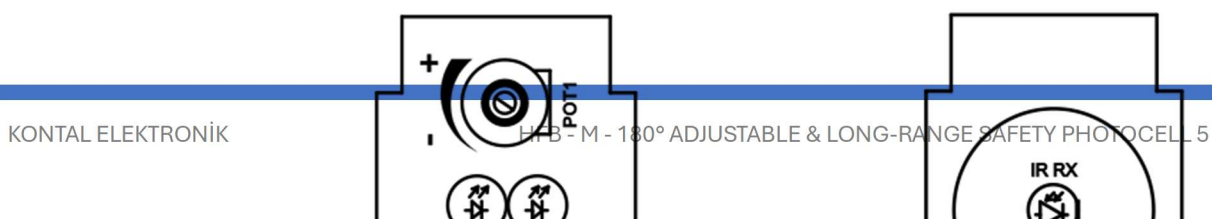
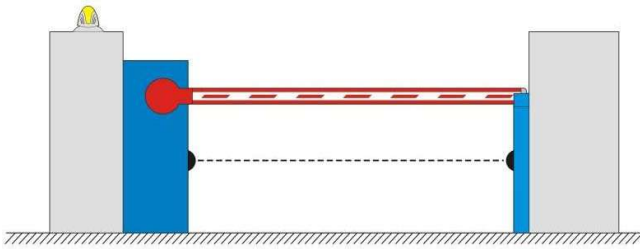


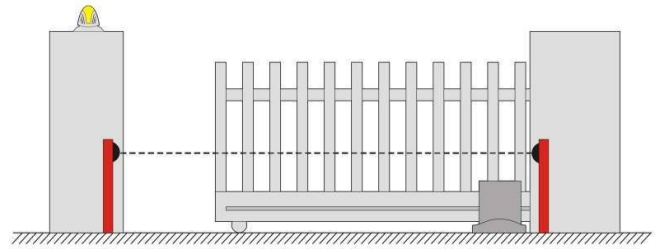
Figure 6.6 – HFBM dimensions (unit: mm)

7.CONNECTION SCHEMA





Example Installation Demonstration 1



Example Installation Demonstration 2



Mount the receiver and transmitter modules in the same direction so that they directly face each other. This alignment is critical for the proper operation of the system. (See *Example Installation Demonstrations 1 & 2*)

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Manufacturer / Authorized Service

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