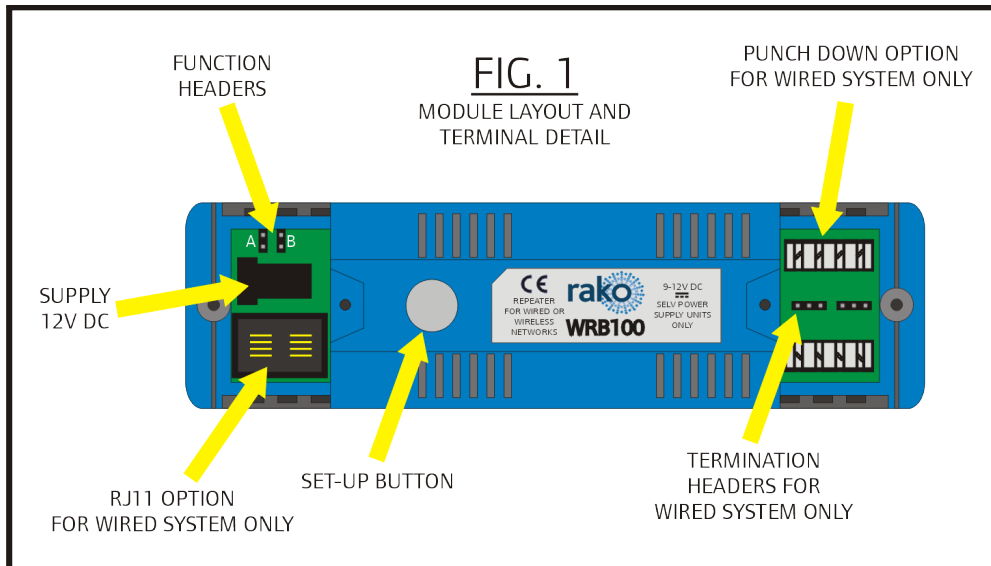# WRB100 Instruction Manual

General

The WRB100 module is a repeater for use with either wired or wireless systems. Follow the appropriate instructions according to the type of installation.

FIG. 1
MODULE LAYOUT AND TERMINAL DETAIL

FUNCTION HEADERS

PUNCH DOWN OPTION FOR WIRED SYSTEM ONLY

SUPPLY 12V DC

RJ11 OPTION FOR WIRED SYSTEM ONLY

SET-UP BUTTON

TERMINATION HEADERS FOR WIRED SYSTEM ONLY

Installation

Before commencing installation of the Rako WRB100 modules, first read this instruction manual carefully.

Do not install in direct sunlight.
Instal in a dry location with adequate ventilation

Rako Controls Ltd accepts no responsibility for any damage or injury caused by incorrect installation of a Rako product.

Care and maintenance

General: Rako thanks you for having purchased a Rako product and hopes that you are pleased with your system. 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 01634 226666.

Installation in a Wireless System

The WRB100 is supplied with a 12V DC power supply and an RJ11 connection lead. For wireless systems the RJ11 lead is <u>not required</u>.

The 12V DC power supply should be plugged into a source of 230V mains power and the other end connected to the concentric jack plug (see Fig 1 connection detail).

The WRB100 is fitted with other connectors and header connectors. These are not used in a wireless installation.

Addressing

The module needs to be given an address, in the same way as other wireless modules in order to function. Unlike other wireless modules the Room and Channel number is unimportant, but it is essential that the module be given the same House address as other modules in the system. As the unit will not receive an address without a definite Room and Channel number pick any Room and Channel number. It is recommended, but not essential, that this is not the same Room and Channel number used by any other modules.

Aerials.

As the purpose of a WRB100 module is to extend the wireless range of a system it is important that the two aerials (receive and transmit) are kept straight and clear of any obstructing materials (for radio signals this generally means metalwork).

Location

The purpose of a WRB100 module in a wireless system is to receive and re-transmit Rakom wireless messages. To work effectively it needs to be positioned so that it is receiving range of all the required transmitters and also in transmitting range of any required receivers. Normally this means a mid-point between the two.

Checking Correct Operation

The WRB100 module has two internal LEDs below the set-up button, one blue and one red. The blue LED flashes when the unit receives ANY Rakom command, the red LED flashes when the unit transmits a message. In order for a WRB100 to repeat a message it must be set to the correct House address (see above) therefore if the red LED flashes when a button is pressed then the unit has been addressed and is functioning correctly.

Using Multiple WRB100 modules

To avoid the possibility of multiple modules getting locked into a transmitting 'loop', messages from a WRB100 are 'flagged' as boosted messages and will not be re-transmitted by other WRB100 modules. With programming and careful consideration it is possible to add further WRB100 modules to a system. Contact Rako Controls technical helpline for further details.

Installation in Wired Systems or a Wired 'Spine' for a Wireless Network

General

The Rako WRB100 module is designed to link between a Rako Wired system and a Rako Wireless system. It will interface between the systems, passing signals between the two.

The WRB100 can also be used to form a 'wired spine' for a Rako Wireless network, where the wireless system is installed over a widely spread area, or where there are physical obstacles that prevent normal radio transmission. Such obstacles may include large concrete structures, underground locations, metal barriers and so on. The WRB100 then works by using a wired connection between the different locations. Any Rako radio signal in one area is fed down the wire and then retransmitted by WRB100 modules in other locations. See figure 2.

Connections

The WRB100 can be connected to the CAT5 network using either the punch down connectors (Fig 4 and Fig 5) or by using the RJ11 lead plugged into either a WP-Con or WP-ConC connector (Fig. 6)or plugged directly into a RAKLink or RAKStar.

Function Headers

In order for the WRB100 correctly when connected to a wired network, or 'spine' arrangement the header connector (see Fig. 1) should be fitted across the two pins marked 'A'.

Power Supply

If the WRB100 is connected to a CAT 5 network powered by a Rako RAK-Link then power is taken directly from the system and no PSU is required. In wired networks such as a 'spine' arrangement as shown in Fig. 2 + 4 each WRB100 requires an SELV 9V or 12v DC power supply. The Rako power supply ref: RAPSU can be used or alternatively one of an equivalent specification.

Addressing

The WRB100 needs to be given an address, in the same way as other system components in order to function. Unlike other units the Room and Channel number is unimportant, but it is essential that the module be given the same House address as the rest of the system. As the unit will not receive an address without a definite Room and Channel number pick any Room and Channel number. It is recommended, but not essential, that this is not the same Room and Channel number used by any other devices. To assign an address press and hold the set-up button until the internal LED flashes red, then release the button and sent an ident command from either a wallpanel or the Rasoft programming software.

Terminations

When using the WRB100 as part of a wired, or wired 'spine' it is important that the termination headers (see Fig.1) are set correctly. Any modules which are at the end of a daisy chain connection should be set to the 'Term' position. Any modules which are at the end of a line coming from a RAKStar should be set to 'Star' position and any other modules should be left as unterminated. See Fig 7 for detail.

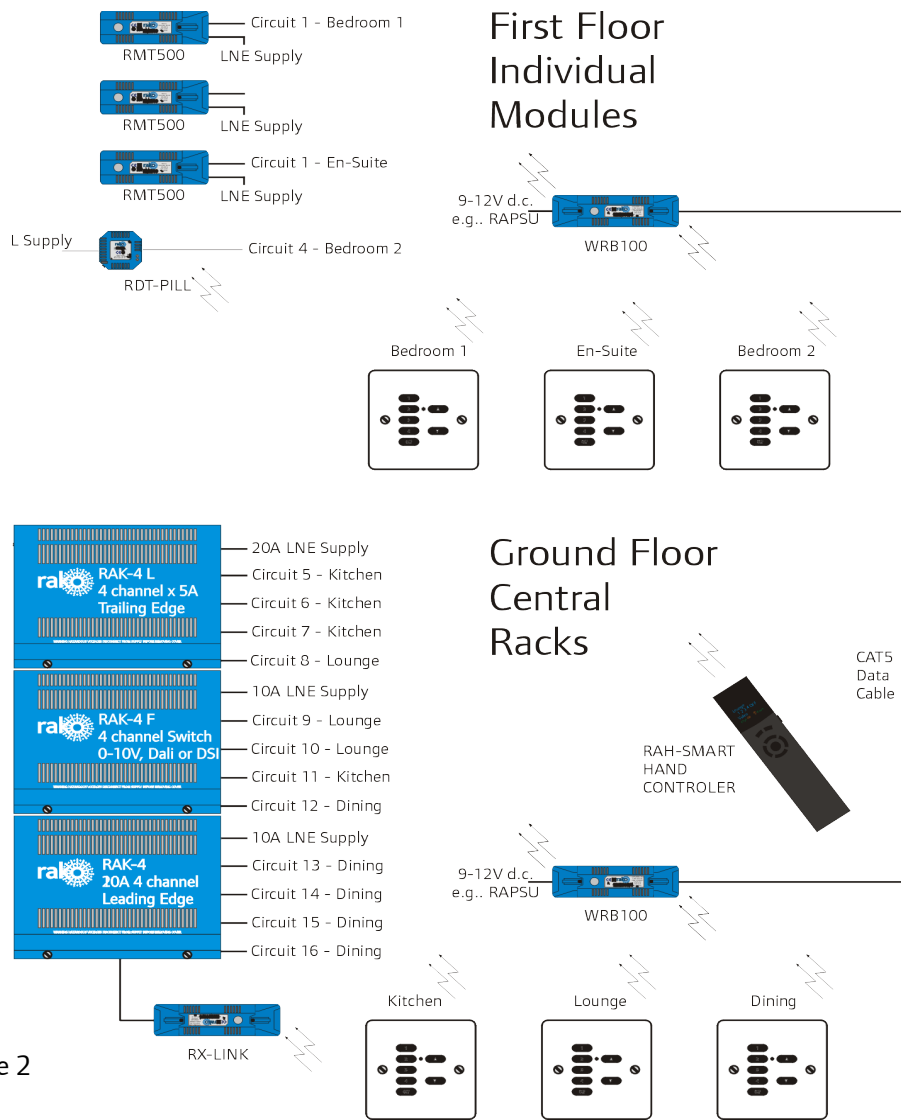Your system should now be ready to operate.

Figure 2

RMT500 — Circuit 1 - Bedroom 1 / LNE Supply

RMT500 — LNE Supply

RMT500 — Circuit 1 - En-Suite / LNE Supply

L Supply — RDT-PILL — Circuit 4 - Bedroom 2

First Floor Individual Modules

9-12V d.c. e.g.. RAPSU — WRB100

Bedroom 1   En-Suite   Bedroom 2

Ground Floor Central Racks

RAK-4 L 4 channel x 5A Trailing Edge
- 20A LNE Supply
- Circuit 5 - Kitchen
- Circuit 6 - Kitchen
- Circuit 7 - Kitchen
- Circuit 8 - Lounge

RAK-4 F 4 channel Switch 0-10V, Dali or DSI
- 10A LNE Supply
- Circuit 9 - Lounge
- Circuit 10 - Lounge
- Circuit 11 - Kitchen
- Circuit 12 - Dining

RAK-4 20A 4 channel Leading Edge
- 10A LNE Supply
- Circuit 13 - Dining
- Circuit 14 - Dining
- Circuit 15 - Dining
- Circuit 16 - Dining

RX-LINK

9-12V d.c. e.g.. RAPSU — WRB100

CAT5 Data Cable

RAH-SMART HAND CONTROLER

Kitchen   Lounge   Dining

Example: 2 WRB100 used to create a Range Extending Wired Spine in a Wireless system

Figure 3

RMT500 — Circuit 1 - Bedroom 1 / LNE Supply

RMT500 — Circuit 1 - Bedroom 2 / LNE Supply

RMT500 — Circuit 1 - En-Suite / LNE Supply

L Supply — RDT-PILL — Circuit 4 - Bedroom 2

First Floor Individual Modules

WRB100

Bedroom 1   En-Suite   Bedroom 2

RAK-4 L 4 channel x 5A Leading Edge
- 20A LNE Supply
- Circuit 5 - Kitchen
- Circuit 6 - Kitchen
- Circuit 7 - Kitchen
- Circuit 8 - Lounge

RAK-4 F 4 channel Switch 0-10V, Dali or DSI
- 10A LNE Supply
- Circuit 9 - Lounge
- Circuit 10 - Lounge
- Circuit 11 - Kitchen
- Circuit 12 - Dining

RAK-4T 10A 4 channel Trailing Edge
- 10A LNE Supply
- Circuit 13 - Dining
- Circuit 14 - Dining
- Circuit 15 - Dining
- Circuit 16 - Dining

RAK-LINK

Ground Floor

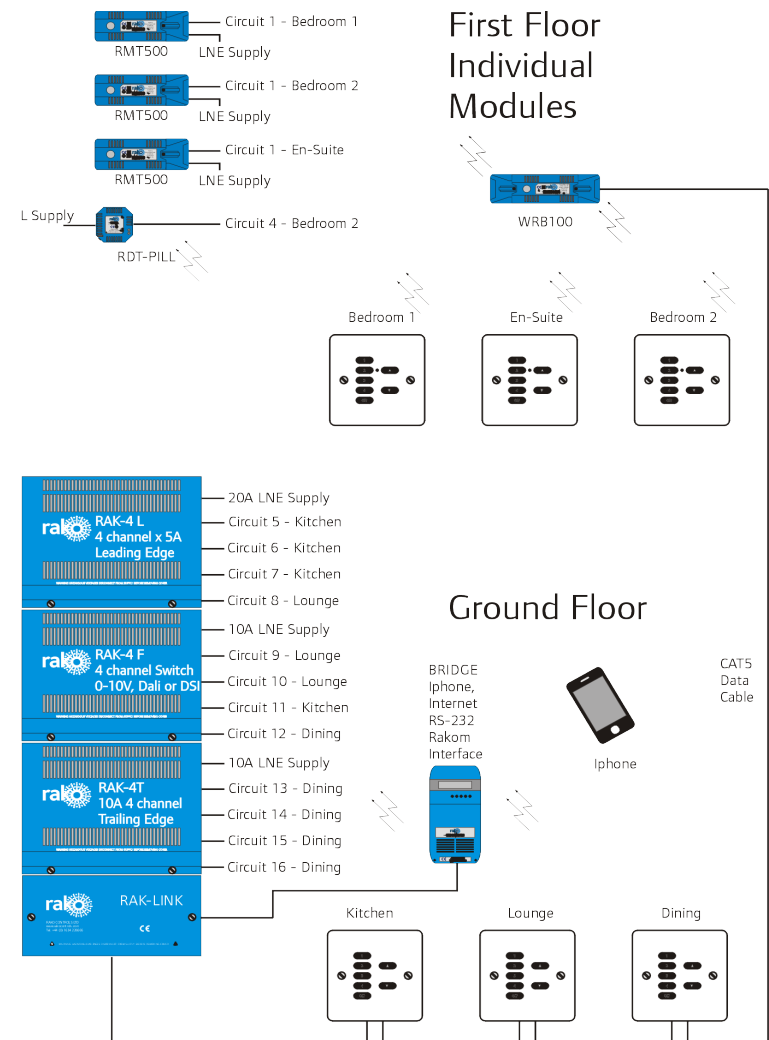BRIDGE Iphone, Internet RS-232 Rakom Interface

Iphone

CAT5 Data Cable

Kitchen   Lounge   Dining

Example: WRB100 used as interface between Wired & Wireless systems

WIRING UP THE WRB100 MODULES WITH CAT 5 CABLE

Fig. 4

PSU
+9 to +12V DC

PSU
+9 to +12V DC

PSU
+9 to +12V DC

PSU
+9 to +12V DC

CAT5 Network Cables

Set Jumpers to "Term" Position in modules at each end of Line
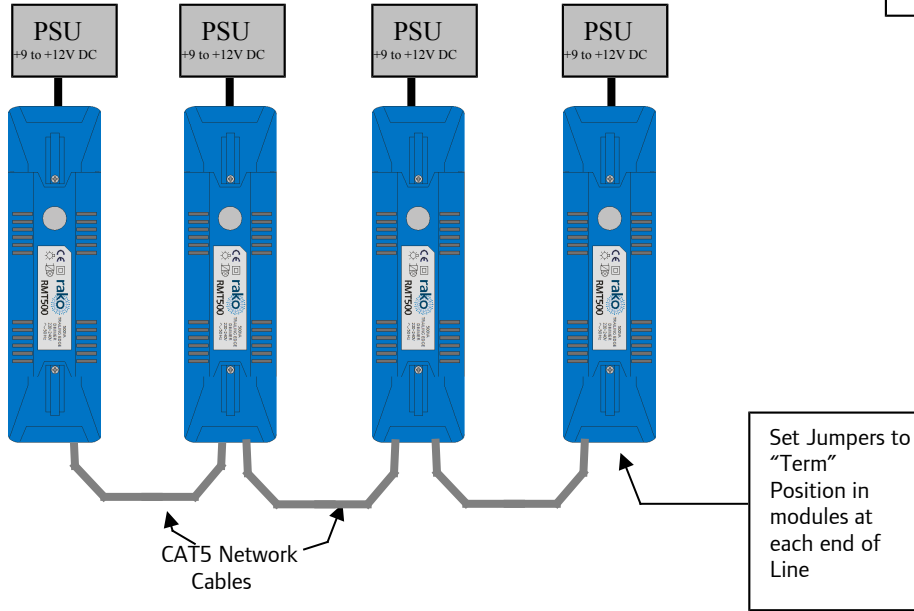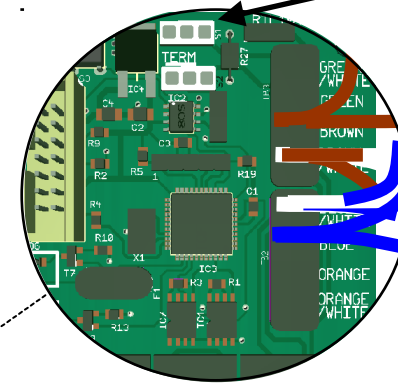
CAT5 Network Cables

Fig. 5

Fig.4: WRB100 can be used as range boosters in a Wireless system. Each WRB100 has it's own power supply which is plugged to DC connector. WRB100 has punch down connectors for CAT5 cable to connect data from one WRB100 to another. At each end of the CAT5 line the WRB100 jumpers must be set to "Term". The system is not limited to 4 modules: More modules can be added as required to create longer chains.

Fig. 5: WRB100 used to interface between Wired and Wireless systems. The WRB100 are wired to the system using CAT5 cable like any other Wired device. There are no power supplies as the WRB100 take their power from the wired system.

RAKLink Unterminated if it is NOT at end of CAT5 cable
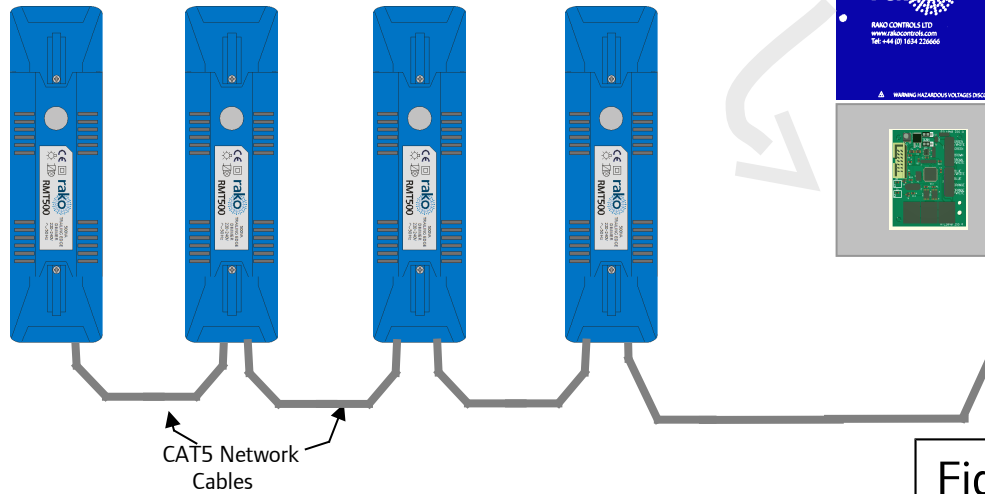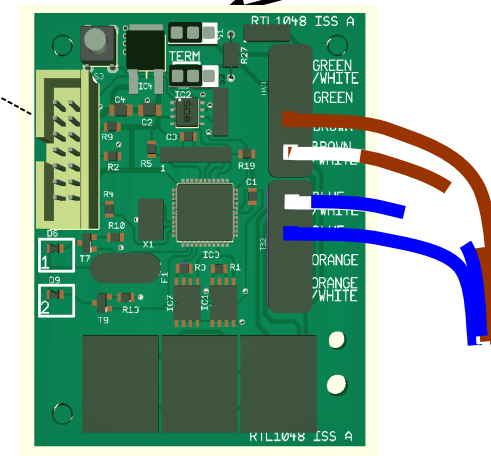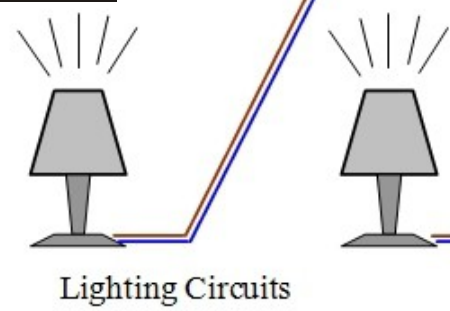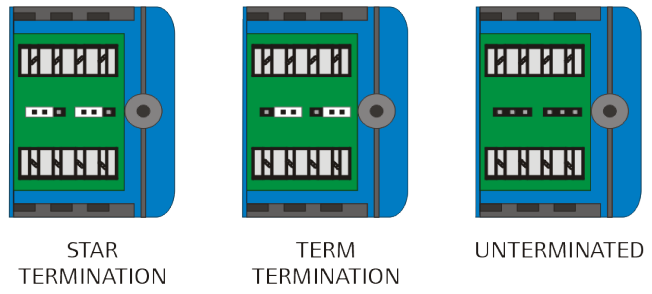
RAKLink Terminated if it IS at end of CAT5 cable

RAK-LINK

RAKO CONTROLS LTD
www.rakocontrols.com
Tel +44 (0) 1634 226666

MAINS SUPPLY REQUIREMENTS
200-260V AC ONLY 50/60Hz
6A 12WMAX

⚠ WARNING HAZARDOUS VOLTAGES DISCONNECT FROM SUPPLY BEFORE REMOVING COVER ⚠

FIG. 7
TERMINATION DETAIL

STAR
TERMINATION

TERM
TERMINATION

UNTERMINATED

Fig. 6

Lighting Circuits

Internal RJ45 RAK4 cables

RAK4

RAK4

RAK-LINK

Cat5 data cable

RAKLink

WP-CON 1

Wallplate 1

WP-CON 2

Wallplate 2

WRB100

WRB100