CLIPSAL®

by **Schneider** Electric

C-Bus Saturn Zen™ Wall Switches
R504xNL ER504xNL

Installation Instructions

TWO YEAR
2
WARRANTY

C-Bus®

CE FC ⬙

Contents

1.0   Product Range

The C-Bus R504xNL and ER504xNL series wall switches are high-end C-Bus input units. The range features from 1 to 4 buttons that have device and scene control capabilities. Each switch has a unique unit address on the network and can be daisy chained with other C-Bus network devices, or it can be placed at the end of a cabling run.

This document applies to the C-Bus Wall Switches listed below.

Catalog Number	Description
R5041NL-xx	C-Bus Wall Switch A Series, 1 button, -ZW White, -ZB Black colour
R5042NL-xx	C-Bus Wall Switch A Series, 2 button,-ZW White, -ZB Black colour
R5043NL-xx	C-Bus Wall Switch A Series, 3 button,-ZW White, -ZB Black colour
R5044NL-xx	C-Bus Wall Switch A Series, 4 button,-ZW White, -ZB Black colour
ER5041NL-xx	C-Bus Wall Switch E Series, 1 button, -ZW White, -ZB Black colour
ER5042NL-xx	C-Bus Wall Switch E Series, 2 button, -ZW White, -ZB Black colour
ER5043NL-xx	C-Bus Wall Switch E Series, 3 button, -ZW White, -ZB Black colour
ER5044NL-xx	C-Bus Wall Switch E Series, 4 button, -ZW White, -ZB Black colour

2.0   Packaged Components

The C-Bus wall switch includes the switch body, the front fascia panel and a set of button caps. The wall switch mounts in a standard 157 series wall box that is purchased separately. The wall switch has screw terminals for the C-Bus network wiring connnections. Figure 1 shows the packaged components.
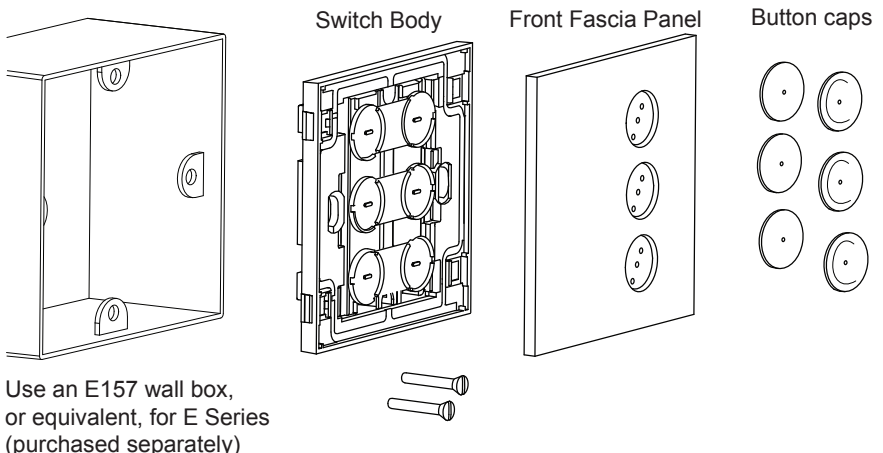

Switch Body   Front Fascia Panel   Button caps

Use an E157 wall box,
or equivalent, for E Series
(purchased separately)

Figure 1. 3-button wall switch packaged components

3.0 Safety and Product Handling

Please read and follow these important guidelines:

- The R504xNL and ER504xNL wall switch range is for C-Bus networks only. Never connect the unit to mains wiring or any other type of wired network. The C-Bus network uses Cat5e, unshielded twisted pair cables.

- The wall switch is for indoor use only. Do not install the switch where it will be subjected to liquid spills, extreme heat or heavy dust.

- Do not attempt to disassemble the switch body. There are no user serviceable parts inside. Refer all repairs to your local Clipsal by Schneider Electric representative. A warranty statement is included in this document.

- The switch must be programmed using Clipsal C-Bus Toolkit software before it can operate on the C-Bus network. C-Bus Toolkit software can be downloaded from the Clipsal website (see Programming Requirements).

- The use of any software not provided by Clipsal Integrated Systems (CIS) in conjunction with the installation of this product may void any warranties applicable to the hardware.

- The installer connects the C-Bus plus (+) and C-Bus minus (-) at the rear of the unit. The installer does not need to have an electrician's license.

- Do not Megger test the C-Bus network cables.

| No wet hands | No spray cleaner | No coverage | No direct sunshine | No dust |

4.0 Installing or Removing Buttons

Choose either the flat or curved buttons to populate the apertures in the front fascia, both types are included with the switch. The buttons are a pressed fit in the apertures and no tools are required. Figure 2 shows the features of the buttons.
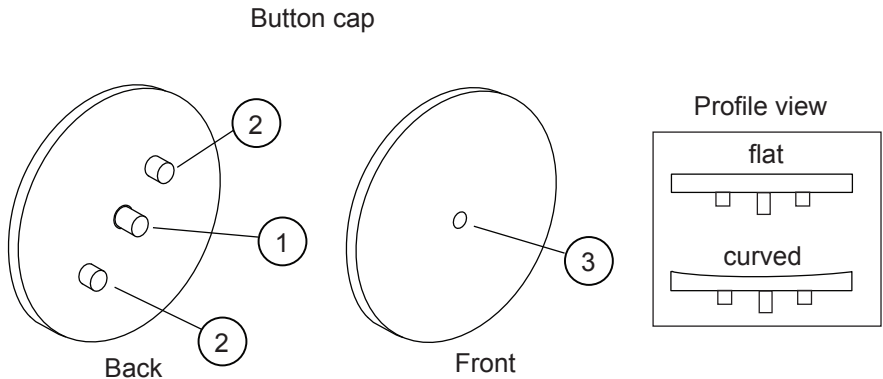
Button cap

Profile view

flat

curved

Back

Front

Figure 2. Details of the buttons used on the wall switches

In the figure above, the following features are called out:

Ref. Number	Feature	Description
1	Center post/ light rail	The post centres the button on the button seat and provides a light path for the indicator LED in the switch body.
2	Retainer posts	These posts are a press fit with the two holes in the button seat.
3	Lens	Light from the indicator LED exits from the lens.

Important Notes on button installation and removal

- Hold the fascia firmly in one hand when installing or removing buttons. Do not attempt to install or remove buttons if the fascia is installed on the switch body. To remove the front fascia, refer to the instructions in this document.

- Avoid contact with the retainer spring during button installation or removal. The spring is adjusted at the factory and can be damaged by careless handling.

- Buttons are installed with finger pressure only; no tools are needed.

- To unseat a button you should use a pointed tool such as a small screwdriver. Refer to the instructions and illustrations in this document.

- Keep any unused buttons for future use.

4.1   Installing Buttons

To install a button in the front fascia, refer to Figure 3 and these instructions:

1. Examine the button seat (B) on the back side of the front fascia(A). Notice that there are three holes in a straight line.

   Important: Avoid contact with the spring (**!**). Figure 3 shows you how to safely hold the button seat (B) when installing the button (C).

2 Remove a button (C) from the bag (choose between flat and curved buttons). Notice that the centre post is longer than the two retaining posts.

3. Hold the fascia (A) firmly in one hand with the back facing you.

4. Place the back side of the button (C) in the aperture on the front side of the fascia (A) and align the three button posts with the corresponding holes in the button seat (B).

5. Using only finger pressure, press on the button seat (B) with your thumbs. Apply pressure on the front of the button (C) face with your fingers.
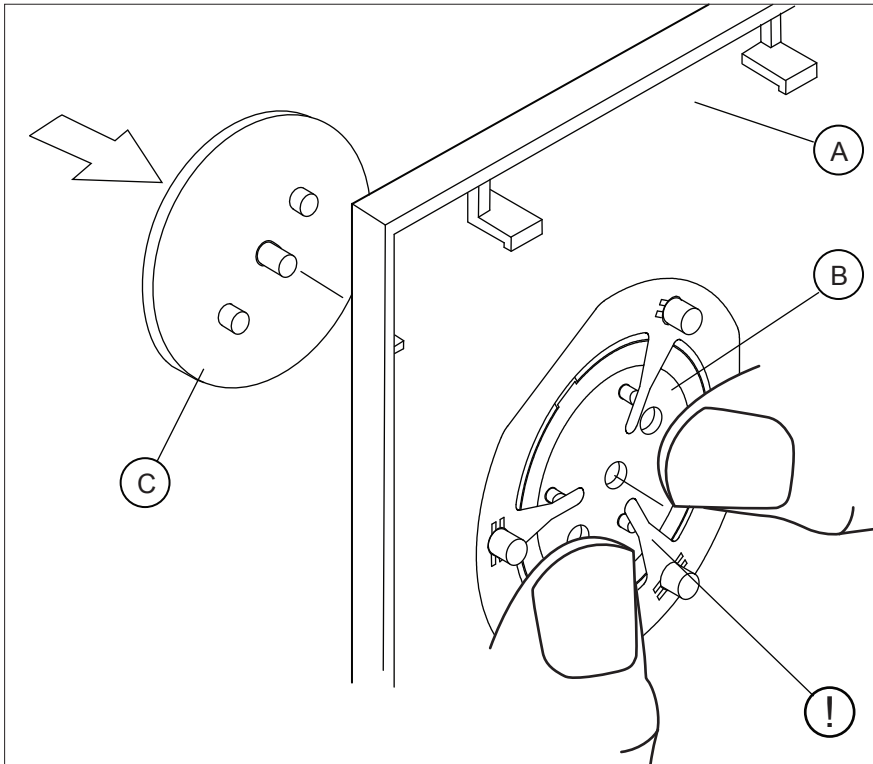
6. Repeat as needed for all apertures.

Figure 3. How to install a button in the fascia

4.2   Removing Buttons

To remove a button from the fascia, you will need a small pointed tool such as a screwdriver or pencil.

1. Hold the fascia firmly in one hand and support the front with your fingers. Avoid contact with the spring (❗)

2. Using one thumb (A) to keep the button seat stable, Press firmly with the tool on each of the two retainer posts (B) until the button is free to move.

3. Remove the button and keep it for future use. You are now ready to install another button in the aperture.
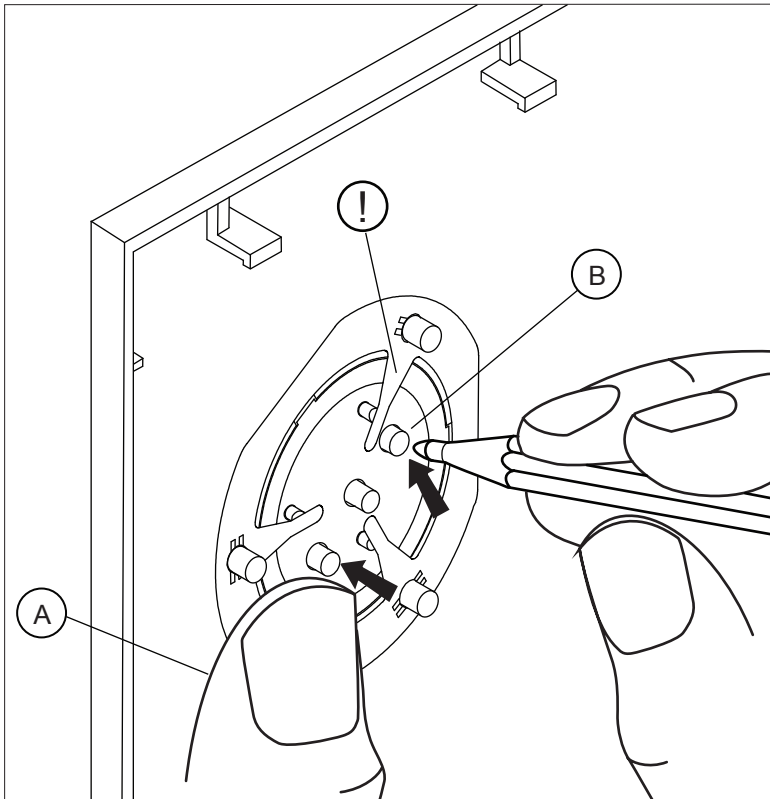
Figure 4. How to remove a button from the fascia

5.0   Installing and Removing the Fascia

Installing the Fascia

Each fascia has 4 mounting clips. Be careful not to damage the clips as this will cause a poor fit on the switch body. Each fascia has an UP arrow for proper placement of the buttons over the corresponding switch mechanisms.

To install the **A Series** fascia, follow the instructions in Figure 5. Note that the fascia is held in place by two release latches at the BOTTOM of the switch body.

To install the **E Series** fascia, follow the instructions in Figure 6. Note that the fascia is held in place by four release latches on the SIDES of the switch body

Mounting clips (upper)

Install the fascia with the arrow pointing UP

Mounting clips (lower)

Switch body

1. Place the upper mounting clips in the recesses in the switch body.

Fascia for 3-key Wall Switch

2. Place the lower mounting clips against the release latches in the switch body.

Release latches

3. Using a small screwdriver, push upward on each of the release latches to engage the lower mounting clips.

Figure 5. Installing the A Series fascia

Mounting clip

Install the fascia with the arrow pointing UP

Mounting clips

Mounting clip

Switch body

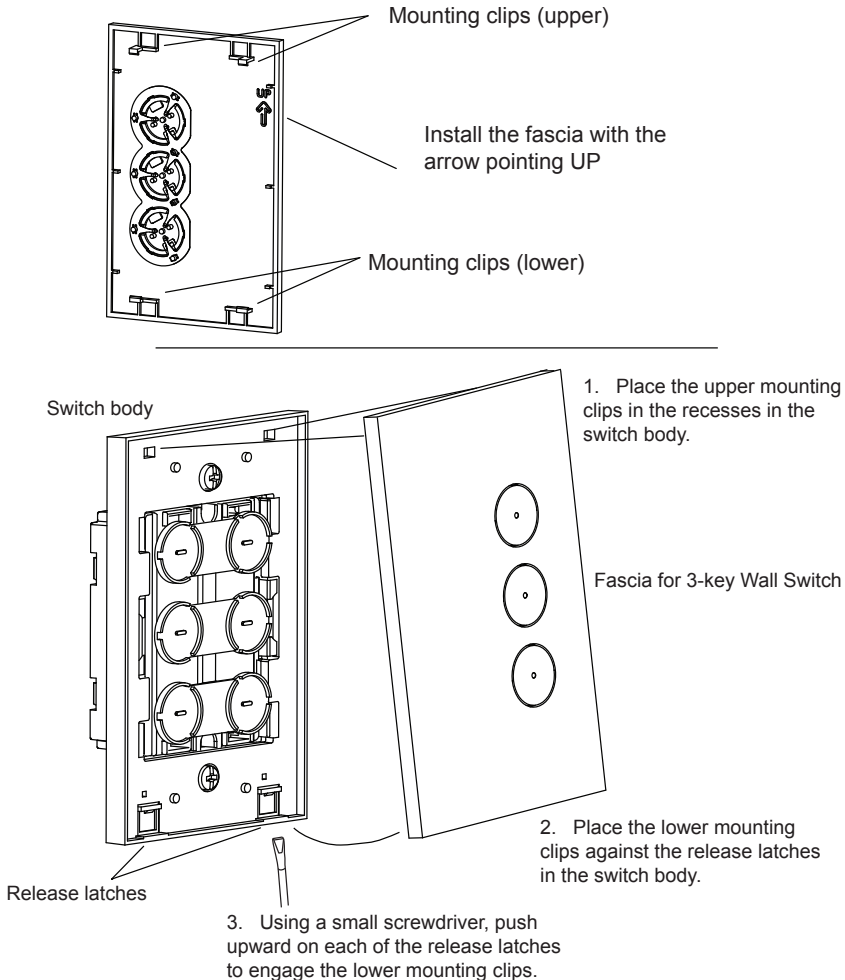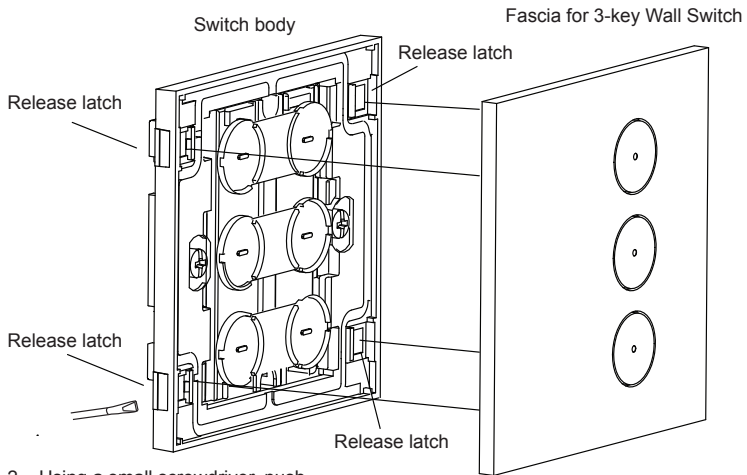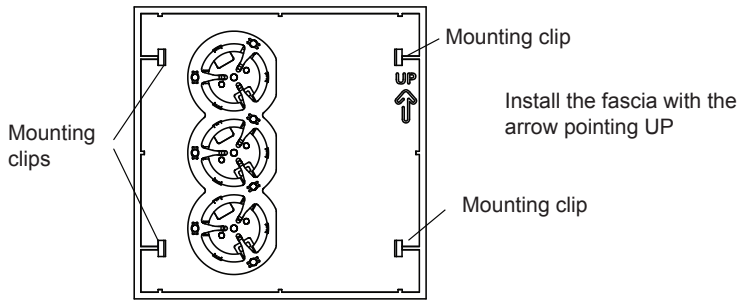Fascia for 3-key Wall Switch

Release latch

Release latch

Release latch

Release latch

Release latch

2. Using a small screwdriver, push sidewards on each of the release latches to engage the 4 mounting clips.

1. Hold the 4 mounting clips against the release latches in the switch body.

Figure 6. Installing the E Series fascia

Removing the Fascia

To remove the fascia, support the switch body to prevent damage.

On the **A Series** switch, pull gently on the lower part of the fascia. Using a small screwdriver, push on each of the release latches to disengage the fascia.

On the **E Series** switch, pull gently on the fascia. Using a small screwdriver, push on the two release latches on one side to disengage that side. And then push on the two latches on the other side to disengage the remaining two mounting clips.

Handle the fascia carefully to avoid breaking off any of the mounting clips.

6.0   Mounting Instructions

A Series C-Bus wall switches suit standard rectangular 84mm centre mounting accessories, such as the Clipsal 155, 155VH and 157/1. Mounting using a 157 series wall box is shown in Figure 7. It is recommended that wall boxes be Earthed.

E Series C-Bus wall switch input units suit standard square 60.3mm centre mounting accessories, such as the Clipsal E157 and E5050MF. Mounting using an E157 series wall box is shown in Figure 8.

NOTE: Mounting accessories must be fitted a minimum distance of 10mm back from the finished surface of the wall. When mounting vertically, fit the grid plate to the wall with the release latches as shown in Figure 7 and Figure 8.
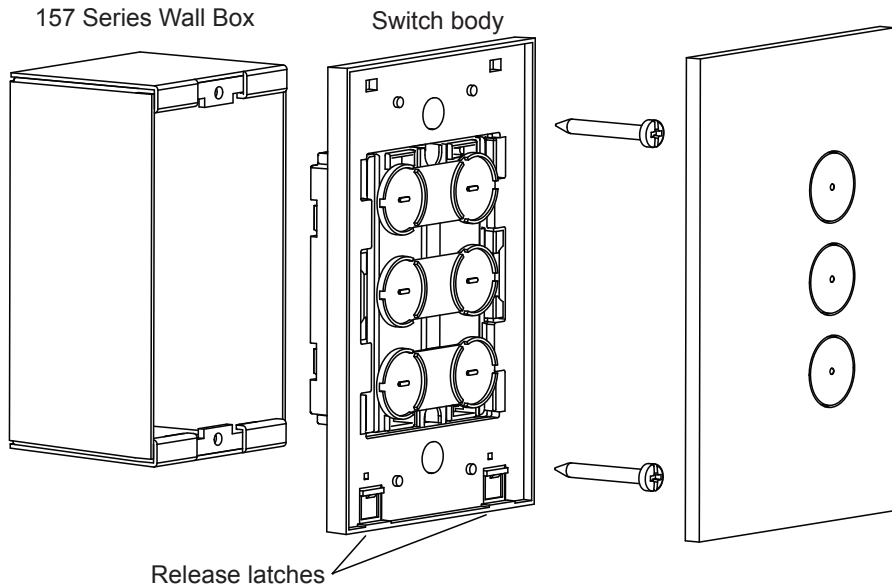
157 Series Wall Box   Switch body

Release latches

Figure 7. Mounting an 'A' Series wall switch using a 157 Series wall box

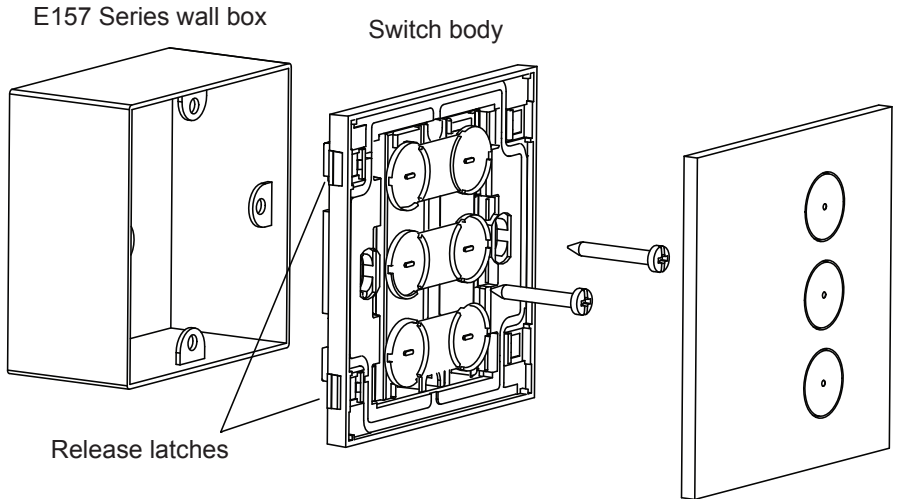E157 Series wall box   Switch body

Release latches

Figure 8. Mounting an 'E' Series wall switch using a E157 Series wall box

7.0   C-Bus Network Connection

Connect the wall switch to the C-Bus network using an unshielded twisted pair C-Bus cable. See Figure 9.

Twist or crimp the wire pairs together as shown. Do not use soldered connections; they are not reliable. Use Category 5 (Cat 5) data cable (Clipsal catalogue number 5005C305B solid, or 5005C305BST stranded)

The method of attachment is shown in Figure 10.

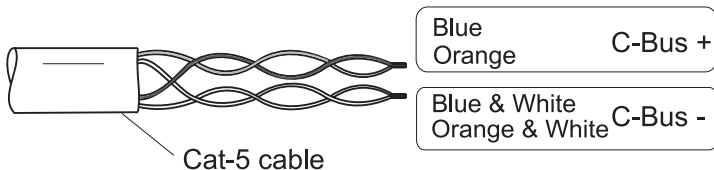| Blue Orange | C-Bus + |
| Blue & White Orange & White | C-Bus - |

Cat-5 cable

Figure 9. Wiring the 'A' Series wall switch

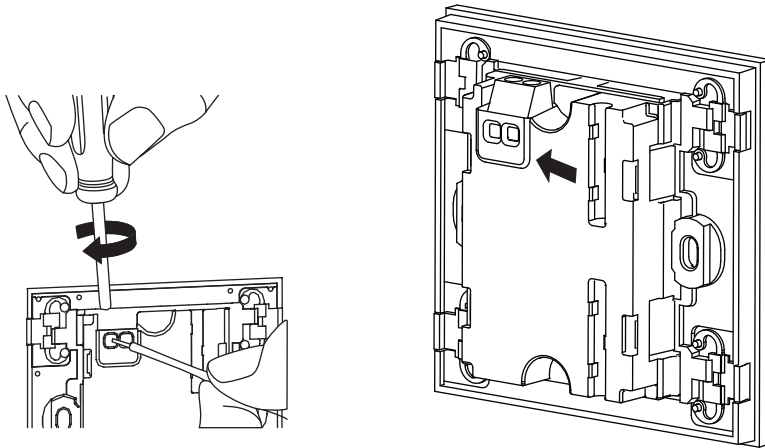Do not connect C-Bus negative to earth or to any other circuit.

Figure 10. Wiring the Wall Switch

Make sure that the polarity of the wires is correct. Do not over-tighten the screws.

8.0   C-Bus Power Requirements

The C-Bus wall switch input unit draws 22 mA from the C-Bus network. Adequate C-Bus Power Supply Units must be installed to support the connected devices.

The network window of a C-Bus Toolkit project provides a summary of a C-Bus network according to the units added to the database. This can be helpful in determining the power supply requirements of a particular network.

9.0   Programming Requirements

C-Bus input units are learn-enabled devices. This means you can create relationships between input and output units without a computer (using learn mode).

Learn mode allows you to link multiple units into a common network. You can assign a load such (ie. a light on a dimmer unit), with a controller (i.e. a C-Bus wall switch), by touching the two units one after the other.

In a sophisticated installation, some of the basic settings created by learn mode may need to be overridden to create a particular effect. The latest C-Bus Toolkit software may be downloaded from the Clipsal Integrated Systems website (www. clipsal.com/cis).

10.0 Do Not Megger Test

Never perform Megger testing on the pink C-Bus cabling or terminals as this may degrade the performance of the network.

11.0 Specifications

Parameter	Description
C-Bus supply voltage	15 to 36V d.c. 22 mA for normal operation. Does not provide current to the C-Bus network.
C-Bus AC input impedance	50 kΩ @ 1 kHz
Electrical isolation	3.75 kV RMS from C-Bus to mains (provided externally to R508xNL Series unit)
Control functions	Load switching, dimming, timers, scene control
Status indicators	User configurable orange and blue
Warm-up time	5 seconds
C-Bus connection	One terminal block to accommodate 0.2 mm^2 to 1.3 mm^2 (24 to 16 AWG)
Operating temperature range	0 to 45°C
Operating humidity range	10 to 95%, non-condensing

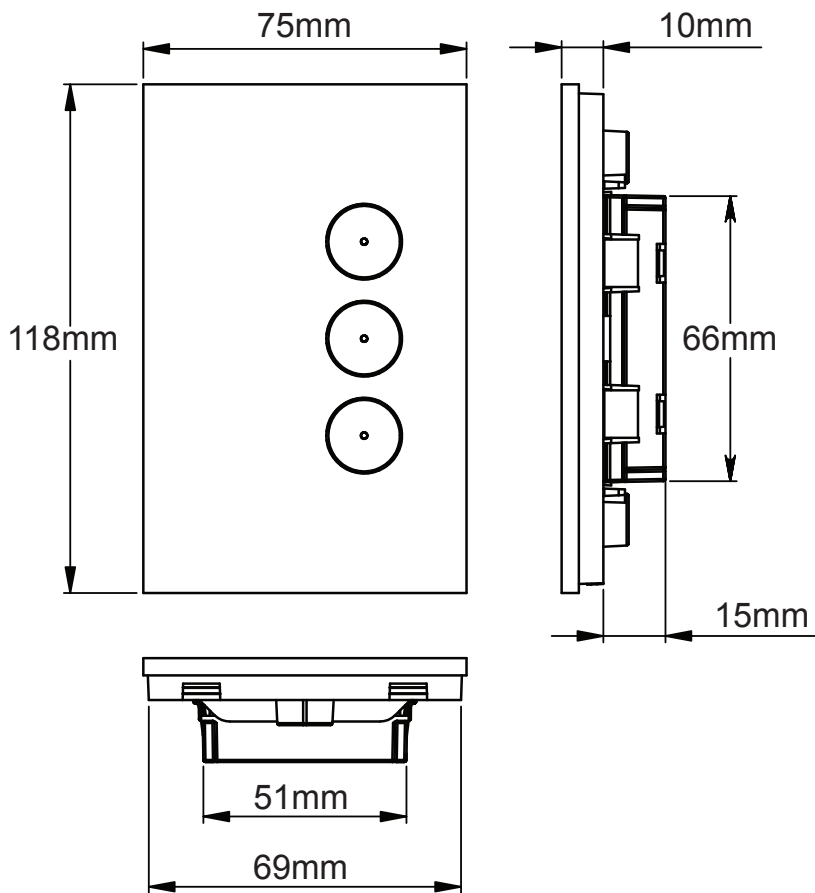|	A Series	E Series
Dimensions (W×H×D)	See Figure 11	See Figure 12
Protrusion from wall	10mm	10mm
Base depth (into wall)	15mm	15mm
Mounting Centres	84mm	60.3mm
Weight	54g	39g

Figure 11.   C-Bus A-Series 3-key wall switch dimensions

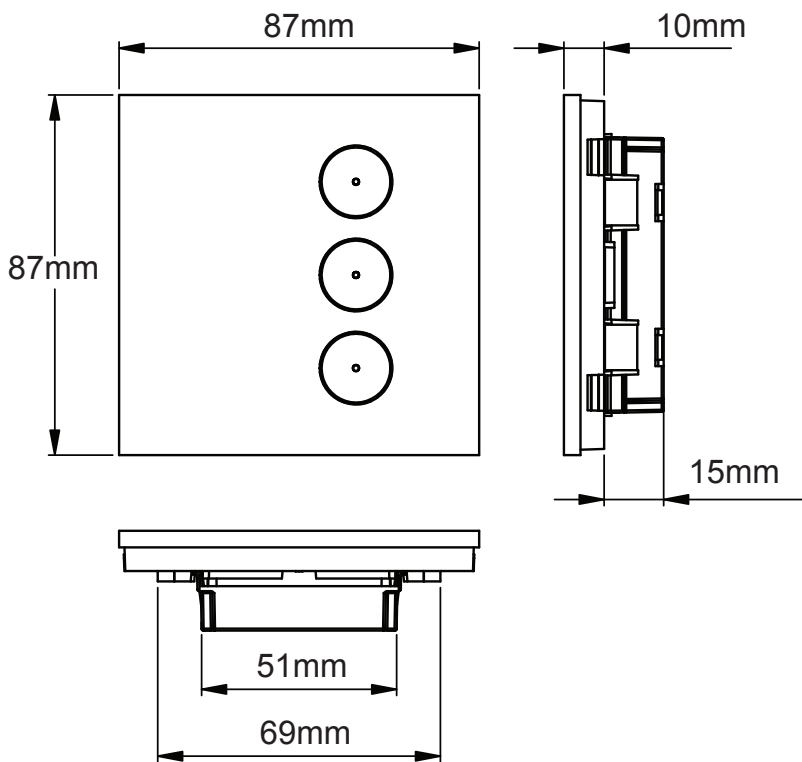Use 157 series rectangular wall box with 84mm mounting centres.

Figure 12.   C-Bus E-Series 3-key wall switch dimensions

Use E157 series rectangular wall box with 60.3mm mounting centres.

12.0 Standards Complied

DECLARATIONS OF CONFORMITY

Warning: Any changes or modifications not expressly approved by Clipsal Integrated Systems could void the users authority to operate this equipment.

The C-Bus wall switches comply with the following:

Australian/New Zealand EMC & Electrical Safety Frameworks and Standards

Regulation	Standard	Title
EMC	AS/NZS CISPR 14-1	Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission
	AS/NZS CISPR 15	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

European Directives and Standards

Regulation	Standard	Title
EMC Directive 2004/108/EC	EN60669-2-1 Clause 26.1	Immunity to ESD, RFI, EFT, Surge Voltages, Voltage Dips and Interruptions
	EN 60669-2-1 Clause 26.2	RF and Low Frequency Emissions
	EN55014-1	RF and Low Frequency Emissions
	EN55015	RF and Low Frequency Emissions

US FCC Regulations

Regulation	Title
FCC Part 15, Subart B	Radio Frequency Devices – Unintentional Radiators

Supplemental Information
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Class B Product
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* reorient or relocate the receiving antenna
* increase the separation between the equipment and receiver
* connect the equipment into an outlet on a circuit different from that to which the receiver is connected
* consult the dealer or an experienced radio/TV technician for help.

Other International Directives and Standards

Regulation	IEC Standard	Title
EMC	IEC 60669-2-1 Clause 26	RF and Low Frequency Emissions
	CISPR 14-1	RF and Low Frequency Emissions
	CISPR 15	RF and Low Frequency Emissions

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13.0 LimitedWarranty

The C-Bus wall switch carries a two-year warranty against manufacturing defects.

Warranty Statement

1. The benefits conferred herein are in addition to, and in no way shall be deemed to derogate; either expressly or by implication, any or all other rights and remedies in respect to Clipsal by Schneider Electric product, which the consumer has under the law in the location where the product is sold. The warrantor is Schneider Electric (Australia) Pty Ltd.

2. This product is guaranteed against faulty workmanship and materials for a period of two (2) years from the date of installation.

3. Schneider Electric reserves the right, at its discretion, to either repair free of parts and labour charges, replace or offer refund in respect to any article found to be faulty due to materials, parts or workmanship.

4. This warranty is expressly subject to the product being installed, wired, tested, operated and used in accordance with the manufacturer's instructions.

5. All costs of a claim shall be met by Schneider Electric, however should the product that is the subject of the claim be found to be in good working order, all such costs shall be met by the claimant.

6. When making a claim, the consumer shall contact the nearest Schneider Electric sales office with adequate particulars of the defect within 28 days of the fault occurring. When the return is authorised by Schneider Electric, the product should be returned securely packed, complete with details of the date and place of purchase, description of load, and circumstances of malfunction.

For all warranty enquiries, contact your local Schneider Electric sales representative.

The location of your nearest representative can be found at http://www.clipsal.com/locations In Australia, you may telephone the Technical Support Hotline1300 722 247.

Schneider Electric (Australia) Pty Ltd

Contact us: clipsal.com/feedback

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