User Manual for Network Based 3-Channel Dry Contact Detector Model FDD0001-22

Description – Initialization – Technical Information

Sensor Technical Information

General	
Model	FDD0001-22
Dimension	Length × Height × Depth 14 cm × 2.4 cm × 9.4 cm
Weight	500 g
Working Temperature	-10 to 80 °C
Storage Temperature	-20 to 80 °C
Working Humidity	0 – 60%
Working Voltage	24 - 100 Volts
Mounting Brackets	2 holes at the top to be fixed on the wall
Guaranty	2 Years
Input/ Output	
Type of Input	Input triggering using types of switches
Number of inputs	3
Output	Network

Security Considerations

(Before using this product, please read the precautions)

Please carefully read this manual before using the product and pay full attention to the mentioned points to use the product correctly.

In this manual, safety measures are classified into two levels:

"Warning ⚠ " and "Cauti ⚠ ".

Warning ⚠	Improper handling may lead to dangerous conditions and cause death or serious injury.

Caution ⚠	Improper handling may lead to dangerous conditions and cause minor or moderate injury to persons or damage to property.

Follow the safety measures of both levels as they are very important for personal and system safety. Ensure that users read this manual and then keep it in a safe place for future reference.

Design Precautions

Warning ⚠

- Paying attention to the details of cabling and proper connection is one of the most important parts of installing sensors, which directly affects the performance and efficiency of the network.
- Always use a consistent standard (T568A or T568B) at both ends of the cable to prevent connection issues.
- Mistakes in wiring during socket installation can lead to hardware damage to the detector or improper network performance.
- After installing the sockets, connect the cable to the detector. If the detector is not recognized or does not function properly, check the following:
  - Complete connection of the socket to the cable
  - Correct wiring arrangement
  - Use a network tester to identify potential cabling errors
  - If the above points are confirmed, test the relevant detector with a tested network cable at the detector installation site to ensure the detector's proper functioning.

- Avoid excessive bending or sudden pulling of cables while working with them, as this can damage the internal wires and reduce signal quality.

Caution ⚠

- Do not bundle the RJ45 cable with the main circuit and power cables, and do not install them close to each other. Maintain a minimum distance of 100 mm (3.94 inches) between them. Failure to maintain this distance may cause interference due to noise.

Installation Precautions

Warning ⚠

- Before installing the detector, ensure the quality of the cable being used. The manufacturer recommends using RJ45 with CAT6 specification. Failure to follow this guideline may result in damage to the device.
- To maintain signal integrity, it is essential to connect the shield of the RJ45 cable to properly shielded sockets.
- Avoid installing the detector in environments with extremely high or low temperatures or humidity levels that exceed the detector's operating range. Such conditions may lead to malfunction or incorrect performance.
- Use the dry contact detector only for its specified purposes (such as door opening detection, smoke alarm, or power outage) and avoid connecting it to incompatible devices.

Caution ⚠

- Use the Dry contact detector in an environment that complies with the general specifications in this manual. Using this detector in any other operational environment may cause electric shock, fire, malfunction, or damage and reduce the quality of the module.
- Never directly touch the conductive part or electronic component of the Dry contact detector. Doing so may cause malfunction or damage to the detector.
- When installing Dry contact detector on the wall, carefully tighten the wall screws. Loose screws may cause the detector to fall and create a short circuit.
- Prevent external materials such as dust or wire fragments from entering the detector. These external materials may cause fire, malfunction, or damage.

Wiring Precautions

Warning ⚠

- Before wiring, ensure the health and quality of all input and output cables. Failure to do so may cause product damage.

Caution ⚠

- Before connecting the RJ45 cable, ensure that the type of connector to be connected is correct. Connecting an incorrect connector or incorrect wiring will cause detector damage.
- When wall-mounting the detector, tighten the mounting bracket screws securely. Loose screws can cause the detector to fall and short circuit.
- Securely connect the RJ45 cable to the detector. Failure to do so may cause cable damage and improper device operation.
- Ensure that all incoming data cables connected to the detector are routed through a cable channel or secured with a cable tie. Failure to do so may result in accidental cable pulling, which can damage the detector and cables or cause module malfunction due to loosen connections.
- Handle RJ45 cables with care when disconnecting them from the detector. Pulling on the cables can lead to device malfunctions or damage to the detector or cable.

Startup and maintenance precautions

Warning ⚠

- Do not touch the conductive or electronic part of the detector while it is activated. Doing so may cause an electric shock or damage the detector.

Caution ⚠

- detector Installation and setup **must** only be done by qualified and expert repair personnel familiar with the knowledge related to protection against electric shock.
- Avoid resetting the detector unnecessarily. Doing so will cause all changes made on the detector 's web page will be returned to factory settings.

Operational safety measures

Warning ⚠

- Do not touch any conductive parts or electronic components of the detector while it is transmitting data. Doing so may cause the detector to malfunction or fail.

Caution ⚠

- To avoid noise interference, keep all radio communication devices, including mobile phones, at least 25 centimeters away from the detector in all directions.

Waste disposal precautions

Caution ⚠

- Dispose the Dry contact detector as an industrial waste.
- Ensure detector are segregated from other waste in accordance with local regulations. Dispose of detectors correctly at your local waste collection/recycling facility.

Contents of the box

Please verify that the box contents match the packing list. The following items should be included:

- Network Based 3-channel Dry Contact detector, model FDD0001-22 [1]
- 48-volt adaptor [2]
- SD Card
- OTG cable
- User manual.

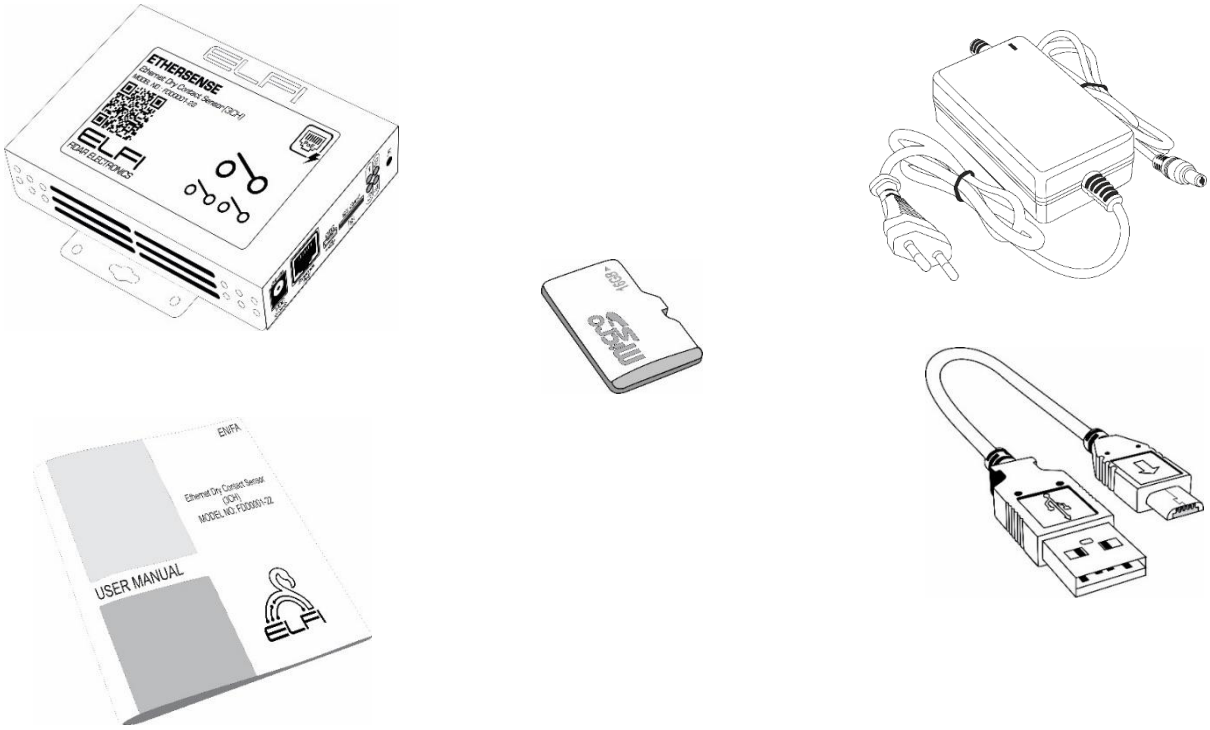


Figure 1: Contents of the box

1. Detailed dimensions of the device can be found on page 25 of the user manual.
2. If requested by the customer

Table of Contents

1. Initialization of the Sensor

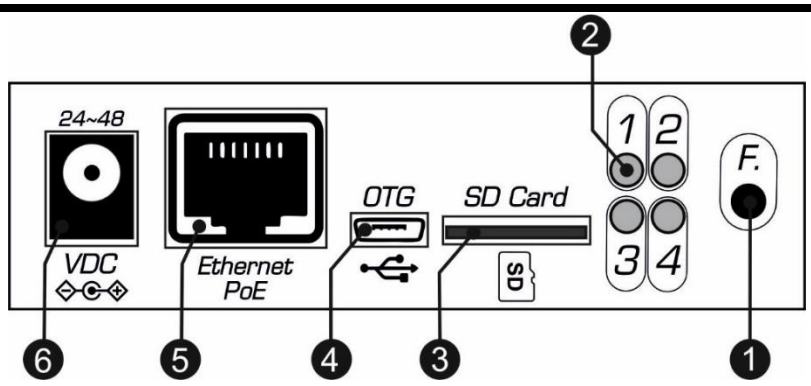


Figure 2: Side view of the 3-Channel Dry Contact Detector

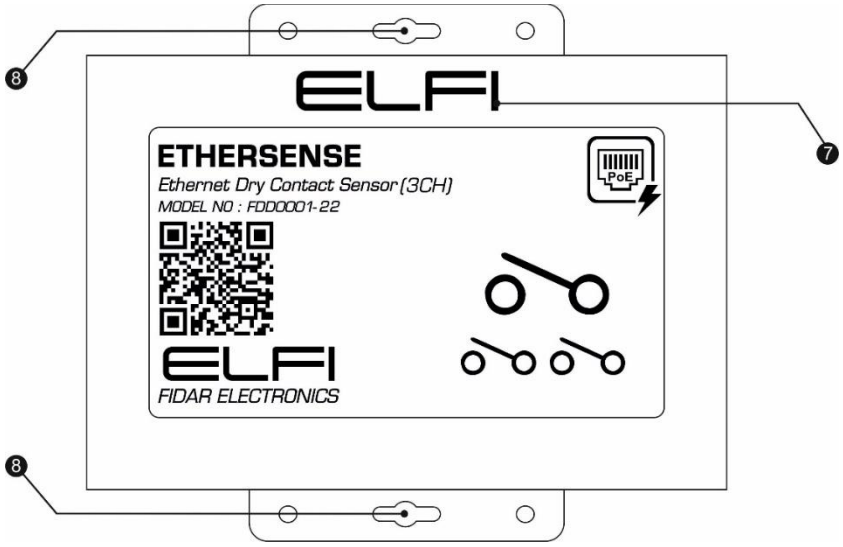


Figure 3: Front view of the 3-Channel Dry Contact Detector

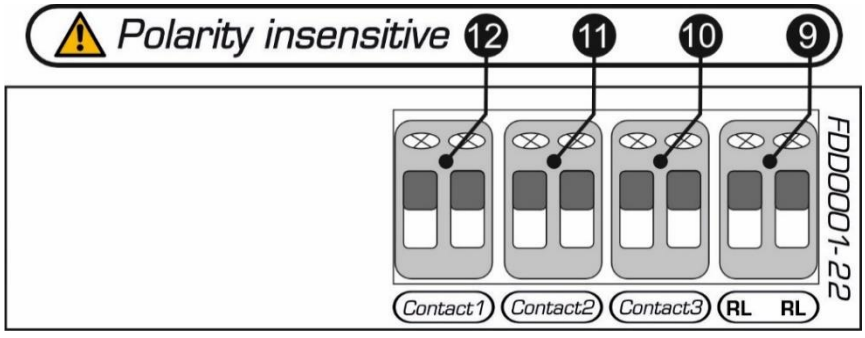


Figure 4: Side view of 3-Channel Dry Contact Detector

Table 1: Information related to detector cover

Number	Name	Description
1	F Key	To reset the detector
2	POWER LED	Indicates detector's Power Connection
3	SD Card	SD Card input
4	OTG	OTG cable input
5	Ethernet PoE	Ethernet cable input
6	VDC	Adaptor input
7	detector Power Connection Display	If the detector 's power is connected the ELFI symbol will be displayed in green.
8	Wall Mounting Location	———
9	RL	To connect the detector to alarm equipment (e.g. sirens, indicator lamps) or a cooling system
11	Contact 3	Dry contact detector 3rd Channel
12	Contact 2	Dry contact detector 2nd Channel
13	Contact 1	Dry contact detector 1st Channel

2. Connecting Sensor to network

To set up the detector, if you are using a PoE switch, simply connect the detector to the switch using a cable. Otherwise, use a 48V adapter to set up the detector and then connect the detector to your network using a network cable.

Note: Please note that under no circumstances should you use the adapter and network cable at the same time to set up the detector.

Note: If the detector is offline, first check the RJ45 or Ethernet cable connection. If the cable is properly connected and the detector is still not responding, perform a reset as follows:

Disconnect the Ethernet (RJ45) cable from the detector. Press and hold the F button. While holding the button, reconnect the Ethernet cable. Continue holding the F button until the ELFI indicator light turns on, then release the button.

3. Sensor Software Configuration

To access the detector's user interface, after powering it on, enter the IP address 192.168.1.7 into a browser on a computer connected to the same network. Enter the username and password [1] to access the detector's web interface (see Figure 5).

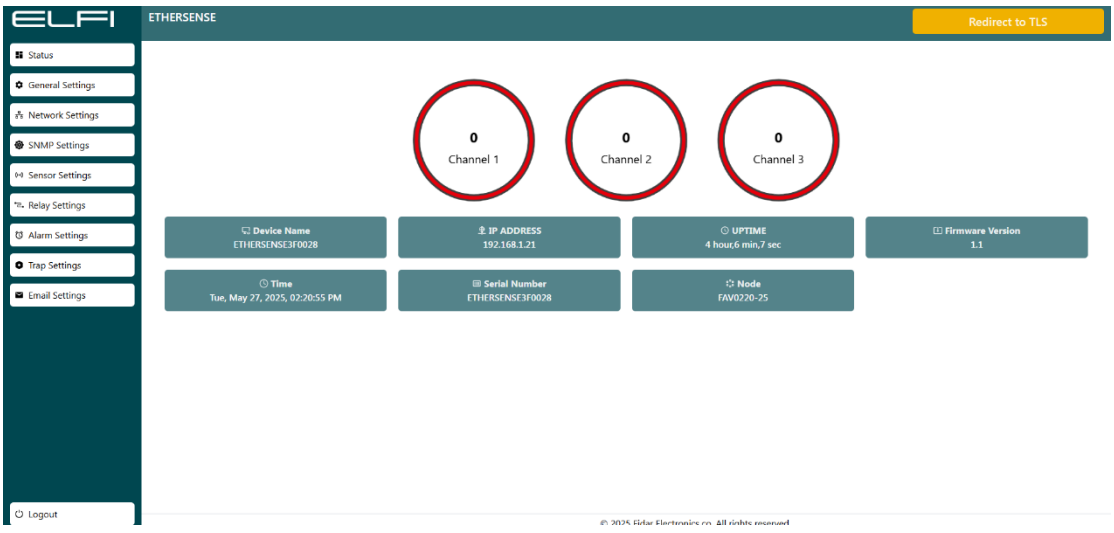


Figure 5: detector Web Page

1. The default username and password for this detector are both "admin".

3.1. Status Menu

The Status page is specifically designed to provide real-time monitoring of the Dry Contact detector's performance. This digital detector operates in only two states: Active (1) and Inactive (0). This page can be used to observe critical events within the system (see Figure 6).

detector status display

The fry contact detector functions as a digital device and, depending on the application, can be connected to various components:

- Active (1):
  - Door opened detected.
  - Smoke alarm system activated.
  - Power outage or change in power source detected.
  - Specific circuit closed (e.g., safety circuit).
- Inactive (0):
  - Door is closed.
  - Smoke system is in normal state; no issues detected.
  - Power is connected and the system status is stable.
  - Circuit is open and no changes have been detected at this time.

This page dynamically updates to reflect the detector 's status in real time, enabling quick identification of system events.

Product Information

This section provides technical details about the detector:

- **Device Name:** Custom name assigned to the detector for easy identification on the network or in the field.
- **IP Address:** The network address through which the detector is connected.
- **Uptime:** The total time the detector has been running continuously since the last startup or reset.
- **Firmware Version:** Indicates the current software version of the detector, reflecting its features and updates.
- **Time:** The current date and time set on the detector, essential for event logging and time synchronization.

- **Serial Number:** The unique ID of the detector used for tracking and documentation.
- **Device part number:** Corresponding to the detector hardware, identifying its technical specifications.

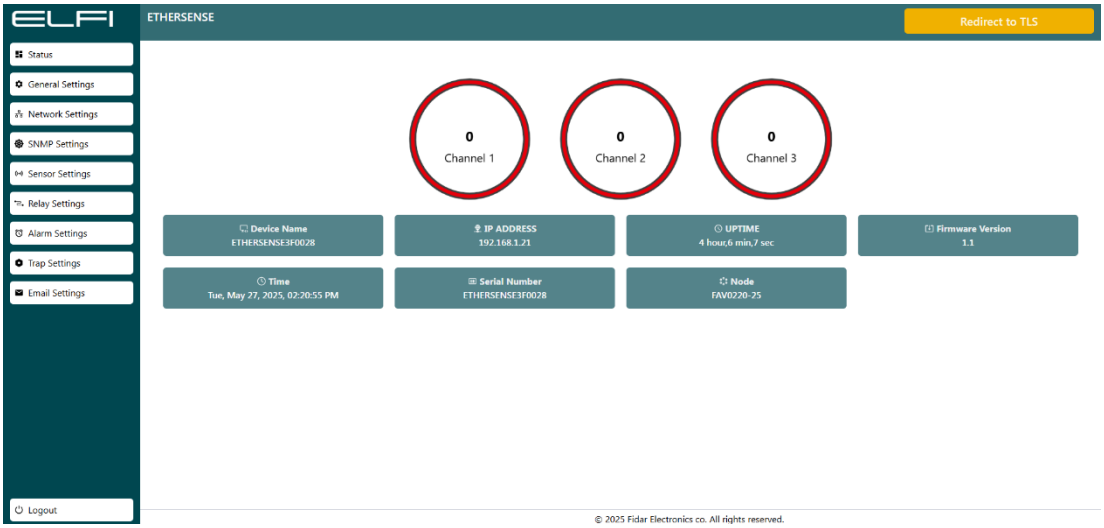


Figure 6: detector "Status" Menu

3.2. General Settings Menu

This menu allows for time configuration and password changes (see Figure 7).

- To configure time settings, use the NTP option to automatically synchronize the detector's clock with internet time servers. If disabled, you can manually adjust the date and time, or sync with your computer's clock.
- For enhanced security, change the default detector password.

Note: The default Device Name is the detector's Serial Number. It is recommended to rename the device after setup for easier identification.

Note: After making any changes, first click Save and then select Reboot to apply the settings completely.

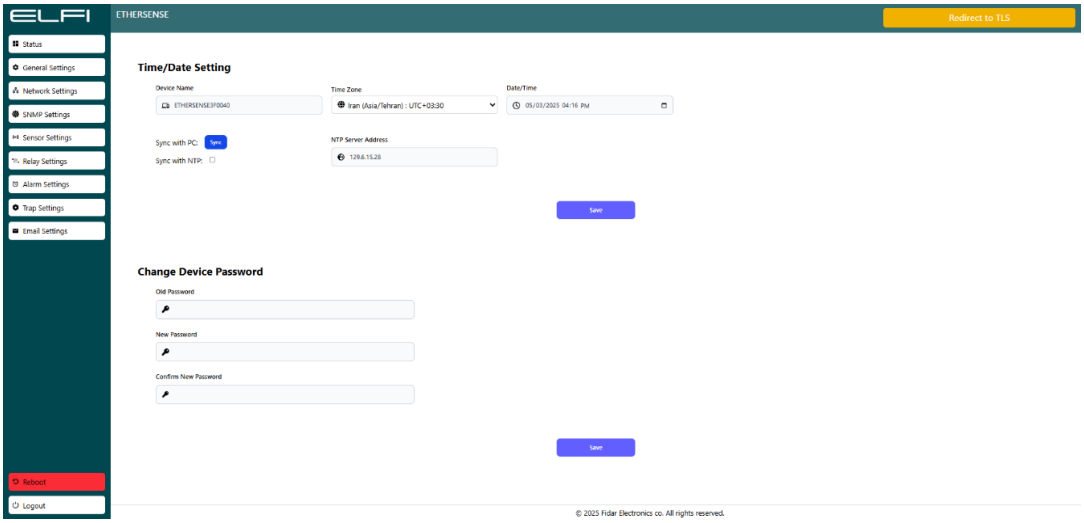


Figure 7: detector "General Settings" Menu

3.3. Network Settings Menu

This section helps configure the detector's network connectivity. Depending on your network requirements, you can use either automatic configuration via DHCP or manual configuration (see Figure 8).

1. When DHCP is enabled, the detector automatically obtains required network information from the DHCP server. This includes the IP Address, Subnet, Gateway, DNS Server, and other relevant settings.
2. When DHCP is disabled, if you prefer to enter the settings manually, disable the DHCP option. Once disabled, the following fields will become available for manual configuration:

- **IP Address:** The unique address of the detector on the network (e.g., 192.168.1.100)
- **Subnet:** Defines the local network range (e.g., 255.255.255.0)
- **Gateway:** The default gateway address for connecting to external networks (e.g., 192.168.1.1)
- **DNS1 & DNS2:** Addresses of DNS servers used to resolve domain names to IP addresses
- **HTTP Port:** Port used to access the detector 's web interface via HTTP (Default: 80)

- **HTTPS Port:** Port used to access the detector 's web interface via HTTPS (Default: 443)
- **Certificate:** A digital file that verifies the detector’s identity for secure HTTPS communication
- **Private Key:** A component of the certificate used to decrypt data in secure connections

After completing the settings, click Save, then click Reboot to apply the changes.

Important Notes:

Note: The Private Key must remain confidential and must not be shared.

Note: To enhance security, use HTTPS instead of HTTP.

Note: It is recommended to change default ports (e.g., 80 and 443) if possible.

Note: Store the Private Key in a secure location and prevent unauthorized access.

Note: Use encryption for the “Private Key” file.

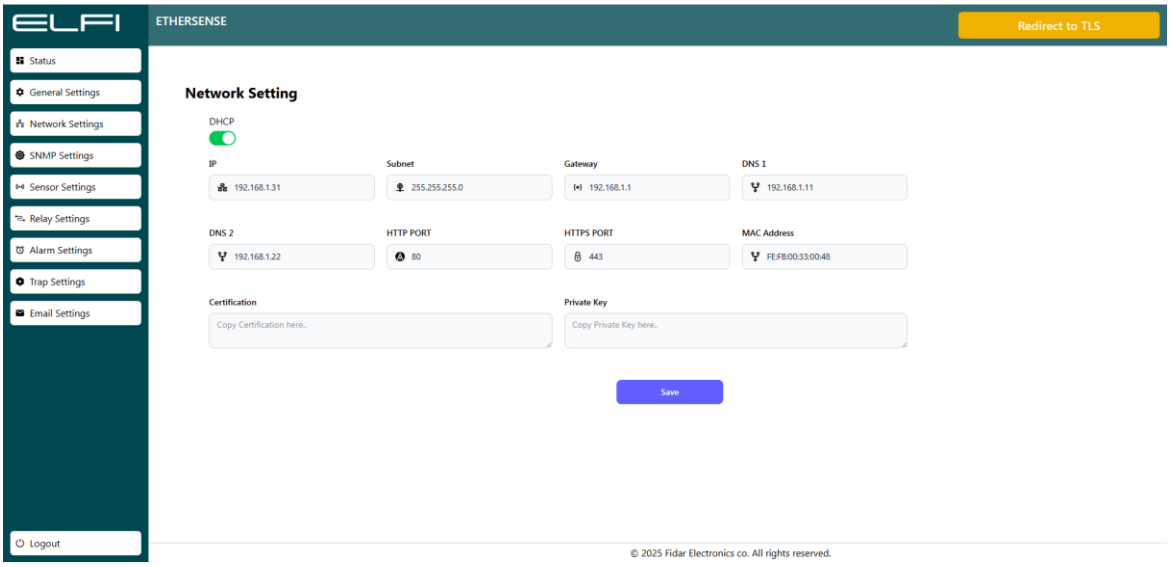


Figure 8: detector “Network Settings” Menu

3.4. SNMP Settings Menu

SNMP (Simple Network Management Protocol) enables communication between the network administrator and devices such as Sensors, switches, and routers. This section includes options for protocol version, Community settings, OIDs, and Traps (see Figure 9).

- Current Version: Indicates the SNMP version supported by the detector. Typically, versions 1 and 2 are supported.
- Community: Acts as a simple password controlling access to detector information.

Default: public, which allows general access to public detector data.

Note: Change the default public value to a secure and unique name.

Note: Avoid using easy-to-guess names like "public" or "private".

Note: In the SNMP OID and Trap OID sections, review available identifiers.

Note: Configure Trap OIDs based on your monitoring needs to avoid unnecessary notifications.

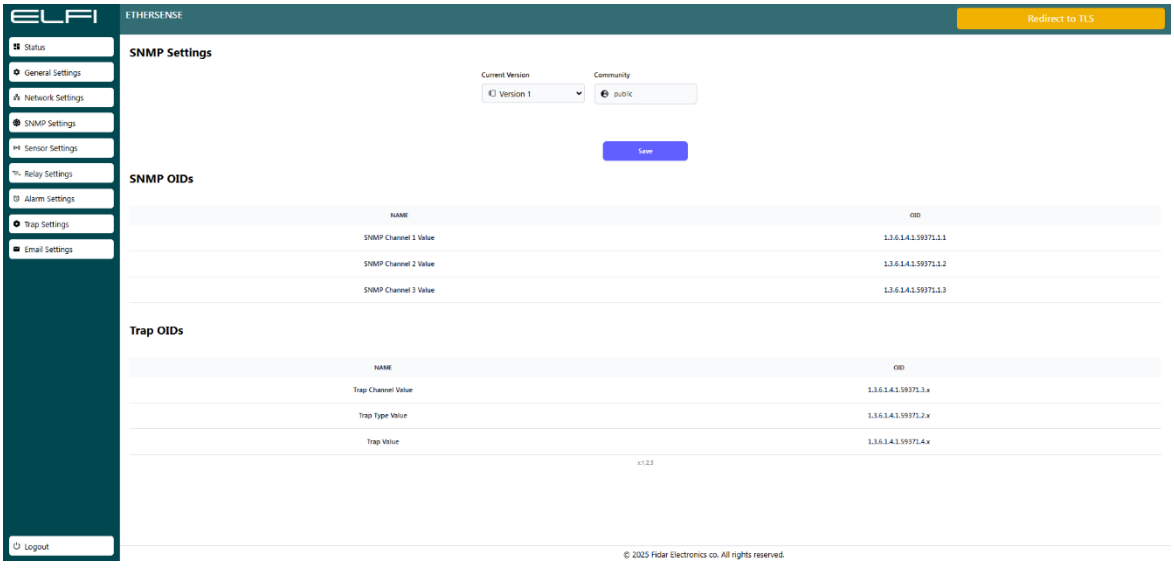


Figure 9: detector “SNMP Settings” Menu

3.5. Sensor Settings Menu

On the sensor settings page, there is an option called Reverse Mode, which allows you to invert the detector's behavior. This mode is designed for special scenarios where you need to change the way the detector interprets status signals (see Figure 10).

Reverse Mode Configuration

1. Normal Mode

In this default mode, the detector interprets status signals as follows:

- **Active (1):** When the detector detects an active or triggered condition (such as smoke detection or motion detection).
- **Inactive (0):** When the detector detects an inactive or unchanged condition.

2. Reverse Mode

In this mode, the detection logic is inverted:

- **Active (1):** When the detector detects an inactive or unchanged condition.
- **Inactive (0):** When the detector detects an active or triggered condition (such as a power cut).

Use Cases for Reverse Mode

- **Integration with other sensors:**

Useful when connected systems interpret "active" and "inactive" states differently and require reverse logic.

- **Adaptation to specific environments:**

When the input signal of the detector is defined in reverse due to environmental or system constraints.

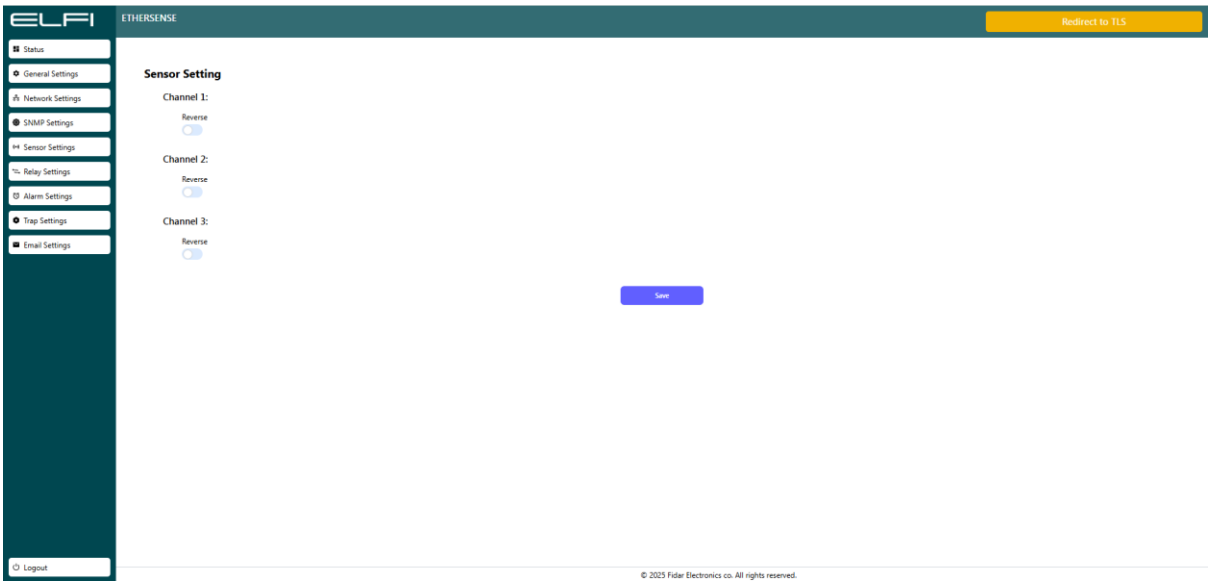


Figure 10: detector “Sensor Settings” Menu

3.6. Relay Settings Menu

Relay settings can be configured in two modes:

- Time-Based Mode: When this mode is enabled and a time value is set (e.g., 10 seconds), the relay will activate connected devices—such as sirens, cooling systems, etc.—for the specified time duration (10 seconds in this example) as soon as the relay is triggered, and will then automatically turn off.
- If Continuous mode is selected, once the relay is triggered, connected devices—such as alarms, cooling systems, etc.—will remain active until the detector exits the alarm state. Additionally, in Continuous mode, if the option “Reset relay status when alarm ends” is enabled, the relay will automatically return to its previous state when the alarm condition ends (e.g., the alarm will be turned off). (See Figure 11)

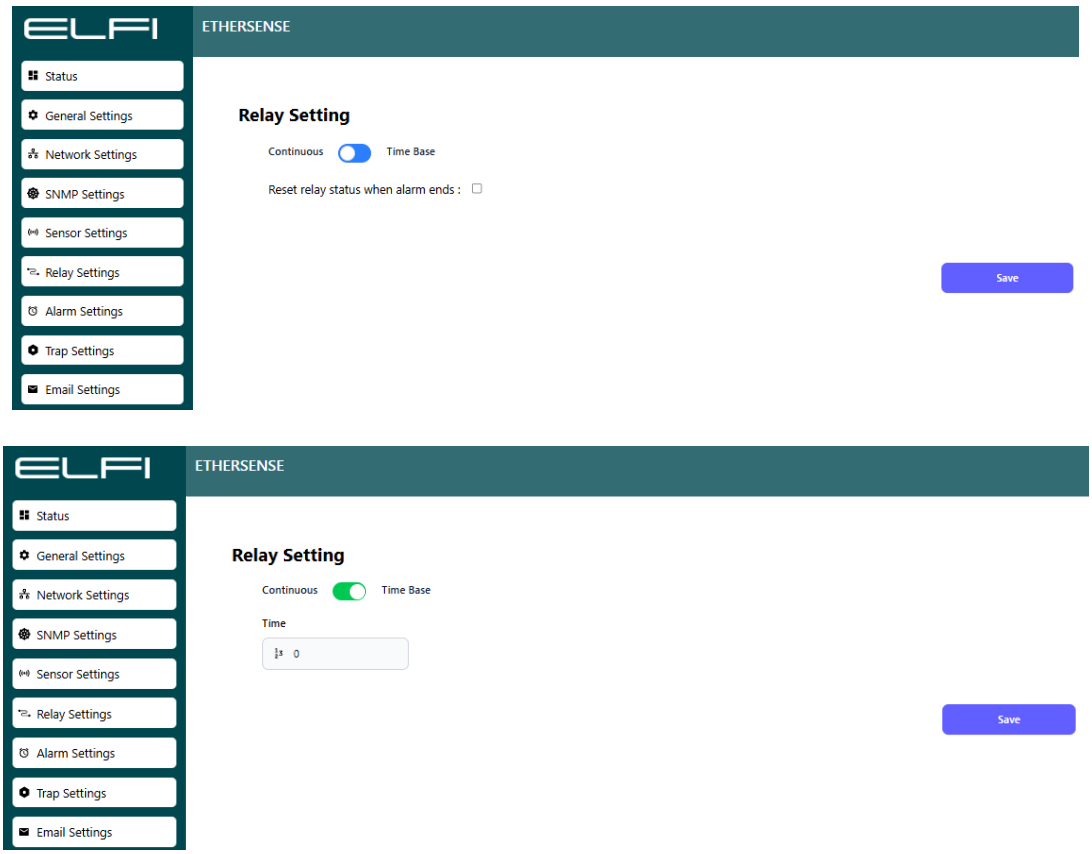


Figure 11: detector "Relay Settings" Menu

3.7. Alarm Settings Menu

The Sensor Alarm Settings page allows you to define how the detector should behave when specific conditions are detected. These alarms can be used to monitor the system and notify users in case of critical changes or abnormal detector status. (See Figure 12)

1. Toggle To High Alarm

- This alarm is triggered when the detector's value changes to 1.
- The voltage detector recognizes this transition and activates the alarm.
- Recommended for scenarios where it is important to be notified when the detector becomes active (e.g., power restored).

2. Toggle To Low Alarm

- This alarm is triggered when the detector's value changes to 0.
- The detector detects this transition and activates the alarm.

- Suitable for situations where notification is required when the detector becomes inactive (e.g., power outage).

Alarm Notification Options

1. Email Notification
- Once triggered, the detector can send an alarm email to predefined recipients.
- The email includes detector details and the type of alarm.
- Ensure that the SMTP settings are correctly configured in the Email Settings section.

2. SNMP Trap
- The detector can send a trap to the network management server upon alarm activation.
- Suitable for centralized monitoring in managed network environments.
- Relevant SNMP and Trap OID settings must be properly configured.

3. Relay Activation
- The detector can activate a relay in response to an alarm event.
- This may trigger a warning light, siren, or control an external device.
- Recommended for environments requiring immediate physical response.

How to Configure the Alarm

A) Select Alarm Trigger Mode

1. Go to the Alarm Settings page.
2. Choose one of the following modes:
   - **Toggle To High Alarm:** Alarm is triggered when the detector switches to 1.
   - **Toggle To Low Alarm:** Alarm is triggered when the detector switches to 0.

B) Selecting Alarm Notification Methods

1. In the Alarm Notification Method section, choose one or more of the following options:
   - **Email:** Send an alarm notification via email.
   - **SNMP Trap:** Send a trap to the network management server.
   - **Relay Activation:** Trigger a relay to activate external hardware.

C) Saving Settings

1. After configuring your thresholds, click Save, then select Reboot to apply the changes.

2. The detector will apply the new settings and will be ready to notify you when defined conditions are met.

Important Notes

Email Alerts: Double-check recipient addresses and SMTP configurations.

Fast Response Environments: Use relay activation (e.g., for sirens or warning lights).

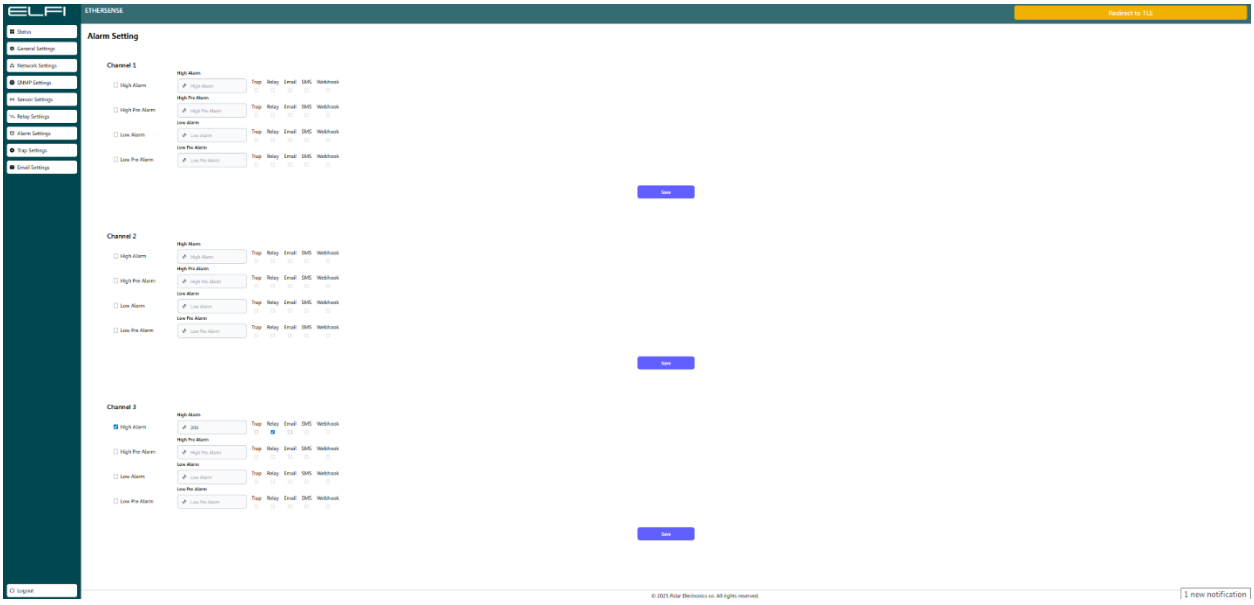


Figure 12: detector "Alarm Settings" Menu

3.8. Trap Settings Menu

A Trap is an asynchronous alert message sent by the detector to the SNMP server, providing information about specific events (such as alarms or status changes). These messages are automatically transmitted by the detector without any polling request from the server. (See Figure 13). To configure Trap Settings:

1. Go to the Trap Settings section.
2. Fill in the following fields:
   2.1. **Trap Destination IP:** The IP address of the network management server.
   2.2. **Trap Port:** The appropriate port number (default: 162).

2.3. **Trap Community:** A community string used for SNMP access. (It is recommended to change the default value for improved security.)

Within the Trap Settings page, you will find the Send Delay Config option. This defines a delay before Trap messages are sent to the network management server. It is useful for optimizing network performance and reducing server load, especially in environments with frequent events.

Importance of Send Delay:

- **Network Traffic Management:** Prevents flooding the network with multiple Trap messages in a short time.
- **Reducing Server Load:** Allows the SNMP server enough time to process previous messages before receiving new ones.
- **Avoiding Redundant Alerts:** Temporary detector fluctuations won't immediately trigger a Trap, preventing unnecessary alerts.

How Send Delay Config Works:

- Set Delay Time (in seconds):
- Default: 0 (no delay)
- Example: 10 means the Trap will be delayed for 10 seconds after the event occurs.
- Trap messages are only sent after the delay, even if multiple events happen.

Using Delay in Repeated Traps:

- If several events occur within the delay period, only the latest status is sent.
- This helps reduce traffic and prevents repetitive messages.

Note: Choose a delay that does not risk missing critical events.

Note: For time-sensitive networks, set a very low or zero delay.

Note: After configuration, verify the Trap functionality to ensure messages are delivered properly.

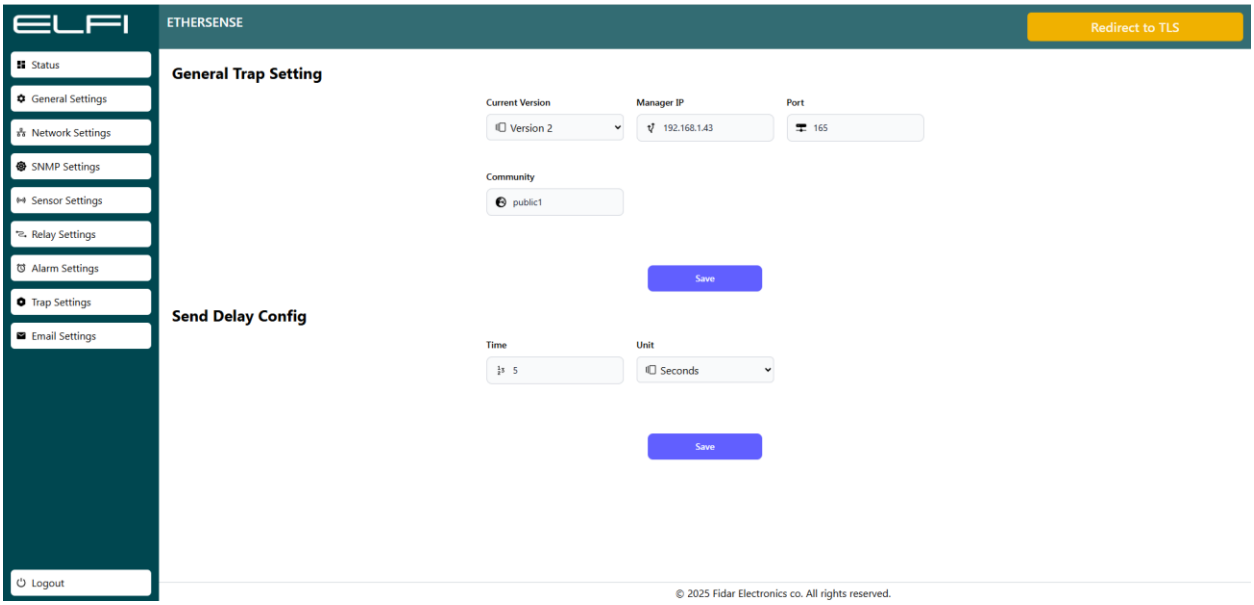


Figure 13: detector "Trap Settings" Menu

3.9. Email Settings Menu

This section allows you to configure settings for sending emails via the SMTP (Simple Mail Transfer Protocol). It is used for sending alerts, notifications, or reports to designated email addresses. (See Figure 14)

Available Fields:

- **SMTP Sender Email Address:** The email address shown as the sender in the message. This must be valid and usually matches the credentials of the SMTP server. (Example: example@yourdomain.com)
- **SMTP Receiver Email Address:** The destination email address where alerts will be sent. (Example: example@yourdomain.com)
- **SMTP Server Address:** The address of the SMTP server used to send emails. (Depends on your email provider.)
- **Server IP:** If using a local SMTP server, enter its IP address here.
- **SMTP Port:** Port number used for communication with the SMTP server. Common values:
  - 25: No encryption (legacy, rarely used today)
  - 465: Secure connection using SSL/TLS
  - 587: Secure connection using STARTTLS

- **SMTP Username:** Username for authentication, typically the same as the sender's email address.
- **SMTP Password:** Password for the specified SMTP username (used for authentication).
- **Time:** Time interval (in seconds) for sending emails or scheduling automated messages.
- **Test Email Address:** An email address used for testing the configuration. Use the "Send Test Email" option to verify that the settings are correct.

After completing the configuration, click Save, then Reboot to ensure all settings are applied correctly.

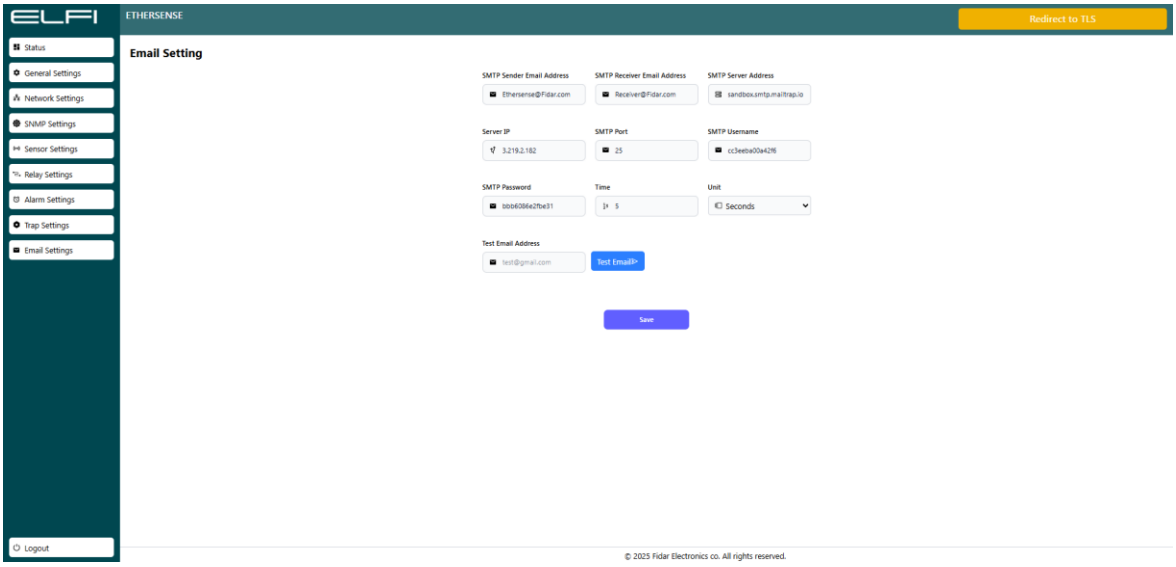
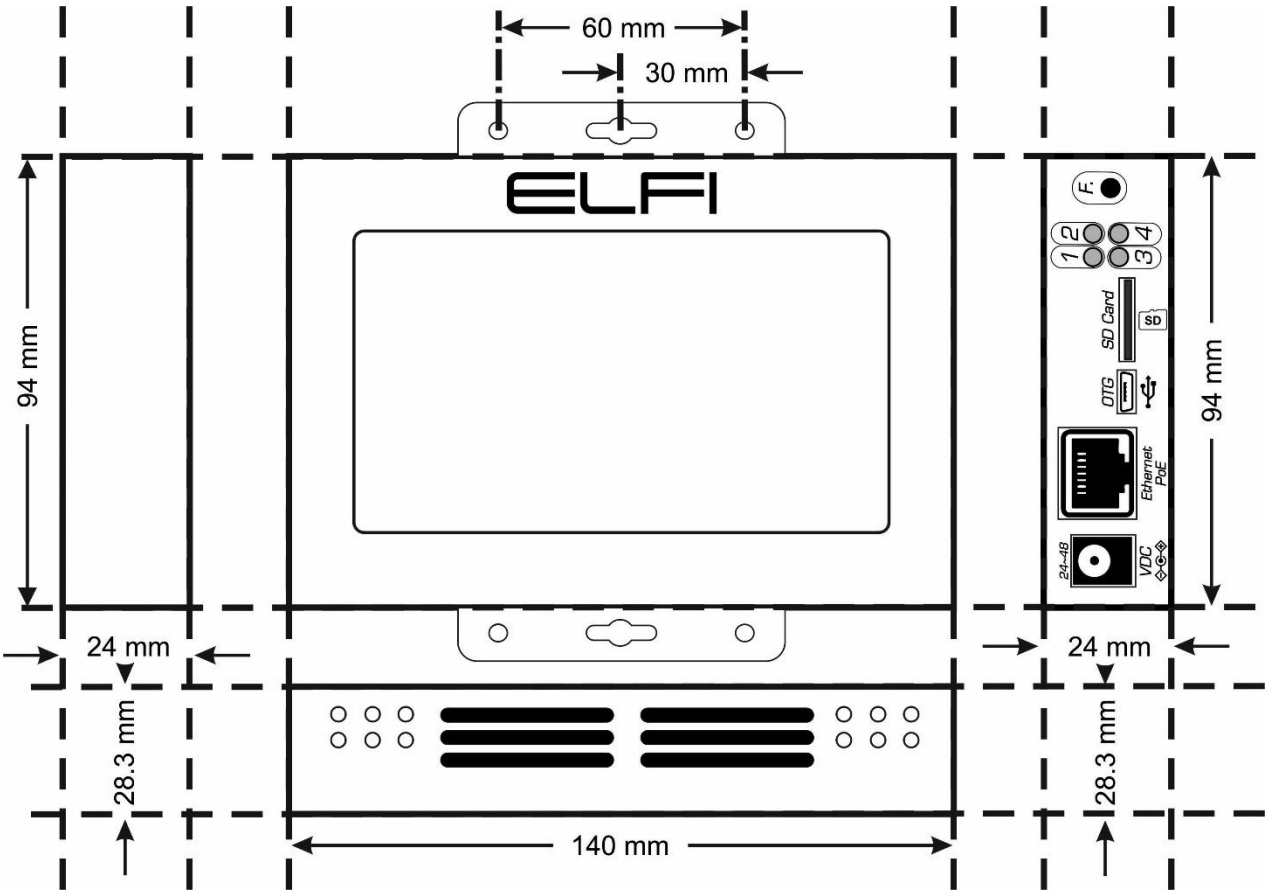


Figure 14: detector "Email Settings" Menu

4. Sensor Dimensions



Contact Info

Behineh Farayand Electronic Fidar Company

Telephone: 021-91308515

Address: West Azerbaijan Province, Urmia, 10th KM Sero Road, Science and Technology Park

Email: info@fidarelectronics.com

Website: www.fidarelectronics.com