iddero

HOME AND BUILDING AUTOMATION

IDDERO HCx-KNX TOUCH PANELS

User Guide

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1   INTRODUCTION

Iddero touch panels are advanced systems that let users monitor and control home and building automation installations based on KNX technology.

Besides allowing for local monitoring and control from the touch panel itself, Iddero touch panels feature an integrated web server for access to the system from a smart phone, tablet, PC, or any other device equipped with a standard web browser. Additionally, the HC2-KNX and HC2L-KNX models can be used as indoor terminals for compatible video door phones, and for IP camera monitoring.

This manual is intended for installers and system integrators, and provides technical information about the operation and configuration of Iddero touch panels.

2   OVERVIEW

2.1   System Components

Iddero touch panels are wall-mounted units that can be conveniently and intuitively controlled through their colour touch screen (1).
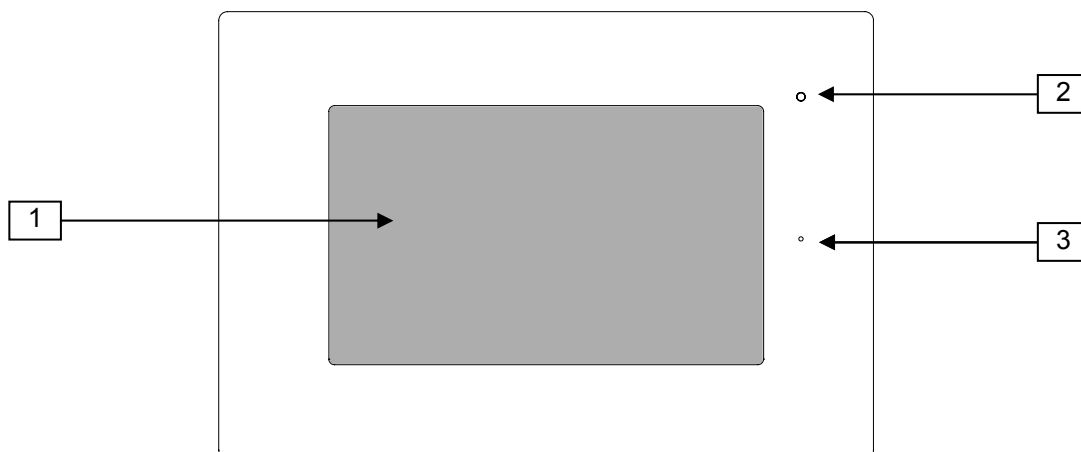
The unit features a LED status indicator (2) which provides immediate visual feedback of the system overall status, according to the following colour coding:

Colour	Meaning
Red	There is an active or pending alarm, or the bypass function has been enabled
Yellow	Presence simulation in progress
Green	Normal operation

The HC2-KNX and HC2L-KNX models also feature a built-in microphone (3) and stereo speakers (hidden behind the display) for the video door phone function.

2.2 Basic Operation

Touch Panel Operation

The user interface of Iddero touch panels is designed to be conveniently operated without the need of external devices such as a stylus. Simply touch with your finger on the graphical representation of buttons, icons, or any other element you want to activate.
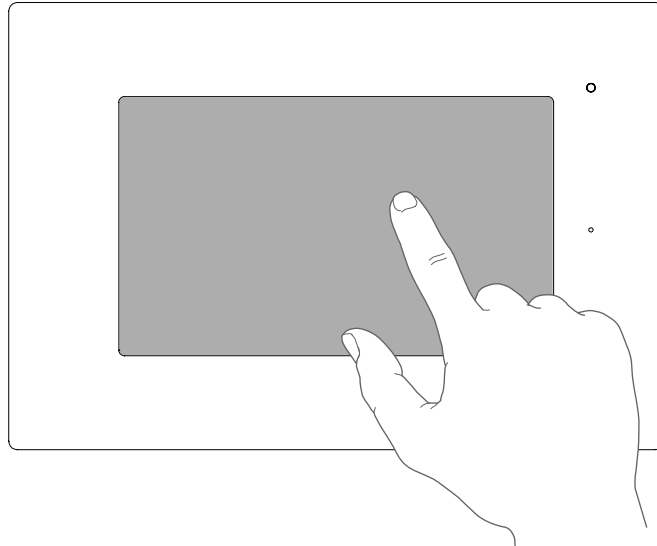
User Interface Elements

The following screenshot shows the main elements of the user interface.

At the top of the screen, the status bar (1) shows the current date and time, as well as the name of the page or function currently shown. This area may also include different icons that provide additional information about the system status.

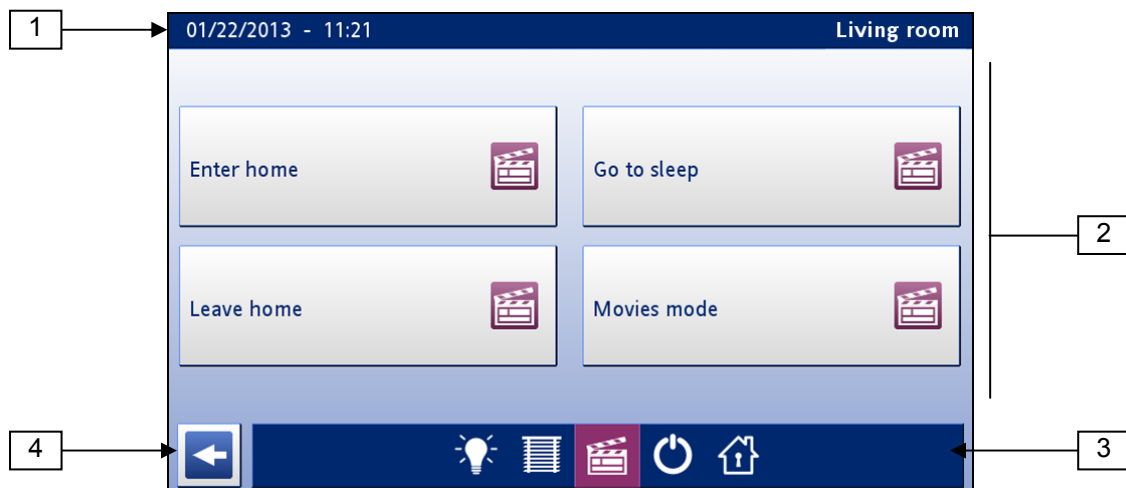| Icon	Meaning
KNX	KNX communication error
IP	TCP/IP communication error
✉	Error sending e-mail notifications
📱	Problem with GSM module
!	Active or pending alarms
!	Bypass function enabled
▶	Presence simulation in progress
❄ 〰	Internal thermostat operating in cool / heat mode
❄ 〰	Internal thermostat not operating: An error occurred while reading the probe temperature
❄ 〰	Internal thermostat not operating: Internal temperature is stabilizing
🚪	Incoming video door phone call
🚪	Video door phone call in progress

The central area of the screen (2) shows different icons, buttons and additional items that you can use control the system.

At the bottom of the screen, the navigation bar (3) allows you to move quickly between different pages linked to a particular zone (see Chapter 3, User Interface).

The "Back" icon (4) allows you to return to the previous page or section at any time.

2.3   Install Mode

Entering Install Mode

Certain operations, such as uploading a new project to the touch panel or updating the firmware, can only be accomplished if the system is in a special mode named **install mode**.

In order to enter install mode, reboot the system and touch on the lower right corner on the screen for at least three seconds during the loading process. The touch panel will beep three times to acknowledge the request and will enter install mode (the unit also enters install mode automatically the first time it boots, or when no valid project data is found.)
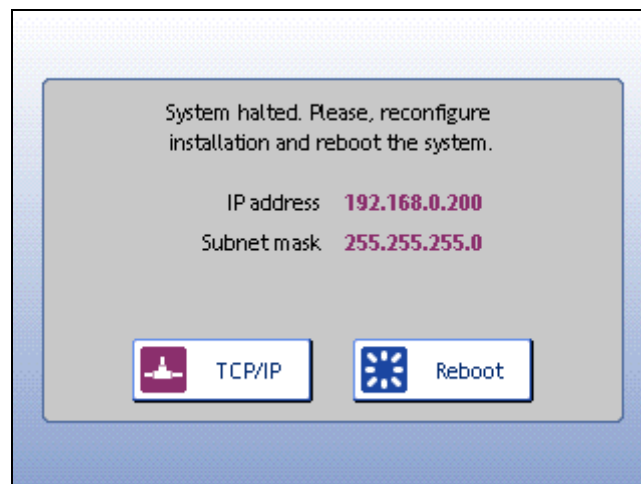
Network configuration

In order to access the touch panel from your PC, both devices must be in the same **TCP/IP subnet**. For example, if the touch panel's IP address is 192.168.0.200, with subnet mask 255.255.255.0 (default values), the IP address of the PC should also be in the 192.168.0.x range (for example, 192.168.0.201), with subnet mask 255.255.255.0.

The current IP address and subnet mask of the touch panel are shown on the installation screen.

Please refer to your operating system's documentation for detailed help on configuring the network settings on your PC.

3   USER INTERFACE

3.1   General Navigation Structure

Iddero touch panels' user interface is organized into "pages". The following figure shows the general navigation structure graphically.
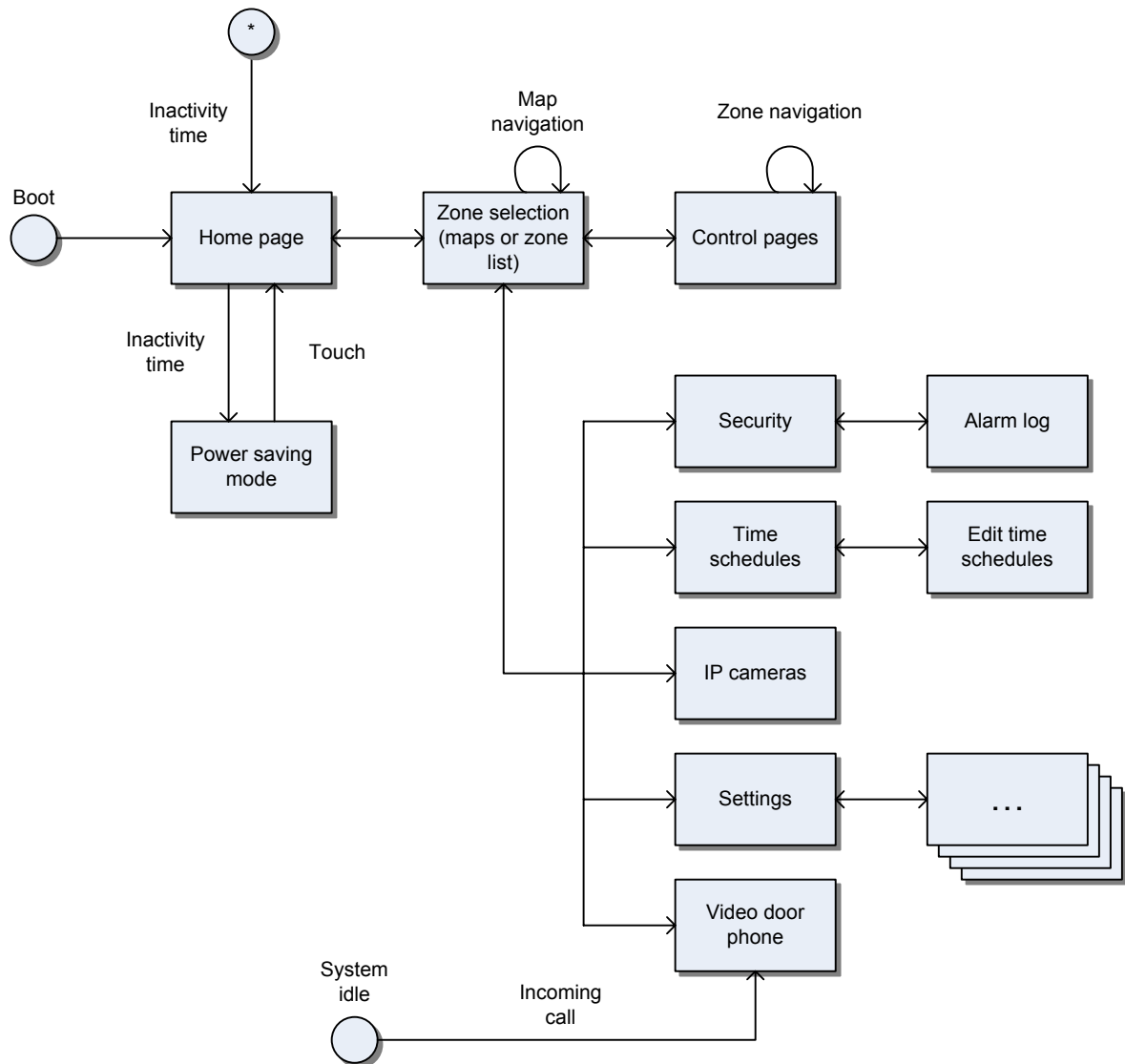
Once the system starts up, the home page is automatically shown. This page can display a configurable logo (if not customized, the Iddero logo is shown by default).

Control pages are configurable pages that allow for control and monitoring of the devices and appliances in the home or building.

Predefined pages or specific function pages are non-configurable pages that provide access to specific system functions, such as time schedules, scenes, etc.

3.2   Control Pages

Overview

Conceptually, the installation is considered to be divided into **zones**. Zones are arbitrary groups of elements and devices ("components") within the installation. A zone may represent, for example, a room in a house, an office, a specific department in a services building, or just a group of devices that may not actually share a physical location.

Devices associated with a zone are, in turn, arranged in one or more control pages. Grouping of devices into pages can be done according to different criteria: function, frequency of use of the devices, etc.

Each zone can consist of up to eight control pages, and each control page can group up to eight devices. Therefore, up to 64 devices are allowed per zone.

Zones   Pages   Components
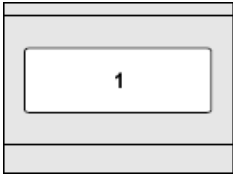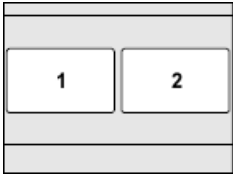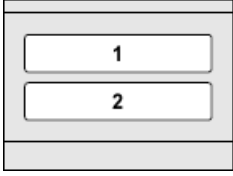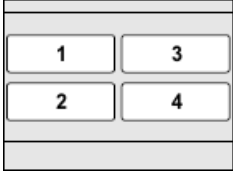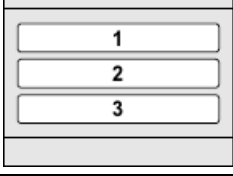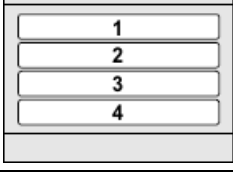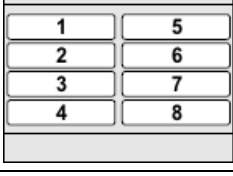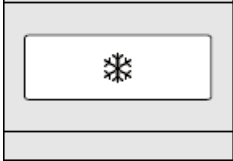
Zone Selection

Zone selection can be done through maps, which are often used to graphically represent the home or building plan. A series of "active areas" or touch areas is defined in each map. Each touch area can lead to a zone, or to another map. It is therefore possible to establish a hierarchy of maps for more complex installations, or just use one single map for simpler installations.

Map definition is entirely optional. If maps have not been defined in the project configuration, the system will just display a list of zones, allowing the user to select zones by name.

Page Layout

The number of devices that can be displayed on a control page depends on the layout that was configured for that page. The following figure shows the available layouts. There are eight generic layouts, plus one specific layout for HVAC control pages.

	1x1		2x1
	1x2		2x2
	1x3		2x3
	1x4		2x4
	HVAC		

Component Types

The different types of components that can be used in control pages are briefly described below. Some components are "generic" and can be used with arbitrary KNX communication objects, whereas other components are specifically designed to control certain types of actuators.

The following generic component types can be used:

- *Indicator:* A generic "read-only" component that displays the current state of the associated KNX communication object. The state of the communication object can be displayed as text, using icons, or –for numeric data types– with a level bar.

- *Universal push button:* A generic component that displays the state of a communication object and can also send values to the communication object when the component is pressed. The value to be sent depends on the configuration of the push button:
    - Send a single value on press
    - Send different values on press and release
    - Send different values on short press and long press
    - Send a user-selected value out of several available options (up to four options can be configured per button)

- *Regulation bar:* A generic component that displays and sends values to a communication object through an interactive regulation bar. This component can be used with numeric data types.

- *Numeric keypad:* A generic component that displays and sends values to a communication object through an interactive numeric keypad. This component can be used with numeric data types.

- *Text keyboard:* A generic component that displays and sends values to a communication object of type Character (DPT 4.x) or String (DPT 16.x), using a full interactive keyboard.

The following table shows compatible KNX data types for each of the above mentioned generic components:

Data Type	Description	Indicator	Universal push button	Regulation bar	Numeric keypad	Text keyboard
DPT 1.x	Boolean	●	●			
DPT 4.x	Character set	●	●			●
DPT 5.x	8-bit unsigned value	●	●	●	●	
DPT 6.x	8-bit unsigned value	●	●	●	●	
DPT 7.x	2-bit unsigned value	●	●	●	●	
DPT 8.x	2-bit unsigned value	●	●	●	●	
DPT 9.x	2-bit unsigned value	●	●	●	●	
DPT 10.x	Time	●	●			
DPT 11.x	Date	●	●			
DPT 12.x	4-bit unsigned value	●	●	●	●	
DPT 13.x	4-bit unsigned value	●	●	●	●	
DPT 14.x	4-bit unsigned value	●	●	●	●	
DPT 16.x	String	●	●			●

Additionally, the following specialized components may be used:

- *Lamp control:* A specialized component to control a lighting actuator. Supports on, off, and dimming, depending on the features of the actuator to be controlled.

- *Blind / shutter control:* A specialized component to control a blind / shutter actuator. Supports blind / shutter motor control (move up / move down, stop / step), and –if supported by the actuator– accurate positioning of the blind / shutter.

- *Forced actuator:* A specialized component to control actuators supporting forced operation (DPT 2.x data types).

- *Scene control:* A specialized component to activate (short press) and, optionally, save (long press) scenes defined in the project configuration.

- *RGB control:* A specialized component to control RGB lighting actuators.

☞ ***Please note:***
The "Scene control" component is designed to control scenes managed by the touch panel. You can use the "Universal push button" component to send a telegram in order to activate a scene managed by an external scene controller.

HVAC Control Pages

HVAC pages are control pages specifically designed to monitor and control HVAC equipment. For each HVAC page, the HVAC system type to be controlled must be configured. The following options are available.

- *Standard thermostat:* Designed for control of a standard KNX thermostat. Thermostat control can be done by temperature setpoint and / or by thermostat mode. Control by thermostat mode allows setting of the current thermostat operation mode, according to the modes defined by the KNX standard:
  - Comfort
  - Standby
  - Economy (sometimes called "Night")
  - Protection (the thermostat remains off, except for the protection mechanisms against overheating and freezing).

- *Standard thermostat + machine control:* Similar to the standard thermostat option, but it also allows control of the "machine mode" or operation mode of the A/C unit (cool, heat, ventilation, dry, and auto modes), along with control of the fan speed (0...100%) in fan-coil type A/C equipment.

- *Split controller (IRSC):* Designed for integration with IRSC split controllers from Zennio. Supports control of the temperature setpoint, operation mode of the A/C unit, fan speed, and vane movement.

- *Split controller (Intesis):* Designed for integration with IntesisBox gateways from Intesis. Supports control of the temperature setpoint, operation mode of the A/C unit, fan speed, and vane movement.

It is also possible to setup a HVAC control page to control the internal thermostat of the touch panel (see functional description in Section 4.10, Internal Thermostat). In this case, thermostat control should be done by temperature setpoint, and not by thermostat mode.

3.3   Predefined Pages

The buttons at the bottom of the zone selection page provide access to the following pages:

Button	Description
	Provides access to the IP cameras page. If the project does not include any IP cameras this button will not be shown.
	Provides access to the video door phone page. If the video door phone function has not been configured, this button will not be shown.
	Provides access to the security page. If no security functions (alarms or presence simulation) have been configured, this button will not be shown.
	Provides access to the time schedules page. If no time schedule channels have been configured, this button will not be shown.
	Provides access to the user preferences and settings pages.

3.4   Time Schedules

The time schedules page shows a list of the existing timer channels defined in the project. If a channel is currently disabled, its name will be displayed in a darker colour. This allows for quickly checking which channels are enabled and disabled at a glance.

Select one of the timer channels and the four available timer programs are shown. Touch any program to edit its configuration (start / end times and actions, and days of the week and date ranges where the actions should be run).

See Chapter 4 for a detailed functional description of time schedules.

3.5 Security

The security page shows a list of configured alarms and their states.

From the security page you can:

- Enable and disable presence simulation
- Enable and disable the bypass function
- Acknowledge pending alarms (either individually, or all pending alarms at once)
- Access the event log

See Chapter 4 for a detailed functional description of the alarm subsystem and presence simulation.

3.6 Video Door Phone

Incoming Calls

When an incoming call is received (that is, when a guest presses the call button in the door phone station) the touch panel will play a ring tone through the integrated loudspeakers, and the incoming call icon (⬛) will be shown in the status bar.

If the touch panel was idle, it will automatically turn on and switch to the video door phone page. If the option "Password required to start session" has been enabled for the project (see Section 3.9, Access Control), a valid PIN code will be required in order to enter the door phone page.

If the touch panel is in use when an incoming call is received, it will not switch to the video door phone page automatically, in order to avoid interrupting the user's operation. The user can then navigate to the video door phone page manually.
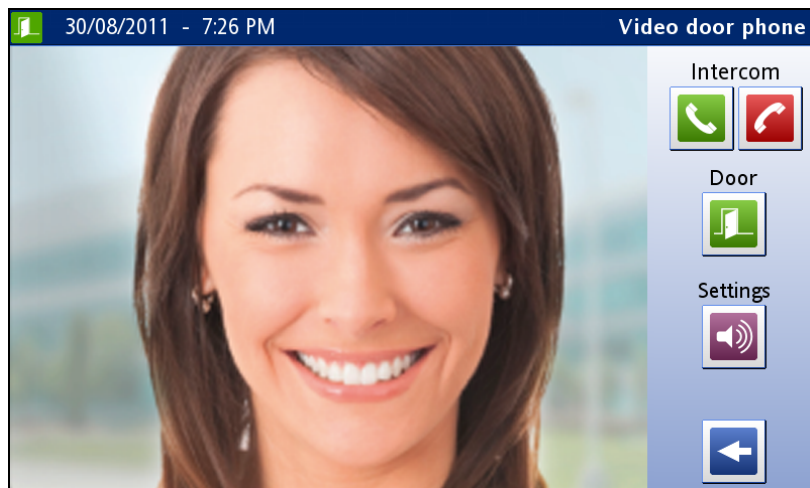
In the video door phone page, use the buttons in the right hand side of the screen as follows:

Button	Description
	Press the "pick up" button to accept the incoming call and establish the audio communication
	Press the "hang up" button to reject an incoming call, or to terminate a call in progress
	Press the "open door" button to send the door open signal. If the door station can control two doors (or one door plus courtesy lights), two buttons will be shown
	Press the "settings" button to open the audio settings dialog

Checking the Door without an Incoming Call

You can navigate to the video door phone page at any time even if there is no incoming call. You will be able to watch the video captured by the door phone's camera, but will not be able to establish an audio communication.

Depending on the door station type and configuration, the open door buttons may not be available if there is no call in progress.

Audio Settings

The audio settings dialog allows you to configure the following parameters:

- *Ring volume:* Volume of the incoming call ring tone
- *Audio volume:* Audio volume once the call is accepted
- *Microphone level:* Gain of the touch panel's built-in microphone

The "Default" button in this dialog box restores all parameters to their reference values (factory-set defaults).
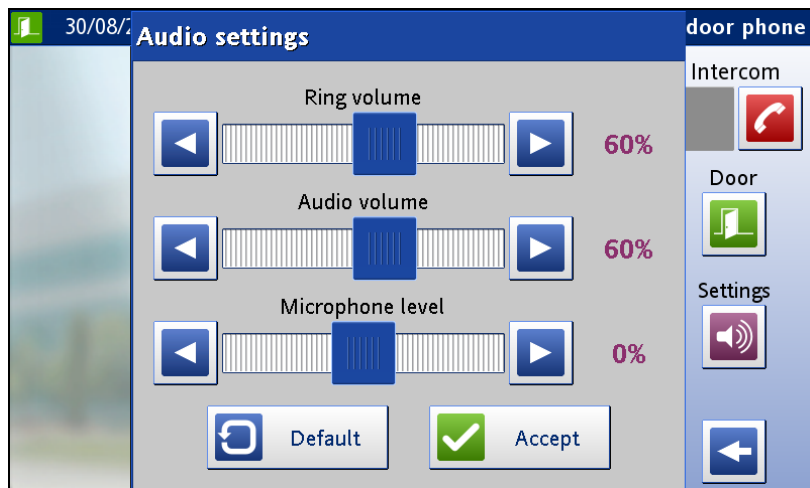
Multiple Door Station Support

On sites with multiple door stations (e.g. buildings with several separate entry points), operation of the door phone function is as described, with the following differences:

- Touch the image at any time to switch between door stations (an informative message will be briefly shown onscreen when you enter the video door phone page)

- The pick up / hang up buttons always relate to the current call in progress, regardless of which door station is currently selected.

- The door opening buttons always relate to the door station currently selected. They may or may not be shown depending on the configuration of the selected door station.

- Audio settings are global and affect communications with all door stations.
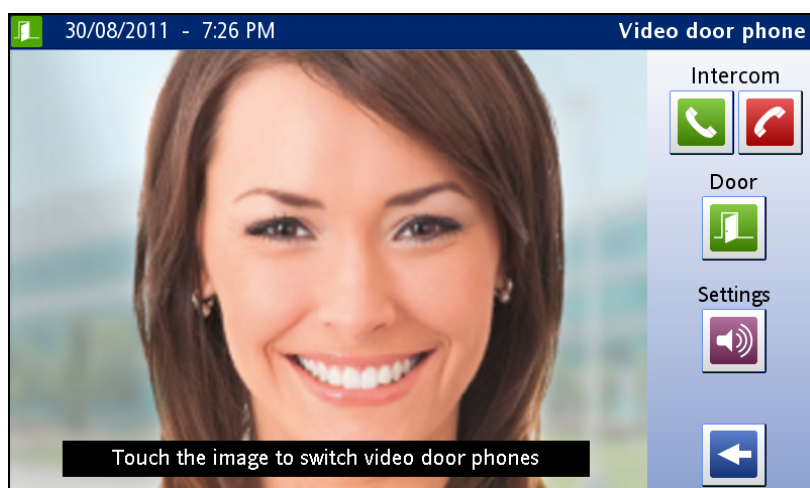
3.7 IP Camera Monitoring

The IP cameras page lists all IP cameras configured in the project.

Select any of the available cameras to get a live preview of the video captured by the camera. Touch the preview image to switch to full screen mode. Once in full screen mode, touch anywhere on the screen to go back to the cameras page.
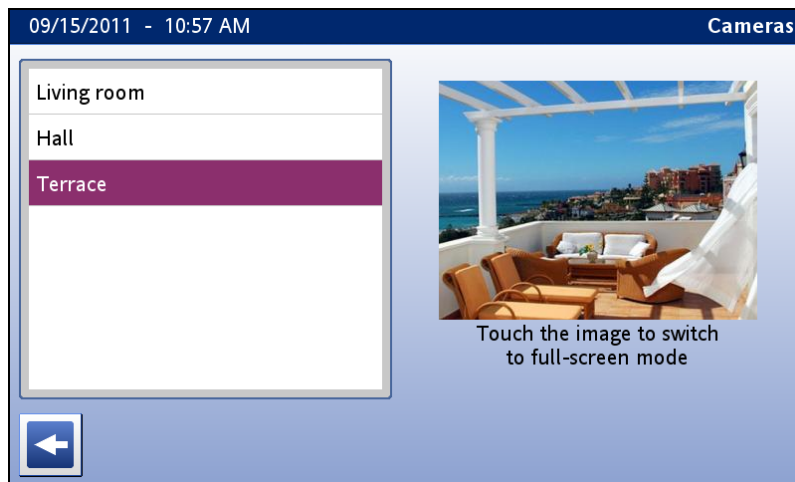
3.8 User Preferences and Settings

The following chart outlines the navigation structure of the user preferences and settings pages.

Some of the pages and options described in this section will only display if you have configured the corresponding function during the project stage.

```
                                    ┌──────────────┐      ┌────────────────────────┐
                                    │ User         │      │ ▪ Language             │
                                    │ Interface    │◄────►│ ▪ Buzzer               │
                                    └──────────────┘      │ ▪ Audio settings       │
                                                          │ ▪ Display contrast     │
                                                          │ ▪ Other parameters     │
                                                          │ ▪ Recalibrate touch    │
                                    ┌──────────────┐      │ ▪ Clean screen         │
                                    │ Presence     │      └────────────────────────┘
                                    │ Simulation   │
                                    └──────────────┘

                                    ┌──────────────┐
                                    │ Scenes       │
                                    └──────────────┘

              ┌──────────┐          ┌──────────────┐
              │ Settings │◄────────►│ Internal     │
              └──────────┘          │ Thermostat   │
                                    └──────────────┘

                                    ┌──────────────┐
                                    │ E-mail       │
                                    └──────────────┘

                                    ┌──────────────┐      ┌────────────────────────┐
                                    │ GSM Module   │      │ ▪ Date / time          │
                                    └──────────────┘      │ ▪ Passwords            │
                                                          │ ▪ Network config       │
                                                          │ ▪ Web server           │
                                    ┌──────────────┐      │ ▪ Video door phone     │
                                    │ System       │◄────►│ ▪ IP cameras           │
                                    └──────────────┘      │ ▪ Initial settings     │
                                                          │ ▪ Reboot system        │
                                                          └────────────────────────┘
```
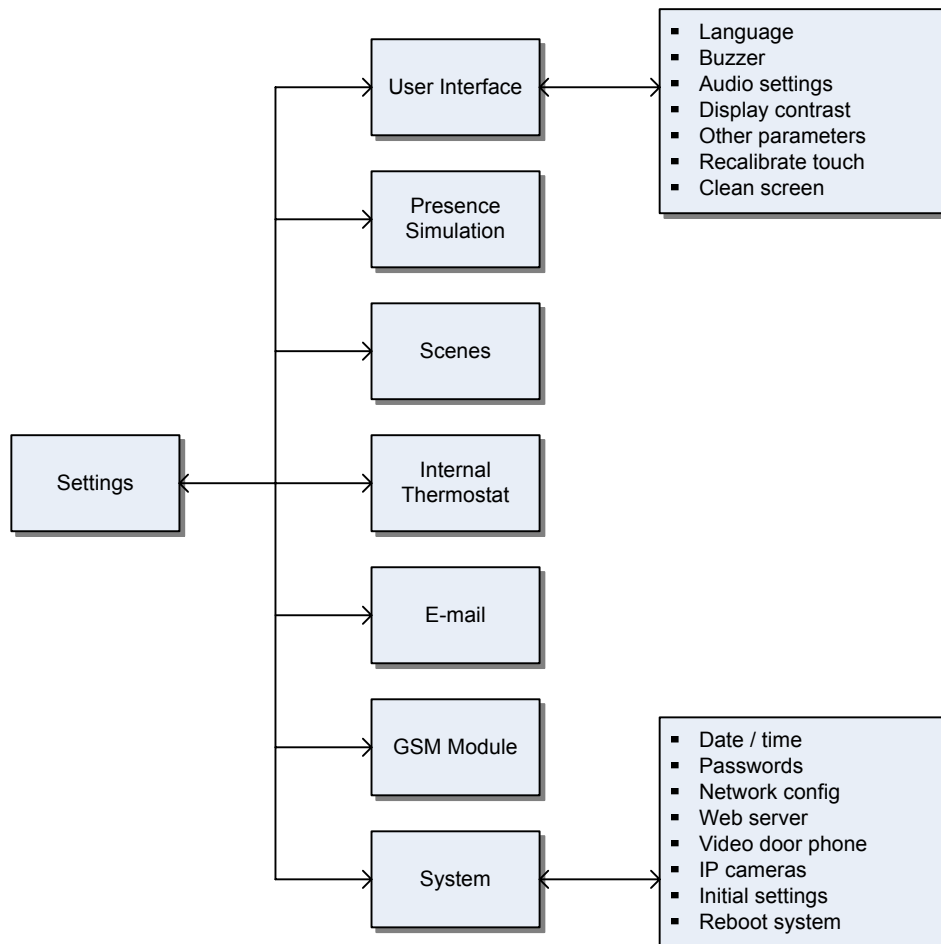
User Interface

This section provides the following options:

- *Language:* Allows selection of the user interface language (English, Spanish, German, French, Portuguese or Catalan).

- *Buzzer:* By default, the screen will beep when the user touches a user interface element. The buzzer is also used to signal that an alarm has been activated (depending on configuration). Both beeps can be disabled here.

- *Audio settings:* Allows configuration of audio parameters for the video door phone function (the same settings can also be adjusted from the video door phone page).

- *Display contrast:* Allows adjusting the display contrast.

- *Other parameters:* Allows configuration of the inactivity times for returning to the home page and for entering power saving mode (see Section 3.10, System Inactivity and Power Saving Mode)

- *Recalibrate touch:* Forces the recalibration of the touch screen (a system reboot is required in order to run the recalibration procedure). This option should be used only when necessary. Calibrating with a stylus is recommended for greater accuracy.

- *Clean screen:* Temporarily disables the touch panel for cleaning. Use a soft cloth to clean the screen. Do not use abrasive cleaners or detergents.

Presence Simulation

This page allows the end user to:

- Configure day and night periods for presence simulation: Each period can be individually enabled or disabled, and the times where each period applies can be defined.

- Configure the time interval between simulation events.

- Configure which actuators will be involved in the presence simulation during the day and night periods, out of the available actuators that have been enabled in the project for the presence simulation function.

Scenes

This page allows end users to configure the name of each scene defined in the project. If the "Scenes as Sequences of Actions" model has been selected (see functional description in Chapter 4), users can also edit action sequences from this page.

Internal Thermostat

From this page you can set the temperature correction factor for the internal thermostat of the touch panel, if enabled. This option is not available if the temperature used to control the thermostat is read from an external KNX device.

For more information about internal thermostat operation, please refer to Chapter 4.

E-mail

From this page you can configure an e-mail address where any e-mail notifications setup at project configuration time will be sent.

☞ **Please note:**
The e-mail notification function requires valid network settings, including a valid DNS server. If e-mail notifications are not being sent, please check the network settings of the touch panel (Settings → System → Network).

GSM Module

From this page you can configure the user preferences and settings for the DW-GSM module. For more information, please refer to the product documentation which is available in the download section of the Iddero website (www.iddero.com).

System

This section provides the following options:

- *System date and time:* Allows setting of the current system date and time, as well as the time representation format (12h / 24h)

- *Passwords:* Allows modification of the PIN codes corresponding to each of the four available access levels.

- *Network configuration:* Allows configuration of TCP/IP network parameters: IP address, subnet mask, default gateway, and DNS server. If the configuration is modified, the system must be rebooted for the changes to take effect.

- *Web server:* Allows enabling or disabling of the integrated web server. If the configuration is modified, the system must be rebooted for the changes to take effect.

- *Video door phone:* Allows modification of configuration parameters for the video door phone. If more than one door station has been configured, you will need to select one before proceeding. Available parameters will depend on the door phone type and configuration. For more information, please refer to the application notes on video door phone configuration available in the download area of the Iddero website.

- *IP cameras:* A list of IP cameras defined in the project will be displayed. Select any camera to edit its configuration parameters: IP address, port, username and password.

- *Initial settings:* Restores all user preferences and settings to their initial values, except for the following:
  - System date and time
  - Network configuration
  - Display contrast
  - Touch screen calibration

- *Reboot:* Reboots the system.

3.9 Access Control

Up to four different access levels can be defined, each of which is protected by an access code (PIN) which can be modified by the user. Access levels are hierarchical, where level 1 represents the highest priority and level 4 represents the lowest priority.

For each page in the application, including both control pages and predefined pages, the minimum required access level can be defined. For example, if level 1 is specified for a page, users can only access it by entering the PIN code corresponding to level 1. If level 2 is specified for a page, users can access it by entering the PIN code for either level 1 or level 2, and so on.

The system prompts for a PIN code every time users try to access a page that requires higher permissions than they currently have (for example, when a user that has previously entered a level 2 PIN code tries to access a page that requires level 1).

Additionally, it is possible to specify whether a valid access code is required in order to start a new session from the home page ("Password required to start session"). In that case, when the user touches the home page, a valid PIN (for any of the access levels defined) will be required.

Current user permissions remain in effect until the user returns to the home page, either manually or due to system idle time (see next section).

3.10   System Inactivity and Power Saving Mode

After a certain period of inactivity (i.e., no user interaction), the system automatically returns to the home page. Once on the home page and, again, after a certain period of inactivity, the system enters power saving mode.

During power saving mode, the display is automatically turned off and the power consumption is minimized, even though all system functions (such as timers, alarm monitoring, etc.) remain operational.

Touch the screen to exit power saving mode. The system also exits power saving mode automatically upon reception of an incoming call from the video door phone.
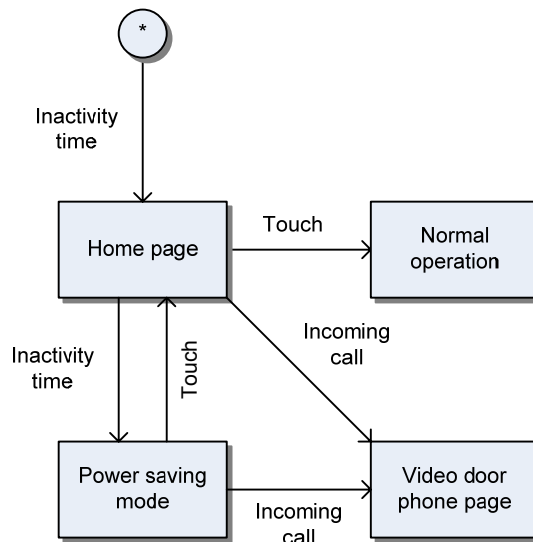
4 FUNCTIONAL DESCRIPTION

4.1 Scenes

The system implements a scene controller supporting two distinct modes of operation that can be selected at project configuration time. In one of them (the "classic" model in KNX), scenes represent "snapshots" of the states of the actuators involved. In the second mode, scenes are considered as sequences of actions.

In both cases, actuators that are involved in each scene are defined at project configuration time.

The operation of both modes is described separately below.

Scenes as "Snapshots" of Actuator States

In this mode, a scene holds a value or state for each actuator involved. When a scene is activated, these values are sent to the corresponding actuators, thus creating a specific "atmosphere".

For example, we could define a "Movies" scene to set the living room light level to 40%, lower the blinds and set the room temperature to 24° C. When this scene is activated, the above values will be sent to the corresponding actuators.

Scene activation can be either manual (e.g., from control pages, by touching a component that has been configured to activate the scene) or by telegram, if this option is enabled.

Scenes can also be modified by having them "save" the current values and states of the actuators involved. For example, let's assume we want to modify the above mentioned "Movies" scene so that the light level is set to 25% instead of 40%. We would proceed as follows:

1. Activate the "Movies" scene. The light level is set to 40%.
2. Manually set the light level to 25%.
3. Save the scene. The scene will internally be updated to use the new values.

Similarly to the scene activation, scenes can be saved manually (from control pages, with a long press on the component that activates the scene) or by telegram, if this option is enabled.

Users can also modify the name assigned to each scene from the Settings → Scenes page.

Scenes as Sequences of Actions

In this mode, scenes are **sequences of actions** which are executed in order.

Actions may be related to the actuators involved in the scene (e.g., setting the light level to 40%, lowering the blinds, changing the temperature setpoint of a room), or they may introduce pauses or delays, with resolution of seconds and a maximum period of 99h 59m 59s.

This makes it possible to build sequences where not all actions are executed simultaneously. For example, a scene might consist of three actions: activating a sprinkler irrigation valve, waiting for 20 minutes, and then disconnecting the irrigation.

Scene activation, as in the previous case, can be manual or by telegram. If you reactivate a scene that is already running, execution is restarted from the beginning.

Scene modification is not carried out by saving the states of the actuators involved, but by explicitly editing the sequence of actions that make up the scene.

Both the scene names and the corresponding action sequences can be edited from the Settings → Scenes page.

Activating and Saving by Telegram

To activate a scene by external telegram, if this option is enabled in the project, send a 1-byte telegram to the "Recall / save scene" communication object. The telegram must contain the *scene identifier* associated with the scene you want to activate. The scene identifier associated with each scene is shown in the configuration software.

To save a scene by external telegram, if this option is enabled in the project, send a 1-byte telegram to the same "Recall / save scene" communication object; in this case, the telegram must contain the scene identifier, but the most significant bit (MSB) must be 1. This is equivalent to adding 128 to the scene identifier.

> **Example:**
> *Let's assume that the "Activation by telegram" and "Save by telegram" options are enabled in the project, and there is a scene with 15 as scene identifier.*
>
> *To activate the scene by external telegram, a 1-byte telegram with value 15 must be sent to the "Recall / save scene" communication object.*
>
> *To save the scene by external telegram, a 1-byte telegram with value 143 (143 = 15 + 128) must be sent to the "Recall / save scene".*

> ☞ **Please note:**
> *The "Save by telegram" option is not available when the scene controller is configured in "Scenes as sequences of actions" mode.*

4.2   Time Schedules

The system implements a weekly time scheduler that can execute actions on elements (actuators or scenes) defined at project configuration time.

Each **timer channel** is associated with a particular element, for example, a lighting actuator, a temperature value, or the activation of a scene.

For each channel, the user can define up to four separate time programs, each of which in turn includes a start action, and optionally, an end action.

The following parameters can be set by the user for each time program:

- Start time and end time
- Start action and end action
- Week days (SMTWTFS) when the program is valid
- Optionally, a date range (day / month) when the program is valid

The "Week days" field can be used to specify which days of the week the program should apply to. The start and end dates make it possible to limit the weekly schedule to a specific period of the year. For example, users could define a program that would only run on weekends during the months of June, July, and August.

☞ **Please note:**
The system assumes that the end time always comes after the start time, even if this implies that the end action will be run on a different day than the start action. Week day and date range checks are always done for the start action. If the start action should be run, it is assumed that the end action should also be run.

Example:
Consider the following case:
- *A time program is configured including a start action and an end action*
- *Start time is set to 22:00, and end time to 03:00*
- *The "Week days" is set to Fridays.*
- *No start or end dates are defined*

Resulting behaviour will be as follows:
1. *The start action will run at 22:00 on Friday.*
2. *Since the system assumes that the end time always comes after the start time, it considers that the end time in this case refers to the early hours of the next day, i.e. Saturday 03:00am.*
3. *The end action will then run on Saturday at 03:00am, even though Saturday was not included in the "Week days" field. This is because the week days and date range checks are always done for the start action, and the result of these validity checks is automatically applied to the end action as well.*

On the other hand, note that if the start time is set to 03:00 and the end time to 22:00, both actions will be run on the same day (Friday).

Each timer channel can be enabled or disabled either manually (from the screen or through the web interface) or by telegram, if this option is set in the project.

4.3 Alarms

The alarm subsystem allows for monitoring and management of external alarm events, such as fire, flood, or gas leak alarms.

Alarms can be configured to require (or not) acknowledgement by the user, either manually or by an external telegram. It is also possible to specify whether an explicit alarm deactivation (reception of a telegram showing that the alarm condition is no longer active) is required.

For alarms requiring explicit deactivation, it is possible to configure whether the alarm should be re-triggered automatically if a certain time elapses after the user acknowledged the alarm and the alarm deactivation telegram has not been yet received

Alarm Triggering

If any of the configured alarms is triggered, the system enters the alarm state and performs the following actions:

1. The LED status indicator on the front panel turns red
2. A warning beep sounds (depending on configuration)

3. An alarm icon (!) is shown in the status bar

Detailed Operation

Each alarm can be in one of four possible states:

State		Description
🟩	Inactive	The alarm is inactive (OK)
🟥	Active (fired)	The alarm is active
🟧	Waiting for acknowledgement	A previously active alarm is not active anymore, but it has not yet been acknowledged by the user
🟧	Waiting for sensor deactivation	An active alarm has been acknowledged by the user, but the alarm condition is still active

The following flowchart shows the possible transitions between states:
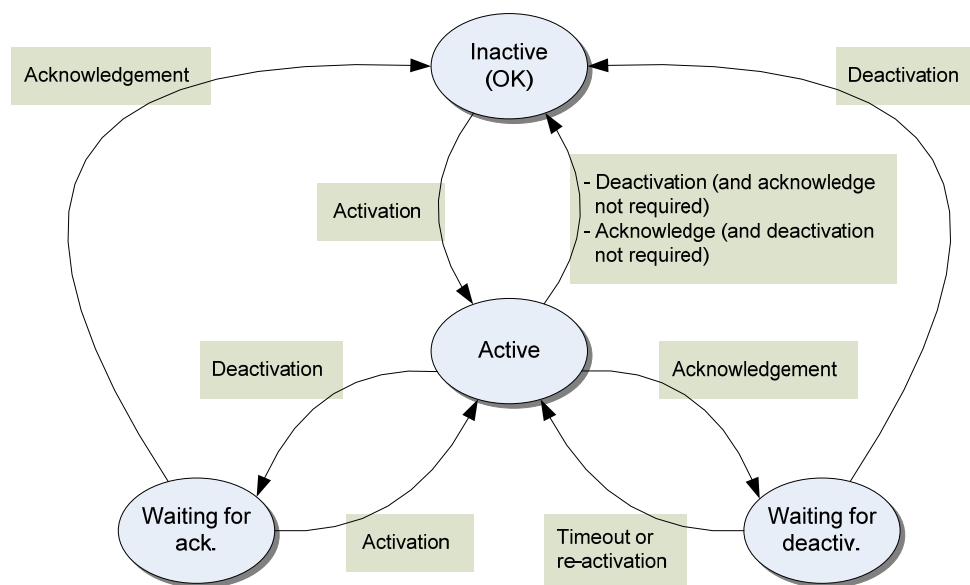
Detailed explanation:

- Initially, all alarms are in idle state ("Inactive").

- When the alarm condition is activated (a telegram with the activation value is received in the corresponding communication object), the alarm switches to "Active" state.

- If an alarm is active and the alarm condition deactivates, it switches to "Waiting for acknowledgement" state (or directly to "Inactive" if the alarm does not require any acknowledgment).

- If an alarm is active and the user acknowledges it, it switches to "Waiting for sensor deactivation" state (or directly to "Inactive" if no explicit deactivation of the alarm condition is required).

- If an alarm is waiting for acknowledgement or deactivation, and a new telegram with the activation value is received in the corresponding communication object, the alarm is triggered again and goes back to "Active" state.

- If an alarm is waiting for deactivation, and this does not occur for a certain configurable period of time, the alarm is automatically re-triggered.

Bypass Function

The bypass function temporarily disables the alarm subsystem. While the bypass function is enabled, no alarms are processed.

When the bypass function is disabled, any alarms that do not require explicit deactivation will automatically return to inactive state. Alarms requiring explicit deactivation will switch to active or inactive state, depending on the current value of the corresponding communication object.

When the bypass function is enabled, the LED status indicator turns red and an icon ( ) is shown in the status bar.

Alarm Log

The system keeps an alarm log that holds information about the latest 100 security events. This log is kept in persistent storage and includes the time, date, and description of each event.

The following events are logged:

- System startup
- Alarm activation
- Alarm acknowledgment (for alarms requiring acknowledgment)
- Alarm deactivation (for alarms not requiring acknowledgment)
- Enabling and disabling the bypass function
- Enabling and disabling presence simulation
- Clearing the alarm log

4.4 Presence Simulation

The presence simulation function performs different actions on a set of devices and appliances, thus creating the impression that the house is occupied during holidays or prolonged absence periods.

The communication objects (actuators) involved in the presence simulation process are defined at project configuration time. During the presence simulation, the system periodically sends telegrams containing pseudo-random values to these actuators.

Two different simulation periods can be defined – a day period and a night period. For each period, users can define the start and end times, as well as which actuators will be involved, out of the ones that were defined at project configuration time. This makes it possible to configure the system to act differently during the day and at night. For example, the presence simulation function can be made to operate on the house lights at night time and on the blinds during the day.

The event interval can also be configured by the user. This parameter defines time elapsed between two consecutive events during presence simulation.

Presence simulation can be manually enabled and disabled either from the security page or, externally, via the 1-bit communication object called "Enable presence simulation", if the system is configured to do so.

Bear in mind that in order for the simulation to actually take place, the following conditions must be met simultaneously:

- The simulation function must be enabled
- The current time must be within one of the enabled simulation periods (day or night)

While the simulation is in progress, an informative icon () is shown in the status bar.

4.5   Logic Functions

Logic functions make it possible to implement complex behaviour involving other items, by using logic conditions, time delays, comparators, etc.

In general, every logic function provides one or more "input" communication objects, and one or more "output" communication objects. Output values are generated from **events** (timing, and reception of input telegrams).

Logic functions can be linked with each other and also with other project items simply by associating the corresponding communication objects through group addresses.

Often, when several logic functions are combined to implement a more complex function, it will not be necessary to send intermediate values to the KNX bus. In this case the so-called "internal group addresses" are frequently used. As the name suggests, these addresses are internal to the system and consequently do not generate any traffic on the KNX bus.

Logic functions also support an optional **disabling object**. This is a 1-bit communication object that allows the logic function to be temporarily inhibited (i.e., prevent processing of new events). The polarity of this disabling object can be configured, as well as the behaviour once the disabled state is left: either re-transmit the last generated value, or just wait until the next event takes place.

Logic Gates

Logic gates generate an output value by applying a binary logic operation (Boolean operation) to input the values. Communication objects corresponding to the inputs and output are always 1-bit.

Logic gates can be defined with the following operations:

Operation	Nr of Inputs	Description
Identity	1	The output replicates the input value
NOT	1	The output negates (inverts) the input value
AND	2-4	The output is active if all inputs are active
OR	2-4	The output is active if any input is active
XOR	2-4	The output is active if an odd number of inputs is active
NAND	2-4	Equivalent to NOT + AND
NOR	2-4	Equivalent to NOT + OR
XNOR	2-4	Equivalent to NOT + XOR

The following logic tables show the output values generated from input values for logic gates with one, two, three or four inputs (I*n* = Input "n").

Single-input gates:

I	Identity	NOT
0	0	1
0	1	0

Two-input gates:

I_1	I_2	AND	OR	XOR	NAND	NOR	XNOR
0	0	0	0	0	1	1	1
0	1	0	1	1	1	0	0
1	0	0	1	0	1	0	1
1	1	1	1	1	0	0	0

Three-input gates:

I_1	I_2	I_3	AND	OR	XOR	NAND	NOR	XNOR
0	0	0	0	0	0	1	0	1
0	0	1	0	1	1	1	1	0
0	1	0	0	1	1	1	1	0
0	1	1	0	1	0	1	1	1
1	0	0	0	1	1	1	1	0
1	0	1	0	1	0	1	1	1
1	1	0	0	1	0	1	1	1
1	1	1	1	1	1	0	1	0

Four-input gates:

I_1	I_2	I_3	I_4	AND	OR	XOR	NAND	NOR	XNOR
0	0	0	0	0	0	0	1	1	1
0	0	0	1	0	1	1	1	0	0
0	0	1	0	0	1	1	1	0	0
0	0	1	1	0	1	0	1	0	1
0	1	0	0	0	1	1	1	0	0
0	1	0	1	0	1	0	1	0	1
0	1	1	0	0	1	0	1	0	1
0	1	1	1	0	1	1	1	0	0

I₁	I₂	I₃	I₄	AND	OR	XOR	NAND	NOR	XNOR
I_1	I_2	I_3	I_4						
1	0	0	0	0	1	1	1	0	0
1	0	0	1	0	1	0	1	0	1
1	0	1	0	0	1	0	1	0	1
1	0	1	1	0	1	1	1	0	0
1	1	0	0	0	1	0	1	0	1
1	1	0	1	0	1	1	1	0	0
1	1	1	0	0	1	1	1	0	0
1	1	1	1	1	1	0	0	0	1

Additionally, all logic gates support an **output filter** that can be used to restrict the type of values sent to the output: All values, only "ON" telegrams (1), or only "OFF" telegrams (0).

Multiplexers and Demultiplexers

Multiplexers are elements with multiple inputs and one output where one of the inputs is connected to the output, based on a control signal. Demultiplexers are elements with one input and multiple outputs where the input is connected to one of the outputs, based on a control signal.

They can be used with any KNX data type (1-bit objects, 1-byte objects, etc.).

Multiplexers and demultiplexers can be 2-channel or 4-channel devices. The "control signal" consists of a 1-bit object for 2-channel devices, and of two 1-bit objects for 4-channel devices.

The following logic tables show the operation of multiplexers and demultiplexers in detail (Ix = Input "x", Cy = Control object "y", Qz = Output "z")

MUX2		MUX4			DEMUX2		DEMUX4		
C	**Function**	**C1**	**C2**	**Function**	**C**	**Function**	**C1**	**C2**	**Function**
0	$Q = I_1$	0	0	$Q = I_1$	0	$Q_1 = I$	0	0	$Q_1 = I$
1	$Q = I_2$	0	1	$Q = I_2$	1	$Q_2 = I$	0	1	$Q_2 = I$
		1	0	$Q = I_3$			1	0	$Q_3 = I$
		1	1	$Q = I_4$			1	1	$Q_4 = I$

Delay Units

Delay units are elements that retransmit any telegram received via their input communication object, after a certain configurable delay.

They can be used with any KNX data type.

The behaviour of a delay unit in case of **event overlapping** (reception of a new input telegram while the previous telegram is still being processed) can be configured via the parameter with the same name: The delay unit can be configured to discard any telegrams received while the delay unit is busy

("Discard new input events"), or to discard the operation in progress and immediately start processing any new telegrams received ("Replace pending output events").

> **Example:**
> *Let's assume we set a delay unit with a delay of 10 minutes.*
> *At 18:00 a telegram with "value1" is received.*
> *At 18:05 a telegram with "value2" is received.*
>
> *The result depends on the setting of the "Event overlapping" parameter:*
> - *If set to "Discard new input events", the "value2" telegram will be discarded, and at 18:10 the delay unit will send the "value1" telegram.*
> - *If set to "Replace pending output events", the "value1" telegram will be discarded, and at 18:15 the delay unit will send the "value2" telegram.*

As in other logic functions, delay units include a disabling object (L) which allows to temporarily inhibit the element's function.

When the delay unit is disabled, it does not generate new values at its output, and it does not accept new events at its input; however, if there was a delay in progress when disabled, this delay will not be cancelled.

Once re-enabled, if a delay was completed during the disabling time, the corresponding value will be sent out. Otherwise, the "Transmit when function re-enabled" parameter will determine whether the last value that was generated before disabling should be retransmitted.
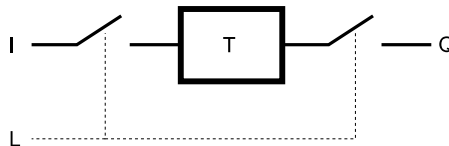
Comparators

Comparators are elements that compare two numeric values at their inputs, A and B, and update their (binary) output depending on the result of the operation. The actual condition to check can be configured (A > B, A ≥ B, A = B), along with the actions to be taken when the condition is fulfilled and when it is not fulfilled.

Comparators can be used with all numeric KNX data types (both integers and floats).

In order to better understand the operation of comparators, it is important to consider the concepts of hysteresis and tolerance.

The **tolerance** parameter is only applied in equality comparators (A = B). It represents the maximum distance that should exist between A and B so that it can be interpreted that the equality condition begins to be fulfilled. That is, the condition is fulfilled if ($|A – B| ≤$ tolerance)

The **hysteresis** parameter represents the minimum distance that should exist between A and B, once the comparison condition is fulfilled, so that it can be detected that the mentioned condition is no longer fulfilled. This parameter is designed to avoid quick changes in the comparator output when both inputs take very similar values:

- In the case of equality comparators (A = B), once the comparison condition is fulfilled, it is required that the difference between A and B exceeds the hysteresis value (|A – B| > hysteresis) in order for the condition to stop being fulfilled.

- In the case of (A > B) or (A ≥ B) comparators, once the comparison condition is fulfilled, it is required that A ≤ (B – hysteresis) or A < (B – hysteresis) respectively, in order for the condition to stop being fulfilled.

4.6   Video Door Phone Function

Iddero HC2-KNX and HC2L-KNX touch panels can be used as monitors (indoor terminals) for compatible video door phone systems.

The video door phone function must be enabled during the configuration stage, indicating the type of video door phone used in the installation. For more information on types of supported video door phones and system configuration, please refer to the application notes on video door phone configuration available in the download area of the Iddero website.

Chapter 3, User Interface provides detailed information about video door phone monitoring on Iddero touch panels.

4.7   IP Cameras

Iddero HC2-KNX and HC2L-KNX touch panels enable real time monitoring of IP cameras in the home or building.

Available IP cameras can be defined during at project configuration time. Predefined camera models can be added by simply selecting the manufacturer and part number. Additionally, "generic" cameras can also be configured by specifying the protocol, video codec, and path (URL) to be used.

For more information about predefined camera models and manufacturers and about configuration of generic cameras, please refer to the "IP Cameras" application note, available in the download area of the Iddero website.

Chapter 3, User Interface provides detailed information about monitoring IP cameras on Iddero touch panels.

4.8   E-mail

The e-mail function allows for automatic sending of notification e-mails to the user upon certain configurable events such as technical alarms.

In order to use the e-mail function, an SMTP server needs to be configured, along with the e-mail "From:" address, and the default recipient ("To:" address).

☞ | ***Please note:***
Touch panels Iddero HC2-KNX and HC2L-KNX support SSL and STARTTLS encryption for SMTP; these options are not available for the HC1-KNX model.

Multiple notifications can be defined. Each notification will be associated to a communication object ("Notification object"). It is possible to specify whether the notification should be triggered on every write to the communication object, or only when the object value changes.

The text of the notification e-mail is also configurable. If the text is left empty, a default text will be generated including the name of the notification ("Name" field) and the value that was received in the associated communication object.

4.9 GSM Module

The DW-GSM expansion module allows for remote access to the installation from any GSM mobile phone, providing functions such as automatic notification of technical alarms and incidents, or remote control of devices connected to the KNX bus by means of SMS messages or missed calls.

The DW-GSM expansion module is sold separately and is compatible with all Iddero touch panels.

For more information about configuring and using the DW-GSM module, please refer to the instruction manual available in the download area of the Iddero website.

4.10 Internal Thermostat

Besides being able to control any KNX thermostat in the installation, Iddero touch panels also implement an internal thermostat function.

This thermostat function can be used with the integrated temperature sensor (HC1-KNX model), with the DW-TS-N1P external temperature probe (HC2-KNX and HC2L-KNX models), or with any temperature measured by an external KNX device.

General Operation

The internal thermostat uses a simple two-point control system with hysteresis. In this system, a temperature setpoint or comfort temperature is established, as well as a hysteresis value intended to prevent the thermostat from continuously switching on and off when the room temperature is very similar to the temperature setpoint.

The hysteresis parameter value, specified in degrees centigrade (°C), defines a band around the temperature setpoint where switching will not occur.

The following table shows the detailed operation of the thermostat function (T_{room}= measured room temperature; $T_{setpoint}$ = temperature setpoint set by the user).

Operating Mode	Actuators
Thermostat Off	Cool actuator = Off Heat actuator = Off
Thermostat On, cool mode	If $T_{room} > (T_c + $ hysteresis $/ 2) \rightarrow$ Cool actuator = On If $T_{room} < (T_c - $ hysteresis $/ 2) \rightarrow$ Cool actuator = Off Heat actuator = Off
Thermostat On, heat mode	If $T_{room} < (T_c - $ hysteresis $/ 2) \rightarrow$ Heat actuator = On If $T_{room} > (T_c + $ hysteresis $/ 2) \rightarrow$ Heat actuator = Off Cool actuator = Off

👉 **Please note:**
In the event of a power failure, the system will remember the current operating mode (cool / heat mode). However, the internal thermostat always starts up in the Off state, and with the default temperature setpoint (25.0 °C).

Temperature Correction

To compensate for any possible temperature deviation due to cold or heat sources close to the location of the probe, a correction factor (offset) can be defined. This factor will be applied to the temperature measured by the probe in order to calculate the actual room temperature.

The correction factor can be adjusted in multiples of 0.5 °C in Settings → Internal Thermostat. Room temperature is calculated as follows:

$$T_{room} = \text{Temperature measured by the probe + Correction factor}$$

This parameter is not available if the room temperature is read from an external KNX device.

Internal Temperature Stabilization

When using the integrated temperature sensor of the HC1-KNX touch panel, a certain time (typically 60 minutes) must elapse since system startup for the internal temperature to stabilize and the temperature reading to be reliable.

During the stabilization period, the internal thermostat is not yet operational. Therefore, it is not recommended to adjust the correction factor during this period of time (if the user tries to modify the correction factor during this period, the system will pop up a warning message, but will allow the user to proceed if they wish to do so).

This stabilization period is only applicable to the HC1-KNX panel, and only if the thermostat function is configured to use the integrated temperature sensor.

4.11   Date and Time

Iddero touch panels feature an integrated real time clock (RTC). The real time clock is used to display the current date and time, as well as to control time schedules and the presence simulation function.

The real time clock includes a backup battery to keep the system date and time in case of power failure.

The system date and time can be set manually from the System Date and System Time pages, in Settings → System.

If the installation includes a device that can periodically send the date and time to the KNX bus (such as a DCF 77 receiver), the touch panel can be configured to automatically synchronize the internal date and time information with this device by enabling the "Synchronize date / time with external clock" parameter during the configuration stage.

Additionally, the Iddero touch panel can also be used as a date and time master for other KNX devices. The panel can be configured to periodically send the date and time to the KNX bus (once per minute, once per hour, or once per day), by means of the "Transmit time of day" and "Transmit date" configuration parameters.

4.12 Web Access

Iddero touch panels feature an integrated web server for access to the system from a smart phone, tablet, PC, or any other device equipped with a standard web browser.

The main features of the integrated web server for Iddero touch panels are as follows:

- Automatic generation of web-based visualization from project data. The web interface automatically uses the same navigation structure (maps, areas, pages, and visual components) and access levels set up for the project. No additional configuration is required.

- Detection of browser type (PC, mobile device) and automatic interface optimization to fit available screen size. Specific optimizations for Android- and iOS-based devices (iPhone, iPad, etc.) are applied automatically.

- Compatible with standard web browsers. No plug-in (Java, flash) or additional software required. Javascript support (AJAX visualization) is automatically detected and enabled where available.

- Access to all system features from the web interface[1]: Control and monitoring of devices, time schedules, scenes, etc.

Initial Configuration

No special configuration is required in order to use the integrated web server. However, for convenience, the configuration software allows to specify whether the web server will be initially enabled as well as the default values for user name and access password, by means of the following configuration options ("General" section):

Option	Default value
Web server initially enabled	No
Web user default login	usuario
Web user default password	knxuser

These options can be modified later at any time.

The web server can be enabled or disabled from the touch panel at any time through the Settings → System → Web server page.

The web user login and password can be modified through the web-based interface, in the Settings → System settings → Web user menu.

The web server port can also be set at project configuration time. By default, the standard port for the HTTP service is used (port 80).

---

[1] Some settings (e.g., display contrast, TCP/IP network settings, etc.) cannot be modified from the web interface. IP cameras and video door phone monitoring is not performed through your screen web server either, since the web access function is provided directly by the corresponding equipment (door station, IP cameras).

Web-based Interface

Upon accessing the web-based interface, the system will always prompt for a user name and password. The initial user name and password are defined in the project configuration (by default "usuario" and "knxuser" respectively), but these can be modified at any time.

Once logged in, the navigation structure defined during project configuration applies. Therefore, the web-based interface is functionally equivalent to the local user interface of the touch panel itself. The exact layout of the visualization is adapted to the screen size and browser type of the client device.

Any access levels defined in the project are also honoured. Access restrictions work just the same as when working directly with the touch panel:

- Users can browse through all sections and pages that have been configured for unrestricted access ("Access level: Not restricted").

- When users try to access a page with restricted access (access levels 1 to 4), the system will prompt for a PIN access code indicating the minimum access level required (e.g. "Level 1")
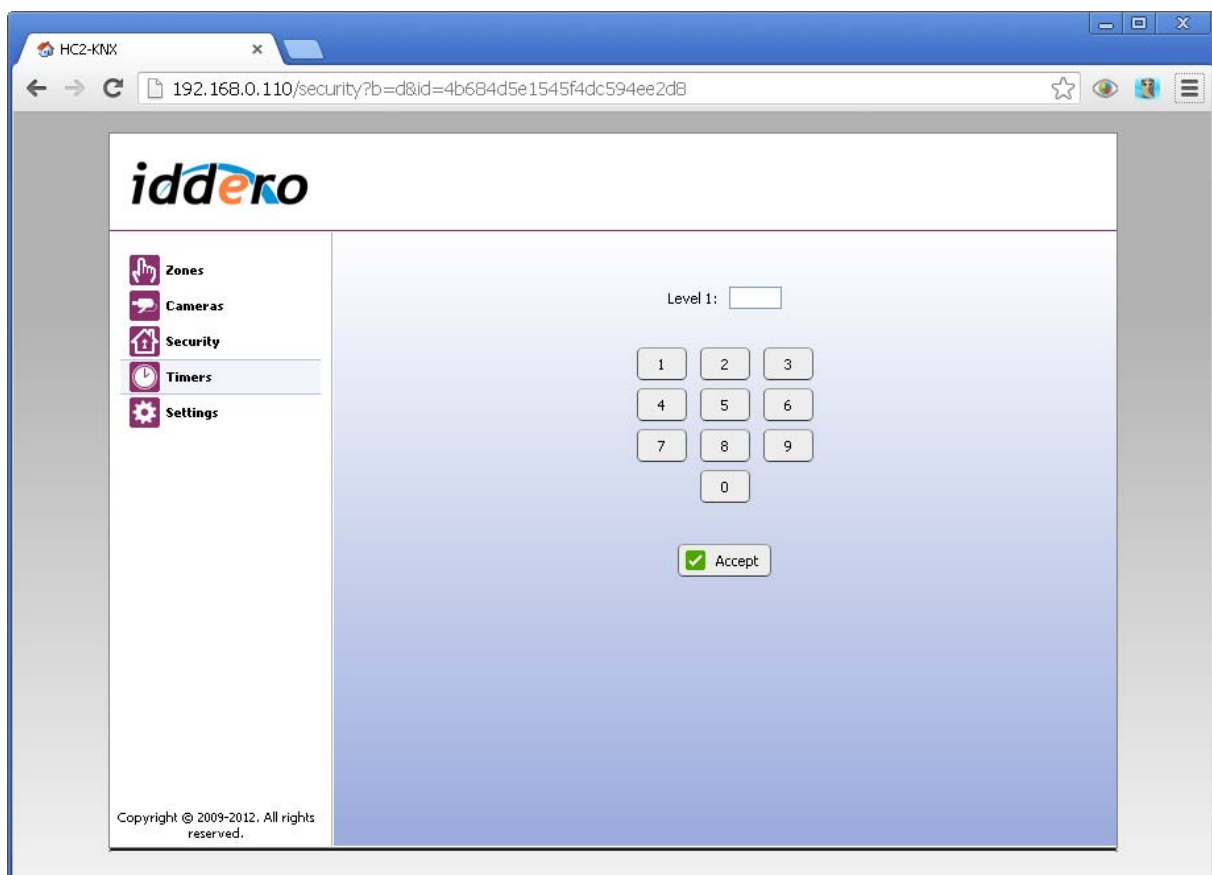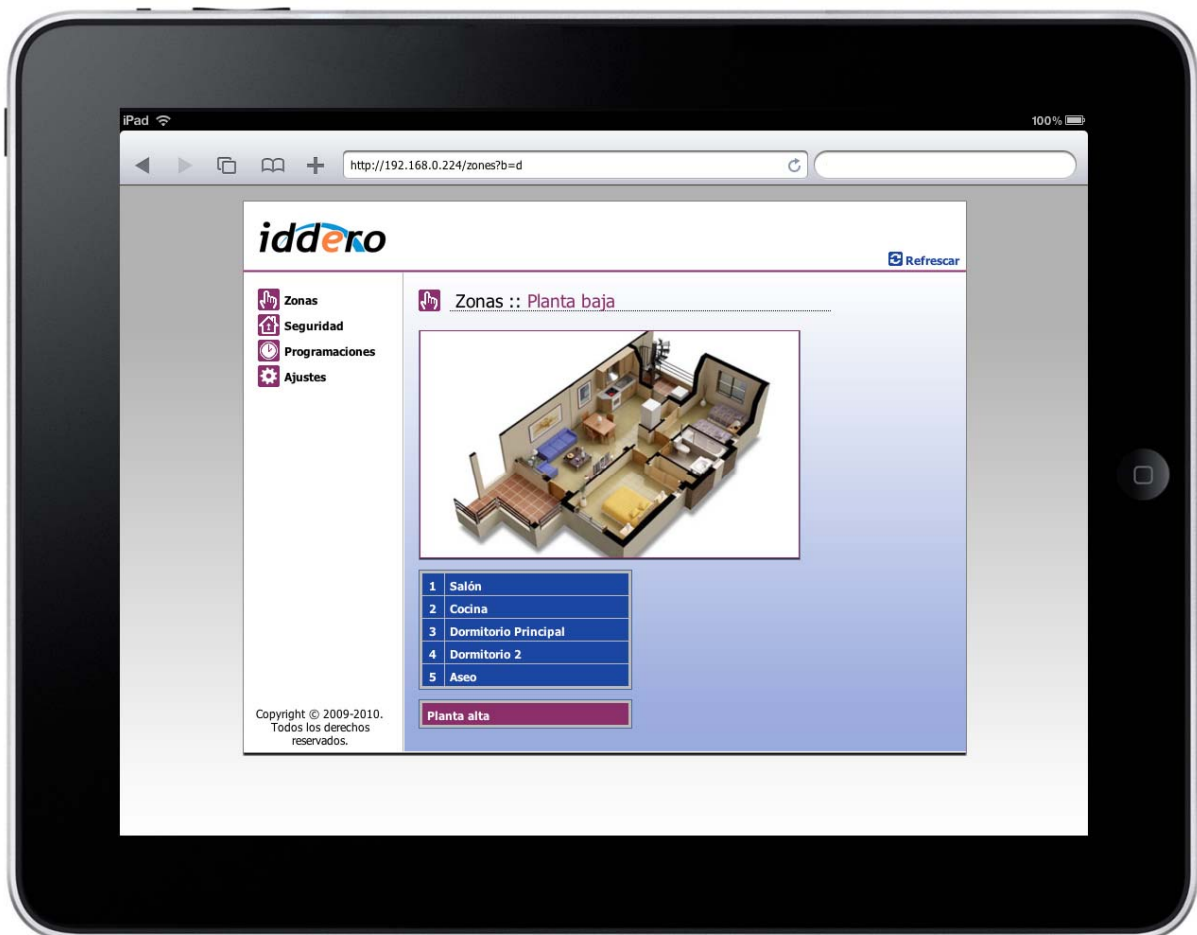
5   CONFIGURATION SOFTWARE

5.1   Introduction

Iddero touch panels are configured and commissioned through Iddero's configuration software, which can be downloaded free of charge from the Iddero website (www.iddero.com).

The configuration software works with **projects**. A project describes the logical structure of a home or building automation installation, the navigation between the different available functions, and the detailed parameters of system operation.

5.2   Overview

The following figure shows the main application window.
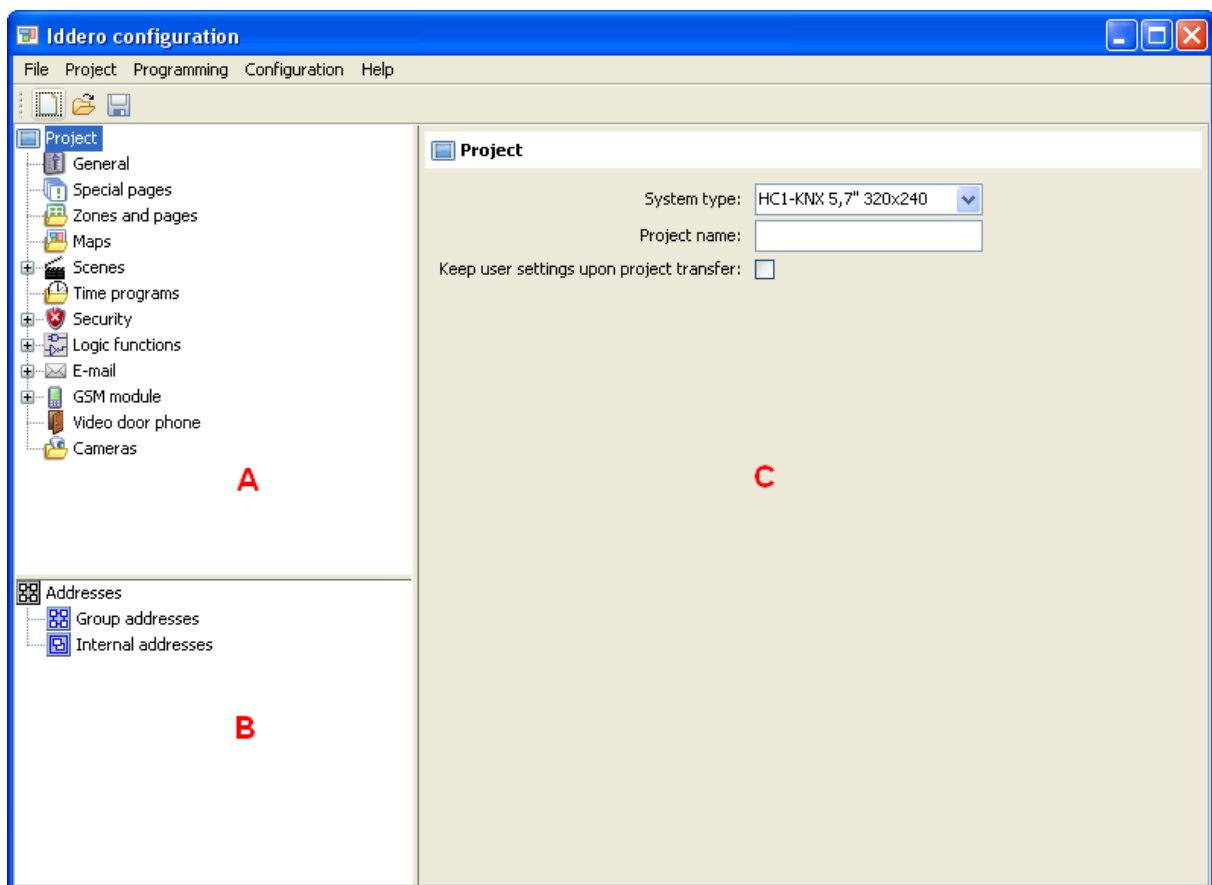
The top area of the application window shows the menu bar, along with a toolbar containing buttons for quick access to some of the available menu actions.

The main area of the window is split in three different sections:

-    *Project tree* (A)*:* Shows the project structure as a tree, including sections for general parameters, zones and pages, maps, scenes, time programs, security, logic functions, and more.

- *Address tree* (B)*:* Shows group addresses for this project, including both regular group addresses and internal group addresses.

- *Parameter area* (C)*:* When an item is selected in the project or address trees, this area will show any configurable parameters that are available for this item.

5.3   Menus

File Menu

The File menu contains commands to open and save projects, and to exit the application.

Project Menu

The "Import addresses..." command imports group addresses from a file in OPC-Server format (.esf) generated by the ETS software application. If you select this action for a project where group addresses already exist, two options are provided:

- *Add new addresses to the existing address tree*: Any addresses in the .esf file that were not already present in the project will be added. The existing addresses in the project will remain unchanged.

- *Discard existing addresses*: All the addresses in the project (as well as any associations with communication objects) will be discarded, and all the addresses included in the .esf file will be imported.

The "Resource monitor" command shows the list of resources currently in use in the project (maps, zones, pages, scenes, time schedules, logic gates, etc.) and resource limits (maximum number of items allowed for each type of resource).

☞   ***Please note:***
The maximum number of items allowed for each type depends on the system selected in the "Project" section of the project tree (HC1-KNX, HC2-KNX, and HC2L-KNX).

Programming Menu

The Programming menu contains commands that interact directly with the touch panel, for example to upload a project to the panel, or to update the unit firmware.

All these commands require the screen to be in **install mode** (see Section 2.3). For all of them you will need to provide the IP address of the touch panel (shown on screen at startup in install mode), as well as the installer user name and password, whose default values are as follows:

Option	Default Value
Installer user name	`instalador`
Installer password	`knxinstall`

The "Program..." command uploads the current project to the touch panel. The upload process can take a few seconds to complete. Make sure you **do not to interrupt the operation or turn off the touch panel**. Once the operation is completed, a confirmation message will be displayed onscreen. Press the "Reboot" button and the system will reboot with the new configuration.

☞ | ***Please note:***
When you upload a project into a touch panel, all user preferences and settings will be discarded.

If you made changes to an existing project that had already been transferred to the touch panel, and you want to update the project, you may prefer to keep the existing user preferences and settings. In that case, you can check the "Keep user settings upon project transfer" checkbox in the configuration software, and then select the data and settings you want to keep. However, note that by indicating that certain data and user settings should be kept, some of the parameters configured in the project will be ignored, which may lead to unexpected results.

As a general rule, the recommended is to avoid preserving user data unless you are updating a project after making some minor changes to it (for example, item names or parameter values). Specifically, it is recommended to avoid preserving user data if structural changes have been introduced in the project, for example: if you have deleted or added scenes, timer channels, alarms, presence simulation actuators, etc.

The "Update firmware..." command updates the touch panel firmware. In order to do this, you need to select a valid firmware update file. **Use only firmware updates released by Iddero.** Again, it is critical **not to interrupt the operation or turn off the touch panel** during the update process, as if you interrupt the firmware update process, the touch panel may be left in a locked state and may need to be returned to factory for repair.

The "Change install login..." command allows updating the installer user name and password. Please note that these values are independent of the user name and password used for web access during normal system operation.

☞ | ***Please note:***
*Be careful when modifying the install login details. If you lose your user name or password, **you will no longer be able to enter install mode** and may need to send the product back to factory in order to restore access.*

The "Change physical address" command allows for the modification of the physical address used by the system to communicate via the KNX bus (by default: 15.15.255). Please note that to modify the physical address, the panel must be connected to the KNX bus, and power must be fed to the bus through a KNX power supply.

☞ | ***Please note:***
The 15.15.255 physical address is frequently used as a default address for many KNX devices, especially for bus programmers. Make sure to change the physical address of the touch panel, if required, by selecting an address that is not being used by any other device.

Configuration Menu

The "Options" submenu selects the format of group addresses: Two levels (main group / address), or three levels (main group / middle group / address).

The "Language" command selects the language for configuration software. The software will need to be restarted for the changes to take effect.

Help Menu

You can check the configuration software version by using the "About..." command.

5.4   Project Tree

The project tree shows the general structure of the current project.

When you select (left-click) any item in the tree, the configurable parameters for that item are displayed in the parameter area.

Many sections and subsections allow for the insertion of new items. To do this, right-click on the relevant section in the project tree and select the "Insert <item>" option from the pop-up menu. For example, in order to insert a new map, right-click on the "Maps" section and select the "Insert map" option from the pop-up menu.

To delete an existing item, right-click on the item you want to remove, and select the "Delete" option from the pop-up menu. Alternatively, you can select the item in the project tree (left-click), and press the Delete key.

You can also add or delete items in these sections through the list displayed in the parameter area when the section is selected in the project tree.

The position of some items within the project tree can be changed (e.g. zones, pages, components). To do this, right-click on the item you want to move, and select "Move up" or "Move down".

5.5   Communication Objects

Depending on the configuration of the various sections and items in the project, certain communication objects will automatically be shown in the project tree.

When selecting a communication object in the project tree, the following information is displayed in the parameter area:

- *Data size:* Data size (in bits or bytes) of the communication object.

- *KNX communication flags:* Displays the configuration of the flags governing the behaviour of the communication object. Most of the time, there will be no need to modify the default configuration. Please refer to the KNX standard documentation for additional information about the meaning and operation of each flag.

- *Addresses:* Group addresses currently linked with the communication object.

☞ ***Please note:***
*A communication object can receive telegrams addressed to any linked group addresses; however, telegrams are always sent from the so-called **sending address**. By default, the first group address that was linked to the communication object is used as the sending address. To select another group address as the sending address, right-click on it (in the parameter area) and choose "Set sending" from the pop-up menu.*

5.6   Address Tree

The address tree shows all group addresses defined for the current project, including both regular KNX group addresses and the so-called "internal addresses". Internal addresses can be used to link internal communication objects of the touch panel together in those cases where it is not necessary to send the generated telegrams to the KNX bus.

You can add, edit, and delete group addresses in the address tree in the same way as described above for project tree items.

When you select a group address, all communication objects currently associated with that group address are displayed in the parameter area.

To link a group address to a communication object, simply drag the address to the corresponding communication object in the project tree (or vice versa: drag the communication object to the group address).

To remove a link between a group address and a communication object, first select the group address or the communication object. The existing links will be displayed in the parameter area. Right-click on the link you want to delete and select "Delete" from the pop-up menu; or just select the link (left-click) and press the "Delete" key.