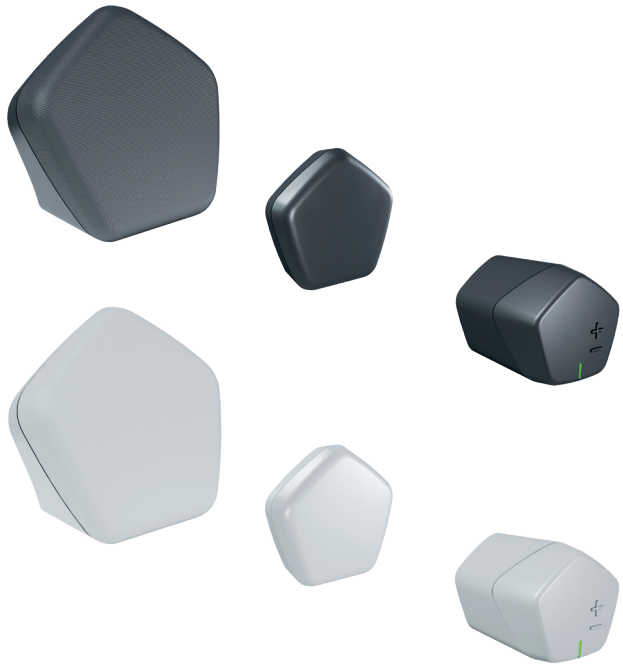
Remote temperature regulation system

215 series

01366/23 EN
replaces 01366/21 EN

CALEFFI CODE



Function

The CALEFFI CODE® system can control the temperatures in each of the environments separately or in the whole home through the CALEFFI CODE® app, guaranteeing the ideal comfort for each user at any time of day.
The guided step-by-step procedure and video tutorials within the mobile application ensure that it can be installed quickly and intuitively.
The **Gateway** is the brain of the whole system, which communicates with the controls and sensors, and interacts with the CALEFFI CODE® app to control and manage home heating as programmed and to meet the user's requirements.
The **Gateway PRO**version of the gateway with built-in modem is also available.
The **Comfort Control** electronic wireless control measures the room temperature using its built-in sensors and automatically regulates it as desired.
The **Sensor** can measure the ambient temperature where it is not possible to do so with Comfort Control; it is suitable for, generally large, areas where it is necessary to control the temperature of several controls.
The **Sensor PRO**, wireless ambient temperature sensor with boiler contact not only measures the ambient temperature, but can also turn on the boiler in place of the conventional home thermostat.

Compatible with:

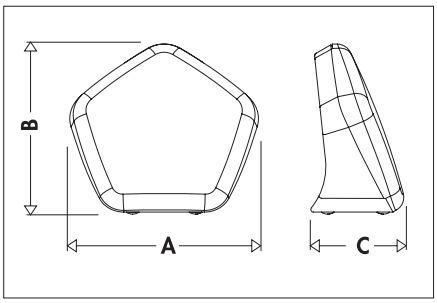
Google Home amazon alexa

Product range

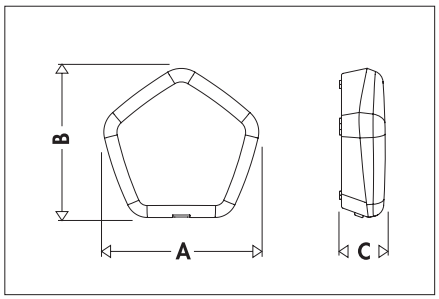
Code 215100/215100 BLK **Gateway**, wireless multi-zone temperature regulation gateway
Code 215015/215015 BLK **Gateway**, wireless multi-zone temperature regulation gateway with built-in GSM, UMTS, LTE modem
Code 215510/215510 BLK **Comfort Control**, wireless electronic control for thermostatic or convertible radiator valves
Code 215001/215001 BLK **Sensor**, wireless ambient temperature sensor
Code 215002/215002 BLK **Sensor**, wireless ambient temperature sensor with boiler contact

Code 210005 Tamper-proof kit for controls.

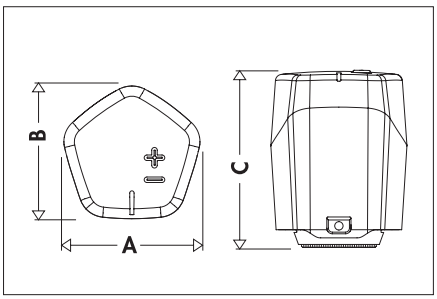
Dimensions



CODE	A	B	C	Mass (kg)
215015 **215**015 BLK **215**100 **215**100 BLK	129	116	63	0,3



CODE	A	B	C	Mass (kg)
215001 **215**001 BLK **215**002 **215**002 BLK	78	75	23	0,07



CODE	A	B	C	Mass (kg)
215510 **215**510 BLK	62	60	80	0,18

Valve coupling

"Comfort Control" controls can be combined with the following valve series:

221	222	223	224	225	226	227	230	231	232	233	234	237
338	339											
401	402	421	422	425	426							
4001	4003	4004										

When installing with Caleffi one-pipe valves (455 - 456 series), the Sensor / Sensor pro must be used, one for each zone, to ensure temperature reading takes place correctly. If one-pipe valves not produced by Caleffi are installed, compatibility and proper system operation are not guaranteed. The CODE system is in any case not recommended for use with low-temperature one-pipe systems.

An adapter for thermostatic and convertible radiator valves not manufactured by Caleffi is available on request.
For thermostatic valves with M30x1,5 mm RBM connection - Heimeier (Eclipse 3931)
- Tiemme (3300005) use adapter supplied.

Code	
210051	for Giacomini valves (R431TG)
210052	for FAR valves (1610)
210053	for Watts valves (1188UM)
F0001597	for Danfoss valves

Technical specifications

Comfort Control

Wireless electronic control for thermostatic or convertible radiator valves

Operates through the front buttons, Gateway, Gateway PRO and CALEFFI CODE® app.
Built-in temperature sensor: NTC type with ± 0,5 °C accuracy.
Radio communication: RF 868 MHz
Quick-coupling installation with adapter.
Battery electric supply: 2 x 1,5 V AA (supplied in pack), compatible with rechargeable batteries
Protection class: IP 30
Colour: white RAL 9003 (code 215510), black RAL 9005 (code 215510 BLK)
Ambient temperature: 0–55 °C
Storage temperature (with batteries): 10–25 °C

Sensor

Wireless ambient temperature sensor

Operates through Gateway, Gateway PRO and the CALEFFI CODE® app.
Built-in temperature sensor: NTC type with ± 0,5 °C accuracy.
Radio communication: RF 868 MHz
Battery electric supply: 2 x 1,5 V AAA (supplied in pack), compatible with rechargeable batteries
Protection class: IP 30
Colour: white RAL 9003 (code 215001), black RAL 9005 (code 215001 BLK)
Ambient temperature: 0–55 °C
Storage temperature (with batteries): 10–25 °C

Sensor PRO

Wireless ambient temperature sensor with boiler contact

Operates through Gateway, Gateway PRO and the CALEFFI CODE® app.
Built-in temperature sensor: NTC type with ± 0,5 °C accuracy.
Radio communication: RF 868 MHz
Battery electric supply: 2 x 1,5 V AAA (supplied in pack), compatible with rechargeable batteries
Boiler contact: max. 24 V (AC)/(DC), 1 A
NB: the voltage on the contacts must be supplied from circuits isolated from the mains with insulation no lower than that between the primary and secondary circuits of a safety transformer that complies with IEC 61558-2-6 or equivalent.
Protection class: IP 30
Colour: white RAL 9003 (code 215002), black RAL 9005 (code 215002 BLK)
Ambient temperature: 0–55 °C
Storage temperature (with batteries): 10–25 °C

Gateway

Wireless multi-zone temperature regulation gateway

Operation through CALEFFI CODE® app (Wi-Fi or Ethernet and Bluetooth® connectivity required for installation).
Weekly programming.
Programmable time bands: up to 8 daily
Programmable zones: up to 64
Quick functions: Auto - Eco - Holiday - Manual - OFF - Boost - Clean
Maximum auxiliary microswitch contact rating for heating request: max 24 V (AC)/(DC), 1 A
NB: the voltage on the contacts must be supplied from circuits isolated from the mains with insulation no lower than that between the primary and secondary circuits of a safety transformer that complies with IEC 61558-2-6 or equivalent.
Compatible with OpenTherm®.
Radio communication/connectivity: RF 868 MHz, Wi-Fi, BLE
Electric supply: via USB power supply unit type C, 5 V ⎓, 2 A input 100–240 V, 0,5 A, 50/60 Hz, output 5 V, 2 A (EN/IEC 61558-2-16)
Class: IV-VIII [Ecodesign Directive]
Energy class:
- in proportional-boiler ON/OFF mode: ERP Class IV
- in multi-sensor and modulating boiler control mode: ERP Class VIII
Protection class: IP 30
Colour: white RAL 9003 (code 215100), black RAL 9005 (code 215100 BLK)
Ambient temperature: 0–40 °C
Storage temperature: 10–25 °C
Radio coverage: 80–100 m2 on a single level

Gateway PRO

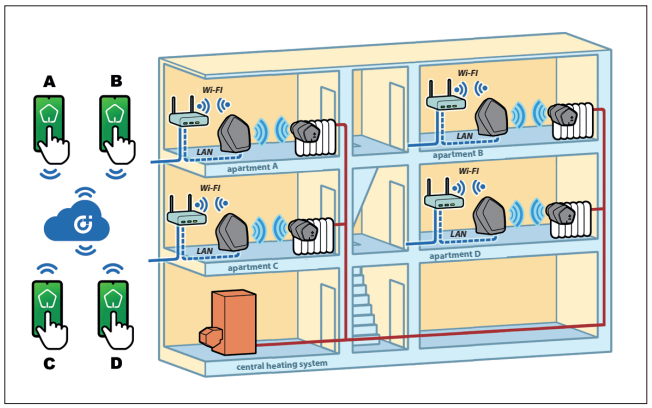
Wireless multi-zone temperature regulation gateway with built-in GSM, UMTS, LTE modem.

Works with micro SIM (except USIM), not supplied - GSM 11.12 phase 2+
Operation through CALEFFI CODE® app (Wi-Fi, Ethernet or modem and Bluetooth® connectivity required for installation).
Compatible with MODBUS-RTU.
Weekly programming.
Programmable time bands: up to 8 daily
Programmable zones: up to 64
Quick functions: Auto - Eco - Holiday - Manual- OFF - Boost - Clean.
Maximum auxiliary microswitch contact rating for heating demand: max. 24 V (AC)/(DC), 1 A
NB: the voltage on the contacts must be supplied from circuits isolated from the mains with insulation no lower than that between the primary and secondary circuits of a safety transformer that complies with IEC 61558-2-6 or equivalent.
Compatible with OpenTherm®.
Radio communication/connectivity: RF 868 MHz, Wi-Fi, BLE, GSM, UMTS, LTE
Electric supply: via USB power supply unit type C, 5 V ⎓, 2 A input 100–240 V, 0,5 A, 50/60 Hz, output 5 V, 2 A (EN/IEC 61558-2-16)
Class: IV-VIII [Ecodesign Directive]
Energy class:
- in proportional-boiler ON/OFF mode: ERP Class IV
- in multi-sensor and modulating boiler control mode: ERP Class VIII
Protection class: IP 30
Colour: white RAL 9003 (code 215015), black RAL 9005 (code 215015 BLK)
Ambient temperature: 0–40 °C
Storage temperature: 10–25 °C
Radio coverage: 80–100 m^2 on a single level

Operating principle

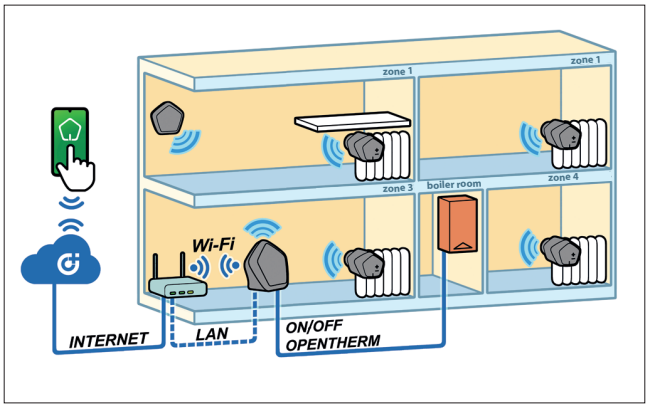
The CALEFFI CODE® system is used to control the ambient temperature exclusively in independent and central heating systems using the “Comfort Control” code 215510, 215510 BLK coupled with the Gateway code 215100, 215100 BLK, 215015, 215015 BLK. The CALEFFI CODE® app makes it easy to manage the heating system functions remotely through a smartphone or tablet (Android® and iOS®), so that ideal home comfort can be controlled at any time while optimising management and minimising consumption. The actual temperature is measured by sensors built into the “Comfort Control” controls or alternatively by optional “Sensor” or “Sensor Pro” sensors. The “Comfort Control” should be installed in a horizontal position. It is compulsory to use one outside “Sensor” or “Sensor PRO” for each zone in situations that would falsify the temperature reading, for example under a deep shelf or inside a radiator cover, radiators in a niche, control in a vertical position and similar situations. The Gateway manages the controls and any electronic sensors according to the temperature parameters and set time bands. At the same time, it can also control boiler operation through an on/off contact or the OpenTherm® protocol. The Gateway and router in the home can be connected via Ethernet cable or Wi-Fi connection. Gateway PRO (code 215015, 215015 BLK, which has a built-in GSM, UMTS, LTE modem, can also be used to control systems that have no internet but can be reached by a mobile network using a simple micro-SIM card (not supplied). The Gateway guarantees radio coverage of approximately 80-100 square metres on a single level. For installation on several levels, we recommend installing one or more gateways per floor, in line with the radio coverage offered by each individual gateway. To optimise radio coverage, we recommend installing them halfway between the associated devices. Not for use in cooling systems.

Temperature regulation in centralised systems



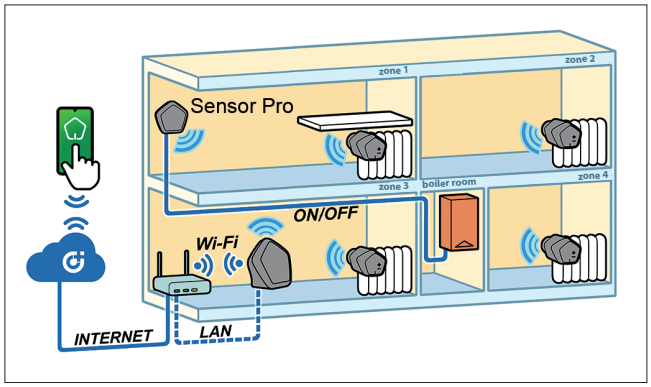
The CALEFFI CODE® system can regulate the temperature in each apartment independently. This case is typical of systems in condominiums, with a centralised heat generator that works for preset time bands. This system lets you choose independent time bands and temperature levels in each room of your apartment, without the need for masonry or other invasive work. The Gateway receives a signal from the temperature sensor in the electronic control or ambient sensor to establish when to request heating in that specific zone, based on how it is programmed. The valves located in the zone in question are adjusted accordingly.

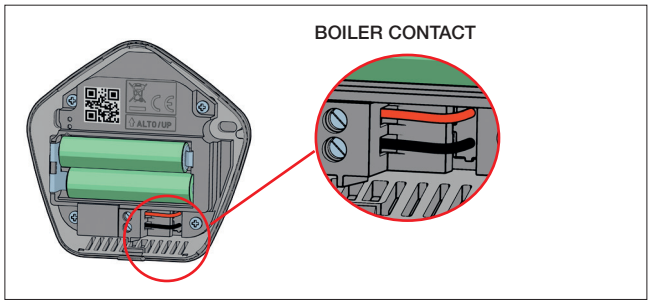
Temperature regulation in independent systems



When installed in an independent system (typical of a detached house), the boiler is controlled by means of the specific relay output (wired) in the Gateway when at least one of the zones requests heating. The boiler can be connected to the Gateway through an ON/OFF contact or OpenTherm® connection. The latter guarantees more efficient regulation than with a standard connection, and the thermostat is classified as “Advanced”, according to class IV-VIII [Ecodesign Directive].

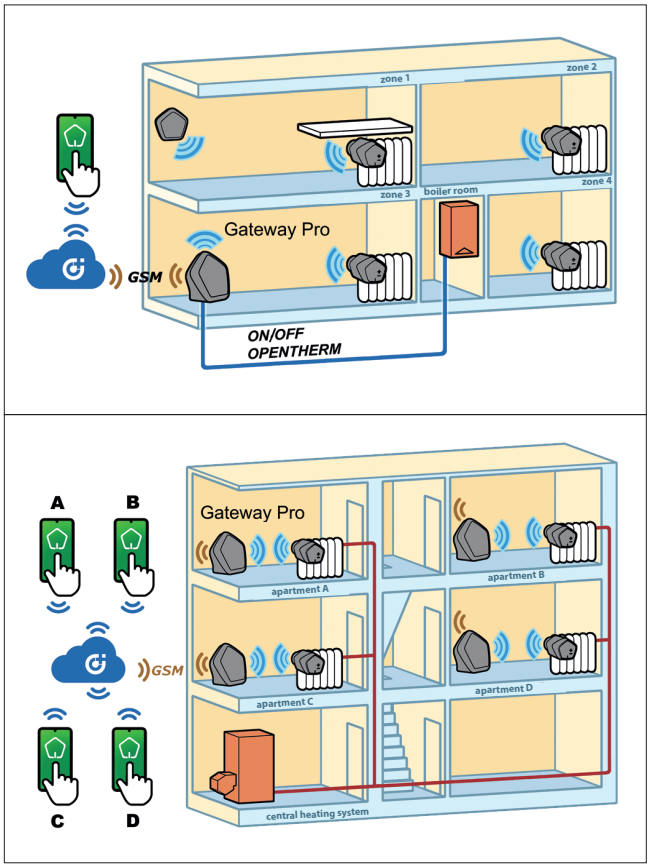
Temperature regulation in an independent heating system with Gateway and boiler management via “Sensor PRO”





CALEFFI CODE® Sensor Pro (ambient temperature sensor with max 24 V (AC)/(DC) boiler contact) code 215002, 215002 BLK can turn on the boiler in place of the existing thermostat.

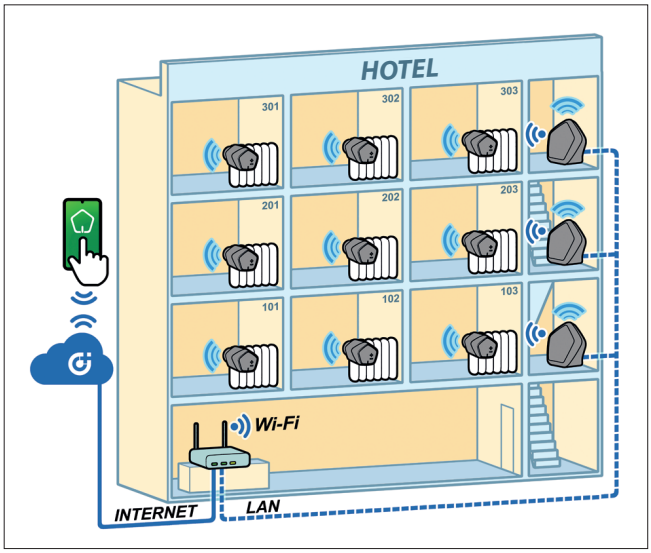
Temperature regulation in an independent heating system without home Wi-Fi via “Gateway PRO”



CALEFFI CODE® Gateway PRO code 215015, 215015 BLK with built-in GSM, UMTS, LTE modem is the ideal solution for holiday homes, which generally have no Wi-Fi, or when there is no fixed internet contract.

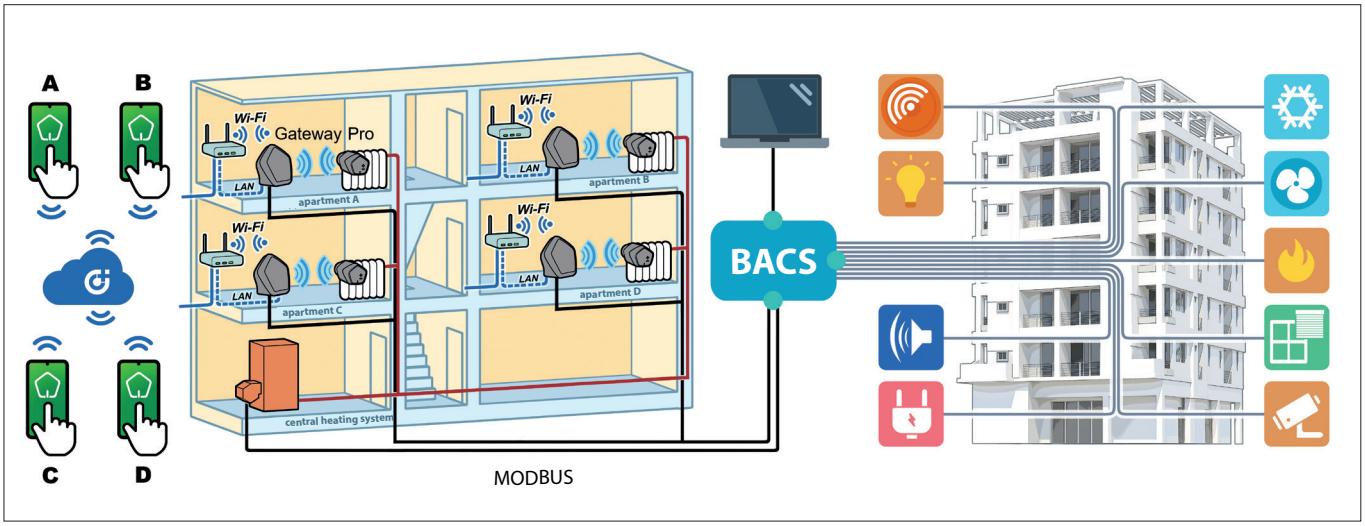
Simply using a **micro-SIM card** without a PIN (not supplied) that complies with the GSM 11.12 phase 2+ standard (except for USIM) makes it possible to control even these kinds of system.

Use in small-large systems



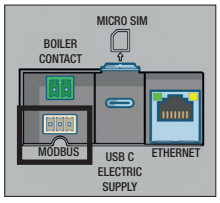
The CALEFFI CODE® system can manage up to **64 zones simultaneously through a single Gateway**. This means it can be used in systems that are not purely domestic, such as small hotels or Bed and Breakfasts, since they would be able to manage the individual rooms, each with its own temperature, in line with the coverage indicated above.
The same functionality can also be exploited in rooms that are very far from each other, and would therefore be difficult to connected stably by radio to a single Gateway. In this case, the components can be installed by pairing them with different Gateways, which can be managed simultaneously by a single user registered on the CALEFFI CODE® app.

Use with BACS (Building Automation and Control System)



CALEFFI CODE® can interface with building automation and control systems (BACS) using the MODBUS-RTU connection in the Gateway PRO.
European Directive (EU) 2018/844 (EPBD-Energy Performance of Buildings) defines a “Building automation and control system” as “a system comprising all products, software and engineering services that can support energy efficient, economical and safe operation of technical building systems through automatic controls and by facilitating the manual management of those technical building systems”. The Directive also defines the indicator in order to assess the “capabilities of a building or building unit to adapt its operation to the needs of the occupant and of the grid and to improve its energy efficiency and overall performance”. A heating system with a thermal regulation system equipped with room-by-room control, which can be activated remotely using apps on smartphones and tablets, will ensure higher performance levels.

Gateway PRO contact diagram (215015/215015 BLK)

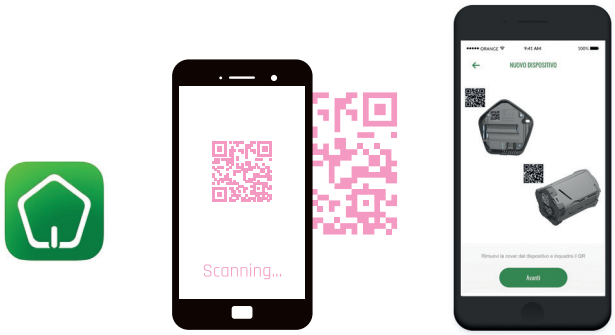


CALEFFI CODE® app

The system is configured and managed exclusively through the CALEFFI CODE® app for smartphones and tablets (Android® or iOS®) with available internet and Bluetooth® connections.
Subscribing to the “Caleffi Connect” cloud through the app is easy, just as user-friendly as following the video-instructions that guide you step-by-step through pairing the system components by scanning the QR code on the various devices.

Scarica su App Store

DISPONIBILE SU Google Play



Using an Internet network that is always available and stable ensures the CALEFFI CODE® app can remotely control all the functions of the heating system and of each room in a simple and immediate manner.
Each zone can be controlled separately by creating customised programs, which can be edited quickly.
The system can be controlled by two devices simultaneously, with the CALEFFI CODE® App installed on each device. The smartphone or tablet displays all information about the various zones: temperature, operating status, and any faults.
The CALEFFI CODE® system guarantees more efficient management of the heating system, giving the user greater savings and the possibility of modifying the programming at any time and from anywhere according to actual needs.

Daily and weekly programming

You can manage different daily and weekly programming for each zone. The “Copy Day” and “Copy Week” functions allow the user to quickly program zones where there are the same routines and the same ambient temperature requirements.

The devices communicate with each other via radio waves, and the Gateway, which is the brain of the whole system, interacts with the CALEFFI CODE® app over the Internet to control and manage the home heating as programmed and to meet the user's needs, communicating with the actuators and sensors.

Quick functions

Used to make a quick temperature change without having to change the usual programming. These changes can be made for a certain number of hours and/or minutes set by the user.
They are applicable both to the whole house and to one or more specific rooms.

ECO **Energy saving mode (Eco)**:
reduces the programmed temperature for greater savings

CLEAN **Cleaning mode (Clean)**:
deactivates the part of the system dedicated to the room where the household cleaning is being done

BOOST **Fast heating mode (Boost)**:
increases the programmed temperature for greater comfort, for example if you return home earlier than normal

HOLIDAY **Holiday mode (Holiday)**:
allows managing lengthy absences and even for a single day. This function, unlike the others, is always and only applicable to the whole house

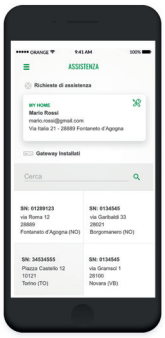
OFF **Antifreeze mode (OFF)**:
completely deactivates the system, but prevents freezing if very cold temperatures are detected

Holiday function on

Clean function on

Assistance management as an installer user

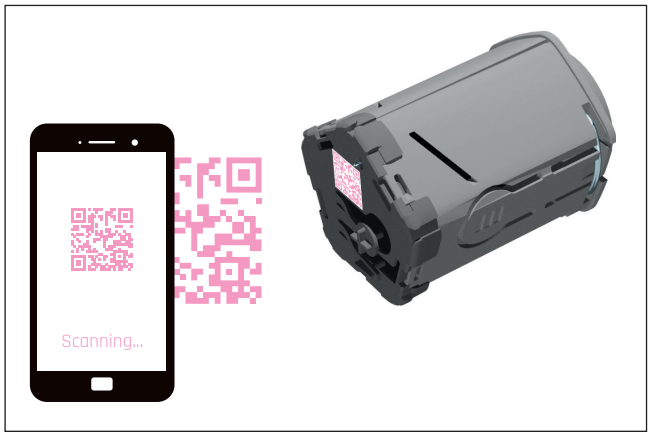
The CALEFFI CODE® app ensures an effective assistance service in the event of malfunction, making it easier and faster to solve any problems. The ability to register as an installer user through the CALEFFI CODE® app allows you to install the system without having to know the credentials of the user, who will also have the benefit of being able to request assistance directly through the app. In the event of a malfunction, subject to consent for access, with a simple click it will ask the installer to view the configurations set on the customer's Gateway directly from his smartphone or tablet, thus facilitating and accelerating the resolution of any problems without the need to go to the site.



Functional details

Guided and simplified installation

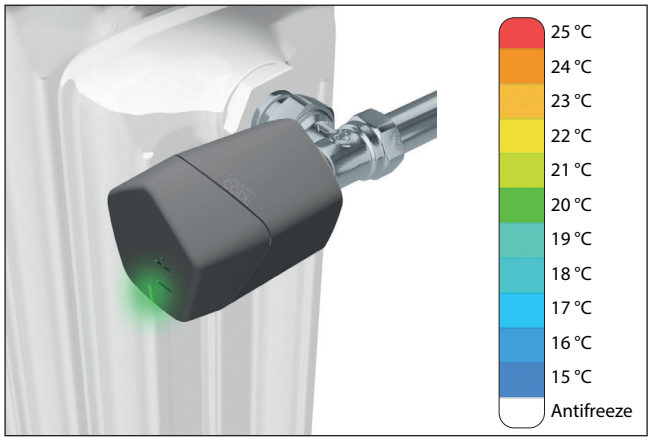
Installation is made simple by the guided procedure with images and video tutorials, which the CALEFFI CODE® app displays directly on your smartphone or tablet.
A special QR code printed on each device makes it easy to recognise and pair each component.
This brings installation within the reach of even the least expert users.



Quick temperature change

Using the CALEFFI CODE® app, you can instantly change the temperature in each individual zone for a defined time without the need for reprogramming.

The same changes can also be made using the front buttons **+/-** on each of the Comfort Control electronic controls. The colours of the built-in LEDs make it easy to select the desired temperature, according to the scale shown above.



Design

The characteristic pentagonal design and original surface finish make all components of the CALEFFI CODE® system immediately recognisable. They are available in two different colours, white and black, to adapt to any environment and radiator type.

Automatic time band programming

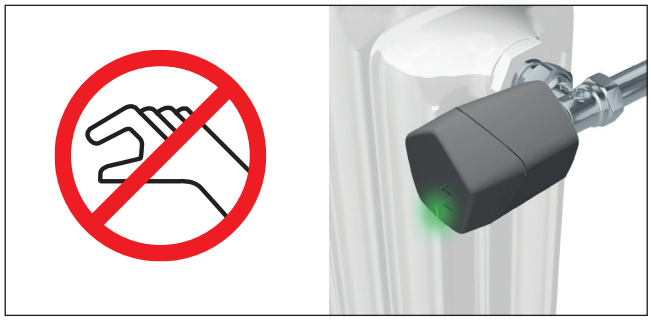
During installation, two simple questions (Wizard) about your habits make it possible to create a customised time band program that is defined according to the comfort level you want in your home. This system saves time without resorting to a generic preset program.

Initial learning phase

During the first few days of operation, the CALEFFI CODE® system analyses and collects various parameters related to the rooms in which it is installed (e.g. recognition of radiator type, possible presence of a shelf, presence of furniture or protrusions close to the devices, etc.) in order to optimise the regulation. This phase is carried out completely automatically during the first 5-7 days of operation.

Smart protection

CALEFFI CODE® Comfort Control can operate while being protected from unwanted setting changes, for example in public places or schools. The manual controls can be disabled at any time through the corresponding function in the CALEFFI CODE® app.



Operation during a temporary loss of connection

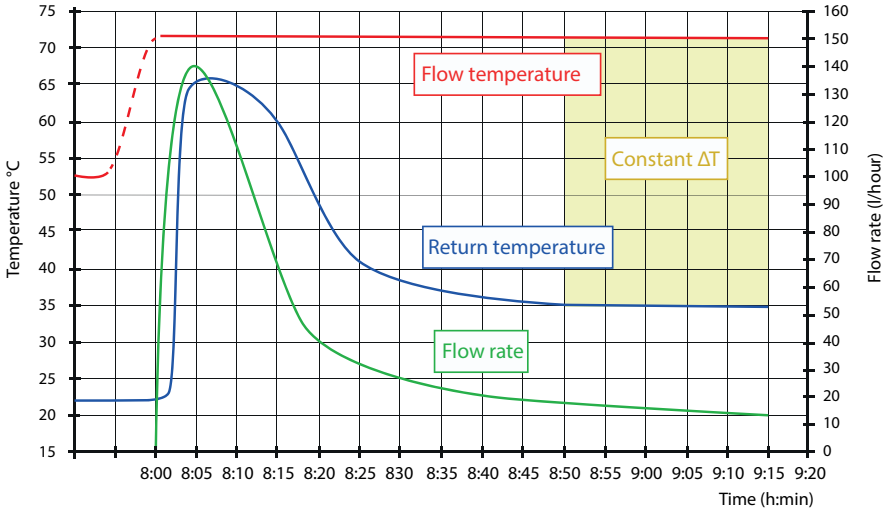
If the connection is lost temporarily, the system will continue to operate according to the set time bands and programs since they are saved in the Gateway memory.
Moreover, the app can be used to activate a hotspot created by the Gateway, allowing the programming to be changed. This network is not connected to the Caleffi cloud, but is a local network that acts as a means of communication between the app and the Gateway if the internet network is not available. When accessing the Gateway's hotspot network, not all of the app's features are available, so we recommend resetting the internet connection as soon as possible. The Gateway will connect to the network automatically when connectivity is restored.

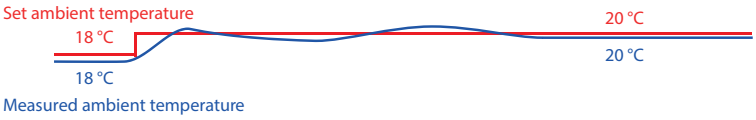
Operation during a temporary loss of electric supply

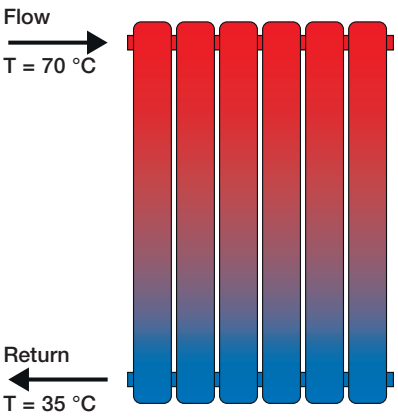
System operation is not compromised if the Gateway suffers a temporary loss of electric supply because the devices would maintain a default temperature of 20 °C.
The app features are not available in this case, so we recommend restoring the electric supply as soon as possible.

Energy saving with optimal condensation

To allow a condensing boiler to operate correctly, the return temperature of the medium (at the boiler inlet) must be as low as possible. The importance of the return temperature to the boiler is linked to the fact that lower temperatures increase the achievable amount of condensation, and therefore the amount of heat that can be recovered from the flue gases. In fact, systems that are unable to let the boiler operate with low return temperatures waste most of the potential energy benefits, and therefore economic benefits, offered by condensing boilers. The CALEFFI CODE® system is able to make each radiator work stably with very low operating flow rates (down to 10-15 l/h), with the precise aim of guaranteeing the highest possible temperature difference between the flow and return, while maintaining the same exchanged power (and therefore comfort) in the environment. The mechanical efficiency of the Comfort control together with specially developed and perfected software provide this performance.
These same features can also be exploited in district heating systems, where the contract with the network service provider normally stipulates very low return temperatures. This makes it possible to optimise system energy efficiency and reduce heat loss, and therefore emissions.







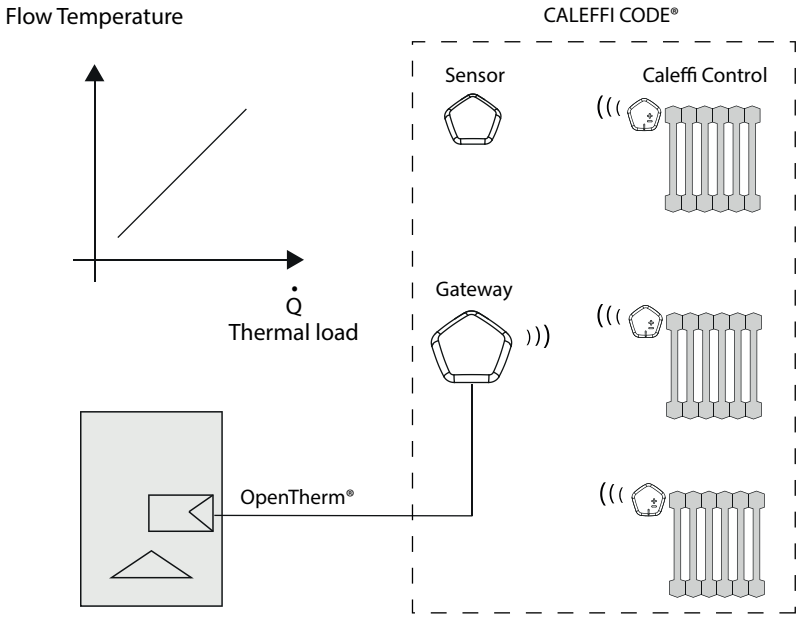
Advanced thermoregulation

ÈThe boiler can also be connected to the Gateway via an ON/OFF contact or via an OpenTherm® connection (if this control system is available on the boiler), in which case it can be controlled more efficiently than with the standard connection.
In this case the regulation is modulating, and the thermoregulation is classified as “Advanced”, according to class IV-VIII [Ecodesign Directive], while offering the opportunity to benefit from tax deductions, where applicable.

Class VIII – Multi-sensor room temperature control, for use with modulating heaters: An electronic control, equipped with 3 or more room sensors that varies the flow temperature of the water, leaving the heater dependent upon the aggregated measured room temperature deviation from room sensor set points. Control is achieved by modulating the output of the heater.

Contribution of the temperature control devices in determining the seasonal efficiency of the heating system. The data provided can be used in accordance with the current calculation methods.

Class no.	I	II	III	IV	V	VI	VII	VIII
Value in %	1	2	1,5	2	3	4	3,5	5



SPECIFICATION SUMMARY

Code 215510/215510 BLK

Wireless electronic control for thermostatic or convertible radiator valves.
Operates through the front buttons, Gateway PRO and CALEFFI CODE® app. Built-in temperature sensor: NTC type with ± 0,5 °C accuracy. Radio communication: RF 868 MHz. Quick-coupling installation with adapter. Battery electric supply: 2 x 1,5 V AA (included in pack). Compatible with rechargeable batteries. Protection class IP 30. Colour: white RAL 9003 (code 215510), black RAL 9005 (code 215510 BLK). Ambient temperature 0–55 °C. Storage temperature (with batteries) 10–25 °C.

Code 215001/210001 BLK

Wireless ambient temperature sensor.
Operates through Gateway, Gateway PRO and the CALEFFI CODE® app. Built-in temperature sensor: NTC type with ± 0,5 °C accuracy. Radio communication: RF 868 MHz. Battery electric supply: 2 x 1,5 V AAA (included in pack). Compatible with rechargeable batteries. Protection class IP 30. Colour white RAL 9003 (code 215001), black RAL 9005 (code 215001 BLK). Ambient temperature 0–55 °C. Storage temperature (with batteries) 10–25 °C.

Code 215002/215002 BLK

Wireless ambient temperature sensor with boiler contact.
Operates through Gateway, Gateway PRO and the CALEFFI CODE® app. Built-in temperature sensor: NTC type with ± 0,5 °C accuracy. Radio communication: RF 868 MHz. Battery electric supply: 2 x 1,5 V AAA (included in pack). Compatible with rechargeable batteries. Boiler contact: max 24 V (AC)/(DC), 1 A. Protection class IP 30. Colour white RAL 9003 (code 215002), black RAL 9005 (code 215002 BLK). Ambient temperature 0–55 °C. Storage temperature (with batteries) 10–25 °C.

Code 215100/215100 BLK

Wireless multi-zone temperature regulation gateway.
Operation through CALEFFI CODE® app (Wi-Fi or Ethernet and Bluetooth® connectivity required for installation). Weekly programming. Programmable time bands: up to 8 per day. Programmable zones: up to 64. Settable devices (controls and sensors): up to 255. Quick functions: Auto - Eco - Holiday - Manual - OFF - Boost - Clean. Maximum rating of auxiliary contact for heating request: 24 V (AC)/(DC), 1 A. Compatible with OpenTherm® connectivity. Radio communication/connectivity: RF 868 MHz, Wi-Fi, BLE. Electric supply: via USB power supply unit type C, 5 V ⎓, 2 A, input 100–240 V 0,5 A, 50/60 Hz, output 5 V, 2 A (EN/IEC 61558-2-16). Class IV-VIII [Ecodesign Directive]. Protection class IP 30. Colour white RAL 9003 (code 215100), black RAL 9005 (code 215100 BLK). Ambient temperature 0–40 °C. Storage temperature 10–25 °C.

Code 215015/215015 BLK

Wireless multi-zone temperature regulation gateway with built-in GSM, UMTS, LTE modem.
Works with micro-SIM (not supplied). Operation through CALEFFI CODE® app (Wi-Fi, Ethernet or modem and Bluetooth® connectivity required for installation). Compatible with MODBUS-RTU. Weekly programming. Programmable time bands: up to 8 per day. Programmable zones: up to 64. Settable devices (controls and sensors): up to 255. Quick functions: Auto - Eco - Holiday - Manual - OFF - Boost - Clean. Auxiliary contact rating for heating request: max 24V (AC)/(DC), 1 A. Compatible with OpenTherm® connectivity. Radio communication/connectivity: RF 868 MHz, Wi-Fi, BLE, GSM, UMTS, LTE. Electric supply: via USB power supply unit type C, 5 V ⎓, 2 A, input 100–240 V 0,5 A, 50/60 Hz, output 5 V, 2 A (EN/IEC 61558-2-16). Class IV-VIII [Ecodesign Directive]. Protection class: IP 30. Colour white RAL 9003 (code 215015), black RAL 9005 (code 215015 BLK). Ambient temperature 0–40 °C. Storage temperature 10–25 °C.

CALEFFI Hydronic Solutions

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