# BT-M6Z02-RF
# 230V/24V

# 1   USER GUIDE

The Connecting box BT-M6Z02-RF is especially designed to control your Under Floor Heating and Cooling system.
It can handle Normally Closed or Normally Opened actuators.
Connecting box has by conception 6 outputs actuators and this number can be extended to 10 or 12 with an extension.
BT-M6Z02-RF works with thermostats linked in RF; it can have up to 12 thermostats linked to it and handle 12 independent regulations in parallel.
It works with all thermostats of BT02 RFand BT03 RF range.

# 2   TECHNICAL CHARACTERISTICS

| | BT-M6Z02-RF 230V | |
|---|---|---|
| Operating Temperature | 0°C to 50°C | |
| Regulation characteristics | Proportional Integral regulation or Hysteresis regulation. Regulation is defined by thermostat linked to channel (see thermostat leaflet) | |
| Supply Voltage | 230VAC +- 10% 50Hz | |
| **Outputs:** Pump or accessories Actuators | Relay => 5A / 250VAC (Free contact) Relay => 5A / 230 VAC ( L, N) For easy installation we recommend a maximum of 4 actuators by zones. | |
| Radio Frequency | 868, 3 MHz, <10mW. Range of approximately 180 meters in open space. Range of approximately 50 meters in residential environment. | |
| CE Directives Your product has been designed in conformity with the European Directives. | R&TTE 2014/53/EU LVD 2014/35/EU EMC 2014/30/EU RoHS 2011/65/EU Directive on General Products Safety 2001/95/EC | |
| Protection | IP 30 | |
| Compatibility | With BT S4Z02 RF: 10 Zones => 1 Master 6 + 1 Slave 4 zones With BT S6Z02 RF: 12 Zones => 1 Master 6 + 1 Slave 6 zones BT-HCM02 RF BT-WR02-RF, BT-WR02 FC RF BT-PR02-RF BT-FR02-RF BT-CT02-RF Repeater RF BT-A02 RF BT-D02 RF, BT-D02 RH RF BT-DP02 RF, BT-DP02 RH RF BT-D03 RF | |

# 3   User interface



## 3.A.   LED color meanings

On BT-M6Z02-RFthere are one bicolor Led per zone (1) to (6) and 2 additional status Leds.
In normal working mode:
- (1) To (6):
  - o **Red fix**: Heating or Cooling demand indicator (Water circulation on this zone)
  - o **Green flash**: RF signal received from the thermostat assigned to this zone
  - o **Red blinking**: RF alarm, the communication between thermostat and the BT-M6Z02-RF has been lost
     (in this case check batteries on this thermostat)
  - o **Red blinking on all zones**: check the RF antenna connection
- (7): Pump indicator
  - o **Green** when pump output is active
- (8): Heat and Cool indicator
  - o **Green** when cooling
  - o **Red** when Heating
  - o **Red or Green** blinking**:** RF alarm between the BT-M6Z02 RF and any device other than a thermostat

In RF linking mode Leds indicators (1) to (6) have a different meaning, Refer to 6.

## 3.B.   Buttons

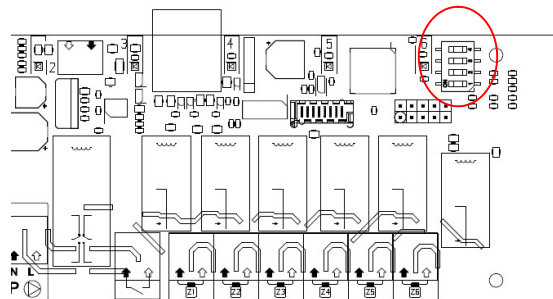On BT-M6Z02-RF, there are 3 buttons "<", "OK" and ">".
They are used to:
- link elements to BT-M6Z02-RF: refer to section 7
- do a factory reset (reset all configuration and all RF links) : refer to section 7

## 3.C.   DIP swith configuration

When you unscrew the front face of BT-M6Z02-RF, you have access to 4 switches used for advanced configuration:



**By default position is OFF for the 4 switches**

**Switch 1: Local / global Pump configuration (pump output AND remote pump device)**
  ON (global):   BT-M6Z02-RF activates its pump if there is a heat or cool demand in the system
  OFF (local):   BT-M6Z02-RF activates its pump only if there is a demand on the BT-M6Z02-RF
**Switch 2: NO / NC configuration**
  ON (NO):        Outputs (actuators) are Normally Open
  OFF (NC):       Outputs (actuators) are Normally Closed
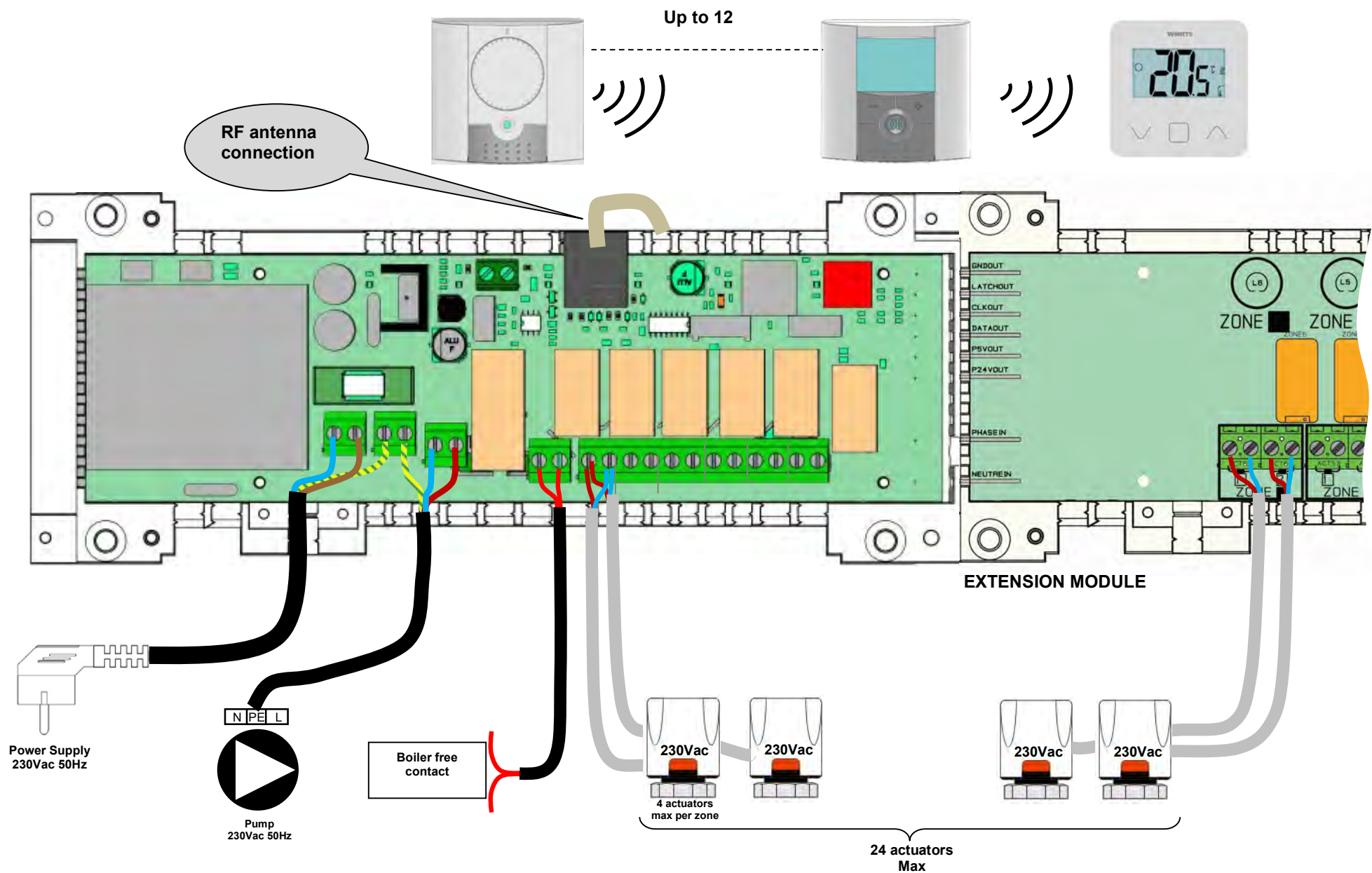**Switch 3: Pump Exercise configuration**
  ON:             Once a week, pump output is activated.
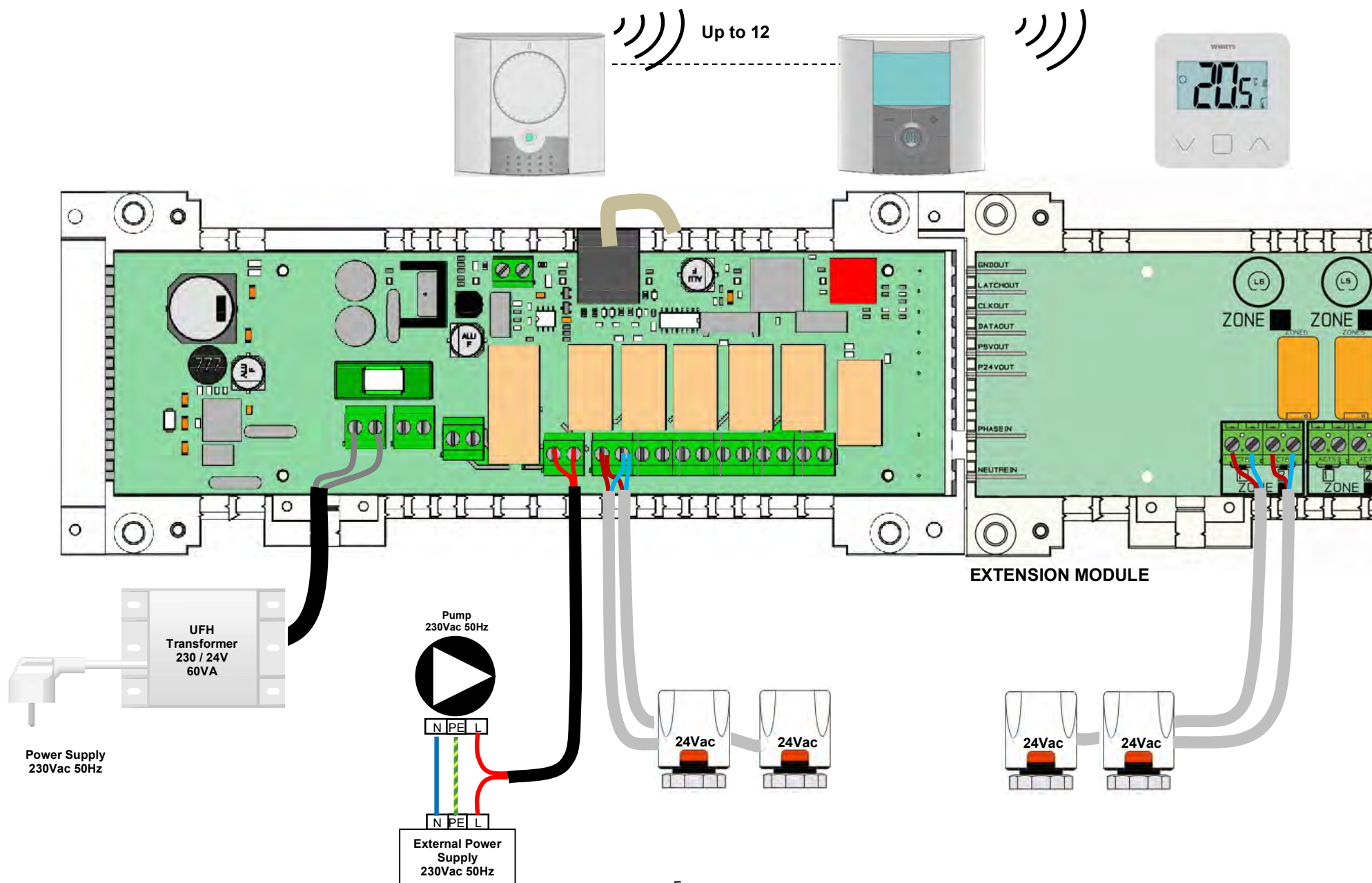  OFF:            No action on pump output
**Switch 4: No action**

# 4   WIRING ASSEMBLY DIAGRAM

## 4.1  WIRING ASSEMBLY DIAGRAM 230V



RF antenna connection

Up to 12

EXTENSION MODULE

GNDOUT
LATCHOUT
CLKOUT
DATAOUT
P5VOUT
P24VOUT

PHASEIN
NEUTREIN

ZONE   ZONE

ZONE   ZONE

Power Supply
230Vac 50Hz

N PE L

Pump
230Vac 50Hz

Boiler free contact

230Vac   230Vac

4 actuators
max per zone

230Vac   230Vac

24 actuators
Max

## 4.2 WIRING ASSEMBLY DIAGRAM 24V

**Up to 12**

GNDOUT
LATCHOUT
CLKOUT
DATAOUT
P5VOUT
P24VOUT

PHASEIN

NEUTREIN

L6    L5

ZONE    ZONE

ZONE    ZONE

**EXTENSION MODULE**

**UFH Transformer 230 / 24V 60VA**

**Power Supply 230Vac 50Hz**

**Pump 230Vac 50Hz**

N PE L

N PE L

**External Power Supply 230Vac 50Hz**

**24Vac**    **24Vac**

**24Vac**    **24Vac**

5

## 5  HOW TO INSTALL CORRECTLY YOUR RF SYSTEM

⚠️**Please respect the mounting to optimize sensibility and avoid any dysfunctionment**

Antenna must placed:
-   outside the metallic box
-   in vertical position
-   and at least at 50cm of metallic parts

If you have several antenna (several BT-M6Z02RF / BT-HCM02-RF in the same place), they must be placed at minimum 80cm of each other.



√ **Good**
The active antenna must be mounted vertically.

**Metallic Box**

50 cm
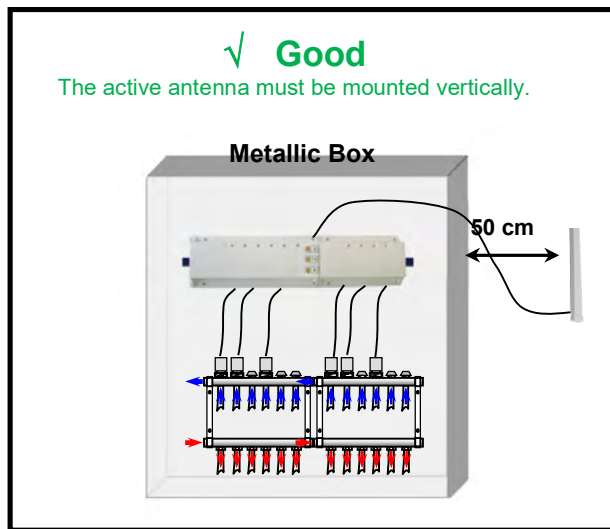
## 6  SYSTEM POSSIBILITIES:

Please refer to System configuration manual (www.wattselectronics.com), for more information on the different possibilities.
We distinguish 2 types of installation, if you have a BT-CT02-RF in your installation jump to 6.B

### 6.A.  Installation without Touchscreen BT-CT02-RF
In this installation, we have 2 subcases:
1-  Installation "Standalone": Typical installations:
    a.  Only one BT-M6Z02-RF
    b.  Several BT-M6Z02-RF with local pump management
2-  Installation "Centralyzed management": In this case, there are several BT-M6Z02-RF that needs to communicate together to drive correctly pump handle Heat/Cool signal.
    a.  Several BT-M6Z02-RF with global pump management
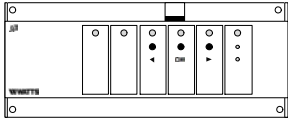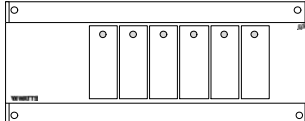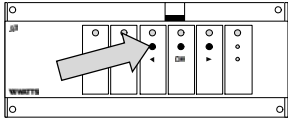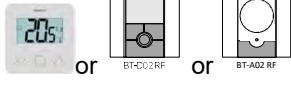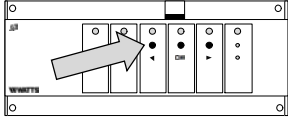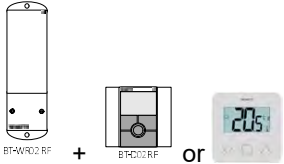    b.  At least several BT-M6Z02-RF and one BT-HCM02-RF
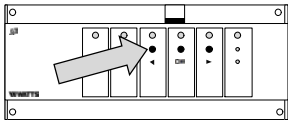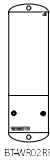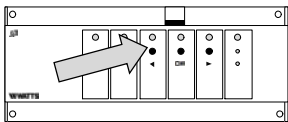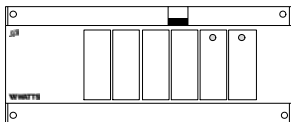
### 6.A.1  Standalone InstallationExemple of a "Standalone Installation"



BT-D02RF    BT-A02RF    BT-D02RF

BT-WR02RF
( OPTIONAL )

BT-M6Z02-RF

BT-S6Z02-RF
( OPTIONAL )

BT-WR02RF
( OPTIONAL )

BT-HCM02-RF
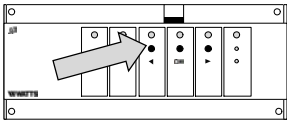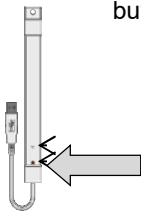( OPTIONAL )
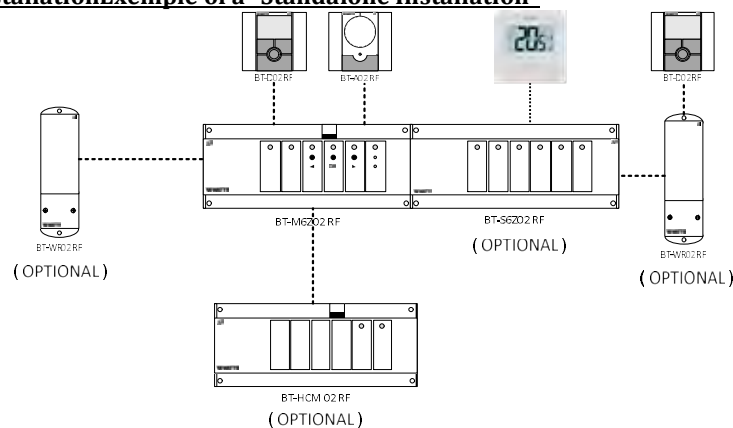
- - - - - - - - - - - - - - - - -  RF Links to do

All those elements needs to be linked together, the RF link procedure can be done in this order:

| Element 1 to link | Element 2 to link | Comments |
|---|---|---|
| **BT-M6Z02-RF**<br><br>BT-M6Z02 RF | **BT-S4Z / BT-S6Z**<br><br>BT-S6Z02 RF | No need to link them, just assemble S4Z or S6Z with BT-M6Z02-RF (both products OFF powered) and you can select the additional zones |
| **BT-M6Z02-RF**<br><br>BT-M6Z02 RF<br><br>Press OK for 5 seconds, first channel LED must blink.<br>Choose the channels with < and > and select/deselect the zone with OK.<br>When a zone is selected it turns Red.<br>Note: To exit, press OK for 5 seconds. | **BT-D03 RF / BT-D(P)02-RF / BT-A02-RF**<br> or  or <br>BT-D02-RF   BT-A02 RF<br>Thermostats :<br>Put product in RF Link mode (refer to correspondant instruction manual) | If link is done, the leds of channels selected on the BT-M6Z02 RF must turn Green and the thermostats must exit the RF link mode. |
| **BT-M6Z02-RF**<br><br>BT-M6Z02 RF<br><br>Press < for 5 seconds, all channel leds must blink Green. Product is waiting for link.<br>Note: To exit, press < for 5 seconds. | **BT-WR02-RF**<br><br>BT-WR02-RF<br><br>Put product in RF Link mode. | In this configuration, BT-WR-WR02-RF is used as on **remote pump device or boiler**: if there is a demand on the BT-M6Z02-RF, the device will command the output.<br>When link is done BT-M6Z02-RF And BT-WR02-RF return to normal mode<br>**REMARK:** instead of BT-WR02-RF, you can also use BT-FR02-RF and BT-PR02-RF |
| **BT-M6Z02-RF**<br><br>BT-M6Z02 RF<br><br>Press < for 5 seconds, all channel leds must blink Green. Product is waiting for link.<br>Note: To exit, press < for 5 seconds. | **BT-WR02-RF + BT-D02-RF/ BT-D03 RF**<br> +  or <br>BT-WR02 RF   BT-D02-RF<br>**BT-WR02-RF must have been first linked with the thermostat.**<br>Put **BT-WR02-RF** in RF Link mode. | In this configuration, BT-WR-WR02-RF is used as additional zone.<br>When link is done BT-M6Z02-RF And BT-WR02-RF return to normal mode<br>**REMARK 1:** instead of BT-WR02-RF, you can also use BT-FR02-RF and BT-PR02-RF<br>**REMARK 2:** this confguration is only possible in Heating installation (no cooling) |
| **BT-M6Z02-RF**<br><br>BT-M6Z02 RF<br><br>Press < for 5 seconds, all channel leds must blink Green. Product is waiting for link.<br>Note: To exit, press < for 5 seconds. | **BT-HCM02-RF**<br><br>BT-HCM 02 RF<br><br>Put product in RF Link mode. | When link is done BT-M6Z02-RF And BT-HCM02-RF return to normal mode at the same time. |

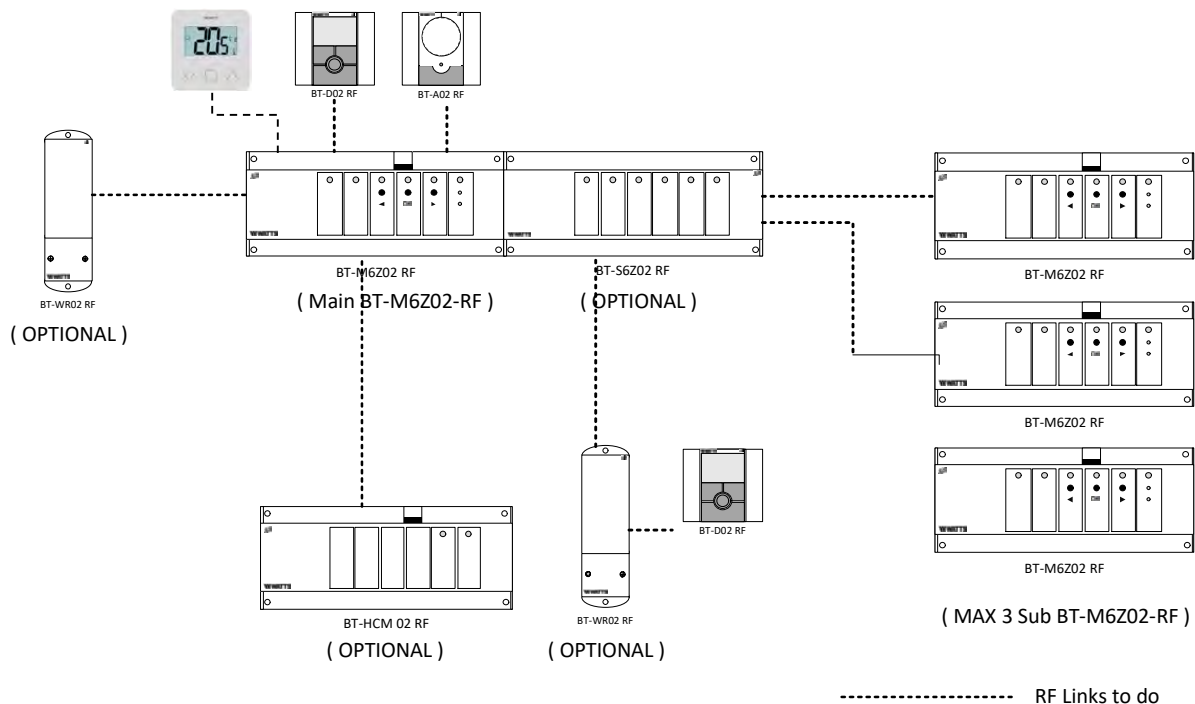| BT-M6Z02-RF | Put the RF repeater in RF Link mode (press 3 s on the button) | When link is done, BT-M6Z02-RF returns to normal mode and the led on the repeater becomes green fix. |
|---|---|---|
| BT-M6Z02 RF<br><br>Press < for 5 seconds, all channel leds must blink Green. Product is waiting for link.<br>Note: To exit, press < for 5 seconds | | |

### 6.A.2   Centralyzed Installation

In this configuration, one BT-M6Z02-RF - called "Main" BT-M6Z02-RF - will centralize the information of the other BT-M6Z02-RF – called "Sub" BT-M6Z02-RF.
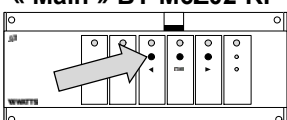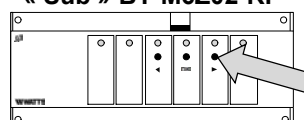Its role is
  - to propagate Heat and Cool signal to the system
  - to handle the boiler / global pump for the whole system.
**If there is a BT-HCM02-RF in the installation, it MUST be linked to "Main" BT-M6Z02-RF**.
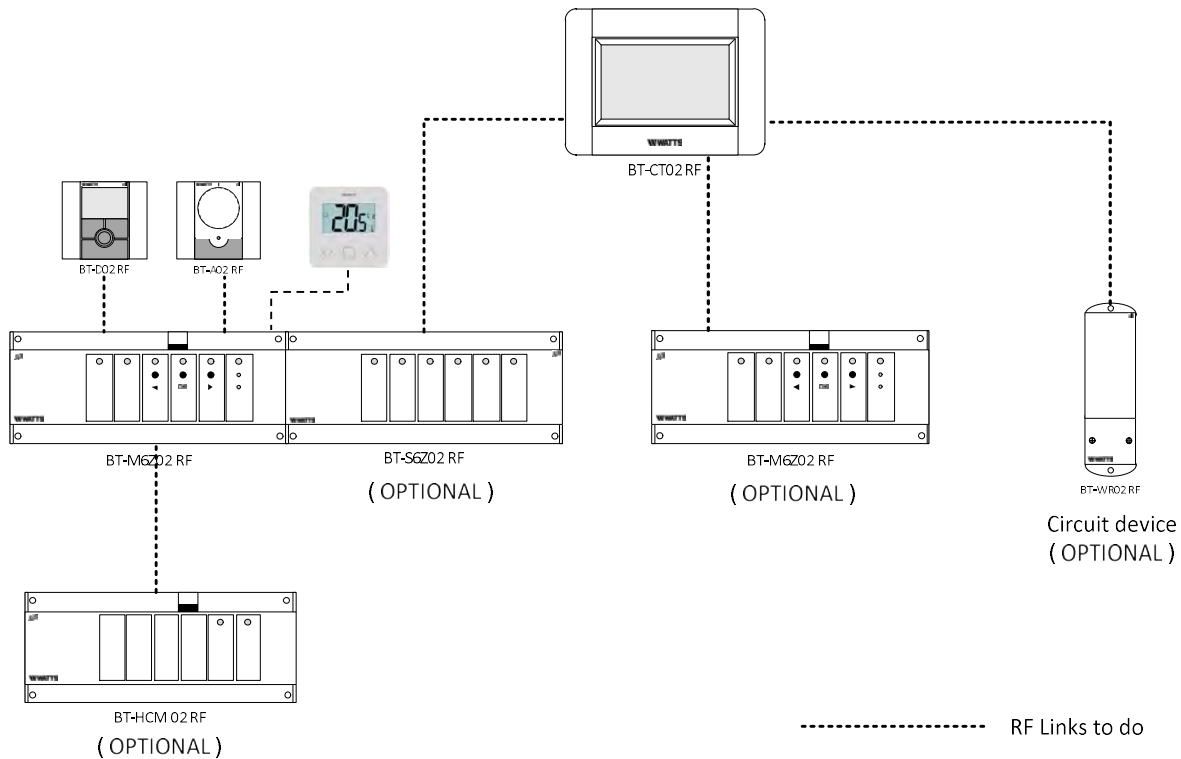
Exemple of a "Centralyzed Installation"

BT-D02 RF   BT-A02 RF

BT-WR02 RF
( OPTIONAL )

BT-M6Z02 RF
( Main BT-M6Z02-RF )

BT-S6Z02 RF
( OPTIONAL )

BT-M6Z02 RF

BT-M6Z02 RF

BT-HCM 02 RF
( OPTIONAL )

BT-WR02 RF
( OPTIONAL )

BT-D02 RF

BT-M6Z02 RF

( MAX 3 Sub BT-M6Z02-RF )

-------------------  RF Links to do

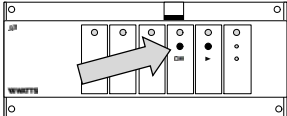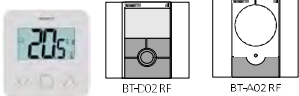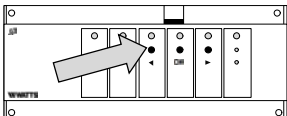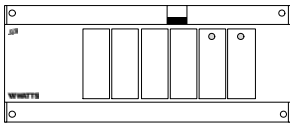| Element 1 to link | Element 2 to link | Comments |
|---|---|---|
| Do the RF Link procedure as in Standalone version then proceed with the RF link of all BT-M6Z02-RF | | |
| **« Main » BT-M6Z02-RF**<br><br>BT-M6Z02 RF<br><br>Press < for 5 seconds, all channel leds must blink Green. Product is waiting for link.<br>Note: To exit, press < for 5 seconds. | **« Sub » BT-M6Z02-RF**<br><br>BT-M6Z02 RF<br><br>Press > for 5 seconds, all channel leds must blink Red. Product is waiting for link.<br>Note: To exit, press > for 5 seconds. | When link is done, the two BT-M6Z02-RF return to normal mode. |

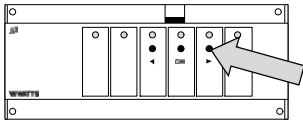## 6.B.  Installation with Touchscreen BT-CT02-RF

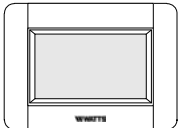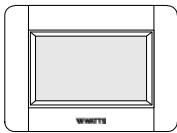If there is a Touchscreen BT-CT02-RF in the installation, everything is centralized by the Touchscreen.

Exemple of an "Centralyzed Installation"



BT-CT02 RF

BT-D02 RF    BT-A02 RF

BT-M6Z02 RF

BT-S6Z02 RF
( OPTIONAL )

BT-M6Z02 RF
( OPTIONAL )

BT-WR02 RF

Circuit device
( OPTIONAL )

BT-HCM 02 RF
( OPTIONAL )

- - - - - - - - - - - - - - - - - - -  RF Links to do

In this configuration, proceed with the RF link in this order:

| Element 1 to link | Element 2 to link | Comments |
|---|---|---|
| **BT-M6Z02-RF**<br><br>Press OK for 5 seconds, first channel LED must blink.<br>Choose the channels with < and > and select/deselect the zone with OK.<br>When a zone is selected it turns Red.<br>Note: To exit, press OK for 5 seconds. | **BT-D03 RF / BT-D(P)02-RF / BT-A02-RF**<br><br>Thermostats :<br>Put product in RF Link mode (refer to correspondant instruction manual) | If link is done, the leds of channels selected on the BT-M6Z02 RF must turn Green and the thermostats must exit the link mode. |
| **BT-M6Z02-RF**<br><br>Press < for 5 seconds, all channel leds must blink Green. Product is waiting for link.<br>Note: To exit, press < for 5 seconds. | **BT-HCM02-RF**<br><br>Put product in RF Link mode. | When link is done BT-M6Z02-RF And BT-HCM02-RF return to normal mode.<br><br>**REMARK**: only one BT-HCM02-RF in the installation |

| BT-M6Z02-RF | BT-CT02-RF | |
|---|---|---|
| <br>BT-M6Z02 RF<br><br>Press > for 5 seconds, all channel leds must blink Red. Product is waiting for link.<br>Note: To exit, press > for 5 seconds. | <br>BT-CT02 RF<br><br>Link as a normal zone | |
| **BT-CT02-RF** | **BT-WR02-RF** | In this configuration, BT-WR-WR02-RF is used as **hydraulic circuit device**:<br>Refer to the instruction manual of BT-CT02-RF for further explanation. |
| <br>BT-CT02 RF<br><br>Link « Circuit » device | <br>BT-WR02 RF<br><br>Put product in RF Link mode. | |

**Be careful! Link BT-M6Z02-RF to BT-CT02-RF, once ALL thermostats to BT-M6Z02-RF have been linked.**

# 7  SPECIAL FUNCTIONS

**Humidity management**
This feature is available on thermostats that have Humidity sensor (BT-D02RF RH and BT-DP02RF RH).
Please refer to thermostat instruction manual to correctly set the parameters.
- If there is a humidity default (dew point or thumidity threshold), then cooling on the zone is stopped (stops flow in the zone).
- If in the installation there is a BT-HCM02-RF and dehumidifier is active then if there is humidity default, dehumidifier is active

**Pump Delay (not configurable)**
To avoid pump damage and noise in hydraulic circuit (Water flow in the pipe) the start-up of the pump will be delayed for 1 minute after a heating demand from the zone thermostats. This delay should allow the actuator to be completely opened open before the activation of the pump.

**Valve exercise (not configurable)**
To prevent the valves from seizing, each valve is automatically activated 2 minutes per week.

**Factory settings function:**
Use this function to erase all configurations, RF links and restore factory settings.
In 'Run mode', press in the same time during 5 seconds the 2 keys (◄) and (►).
Then the product has been resetted.