SPECTRE

HMI E-PREDICT

TECHNICAL SPECIFICATIONS FOR HMI E-PREDICT

16/07/2025

HDSN provides a **dedicated HMI solution** for real-time monitoring of up to **512 E-PREDICT dry contacts**, using **digital input modules** that communicate via the **Modbus TCP/IP protocol**.

Key Features:

- **Monitor Digital Inputs**
  → View the status of each connected E-PREDICT in real time.

- **Trigger External Devices**
  → Automatically activate external alarms (e.g., sounders or flash indicators) in the event of:
  - ✓ Internal malfunction of an E-PREDICT
  - ✓ Abnormal overheating detection inside an electrical cabinet

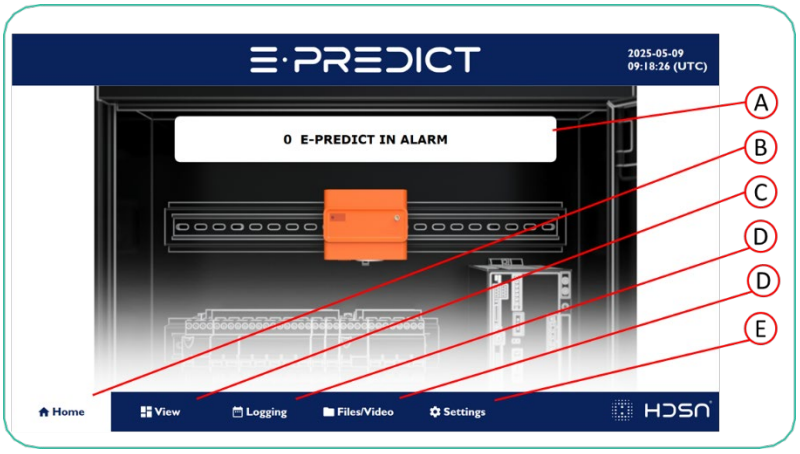
1. USE OF THE HMI

START SCREEN

HDSN will pre-configure the screen with the information from the layout study carried out beforehand.

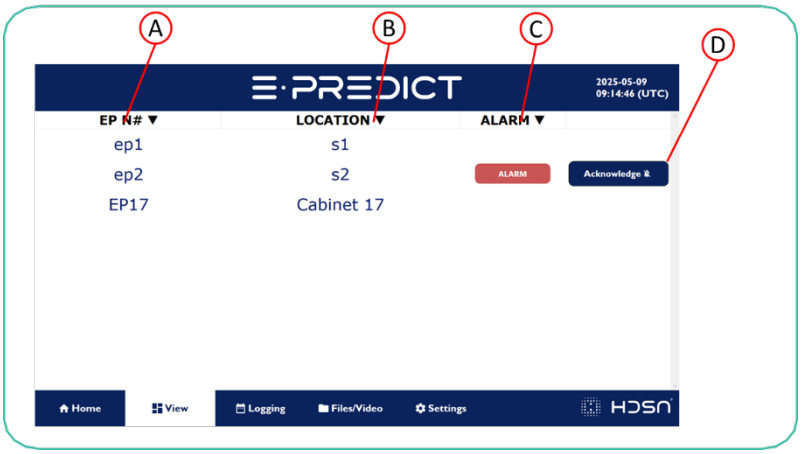
HOME SCREEN

The home screen displays the number of devices currently in alarm. If this number exceeds **1**, an alarm siren is triggered, and an alarm message is shown on the screen. The HMI box indicator is also activated.



A	Number of devices in alarm
B	Access to view screen
C	Access to history screen
D	Access to file/video screen
E	Access to parameters screen

VIEW SCREEN



A	Number of E-PREDICT
B	Editable location field
C	Alarm indicator
D	Acknowledge button

The display screen provides real-time status of the **E-PREDICT dry contacts** connected to the digital inputs of the inputs module (CT-121F). Each input module includes 16 digital inputs, allowing it to support up to **16 E-PREDICT devices**. Users can configure the system to manage up to **512 inputs** in total. If an alarm is triggered, an acknowledge button appears.

Important notes:

- *The alarm disappears ONLY if it has been acknowledged on the HMI and resolved on the E-PREDICT side (restart).*
- *There are 2 types of dry contact E-PREDICT. The **standard mode** where the relay sticks in the event of an alarm. **Flashing mode** where the relay flashes to indicate the type of fault. The HMI mode is pre-set and can only be changed by HDSN.*

LED Status Indicators – Standard Mode

Each input is associated with an LED indicator showing one of the following four states:

⚪ White: The corresponding E-PREDICT device is operating normally, and no alarm is active.

🔴 RED: An alarm condition is active (24V on the digital input), and it has not yet been acknowledged via the HMI.

🔴 Blinking RED: An alarm was detected (24V on the digital input) and has been acknowledged on the HMI.
The light will return to green once the fault in the electrical cabinet has been resolved and the device is restarted.

🟡 Yellow: The input is currently deactivated. This status can be manually set by the user for up to 24 hours, which is useful during maintenance or operations that may generate environmental disturbances and lead to false alarms.

LED Status Indicators – Flashing Mode

Each input is associated with an LED indicator showing one of the following four states:

⚪ White: The corresponding E-PREDICT device is operating normally, and no alarm is active.

🔴 RED: An alarm condition is active (24V on the digital input), and it has not yet been acknowledged via the HMI. The E-PREDICT LED is RED → detection of abnormal overheating in the cabinet.

🔴 Blinking RED: An alarm was detected (24V on the digital input) and has been acknowledged on the HMI. The E-PREDICT LED is RED → detection of abnormal overheating in the cabinet.

🟠 ORANGE: An alert condition is active (24V on the digital input), and it has not yet been acknowledged via the HMI. The E-PREDICT LED is ORANGE → internal failure.

🟠 Blinking ORANGE: An alert was detected (24V on the digital input) and has been acknowledged on the HMI. The E-PREDICT LED is ORANGE → internal failure.

⚫ GRAY: An alert condition is active (24V on the digital input), and it has not yet been acknowledged via the HMI. The E-PREDICT LED is OFF → no power supply on E-PREDICT.

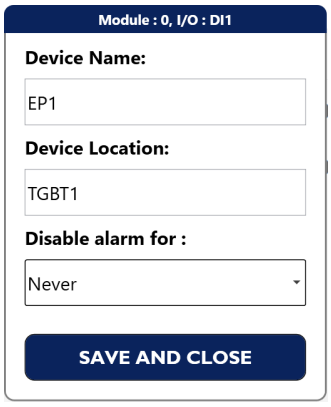
⚫ Blinking GRAY: An alert was detected (24V on the digital input) and has been acknowledged on the HMI. The E-PREDICT LED is OFF → no power supply on E-PREDICT.

The light will return to green once the alarm/alert has been resolved and if the device is restarted.

🟡 Yellow: The input is currently deactivated. This status can be manually set by the user for up to 24 hours, which is useful during maintenance or operations that may generate environmental disturbances and lead to false alarms.

Temporarily disable an input:

To disable an entry, switch to Admin mode (see SETTINGS page). Then, go to the VIEW page and click on the line to be disable (corresponding to the E-PREDICT you want to disable). A popup appears where you can change the name, location and detection of the alarm.

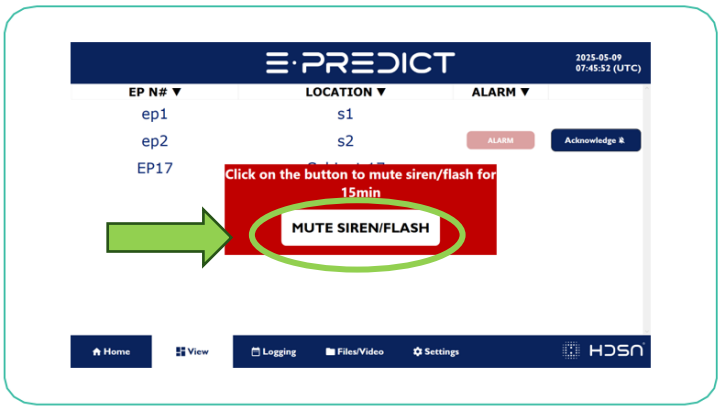


Note: The input is disabled for 24h max.

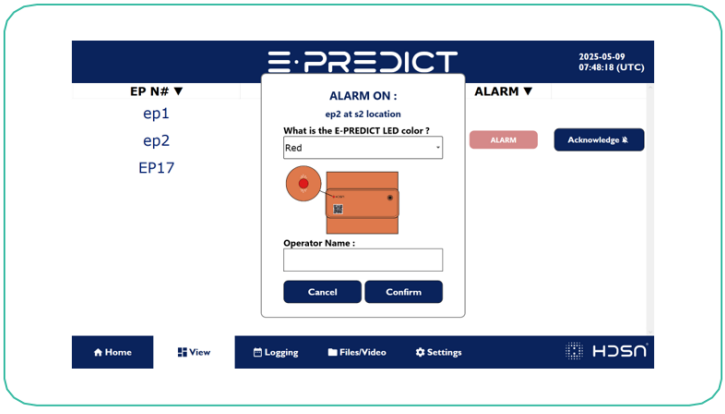
Alarm Management Procedure – E-PREDICT

Alarm Handling Steps

1. **Temporarily Disable the Siren/Flash**
   → The alarm siren and/or flashing signal from the HMI can be shut down for **15 minutes**.



2. **Check the E-PREDICT LED Color & Identify Operator**
   → Select the relevant E-PREDICT from the list, indicate the **LED color**, and enter the **operator's name**. If you are in Flashing mode, you don't need to indicate the LED color. It will be automatically written.



3. **Follow HMI Guidance**
   → The HMI provides troubleshooting **advice and steps** to assist in handling the alarm.

4. **Diagnose and Resolve the Issue**
   → Identify the cause of the alarm and **carry out corrective actions** on the E-PREDICT.

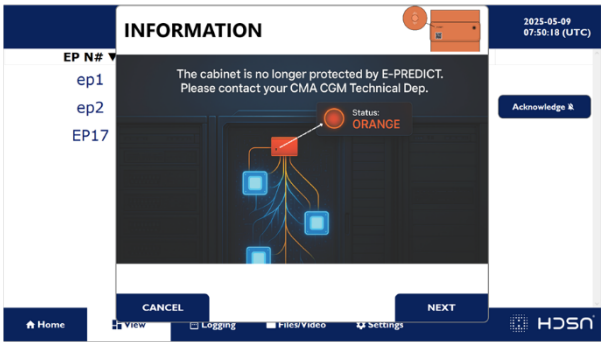
5. **Confirm Resolution**
   → Once resolved, the **E-PREDICT LED should turn green**, confirming a return to normal operation. If the LED does not return to green, **contact HDSN technical support**.

6. **Acknowledge the Alarm on the HMI**
   → The HMI will prompt the operator with **contextual questions** based on the detected issue to help document and guide the diagnosis.

LED Status-Based Alarm Scenarios (Standard Mode only)

🔶 Case 1: E-PREDICT LED is ORANGE

A **support message** is displayed with a **contact phone number and email address** for HDSN assistance.

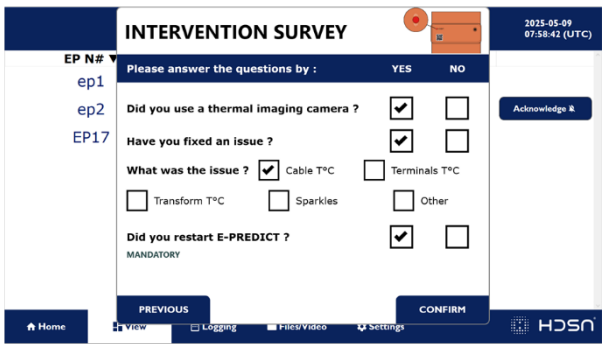


🔴 Case 2: E-PREDICT LED is RED

The HMI displays a **diagnostic flow**:

- Was a **thermal camera** used?
- Has the **problem been solved**?
  - If **Yes**: The HMI requests a description of the resolved issue.
  - If **No**: The user proceeds with further diagnostic steps.

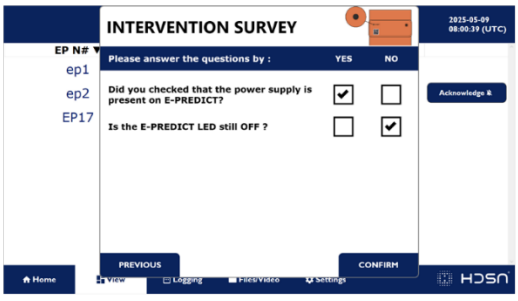
Finally, the HMI asks if **E-PREDICT has been restarted**.
If not, a message reminds the user to **restart the device** and follow the **intervention procedure**.



⚫ Case 3: E-PREDICT LED is not powered

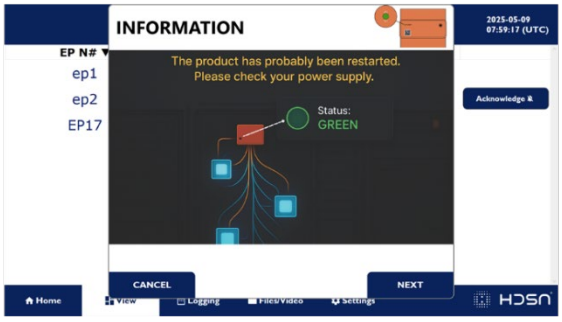
If communication with E-PREDICT is lost, a **guided troubleshooting sequence** is triggered:

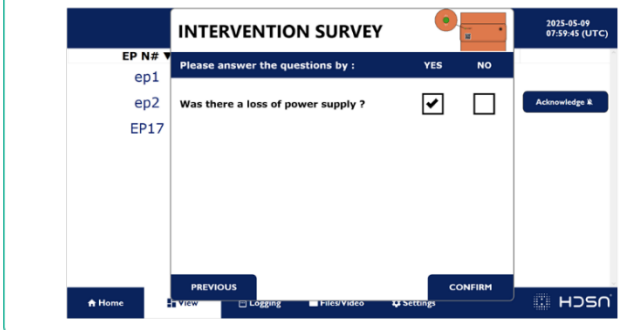
- Verify **E-PREDICT's power supply**.
- Check whether **E-PREDICT has been restarted**.
- Confirm whether the **LED remains off**.



🟢 Case 4: LED is GREEN (No Alarm)

HMI will ask if there was a **recent power loss**, to help understand possible transient issues.

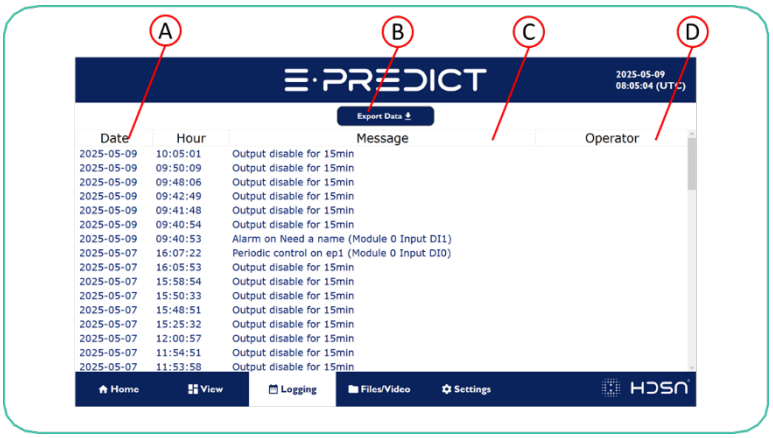




⚠ Important Note: If the alarm is disable but the issue remains unresolved, the alarm status will stay active.

LOGGING SCREEN

The history screen displays all alarms and their acknowledgements. The date and time of the event are indicated. The operator's name is indicated for each acknowledgement. Data can be exported (.csv) by plugging a USB key into the Panel PC. By clicking on the “Export Data” button, the data will be automatically saved to an external disk connected to the Panel PC (in this case, a USB key).



A Date and time of event
B Data export button
C Name of operator
D Event message

FILES/VIDEO SCREEN

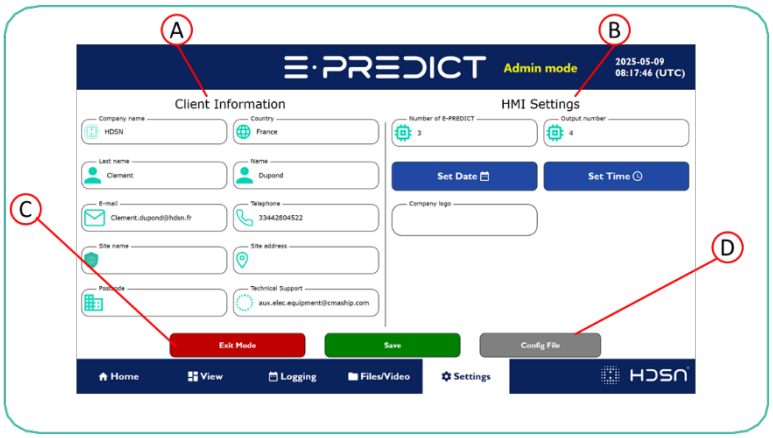
The Files/Video tab contains all the useful documents and media related to E-PREDICT. Users will find a video presentation of the equipment, its technical datasheet, and detailed procedures for the periodic and functional tests to be carried out to ensure proper system operation.

SETTINGS SCREEN

The **settings screen** centralizes both **customer information** and **interface configuration settings**. the administrator mode password is **112233**.
The user can modify the settings by logging on in administrator mode:

- **Admin Mode (Password: 112233)**

The Admin can view and modify customer information and some HMI configuration parameters.
The mode name is displayed at the top of the screen, in flashing yellow, to clearly indicate the current access level.

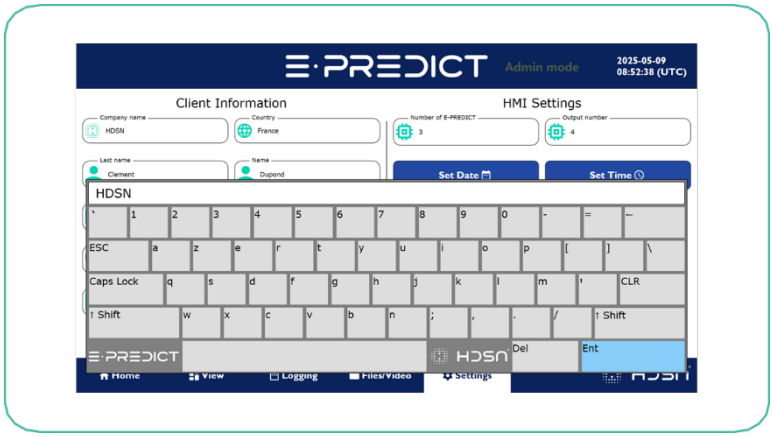


A	Customer information
B	HMI parameters
C	Exit mode button
D	Import config button

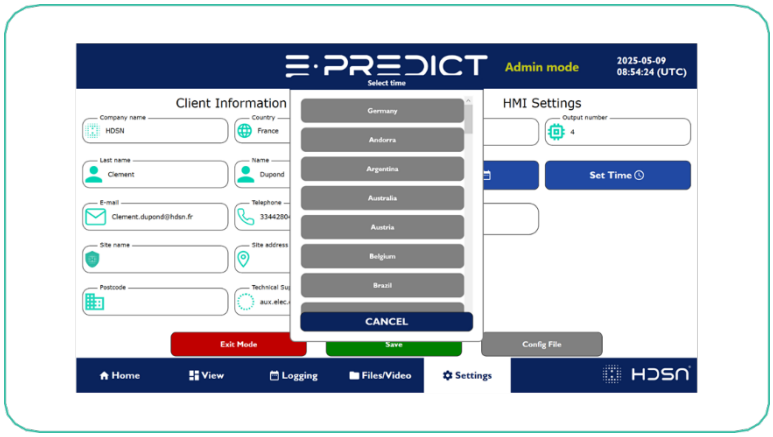
A. Customer information

Fill in the following fields with the relevant information:

- Company name: Indicate the social reason of the company.



- Country: Enter the country where the company is based.



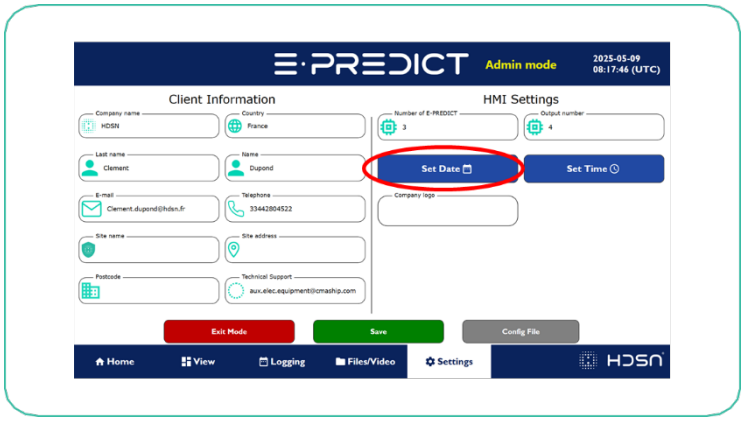
All the information below must be filled in:

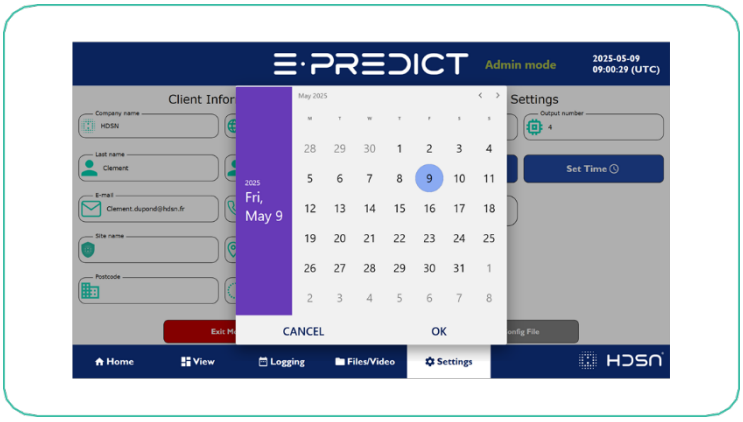
- Last Name: Enter the supervisor last name.
- Name: Enter the supervisor name.
- Email: Enter a valid email address for correspondence.
- Telephone number: Enter the telephone number.
- Site name: Specify the site or facility where the system is located.
- Company address: Enter the company's full address.
- Zip code: Enter the zip code corresponding to the address.
- Technical Support: Enter a valid email address for technical support

Save the information by pressing “Save”.

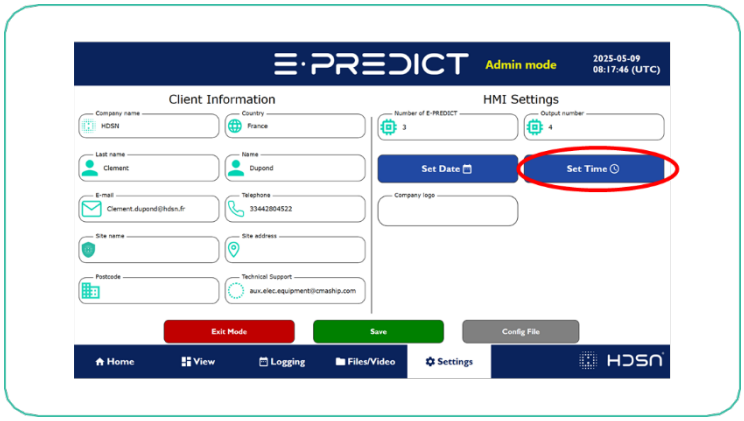
B. HMI settings

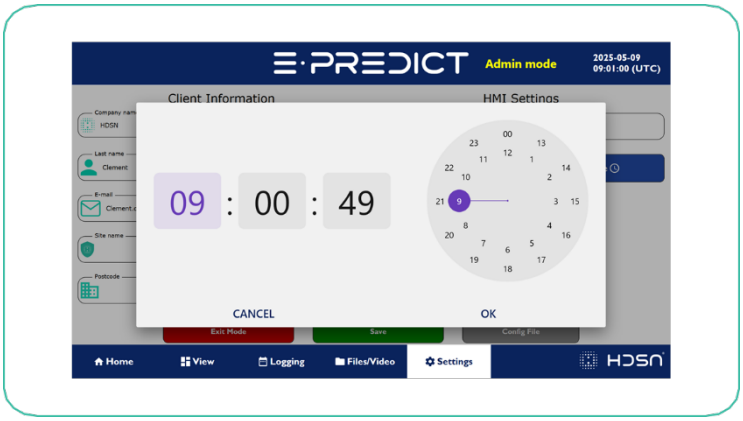
- Date: Update date using the “Set Date” button.



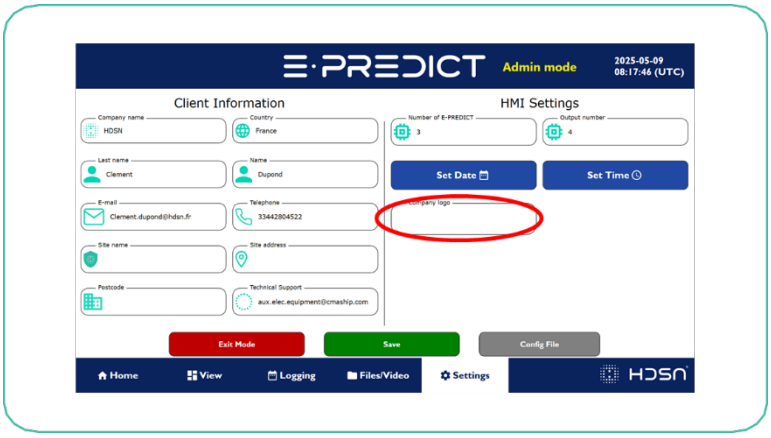


- Time: Update time using the “Set Time” button.

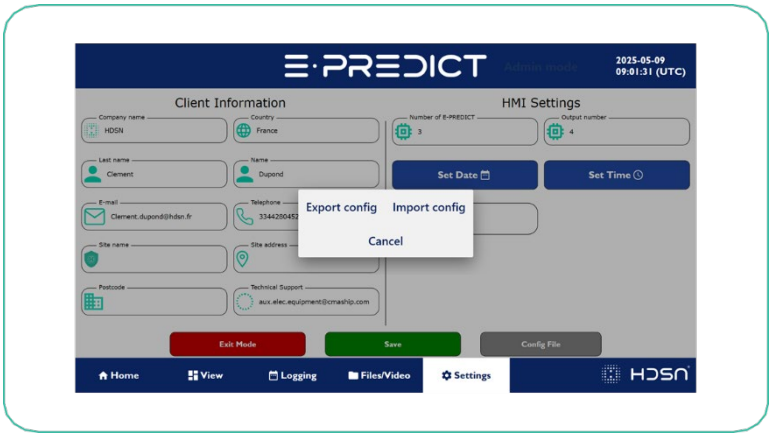




- Company logo: You can add your company logo to the Company Logo box. To do this, save your logo image as “logo_image” on a USB stick, plug it into the HMI, then click on the Company Logo box: the logo will be displayed automatically.



- Import HMI config: You can only import an HMI configuration using a USB key. **Warning: Doing this will delete the current configuration.**



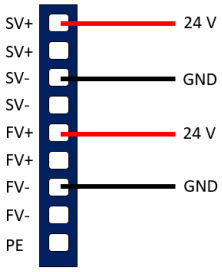
2. MODULES

ODOT CN-8031 ADAPTER

The CN-8031 is a Modbus-TCP network adapter that simultaneously accommodates up to 32 I/O expansion modules. The device can be used as a Daisy Chain. This must be connected via Ethernet to the HMI box.

Power Supply: 24V DC
Configured IP Intput address: 192.168.0.6
Configured IP Output address: 192.168.0.45

ODOT CN-8031

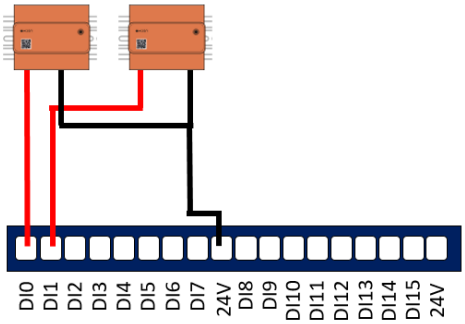


Wiring

CT-121F INPUT MODULE

The CT-121F is a 16-input 24V module that attaches to the ODOT CN-8031. Up to 32 modules can be connected to the ODOT CN-8031. A maximum of 512 inputs can be read.
E-PREDICT must be wired to a module in such a way that:
- The red wire is connected to a DI input
- The black wire is connected to the 24V
When an input is powered, an LED lights up to indicate its activation.

CT-121F

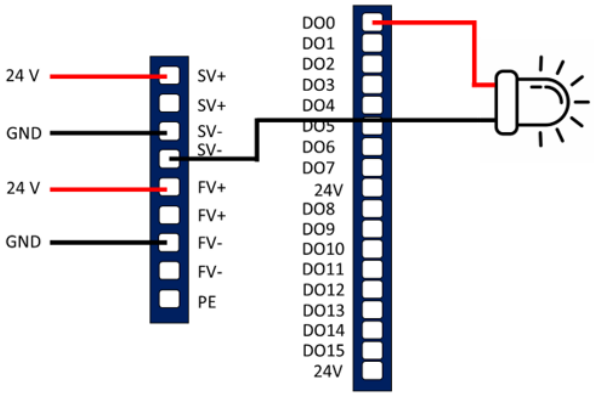


E-PREDICT Wiring

CT-222F OUTPUT MODULE

The CT-222F is a 16 output 24V module that attaches to the ODOT CN-8031. When an output is powered, an LED lights up to indicate its activation. One of the module's outputs is wired to an alarm device to signal a problem detected by E-PREDICT, whether internal to the system or linked to an external factor.

CT-222F



Siren/flash wiring

HMI BOX

The HMI box displays the status of the E PREDICTs connected to the CN-8031 ODOT and the CT-121F. It consists of a screen and a CT 222F module (connected to an ODOT CN-8031) to power an external device (e.g. a siren) in the event of an alarm.
Power supply: 230V AC
Dimensions: 41cm X 41cm X 20,5cm
Screen IP address: 192.168.0.10
External Device Output Module IP address: 192.168.0.45

HMI Box

3. MAINTENANCE

CABINET WITH ODOT CN-8031 & CT-121F

Module Replacement Procedure – CT-121F / CT-222F and ODOT CN-8031

If a **CT-121F digital input module** or a **CT-222F module** becomes non-functional, it must be replaced **by an authorized technician** and **in the exact same physical position** on the **ODOT CN-8031** communication adapter.
The HMI identifies and communicates with modules based strictly on their **physical position**.

⚠ **Important Warning:** Do **not shift or rearrange** modules after a failure. For example, if **Module 1** is defective, do **not** move **Module 2** to position 1 or **Module 3** to position 2. All modules must remain in their **original assigned positions**. Only the **defective module** should be replaced.

Replacing the ODOT CN-8031 Adapter

If the **ODOT CN-8031** adapter itself fails:

- It must be **replaced** with a new adapter.
- All existing **CT-121F modules** must be reinstalled **in the same order and position** on the new adapter.
- The replacement **ODOT CN-8031** must be **pre-configured** by **HDSN** prior to installation.

Please **contact HDSN** to obtain a properly configured replacement unit.

HMI SOFTWARE

if you encounter a problem with the software. Please restart the cabinet (open the cabinet and reset the circuit-breaker inside). If the problem persists, please contact HDSN.

To contact HDSN, please send an email to sav@hdsn.fr

HMI BOX

If any component of the HMI box is no longer working, please contact HDSN.

To contact HDSN, please send an email to sav@hdsn.fr

HDSN
HIGH PREDICTION TECHNOLOGIES
612 avenue Auguste Baron
13500 MARTIGUES, FRANCE