# Chapter 2 Home automation and comfort control

# BT-CT02 RF Central control unit



Easy to install and configure Intuitive operation with remote control via an App

The system can be extended to radiant heating systems and electrical equipment

**WATTS** Vision

### **Chapter 2**

## Watts Vision®: comfort control and regulation

For Underfloor Heating Manifolds please see Section 5.

#### **WATTS** Vision SYSTEM

Watts has developed a new home automation system called Watts Vision® for temperature control, air conditioning, security and device management for residential applications. The system enables you to programme and view the settings of all your devices across multiple zones. It's a wireless solution for use in conjunction with Watts second-generation RF thermostats, for room-by-room temperature control.









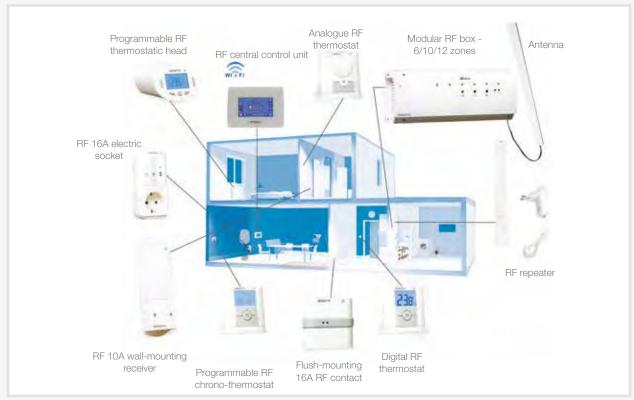




## **WATTS** Vision

- Provides full supervision of all devices using a Wi-Fi connection via pre-loaded web pages and type of browser (on PC, tablet or smartphone) or via a dedicated app (iOS, Android).
- Scalable system, easy to update with a wide range of products
- Provides individual radiator control in underfloor and conventional heating systems
- Controls various types of electrical devices

#### **WATTS** Vision SYSTEM OPERATION



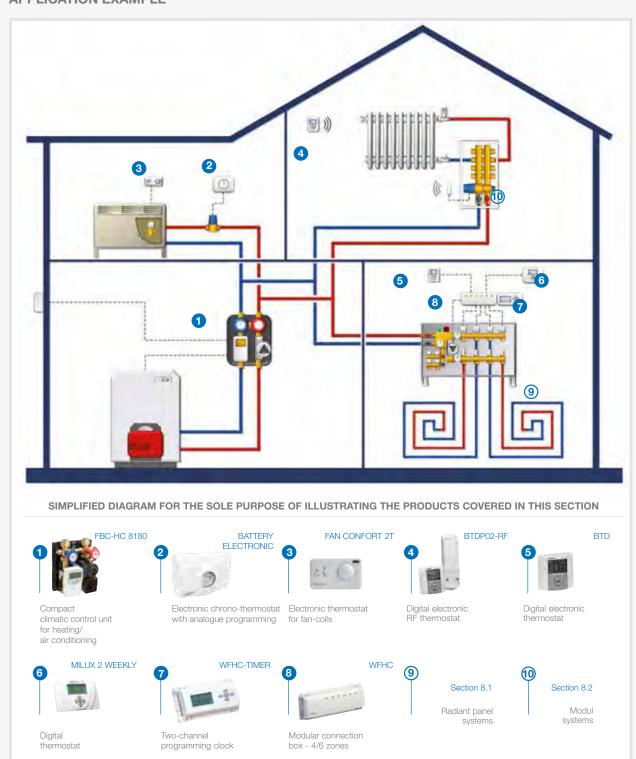


#### **WATTS** Vision



- GSM remote control
- WEB-based remote control
- Climate control
- Electronic control of radiators
- Thermal and electrical energy indication
- Underfloor heating control
- Heating/air conditioning control

#### **APPLICATION EXAMPLE**





#### WATTS®VISION® SYSTEM

#### BT-TH02 RF

Electronic chrono-thermostat for radiators. Can be used in stand-alone mode (9 pre-set and 4 custom programmes) or in conjunction with the Watts Vision® central control unit (BT-CT02 RF/WiFi) and BT02-RF Series thermostats. The central control unit is necessary for communication with the thermostats. Stroke speed 2mm-1mm/s. Protection rating IP20 Class I. Power supply 2 AA LR06 1.5V Alkaline. Actuator force 70N.

Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.

Part Number	Room Temp.	Temp. Setting	Qty/Box	<b>Box/Carton</b>	
P06681	0÷50°C	5 ÷30°C	1	250	

Dimensions at the end of the section

#### BT-CT02 RF

WATTS®Vision® central control unit manages water-based and electric underfloor climate control systems, radiators, lights and other electrical devices.

Thanks to a built-in WiFi module, you can manage and monitor all the control parameters of your home via an app on your smartphone, tablet or PC.

Operating temperature (220 V): -30÷40°C. Operating temperature (battery): 0÷40°C. Installation Class II. Display precision 0.1°C. Temperature setting range: - Comfort 5÷30°C with sensitivity of 0.5°C - Reduced 5÷30°C with sensitivity of 0.5°C - Anti-freeze 5÷10°C.

Power supply (flush-mounting) 85-265VAC 50-60 Hz. USB power supply (not included).

Radio frequency 868 MHz, <10mW.

Compliant with: LVD 2014/35/EU - EMC 2014/30/EU - RoHS 2011/65/EU.

Part Number	Description	Protection	Qty/Box	Box/Carton	
P07255	white screen	IP30	1	100	

Dimensions at the end of the section

#### BT-A02 RF

Electronic thermostat with analogue radio frequency control (868 MHz) designed to control different types of heating systems. Temperature control is based on internal sensors. An external sensor can be connected without any additional external power supply.

A LED indicates whether the heating switch-on signal is activated and can be used during configuration. Operating temperature range: 0÷50°C. Electrical protection Class II. Temperature control range: 5÷35°C. Control characteristics: proportional band (PWM 2°C for 10min/cycle). Power supply 2 AAA LR03 1.5V Alkaline. Life ~2 years.

Sensor: internal and/or external (opt.) NTC 10kW at 25°C.

Radio frequency 868 MHz, <10mW.

Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.

Part Number	Temp. Setting	Protection	Qty/Box	Box/Carton	
P06670	5÷35°C	IP30	1	100	

Dimensions at the end of the section.

#### **BT-D03 RF Series**

The Wireless digital room thermostat with back-light LCD display is designed to control different types of heating and cooling systems. Temperature control is based on internal sensors. An external sensor (SENSOR 10K - P01228) can be connected without any additional external power supply. A logo on display indicates whether the heating switch-on signal is activated.

- Smartphone App control capability when associated to Central Unit BT-CT02 RF
- LCD display with back-light
- 3 sensitive touch buttons
- Open window detection
- Different temperature modes setting
- Anti-freeze function
- Configurable Hysteresis or PWM regulation
- Pin Code & screws lock for public area
- Wall or Desk mounting with a stand (included)
- 2 parameter menus User and Pro

Part Number	Temp. Setting	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P07710	5÷37°C	IP30	1	100	

Dimensions at the end of the section









#### BT-D02 RF/BT-D02 RF RH

Electronic thermostat with radio frequency back-lit LCD display (868 MHz) designed to control different types of heating systems. Temperature control is based on internal sensors. An external sensor can be connected without any additional external power supply. A LED indicates whether the heating switch-on signal is activated. Operating temperature: 0÷50°C. Electrical protection Class II. Temperature control range: 5÷37°C. Control characteristics: proportional band (PWM 2°C for 10min/cycle). Power supply 2 AAA LR03 1.5V Alkaline. Life ~2 years. Sensor: internal and/or external (opt.) NTC 10kW at 25°C. Radio frequency 868 MHz, <10mW.

\*Version with humidity sensor.

Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.

Part Number	Temp. Setting	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P06671	5÷37°C	IP30	1	100	
P06773*	5÷37°C	IP30	1	100	

Dimensions at the end of the section.



Digital radio frequency (868MHz) room chrono-thermostat with LCD display for controlling different types of heating system. Temperature control is based on an internal sensor. An external sensor can be connected without any additional external power supply. A red LED indicates that the heating system is ON.

Operating temperature 0÷50°C. Installation Class II. Precision 0.1°C.

Control ranges: Comfort, Reduced, Timer 5÷37°C in steps of 0.5°C.

Vacation mode. Anti-freeze: 7°C (programmable).

Control characteristics: proportional band (PWM 2°C/10min) or hysteresis of 0.5°C.

Power supply 2 AAA LR03 1.5V Alkaline. Life ~2 years. Sensor: internal and/or external (opt.) NTC 10kW at 25°C.

Radio frequency 868 MHz, <10mW. Compatible receivers Wall, Socket, Ver.02

\*Version with humidity sensor.

Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.

Part Number	Temp. Setting	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P06672	5÷37°C	IP30	1	100	

Dimensions at the end of the section.

#### BT-HCM02 RF

Modular RF connection box (868 MHz) designed to control underfloor heating and cooling systems. Can be integrated with the WATTS®Vision® system only by means of RF communication (868MHz) with BT-M6Z02 RF Series boxes. The box receives requests for heating/cooling through the various inputs listed:

- free contact input from the output of a heat pump;
- free contact input from a manual switch;
- from an NTC sensor for measuring flow water temperature;
- from a BT-CT02-RF Series touch-screen panel (BT-HCM02-RF configured in slave mode, connection with module M6Z02 required).

The BT-HCM02-RF Series module has the following outputs for activating the:

- system pump;
- dehumidifier, associated with BT-D (P) 02-RF series RH thermostats);
- boiler or air conditioning unit.

Equipped with 2 LED indicators (pump status, heating/cooling management), 3 pushbuttons for user configuration and an internal DIP switch for system configuration. IP30. 1 5A/230V pump relay, 3 free contact relays.

Compliant with: LVD 2014/35/EC - EMC 2014/30/EU - RoHS 2011/65/EU.

Part Number	Voltage	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P06066	230V	IP30	1	100	

Dimensions at the end of the section.









#### **BT-M6Z02 RF**

Modular RF connection box (868 MHz) designed to control underfloor heating systems with C or NO ON/OFF electrothermal actuators. Easy to expand up to 12 zones with additional modules. Can be combined with BT02-RF Series thermostats and/or the WATTS®Vision®-system. Operating temperature: 0÷50°C.

Control characteristics: integral proportional control or hysteresis control depending on the type of thermostat connected to the individual channel.

Power supply: 230VAC ± 10% 50Hz; 24VAC. Pump or accessories outputs: Relay → 5A/230VAC (open contact). Actuator outputs (NC) or (NO): Relay → 5A/230VAC (L, N).

Radio frequency and signal coverage 868 MHz, <10mW (bidirectional transmission); coverage approximately 180 m (open field); coverage approximately 50 m (residential environment).

Combinations 10 Zones →1 Master 6z+1 Slave 4 zones;

12 Zones→ 1 Master 6z+1 Slave 6 zones.

Compliant with: EMC 2014/30/EU - RoHS 2011/65/EU.

Part Number	Voltage	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P06678	230V	IP30	1	100	

Dimensions at the end of the section.

#### **BT-S4Z02 RF/BT-S6Z02 RF**

Expansion module (RF 868 MHz) for modular boxes for controlling underfloor systems. Extends the number of controlled zones to 12 with ease.

Can be combined with BT RF 02 Series thermostats and/or the WATTS®Vision®.system.

Operating temperature 0÷50°C. Control characteristics: integral proportional control or hysteresis control depending on the type of thermostat connected to the individual channel.

Power supply: 230VAC±10% 50Hz; 24VAC.

Pump or accessories outputs: Relay > 5A/230VAC (open contact).

Actuator outputs (NC) or (NO): Relay  $\longrightarrow$  5A/230VAC (L, N).

Combinations: 10 zones 1 Master 6z + 1 Slave 4 zones; 12 Zone 1 Master 6z + 1 Slave 6

Compliant with: LVD 2014/35/EU - EMC 2014/30/EU - RoHS 2011/65/EU.

Part Number	Description	<b>Protection</b>	Qty/Box	Box/Carton	
P06679	S6Z02 RF	IP30	1	68	
P06680	S4Z02 RF	IP30	1	48	

Dimensions at the end of the section

#### BT-WR02 RF

The BT-WR02 RF Series receiver is a wall-mounting RF receiver designed for controlling climatic control systems in conjunction with the 02 Series of BT-A02 RF, BT-D02 RF or BT-DP02 RF thermostats. The receiver can also be managed by means of a touch-screen central control unit (BT-CT02 RF RF/BT-CT02 RF WiFi) for complete system supervision.

Operating temperature range: 0÷40°C. Power supply 230VAC 50Hz. Electrical protection Class II. Output live/free.10A 230VAC relay. Max. load up to 10A - 230Vac 50Hz (2 wires L,N). Radio frequency and signal coverage 868 MHz <10mW (bidirectional transmission). Coverage 100 m (open field). Coverage 30 m (residential environment).

Compliant with: LVD 2014/35/EU - EMC 2014/30/EU - RoHS 2011/65/EU.

Part Number	RF Coverage	Protection	Qty/Box	<b>Box/Carton</b>	
P06674	100m (external), 30m (internal)	IP20	1	120	

Dimensions at the end of the section.

#### **BT-AA02 RF**

The antenna extends the radio reception range for the following products: BT-CT02 RF Series central control unit and BT-M6Z02 RF Series master box. 230VAC power supply with wall-socket and USB cable.

Part Number	Description	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>
P06094	RF Signal repeater	IP20	1	50













#### **BT-WR02 HC RF**

The BT-WR02 HC RF receiver is designed to control heating/cooling systems in one zone in conjunction with 02 BT-D02 RF or BT-DP02 RF Series thermostats (dotato di DVE relays 5A, 230V), uno per gestione/consenso freddo e l'altro per caldo. The receiver can be controlled by means of the WATTS®Vision® system (BT-CT02RF/BT-CT02RF WiFi) for full control from a single point. Operating temperature range: 0÷40°C. Power supply 230VAC 50Hz. Electrical protection Class II. Output: powered/voltage-free contact. Particularly suitable for controlling boilers (switch-on permissive). Equipped with cables for relay output configuration. 2 x 5A 230VAC relays. Max. load up to 5A-230VAC 50Hz (2 wires L,N). Radio frequency and signal coverage: 868 MHz <10mW (bidirectional transmission). Coverage 100 m (open field). Coverage 30 m (residential environment).

Compliant with: CE R&TTE 1999/5/EC-LVD 2014/35/UE-EMC 2014/30/UE-RoHS 2011/65/UE.

Part Number	<b>RF Coverage</b>	<b>Protection</b>	Qty/Box	Box/Carton
P06402	100m (external), 30m (internal)	IP20	1	120

Dimensions at the end of the section.



The BT-FR02 RF Series receiver is a flush-wall-mounting receiver designed for controlling heating systems in conjunction with 02 Series RF thermostat models BT-A02RF, BT-D02RF or BT-DP02RF. The receiver enables you to connect a hard-wired floor sensor directly in the floor temperature monitoring and control unit. The receiver can also be managed by means of a touch-screen central control unit (BT-CT02 RF) for complete system supervision. Operating temperature: 0÷40°C. Power supply 230VAC 50Hz. Protection Class II. Optional: IP21 insulation. Output (1 powered contact) 16A 230VAC relay. Max. load: up to 16A - 230VAC 50Hz (2 wires L,N). Radio frequency and signal coverage: 868MHz <10mW (bidirectional transmission). Coverage 100m (open field). Coverage 30m (residential environment). Optional floor sensor: NTC 10k $\Omega$  at 25°C.



Part Number	RF Coverage	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P06675	100m (external) 30m (internal)	IP20	1	96	

Dimensions at the end of the section

#### **MILUX CHRONO-THERMOSTATS**

#### **MILUX 2 WEEKLY**

Digital electronic room chrono-thermostat with minute-by-minute weekly programming, for heating and air conditioning systems. Switch between summer and winter modes directly from keypad. 5 pre-set and 2 custom programmes available. Constant display of room temperature, time and operating status on LCD display. White frame with removable front panel for access to the batteries and connections. Easy wiring: two-wire connection (three-position connector) for heating or air conditioning systems, contact rating < 5A/400V. Automatic or manual operating modes.

Complete with 2 LR3 (AAA) 1.5V batteries: life > 2 years. Batteries can be changed without losing programme settings. Temperature control range: 5÷35°C. Two temperature levels: comfort and night energy saving programmes. Anti-freeze (0.5-10°C). PWM control in 15min intervals on a band of 2°C. Power supply: 2 LR3 AAA 1.5V batteries. Protection rating IP 30, Class II. Special functions:

- manual selector for standby and keypad lock mode;
- vacation mode to suspend operation temporarily when away from home;
- ITCS (optional): Intelligent Temperature Control System, automatic advance response to heating/cooling demand.

Compliant with: EMC 2004/108/CE, RoHS 2011/65/EU, EU 811/2013 and 2010/30/EU, Energy class IV (2%).

Part Number	Temp. Setting	<b>Programs</b>	Qty/Box	Box/Carton	
P06584	5÷37°C	9 +4 Customizable	1	48	

Dimensions at the end of the section.









#### CHRONO-THERMOSTATS AND THERMOSTATS FOR HARD-WIRING

#### **BTA**

Electronic room thermostat with analogue control for heating systems.

Can be connected to a temperature probe (indoor, floor or outdoor).

Temperature control range: 5÷35°C, ON/OFF switch.

PWM control. NTC sensitive element. Complete with 2 LR03 (AAA) 1.5V batteries. Life 2 years.

Voltage-free contact rating: 3A-230 VAC. Protection rating IP 30. Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.

Part Number	Temp. Setting	<b>Protection</b>	Qty/Box	Box/Carton	
P05609	5÷35°C	IP30	1	100	

Dimensions at the end of the section.



#### **BTD**

Digital electronic room thermostat for heating/cooling systems. Back-lit LCD display, 2 temperature levels (comfort and night energy saving programmes), anti-freeze function and vacation mode. Can be connected to a temperature probe (indoor, floor or outdoor).

Temperature control range: 5÷35°C. NTC sensitive element. PWM control or 0.5°K differential. Complete with 2 LR03 (AAA) 1.5V batteries. Life 2 years.

Voltage-free contact rating: 3A-230 VAC. Protection rating IP 30.

Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.

<b>Part Number</b>	Temp. Setting	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P04542	5÷35°C	IP30	1	100	

Dimensions at the end of the section.



#### **BTDP**

Digital electronic room chrono-thermostat with weekly programming, for heating/air conditioning systems. 9 pre-set and 4 custom programmes available. Constant display of room temperature, time and operating status on back-lit LCD display. Can be connected to a temperature probe (indoor, floor or outdoor). Temperature control range: 5÷35°C. NTC sensitive element. Two temperature levels: comfort and night energy saving programmes. Anti-freeze (0.5÷10°C). PWM control or 0.5°K differential. Complete with 2 LR03 (AAA) 1.5V batteries. Life 2 years. Voltage-free contact rating: 3A-230 VAC. Protection rating IP30.

Special functions:

- reset, keypad lock (to prevent accidental changes to settings);
- vacation mode to suspend operation temporarily when away from home;
- automatic or manual adjustment to/from daylight saving time.

Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.

<b>Part Number</b>	Temp. Setting	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P04543	5÷35°C	IP30	1	100	

Dimensions at the end of the section.



#### **BATTERY ELECTRONIC**

Electronic room chrono-thermostat with analogue programming, for heating and air conditioning systems. Protective front panel for clock and control knob. Minimum setting range: 15 min (daily) 60 min (weekly) 2 selectable temperature modes (comfort - low-energy).

Timer OFF mode selector: the thermostat maintains the selected temperature level (comfort or lowenergy) with minimum anti-freeze temperature (5°C). Temperature control range: 5÷35°C. Differential: 0.5K. Operating temperature: 0÷50°C. Protection class: Class II.

Power supply: 2 LR6 (AA) 1.5V alkaline batteries (NOT INCLUDED). Contact rating: 8 (3) A 230V.

Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.

Part Number	Voltage	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P03869 (daily)	2 batteries 1,5V	IP30	1	38	

Dimensions at the end of the section.





#### **BELUXTI**

Room thermostat with saturated vapour expansion diaphragm temperature sensor, with 2 switching contacts. Stainless steel diaphragm. Temperature locking device on back of knob. Adjustment range: 5÷30°C.

Differential at 20°C: 0.8K. Contact rating: 10 (2.5) A/230V. 1000/1000 silver contacts.

Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.

EN 6100 and EN 60730 compliant.

Part Number	Voltage	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
0403202	230V	IP30	1	112	

Dimensions at the end of the section.



#### **BELUXTIC**

Room thermostat with saturated vapour expansion diaphragm temperature sensor, with 2 switching contacts and summer/winter switch. Stainless steel diaphragm. Temperature locking device on back of knob. Adjustment range: 5÷30°C.

Differential at 20°C: 0.8K. Contact rating: 10 (2.5) A/230V. 1000/1000 silver contacts.

Compliant with Directives LVD 2014/35/EU - EMC 2014/30/EU.

EN 6100 and EN 60730 compliant.

Part Number	Voltage	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
0403302	230V	IP30	1	112	

Dimensions at the end of the section



#### **BELUXTOF**

Room thermostat with saturated vapour expansion diaphragm temperature sensor, with 2 switching contacts and ON/OFF switch and indicator light. Stainless steel diaphragm. Temperature locking device on back of knob. Adjustment range: 5÷30°C.

Differential at 20°C: 0.8K. Contact rating: 10 (2.5) A/230V. 1000/1000 silver contacts.

Compliant with Directives: LVD 2014/35/EU - EMC 2014/30/EU.

EN 6100 and EN 60730 compliant.

Part Number	Voltage	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
0403162	230V	IP30	1	112	

Dimensions at the end of the section.



#### **WFHC**

4- or 6-zone modular connection box. Can be connected with 4/6 thermostats. Each thermostat can control up to 4/6 actuators. Protection rating IP30. Master module with electric pump control relay. Slave module with plug-in connector for connecting to master unit.

Part Number	Description	Size (mm)	Qty/Box	Box/Carton	
P2096	4 ZONE (SLAVE) NC	178 Lx88Hx58P	1	24	
P2090	6 ZONE (MASTER) NC	210Lx88Hx58P	1	36	
P2092	6 ZONE (SLAVE) NC	210Lx88Hx58P	1	36	



#### **WFHC-TIMER**

Weekly programming clock for two channels, suitable for radiant panel systems, can be connected to WFHC-4 and WFHC-6 modular boxes for managing 4, 6, 8, 10 or 12 different heating zones. Has 9 pre-set programmes and 1 custom programme for configuration by the user.

Part Number	Size (mm)	<b>Protection</b>	Qty/Box	Box/Carton	
P2101	158Lx88Hx 62P	IP30	1	24	





#### **CLIMATIC CONTROLLERS**

#### **RCL-HC**

Digital climatic controller for heating only and heating/air conditioning systems with outdoor air temperature compensation. Recommended for flow temperature control with mixing valve with 230VAC 3-point actuator. Weekly programming, 9 pre-set programmes and 4 custom programmes, controlled on basis of outdoor temperature, outdoor temperature and water temperature display, maximum and minimum temperature limit, pump control, possible to connect a room thermostat. Predisposed for the installation of an antenna for use with RF 433 MHz thermostats and MILUX-HY (antenna Series AN433 not included) Series humidistat. Ideal for controlling radiant panel heating/cooling systems. Flow water temperature 0÷100°C. Power supply 230VAC 50 Hz. Pump control: 5A 250 VAC relay. Heating generator control: 5A 230 VAC relay. Air conditioning unit control: 5A 230 VAC relay. Mixing valve control: 3-point modulating (2 Triacs 75W Max 230 VAC).



Kit includes:

- climatic control unit:
- outdoor temperature probe with 2 m cable CTN 10  $K\Omega$ ;
- flow water temperature probe CTN 10 K $\Omega$  (1/8" M straight);

Option for WSENS return water temperature probe.

Can be combined with MILUX RF WEEKLY chrono-thermostat.

Part Number	Voltage	<b>Protection</b>	Qty/Box	<b>Box/Carton</b>	
P04013/02	230 Vac 50Hz	IP30	1	100	

Dimensions at the end of the section.

#### **AN433**

Antenna for RCL-HC Series climatic control units for receiving 433 Mhz RF signals. Enables you to connect the following to RCL control units: MILUX HY thermostat/humidistat, OS-RF outdoor temperature sensor and all room thermostats and chrono-thermostats with radio frequency of 433 MHz Watts. Cable length 3m, dimensions 2cmx39cmx1.5cm, adhesive base.

Part Number	Receiving	Cable	Qty/Box	<b>Box/Carton</b>	
P04510	433Mhz	3m	1	120	



#### **WSENS**

Water temperature probe (flow or return) CTN 10 k $\Omega$ .

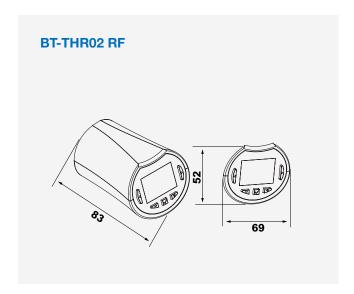
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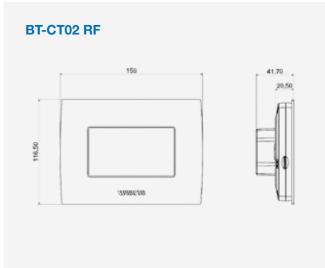
Part Number	Note	Size (mm)	Qty/Box	Box/Carton
PPLELE06019	Sensor to be used with TP pocket	4x45	1	50

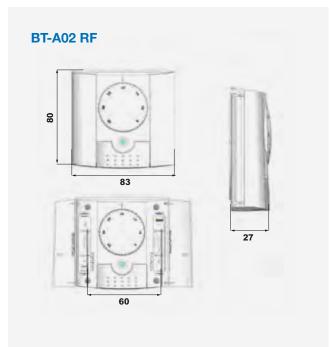




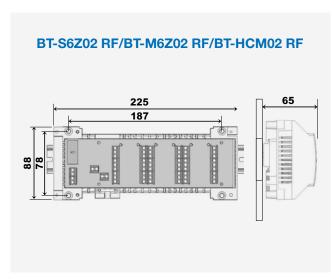
#### **OVERALL DIMENSIONS**

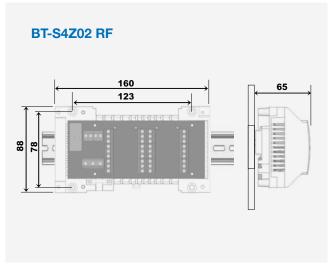








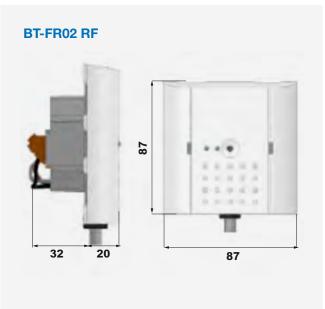


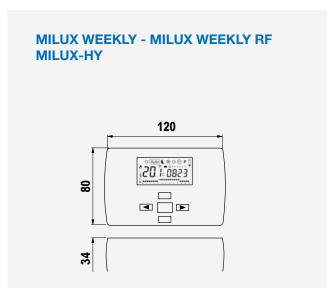


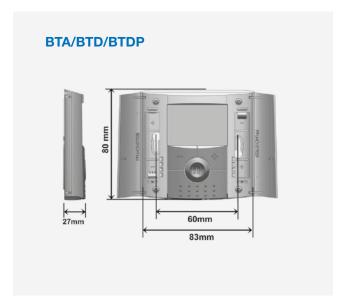


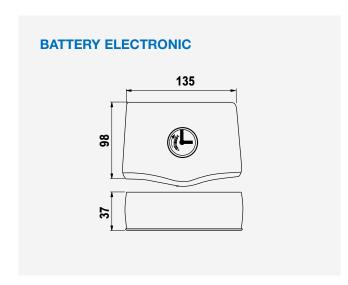
#### **OVERALL DIMENSIONS**

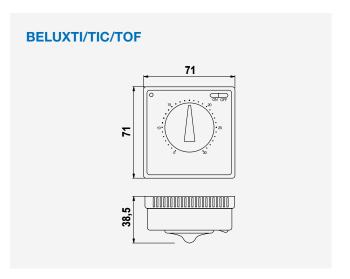














#### **OVERALL DIMENSIONS**

