

ESA

Hand Sensor Builtin



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

The **ESA – Hand Sensor Built-in** is a relay-controlled triggering system that operates with contactless detection technology. It gets its name from being designed for flush-mount installation directly into an electrical junction box (back box), providing a clean, integrated, and secure setup within the wall.

When it detects hand movement, the device generates a digital relay output without requiring any physical contact. This output can be used to trigger lighting, automation systems, motors, or other electrical equipment. Simply moving your hand near the front surface of the sensor is sufficient—no touch is needed. This makes the product especially suitable for hygiene-sensitive environments.

Thanks to its durable structure and sleek mounting design, **ESA – Hand Sensor Built-in** offers a wide range of applications, from home automation to industrial control systems.

1.1 BOX CONTENT

The contents of the ESA – Hand Sensor Built-in package are listed below:

1x ESA – Hand Sensor Built-in	1x ESA User Manual
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** For special orders, the box contents may vary depending on the project or customer requirements.*

2. TECHNICAL SPECIFICATIONS

Model	ESA – Hand Sensor Built-in
Product Code	K213-01
Working Voltage	12/24V DC
Working Current	52mA @ 24V DC(Max.)
Detection Range (<i>Operating Distance</i>)	5/30cm (Adjustable)
Working Temperature	-20 °C +55 °C
Working Mode	Pulse / Toggle
Contact Type	Dry Contact (NO/NC)
Relay Hold Time	400ms(Min.) / 5sn(Max.) @ Pulse Mod
Contact Rating	30V DC 1A / 125V AC 0.3A (Max.)
Weight	45gr
Dimensions	85 x 23 x 85mm

3. ADJUSTMENT COMPONENTS

- POT1:** This component allows you to adjust the operating (detection) distance of your device. (See Also 4.1)
- JMP1:** This component allows you to configure the dimming effect (soft blinking animation on the LEDs) and the contact mode (relay contact or synchronization mode) of your device. (See Also 4.1)
- JMP2:** This component allows you to adjust the operating voltage of your device. (See Also 4.1)

4. ESA CONTROL BOARD

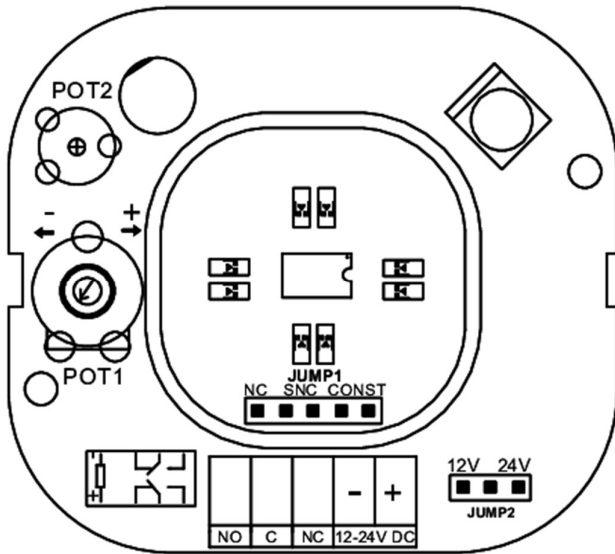


Figure 4.1 – ESA Control Board



Figure 4.2 – ESA NC Contact / Dim Enabled



Figure 4.3 – ESA Sync Mode / Dim Enabled



Figure 4.4 – ESA Sync Mode / Dim Disabled



Figure 4.5 – ESA NC Contact / Dim Disabled

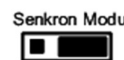
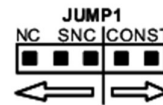
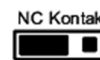
4.1 ESA Control Board Installation and Initial Startup

- Set the operating voltage of your device using JMP2;



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

- Set the operating detection distance of your device using POT1; turning POT1 clockwise increases the detection range, while turning it counterclockwise decreases it. The maximum detection distance of the device is 30 cm.
- Set the operating status of your device's LEDs and the contact mode using JMP1;



- The NO | C | NC terminals on the device are the relay connection points. (See Also Conneting Schema)

4.2 ESA Relay Hold Time Adjustment

You can adjust the relay hold time of your ESA device between 400 ms and 5 seconds according to your needs. (This setting applies only in pulse mode.)

- **Step 1:** Disconnect the power to the device.
- **Step 2:** Hold your hand within the sensor's detection range and simultaneously restore power to the device.
- **Step 3:** When the device detects your hand, the red LEDs will flash twice rapidly. Keep your hand steady during this time.
- **Step 4:** Next, the red LEDs will flash six times and then remain steadily lit. At this point, you can remove your hand from the detection area.
- **Step 5:** The device has now entered the relay hold time adjustment mode.
- **Step 6:** Each time you wave your hand in front of the device, the red LEDs will blink to indicate the number of passes. This number corresponds to the relay hold time setting.

Each pass represents one unit of time. You can refer to the table below to see the duration corresponding to the number of passes.

**The product will be shipped preset to the 400 ms mode.*

Number of Passes	Relay Hold Time
1	400ms
2	1sn
3	2sn
4	3sn
5	4sn
6	5sn

- Step 7: After completing the hand passes corresponding to your desired time, do not show your hand to the sensor until the device exits the adjustment mode.
- *Step 8: When the device exits the relay hold time adjustment mode, the red LEDs will blink the number of times corresponding to the set duration.*
| Example: If a 3-second duration is set, the red LEDs will blink 4 times.
- Step 9: Finally, the device will switch to normal operation mode with the configured **relay hold time, indicated by the green LEDs lighting up.**

4.3 ESA Operation Mode Switching

You can change the operating mode of your ESA device according to your needs, selecting either PULSE or TOGGLE mode.

A. Switching to ESA TOGGLE Mode

To use your ESA device in Toggle mode, please follow the steps below.

- **Step 1:** Disconnect the power to the device.
- **Step 2:** Hold your hand within the sensor's detection range and simultaneously power on the device.
- **Step 3:** When the device detects your hand, the red LEDs will flash twice rapidly. Keep your hand steady during this time.
- **Step 4:** Then, the red LEDs will flash six times and remain steadily lit. You can now remove your hand from the detection area.
- **Step 5:** The device has now entered the relay hold time / operating mode adjustment mode.
- **Step 6:** Each time you wave your hand in front of the device, the red LEDs will blink to indicate the number of passes. This number corresponds to the relay hold time setting.
- **Step 7:** When you wave your hand in front of the sensor seven times, the green LEDs will blink once to indicate that the device is switched to Toggle mod
- **Step 8:** Finally, the device will switch to the selected operating mode, indicated by the green LEDs lighting up.

B. Switching to ESA PULSE Mode

- **Step 1:** Disconnect the power to the device.
- **Step 2:** Hold your hand within the sensor's detection range and simultaneously power on the device.
- **Step 3:** When the device detects your hand, the red LEDs will flash twice rapidly. Keep your hand steady during this time.
- **Step 4:** Then, the red LEDs will flash six times and remain steadily lit. You can now remove your hand from the detection area.
- **Step 5:** The device has now entered the relay hold time / operating mode adjustment mode.
- **Step 6:** Each time you wave your hand in front of the device, the red LEDs will blink to indicate the number of passes. This number corresponds to the relay hold time setting.
- **Step 7:** When you wave your hand in front of the sensor eight times, the red LEDs will flash once to indicate that the device is switched to Pulse mode.
- **Step 8:** Finally, the device will switch to the selected operating mode, indicated by the green LEDs lighting up.

5. CONNETION SCHEMA

The ESA connection schema is shown below.

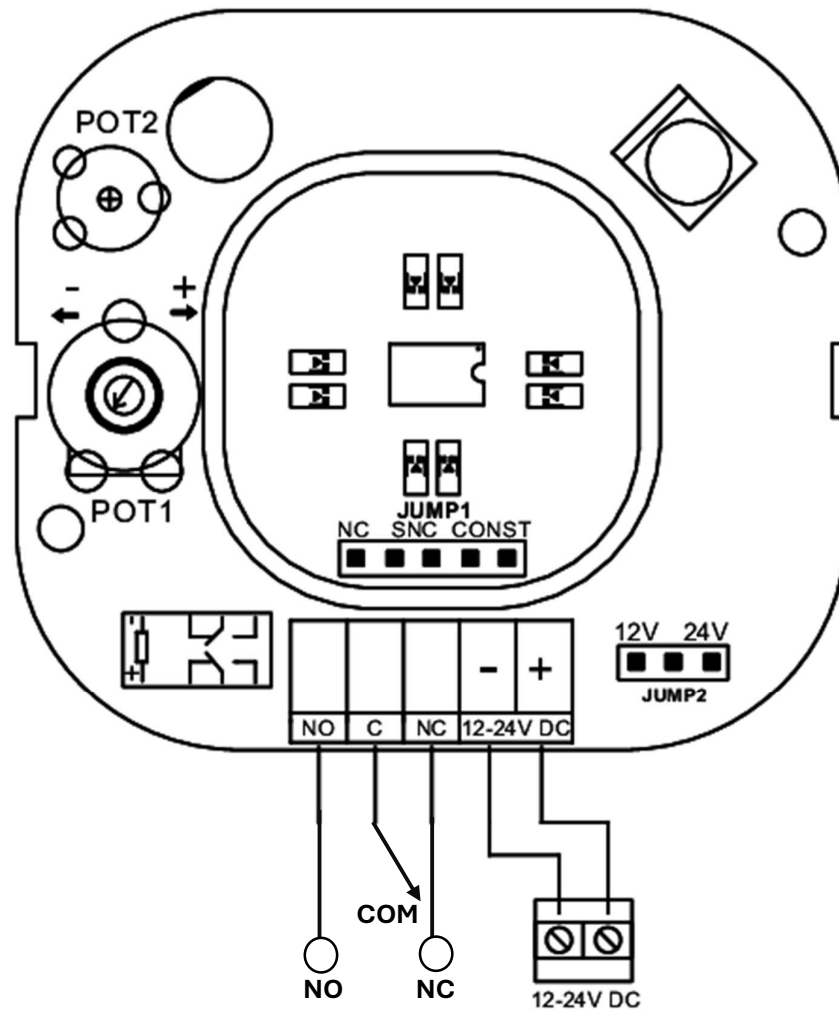


Figure 5.1 - ESA Connection Schema



When connecting the device's power supply, pay attention to the “+” and “-” polarity!



Do not supply power outside the specified operating voltage. Otherwise, the device may be damaged!



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

6. INSTALLATION

**For detailed images, please visit the product's webpage.*

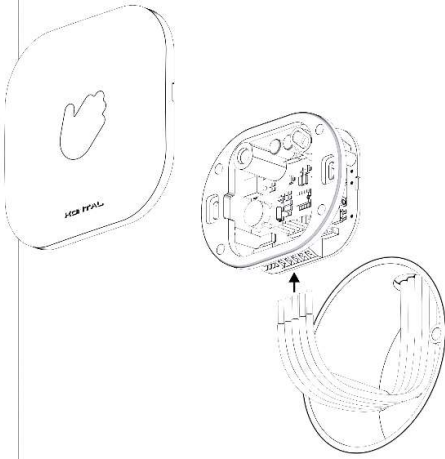


Figure 6.2 – Making ESA Cable Connections

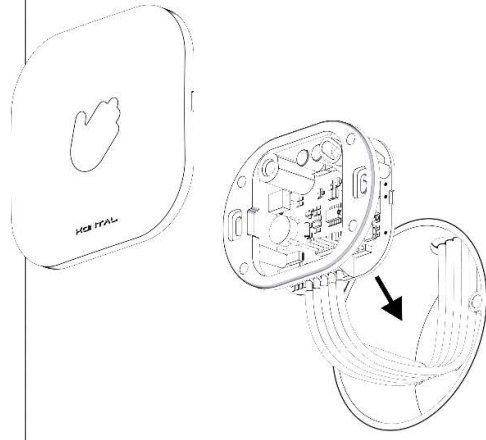


Figure 6.3 – ESA Flush Mounting in Junction Box

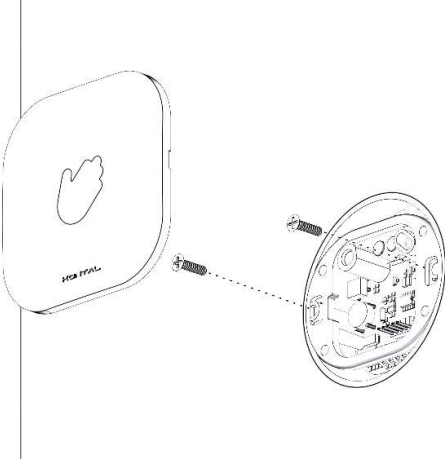


Figure 6.4 – Screwing ESA into the Junction Box

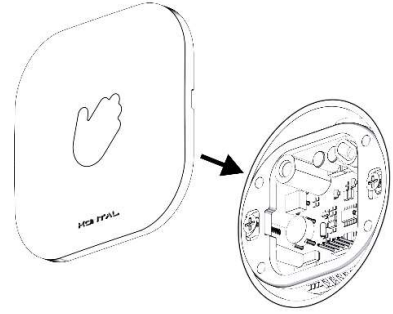


Figure 6.5 – Installing the ESA Top Cover

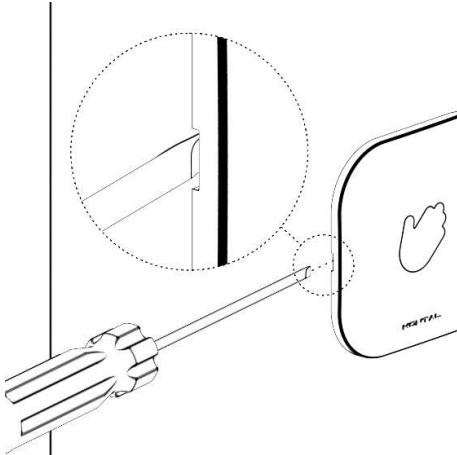


Figure 6.6 – Removing the ESA Top Cover

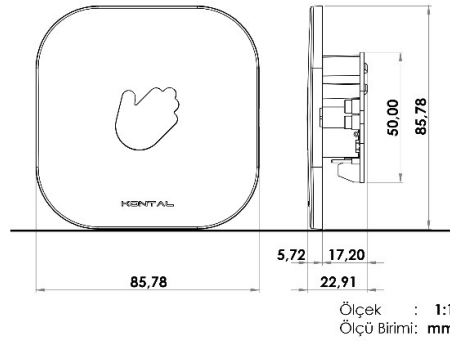


Figure 6.7 – ESA Dimensions (Unit: mm)



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