

Rako RD Series Dimmer Modules – Installation, Programming and Operating Instructions.

The Rako RD series of dimmer modules are digital, hard-fired, leading edge dimmer modules suitable for use with mains voltage tungsten lighting, low voltage tungsten with appropriate transformers and cold cathode lamps. Rako RD dimmer modules are designed to be installed in a lighting circuit and are controlled from Rako scene-sender panels transmitting Rakom encoded radio signals.

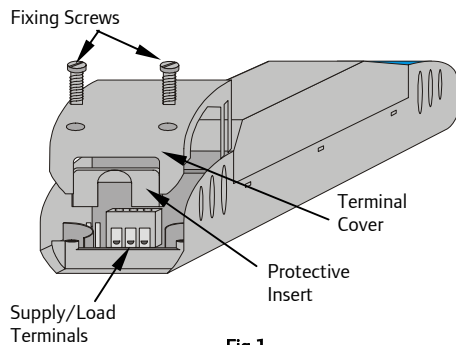


Fig. 1.
Front View of Components

Installation

Before commencing installation of a Rako dimmer module first read this instruction manual carefully. Rako Controls Ltd accepts no responsibility for any damage or injury caused by incorrect installation of a Rako product.

Installation should only be carried out by a competent electrician.

Never attempt to connect a Rako dimmer or remove the terminal covers without first isolating the circuit at the fuse/MCB board.

The circuit supplying a Rako dimmer should always be protected by either a 5A fuse or 6A MCB.

Rako RD dimmer modules should be mounted in areas that are adequately ventilated, dry and outside of any enclosed metal casings. Wherever possible the modules should be securely fixed using the mounting holes provided. The mounting holes are blanked off when supplied but are designed so that a woodscrew will easily cut through without the need for drilling.

Whilst the Rako dimmer modules are designed to be completely maintenance free the units should be mounted in a position where access can be gained should there be a fault or re-addressing of the unit be necessary (see 'Set-up and Addressing').

Permissible loadings.

Mains voltage tungsten – full rating i.e. 250w for RD250 modules and 500w for RD500w modules. Transformer fed loads, allow 10% de-rating, i.e. 225w of nominal lamp load for a RD250 modules and 450w of nominal lamp load for RD500w modules.

Note:

In the case of transformer fed loads only transformers suitable for use with leading edge dimmers should be used. If in doubt contact the Rako customer help-line on 0870 043 3905.

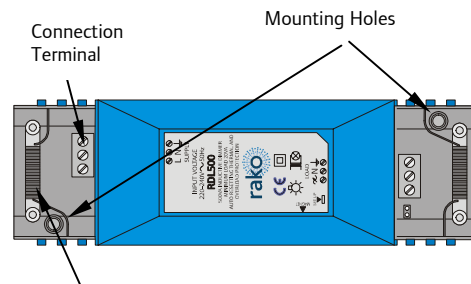


Fig. 2.
Termination Area

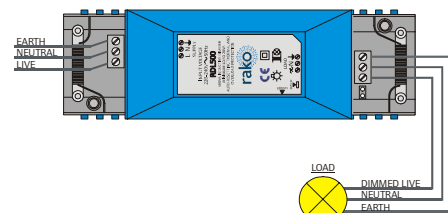


Fig. 3.
Connection Detail

Note:

To ensure that the cable clamping operates satisfactorily the cabling both supplying the dimmer and to the load should be a minimum of 0.5mm² with double safety insulation and the wires should be stripped to ensure that the cable bar within the terminal cover clamps firmly on both sets of insulation.

To install a Rako dimmer module isolate the supply then remove the Terminal Covers (see Fig.1) giving access to the supply/load terminals. The necessary connections are indicated on the label on the dimmer housing. The notation is as follows:

- L – Live wire from the supply (normally coloured Brown)
- N – Neutral (normally coloured Blue)
- ⊥ – Earth (normally coloured Green/Yellow)
- ∞ – Dimmed output to load

Once the supply and load cables are connected ensure that the terminal covers are replaced and securely fastened, clamping the cable correctly as detailed above, before powering the unit.

Rako dimmer modules are not designed for loop in/loop out connections. Should it be necessary to loop the supply on to further fittings then a junction box should be connected in circuit to facilitate this.

With the supply and load connected and prior to switching on the supply ensure that the terminal covers are fitted and that they are securely clamping the cables. It is important to ensure that the protective inserts (see Fig.1) are fitted and located securely, both in the terminal cover and over the supply and load cables. The protective inserts provide important protection against the risk of electric shock from conductive objects forced down the side of the cables.

Set-up and Addressing

Before any lighting scenes can be programmed (see the wall panel or handheld instruction manual) the receivers need to be addressed.

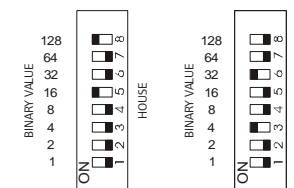
To avoid interference between rooms or neighbouring installations a Rako system should be set to an address other than the factory default of House 1 Room 4. The preferred addressing method is to select a logical House address number for the project, separate Room addresses for each room within the house and then sequential Channel numbers for each receiver within each room (see Fig.5) i.e. Channel 1 for the 1st receiver, Channel 2 for the 2nd etc. The House and Room addresses are set using the DIP switches on the back of a Rako controller (see Fig.4) and the Channel address is set by 'stepping' through the channel numbers with a panel in programming mode (see Step 3 overleaf) and then sending this number (along with the House and Room address) to a receiver (Step 5).

Setting the address switches.

Each Rako transmitter has two, 8 way banks of switches for setting its address. The two sets of switches allow the user to choose from 256 house addresses and 256 room addresses. To set the address, unclip the rear cover whereupon the banks of switches will be now become visible. To set an address, use a small terminal screwdriver or similar device and carefully move some of the switches into

the 'ON' position. Addressing uses binary encoding and the value of the switches is shown below.

Note: Any control panels set with the same address will act as two or multi way controls.



House address = 128+16=144
Room address = 32+4=36.

Fig. 4.
Addressing Switches

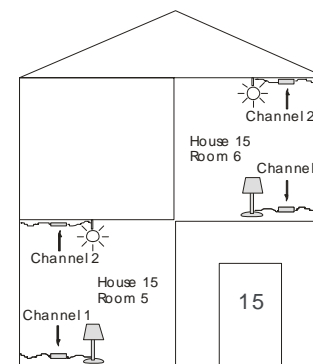


Fig. 5.
Addressing Example

Notes on addressing.

A dimmer will not receive an address of House 0 (All switches set to off)
A dimmer will respond to, but not receive an address of Room 0 (All switches set to off). This Room 0 address is used for 'Master House' control
A dimmer cannot be set to channel 0.
To program a lighting scene see Wall panel or Hand held manual.

Care and maintenance

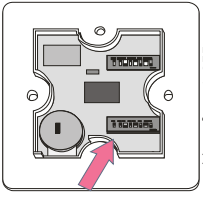
A Rako dimmer module contains no user serviceable parts. Should for any reason you need to contact us please contact us via our website www.rakocontrols.com or by phoning our customer help line on 0870-043-3905.

Initial Addressing of a Rako Receiver Module

In the following procedure both the controllers (wallpanels and hand held remotes) and the receivers have an automatic time out after approximately 3 minutes when in programming or set-up mode. This feature avoids the possibility of either being left permanently in programming or set-up mode. This may cause confusion if either the controller or receiver times out before the procedure is complete. It is worth becoming familiar with the procedures before starting the addressing procedure. If at any time it is necessary to start again the controllers can be returned to normal mode by pressing the 'Off' button and the receivers by resetting the electrical supply.

Note:

Step 1
Set address switches on controller



Pick an House address from 1-255 (keep same address for all panels in house)
Select Room addresses from 1-255 for each room (Room 0 is master house control)

Step 2
Put controller into programming mode by pressing and holding a scene button and both raise and lower buttons together. After 5 seconds the red LED on the panel starts to flash. The panel is now in programming mode. Release the buttons

TIP
Press the scene button first

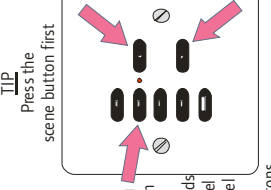


TABLE 1

Button	Action
1	Step up one channel and ident
2	Step down one channel and ident
3	Ident
4	No action
Off	Exit programming

Note:
A Rako panel will always enter programming mode at Channel 0. It is not possible to give a receiver an address of Channel 0 but this gives a consistent starting point.

Note:
When in programming mode the buttons have functions as detailed in table 1.

Step 3

Press button 1 once to step up one channel. If this is the desired channel i.e. Channel 1 (for the 1st receiver) then go to Step 4. If not, press button 1 again to step up to channel 2 (for the 2nd receiver), again to step to channel 3 etc, until the desired channel number is reached (maximum = 15). It is this channel number (along with the House and Room address) that is sent to the receiver in Step 5. If at any point it is necessary to step down a channel, press button 2 once.

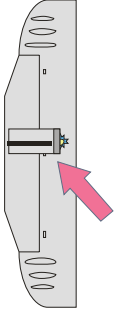
Note

If some receivers are already addressed to a the wall panel then they will 'flash' their connected lamps as their channel number is reached during the stepping procedure, this allows the user to 'identify' which channel numbers are already taken. To add a new receiver to an existing installation step up through the channels until a channel number is reached where no receiver flashes a load, this is then an available channel. If at any point there is uncertainty as to whether a receiver actually flashed its load then button 3 will flash the load but without stepping up or down a channel. If all of the loads flash then this indicates that the current address is Channel 0.

Note: If it is not possible to see the connected lamps flashing when stepping through the channels, it is possible to tell from the LEDs in the receivers which will momentarily go solid when their channel address is reached.

Go to the receiver to be addressed

Step 4

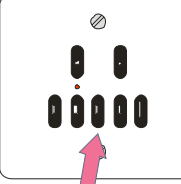


Hold the magnet against casing at point indicated on the label until LED illuminates and keep the magnet held with the LED on until it starts to flash. Then remove magnet. Module is now in set-up mode.

Note: If a receiver is already addressed to a controller (for example a receiver is addressed to the controller but with the wrong channel number) then the LED will be flashing as soon as the panel is put into programming mode. It will, however, still be possible to re-address this receiver using the magnet as normal.

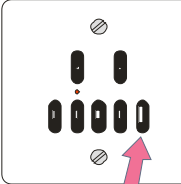
Step 5

Press button 3 to send the ident of the channel selected in step 3. Receiver automatically returns to normal mode (blue LED goes out) while controller remains in programming mode (red LED keeps flashing)



Step 6

Press Off button to exit controller from programming mode



Is the controller still in programming mode (red LED flashing)

NO

YES

Is there another receiver in the room to be addressed

NO

YES