EMFD

Dual 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.



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

1. DEFINITION

EMFD is an advanced dual-direction safety photocell designed for industrial safety applications. Unlike conventional safety photocells, each module of the EMFD contains both a receiver and a transmitter optical sensor. This configuration enables continuous bidirectional communication and enhances system reliability against interruptions caused by external factors.

The most distinctive feature of the EMFD is its detection system that is immune to sunlight. In the event that sunlight temporarily interferes with the signal from one module, the system automatically prioritizes the signal from the other module, allowing uninterrupted operation. In this way, the EMFD offers superior resistance to light interference and adverse environmental conditions.

The EMFD ensures high performance and uninterrupted safety, particularly in outdoor installations where direct exposure to sunlight is common.

1.1 BOX CONTENT

	2x Waterproof gasket
1x EMFD-V: Transmitter Safety Photocell	**2x** Cable protection plugs
1x EMFD-A: Receiver Safety Photocell	**4x** Screw plug
	4x 2.9 X 13 YHB Sheet Metal Screw

**For special orders, the box contents may vary depending on the project or customer requirements.*

2. TECHNICAL SPECIFICATION

	EMFD-V: Transmitter Safety Photocell	**EMFD-A: Receiver Safety Photocell**
Product Code	K115-01	K114-01
Operating Voltage	15-40V DC	15-40V DC
Operating Current	9mA @ 24V DC	9mA @ 24V DC
Operating Distange	15m(Max.)	15m(Max.)
Operating Temprature	-20 ºC +70 ºC	-20 ºC +70 ºC
Contact Type	Dry Contact (NO / NC)	Dry Contact (NO / NC)
Contact Capacity(Max.)	30V DC 1A / 125V AC 0.3A	30V DC 1A / 125V AC 0.3A
Wight	62,5gr	62,5gr
Dimensions(W **x** H **x** D)	43 x 105 x 36,5 mm	43 x 105 x 36,5 mm

3. ADJUSTMENT COMPONENT

JMP: This component allows you to determine which module will have signal transmission priority. (See also section 4.1)

JMP1: This component allows you to set the operating voltage of your device. (See also section 4.1)

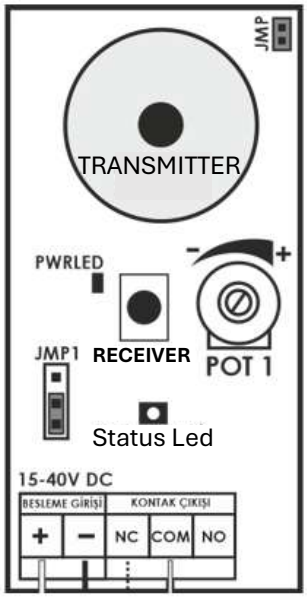
POT1: This component allows you to adjust the operating range of your device. (See also section 4.1)

PWRLED: This component allows you to monitor the operating status of your device. (See also section 4.1)

STATUS LED: This component allows you to monitor the contact status of your device.(See also section 4.1)

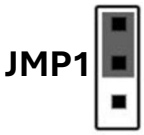
4. EMFD CONTROL BOARD

4.1 Installation and Initial Startup of the EMFD Control Board



Figur 4.1 EMFD Control Board

- Remove the top cover of your device.
- During installation, determine which module will have signal transmission priority. This setting ensures uninterrupted operation by protecting the system from external interferences such as sunlight. You can configure this setting by enabling or disabling the JMP component on the respective module. The module with the JMP component enabled will operate with signal transmission priority. For proper system operation, the JMP component must be enabled on only one module. Enabling JMP on multiple modules may cause malfunction.
- Set the operating voltage of your device using the JMP1 component.



15-29V DC



30-40V DC

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

Pay close attention to the "+" and "–" polarity when making the power connections to the device!

Do not touch the connection terminals after the device has been powered on!

For correct and stable operation of the device, it is recommended to use a power supply with a minimum output power of 0.5 W on the supply line.

- You can adjust the detection (operating) distance of the device using the POT1 trimmer located on the unit. Turning POT1 clockwise increases the detection distance, while turning it counterclockwise decreases the distance. The system can be used up to a maximum distance of 15 meters.
- When the device is powered on, the PWRLED will illuminate, indicating that the device has started operating.
- When the transmitter and receiver modules have clear line of sight, the STATUS LED remains off. If an obstacle interrupts the beam between them, the STATUS LED will turn on. This allows you to monitor the contact status of the device.

5. MOUNTING



Figure 5.1 – Step 1: Removing the front cover of the EMFD.

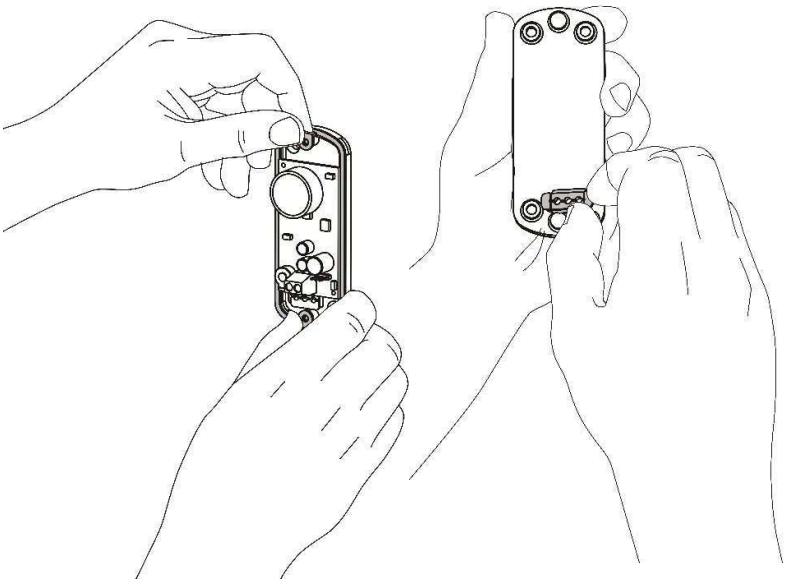


Figure 5.2 – Step 2: Installing the waterproof and protective seals of the EMFD.

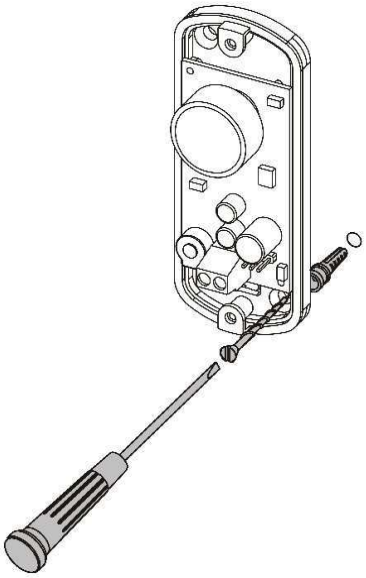


Figure 5.3 – Mounting on the wall.

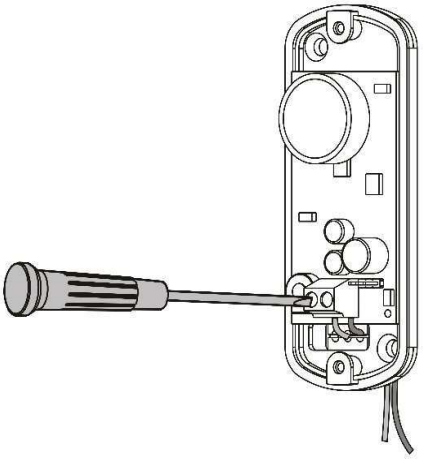


Figure 5.4 – Step 4: Making the EMFD terminal connections.

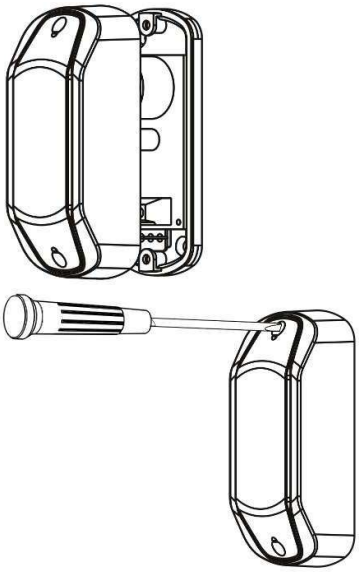


Figure 5.5 – Step 5: Attaching the front cover of the EMFD.

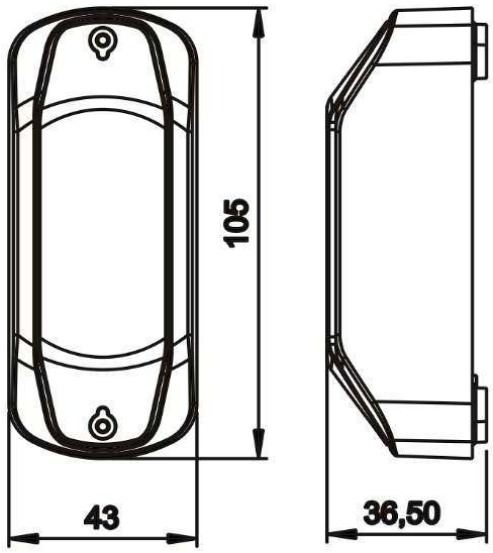


Figure 5.6 – Dimensions (Unit: mm)

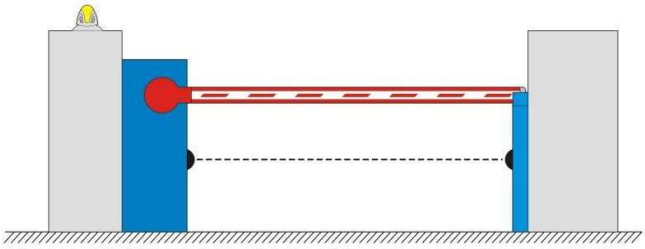


Figure 5.7 – Example Installation Illustration 1

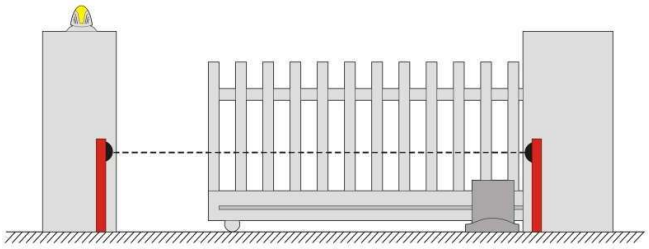


Figure 5.8 – Example Installation Illustration 2

Mount the receiver and transmitter modules aligned on the same axis and facing each other directly. This alignment is critical for the correct operation of the system. (See also Figures 5.7 & 5.8)

6. CONNECTION SCHEMA

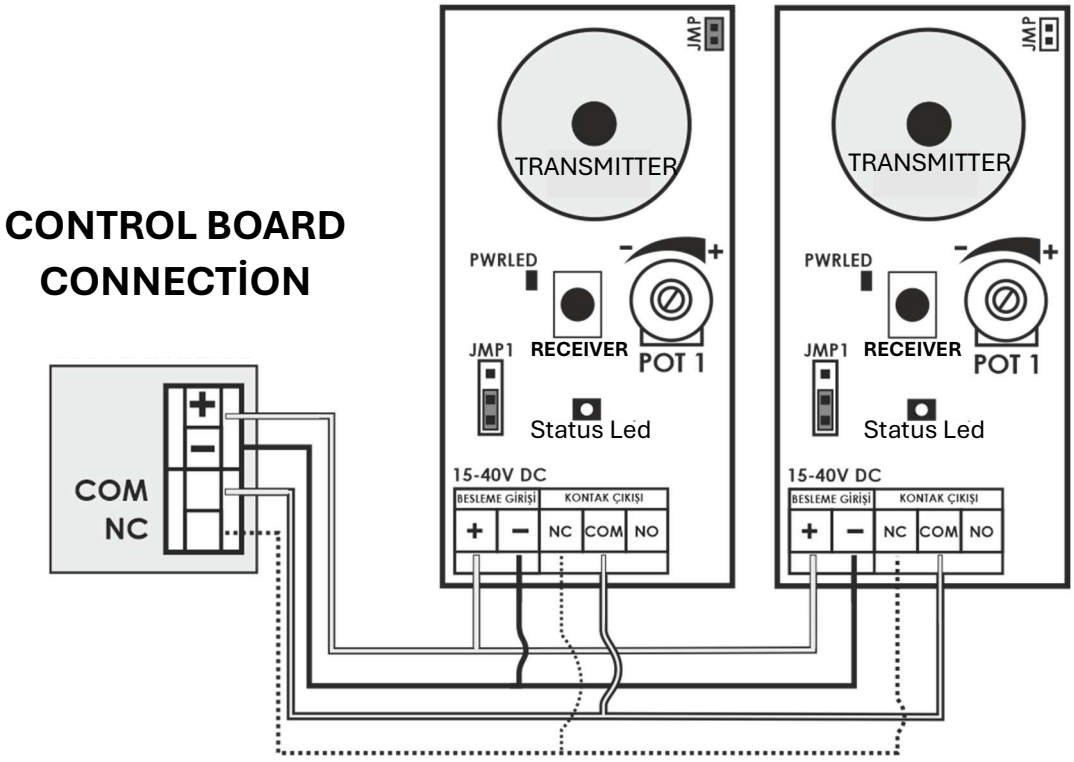


Figure 6.1 – NC Connection Schema

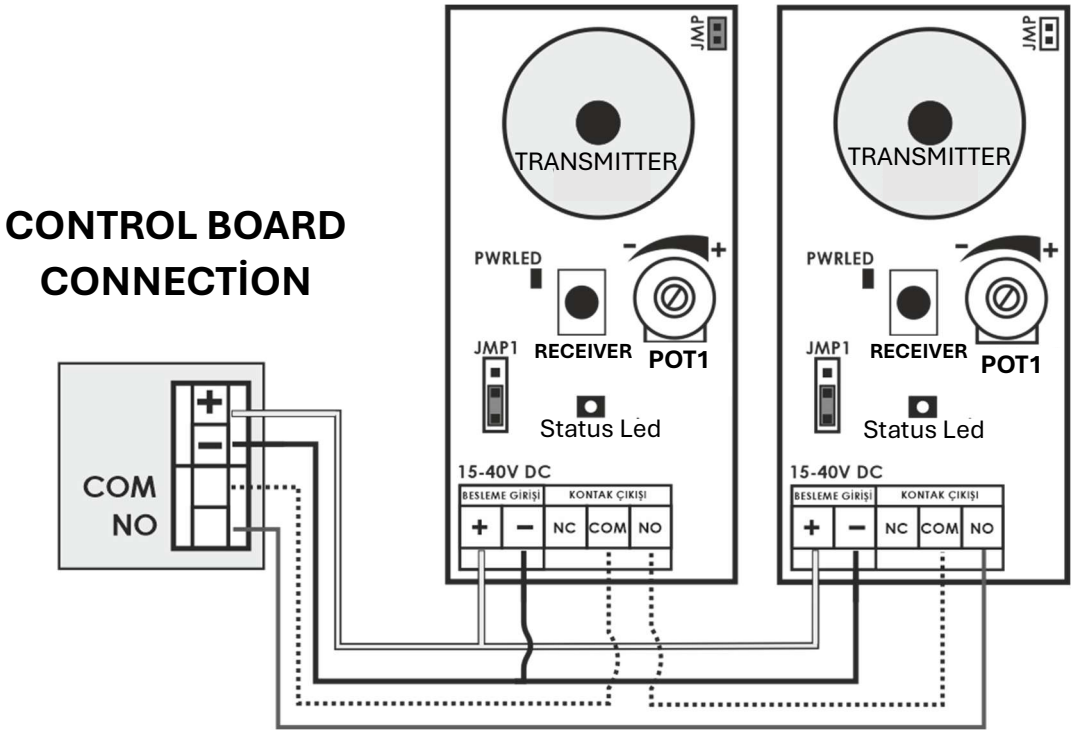


Figure 6.2 – NO Connection Schema

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