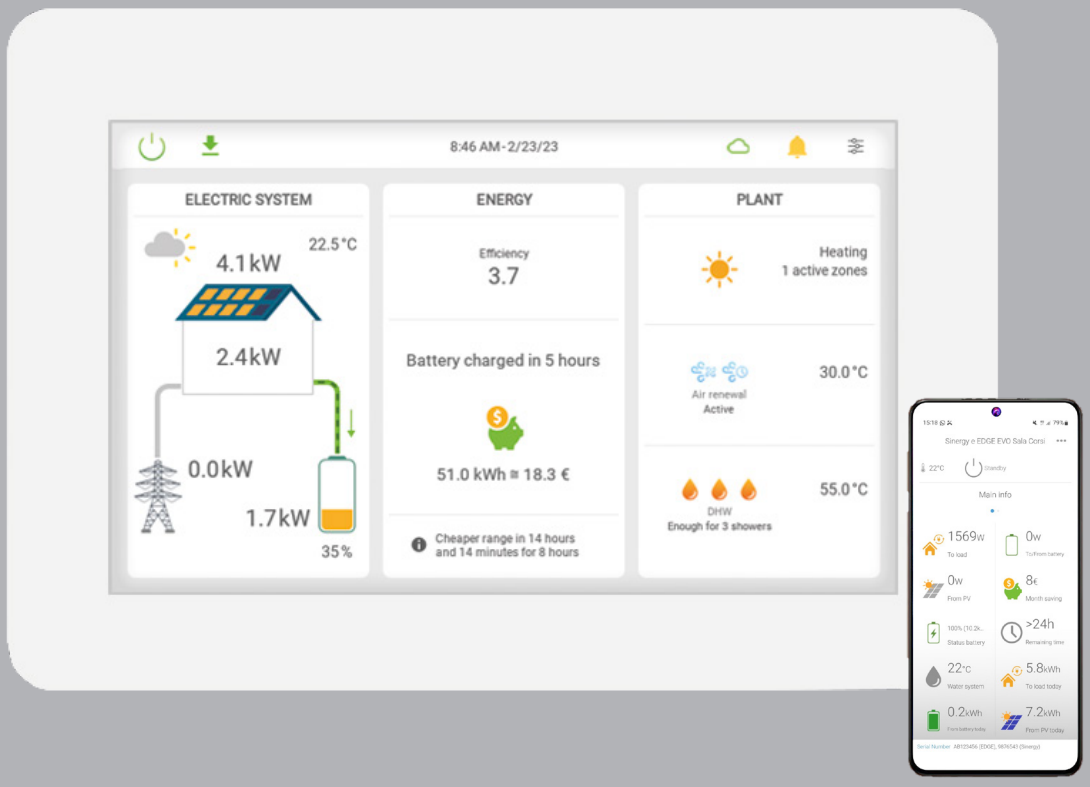
Centralised assistant for comfort and energy management.

In accordance with the requirements of Italian Decree of 6 August 2020 as indicated in Annex A, article 11.1 on the “Installation of building-automation systems”.

Control4 NRG

TECHNICAL BULLETIN



Contrlo4 NRG

Control4 NRG is a centralised control system for residential and commercial applications. Through an intuitive and easy to use interface panel, it effectively and efficiently manages all ELFOSystem elements to always achieve the best energy efficiency based on the required comfort.
Control4 NRG acquires the data of the electricity consumed by the air conditioning system and the electricity produced by the photovoltaic system and displays charts of their trends both locally and remotely.
The entire system optimised by Control4 NRG can be managed remotely with Clivet Eye, Clivet's Cloud solution, available as an App for smartphones and tablets and on your PC from any browser.
Control4 NRG is at the center of Clivet Smart Living, the complete proposal to meet needs such as:

- ✓ the PRODUCTION of water for heating, cooling and domestic use
- ✓ VENTILATION and air purification in the rooms through the management of the Elfo Fresh EVO units
- ✓ the DISTRIBUTION of thermal/cooling energy in all the rooms of the building
- ✓ energy MANAGEMENT with power consumption and self-consumption data display
- ✓ INTEGRATION with Clivet SINERGY storage system and photovoltaic system
- ✓ remote MONITORING and control of systems with Clivet Eye from the APP or PC
- ✓ optimisation of the hydronic system with produced water temperature compensation systems
- ✓ optimisation of the thermal energy distribution system thanks to climate curves applied to indoor comfort management

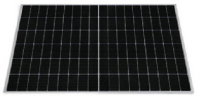
Control4 NRG can be classed as a class A device in accordance with the requirements of European Standard UNI-EN15232 on "Energy performance of buildings" and in accordance with the requirements of Italian Decree of 6 August 2020 as indicated in Annex A, article 11.1 on the "Installation of building-automation systems" for the 110% Superbonus.

Smart Living

The new Control4 NRG is the heart of Clivet Smart Living as it allows you to maximise energy consumption and achieve energy independence for your home.
The operating principle is based on using two available forms of storage

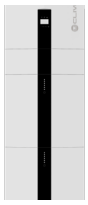
- ✓ Electricity storage, available with the Clivet SINERGY solution available for single-phase and three-phase applications
- ✓ Thermal storage, using the heat pump intelligently during sunlight hours

The heat pump is intelligently controlled by Control4 NRG during daylight hours when sunlight can be used. Control4 NRG allows you to track home comfort requirements based on the availability of electric energy produced by the photovoltaic system, without affecting how Clivet Sinergy batteries are recharged. The living areas are then pre-treated according to the availability of electric energy produced by the photovoltaic system in order to prevent electric consumption peaks on the grid due to the heat pump switching on typically during the night, thus using the Clivet Sinergy electricity storage to supply domestic users.
The correct sizing of the systems, together with favourable climatic conditions, allows Control4 NRG to manage home comfort and domestic hot water production storage completely free of charge, thereby achieving the goal of an energy-independent home.



PHOTOVOLTAIC PANELS*

Energy production through a photovoltaic system



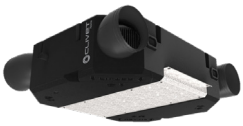
SINERGY ESS

Electricity storage to ensure maximum of independent supply during evening hours

HEAT PUMP

Smart modulation of the heat pump and domestic hot water tank charging based on the energy available from the photovoltaic system

BOILER



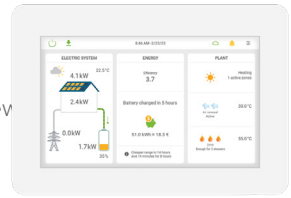
AIR RENEWAL UNIT

Active thermodynamic recovery ventilation system to ensure the highest level of indoor air quality

Characteristics and advantages

Control4 NRG

System energy assistant with electricity and thermal storage management. Remote automatic software updates to constantly keep the system in line with new available functions



CLIVET EYE

Cloud solution for remote system control and management from a single App with display of energy levels produced and consumed by the home

SMART THERMOSTATS

These provide simple, intuitive and immediate access to the home system's main operating parameters (temperature and humidity, air quality, battery charge level, electric energy produced by the photovoltaic system)

AIR QUALITY SENSOR

Acquisition of temperature, humidity, noise, VOC, carbon monoxide, carbon dioxide and methane values

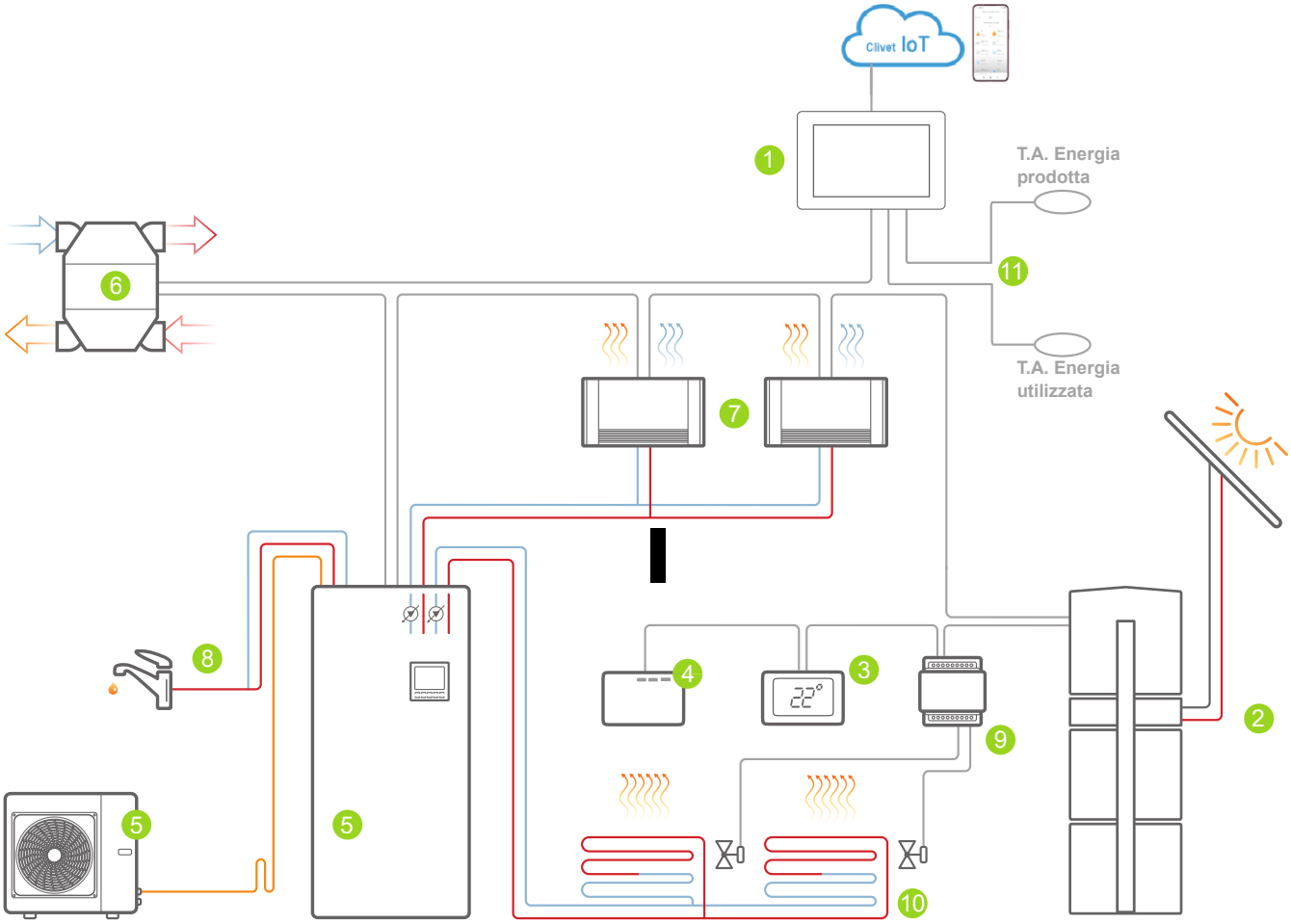
FAN COIL RADIANT PANELS

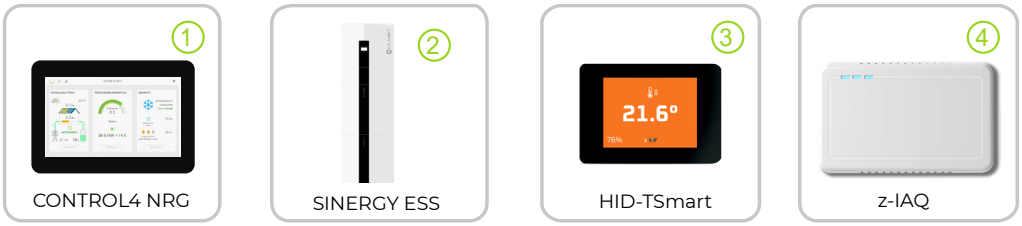
Silent, efficient fan coils with slimline design and EUROVENT certification

*not supplied by Clivet

A single smart system with all the elements that generate year-round comfort:

- Heating
- Cooling
- Domestic hot water
- Air renewal and purification
- Humidity control
- Local and remote monitoring of electricity produced by the system and absorbed by the systems





1. Control4 NRG
2. SINERGY ESS
3. HID-TSmart
4. z-IAQ
5. SPHERA EVO 2.0
6. ELFOFresh EVO
7. ELFORoom^2
8. DOMESTIC HOT WATER
9. MODULE FOR RADIANT ZONES
10. RADIANT PANELS
11. ELECTRICITY METER

System configuration

Control4 NRG can control systems with the following characteristics:

RESOURCE TYPE	DESCRIPTION	MAXIMUM QTY
Hydronic terminals and single area modules	The maximum quantity is the sum of hydronic terminals and single area modules. Note: For hydronic terminals (fancoils, boxes), the occupied resource refers to the thermostat connected directly to the hydronic terminal.	50
Climatic zones	Allows independent temperature management for every single area Note: They can combine multiple terminals and/or area valves	24
Hydronic units	Management of heat pumps and chillers in seasonally reversible 2-pipe systems	1
DHW units	When not directly integrated in the heat pump unit, an external Clivet unit for the production of domestic hot water can be managed	1
Fresh air unit	ELFO Fresh EVO, Zephir[3], ELFO Fresh[2]	4
Smart network thermostats	HID-TSmart network thermostats are connected to the same EIA-485 bus as Control4 NRG. The number of thermostats does not affect the maximum number of elements that can be connected to the bus.	30
Multiple area modules	Each module has 6 input channels and 6 output channels that can be configured by Control4 NRG according to design requirements for the management of area valves, circulators and the connection of HIDUR modules. Furthermore, the inputs and outputs can be used with generic input/output function, as follows: **Generic output function** Every multiple area module output can be configured as a generic output to manage: • Primary circuit circulation pumps • Secondary booster circuit circulation pumps • Seasonal switching valves • System cut-off/shut-off valve • Boilers as a main heating source (for systems with only chillers as a cooling source) • Generic resource as a cooling source (via remote consent) for activation • Activation on the photovoltaic system production threshold • Activation on the Sinergy battery charge percentage threshold • Manual activation of the digital output in “switch” mode Note: every output configured as a generic output occupies 1 channel of the corresponding multiple area module. **Generic input function** Every multiple area module input can be configured as a generic input to manage: • System switch-on/off • Season change (heating/cooling) • Boiler alarm Note: every input configured as a generic input occupies 1 channel of the corresponding multiple area module.	5

RESOURCE TYPE	DESCRIPTION	MAXIMUM QTY
Temperature and relative humidity probes	Can only be combined with multiple area modules Note: Every module occupies 1 input channel of the corresponding module to which it is connected	30
Dehumidifiers	Via generic output functions of multiple area modules. Note: Every unit occupies 1 output channel of the corresponding module to which it is connected, allowing ON/OFF control of generic dehumidifiers with remote consent	4
Electric energy meters (single-phase or three-phase)	• Photovoltaic acquisition • Air conditioning system consumption • Domestic users consumption Note: the meters used in one configuration must all be of the same type (single-phase or three-phase)	3
Sinergy storage system		1
Air quality sensor		24
Mixing module		3
Home automation connection module		1

System components

Components of the Clivet Smart Living Solutions system

1 Control4 NRG PANEL

Centralised control system for comfort and air conditioning system energy management

- Simultaneous management of up to 12 different independent climatic zones
- Air quality control
- Heat pump power modulation
- Energy management with power consumption and self-consumption data display
- Integration with photovoltaic systems
- Integration with Clivet SINERGY storage system
- Direct connection to the Internet via Ethernet or Wi-Fi with automatic update mode for new features and bug-fixing.

Energy efficiency

Control4 NRG fulfils the requirements of Italian Decree of 6 August 2020 as indicated in Annex A, article 11.1 on the “Installation of building-automation systems”.
When it comes to energy efficiency requirements, Control4 NRG is in accordance with efficiency class A as set out in EN15232.

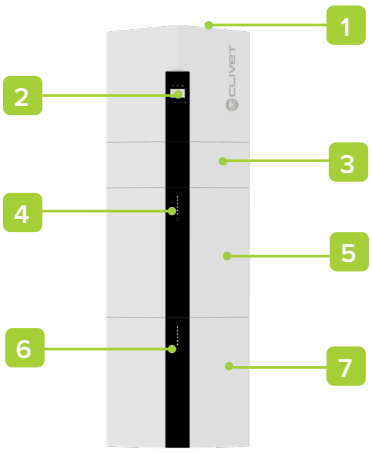
Remote management

The Clivet EYE interface allows the user to access remotely. It combines the immediacy and ease of use of the App with the “data analytics” and “dashboard” functions on the PC interface, typical of a control environment designed for professional use.

2 CLIVET SINERGY

Control4 NRG is the energy assistant for comfort and electric energy. In combination with Sinergy, the Clivet electric energy storage unit, available in 4 sizes from 5 to 20 kWh in the single-phase version and from 10 to 40 kWh in the three-phase version, can be connected to photovoltaic panels to power the system focused on comfort and supply energy to every domestic user for a house that is totally reliant on renewable energy.
SINERGY is suitable for both new systems and for retrofit applications where there is already a photovoltaic system with proprietary inverter.

Single-phase version



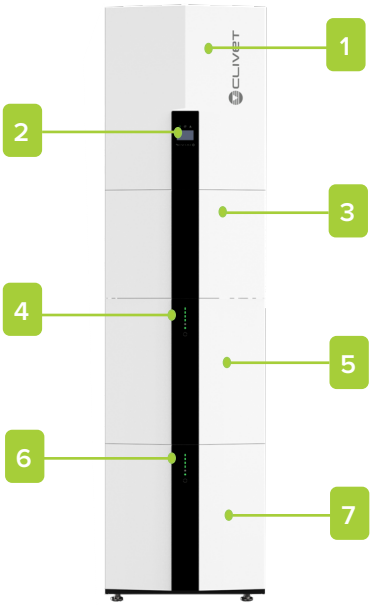
1. 5 kW Hybrid inverter including 2 6.5kW MPPT inputs
2. Display
3. Cable inlet for connection to the system
4. Battery pack charge level indicator
5. 5 kWh battery pack including BMS (battery management system)
6. Battery pack charge level indicator
7. 5 kWh battery pack including BMS (battery management system)

General characteristics:

- 5 kW single-phase 230Vac hybrid inverter
- Modular system with up to 4 storage tanks for capacities of 5/10/15/20 kWh
- Dual MPPT input for 6.5kW photovoltaic system
- On-grid function and integrated 5kW back-up output for connecting loads in the event of a voltage failure
- “Anti-islanding” protection system
- 10,000 charging / discharging cycles
- Extended operating range from -25°C to +60°C
- IP65 protection

Technical specifications
- LFP battery (LiFePO4)
- Weight 54kg
- Dimensions L (width) x H (height) x P (depth)
- 540 x 490 x 255 mm

Three-phase version



1. 10 kW Hybrid Inverter including 2 x 20 kW MPPT inputs
2. Display
3. Cable inlet for connection to the system
4. Battery pack charge level indicator
5. 5 kWh battery pack including BMS (battery management system)
6. Battery pack charge level indicator
7. 5 kWh battery pack including BMS (battery management system)

General characteristics:
- 10 kW three-phase 400Vac hybrid inverter
- Modular system with up to 4 storage tanks for capacities of 10/20/30/40 kWh
- Dual MPPT input for 20kW photovoltaic system
- On-grid function and integrated 9.6kW back-up output for connecting loads in the event of a voltage failure
- “Anti-islanding” protection system
- 10,000 charging / discharging cycles
- Extended operating range from -25°C to +60°C
- IP65 protection

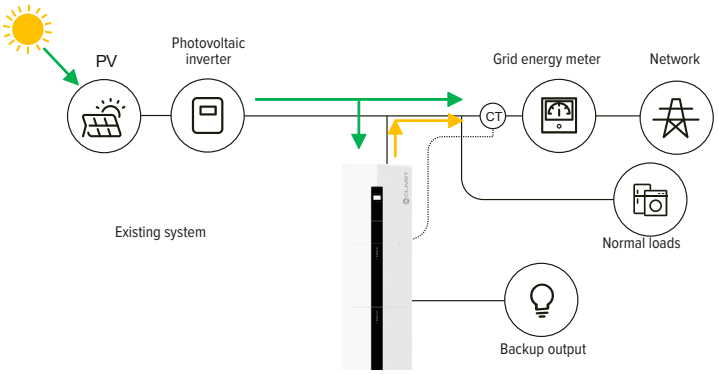
Technical specifications
- LFP battery (LiFePO4)
- Weight 54kg
- Dimensions L (width) x H (height) x P (depth)
- 540 x 980 x 250 mm

In new installations, the SINERGY inverter means that the storage system can be connected simultaneously to both the mains power supply and the photovoltaic panels for recharging during daylight hours. Hence installation is cheaper and easier.
In systems already provided with a photovoltaic system with inverter, Clivet SINERGY can be connected directly to the house’s mains power supply and operate in the presence of other inverter devices. However, the presence of the specific input for the panels enables SINERGY to expand the photovoltaic field without any additional costs, thereby benefiting from a larger capacity of energy production in complete autonomy.
SINERGY is integrated into Control4 NRG for a detailed display of the operating statuses and charge and discharge levels based on the availability of energy from the photovoltaic panels, which can also be viewed remotely via the Clivet Eye App

SINERGY is suitable for both new and existing installations. Thanks to the high protection rating and operating range, SINERGY can be installed outdoors.

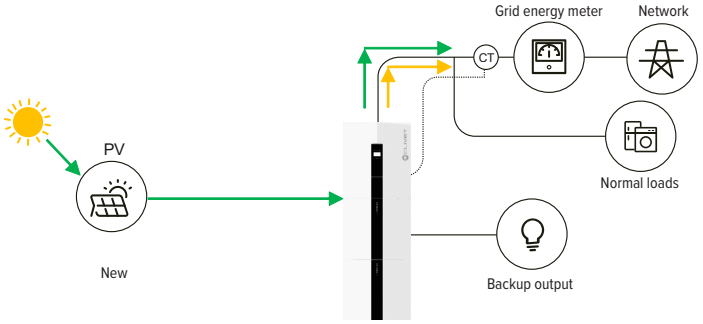
System components

Existing system



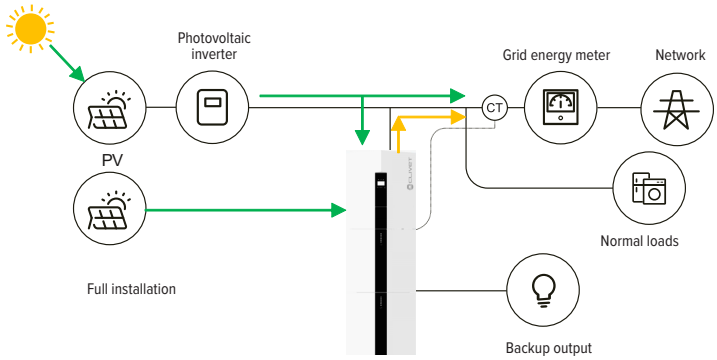
Connection to an existing system is made without replacing existing inverters and photovoltaic panels.
The SINERGY system automatically stores the energy produced by the panels when it is not used by users connected to the grid.
The photovoltaic inverter inputs are not used in this case.
Installation is direct to the house grid without additional wiring and/or connections.

New system



In new installations, the photovoltaic system strings can be connected directly to the two direct current inputs in the Clivet SINERGY inverter.
The inverter has 2 string inputs for a total of 5kW.
This configuration keeps the photovoltaic inverter costs low.

Full installation



SINERGY makes it possible to extend the photovoltaic range and have more installed power.
In this type of installation, the new photovoltaic system can be installed without changing the existing system.
The inverter has 2 string inputs for a total of 5kW.
Newly installed panels can be connected directly to the two direct current inputs in the Clivet SINERGY inverter.

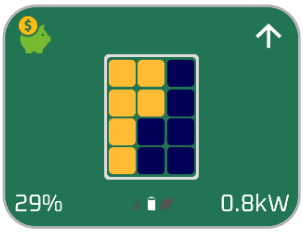
3 HID-TSmart

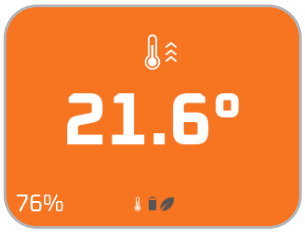
The new HID-TSmart thermostat provides simple, intuitive and immediate access to the home system's main operating parameters. Combined with Control4 NRG, in addition to the traditional temperature and humidity management, this device can also acquire different types of information from all the electric house elements, such as energy efficiency indices, electricity consumption, air quality and charge level of the energy storage system.

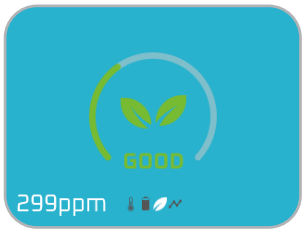
Main features:

- 3.5" colour touch screen display
- high interface sensitivity using gestures
- dual-colour option for all residential and professional environments
- High-precision on-board temperature and/or relative humidity sensors
- Smart home parameters display and advanced management
  - Temperature and relative humidity
  - Air quality index
  - System energy consumption level
  - Level of electric energy produced by the photovoltaic system
  - Operating and charge/discharge status of the Clivet SINERGY electricity storage system
  - Heat pump operating levels

The front "touch" panel enables navigation using intuitive gestures to scroll through the pages and display information of interest. The new smart thermostats can be combined with Control4 NRG, the electric house energy assistant accessible remotely via the Clivet Eye App.

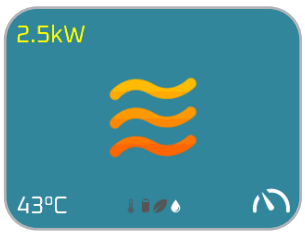


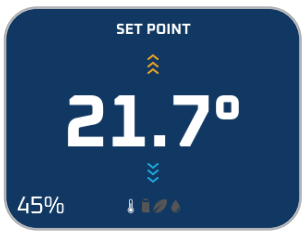


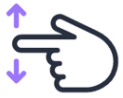


Multiple management of ambient operating parameters

- Temperature
- Humidity
- Air quality
- Electric energy
- SINERGY storage system charging







Scroll up/down to change the temperature setpoint

Scroll across to move between "context" screens

System components

4 Indoor air quality sensor

To ensure the utmost comfort, the new z-IAQ air quality sensor measures the temperature, humidity, noise, VOC, carbon monoxide, carbon dioxide and methane values.

VOC Volatile organic compounds	CO Carbon monoxide	NO_2 Nitrogen dioxide	CO_2 Carbon dioxide
CH_4 Natural methane gas	dB Ambient noise	%RH Relative humidity	°C Temperature

5 SPHERA-T Comfort

Production

High efficiency heat pump for the heat/cool and domestic hot water production

- Packaged unit for the comfort by using renewable energy
- Domestic hot water production up to 55°C, operating with outdoor air temperature down to –25°C
- System with the best seasonal efficiency on the market
- Water production up to 60°C, operating with outdoor air temperature down to –25°C
- Air and water version

Pre-assembled control unit

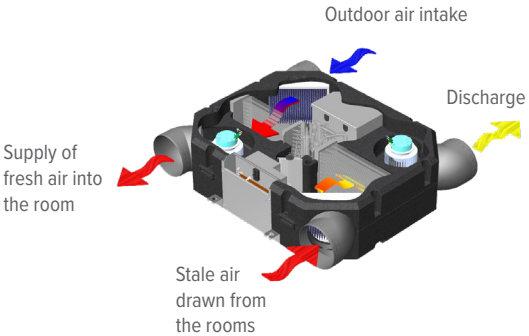
Compared with a traditional combustion system, SPHERA offers three key benefits:

- It does not require a gas feed, flues and explosion security systems
- Encloses all of the system elements, in a single unit it includes heating, cooling and domestic hot water store

6 ELFOFresh EVO

Energy-recovery based room ventilation and purification

- Active thermodynamic summer and winter recovery
- Fulfill up to 80% of the building thermal load
- Electronic filtering: pm10, bacteria, pollen
- Summer humidification, ideal to be combined with radiant cooling
- FREE-COOLING
- Control4 NRG can manage up to 4 units



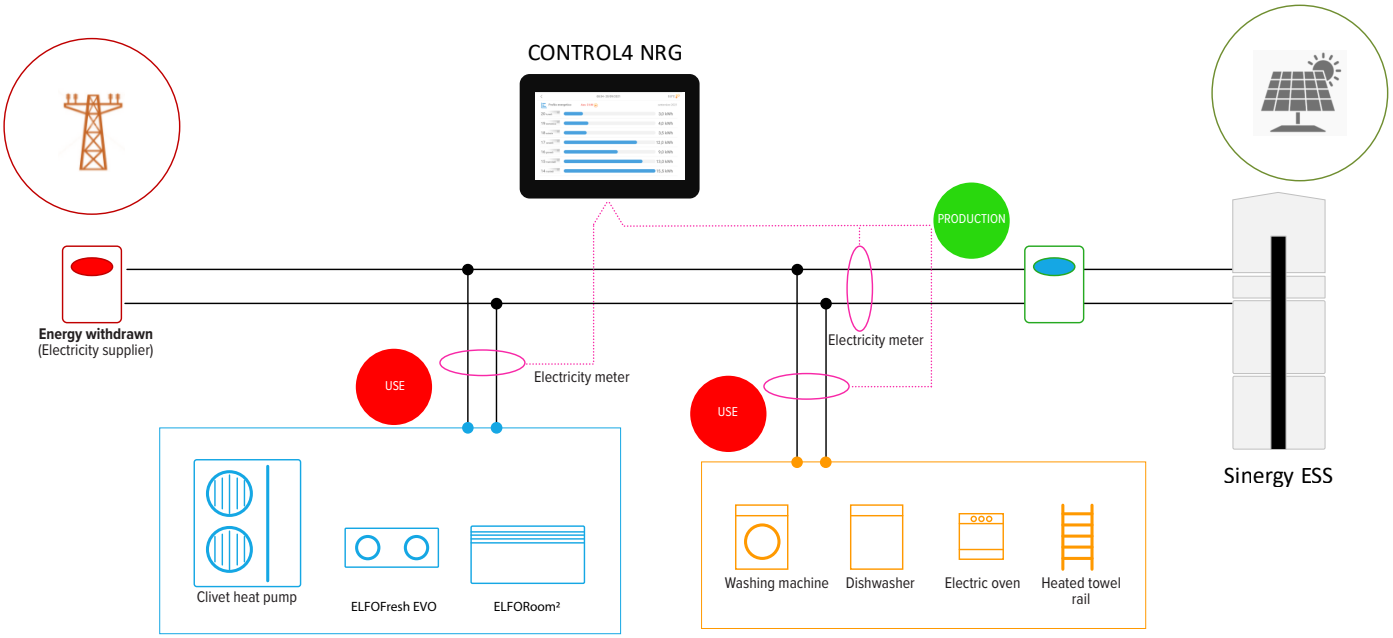
7 Distribution

Heat diffusion systems with “room by room” temperature control

- Room by room temperature and humidity thermostats
- Dedicated water terminals
- Compact design and small size
- Continuous speed variation
- Homogenous temperature
- Reduced consumptions
- Management of radiant systems and radiators

11 Electricity meters

Thanks to the acquisition of the values of the energy consumed and produced by the photovoltaic system (when present), the electric energy usage trend can be monitored from the Control4 NRG panel and the useful tips on the home page enable the user to optimise consumption for greater comfort and higher energy saving.



Simple comfort for everyone

The whole system at and

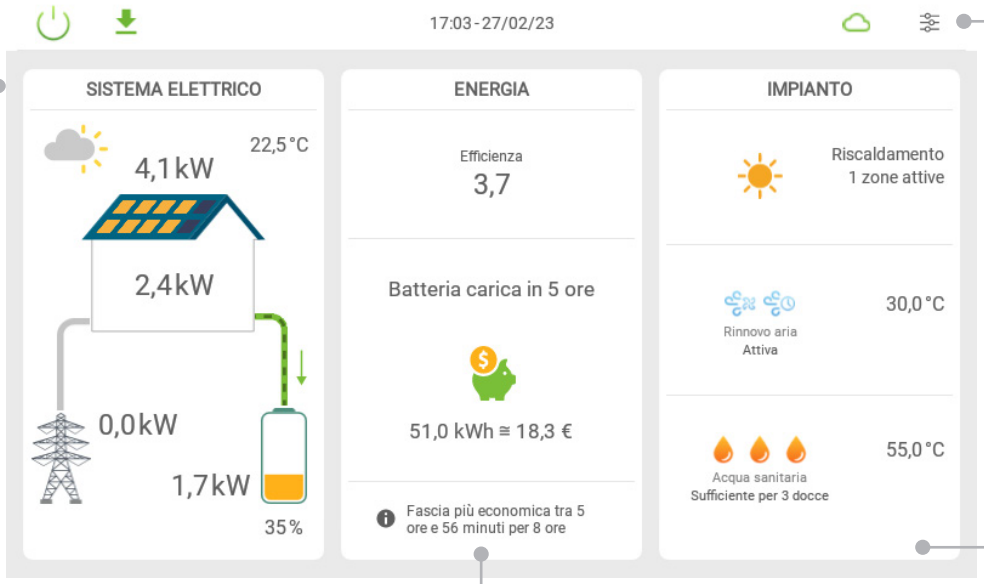
Without proper thermoregulation, even the best air conditioning system can create discomfort rather than comfort. With Control4 NRG, simply touch the screen to access control of every single system element. Control4 NRG coordinates and controls the entire system intelligently and efficiently to always ensure the best comfort at the lowest possible cost.
The home page is divided into 3 sections and provides all system information at a glance. The screen below shows the main information:

ELECTRICAL SYSTEM section

- Photovoltaic system production
- Energy consumption
- Entry/withdrawal from the grid
- Sinergy charge/discharge level

Main bar

- LAN or Wi-Fi connection status
- Cloud connections status
- Software update availability (in OTA mode)
- Access to the settings menu

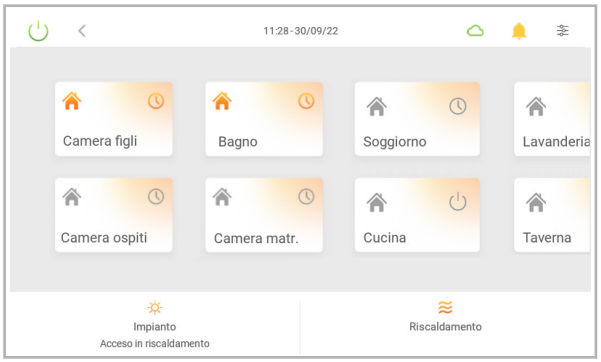


ENERGY section

- Heat pump efficiency
- Tips to improve your energy consumption and behaviour

SYSTEM section

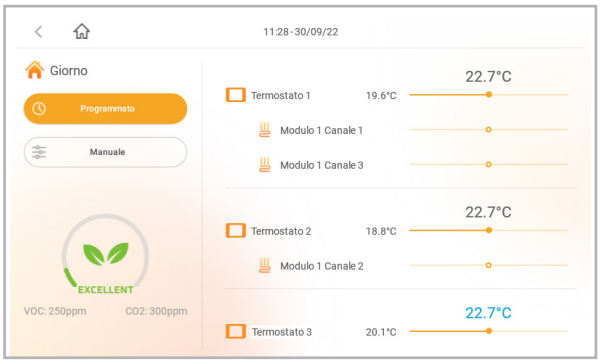
- Renewing the air in the rooms
- Heating / cooling the house
- Storing domestic hot water



Every climatic zone at your fingertips

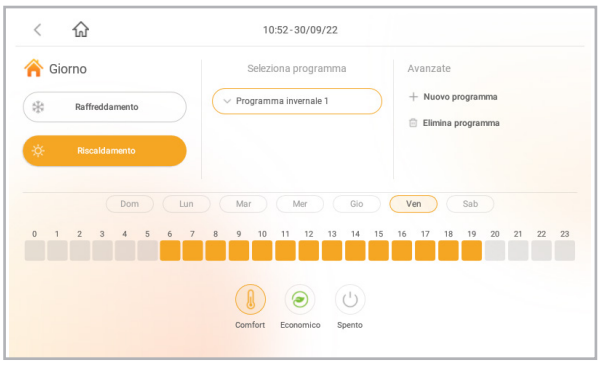
Control4 NRG manages simultaneously up to 24 different climate zones, so that the user can define the desired temperature for every single area.
With a few touches on the main screen you can:

- define and manage up to 24 different climate zones
- program the comfort levels of the individual areas
- set the temperatures directly from the touch screen or from the thermostat
- set different temperatures inside the same climatic zone
- Air quality index of the area monitored by the air quality probe



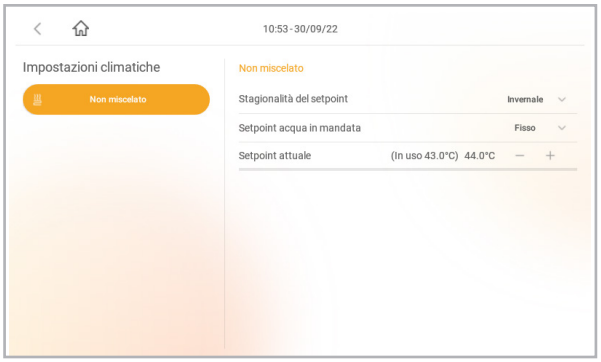
Flexible and Programmable

Control4 NRG allows to define up to 10 custom time schedules. Every day of the week can be associated with a different program to optimise the operation and efficiency of the entire system.



Heat pump energy saving

Control4 NRG reduces energy consumption of the heat pump by optimising the water production set point through climate correction curves that can be customised by the user.
The temperature of the water produced can then be raised or lowered to best match the thermal load of the system, thereby limiting the overproduction of thermal energy.

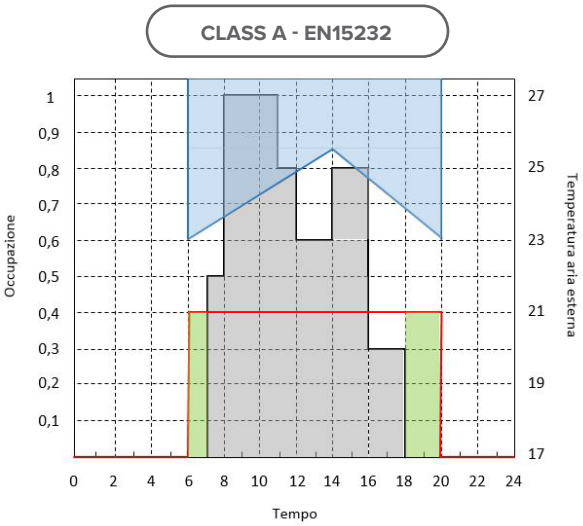


Main functions

Class A efficiency

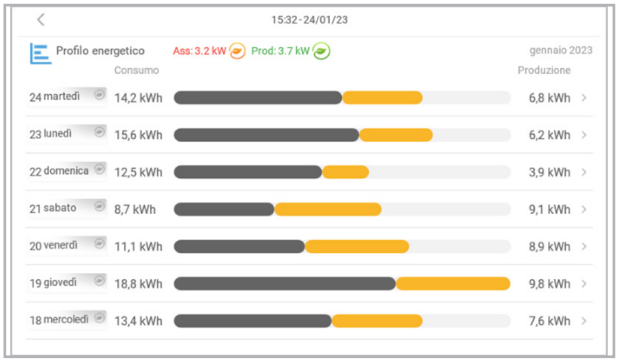
Control4 NRG reduces the system's energy consumption by complying with Class A efficiency requirements as set out in the European Standard EN15232 on "Energy performance of buildings" (Incidence of automation, control and technical management of buildings). Control4 NRG makes it possible to customise system activation times based on user habits, as well as to set zone temperatures to achieve ideal room comfort with adaptive cooling set points that take into account outdoor climatic conditions in real time.

- Cooling mode set point
- Heating mode set point
- Optimisation area for system switch-on/off based on occupancy
- Optimisation area in cooling mode resulting from the climate curve based on the outdoor ambient



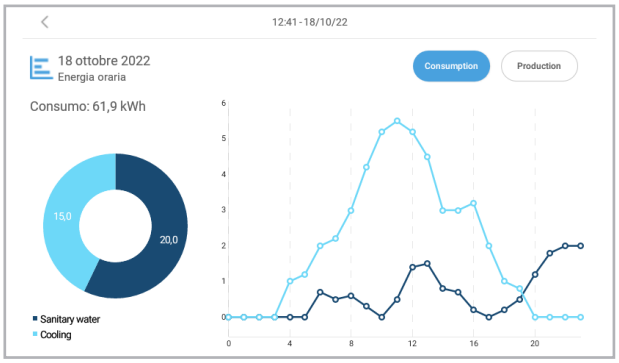
Energy assistant and Clivet Sinergy

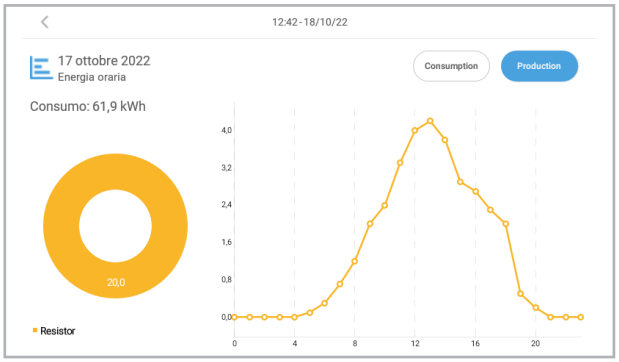
The electricity is displayed on the Control4 NRG panel and provides a weekly profile of the energy used by the air conditioning system and by the photovoltaic system (when present).
This allows you to monitor the energy consumption and comfort levels achieved by the air conditioning system in order to improve the operating parameters and operating times according to your needs.



Photovoltaic system energy acquisition

Control4 NRG allows you to view the details of the energy profile on a daily basis and check the electricity used by the air conditioning system together with the electricity produced by the photovoltaic system.
Hence it is possible to assess peak usage hours in relation to the availability of the energy supplied so as to understand the opportunities for efficiency gains based on what is available from the photovoltaic system.





The entire Clivet Smart Living Solutions ecosystem from a single App

- Control via the App and PC of all elements connected to the Clivet Smart Living ecosystem
- Display of system energy data
- Display of any malfunctions of individual air conditioning system elements
- Accessible from the App and web browser via PC
- App available on Android and iOS platform

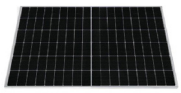
General characteristics:

Clivet Eye is the IoT platform for interconnecting all Clivet solutions safely and reliably with end users and residential professionals. Clivet Eye allows users to take advantage of all the services related to remote access, maintenance of system components and optimisation of air conditioning systems.
When electric energy meters are present, you can view the total system energy data which is organised on simple and intuitive graphical pages. More specifically, you can view

- Energy produced by the photovoltaic system
- Energy consumed by the air conditioning system
- Energy consumed by domestic users
- Self-consumption level
- Charge and discharge levels of the Clivet Sinergy storage system (when present in the system)

Clivet Sinergy already includes the Smart meter

Clivet Smart Living solutions from a single App
Clivet Eye combines management of all the elements that make up the Clivet Smart Living solution and the energy produced and consumed by the house in a single App.
Management via the App is possible through connection with the Control4 NRG energy and comfort assistant, which combines all system parameters and optimises operation of the entire system.



Check of energy produced by the photovoltaic system

General management via Control4 NRG, the centralised energy and comfort assistant

Check of energy available in the storage coils

Optimisation of ventilation systems to ensure room comfort

Comfort management in the individual house areas (temperature, humidity and air quality)

Management of the operation status of the centralised heat pump and central heating plant elements

Main functions

The whole system

Overall system view

Display of the status of all devices connected to Control4 NRG.
Active user – icon shown with display of the relative operating parameter
Inactive user – “grey” icon

Climate zone management

Management of the individual climate zones used to optimise comfort. Up to 12 completely independent climate zones are provided, each of which has the option of changing the temperature and setting the «energy saving» function, as well as the option of switching the zone on and off (the names of the zones are only displayed with Control4 NRG).

Photovoltaic system with real time power output value

Indication of the active «Energy independence» status, when the system is powered by the storage coil or by the photovoltaic system and is independent of the main power grid

Charge level of the SINERGY electricity storage system

Active operating mode
- blue cooling
- red heating

Temperature in the zone

Cursor to change the zone setpoint

Zone temperature setpoint

Zone operating status
- Active in “comfort”
- Active in “economy”
- Off

The screenshots shown are for demonstration purposes only.

Scheduler

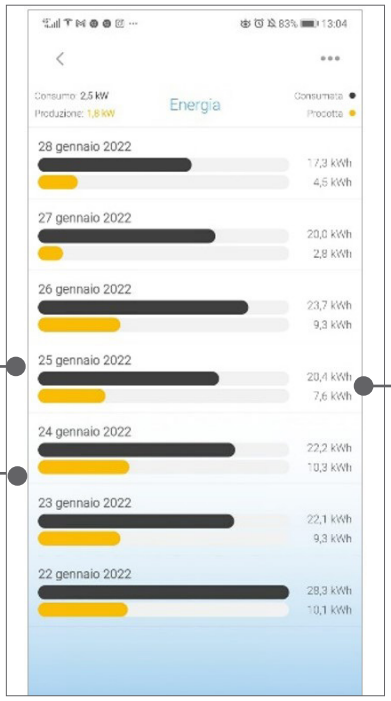
Allows you to schedule comfort in different zones of the house from the App

Presence of a calendar event

An empty cell means that no events have been scheduled for that day

Energy page

Designed to display the energy data of the last 7 days. Data are acquired by the electric energy meters located in the system for the photovoltaic system



Energy produced by the photovoltaic system

Total energy consumed by the system from the two electric energy meters (air conditioning system and domestic users)

Single day energy values

The screenshots shown are for demonstration purposes only.

Main functions

Table summarising the main functions associated with use of the remote connection

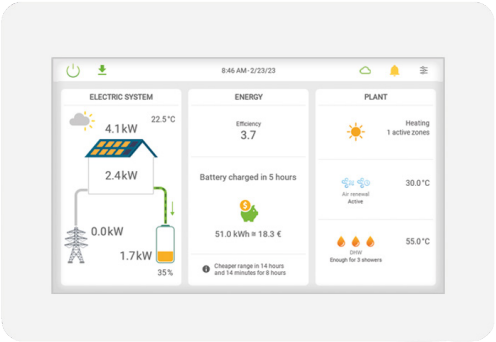
FUNCTION	DESCRIPTION	CONTROL4 NRG	CLIVET EYE PC INTERFACE	CLIVET EYE APP INTERFACE
Local energy page (energy used)	Display of electricity (kWh) used by the air conditioning system with a bar graph of the last 7 days. Requires the M1NRGX accessory dedicated to this function. (M3NRGX for three-phase system)	●		
Local energy page (energy produced)	Displays the 24-hour trend in: • energy produced (kWh) by the photovoltaic system This function can be used in conjunction with a photovoltaic system. Requires an additional M1NRGX accessory dedicated to the photovoltaic system.	●		
Remote energy page via PC (energy used)	Display of the trend of the air conditioning system electrical data with a bar graph of the last 7 days with display of the electricity used by the air conditioning system.		●	●
Remote energy page via PC (energy used)	Displays the 24-hour trend in: • power produced (kW) by the photovoltaic system • power used (kW) by the air conditioning system • self-consumption energy balance expressed as a percentage of the energy produced by the photovoltaic system This function can be used in conjunction with a photovoltaic system. Requires the M1NRGX accessory (M3NRGX for three-phase system)		●	
Remote energy page via APP	Not required by Italian Leg.Dec. 6 August 2020, Annex A, Article 11.1.			● requires Clivet Eye app update from the Play Store or Apple Store
Local events scheduling	Events scheduling from Control4 NRG.	●		

Remote events scheduling via PC	The options available are:
	• organisation of the events view by day, week, month, year
	• system switch-on/off function, operating mode (cooling or heating), “away” function
	• event start and end date and time
	• selection of event frequency:
	  • daily, weekly or monthly
	  • duration expiring in the current year, repetitive without expiry date
	  • maximum number of events
			●	

Remote events scheduling via APP	Not required by Italian Leg.Dec. 6 August 2020, Annex A, Article 11.1.			●
Remote information display via APP	List of visible data: • operation mode (heating or cooling) • domestic hot water temperature (when present) • system water temperature • solar thermal temperature (when present) • outdoor ambient air temperature • any faults		●	
Remote function activation via APP	Available functions: • system switch-on/off • domestic hot water management • «away» function activation and deactivation • Zone control			● requires Clivet Eye app update from the Play Store or Apple Store

Control4 NRG is supplied complete with:

- White plastic box for wall installation
- Black metal bracket for fixing the panel in the box



Technical specifications

Display dimensions	inches	7”
Resolution	Pixel	800 x 480
Display type	Colour TFT capacitive touchscreen	
Voltage	V	12Vcc
Max consumption	W	10
Connectivity	Ethernet and/or Wi-Fi (depending on the model) for connection to Clivet Cloud	
Communication port	EIA-485 serial port for connecting system devices via Modbus RTU protocol	
Protection rating		IP 20
Weight	kg	0,5

⚠ The cabling from the external power supply unit to Control4 NRG must comply with low-voltage cabling requirements

Operating range

Operational temperature	from +5 to +45°C
Stocking temperature	from -10 to +55°C
Storage humidity	≤ 95%
Relative humidity	from 10 to 90% without condensate
Installation	The display must not be exposed to direct sunlight or other intense light source

Features of the network

Control4 NRG can connect all the elements in a BUS System where each element is connected to only one communication line. Control4 NRG has an EIA-485 serial port for communicating with system devices connected to it via bus in/out topology. Triangle, loop or any other types are not allowed.
Note: Only cables for EIA-485 serial lines must be used, and the serial line must be laid separately from other cables, powered at different voltages, and away from cables or devices that can cause electromagnetic interference.

Versions available

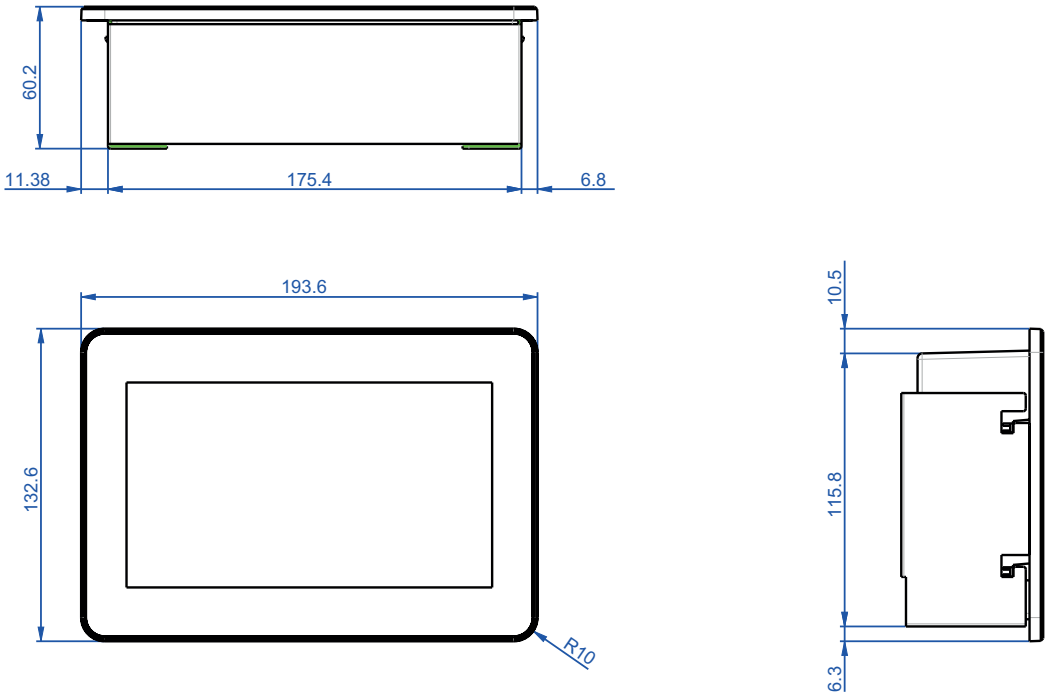
Control4 NRG is available in four different versions

VERSION	DESCRIPTION
S-W	Ethernet port, no Wi-Fi connectivity. White
S-B	Ethernet port, no Wi-Fi connectivity. Black
WIFI-W	Ethernet port and Wi-Fi connectivity. White
WIFI-B	Ethernet port and Wi-Fi connectivity. Black

Technical characteristics

Accessories supplied separately

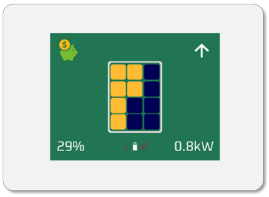
- **AL12X** - Power supply unit 230/1/50 - 12VDC 2A max
- **EMRSX** - Mixing unit control module
- **BMZRX** - Radiant zone module with RS485 communication port
- **CMRSX** - Single zone module with RS485 communication port
- **M1NRGX** - Single-phase electrical energy meter with EIA-485 Modbus serial
- **M3NRGX** - Three-phase electrical energy meter with EIA-485 Modbus serial (including 3 amperometric transformers)
- **HIDURX** - Temperature and humidity sensor - built-in installation
- **DOMX** - Modbus TCP/IP home automation interface module
- **HTSBBX** - 3.5” touch screen temperature thermostat for wall installation. Black color
- **HTSBWX** - 3.5” touch screen temperature and humidity thermostat for wall installation. Black color
- **HTSPWX** - 3.5” touch screen temperature and humidity thermostat for wall installation. White color
- **z-IAQ** - Quality air sensor with RS485 communication port



Control4 NRG panel dimensions

HID-TSmart

HID-TSmart evolves the thermostat concept with a new generation device from which you can access all the information you need for efficient, all-electric home management. It connects to the Control4 NRG bus and does not need to be connected to a fancoil unit or an area module in order to function. It can be connected anywhere on the RS-485 network as long as the network topology and permissible design limits are observed.
HID-TSmart provides simple, intuitive and immediate access to the system's main operating parameters. Combined with Control4 NRG, this device can acquire different types of information from all the electric house elements such as temperature, humidity, electricity consumption, electric energy produced by the photovoltaic system, and the Clivet SINERGY electricity storage charge level.



Dimensions: 112 x 77 x 18 mm
Supply voltage: 12 VDC
Maximum power consumption: 1.5 W

HIDURX

Modbus electronic room control device HIDUR
The HIDUR temperature and humidity sensor is available in the recessed version.
This probe is installed in rooms without being associated with any thermostat. The temperature and humidity readings can be visualised on the Control4 NRG device.
To manage this device, the user must have the BZMRX radiant zone module.
The sensor is suitable for RJ45 civil series with standard Keystone connection.
Installation in 503 built-in box.

Dimension: 22 x 45 x 50 mm.
Supply voltage: 12 VDC
Maximum power consumption: 0.3 W

AL12X

Power supply unit 230/1/50 - 12VDC
Isolation transformer 230/1/50 12 Vac 2A max

Dimensions: 77 x 90 x 57 mm (2 DIN modules)

User management accessories

M1NRGX
M3NRGX

Single-phase electricity meter
Three-phase electricity meter

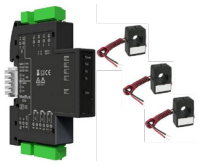
Single-phase electricity meter for the acquisition of electricity:

- used by the air conditioning system
- produced by the photovoltaic system

General technical features:

- serial communication port EIA-485

There must be 2 separate meters for the acquisition of the energy used and the energy produced, both to be connected in the ModBUS EIA-485 network to the Control4 NRG system.
An optional third meter can be connected to monitor the consumption of electrical users (appliances, electrical equipment, etc.).



Supply voltage: 12 Vdc
M1NRGX maximum power consumption: 1.3W
M3NRGX maximum absorption: 0.7W

Note: Clivet SINERGY includes the electric energy meter, so there is no need to add the M1NRGX meter.

CRMSX

SINGLE zone module with EIA-485 communication port

6 DIN single zone module for the management of one (1) water shut-off head, ready for the connection of one (1) room thermostat to control the head, summer and winter operation with anti-freeze and anti-dew functions, complete with water temperature probe.
Power supply: 220 Vac
Capacity of the relays: 5 A
Dimensions (LxHxD): 210 x 155 x 80 mm

Single-phase version

EMRSX

Mixing unit control module

Control module for controlling a mixing unit in order to manage a section of the circuit at a different temperature to that of the main system.
Dimensions and electrical characteristics:
Power supply: 220 Vac
Capacity of the relays: 5 A
Dimensions (LxHxD): 210 x 155 x 80 mm
Maximum absorption: 5.8 VA

Three-phase version

BMZRX **Radiant area module with generic input/output function with EIA-485 communication port**
Maximum connectable modules: 5

Through the relay outlets, the module opens or closes the heads depending on the defined setpoint and room temperature detected by the associated thermostat.
The module is supplied with a temperature probe (BT2) with a 6 m long cable, for the water temperature detection on the manifold.
The probe must be positioned in a spot where it is possible to detect the temperature of the water when it is moving.
The module is always supplied with a TTL/485 converter required to use HID-UR. To use the HID-UR modules it is necessary to use an 12 Vdc power supply unit.

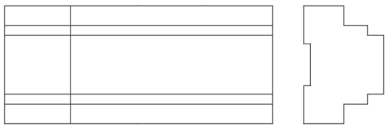
Each radiant zone module can manage only one type of thermostat:

- electromechanical thermostats with potential-free contact (this option does not allow the temperature to be displayed by Control4 NRG, it only allows ON/OFF management of the zone and time schedule. This option does not allow temperature changes to be made by Control4 NRG)

Mixed situations involving electromechanical thermostats and HID-UR humidity temperature sensor are also not permitted.

Example: if a system with 4 electromechanical thermostats and 2 HIDUR sensors is to be created, 2 BMZRX modules will need to be used: 1 to connect the electromechanical thermostats and 1 for the HIDUR sensors.

⚠ NOTE: each output activation relay has a maximum load of 5A (220V AC), so several heads can be controlled simultaneously with each relay, whilst making sure that the maximum load is observed.



Dimensions and electrical characteristics:
Power supply: 230Vac
Power input: 8.5 VA
Maximum capacity of the contacts: 5A with a power supply voltage of 230V
Dimension (LxHxP): 157 x 90 x 60 mm
Overall dimensions: 9 DIN + 2 DIN of converter TTL/485
Protection rating: IP20

Generic I/O functions

Using the radiant area module via the generic input/output function ensures management of various system elements. With Control4 NRG, the functions associated with each multiple area module input and output can be defined.

On the same module, each channel can have its own function.

The module's inlets can have the following functions:
1) **remote On/Off input** that allows to activate ELFOSystem remotely;
2) **auxiliary heater alarm input (exemple boiler)** that allows to acquire the alarm of the auxiliary heater

The multiple area module outlets can be configured to manage the following functions:

1) **activating the circulator:** in this case each non-mixed water circuit can be associated with an additional pump, which can be operated only when there is a request on that circuit.

2) **area valve control**: it is activated when the hydraulic circuit associated to the area valve receives a supply request

3) **seasonal control:** with the system in heating mode it closes the contact and opens it when it is in cooling mode. If the system has a Chiller associated with a boiler, it can be used to control the shut-off valves of the hydraulic circuit

4) **auxiliary resource control in heating mode:** If the intention is to only use the boiler that is not associated with a heat pump, it is activated when the system is in heating mode and there is a request for one of the areas.

In case the boiler is used in combination with a unit witch produce only cooling, the MIOX module will also switch the circuits depending on the system's operating mode, heating or cooling.

5) **secondary pump control:** it is activated when one of the served zones is requested.

In this case, the pump is started when there is a request from an element or area.

6) **dehumidifier activation control:** in this case 4 dehunidifiers can be managed.

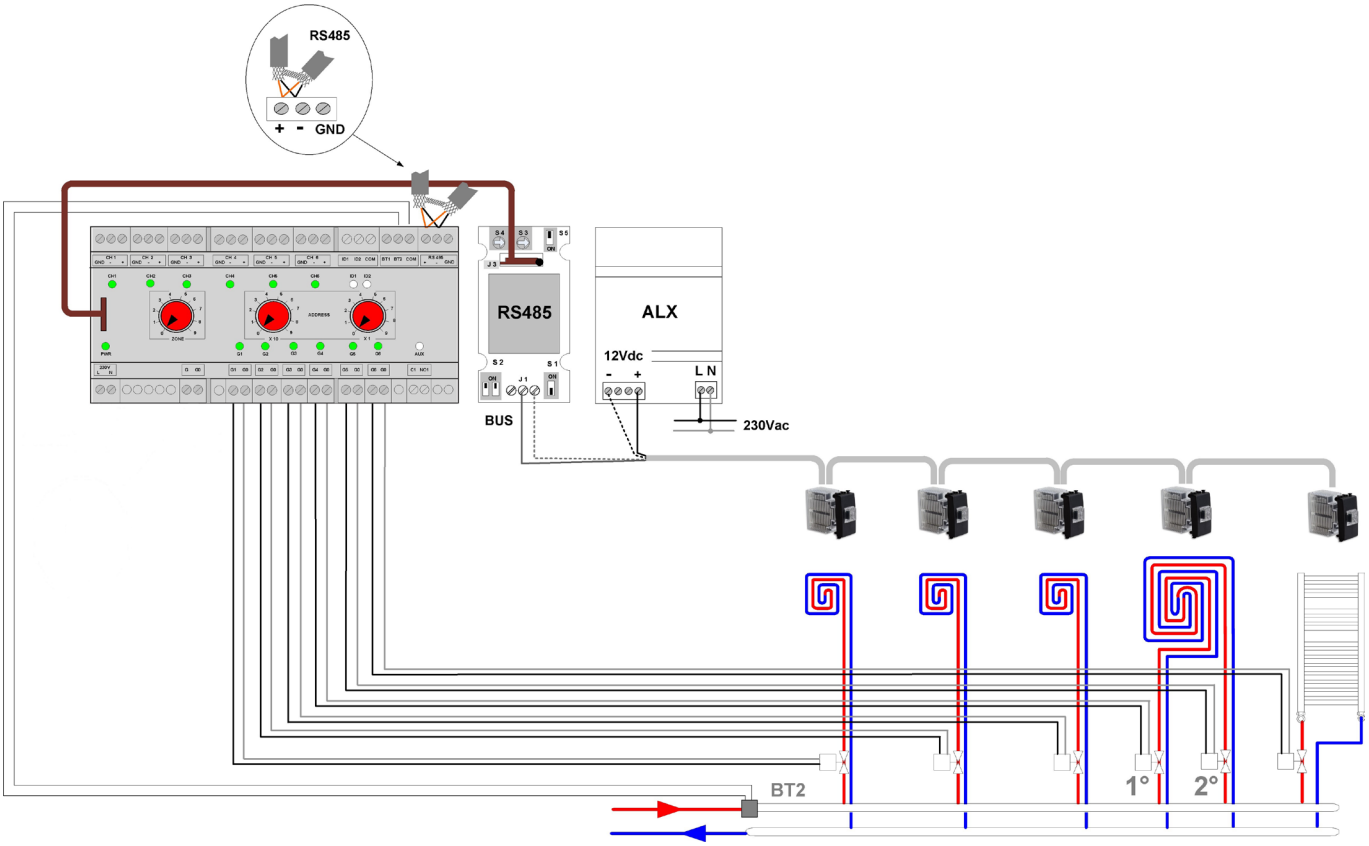
The module has a RS485 communication port to connect it directly to the system.
⚠ IMPORTANT NOTE: Control4 NRG cannot manage circulators installed downstream of mixing units managed by the mixing module.

System elements

HID-UR recessed radiant zone module with Modbus sensor

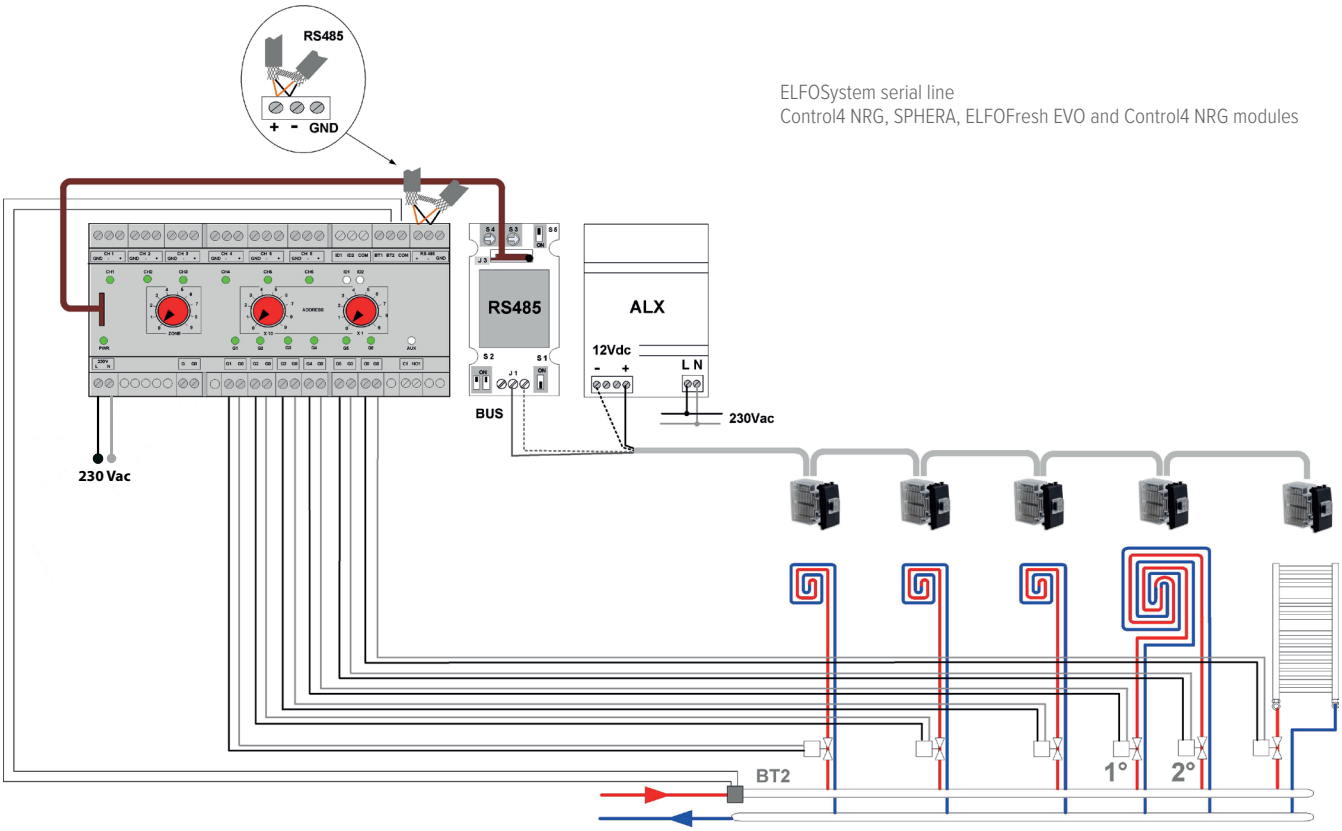
The HID-UR sensor must be linked with a bus-type connection, as reported in the connection diagram below and you need to use the AL12X power supply unit for each BMZRX module to power the various sensor.

The size of the power supply unit is suited to the maximum amount of thermostats that can be managed by BMZRX (max 6 HID-UR)



Module for radiant zones with 24V valves

The BMZRX module can manage 24V ON/OFF valves by connecting a transformer (to be done by the customer) as shown in the diagram below.



ELFOSystem serial line
Control4 NRG, SPHERA, ELFOFresh EVO and Control4 NRG modules

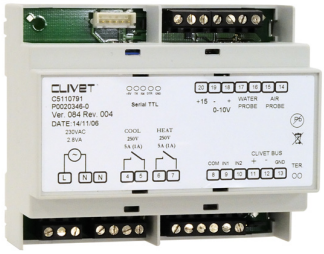
CMRSX **Single area module with RS485 communication port**

Number of elements it can manage: the maximum amount is 50.

To manage the intercepting head of the power supply circuit of the radiators and/or heating furniture or to manage an individual area served by radiant panels it is necessary to use a zone module. The module opens and closes the head depending on the temperature detected and the selected setpoint.

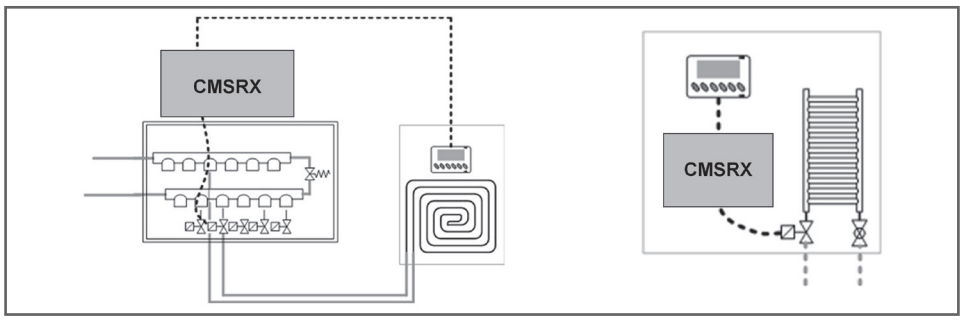
To manage radiators and heating furniture in summer mode (cooling), the module closes the head, thereby intercepting the circuit.

This module controls the dew point. As it only has one outlet, it does not allow to manage double-step radiant panels.



Dimensions and electrical features
Power supply: 220V AC
Power input: 8.5 VA
Dimensions (LxHxP):105x90x60 mm
Overall dimensions: 6 DIN + 2 DIN of the TTL/485 converter
Protection rating: IP20

⚠ To connect the CMRSX area module to Control4 NRG Modbus network it is necessary to use the TTL-RS485 serial converter module included with the accessory



FAQ

Can the system control more than one hydronic unit?

No, Control4 NRG can only manage a single hydronic unit to produce cold water in summer cooling mode (chiller) or hot and cold water for cooling in summer and heating in winter with cycle change-over, as well as to produce domestic hot water (heat pump).

Does the system have a humidity control feature?

Humidity control is only possible in conjunction with the cooling function by using ELFOFresh EVO or fan coils.
The dehumidification-only function is not available in ELFOFresh EVO, therefore it cannot be controlled by Control4 NRG.

Can I use the data relating to the electricity produced and/or absorbed for tax purposes?

No, the electricity meters used by Control4 NRG are not certified according to the MID directive, therefore the data collected cannot be used for tax purposes.

Can I use the app to control the scheduling and temperature of individual system zones remotely?

Yes, scheduling is available in the APP for smartphones and PCs.
The App available for tablets and smartphones can also be used to display the operating parameters of the system and to send general system commands remotely, such as switch-on and switch-off, domestic hot water management, “away” function activation and active alarms reset. It is also possible to change the temperature setpoint of the areas independently.

What is the level of energy efficiency that can be obtained with Control4 NRG?

Control4 NRG allows to reach Class A according to European standard EN15232 (energy performance of buildings – Impact of building automation, controls and building management).

Is it essential to install a photovoltaic system to have access to the limits set by the Leg. Decree of 6 August 2020, Annex A, article 11.1?

No, Control4 NRG complies with the requirements of the Leg. Decree of 6 August 2020 as indicated in Annex A, Article 11.1 on the “Installation of building-automation systems” and therefore there is no need to provide for a photovoltaic system.
However, Control4 NRG is able to display the electricity produced by the photovoltaic system with the M1NRGX option dedicated to this function, in addition to the one already provided for the acquisition of energy used by the air conditioning system.

Is it essential to provide an internet connection for ELFOControl3 EVO to be able to have access to the limits set by the Leg. Decree of 6 August 2020, Annex A, article 11.1?

Yes, in accordance with the provisions of the Leg. Decree of 6 August 2020 as indicated in Annex A, Article 11.1 on the “Installation of building-automation systems”, remote access is required to be able to switch the systems on and off, as well as to ensure the weekly programming. These functions are available through Clivet Eye from the web interface (all) and from the app (switch-on and switch-off only).

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