

*Air conditioning supervision system.*

# INTELLIAIR



TECHNICAL BULLETIN

Page

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3	Comfort above all else
4	The building and technological installations
8	Overview
8	External panel view
8	Internal panel view
13	General features
14	Option compatibility
15	Function description
17	Accessories (field components)

# Comfort above all else

INTELLIAIR is Clivet's specialised solution for the supervision and control of air conditioning systems in all applications where comfort and energy efficiency are paramount. Thanks to the integration with autonomous rooftop air conditioning units, a high level of consumption optimisation in air handling can be achieved while ensuring the utmost comfort in the rooms.

INTELLIAIR consists of a pre-wired and pre-assembled hardware and software system inside a control box suitable for installation in a control room or dedicated technical room. A 10" touchscreen panel on the control box allows the operator to consult all pages containing information on the system to be monitored. The INTELLIAIR supervision solution is perfect for:

- ✓ shopping centres
- ✓ multiplex cinemas, theatres, auditoriums
- ✓ commercial premises and areas
- ✓ structures linked to the Ho.Re.Ca industry

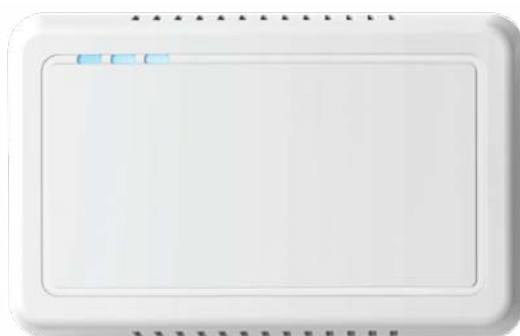
The high energy savings with INTELLIAIR are ensured by the automated management of independent areas, through the programming of targeted energy profiles to eliminate inefficiencies that can occur in centralised systems, without sacrificing comfort.



Comfort in terms of temperature, humidity and air quality for the audience as well as the people in the foyer is an essential requirement to ensure the best possible experience for the audience or business customers.

In addition to temperature and humidity control, comfort is even more advanced due to the full integration of high-tech sensors that monitor the air quality index for every single area.

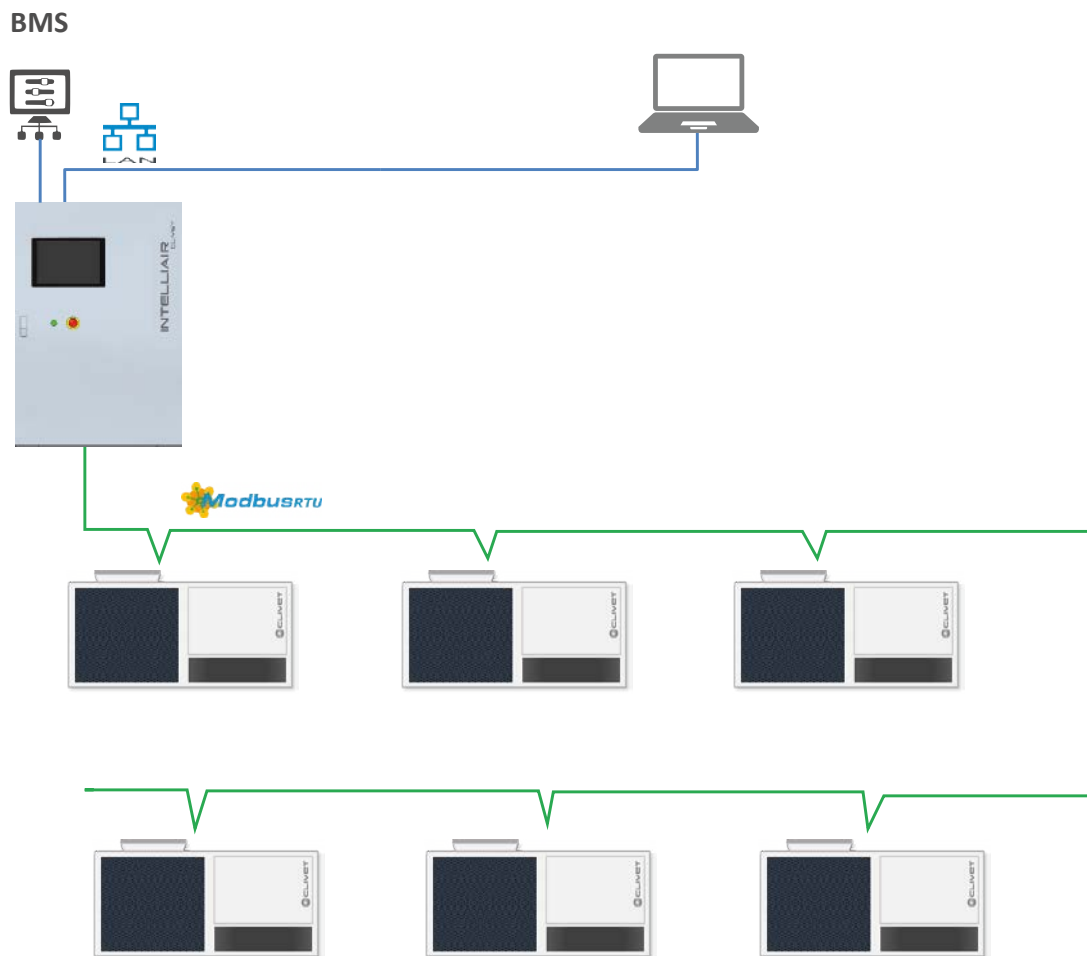
## Air quality sensor



VOC Volatile organic compounds	CO Carbon monoxide	NO <sub>2</sub> Nitrogen dioxide	CO <sub>2</sub> Anhydride carbon dioxide
CH <sub>4</sub> Methane gas natural	dB Noise environmental	%RH Umidity relative	°C Temperature

# The building and technological installations

Communication between INTELLIAIR, Clivet air conditioning units and field devices is via RS-485 serial line with Modbus RTU communication protocol, which simplifies wiring and ensures long operating distances. Communication based on Ethernet protocol is also possible for the extension to units communicating in Modbus TCP/IP.



## Advantages

### Wiring:

- Reduced risk of incorrect wiring
- Long operating distances
- High immunity to interference (observing the indications)

### Multi-protocol:

- Use of different communication protocols allows you to combine the advantages of both

# The building and technological installations

The system is connected to the units, even of different types, by a serial communication network, in order to acquire the main operating variables of each individual unit, making it possible to extend to other types of communication on Ethernet TCP/IP-based protocols.

INTELLIAIR is designed to provide full compatibility with all BMS/BAS, thereby ensuring total transparency when viewing the system even by these systems.

The INTELLIAIR supervision solution is perfect for

- ✓ Reception of working setpoint from BMS/BAS
- ✓ Reception of system activation commands from BMS/BAS
- ✓ Event notification to BMS/BAS via network protocols
- ✓ Sending of central energy data to BMS/BAS
- ✓ Local and remote visibility via Clivet IoT cloud services
- ✓ Integration of html graphic pages with BMS/BAS

INTELLIAIR provides a specific solution for controlling the central heating/cooling system (PRSC) used for the generation and distribution of fluids to test and monitor technical rooms. The INTELLIAIR system is capable of operating both in stand-alone mode and in integration with BMS systems intended for building control and management via the most common communication protocols such as Modbus and BACnet over IP networks.

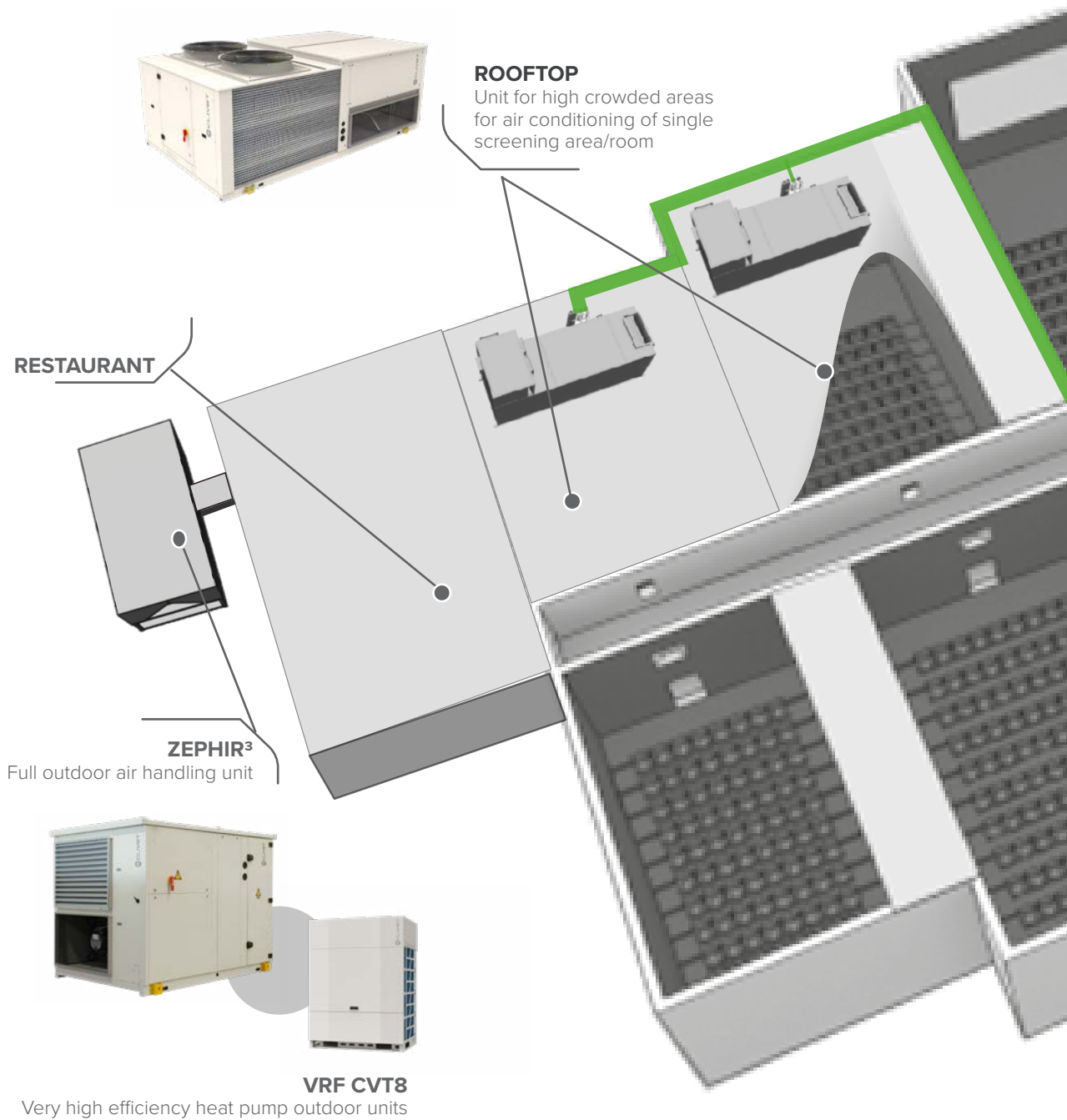


INTELLIAIR contributes credits towards LEED certification

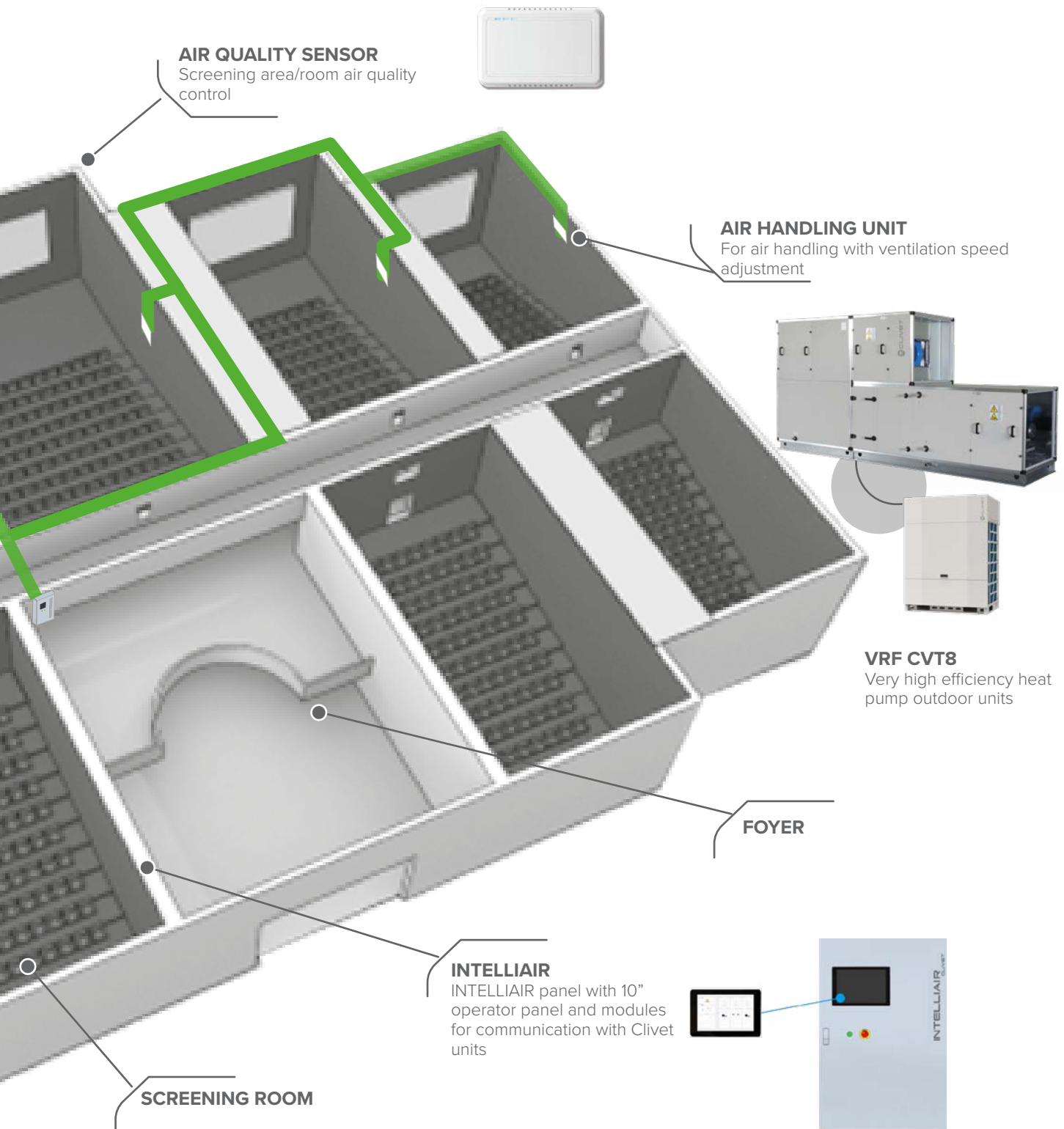
# The building and technological installations

The INTELLIAIR supervision solution is perfect for

- ✓ shopping centres
- ✓ multiplex cinemas, theatres, auditoriums
- ✓ commercial premises and areas
- ✓ structures linked to the Ho.Re.Ca industry



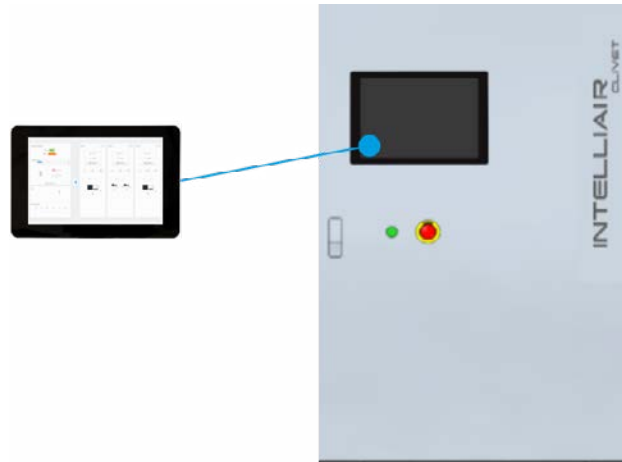
# The building and technological installations



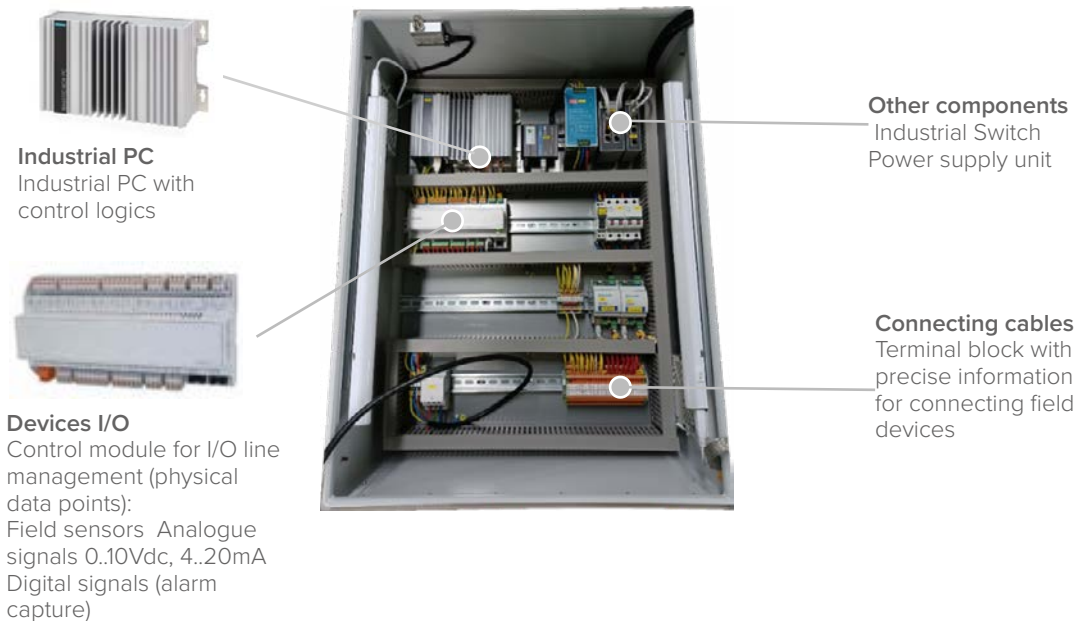
## Highly adaptable

INTELLIAIR consists of a pre-wired and pre-assembled hardware and software system inside a control box suitable for installation in a control room or dedicated technical room. In addition to the efficient and effective management of aerualic system components, such as autonomous rooftop air conditioners and air distribution system, INTELLIAIR can integrate and manage ZEPHIR full outdoor air units, while also integrating INTELLIAIR features in a single room circuit.

### External panel view



### Internal panel view



**Industrial PC**  
Industrial PC with control logics



**Devices I/O**  
Control module for I/O line management (physical data points):  
Field sensors Analogue signals 0..10Vdc, 4..20mA  
Digital signals (alarm capture)

**Other components**  
Industrial Switch  
Power supply unit

**Connecting cables**  
Terminal block with precise information for connecting field devices

### Electrical panel

Electrical power and control panel built in compliance with standards EN60204-1 and EC204-1, featuring:

- ✓ ventilation of the electrical panel
- ✓ single port system
- ✓ main switch
- ✓ spring terminal blocks of the control circuits
- ✓ operator panel with 10" capacitive touchscreen
- ✓ 230Vac 50Hz supply voltage
- ✓ lighting inside panel
- ✓ 230Vac 1A max. service power socket

### Connectivity

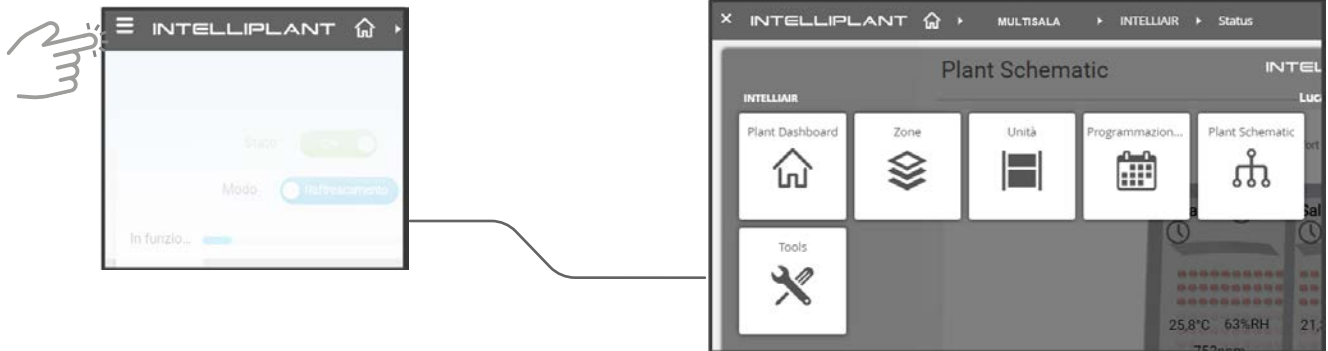
- ✓ Provides access to the system from an integrated web browser both locally and remotely
- ✓ Has a responsive user interface for viewing content both locally and remotely on any mobile device
- ✓ Connects to the Clivet Cloud via a wired Internet connection provided by the customer
- ✓ Can communicate with units via RS-485 serial line with Modbus RTU protocol or via Modbus TCP/IP via Ethernet

# Overview

INTELLIAIR provides an intuitive dashboard that easily displays all the information on the system's operating mode on cards that automatically adjust to the size of the screen.

Depending on the number of units and field devices to be handled, the most suitable size can be selected, as can the type of assembly and according to the necessary resources in the control box.

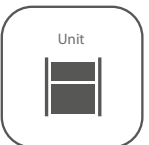
From both the local operator panel and the remote interface, the dedicated tabs can be accessed via menus:



General system visualisation and modification of main operating parameters



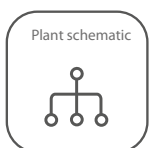
Hourly scheduling of the areas on a daily and annual basis



Schedulazione oraria delle zone su base giornaliera e annuale



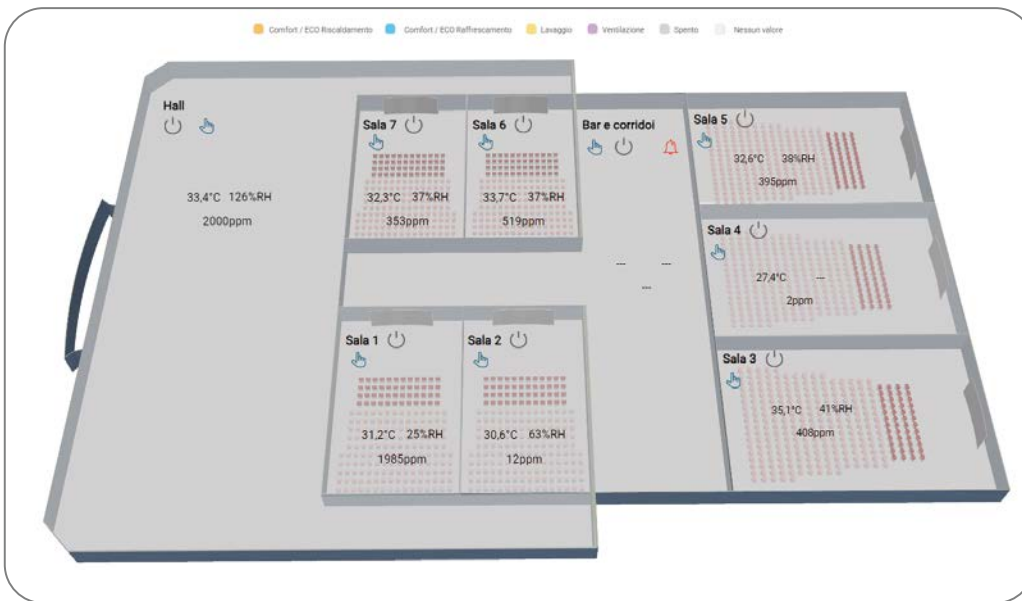
Schedulazione di eventi generici con la possibilità di associarla alle differenti zone



Controllo generale dell'edificio tramite schematico di impianto

Even non-specialist operators can easily interact with the operation of the units, programme them and check their statuses and alarms.

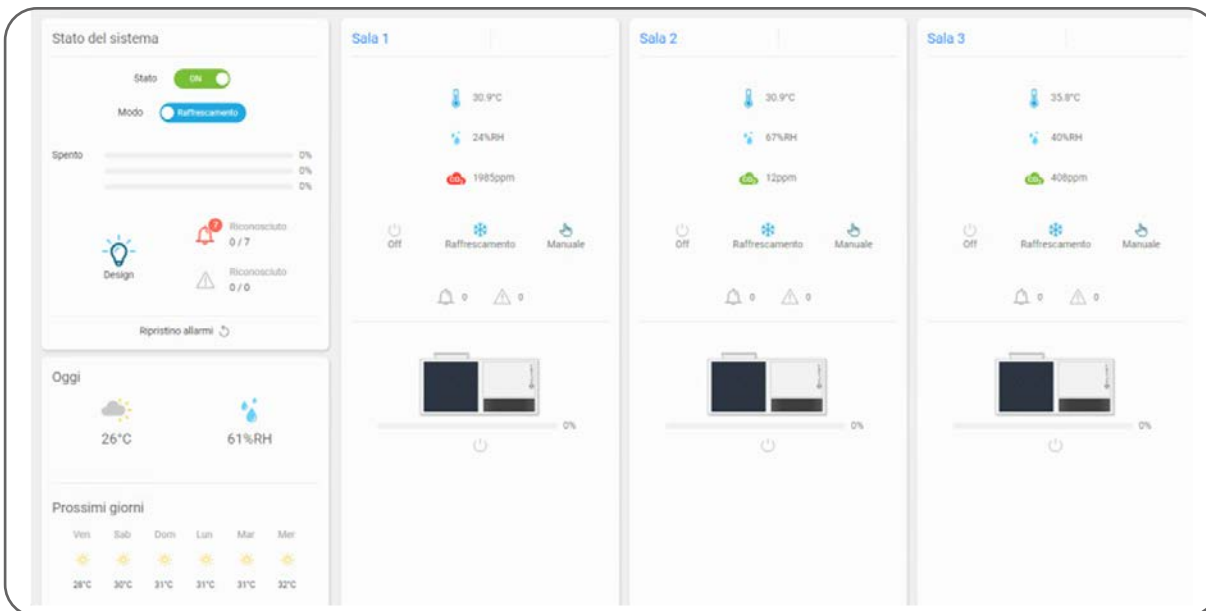
## Plant diagram



The page offers a customised graphic representation where each area can be checked:

- operation status (area colours by operation status)
- real-time values of key operating parameters such as air temperature, humidity and quality
- presence of alarms that must be promptly reported to the system supervisor/manager

## Plant dashboard

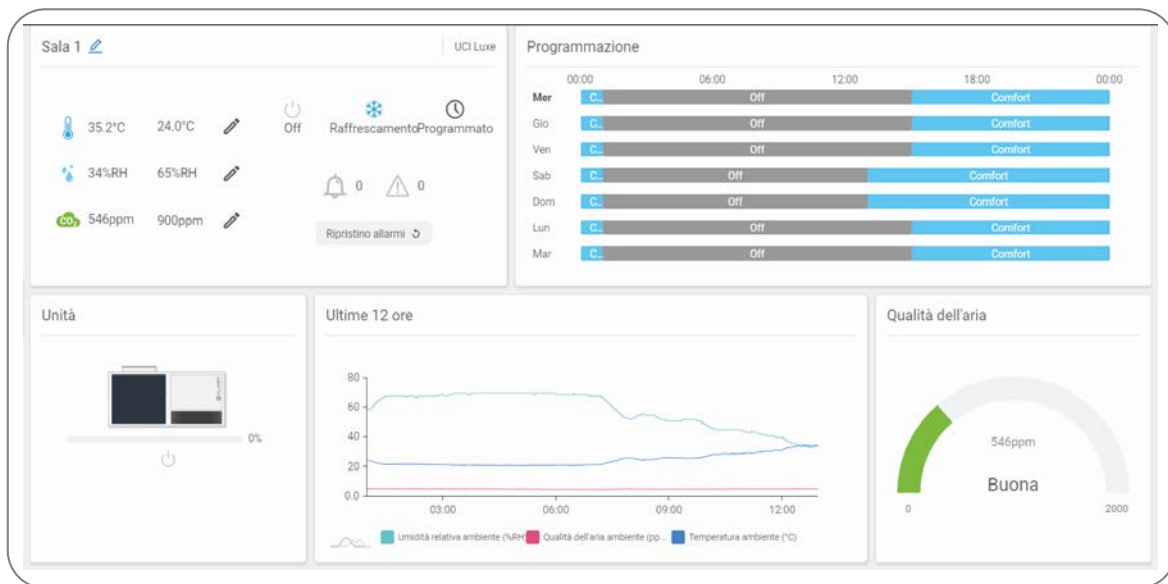


The main page of the system provides an overview with reports for all areas:

- System operational status and quick action buttons
- Percentage and mode of operation of individual units, broken down by areas
- Maintenance status resulting from the preventive analysis of each individual unit
- Priority and second-level alarms
- Current day's weather and forecast for the next 7 days

# Overview

## Zone

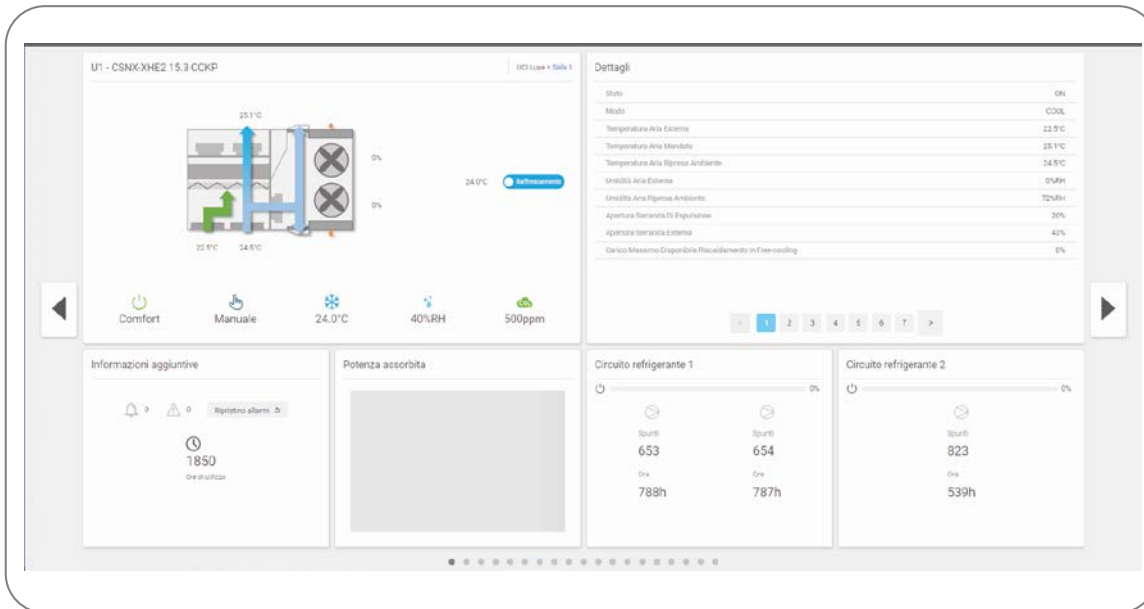


Provides a general visualisation of the system and enables modification of the main parameters:

- 7-day scheduling of units connected to the area
- Display and modification of the room temperature setpoint, relative humidity and air quality
- **Alarm status and specific warnings for the area**
- Room temperature, relative humidity and air quality trends over the last 12 hours

## Unit

In detail, the user can access all parameters specific to the area or individual units and their operating parameters.

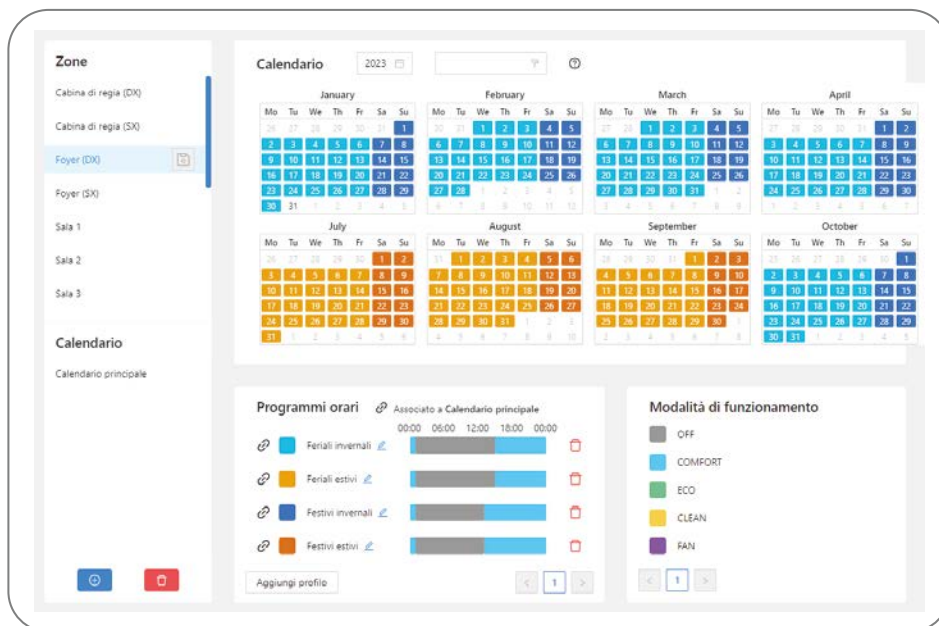


The following basic information is displayed for each unit:

- Graphical model of the unit with dynamic representation of the operating state
- Operating status of the unit and buttons for quick actions
- Details of component status (fans, compressors, etc.)
- List of parameters and their values in real time

## Programming

Programming is one of the most important features of INTELLIAIR for automatic system operation. With the scheduler, you can program the right comfort in the different zones of the building throughout the year so as to maintain their comfort independently of the others, thus eliminating the waste and inefficiency that can occur in centralised systems.



The following can be accessed from the Programming page:

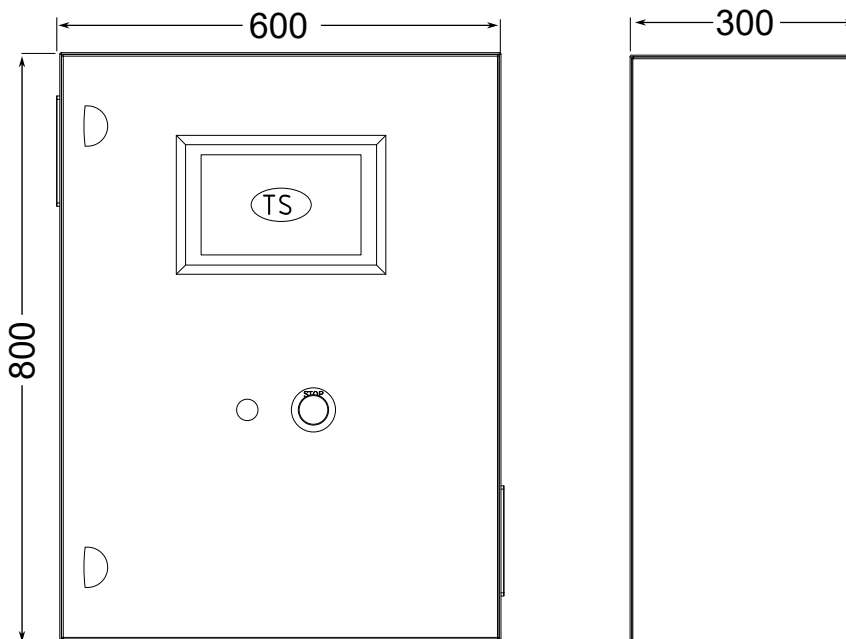
- Daily/annual scheduling of operating modes and relevant setpoints
  - OFF
  - COMFORT
  - ECO
  - CLEAN
  - FAN
- Define and change time schedules by applying the most suitable programming for the intended use of the areas
- Programming global events for the entire system
- Maintenance planning

# General features



<b>Model</b>	Porta singola	
<b>Installation</b>	A parete	
<b>Panel dimensions (LxWxD mm)</b>	600 x 800 x 300	
<b>I/Os</b>	I/O universali	8
	Ingressi digitali	3
	Ingressi digitali	8
<b>Total I/Os</b>	<b>19</b>	

## Dimensions (mm)



# Option compatibility

NOME	DESCRIZIONE	COMPATIBILITA'
<b>VERSION</b>		
<b>D10</b>	10" colour touch display for supervision from main control panel	√
<b>ILIN</b>	Lighting inside LED	√
<b>PR1A</b>	Internal socket for utility connection max. 1A	√
<b>ECIN</b>	Cable entry bottom side	√
<b>1YCMS</b>	Multi-site cloud access included for 1 year	√
<b>230M</b>	Supply voltage 230/1/50	√
<b>CONNECTIVITY</b>		
<b>ETH</b>	Ethernet port for communication via LAN	√
<b>IBMS</b>	BMS interfacing via TCP/IP (BACnet IP communication protocol)	√
<b>SYSTEM TYPE</b>		
<b>UNIT</b>		
<b>PC8</b>	Connection provision for up to 8 units (max. 8 TCP/IP)	√
<b>PC20</b>	Connection provision for up to 20 units (max 12 TCP/IP)	0
<b>IMOD</b>	Interfacing with Clivet units via EIA-485 Modbus	√

√ Standard component

0 Optional component

# Function description

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**D10**      **10" colour touch display for supervision from main control panel**  
10" touch screen operator panel for navigating the control system locally.

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**ILIN**      **Lighting inside LED**  
LED light bars on both sides inside the electrical panel to facilitate maintenance and installation with limited visibility.

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**PR1A**      **Internal socket for utility connection 230V max. 1A**  
230Vac socket installed entirely in the control panel

⚠ Maximum usable current of 1A

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**ECIN**      **Cable entry bottom side**  
Cable entry bottom side.

⚠ Cable entry from other sides is not permitted.

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**1YCMS**      **Multi-site cloud access included for 1 year**  
Access to the cloud service for remote management of the system for 1 year from the start-up date.  
The service is extendable from year to year provided that a "maintenance service" has been subscribed, which includes:

- connection to the cloud for remote management and supervision
- INTELLIAIR infrastructure update patches
- update patches for INTELLIAIR control modules
- forecast services (e.g. weather services)

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**230M**      **Supply voltage 230/1/50**

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## Connectivity

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**IBMS**      **Preparation for BMS interfacing via TCP/IP (BacNET IP / ModBUS)**  
This option provides for connection between INTELLIAIR and a third-party supervisory system (BMS - Building Management System) via an Ethernet port with communication via LAN network

⚠ Internet connection provision via Ethernet by the Customer.

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**ETH**      **Ethernet remote connection provision**  
Allows the control panel to be connected to the Internet to enable remote access to the system via multi-site cloud.

⚠ Internet connection provision via Ethernet by the Customer.

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## Unit

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**PC8**      **Connection provision for up to 8 units (max. 8 TCP/IP)**  
This option provides for the connection of INTELLIAIR up to 4 units  
Connection can take place by means of:  
Ethernet port with communication via Modbus TCP/IP  
RS-485 communication serial via Modbus RTU


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**PC20**      **Connection provision for up to 20 units (max. 12 TCP/IP)**  
This option provides for the connection of INTELLIAIR up to 12 units  
Connection can take place by means of:

- Ethernet port with communication via Modbus TCP/IP
- RS-485 communication serial via Modbus RTU

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**IMOD**      **Arrangement for interfacing with Clivet EIA-485 Modbus units**  
Allows serial connection to Clivet units equipped with an RS-485 serial port, using Modbus RTU as the communication protocol. It gives access to the entire list of operation variables, controls and alarms.

 The total length of each individual serial line must not exceed 1000 m and the line must be connected in supervision bus type (input/output). Check availability for units to be managed

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# Accessories (field components)

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## Z-IAQX

### Indoor air quality sensor

Indoor air quality sensor with temperature, humidity, noise, VOC, carbon monoxide, carbon dioxide and methane values. With communication port

Article code: PEDA00001

Operating range: -10...+55°C

Communication protocol: Modbus RTU

Power supply voltage: 12V DC

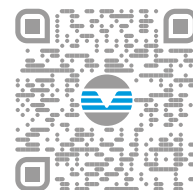


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