TWITOPLAST LTD.

RF ZONE CONTROL
C210 Controller
&
C680RF thermostats
Dry Contact

Installation and Operation
Instructions

Installation and Operation Instructions

C210 Controller and C680RF thermostats

General:

The C210 Zone controller operates with new RF communication method which saves lot Of time during installation.

The C210 controls up to 5 zones. **(Rooms) + By-Pass**.

Bypass will balance the air flow according to the load at they rooms.

The use of RF signals saves cables between each thermostat to the main controller.

Air condition unit can be controlled via the BMS output which is a dry contact one. NO or NC type.

The distance between the C210 controller to the any of the thermostat should be no more then 100 Feet (30 Meters).

Immune for interferences from Mobile phones and other electromagnetic interferences.

Specification:

Supply voltage	12 VAC +/- 20%
Consumption	400 mA max @ 12 VDC
Protection Circuitry	Transient protection
Operating temperature range	-10°C to +70°C
Storage temperature range:	- 20°C to +85°C.
Operating humidity range:	5~90 % RH (Non condensation)
Wiring Connections	Molex and RJ11 terminal.
Box dimensions:	W= 4.9" (125mm) H = 2" (52 mm) D = 3" (77 mm)
Weight:	93 g
Protection Class:	IP30
Plastic parts	ABS – UL94 (V5) none flammable.
Standards:	EN60730-1
Universal ISM Band :	434MHz
Antenna:	Helix internal Antenna for 434MHz.

General

- Install in accordance with all local codes
- **DO NOT** splice any wires, splicing wires will void the warranty
- Install as per the installation instructions provided.
- There are no field serviceable components, do not attempt to repair.
- For use on 120 VAC/ 60 HZ systems only.
- Any misuse or modifications will void the warranty.
- Installation must be made by a qualified installer.

Caution
- To prevent electrical shock or equipment damage, disconnect the power supply before installing and servicing the system.
- Prior to installation become familiar with the system and its operation.

System Installation Instruction:
Turn OFF all power supplies prior to installation.
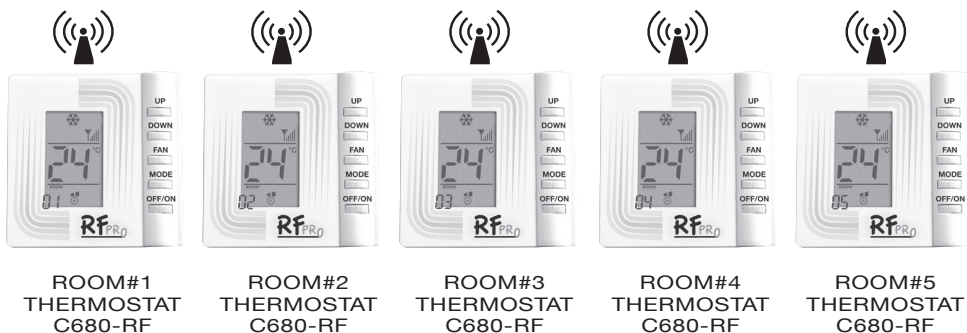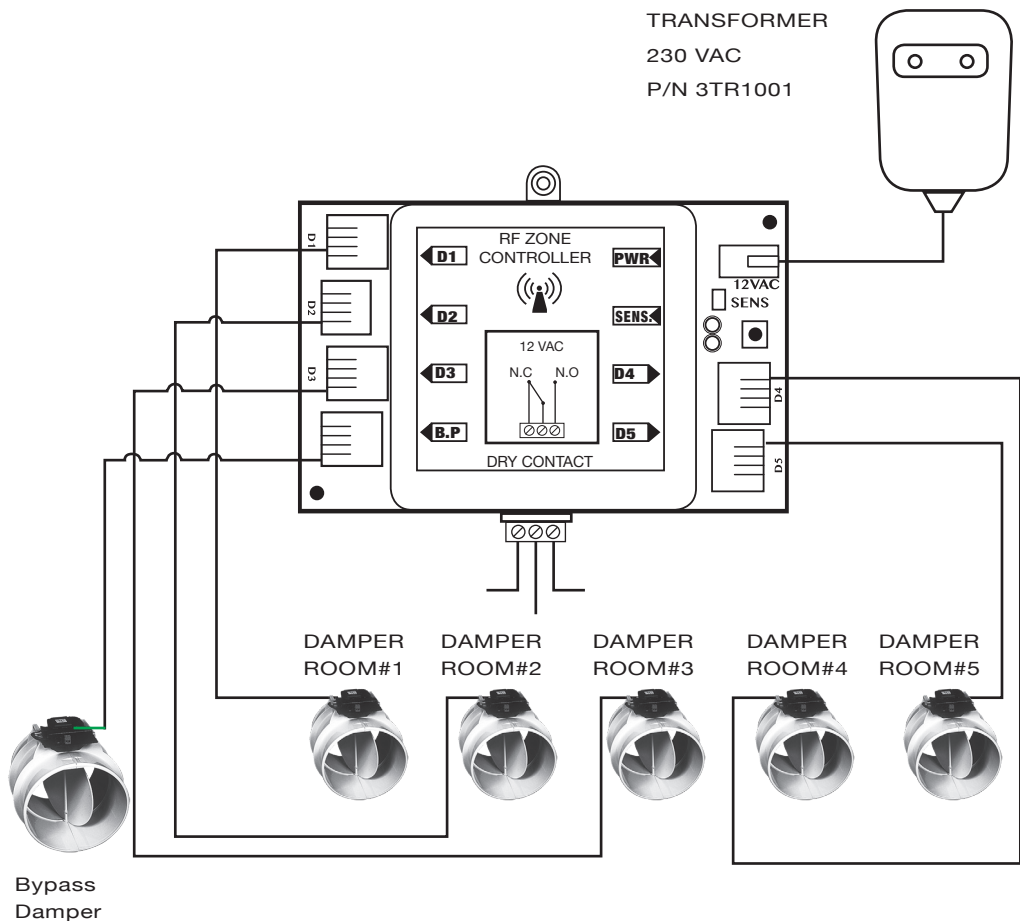Select a location for the controller at a secure area.
The controller should be installed centrally in the duct area.
Mount the controller securely to a wall or to the air condition chassis.
Connect the cable according to the below instruction and wiring diagram.
Apply power to the controller by connecting the 230 VAC / 12 Volts transformer.

Electrical Connections:

TRANSFORMER
230 VAC
P/N 3TR1001

RF ZONE CONTROLLER

D1
D2
D3
B.P

PWR
SENS
D4
D5

12 VAC
N.C   N.O

DRY CONTACT

12VAC
SENS

D1
D2
D3

D4
D5

DAMPER ROOM#1
DAMPER ROOM#2
DAMPER ROOM#3
DAMPER ROOM#4
DAMPER ROOM#5

Bypass Damper

ROOM#1 THERMOSTAT C680-RF
ROOM#2 THERMOSTAT C680-RF
ROOM#3 THERMOSTAT C680-RF
ROOM#4 THERMOSTAT C680-RF
ROOM#5 THERMOSTAT C680-RF

Cables Connection between damper motors and C210 controller.

The damper motor connects direct to the controller with RJ45 type cable, 10 Feet (3 M) long. Be careful to enter the plug into the socket at the motor and the C210 controller side till the end, to enable good electrical connection.

It is NOT allowed to extend this cable.

Dry Contact = Air Condition Connection = BMS

The BMS output is a Dry contacts one.

Connect it to the air condition control system to allow the A/C operation.

When first damper opens, A/C should start operation.

When last damper closes A/C should turn OFF.

Find at the A/C control box the input to allow BMS operation and select between N.O. or N.C. outputs according the A/C control operation.

Bypass connection

The Bypass motor connects direct to the C210 controller to the plug marked B.P (Bypass).

Use RJ11-4 cable between the C210 Controller and the Bypass damper motor.

General instructions:

Follow the local electrical installation codes and regulations.

Warning!

Do not extend any cables in the system.

System must be installed per the instruction in this document.

In case system elements will be used not according to the instruction written in this document, warranty will be not valid.

Unprofessional installation and/or damage to the system elements will cancel any **warranty.**

No field repair allowed to any of the system elements.

System elements repair are not allowed.

Repair done by unauthorized personal will cancel warranty.

Operating from line power which is not standard and approved by the power company, such as operation from generator or building that was not connected by the power company will cancel warranty.

Thermostat Location Consideration

· The thermostat should be mounted no more then 100 Feet (30 M) from the C210 Controller.
· It is recommended to mount the thermostat were room temperature is normal.
· Do not mount the thermostat at outside wall and not at hot air drift locations.

- Mount the thermostat securely to the wall at height of about 5 Feet (1.5 M) from the floor.
- Use electrical hand drill to drill two 1/4" (6 mm) holes in the wall for the plastic anchor.
- Open the back side of the thermostat and mark the location of the holes.
- Use the screws supplied to mount the thermostat back on the wall.
- Install the thermostat back in to the back side on the wall.

C680RF Thermostat Mechanical Dimensions in mm:
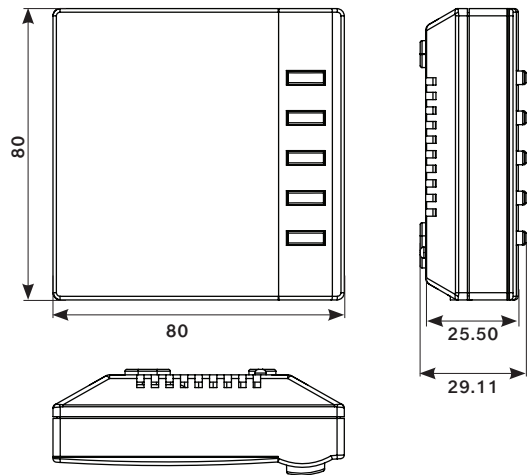
Troubleshooting

	Problem	Solution
1	Thermostat do not turn ON	Check the batteries if they are installed well and if they are good.
2	C210 Controller – LED's do not light up.	Check that the transformer 12 volts plug is inside the C210 socket and that the 230 VAC part of the transformer is getting 230 VAC.
3	Damper do not Open or Close	Check the thermostat ID address Check for cross connection between channels at the C210 to the dampers at each room. Motor is not connected to the controller. RJ45 cable is damaged.
4	No communication between thermostat and C210 Controller	Check that the ID address of the thermostat is the same as the address written on the label at the side of the C210 control box. (4 digits)
5	Bypass damper to not operate.	Check the cable connection between the Bypass motor and the C210 controller. Open one room only and check that the Bypass opens.

Operation Instruction for the C680RF Thermostat;
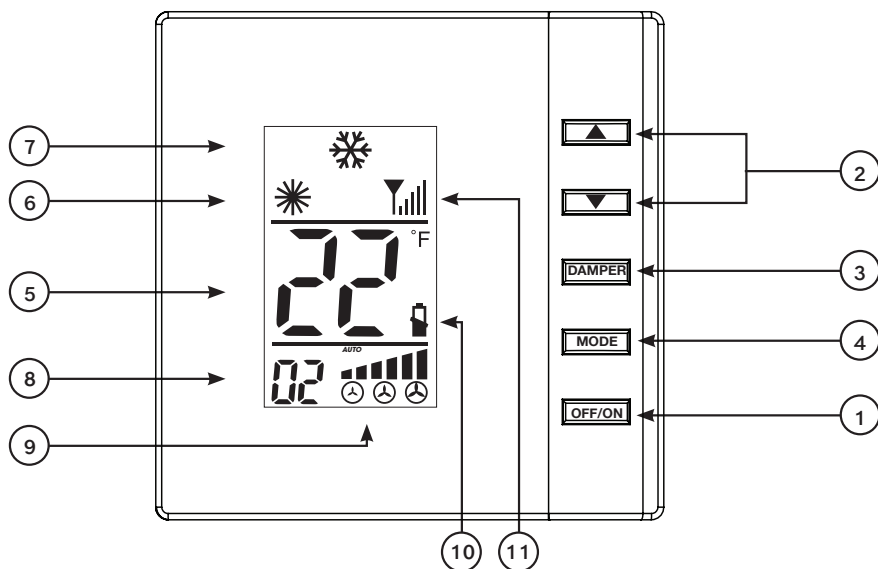
1. Power ON / Off button.
2. Up and Down Temp. and Address buttons.
3. Damper position and at Master mode close the damper at the Master room.
4. Mode of operation. Cool and Heat.
5. Temperatures and address. I.D Code No.
6. Heat mode of operation icon.
7. Cool mode of operation icons.
8. Room and Address numbers.
9. Damper position and mode Icons.
10. Low Batteries icon.
11. Antenna reception intensity.

Cool mode operation – Set the temperature set point below the room temperature

Heat mode operation - Set the temperature set point above the room temperature.

GENERAL

Stand Along Operation – Every room operates as stand along.
- At each room user should select:
- Cool or Heat
- Damper position 1/3, 2/3, 3/3 Auto
- Turn ON and OFF.
- Select the desired Temperature Set Point

Operation Instruction

|	
POWER BUTTON **Turning unit ON & OFF** **To turn on the UNIT** press the ON/OFF button (1). The LCD display will light up and the UNIT will start to operate. Pressing the ON/OFF button (1) while the UNIT is ON will turn OFF the unit.	
UP/DOWN buttons **SELECTING TEMPERATURE** **To select the set-point temperature** press the UP/DOWN buttons (2). Pressing the UP button ▲ will raise the set-point temperature. Pressing the DOWN ▼ button will lower the set-point temperature. **To see the Room temperature** - press the UP/DOWN buttons at same time. The thermostat will revert to showing the set point after 3 seconds. With the UP/DOWN buttons the ID code can be set.	
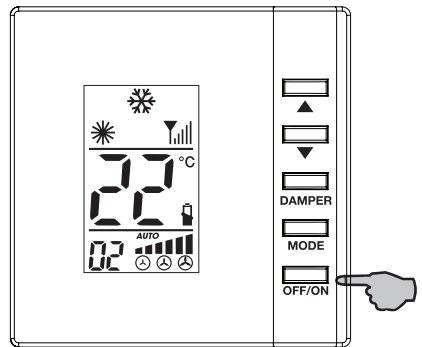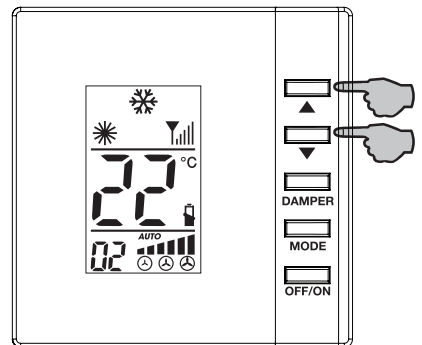
Mode Buttons.

The mode button (4) allows selecting the operation mode.
The mode of operation will allow Cool or Heat mode selecting.
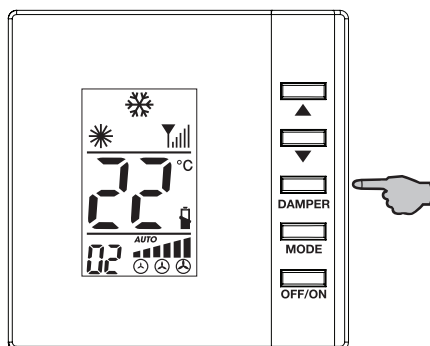The display will show the cool icon ❄ or heat icon ❋ .
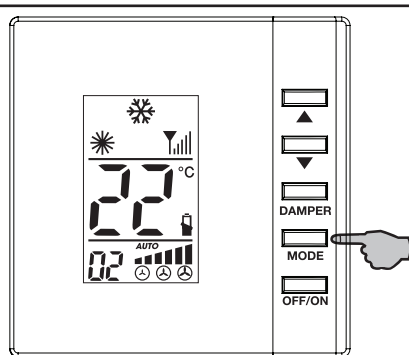

Damper Button

The Damper button (3) is used to select the damper Position, 1/3 - 2/3 - 3/3 - Auto mode.
The damper changes its position depending on how far the room temperature is from set point.

Internal Room Temperature Sensor

The thermostat has a built in NTC thermistor sensor to accurately sense room temperature. Compensation automatically adjusts for anticipation as a result of temperature swings.
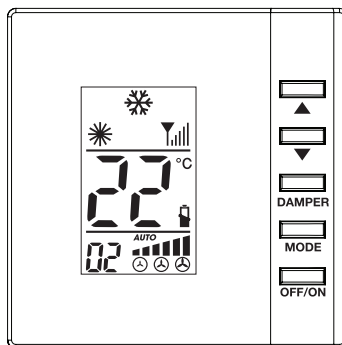
Set Up and Start up:
CAUTION: To avoid equipment damage, DO NOT attempt to test thermostat operation without verifying that the C210 and the damper units to be operated are installed and ready to be operated.

1. Starting the unit: Press the "POWER" button. The display should show the Set point temperature. If the display is not illuminated, verify that the batteries are installed and the power at the C210 controller power is turned ON.

2. Use the MODE buttons and set the unit to HEAT mode. The Heat Icon will be ON. Motor moves slow. Allow 50 seconds to reach to full open or close positions.

3. Move the set point above the ambient temperature. The damper should begin open. Lower set point below the ambient temperature. This should close the damper.

4. Change the mode of operation to Cool. Lower the set point below ambient temperature and watch the damper open.

Address configuration instructions.

C680RF
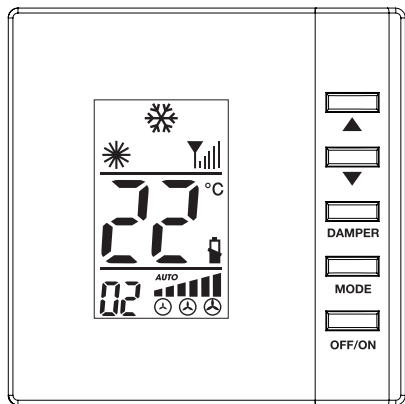
C210
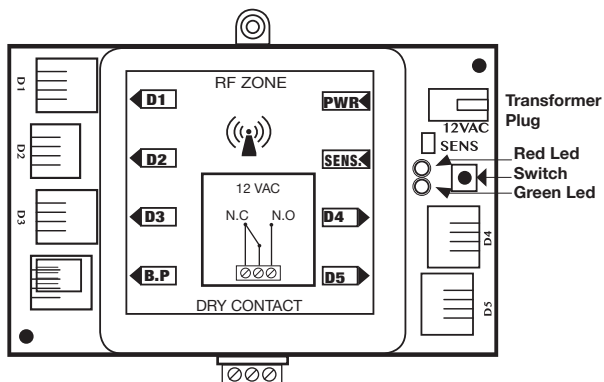
There are two ways to configure an address: **Automatic** and **Manual:**

1. Automatic address.

1.1.   During the installation of the new system, we recommend that you use the automatic configuration.

1.2.   Check the area where you want to install the C210 system. No other C210 systems shuold be in configuration mode.

1.3.   Connect the 12 Volts AC transformer Plug to the C210 and then connect it to the main power 230 VAC (line voltage).

1.4.   Check that the red and green LED's on the C210 are flashing one after the another.
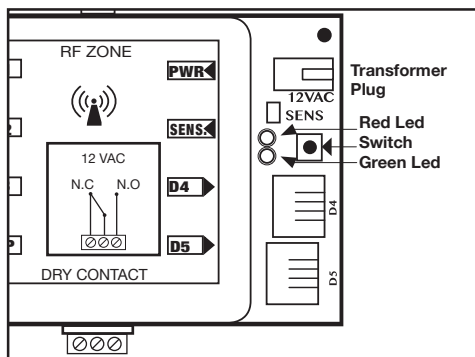
1.5. **Press the switch** (located next to the LED's) at the C210 and check that the red LED is ON. During the time that the RED LED is ON, (A period of 5 minutes), The controller is ready for configuration to each 680RF thermostat. Please note: each C210 controller have unique ID code.

1.6. Open all thermostat back cover and install only one battery at each one.

1.7. Second battery will be installed during the following steps.

1.8. Take off the back cover of the C680RF and Insert the batteries. After few seconds, it should appear on the LCD screen of the thermostat, the "ID code" (4 digits) corresponding to the ID code on the label located at the side of the C210 unit.

EXAMPLE: The ID code on the label at the side of the C210 controller is **3492**. At the thermostat LCD display will appear the number **34** at the location of temperature (Large Digits) and at the small digits (at the lower left side) the number **92**.
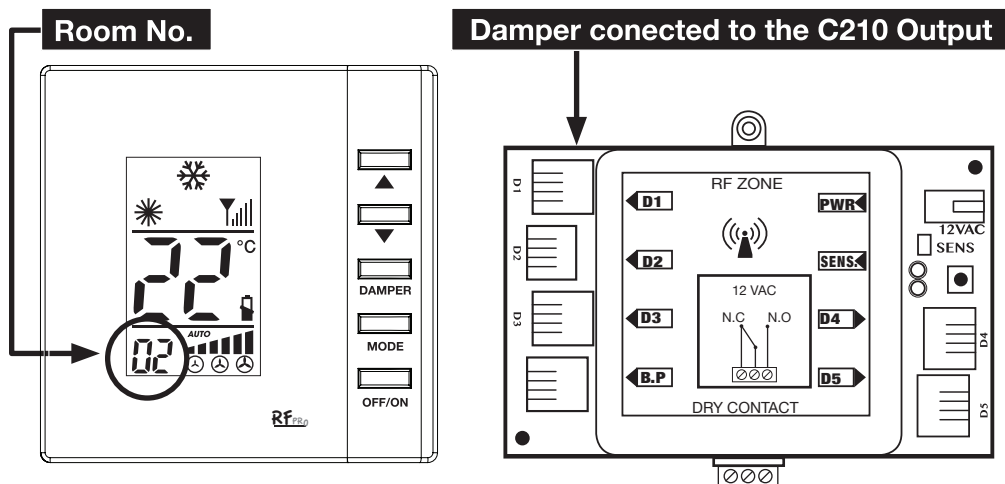
BACK COVER

C680RF

Switch

C210

I/D CODE
3492
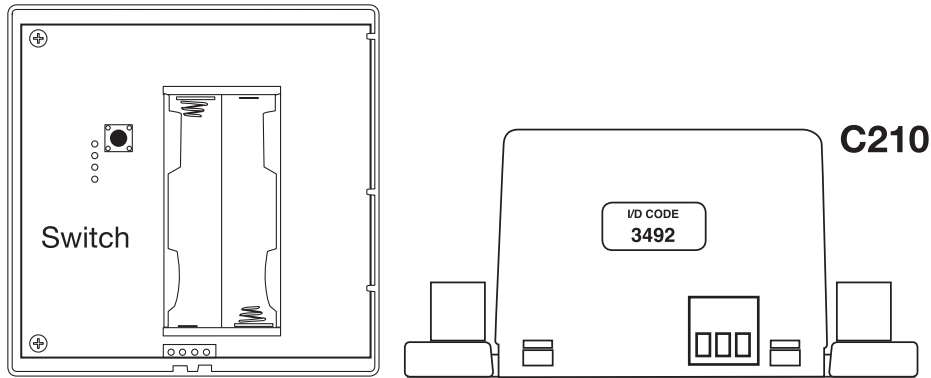
1.9. The first thermostat (Master thermostat) received address automatically corresponding to the C210 - Thermostat 1.

1.10. follow the same to the other C680RF thermostats.

Room No.	Damper conected to the C210 Output
1	D1
2	D2
3	D3
4	D4
5	D5

Room No.

Damper conected to the C210 Output

NOTE:

Open the back side of thermostat #2 and insert the batteries at thermostat 2, "ID code" of the thermostat will be #2, and do so on all other thermostats.

The remote address 2 should drive the damper at channel 2 of the C210 controller.

The remote address 3 should drive the damper at channel 3 of the C210 controller And so on up to channel 5.

1.11. In the event that a thermostat does not display the correct ID code on the LCD screen, Manual adjustment is necessary. (See paragraph 2. Manual configuration of C680-RF thermostat).

1.12. After finalizing the ID code setting of all thermostats, install each thermostat at the corresponding room per the damper number.

2. **Manual ID Code configuring of the C680-RF thermostats.**

2.1. The manual ID Code configuration mode is used in case that the automatic mode can't set ID Code or when new thermostat should be added or replaced in the system.
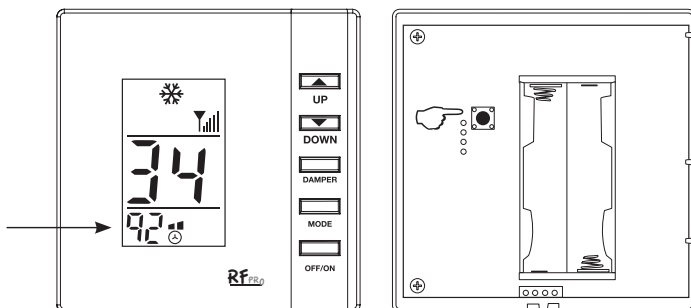
2.2. Look at the label at the side of the C210 controller. (4 digits – Example- 3492)

2.3. At the back side of the C680RF thermostat, press the switch.

2.4. By pressing the ▲ Up and ▼ Down buttons
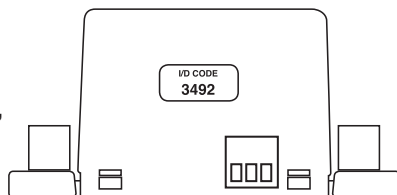
I/D CODE
3492

you can modify the two large numbers, - (These are the ID code thousands and hundreds digit, 34 out of the **34**92).

2.5. Press the switch at the back side again and now set the tens and units numbers (**92** out of the 3492), by pressing the ▲ Up and Down ▼buttons.
2.6. Press the switch again and now set the number of the Room corresponding to the thermostat and damper number.
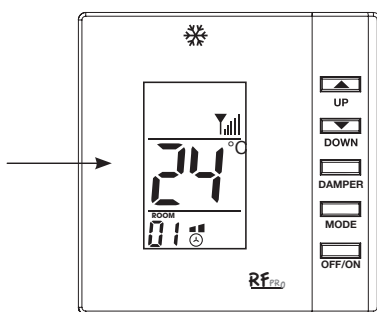
2.7. Press the switch again and check the level of the RF signal is satisfactory minimum 2 veritcal lines and that there is communication between each thermostat and its damper.
   NOTE:

   • By turning OFF the master thermostat, Thermostat Number D1, all system will turn OFF.

TWITOPLAST LTD.

Accessories & Solutions for Air Conditioning & Construction

Oded Lev-Run Design

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