TWITOPLAST LTD.

Accessories & Solutions for Air Conditioning & Construction

PLASTIC • ALUMINIUM • ELECTRONICS

OPAL RC-11

Operating And Manual instructions

TWITOPLAST
Accessories & Solutions for Air Conditioning & Construction

Remote control for the proportional damper :

OPAL RC II

Airwell congratulates you on your purchase of the OPAL RC II remote control and receiver for the proportional damper. The OPAL RC II is part of a smart system that controls the temperature measurement in one room. The OPAL RC II system was designed by the company's engineers for quick and easy installation and optimum performance to assure perfect and uniform air conditioning.

Contents:

		Page
Part 1 -	Before Installation	**2-3**
Part 2 -	Installation of OPAL RC II & Receiver for the Proportional Damper and Connecting to the Power Supply Box	**4-5**
Part 3 -	Checking regularity of the System	**6**
Part 4 -	Characteristics	**7**
Part 5 -	Operating Instructions and Functions of the Buttons	**8-15**

TWITOPLAST
Accessories & Solutions for Air Conditioning & Construction

1. Before Installation

1.1 Auxiliary Equipment

1.1.1 Power Supply Unit Type C315 (not included)

Type	No. of channels	Supply
C315	1	One remote control
C315 2	2	Up to 2 remote controls
C315 4	4	Up to 4 remote controls

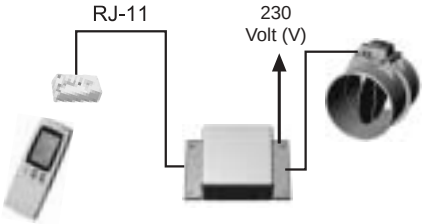
The remote control **must** be used only with a C315 power supply box.

1.1.2 Cable with Quick Connection Connector (cable 140106 included)
The following standard length cables with quick-connecting connectors between the receiver and the power Supply Box may be used with:

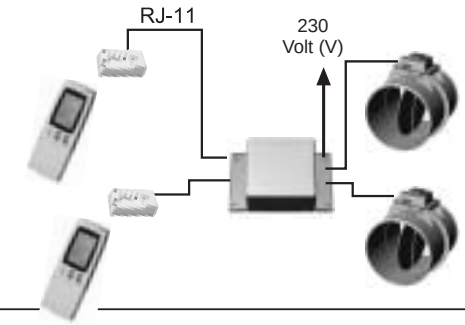
Length	Code
6 m	140106
10 m	140110
15 m	140115
20 m	140120

1.2 Alternative System Configurations.

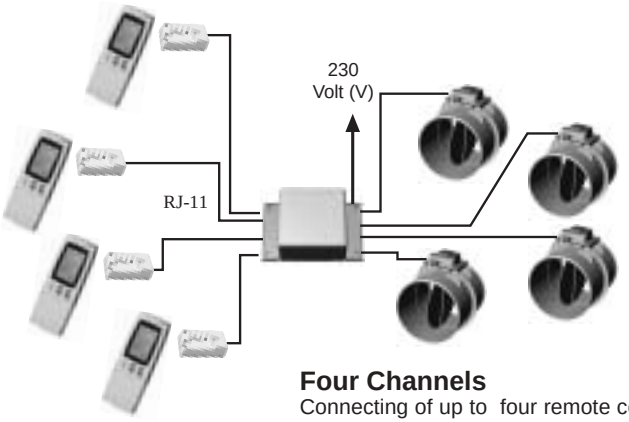
The system enables to connect up to four remote controls and dampers to one power supply box and thus provides flexibility and comfort in installation according to the requirements on site. The connection possibilities are detailed as follows:



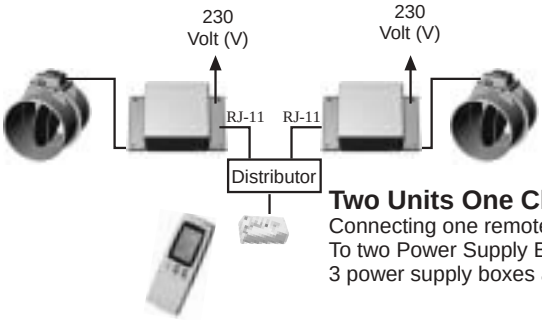
One Channel
Connection one remote to one Power Supply Box C315 and one damper.



Two Channels
Connection of up to two remote controls to one Power Supply Box C315 - 2
And up to two dampers.



Four Channels
Connecting of up to four remote controls
To one Power Supply Box C315 - 4
And up to four dampers.



Two Units One Channel
Connecting one remote control
To two Power Supply Boxes and two dampers (in a similar way
3 power supply boxes and dampers can be connected)

BEFORE STARTING TO WORK...

1.3 Warning for Safe Installation

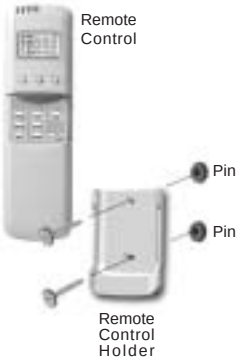
- Before starting to work, make sure that the power supply cable is disconnected from the 220v electrical network!
- The installations must be carried out by a qualified electrician or a certified technician.
- For the connection between the receiver and the power supply box, use only cables with quick-connecting connectors, supplied by the manufacturer.
- The connection to the supply voltage must be carried out only with a standard cable to the end of which a standard connector has been connected.

2. Installing the RC- 10 & Receiver to the Power Supply Box

2.1 Installation of the receiver and remote control holders

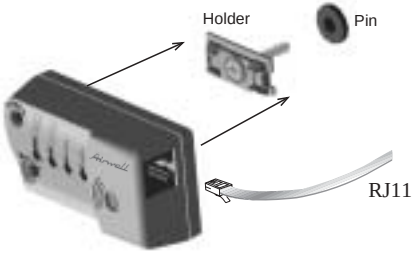
2.1.1 Installation of the remote control holder

- Choose a location for the holder, considering the customer's requirements
- Install the remote control holder in air conditioned environment on a spot, where the temperature can be detected best.
- Height of 1.5 m above the floor is recommended.
  The holder should not be installed on an external wall, near a stairway, or an area that is exposed to the external temperature, (radiation from the sun, heating elements, air pocket etc.). The remote control holder should be installed under the receiver. It can also be installed in another place only in a straight visual line from the receiver. For the installation of the remote control holder, use two screws.



2.1.2 Installation of the receiver C612 (the receiver should not be opened.)

- The receiver has to be installed close to the ceiling, or in a location considering the requirement of the customer. Ensure that the receiver will be at a visual line from the remote control holder.
- In order to install the receiver, mark the screw locations on the wall with the measurable tag provided..
- Apply one dowel pin, apply the screw via the holding device and tighten the screw fastening the holder to the wall as much as possible. Plug the RJ-11 wire into the socket on the side of the receiver. Adjust the receiver according to the markings and fasten it to the holding device (until you hear a "click").



2.2 Connecting to the Power Supply Box

2.2.1 Power Supply Box Location

- Connect the power supply box to the air conditioner or to the wall using four screws. the power supply box should be accessible for service .

WARNING: The Power Supply Box must not be installed close to lighting accessories or where it is exposed to water and humidity.

2.2.2 Connecting the Power supply box to the Receiver

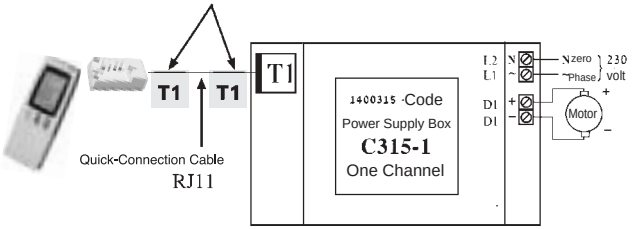
- Mark the cable with the snap connection (RJ 11) with a color sticker “flag” (stickers provided with the power supply box).
- Connect the receiver to the power supply box using a cable with a quick-connection (RJ 11).
- Connect the power supply box to the damper motor with a multiple line flexible cable.

Connection details:

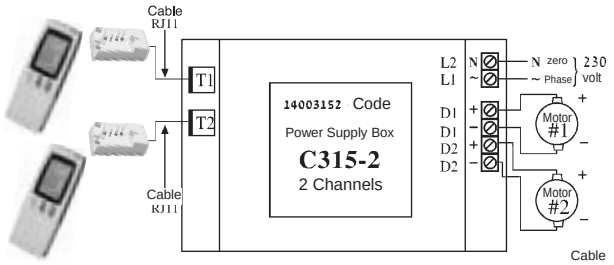
Connection to motor		Receiver connection	
Damper motor	Power supply box		Receiver
+ -	D1- D1+	T1	T1
+ -	D2- D2+	T2	T2
+ -	D3- D3+	T3	T3
+ -	D4+ D4+	T4	T4

Connection diagrams:

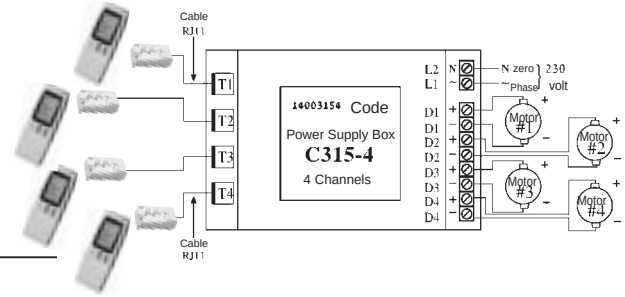
Connection of the receiver to the power supply box: C315 1 one channel



Connection of the receiver to the power supply box: C315 2 two channels



Connection of the receiver to the power supply box: C315 4 four channels



3. Checking the Proper Installation of the System

3.1.1 Connections

Ascertain:

- Receiver no. 1 (T1) is connected to entry no. 1 (T1) and motor no. 1 (T1) is connected to terminals D1 +, D1
- Receiver no. 2 (T2) is connected to entry no. 2 (T2) and motor no. 2 (T2) is connected to terminals D2 +, D2
- Receiver no. 3 (T3) is connected to entry no. 3 (T3) and motor no. 3 (T3) is connected to terminals D3 +, D3
- Receiver no. 4 (T4) is connected to entry no. 4 (T4) and motor no. 4 (T4) is connected to terminals D4 +, D4
- With the connection of the power supply box to line voltage ensure that the red indicator light on the power supply box is on.
- Wait 70 seconds and switch the remote control off. Make sure that the damper is switched off (closed). In case the damper is open, cross the two wires that reach the motor or the two wire connections +D and D.
- Move between status 1/3 and 2/3 and make sure the damper actually moves.

3.1.2 Communication between Remote Control and Receiver.

- When finishing the installation of the receiver and the holder of the Remote Control unit, try to activate the receiver with the remote control when it is still in the holder.
- On the remote control press the ON button and check whether the red light on the receiver is blinking. The blinking of the red on the Receiver informs that, the receiver absorbed the transmission from the remote control.
- In case there is no red light blinking on the receiver, change the required temperature on the remote control and/or transfer the operational status from heating to cooling. Then check once again if the red lamp is blinking in the receiver. If the receiver is not blinking, change the location of the remote control holder.
- Make sure to explain to the customer that the place for the remote control is in the holder unit. Keeping the remote control in the holder, ensures the constant reception of reliable signals and enables a correct operation of the system. In addition, this ensures the remote control will not be damaged.

3.2 Troubleshooting

Problem	Solution
The indicator lamp on the power supply box is not on	Check for 230 V electricity outlet. 1.Check that the connection of the power supply box to the 230v.
No ON/STBY indicator on the receiver is alight.	1. Make sure that the snap connections are connected properly to the receiver and to the power supply box. 2. Ensure that the indicator light in the power supply box is on, if not see solution to problem
The damper does not react in spite of switching from 1/3 to 2/3 and changing the MODE (heating / cooling)	Make sure the remote control is not off. 1. Make sure no crossing of connections of the receiver or damper took place, e.g. receiver no. 1 was connected to inlet T1 and the damper is connected to inlet D2+ and D2-. 2. Make sure the connections of the receiver to the power supply box are orderly (see solution no. 2). 3. If the connections were checked and were OK as detailed above, operate the damper with the AUTO button on the receiver. If the damper reacts, check the batteries in the remote control.

4. Characteristic

4.1 Remote Control Character

- Rigid plastic body
- Digital LCD display for activity status
- Digital temperature display for actual and desired temperature
- Operates at 3V potential - with (AAA) batteries
- The temperature adjustment range is from 10 0C to 30 0C
- Accuracy is ±1˚C
- Includes an internal temperature receiver
- Operates on heating and cooling
- Manual or Automatic mode

4.2 C315 Power Supply Box Characteristics

- Fire proof plastic V0
- Protection against voltage drop in the supply network
- Nominal voltage: 230 V AC (50 60 Hz)
- Exit voltage of 12 V
- Light indicator operation
- Relative Humidity: RH = 10% - 90%
- Constructed according to UL/IEC Standard
- Dimensions: 60 x 78 x 125 mm

Using the RC-11 to Activate the Proportional Damper

Before activating:

Make sure that the power supply box is connected to the power 120v AC and that the green led in the C315 power supply box is on.

BATTERIES REPLACMENT AND REAL TIME CLOCK SETTING.

Slide down the batteries cover that is located at the back of the remote control. Insert two 1.5V size AAA batteries.
After placing the batteries, the real time clock on the display (10) will blink 0:00. Set the actual time by pressing the +/- buttons (2).when the digits show the real time, press SET (14) for setting the time.
The real time clock can also be set using the CLOCK button (12) and then the same procedure using the +/- buttons (2) and SET (14).

Please, pay attention to the following

The remote control signal can be received at a distance of up to 7 meters.

- Communication between the Remote control and the I.R receiver is done via infrared signal. Therefore, the Remote control should always be aimed directly at the I.R receiver, without any obstructions.

- Neither the Remote control nor the I.R Receiver should be exposed to direct sun light or florescent light or any heat source.

HOW TO USE THE REMOTE CONTROL

①② On / OFF button.

③ Temperature & time Up / Down buttons.

④ Damper Mode selection Button.

⑤ Operation Mode selection button.

⑥ Operation Mode Display.

⑦ Set Temperature Display.

⑧ Room Temperature icon.

⑨ Low battery icon.

⑩ Sleep mode icon.

⑪ Real time clock Display.

⑫ ON & off Timers Display.

⑬ Real time clock button.

⑭ Timer select button.

⑮ Timer Set button.

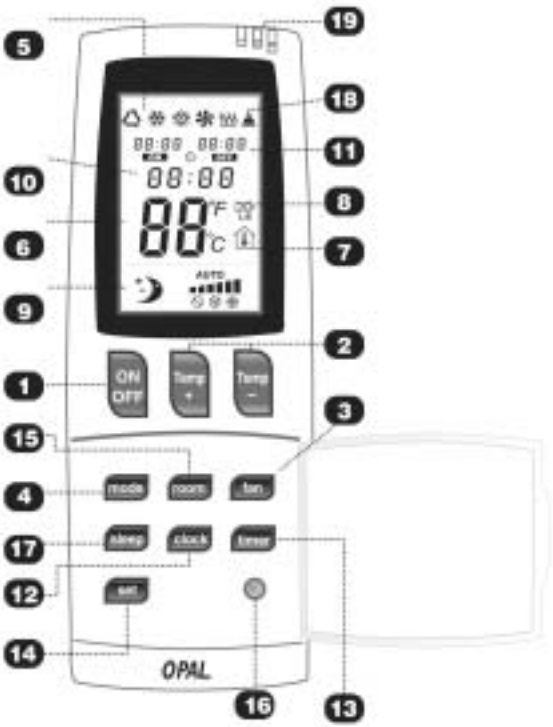
⑯ Room temperature button.

⑰ Reset Button.

⑱ Sleep Button.

⑲ Transmission Icon.

⑳ Temperature sensor.



TURNING THE DAMPER ON & OFF

Press On/Off button (1) to turn on & off the Damper unit.
When pressing on, the Power and the Heat Or Cool indicators on the I.R receiver will light.
Pressing the On/Off button (1) again, will close the Damper and turn of the LCD display and the lights on the I.R receiver.
The Damper unit will always work at the last mode of operation.

SELECTING THE MODE OF OPERATION

Pressing the OPERATION MODE button (4) will determine the Mode. The MODES are:

COOL- Cools, dehumidifies the room air. Maintains desired room temperature. Cool indicator on the I.R receiver will light.

HEAT- Heats the room air. Maintains desired room temperature. heat indicators on the I.R receiver will light.

The OPERATION MODE should be always the same as the OPERATION MODE of the A.C. Unit
The OPERATION MODE selected will be shown on the operation mode display (5).

DAMPER MODES

Pressing the FAN button (3) will determine the Damper Mode:

MANUAL MODE 1 - In this mode the damper is open constantly to 1/3 of the maximum air supply.

The LCD display will show d1 and the + / - buttons will be inactive.

MANUAL MODE 2 - In this mode the damper is open constantly to d2 of the maximum air supply.
The LCD display will show
and the + / - buttons will be inactive.

MANUAL MODE 2- In this mode the damper is fully opened.

The LCD display will show d3 and the + / - buttons will be inactive.

AUTO

UTO MODE - In AUTO MODE the Damper is opened in accordance with the difference between the desired (set) and the room temperature.

SETTING THE DESIRED TEMPERATURE

To set the desired temperature press the Temperature & time UP / DOWN buttons (2).

Setting the desired temperature is possible only in AUTO damper mode. While the damper is in MANUAL mode the + / - buttons are inactive.

ROOM TEMPERATURE

Pressing the ROOM button (15) will show the room temperature, the room icon will be shown. Pressing the room button once again will show the set temperature .

SLEEP MODE

This mode is designed to create comfortable sleeping conditions. Pressing the sleep button (17) will activate the sleep mode.

In this mode when the DAMPER unit is in heating mode, the desired temprature will decrease in one degree every hour for three hours.

When the DAMPER unit is in cooling mode, the desired temprature will increase in one degree every hour for three hours.

RESET BUTTON

Pressing the RESET button (16) will return all the definitions of the Remote Control back to the default status.

SETTING ON & OFF TIMERS

Pressing the TIMER button (13) activate the timer opeartion mode. Each time the timer button (13) is pressed, it changes the timer operation mode. There are 3 timer opeartion mode:

TIMER ON-This mode sets a time for starting the operation of the Damper

To set the ON timer press TIMER button (13). The ON icon on the ON & OFF Timers Display (11) will blink .Pressing the +/- buttons will adjust the starting time respectively

Press SET button(14) to activate the timer.

TIMER OFF- This mode sets a time for stopping the operation of the Damper

To set the ON timer press TIMER button (13). The ON icon on the ON & OFF Timers Display (11) will blink.

Press TIMER button (13) once again. The OFF icon on the ON & OFF Timers Display (11) will blink. .Pressing the +/- buttons will adjust the stopting time respectively.

Press SET button(14) to activate the timer.

TIMER ON & OFF - This mode enables setting the start and stop time of operation of the Damper

STEP 1

To set the ON and OFF timers press TIMER button (13)
The ON icon on the ON & OFF Timers Display (11) will blink.

STEP 2

Press TIMER button (13) once again.
The OFF icon on the ON & OFF Timers Display (11) will blink.

STEP 3

Press TIMER button (13) again.
The ON icon on the ON & OFF Timers Display (11) will blink. And the OFF icon will be shown. Pressing the +/- buttons will adjust the starting time respectively.

STEP 4

Press TIMER button (13) again.
The OFF icon on the ON & OFF Timers Display (11) will blink. And the ON icon will be shown. Pressing the +/- buttons will adjust the starting time respectively.

STEP 5

Press SET button(14) to activate the timer.

NOTE: To cancel the timers operation press TIMER button (13) until the ON or OFF icons are not shown on the LCD display.
All the timers are cyclic

BATTERIES LOW

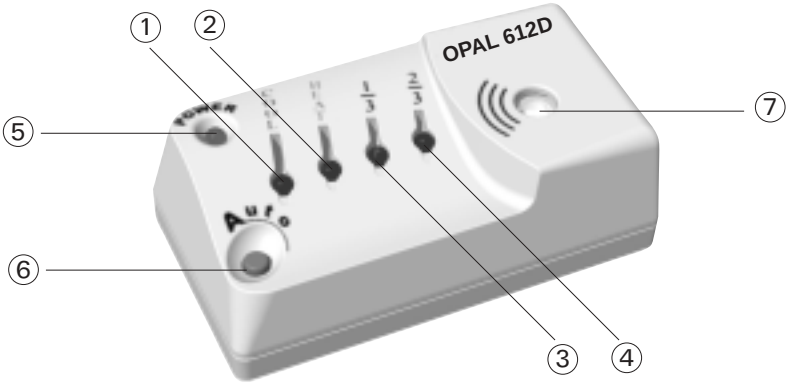
When batteries are low, the LOW BAT icon will be shown. Replace the old batteries with new AAA batteries (Alkaline).
Set clock as mentioned above.

ID CODE

Assigning ID CODE to the remote control, enable distinguishing between remote controls that are placed nearby.
When two or more remotes are placed near by there is a chance that the I.R transmission from one remote will be received by the wrong I.R receiver
Pressing simultaneously the MODE & ROOM button for more than 6 seconds, while the remote control is On, will allow entering the ID CODE setting of the remote. The LCD will show 00 blinking. By pressing + / - the code is selected .The ID CODE range is from 00 to 08. Pressing SET button will store the ID CODE and the display is back to normal operation with the last temperature. If the SET button is not used for over 6 sec from last button press, the modification shall be canceled automatically and recover the normal operation with the original ID code (the one used before entry to the modify mode).

When replacing the batteries the E set again ID COD.!!!

THE I.R RECEIVER



The I.R receiver includes leds that represent the mode of operation and a button that enable operating the DAMPER unit.

① **COOL LIGHT (LED**)
The COOL light indicates that the DAMPER unit is operating in cool mode. Recieving signal from the Remote control is indicated by a blinking of the light(led).

② **HEAT LIGHT (LED)**
The HEAT light indicates that the DAMPER unit is operating in heat mode. Recieving signal from the Remote control is indicated by a blinking of the light(led).

③ **1/3 LIGHT (LED)**
The ? light indicates that the DAMPER unit is operating in MANUAL mode and the DAMPER is ? open. Recieving signal from the Remote control is indicated by a blinking of the light(led).

④ **2/3LIGHT (LED)**
The ? light indicates that the DAMPER unit is operating in MANUAL mode and the DAMPER is ? open. Recieving signal from the Remote control is indicated by a blinking of the light(led). When the ? light and the ? light are lighting together, it indicates that the DAMPER is fully opened.

⑤ **POWER ON/OFF LIGHT (LED)**
The POWER light indicates that the DAMPER unit is ready to operate. When the light is off the DAMPER is Closed.

⑥ **AUTO BUTTON**
Auto button enables operating the DAMPER unit when the remote control is missing OR when the batteries are low. Pressing the button while the DAMPER button is OFF, will move the damper from off to on positions ?, ? , full opening and then back again to to close position.

⑦ **I.R RECEIVER**
Receive signal from the Remote Control.

Notes

Additional Producte In This Series:

- ❒ Mechanical kit for modular Damper
- ❒ **OPAL EL** - Electronic Dimmer control for proportional Modular Damper
- ❒ **OPAL C-128DD** - Wall mounted thermostat for propotional Modular Damper
- ❒ **OPAL 650DD Flush Mount** - Electronic Thermostat for Propotional Modular Damper
- ❒ **OPAL C-210RF**-Wall Thermostat (**R**adio **F**requency for proportional Modular Damper)

TWITOPLAST

Accessories & Solutions for Air Conditioning & Construction

ISO 9001:2008 IQC Institute of Quality & Control Certified Quality Management System

Tel: +972-3-9345888, Fax: +972-3-9042729 | www.twitoplast.co.il | E-mail: export@twitoplast.co.il

Also Available

Opal – 680 RF

Opal -650DD

OPAL EL

OPAL RC 11

TWITOPLAST LTD.

Accessories & Solutions for Air Conditioning & Construction

PLASTIC • ALUMINIUM • ELECTRONICS

Tel. +972-3-9345888 | www.twitoplast.co.il