Clipsal SILC

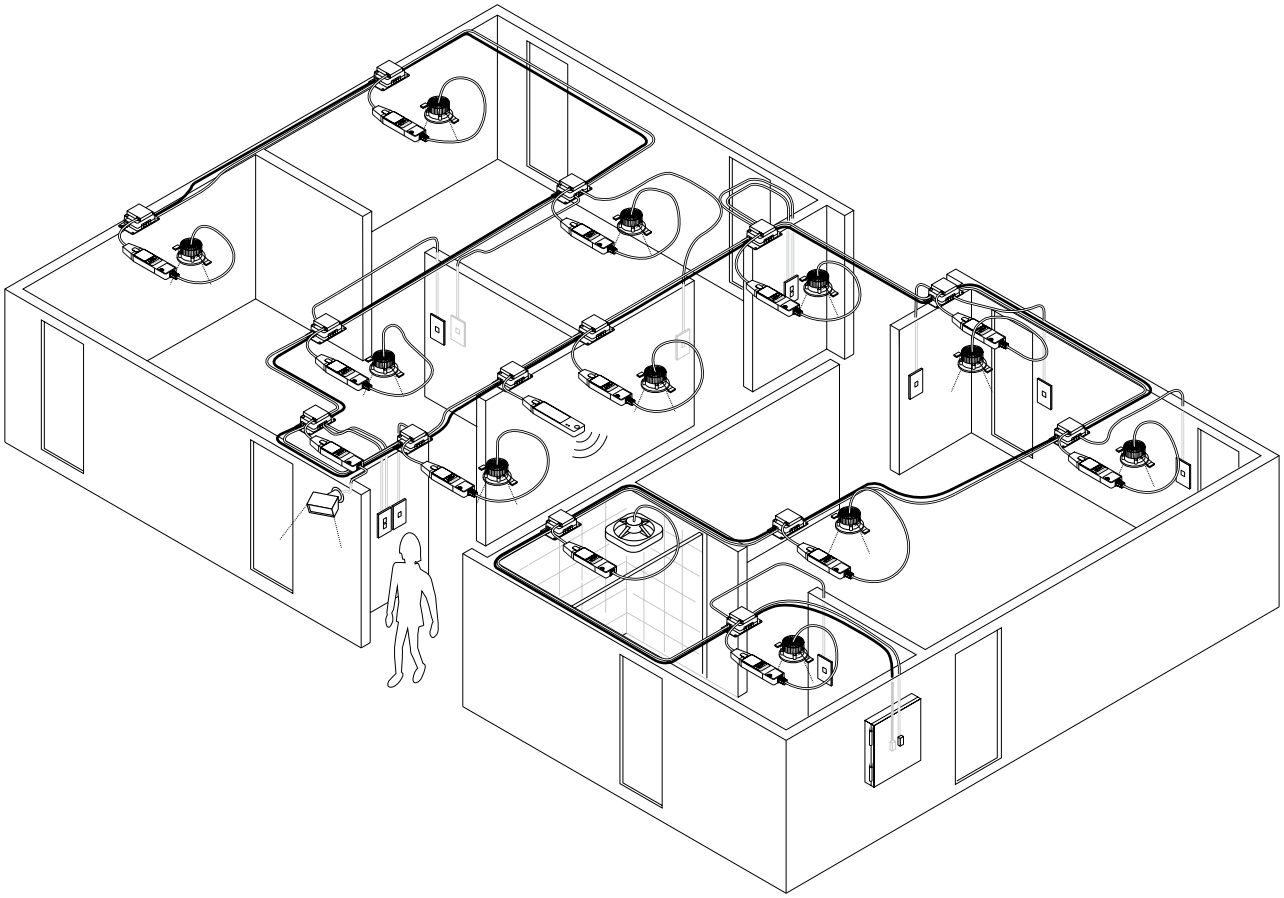
Clipsal SILC Lighting Control System

Installer Guide

This document describes the installation and configuration options for the Clipsal SILC Lighting Control System.

CLS1R5 | CLSK12WF/CF | CLSMM-WE | CLSPB | CLSPD | CLSSWG

08/2015-SILC-IG-00



CLIPSAL

by Schneider Electric

www.clipsal.com

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

No part of this document may be reproduced in any form or by any means, electronic or mechanical, including photocopying, without express written permission of Schneider Electric.

All pertinent state, regional and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

iOS, iPad, iPod Touch and iPhone are trademarks of Apple Inc.

Android™ platform is a trademark of Google Inc.

Wi-Fi® is a Registered Trademark of the Wi-Fi Alliance®.

Other brands and trademarks are the property of the relevant owner.

© 2015 Schneider Electric. All Rights Reserved.
Trademarks are owned by Schneider Electric Industries SAS or its affiliated companies.

Warnings

Read through the following instructions carefully and familiarise yourself with the device prior to installation, operation and maintenance. The warnings listed below can be found throughout the documentation and indicate potential risks and dangers or specific information that clarifies or simplifies a procedure.



The addition of a symbol to the “Danger” or “Warning” safety instructions indicates an electric danger that could result in serious injuries if the instructions are not followed.



This symbol represents a safety warning. It indicates a potential danger of personal injury. Follow all safety instructions with this symbol to avoid serious injuries or death.

DANGER

DANGER indicates an imminently hazardous situation that will inevitably result in serious or fatal injury if the instructions are not observed.

WARNING

WARNING indicates a possible danger that could result in death or serious injuries if it is not avoided.

CAUTION

CAUTION indicates a possible danger that could result in minor injuries if it is not avoided.

NOTICE

NOTICE provides information about procedures that do not represent the risk of any physical injury.

Further information



The information provided must be complied with, otherwise program or data errors may occur.



You will find additional information here to make your work easier.

Table of contents

1 For your safety . . . 6
1.1 Qualified personnel . . . 7

2 System overview . . . 8
2.1 Features and benefits . . . 8
2.2 Getting to know the Clipsal SILC Lighting Control System . . . 9
Principle of operation . . . 9
System components . . . 12
System cabling . . . 19
System capacity . . . 20
2.3 Differences between traditional lighting installations and the Clipsal SILC System . . . 21
Comparing traditional and SILC System installations . . . 21

3 Preparing for installation . . . 24
3.1 Identifying the parts required for the installation . . . 24
3.2 Planning the switch groups . . . 24
3.3 Getting help . . . 25

4 Installation . . . 26
4.1 For your safety . . . 26
4.2 Installation sequence . . . 28
4.3 LED fittings . . . 28
LED fitting location . . . 28
LED fitting mounting holes . . . 29
Procedure . . . 29
4.4 Relay-connected devices . . . 29
Network Relay Unit locations . . . 30
Distance between Network Relay Unit and connected device . . . 31
Procedure . . . 31
4.5 Wireless Gateway Unit . . . 31
Wireless Gateway Unit location . . . 31
Procedure . . . 33
4.6 Junction Boxes . . . 33
Junction Box locations . . . 33
Procedures . . . 34
4.7 Fixed wiring . . . 35
Cable requirements . . . 35
Fixed wiring layout options . . . 35
Procedure . . . 36
4.8 Push button switches . . . 37
Switch connection options . . . 37
Procedure . . . 38
4.9 Insulation and conductivity tests . . . 38
Procedure . . . 39
4.10 Master Off switches . . . 39
Master Off switch locations . . . 39
Master Off switch connection . . . 39
Procedure . . . 39
4.11 Secure Junction Boxes . . . 40

Procedure. . . . 40
4.12 Connect Network Drivers with LED Fitting . . . 41
Procedure. . . . 41
4.13 Connect SILC relay-connected devices . . . 42
Procedure. . . . 43
4.14 Connect Wireless Gateway Unit . . . 45
Procedure. . . . 45
4.15 Install Clipsal SILC Power Supply . . . 46
Procedure. . . . 46
4.16 Connect Mains Power . . . 47
Procedure. . . . 47
4.17 System testing . . . 47

5 Testing and commissioning the Clipsal SILC System . . . 48
5.1 Testing and commissioning overview . . . 48
5.2 SILC LED light and relay-connected device test . . . 48
Aim of test . . . 48
Test procedure . . . 48
5.3 Master Off switch test . . . 50
Aim of test . . . 50
Test procedure . . . 50
5.4 Wireless Gateway Unit connection test . . . 50
Aim of test . . . 50
Test procedure . . . 50

6 Troubleshooting . . . 52
6.1 SILC LED lights and relay-connected devices . . . 52
6.2 Wireless Gateway Unit . . . 52

7 Glossary . . . 53
A . . . 53
C . . . 53
D . . . 54
F . . . 55
I . . . 55
J . . . 56
L . . . 56
M . . . 56
N . . . 57
P . . . 57
Q . . . 58
R . . . 58
S . . . 58
W . . . 59

8 Installation Record . . . 60
8.1 General Installation Details . . . 60
8.2 Switch Group Assignments . . . 60

1 For your safety

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- It is illegal for persons other than an appropriately licensed electrical contractors or other persons authorised by legislation to work on the fixed wiring of any electrical installation.
- To comply with all safety standards, the product must be used only for the purpose described in this instruction and must be installed in accordance with the wiring rules and regulation in the location where it is installed.
- Hazardous voltage may be present at the wire leads of this product.
- Lock out and tag the input circuit before accessing the wiring connections.

Failure to follow these instructions will result in death or serious injury.

DANGER

HAZARD OF ELECTRIC SHOCK

- Dangerous voltage is present at the input of the Clipsal SILC Power Supply (CLSPD).
- Undue care during installation will cause death or serious injury.
- To avoid injury, lock out and tag the supply circuit before installation.

Failure to follow these instructions will result in death or serious injury.

WARNING

MAINS POWER CONTROL CABLE

- Treat all Clipsal SILC Lighting Control System cabling as Mains Power.

Failure to follow these instructions can result in death or serious injury, or equipment damage.

CAUTION

EQUIPMENT DAMAGE HAZARD

- Install the device according to instructions in this document.
- Pay attention to the specifications and wiring diagrams related to the installation.
- Do not use this product for any other purpose than specified in this instruction.
- For electronic control equipment, DO NOT MEGGER TEST.

Failure to follow these instructions can result in minor injuries, or equipment damage.

NOTICE

CONNECTION HAZARD

Do not connect a single push button device to more than one Network Relay Unit or Network Driver with LED Fitting.

Failure to follow these instructions can result in equipment malfunction.

NOTICE

MAXIMUM LOAD RATINGS APPLY

Do not connect a device to a Network Relay Unit if that device exceeds the following load ratings:

- Resistive loads: max. 6 A
- Inductive loads: max. 1 A

Failure to follow these instructions can result in equipment malfunction.

1.1 Qualified personnel

In order to install the Clipsal SILC Lighting Control System (the System), you must be an appropriately licenced electrical contractor or other person authorised by legislation to work on the fixed wiring of any electrical installation in the location where the System will be installed.

2 System overview

2.1 Features and benefits

The Clipsal SILC Lighting Control System is a full-featured, easy to install and expandable home lighting control solution that offers many features and benefits over traditional lighting systems.

Features	Benefits
Standard installation and wiring practices	No specialist tools or methods required
	Use standard 1.5 mm^2 3-core TPS and 2-core TPS cable—no single-core or specialised cable required
	Configure serial, star, spur or a combination of wiring layouts.
Simple configuration with no programming	Faster and lower cost of delivery
	No specialist training required
	No System Integrator required
	More complex switching configurations can be easier to install than traditional lighting systems
	No need to wire all switches to a single nominated point within a switch group
	Simple installation of wireless connectivity for programming and control with compatible mobile devices
Eliminate dimming compatibility and installation problems	Problem-free, flicker-free dimming
	No dedicated or specialised dimming switches required
	No additional dimming circuit wiring required
	Easy multiway dimming (2/3 way and more)
An Energy-efficient lighting product	Save money by using efficient LED lighting
	Potential to reduce power footprint with the convenient Master OFF feature (‘‘green’’ button)
	Meet green building requirements
A flexible and easily expandable system	Future-proof the building’s lighting system
	Use simple and cost-effective push button (bell press) switches
	Choose from a variety of push button models and styles to complement the building interior finish
Establish your position as an electrical contractor delivering professionally-installed home control technology	Potential to increase your opportunities to meet emerging market trends
System backed by leading manufacturer in the Electrical Industry	Enjoy the confidence that goes with the support and backing of an established, well-known brand

2.2 Getting to know the Clipsal SILC Lighting Control System

The Clipsal SILC Lighting Control System comprises:

- Mains wiring (standard 3-core TPS) and SILC Power and Communication wiring (standard 2-core TPS)
- Power Supply (for the SILC Power and Communication wiring)
- Junction Boxes (to connect lights and other devices to the System)
- Smart devices (Network Drivers with LED Fitting, and Network Relay Units), organised into switch groups
- Master Off ('green') button (6 max.)
- Wi-Fi connectivity to enable remote control and system configuration via the Clipsal SILC Application.

See 'System components' on page 12 for a detailed list of Clipsal SILC Lighting Control System components.

Principle of operation

Distributed control

The Clipsal SILC Lighting Control System has no central controller or data processor. Instead, smart Network Drivers with LED Fitting and Network Relay Units connected to each relay-connected device communicate with each other via the SILC Power and Communication wiring C1-C2.

An advantage of the Clipsal SILC System is that the Power and Communications wiring C1-C2 is standard twin core 1.5 mm^2 cable.

Switch groups

Each Network Driver with LED Fitting and Network Relay Unit can be assigned one of 32 possible addresses via switches on the Driver/Relay body.

Every Network Driver with LED Fitting and Network Relay Unit with the same address belongs to the same switch group.

Example

All SILC LED lights in a lounge room can be assigned to the same switch group by setting the Network Driver for each light to the same switch group address.

Operation

Switch groups are operated by simple push button (bell press) switches. Only one push button is required per switch group, although multiway switching is simple to configure, if requested by the end user.

Each push button switch in the Clipsal SILC System is connected to a Junction Box. When a push button is operated, the Network Driver with LED Fitting or Network Relay Unit connected to that Junction Box responds to the switched input.

A single push button may only be connected to one Junction Box. However, a single Junction Box may have multiple push buttons connected to it, up to the maximum number of conductors per terminal. See 'CLSPB Junction Box and Plug Assembly' on page 13 for more information.

Communicating to the switch group

When a Network Driver with LED Fitting or Network Relay Unit is operated, the Driver/Relay broadcasts its instruction (e.g. switch ON) and its switch group address to all other Drivers and Relays on the System via the Clipsal SILC Power and Communications wiring C1-C2.

All Drivers and Relays with the same switch group address perform the instruction broadcast by the operated Driver/Relay. Any Driver or Relay that is not assigned to that switch group ignores the instruction.

Example: Turn lounge room lights on

A lounge room is fitted with 4 SILC LED lights and one push button wall switch.

When a user presses the push button to turn the lounge room lights on, the connected Network Driver with LED Fitting:

- switches its light on, and
- broadcasts both the 'switch ON' instruction and the switch group address to all connected devices via the SILC Power and Communications wiring C1-C2.

The other 3 Drivers in the lounge room are set to the same switch group address as the operated Driver, so these lights switch on when they receive the instruction via C1-C2.

Built-in dimmer control

Flicker-free dimmer control is built-in to every Clipsal SILC Network Driver with LED Fitting. The end user can adjust the brightness of a group of SILC LED lights via the same push buttons used to switch the lights on and off.

If multiway switching (2/3 way and more) is included in a Clipsal SILC System installation, then multiway dimmer control is automatically available.



The dimmer capability built in to every Clipsal SILC Network Driver with LED Fitting means that installers can offer cost-effective, multiway dimmer control to customers with no requirement for additional wiring, separate dimmer switches or configuration effort.

'Green' button

The Clipsal SILC Lighting Control System can include up to 6 'green' buttons, designed to turn off all lights and devices connected to the Clipsal SILC System.



Installing a 'green' button at each building exit point and master bedroom provides a convenient way for the end user to turn off all lights and devices when leaving the building or going to sleep.

The 'green' button is a specific push button switch, supplied as a Master Off Mech 30 Series Part No. CLSMM-WE, and installed directly to a SILC Connection within a Junction Box.

When operated, the 'green' button sends a 'switch OFF' instruction along the SILC Power and Communications wiring C1-C2. All connected Network Drivers with LED Fitting and Network Relay Units respond to this instruction.

Wireless control with the Clipsal SILC Application

The Clipsal SILC Lighting Control System features a Wireless Gateway Unit that allows the end user to control lights and devices via Wi-Fi using the Clipsal SILC Application on a connected, compatible tablet or smart phone.

End users must download and install the Clipsal SILC Application on a compatible tablet or smart phone in order to use the wireless control feature. See ‘Clipsal SILC Application – compatible devices’ below.

With the Clipsal SILC Application, end users have greater control over lights and devices than is possible with the push button switches.

For example, an end user can:

- Control the operation and brightness level of any SILC LED light independent of the switch group
- Create Virtual Groups to control 2 or more SILC LED lights and connected devices, regardless of their physical switch group assignment.

Clipsal SILC Application – compatible devices

Operating system	Hardware
Apple iOS 7 or later	– iPhone 4S or later – iPad 3 or later – iPod Touch 4th generation or later
Android platform – Versions 4.1, 4.2, 4.3 (Jellybean) – Version 4.4 (KitKat) – Versions 5.0, 5.1 (Lollipop)	Any tablet or smart phone with: – IEEE 802.11 b/g/n Wi-Fi capability, and – One of the Android versions listed on the left installed on the device

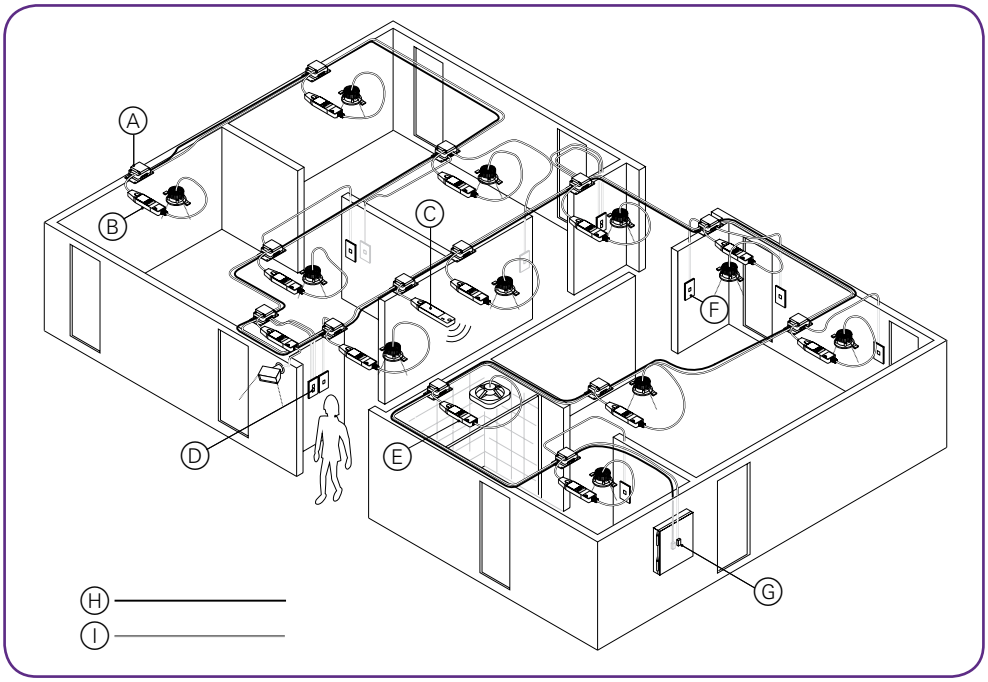
User operations

The end user can perform the following operations with the Clipsal SILC Lighting Control System.

Desired action	Operation
Switch a group of SILC LED lights / relay-connected devices ON	Short press of a push button switch connected to the switch group (toggle ON/OFF)
Switch a group of SILC LED lights / relay-connected devices OFF	Short press of a push button switch connected to the switch group (toggle ON/OFF)
Adjust the brightness of a group of SILC LED lights	Press and hold a push button switch in the switch group while the lights are ON (toggle between press and hold to dim and press and hold to brighten)
Turn all SILC LED lights and relay-connected devices OFF	Short press of a Master Off Mech (‘green’ button)
Control a group of SILC LED lights / relay-connected devices using a compatible tablet or smart phone	– Download and install the Clipsal SILC Application onto a compatible tablet or smart phone (see ‘Clipsal SILC Application – compatible devices’ above) – Follow the prompts in the Clipsal SILC Application to set up communication between the Application and the Wireless Gateway Unit via the building’s router or wireless access point
Control individual SILC LED lights / relay-connected devices, independent of the switch group, using a compatible tablet or smart phone	– Download and install the Clipsal SILC Application onto a compatible tablet or smart phone (see ‘Clipsal SILC Application – compatible devices’ above) – Follow the prompts in the Clipsal SILC Application to set up communication between the Application and the Wireless Gateway Unit via the building’s router or wireless access point

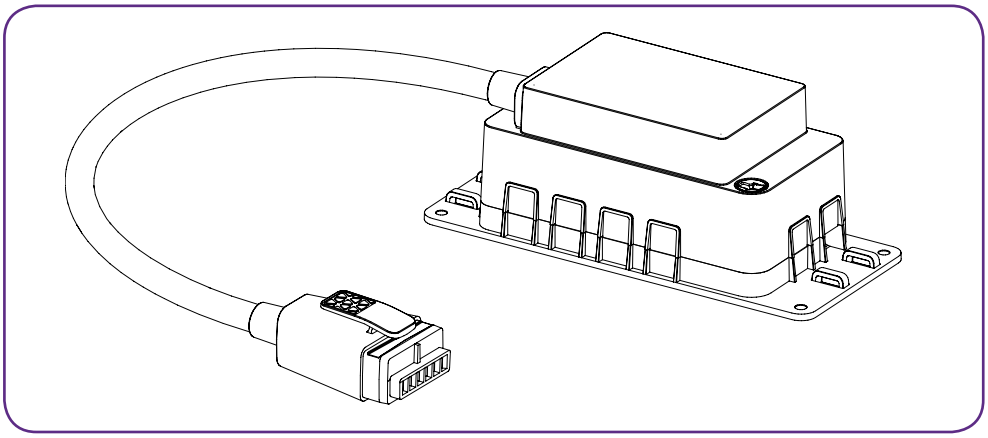
Desired action	Operation
Create Virtual Groups to control one or more SILC LED lights / relay-connected devices, regardless of physical switch group assignment	– Download and install the Clipsal SILC Application onto a compatible tablet or smart phone (see 'Clipsal SILC Application – compatible devices' on page 11) – Follow the prompts in the Clipsal SILC Application to set up communication between the Application and the Wireless Gateway Unit via the building's router or wireless access point

System components



Ⓐ CLSPB Junction Box and Plug Assembly
Ⓑ CLSK12WF/CF Network Driver with LED Fitting
Ⓒ CLSSWG Wireless Gateway Unit
Ⓓ CLSMM-WE Master Off Mech 30 Series
Ⓔ CLS1R5 Network Relay Unit
Ⓕ Push button (Bell Press) Switch
Ⓖ CLSPD Power Supply DIN Mounted
Ⓗ Standard 1.5 mm^2 3-core TPS cable (used for mains supply)
Ⓘ Standard 1.5 mm^2 2-core TPS cable (used for SILC Power and Communications wiring C1-C2).

CLSPB Junction Box and Plug Assembly



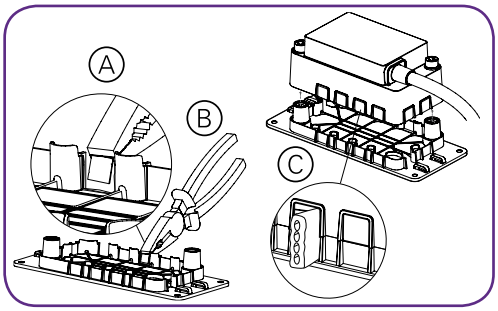
Description

The Junction Box and Plug Assembly provides a standard interface between the fixed wiring and all Clipsal SILC devices. This allows the devices to be connected with a quick connect plug.

Each connected Network Driver with LED Fitting, Network Relay Unit and Wireless Gateway Unit requires its own Junction Box and Plug Assembly.

The Junction Box base includes tabs Ⓐ that can be broken away with linesman's pliers Ⓑ in order to create additional access ports for cables feeding in to the Junction Box body.

To accommodate cables greater than 3-core, the Junction Box cover also includes removable tabs Ⓒ.



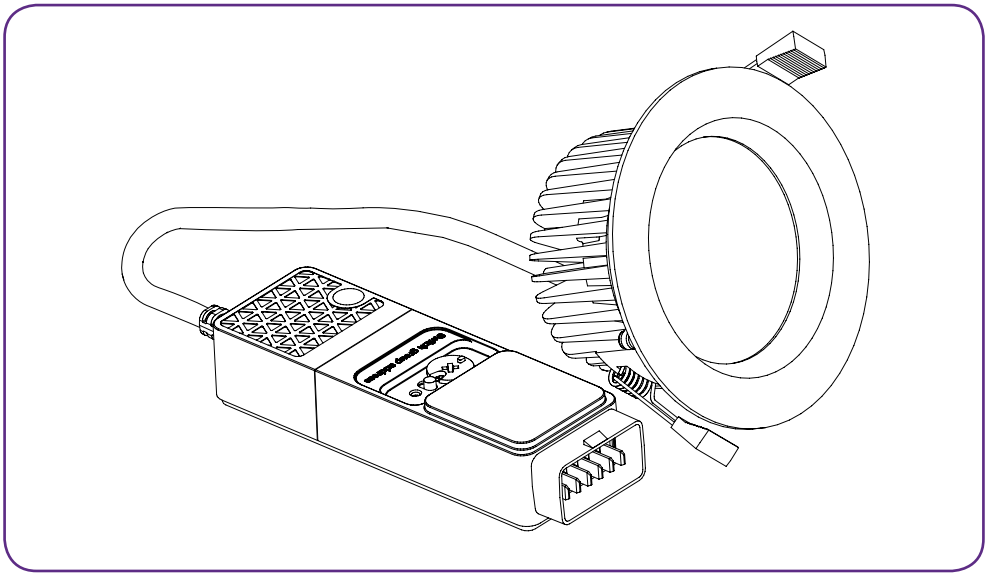
Electrical specifications: Junction Box and Plug Assembly

Supply voltage and frequency:	230 Va.c., 50 Hz
Maximum current rating:	10 A
Cordset length:	300 mm
Conductors per terminal:	4
Size of supported cables:	0.75–1.5 mm^2
Size:	L160 × W67.55 × H59 mm
Safety compliance:	AS/NZS 61535
	AS/NZS 60670

Specifications typical at 230 Va.c., 25 °C

No user serviceable parts inside

CLSK12WF/CF Network Driver with LED Fitting



Description

The Network Driver with LED Fitting is designed to be controlled via a switched active input or via a Clipsal SILC Wireless Gateway Unit and features fast and convenient connection to a Junction Box via the quick connect plug.

The Network Driver also includes LED over-temperature protection, limiting the rating of the LED Fitting when the temperature reaches a preset level.

There are 4 models of Network Driver with LED Fitting available, each with a variation of LED Fitting as described below:

- CLSK12WF-WH white bezel, 3000 K warm white
- CLSK12WF-BC chrome bezel, 3000 K warm white
- CLSK12CF-WH white bezel, 4000 K cool white
- CLSK12CF-BC chrome bezel, 4000 K cool white.

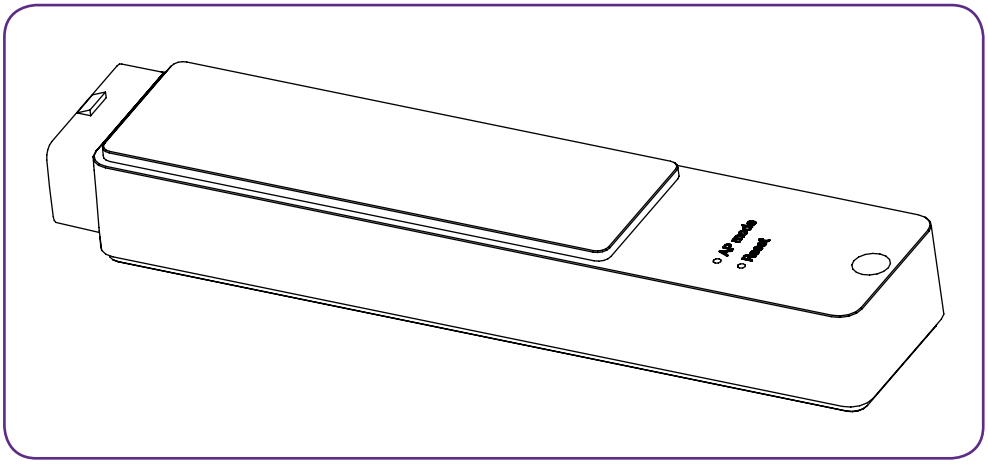
Electrical specifications: Network Driver with LED Fitting

Parameter	WF-WH	WF-BC	CF-WH	CF-BC
Supply voltage and frequency:	230 Va.c., 50 Hz			
Supply load:	< 15.5 W			
Control operating voltage:	16–22.5 Vd.c.			
Control max. operating current:	4 mA			
Max. abnormal voltage on control terminals:	Max. supply voltage for 1 min			
Correlated Colour Temperature (CCT):	3000 K		4000 K	
Colour rendering index:	> 80			
Lumens:	> 700 lm			
Lifetime (L70):	30 000 hr			
Beam angle:	90 °			
IP rating (front face only):	IP44			
Operating temperature range:	−5 to 50 °c			
Storage temperature range:	−5 to 70 °C			
Operating humidity range:	10 to 85% R.H. non-condensing			
Storage humidity range:	10 to 85% R.H. non-condensing			
Safety compliance:	AS/NZS 61347-2-13			
	AS/NZS 609598-2-2			
EMC emission compliance:	CISPR 15			

Specifications typical at 230 Va.c., 25 °C

No user serviceable parts inside

CLSSWG Wireless Gateway Unit



Description

The Wireless Gateway Unit enables the end user to configure and control the Clipsal SILC System via a Wi-Fi network using the Clipsal SILC Application.

The Clipsal SILC Application can be installed on compatible mobile devices and provides precise control over individual lights and devices within a switch group or across switch groups.

The Wireless Gateway Unit is designed for fast and convenient connection to a Junction Box via the quick connect plug.

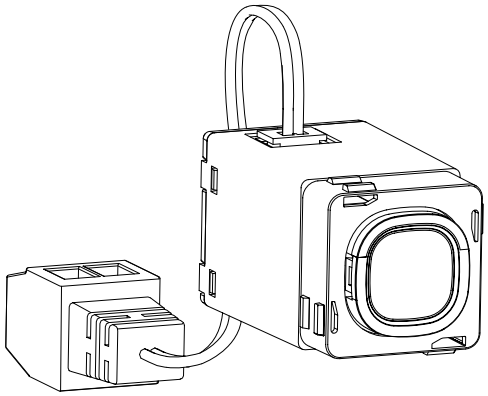
Electrical specifications: Wireless Gateway Unit

Supply voltage and frequency:	230 Va.c., 50 Hz
Supply load:	< 5 W
Control operating voltage:	16–22.5 Vd.c.
Control max. operating current:	4 mA
Max abnormal voltage on control terminals:	Max. supply voltage for 1 min
Wi-Fi networking standards:	IEEE 802.11 b/g/n
Wi-Fi operating frequency:	2.412–2.462 GHz (Channels 1–11)
Wi-Fi range:	30 m (Open Air)
Wi-Fi security:	Open, WEP, WPA, WPA2
Operating temperature range:	−5 to 60 °C
Storage temperature range:	−5 to 70 °C
Operating humidity range:	10 to 85% R.H. non-condensing
Storage humidity range:	10 to 85% R.H. non-condensing
Safety compliance:	AS/NZS 60950-1
EMC emission compliance:	AS/NZS CISPR 22

Specifications typical at 230 Va.c., 25 °C

No user serviceable parts inside

CLSMM-WE Master Off Mech 30 Series



Description

The Master Off Mechanism (Master Off switch) switches off all the devices connected to the Clipsal SILC Lighting Control System. It does this by sending data along the SILC Power and Communications wiring C1-C2 whenever the Master Off switch is pressed. This data contains an instruction to switch OFF and is detected by all connected Network Drivers with LED Fitting and Network Relay Units.

A green LED illuminates momentarily when the Master Off switch is pressed.

A Clipsal SILC Lighting Control System can have up to 6 Master Off switches, installed at convenient locations such as:

- entry/exit points
- master bedrooms
- entry to garages via the building interior.

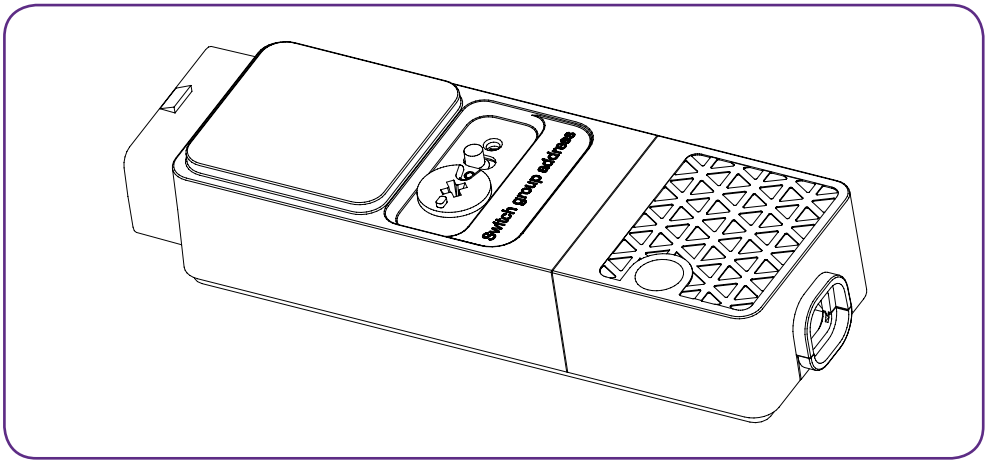
Electrical specifications: Master Off Mech 30 Series

Clipsal SILC connection:	Screw terminal for 2.5 mm^2 cable
Control operating voltage:	16–22.5 Vd.c.
Control max. operating current:	8.5 mA
Max abnormal voltage on control terminals:	Max. supply voltage for 1 min
Operating temperature range:	0 to 50 °C
Storage temperature range:	0 to 60 °C
Operating humidity range:	10 to 95% R.H. non-condensing
Storage humidity range:	10 to 95% R.H. non-condensing
Safety compliance:	AS/NZS 61347-2-11
EMC emission compliance:	AS/NZS CISPR 15

Specifications typical at 25 °C

No user serviceable parts inside

CLS1R5 Network Relay Unit



Description

The Network Relay Unit provides a means of switching a mains supply to a connected device via a switched active input or via the Clipsal SILC Wireless Gateway Unit.

The Network Relay Unit is able to switch resistive (e.g. lighting) and inductive (e.g. small motor) loads.

NOTICE

MAXIMUM LOAD RATINGS APPLY

Do not connect a device to a Network Relay Unit if that device exceeds the following load ratings:

- Resistive loads: max. 6 A
- Inductive loads: max. 1 A

Failure to follow these instructions can result in equipment malfunction.

See ‘Electrical specifications: Network Relay Unit’ below for more information.

Example application

Use a Network Relay Unit to connect these devices to the Clipsal SILC System (one Relay Unit per device):

- A light other than the Clipsal SILC Network Driver with LED Fitting (e.g. pendant light, external flood light)
- A bathroom exhaust fan.

Electrical specifications: Network Relay Unit

Supply voltage and frequency:	230 Va.c., 50 Hz
Control operating voltage:	16–22.5 Vd.c.
Control max. operating current:	4 mA
Max abnormal voltage on control terminals:	Max. supply voltage for 1 min
Max. load ratings:	Resistive: 6 A M Inductive: 1 A
Max. relay operation rate:	100 / hr

Min. number of relay operations:	40 000
Operating temperature range:	−5 to 60 °C
Operating humidity range:	10 to 85% R.H. non-condensing
Safety compliance:	AS/NZS 60669-2-1
EMC emission compliance:	AS/NZS CISPR 15

Specifications typical at 230 Va.c., 25 °C

No user serviceable parts inside

Push button (bell press) switch

Description

Light and relay-connected device switch groups are controlled by either single or multiway push button (bell press) switches. Dimming of SILC LED lights is also controlled via the same push button(s).

Any bell press mechanism can be used with the Clipsal SILC Lighting Control System.

Clipsal has a wide range of styles and finishes to choose from. For customers wanting a more elegant finish, consider the Clipsal Saturn™ and Saturn Zen range of premium bell press switches.

Visit clipsal.com for more information.

Connection

NOTICE

CONNECTION HAZARD

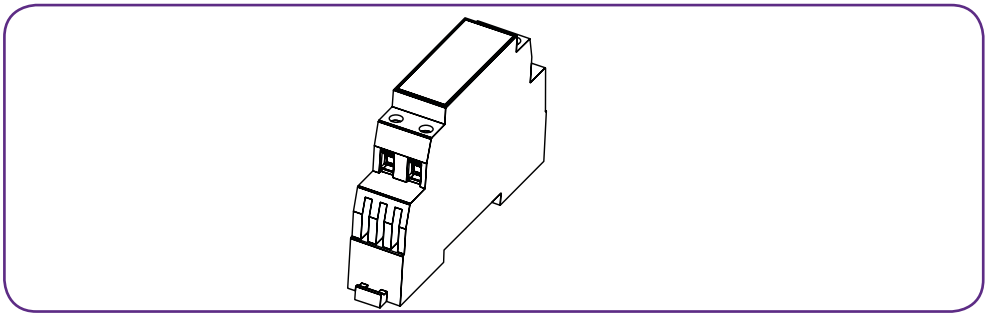
Do not connect a single push button device to more than one Network Relay Unit or Network Driver with LED Fitting.

Failure to follow these instructions can result in equipment malfunction.

Single switch for a switch group:	Connect the bell press to the A-A' terminals of one Junction Box in the desired switch group
Multiway switching for a switch group:	Options: – Connect one bell press to the A-A' terminals of one Junction Box in the desired switch group (as described for Single Switch above), then connect more bell press switches in parallel to the first bell press – Connect one bell press per Junction Box in the desired switch group, up to the number of Junction Boxes in that group – Connect multiple bell press switches to the A-A' terminals of one Junction Box in the desired switch group, up to 4 conductors per terminal (e.g. you could configure 6-way switching for two lights in a Group by connecting 3 bell press switches to one Junction Box in the Group, and another three bell press switches to another Junction Box in the Group) – Use a combination of the Multiway connection options above

Dimmer capability is automatically included with all Clipsal SILC Network Drivers with LED Fitting

CLSPD Power Supply DIN Mounted



Description

The CLSPD Power Supply provides power for the Clipsal SILC Power and Communication wiring C1-C2.

The product is a single-line DIN-Rail mounted power supply that can supply up to 250 mA at 16 Vd.c.. The input supply is 230 Va.c. nominal, 50 Hz.

The Power Supply is internally protected against short circuits at the output and accidental mains wiring connection to the output.

Electrical isolation between the inputs and output is 3.5 kV for 30 seconds. This product meets safety standards AS/NZS 61347-2-11.

The Power Supply must be installed on a supply circuit that has an appropriate circuit protection.

The Clipsal SILC Power and Communications wiring C1-C2 must have the same insulation rating as the mains wiring.

Electrical Specifications

Input:	230 Va.c. 50 Hz
Output:	16 Vd.c., 250 mA
Max current:	250 mA
Terminals:	Input: 2 wires, 1.5 mm^2
	Output: 2 wires, 1.5 mm^2
Ambient temp:	−5 °C to 50 °C

System cabling

The Clipsal SILC Lighting Control System uses the following standard cable for the System fixed wiring:

Cable	Purpose
1.5 mm^2 3-core TPS	Supply Mains Power to Clipsal SILC connected devices
1.5 mm^2 2-core TPS	– Cable for the Clipsal SILC Power and Communication wiring C1-C2 – Connect push button switches to Junction Boxes – Connect Master Off Mech 30 Series to the Clipsal SILC Power and Communication wiring C1-C2 via Junction Box

⚠ WARNING

MAINS POWER CONTROL CABLE

- Treat all Clipsal SILC Lighting Control System cabling as Mains Power.

Failure to follow these instructions can result in death or serious injury, or equipment damage.

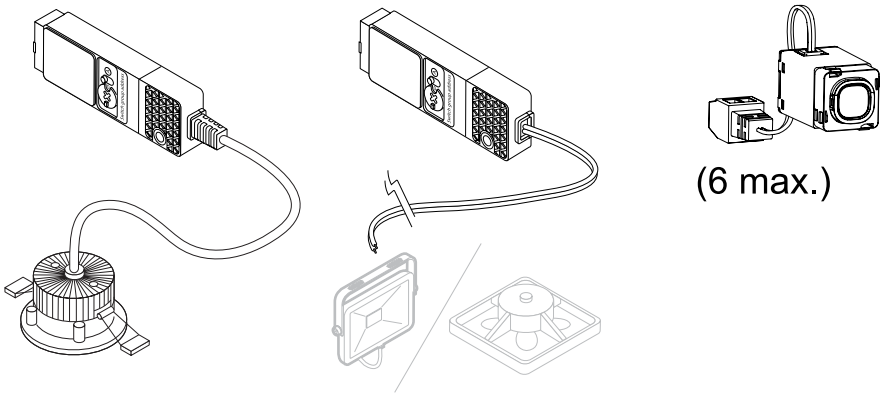
The Clipsal SILC Power and Communications wiring C1-C2 is classed as low-voltage, so the 2-core cable can be laid and fixed parallel to the 3-core mains cable.

Installers can choose to connect each Junction Box in series, as a star, spur, or a combination of these.

The connection orientation of the 2-core cable to any SILC Connection Point C1-C2 is not important.

System capacity

CLSK12WF/CF + CLS1R5 + CLSMM-WE



(6 max.)

= 55 max.

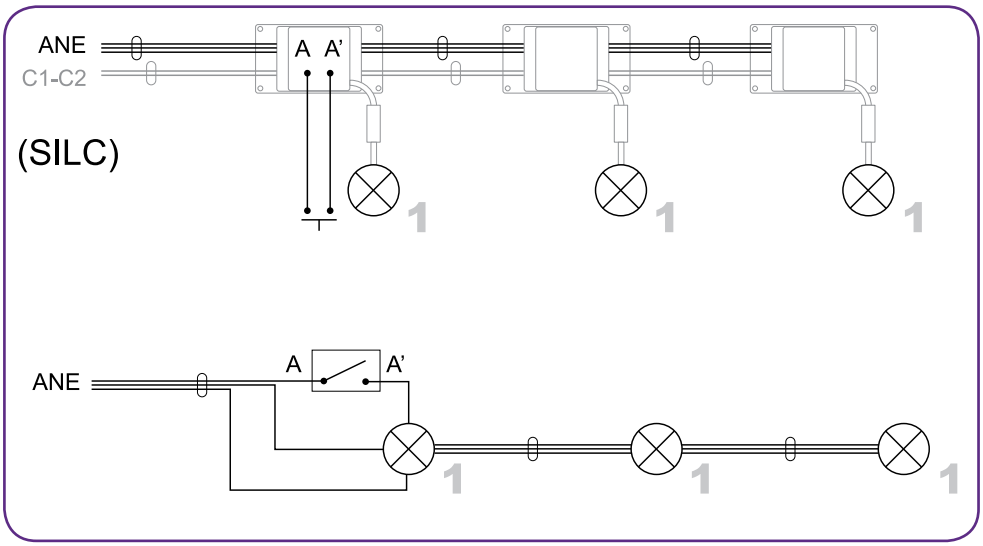
2.3 Differences between traditional lighting installations and the Clipsal SILC System

Generally, the more complex the installation requirements (e.g. multiway switching and dimming), the easier it can be to install a Clipsal SILC Lighting Control System over traditional lighting installation solutions.

Comparing traditional and SILC System installations

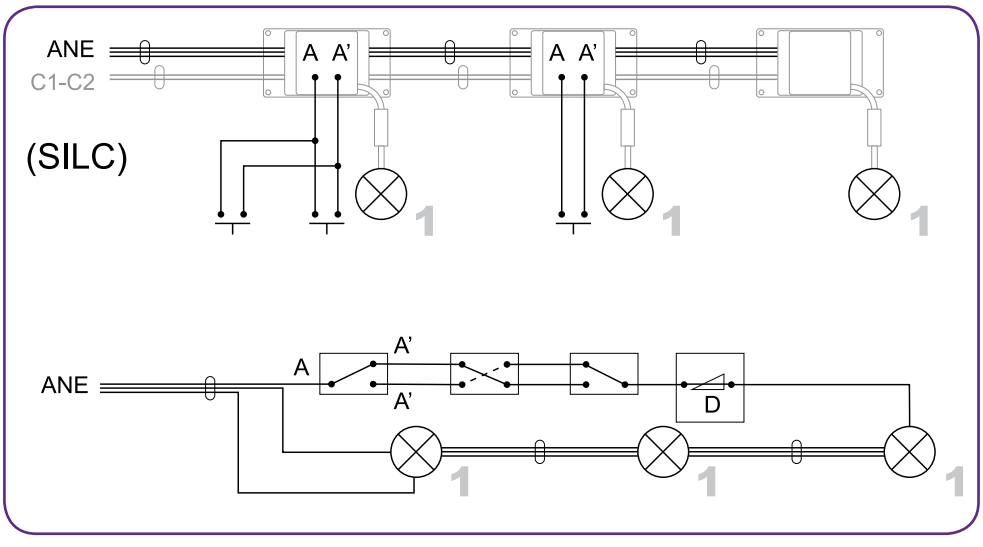
Single group of three lights with one switch

Example



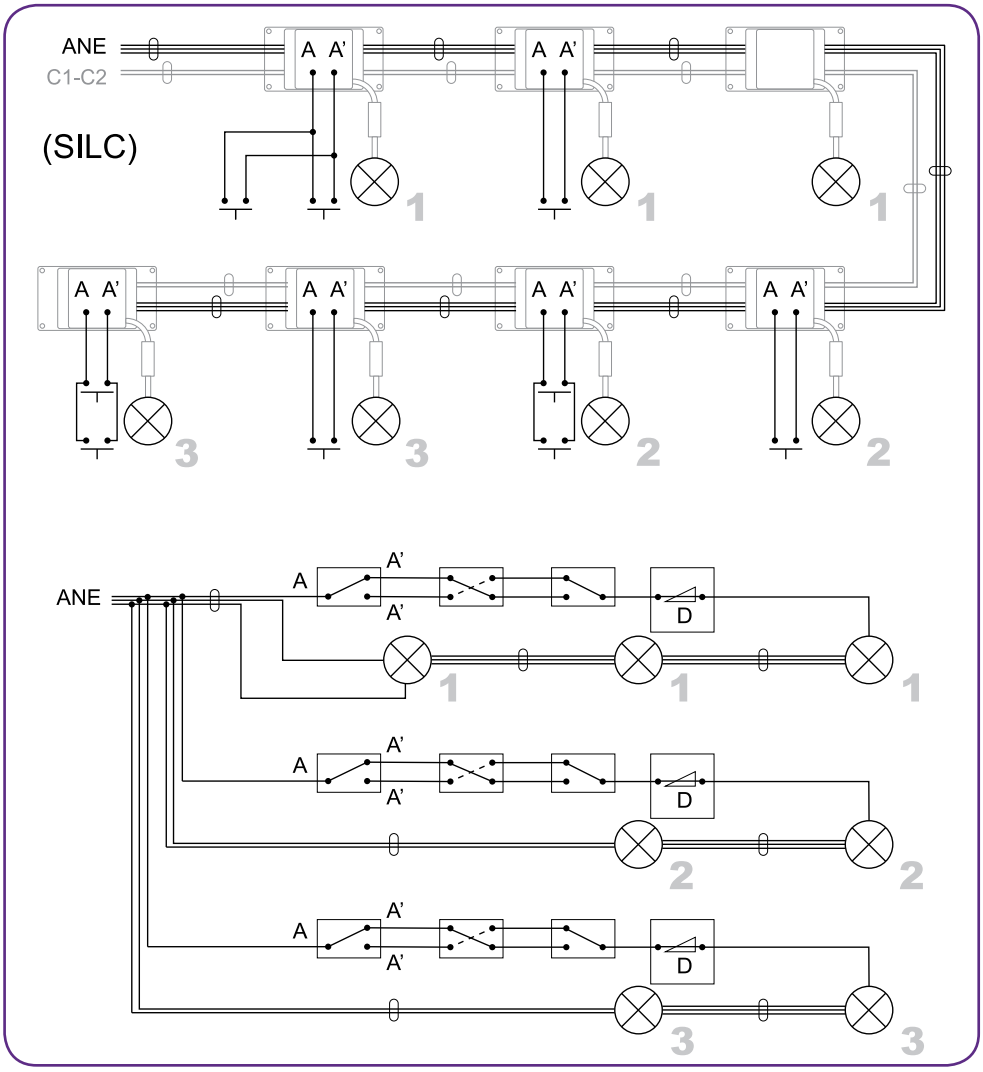
Single group of three lights with 3-way switching and dimming capability

Example



Three groups of lights with 3-way switching and dimming capability

Example



Summary of differences

Functionality	Traditional lighting installation	Clipsal SILC System installation
Single switching	2-way switch	Bell press switch
Multiway switching	Combination of 2-way and intermediate switches required	Simply add more bell press switches
	Single-core cable may be required	No single-core cable required
Multiway dimming	Dedicated dimmer switches and additional wiring required	No additional switches or wiring needed—dimmer functionality is built-in to every Clipsal SILC Network Driver with LED Fitting
	Typically only one dimmer switch per group of lights	Every bell press switch also serves as a dimmer switch
Change a light to another switch group	Rewire the light to the circuit for the new switch group	No rewiring needed—simply set the Network Driver to the new switch group address
Turn all lights off via a single switch	Additional switch and wiring required	Simply connect a CLSMM-WE switch to the C1-C2 terminals of the closest Junction Box

Functionality	Traditional lighting installation	Clipsal SILC System installation
Turn all lights off from any of multiple locations (e.g. all building exit points)	Complex switching required to turn all lights off from more than one location	Use up to 6 CLSMM-WE switches—connect each switch to the C1-C2 terminals of the closest Junction Box.
Remote control of lights	—	Control every light and create virtual switch groups with the Clipsal SILC Application on a compatible tablet or smart phone

3 Preparing for installation

3.1 Identifying the parts required for the installation

Consider the following points when identifying the parts required for a Clipsal SILC System installation:

- Each SILC LED light (CLSK12WF/CF) comes complete with its own Network Driver.
- Each other connected light requires a Network Relay Unit (CLS1R5).
- Each connected device, such as a bathroom exhaust fan or other small motor load (up to 1 A) requires its own Network Relay Unit (CLS1R5).
- Every Network Driver with LED Fitting and Network Relay Unit on the Clipsal SILC System requires its own Junction Box (CLSPB).
- A Wireless Gateway Unit (CLSSWG) and Junction Box (CLSPB) are required to enable control of the Clipsal SILC System via Wi-Fi using the Clipsal SILC Application.
- Any bell press switch can be used as a push button in the Clipsal SILC System (not Master Off switches—see next point).
- You must only use the Master Off Mech 30 Series switch (CLSMM-WE) as a Master Off switch in the Clipsal SILC System as it connects to the SILC Power and Communications C1-C2 wiring.
- The Clipsal SILC System supports up to 6 CSLMM-WE Master Off switches.
- The total number of installed CLSK12WF/CF + CLS1R5 + CLSMM-WE (6 max.) must not exceed 55.
- A Power Supply (CLSPD) is required for Clipsal SILC Power and Communications C1-C2.
- Use standard 1.5 mm^2 3-core TPS for mains wiring.
- Use standard 1.5 mm^2 2-core TPS for SILC Power and Communications C1-C2 wiring and for wiring the switches.

3.2 Planning the switch groups

Switch groups are typically allocated by room. However, the Clipsal SILC Lighting Control System doesn't rely on location—any SILC LED light or relay-connected device on the Clipsal SILC System can be set to a particular group.

You can record the switch groups on the Switch Group Assignment table in the 'Installation Record' on page 60 of this guide.

Push button switches and Master Off switch

NOTICE
CONNECTION HAZARD Do not connect a single push button device to more than one Network Relay Unit or Network Driver with LED Fitting. **Failure to follow these instructions can result in equipment malfunction.**

Multiple push button switches can be connected in parallel with a switch connected to the A-A' terminals of a single Junction Box.

3.3 Getting help

For assistance with a Clipsal SILC Lighting Control System installation, visit:

SILC.Clipsal.com

4 Installation

4.1 For your safety

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- It is illegal for persons other than an appropriately licensed electrical contractors or other persons authorized by legislation to work on the fixed wiring of any electrical installation.
- To comply with all safety standards, the product must be used only for the purpose described in this instruction and must be installed in accordance with the wiring rules and regulation in the location where it is installed.
- Hazardous voltage may be present at the wire leads of this product.
- Lock out and tag the input circuit before accessing the wiring connections.

Failure to follow these instructions will result in death or serious injury.

DANGER

HAZARD OF ELECTRIC SHOCK

- Dangerous voltage is present at the input of the Clipsal SILC Power Supply (CLSPD).
- Undue care during installation will cause death or serious injury.
- To avoid injury, lock out and tag the supply circuit before installation.

Failure to follow these instructions will result in death or serious injury.

WARNING

MAINS POWER CONTROL CABLE

- Treat all Clipsal SILC Lighting Control System cabling as Mains Power.

Failure to follow these instructions can result in death or serious injury, or equipment damage.

CAUTION

EQUIPMENT DAMAGE HAZARD

- Install the device according to instructions in this document.
- Pay attention to the specifications and wiring diagrams related to the installation.
- Do not use this product for any other purpose than specified in this instruction.
- For electronic control equipment, DO NOT MEGGER TEST.

Failure to follow these instructions can result in minor injuries, or equipment damage.

NOTICE

CONNECTION HAZARD

Do not connect a single push button device to more than one Network Relay Unit or Network Driver with LED Fitting.

Failure to follow these instructions can result in equipment malfunction.

NOTICE

MAXIMUM LOAD RATINGS APPLY

Do not connect a device to a Network Relay Unit if that device exceeds the following load ratings:

- Resistive loads: max. 6 A
- Inductive loads: max. 1 A

Failure to follow these instructions can result in equipment malfunction.

4.2 Installation sequence

The major steps for installing a Clipsal SILC Lighting Control System are as follows:

- Determine suitable locations for LED Fittings
- Determine suitable locations for Network Relays (one for each bathroom exhaust fan, external flood light, pendant light, etc.)
- Determine suitable location for the Wireless Gateway Unit
- Position a Junction Box near each Network Driver with LED Fitting, Network Relay and the Wireless Gateway Unit
- Run fixed wiring (3-core mains and 2-core SILC Power and Communications wiring) from the meter box to each Junction Box
- Install push buttons for each switch group and connect each to a Junction Box within the switch group
- Perform insulation and conductivity tests before connecting electronic devices
- Install Master Off switches and connect each switch to a SILC Connection C1-C2 within the closest Junction Box
- Secure the Junction Boxes
- Install and connect the C1-C2 Power Supply
- Set the Switch Group Addresses for each Network Driver with LED Fitting and Network Relay Unit
- Connect Network Drivers with LED Fitting to Junction Boxes and install LED Fittings in prepared mounting holes
- Wire relay-connected devices to Network Relays and connect Network Relays to Junction Boxes
- Connect the Wireless Gateway Unit
- Connect Mains Power.

Each of these steps is described in the sections below.

For each section below, read through the section before performing the tasks described.

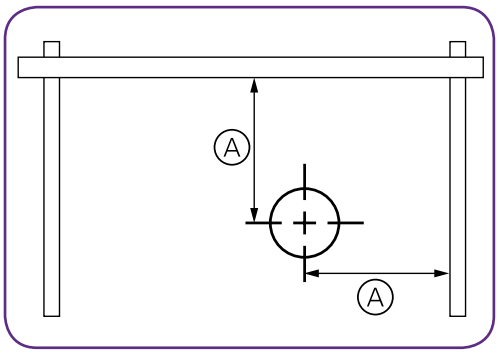
4.3 LED fittings

LED fitting location

Recommended location for centre of LED Fittings

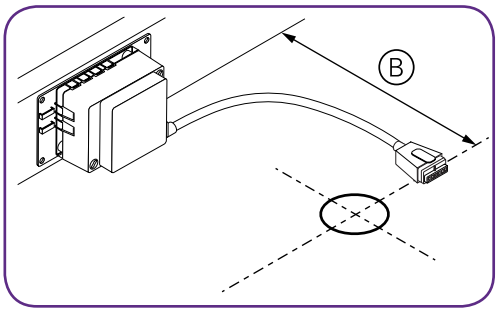
Ⓐ Min. 125 mm from joist or hanging beam

(To ensure 75 mm clearance (SCB) between the body of the LED Fitting and any building element)

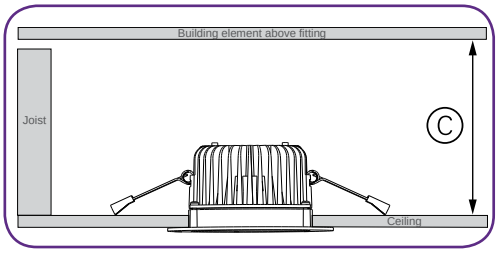


Ⓑ Max. 350 mm from joist or hanging beam

(Max. distance that the Junction Box quick connect plug can still be accessed via the LED Fitting mounting hole)



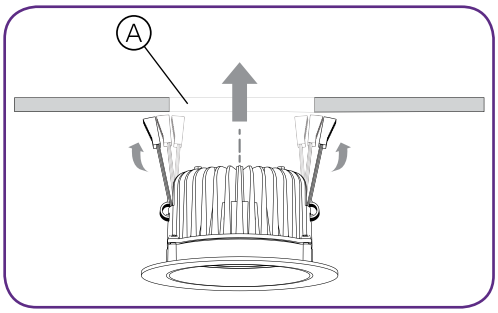
Ⓒ Min. 140 mm clearance (HCB) from ceiling to any building element above



LED fitting mounting holes

Diameter for LED Fitting mounting holes

Ⓐ Ø 92 mm



Procedure

① Read the recommendations under ‘LED fitting location’ on page 28.
② Mark the locations for the centre of each LED Fitting.
③ Prepare each LED Fitting mounting hole to the diameter specified under ‘LED fitting mounting holes’ above and in the Product Information Sheet.

If there is a difference in the diameter specification of the mounting hole between this guide and the Product Information Sheet supplied with the LED Fitting, observe the Product Information Sheet specification.

4.4 Relay-connected devices

Relay-connected devices include any item connected to the Clipsal SILC Lighting Control System via a Network Relay Unit. For example:

- Bathroom exhaust fans
- Pendant lights
- External flood lights.

Network Relay Unit locations

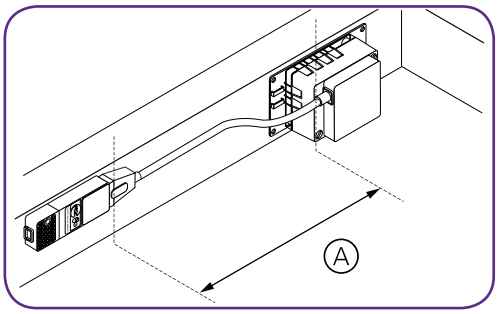
Each Network Relay Unit must be located near its Junction Box, and should be located where it can be easily accessed from below the ceiling post-installation.

The Network Relay Units are not installed in place until towards the end of the installation. However, identifying where they should be located at this stage in the process will help you to:

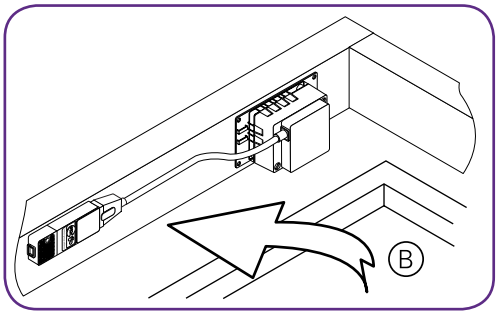
- identify suitable locations for the companion Junction Boxes, and
- assess the lengths of cable required to run between each device (e.g. flood light, bathroom exhaust fan) and its Relay Unit.

Recommended locations for Network Relay Units

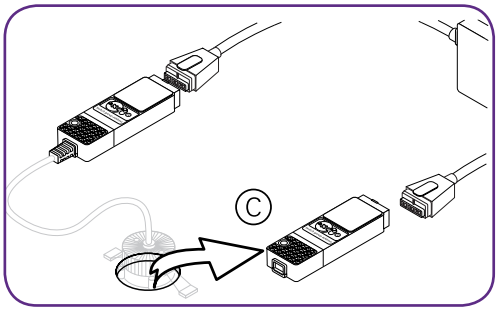
Ⓐ Max. 280 mm between Relay Unit and Junction Box



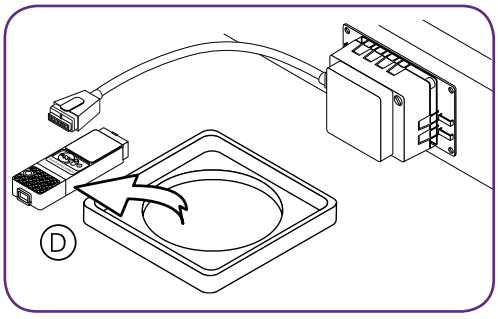
Ⓑ Close to a ceiling space access door



Ⓒ Close to an LED Fitting mounting hole



Ⓓ Close to the mounting hole for a relay-connected device, e.g. a bath-room exhaust fan



Distance between Network Relay Unit and connected device

A relay-connected device can be located at any distance from its Network Relay Unit, within the building.

Location of Network Relay Unit	Location Importance
Near its Junction Box (Max. 280 mm)	Important
Near a point accessible from below the ceiling	Desirable
Near the SILC relay-connected device	Not Important

Procedure

① Read the recommendations under ‘Network Relay Unit locations’ on page 30 and ‘Distance between Network Relay Unit and connected device’ above.

② Mark the locations for each Network Relay Unit in the ceiling space.

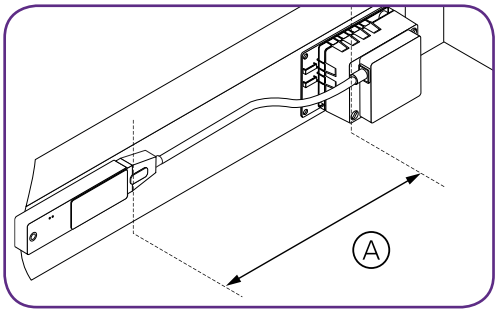
4.5 Wireless Gateway Unit

Locate the Wireless Gateway Unit to maximise the Wi-Fi signal strength between the Wireless Gateway Unit and the building’s network router or wireless access point (WAP).

Wireless Gateway Unit location

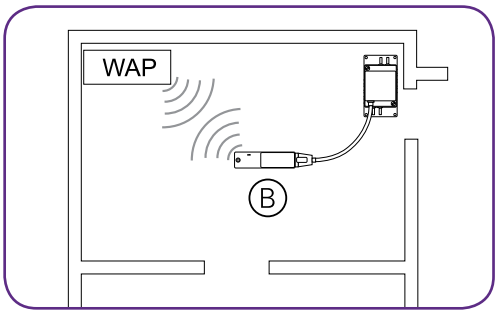
Recommended location for the Wireless Gateway Unit

Ⓐ Max. 280 mm from a suitable Junction Box mounting point

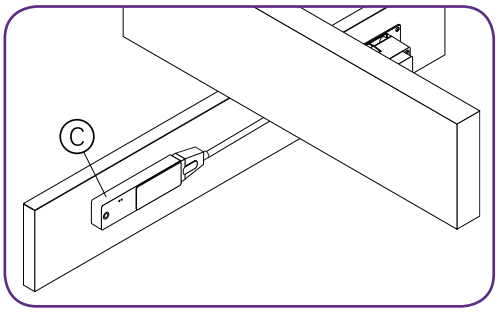


Ⓑ As near as possible to the location of the building’s network router or wireless access point, if known

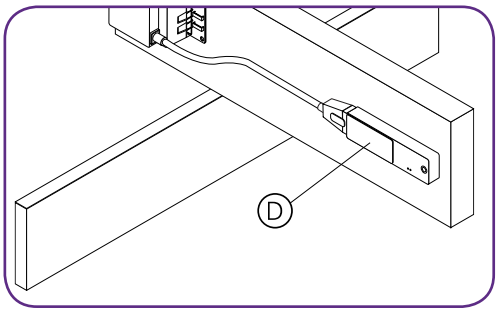
If you don’t know the location of the network router or wireless access point, locate the Wireless Gateway Unit to provide maximum possible coverage throughout the building.



Ⓒ Mounted on a joist at ceiling level



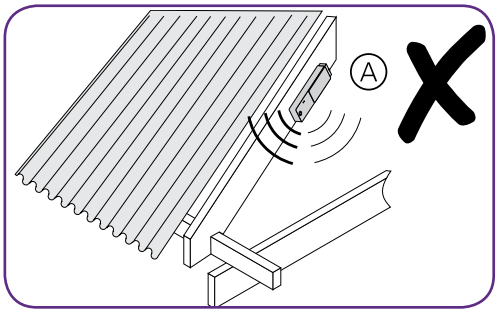
Ⓓ Mounted on a hanging beam near ceiling level



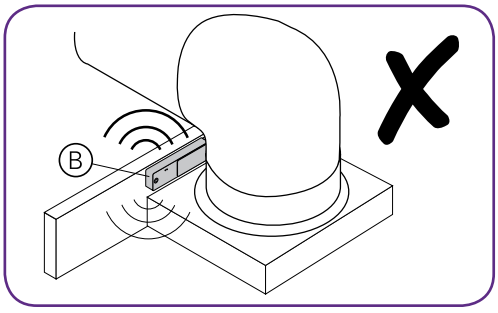
Ensure that a Junction Box can be mounted within 280 mm of the Wireless Gateway Unit.

Unsuitable locations for the Wireless Gateway Unit

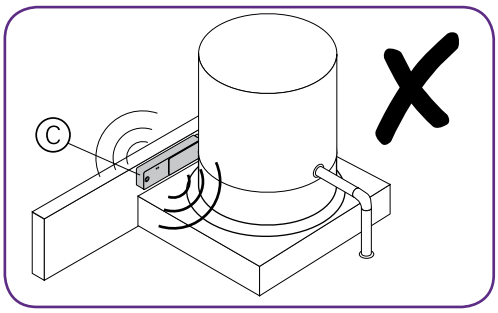
Ⓐ Do not mount on rafters, especially on a building with a metal roof



Ⓑ Do not mount on or near air conditioning / exhaust ducts



Ⓒ Do not mount on or near roof-mounted water heaters



Avoid mounting the Wireless Gateway Unit at any location that may reduce the Wi-Fi signal strength.

- For buildings with a steel frame or foil insulation, consider mounting the Wireless Gateway Unit below ceiling level, such as within an area enclosed by a soffit, or the top of a built-in cupboard.

Procedure

① Read the recommendations under ‘Wireless Gateway Unit location’ on page 31.
② Place the Wireless Gateway Unit at the desired location to indicate where the companion Junction Box should be mounted.

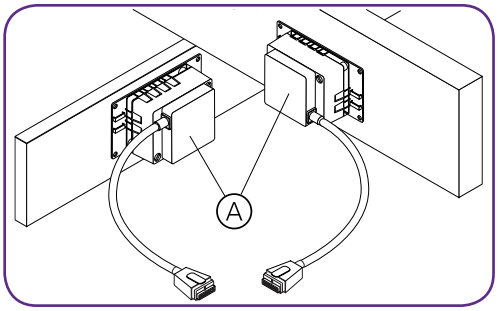
4.6 Junction Boxes

Each Junction Box must be mounted within 280 mm of the Network Driver with LED Fitting or Network Relay Unit that will be connected to it.

Junction Box locations

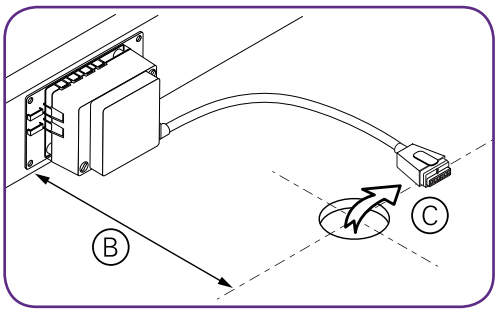
Recommended Junction Box locations

Ⓐ On the side of joists and hanging beams

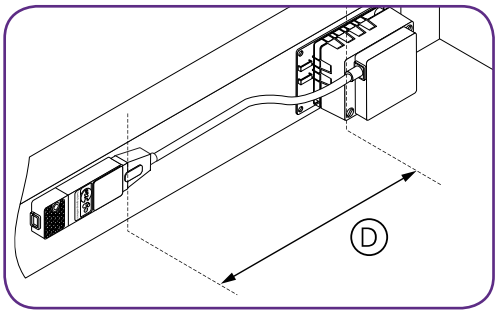


Ⓑ For connection to a Network Driver with LED Fitting: 120–350 mm from the centre of a LED Fitting mounting hole

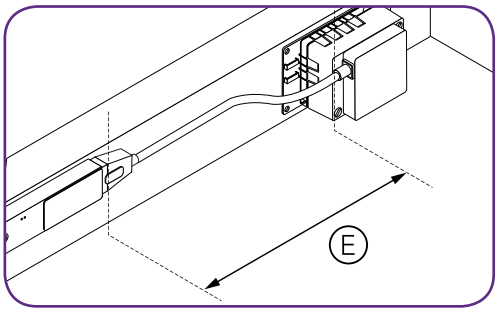
Ⓒ For connection to a Network Driver with LED Fitting: so that the quick connect plug is accessible via the LED Fitting mounting hole



Ⓓ For connection to a Network Relay Unit: max. 280 mm from the Network Relay Unit



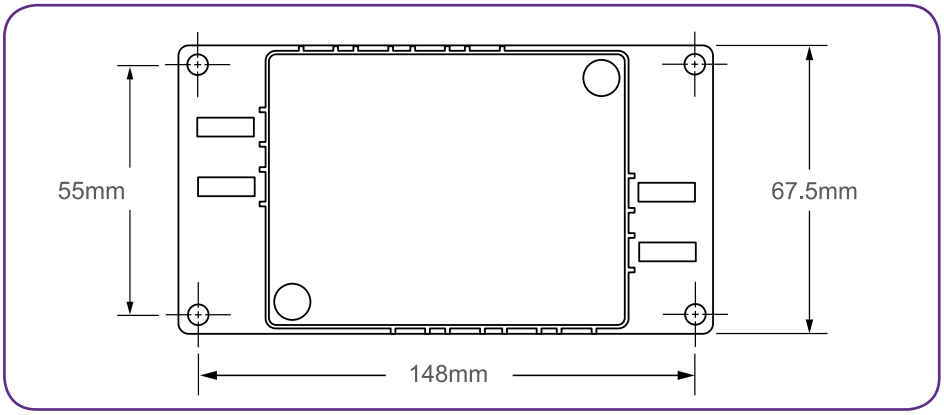
Ⓔ For connection to a Wireless Gateway Unit: max. 280 mm from the Wireless Gateway Unit



Procedures

Accessible ceiling spaces

① Read the recommendations under ‘Junction Box locations’ on page 33.
② Mount each junction box nail plate at a suitable location as per the instructions in the Information Sheet supplied with the product. (Refer to the nail plate dimensions below.)



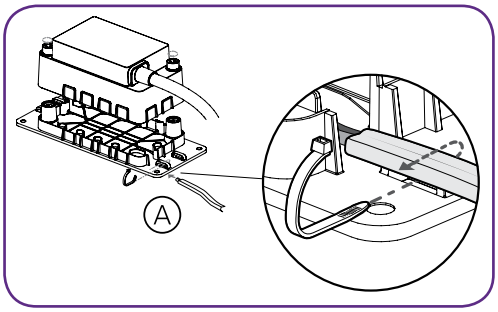
③ Place each Junction Box body near its nail plate in preparation for wiring.

Inaccessible ceiling spaces

An example of an inaccessible ceiling space is the cavity between levels of a multi-storey building.

① Read the recommendations under ‘Junction Box locations’ on page 33.
② Place each junction box nail plate at an accessible location within the ceiling cavity.
③ Place each Junction Box body near its nail plate in preparation for wiring.

Junctions Boxes that cannot be mounted in ceiling cavities must be secured as equipment wiring using cable ties Ⓐ.



4.7 Fixed wiring

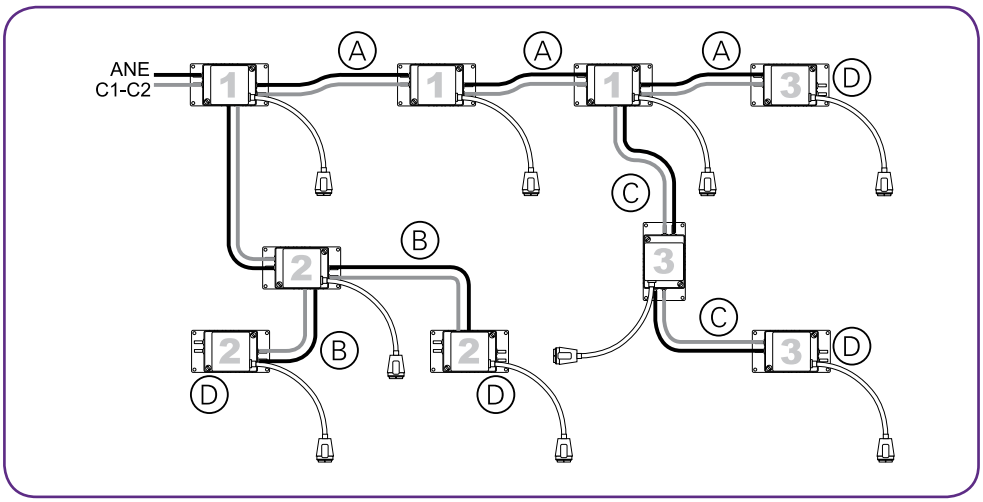
Cable requirements

Use standard 1.5 mm^2 3-core TPS and 1.5 mm^2 2-core TPS cable for the Clipsal SILC System fixed wiring.

Fixed wiring layout options

You can choose any or a combination of the following fixed wiring layouts.

Fixed wiring layouts



Ⓐ Inline layout
Ⓑ Star layout
Ⓒ Spur layout

Any combination of fixed wiring layouts above can be used as long as each inline run, star branch and spur terminates at the last Junction Box in its line Ⓓ (i.e. there must be no loops).

System fixed wiring route

When deciding how to route the fixed wiring, consider the following:

- Are building extensions (with SILC System extensions) possible in the future?
- Are you installing into a partial build that will be completed later?
- Is the customer undecided about some lighting options and may want to make changes or additions later?

How you route the fixed wiring now may impact on your (or another installer's) ability to address the above possibilities post-installation.

Procedure

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- It is illegal for persons other than an appropriately licensed electrical contractors or other persons authorised by legislation to work on the fixed wiring of any electrical installation.
- To comply with all safety standards, the product must be used only for the purpose described in this instruction and must be installed in accordance with the wiring rules and regulation in the location where it is installed.
- Hazardous voltage may be present at the wire leads of this product.
- Lock out and tag the input circuit before accessing the wiring connections.

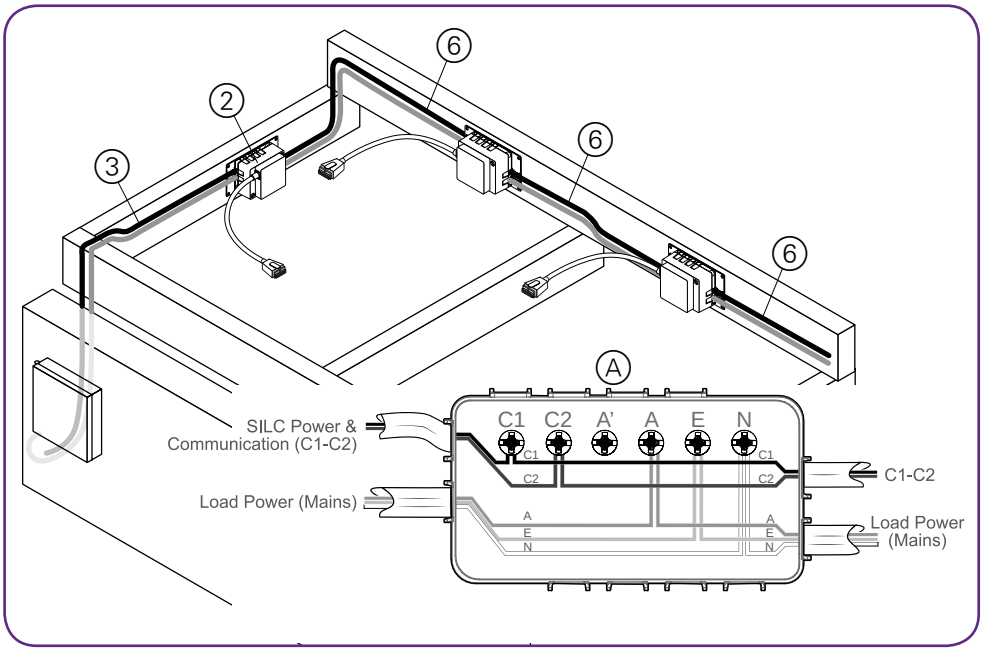
Failure to follow these instructions will result in death or serious injury.

WARNING

MAINS POWER CONTROL CABLE

- Treat all Clipsal SILC Lighting Control System cabling as Mains Power.

Failure to follow these instructions can result in death or serious injury, or equipment damage.



① Read the recommendations under ‘Cable requirements’ on page 35, ‘Fixed wiring layout options’ on page 35 and ‘System fixed wiring route’ on page 35.

② Identify the Junction Box most convenient to connect to the meter box. (Call this Junction Box J1.)

③ Run 3-core TPS (mains cable) and 2-core TPS (SILC Power and Communication C1-C2 cable) from the meter box location to Junction Box J1.

The 2-core C1-C2 wiring is classed as Mains Power, so you can run the 3-core and 2-core cables alongside each other.

④ At the Junction Box end, connect the 3-core wiring to the Active, Neutral and Earth terminals in Junction Box J1, as per the wiring diagram Ⓐ.

⑤ At the Junction Box end, connect the 2-core wiring to the SILC Connection C1-C2 terminals in Junction Box J1, as per the wiring diagram Ⓐ.

The orientation of the SILC Connection C1-C2 wiring is not important.

⑥ From Junction Box J1, lay 3-core and 2-core cable between each Junction Box, connecting each cable end to the Junction Box terminals as per the wiring diagram Ⓐ.

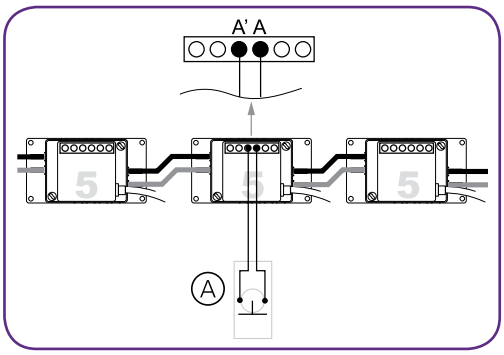
4.8 Push button switches

Switch connection options

NOTICE
CONNECTION HAZARD Do not connect a single push button device to more than one Network Relay Unit or Network Driver with LED Fitting. **Failure to follow these instructions can result in equipment malfunction.**

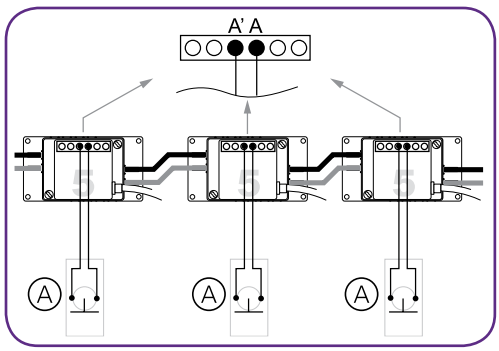
Connecting a single push button switch within a switch group

Ⓐ Connect the cable from the switch to the A-A' terminals of any single Junction Box in the Group.

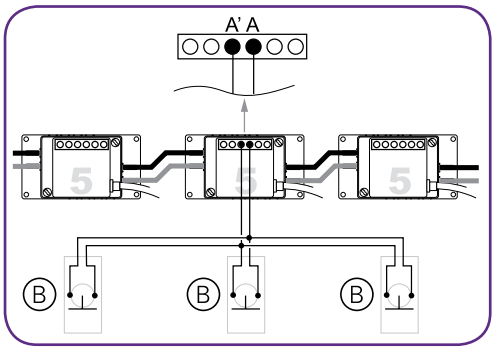


Connecting multiway push button switches within a switch group

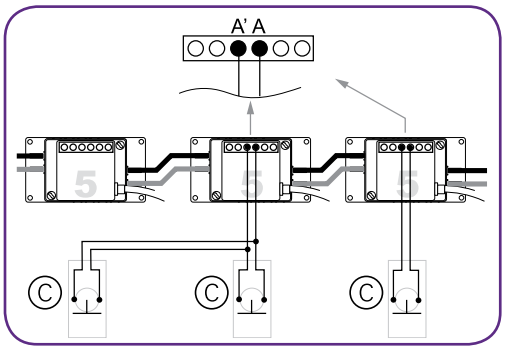
Ⓐ Multiway (1): Connect the cable from each switch in the Group to the A-A' terminals of the closest, or most convenient, Junction Box in the Group.



Ⓑ Multiway (2): Connect one switch to the A-A' terminals of any one junction box in group. Then, connect the remaining switches in the group in parallel with the switch connected to the Junction Box.



Ⓒ Multiway (3): Any combination of Ⓐ and Ⓑ above.



Procedure

① Read the recommendations under 'Switch connection options' on page 37.
② Install push button switches at desired locations, following the installation instructions supplied with the product.
③ Wire and connect each push button switch to its switch group using one of the options described under 'Switch connection options' on page 37.

4.9 Insulation and conductivity tests

⚠ WARNING

MAINS POWER CONTROL CABLE

- Treat all Clipsal SILC Lighting Control System cabling as Mains Power.

Failure to follow these instructions can result in death or serious injury, or equipment damage.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

- Install the device according to instructions in this document.
- Pay attention to the specifications and wiring diagrams related to the installation.
- Do not use this product for any other purpose than specified in this instruction.
- For electronic control equipment, DO NOT MEGGER TEST.

Failure to follow these instructions can result in minor injuries, or equipment damage.

Procedure

① Ensure that all electronic devices are disconnected from the fixed wiring.
② Perform insulation and conductivity tests on the SILC Control System fixed wiring in accordance with all safety and electrical standards applicable to the work and the work location.

4.10 Master Off switches

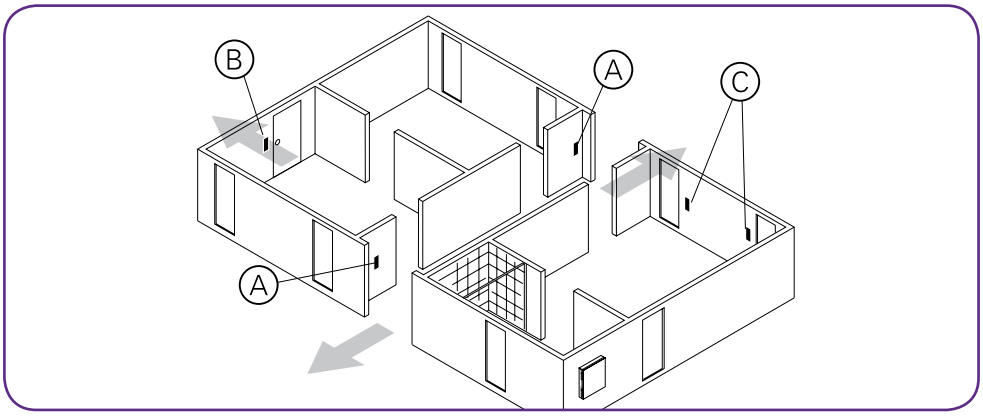
Only use the Master Off Mech 30 Series switch, Part Number CLSMM-WE, which is specifically designed for the Clipsal SILC Lighting Control System.

Ordinary push button (bell press) switches are not suitable for use as Master Off switches.

Master Off switch locations

Master Off switches can be located anywhere. Given their purpose (to turn all Clipsal SILC lights and devices OFF), the most common locations are these:

Common Master Off switch locations



Ⓐ Building EXIT points
Ⓑ Entry to garage spaces
Ⓒ A convenient location in a master bedroom (e.g. ganged with bedside light switches)

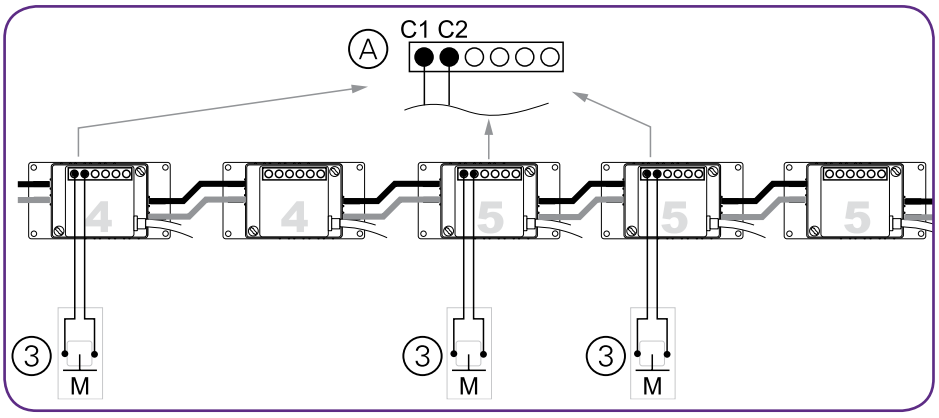
Master Off switch connection

Each Master Off switch can be connected to the SILC Connection terminals C1-C2 (DA-DA) of any Junction Box on the Clipsal SILC System.

Orientation of the Master Off switch wiring to the SILC Connection C1-C2 (DA-DA) terminals is not important.

Procedure

① Read the recommendations under ‘Master Off switch locations’ above and ‘Master Off switch connection’ above.
② Install Master Off switches at desired locations, following the installation instructions supplied with the product.



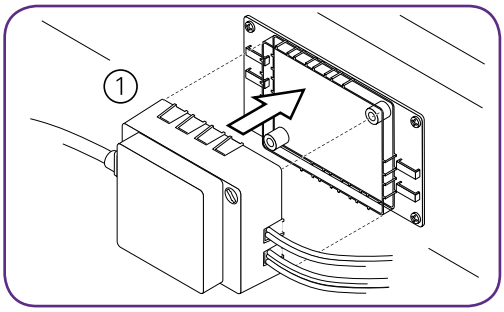
③ Wire and connect each Master Off switch (DA-DA) to the SILC Connection terminals C1-C2 Ⓐ of any Junction Box in the SILC System (see diagram above).

4.11 Secure Junction Boxes

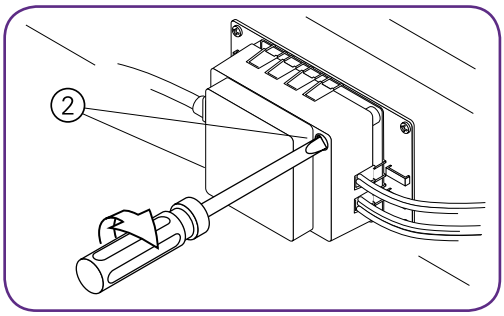
Once the insulation and conductivity tests have been successfully completed, and the Master Off switches connected, each Junction Box can be attached to its nail plate.

Procedure

① Position the Junction Box body over the nail plate.



② Tighten the cover screws using a flat-bladed screwdriver.

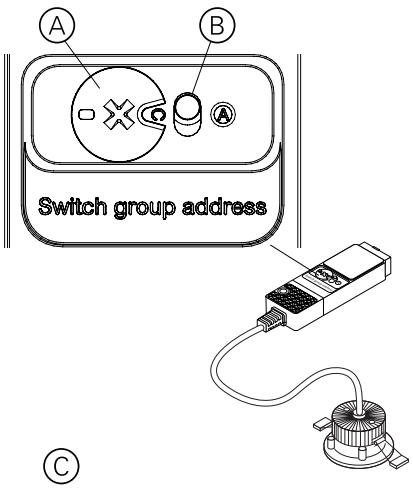


4.12 Connect Network Drivers with LED Fitting

Procedure

For each Network Driver with LED Fitting

① Set the switch group address using the rotary Ⓐ and slider Ⓑ 'Switch Group Address' controls on the Driver body.
(Refer to the switch group table Ⓒ, or the Switch Group Assignment table under 'Switch Group Assignments' on page 60.)

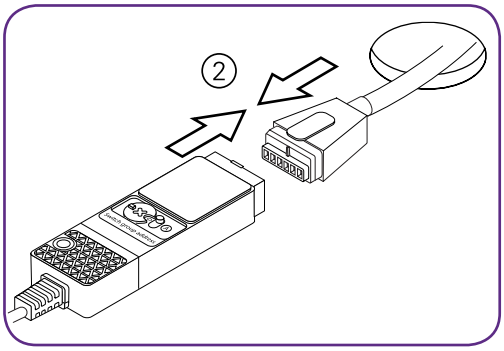


Ⓒ

Input	Group	Input	Group
A 0	0	B 0	16
A 1	1	B 1	17
A 2	2	B 2	18
A 3	3	B 3	19
A 4	4	B 4	20
A 5	5	B 5	21
A 6	6	B 6	22
A 7	7	B 7	23
A 8	8	B 8	24
A 9	9	B 9	25
A A	10	B A	26
A B	11	B B	27
A C	12	B C	28
A D	13	B D	29
A E	14	B E	30
A F	15	B F	31

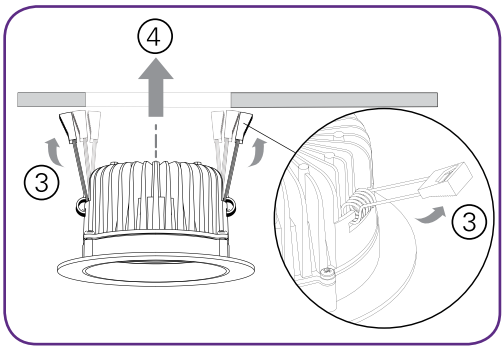
Slide switch	Range
A	0-15
B	16-31

② At the LED Fitting mounting hole, connect the Network Driver to the companion Junction Box via the quick connect plug, then feed the Network Driver through the mounting hole into the ceiling space.

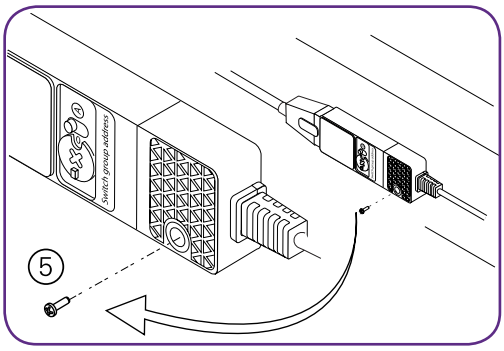


③ Fold back the mounting springs on the LED Fitting.

④ Insert the LED Fitting into the mounting hole, then ease the LED Fitting upward until the Fitting is flush with the ceiling.



⑤ Securely mount the Network Driver in the ceiling space using a suitable fastener.



4.13 Connect SILC relay-connected devices

NOTICE
MAXIMUM LOAD RATINGS APPLY Do not connect a device to a Network Relay Unit if that device exceeds the following load ratings: • Resistive loads: max. 6 A • Inductive loads: max. 1 A **Failure to follow these instructions can result in equipment malfunction.**

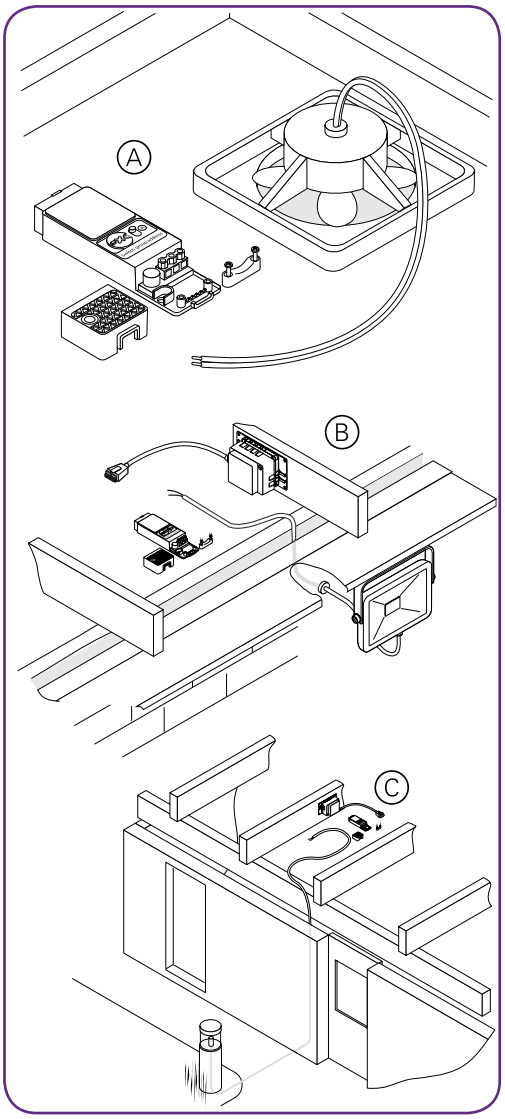
Procedure

For each Network Relay Unit and associated device

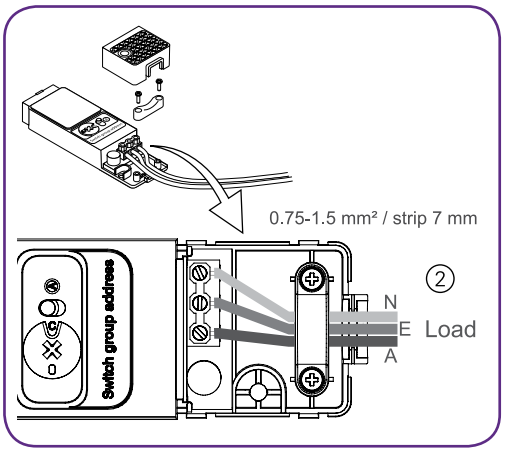
① Run 2-core or 3-core TPS cable as required from the SILC relay-connected device to the Network Relay Unit.

Examples:

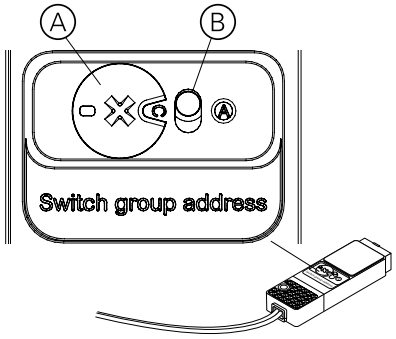
- Bathroom exhaust fan Ⓐ
- External flood light Ⓑ
- Garden light Ⓒ



② Connect cable to the terminals in the Relay Unit.



③ Set the switch group address using the rotary Ⓐ and slider Ⓑ 'Switch Group Address' controls on the Relay Unit body.
(Refer to the switch group table Ⓒ, or the Switch Group Assignment table under 'Switch Group Assignments' on page 60.)

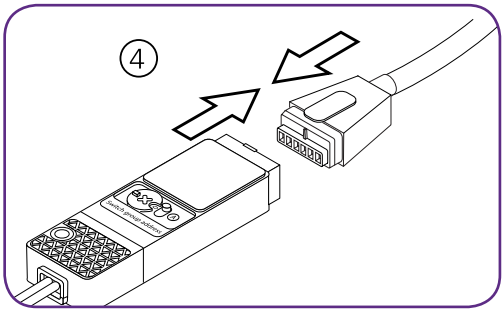


Ⓒ

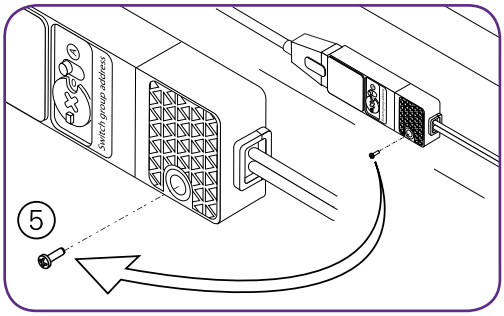
Input	Group	Input	Group
A 0	0	B 0	16
A 1	1	B 1	17
A 2	2	B 2	18
A 3	3	B 3	19
A 4	4	B 4	20
A 5	5	B 5	21
A 6	6	B 6	22
A 7	7	B 7	23
A 8	8	B 8	24
A 9	9	B 9	25
A A	10	B A	26
A B	11	B B	27
A C	12	B C	28
A D	13	B D	29
A E	14	B E	30
A F	15	B F	31

Slide switch	Range
A	0-15
B	16-31

④ Connect the Network Relay Unit to the companion Junction Box via the quick connect plug.



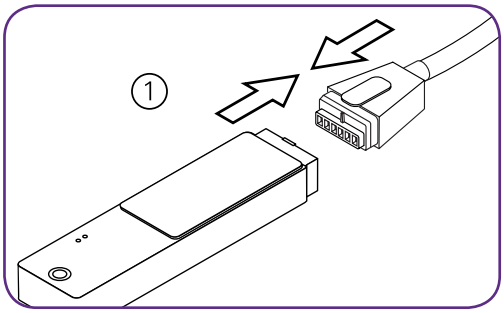
⑤ Securely mount the Relay Unit in the ceiling space using a suitable fastener.



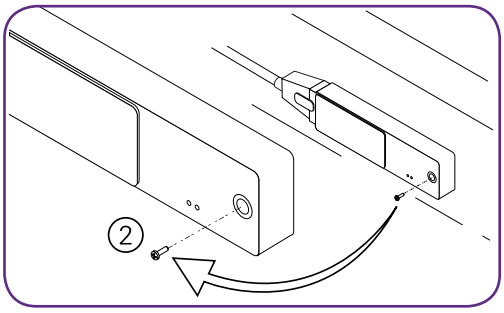
4.14 Connect Wireless Gateway Unit

Procedure

① Connect the Wireless Gateway Unit to the companion Junction Box via the quick connect plug.



② Securely mount the Wireless Gateway Unit in the ceiling space using a suitable fastener.



4.15 Install Clipsal SILC Power Supply

Procedure

DANGER

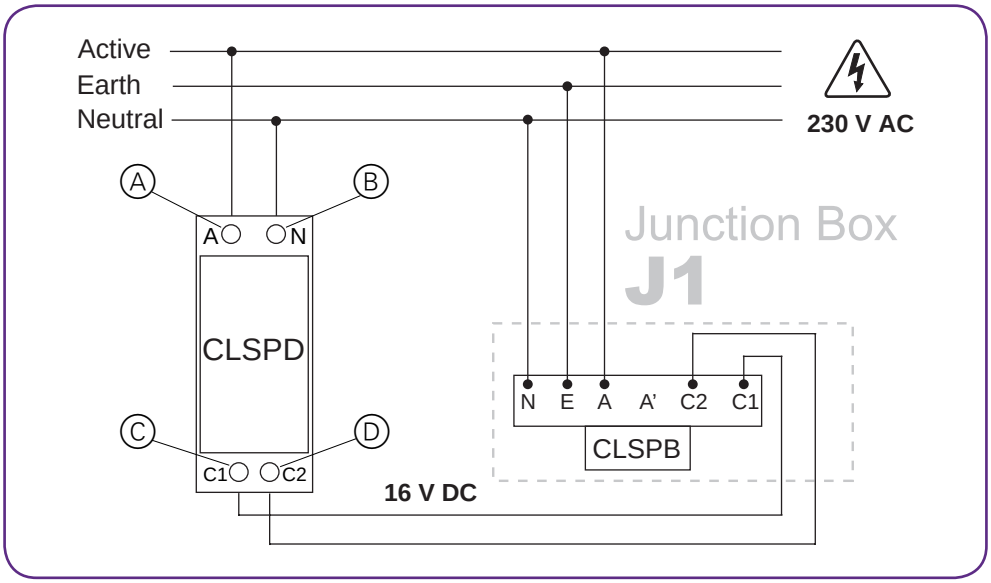
HAZARD OF ELECTRIC SHOCK

- Dangerous voltage is present at the input of the Clipsal SILC Power Supply (CLSPD).
- Undue care during installation will cause death or serious injury.
- To avoid injury, lock out and tag the supply circuit before installation.

Failure to follow these instructions will result in death or serious injury.

① Install the Clipsal SILC Power Supply in the Meter Box.

The Power Supply is a single-line DIN Rail mounted unit.



Refer to the diagram above

② Connect Active and Neutral from a protected lighting circuit to the A terminal Ⓐ and N terminal Ⓑ of the Clipsal SILC Power Supply.

③ Connect the 2-core SILC Connection cable from Junction Box J1 to the C1 Ⓒ and C2 Ⓓ terminals of the Clipsal SILC Power Supply.

Orientation of the C1-C2 connection is not important.

4.16 Connect Mains Power

Procedure

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- It is illegal for persons other than an appropriately licensed electrical contractors or other persons authorized by legislation to work on the fixed wiring of any electrical installation.
- To comply with all safety standards, the product must be used only for the purpose described in this instruction and must be installed in accordance with the wiring rules and regulation in the location where it is installed.
- Hazardous voltage may be present at the wire leads of this product.
- Lock out and tag the input circuit before accessing the wiring connections.

Failure to follow these instructions will result in death or serious injury.

WARNING

MAINS POWER CONTROL CABLE

- Treat all Clipsal SILC Lighting Control System cabling as Mains Power.

Failure to follow these instructions can result in death or serious injury, or equipment damage.

① Connect the 3-core mains cable from Junction Box J1 to the Active, Neutral and Earth of a protected lighting circuit in the meter box.

4.17 System testing

See ‘Testing and commissioning the Clipsal SILC System’ on page 48 for information about testing the installed SILC System.

5 Testing and commissioning the Clipsal SILC System

5.1 Testing and commissioning overview

Testing and commissioning an installed Clipsal SILC Lighting Control System involves the following major sections:

- Test the operation of SILC LED lights and relay-connected devices
- Test the operation of Master Off switches
- Perform a Wireless Gateway Unit connection test.

5.2 SILC LED light and relay-connected device test

Aim of test

Ensure that:

- all push button switches (except Master Off switches) operate as intended
- all SILC LED lights and relay-connected devices respond to button press input correctly
- SILC LED lights and relay-connected devices are grouped as intended.

Test procedure

① Perform the tests in the table below for every push button switch in the installed SILC System.

SILC LED light and relay-connected device operation

Test action	Expected result	Action on unexpected result
Ensure that all SILC LED lights and relay-connected devices in the switch group are OFF	N/A	N/A
Short press the push button switch	All SILC LED lights within the switch group switch **ON**	– If all lights in the switch group do not turn ON, check the Driver switch group assignment. – Check that the circuit breaker for the SILC Power Supply has not detected a fault. – Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Network Drivers and LED Fittings, push buttons and Junction Boxes. – Contact Clipsal for support.
	All relay-connected devices within the switch group switch **ON**	– If all relay-connected devices in the switch group do not turn ON, check the Relay switch group assignment. – Check that the circuit breaker for the SILC Power Supply has not detected a fault. – Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Network Relays, relay-connected devices, push buttons and Junction Boxes. – Contact Clipsal for support.

Test action	Expected result	Action on unexpected result
Press and hold the push button for several seconds	All SILC LED lights within the switch group **increase in intensity**	– Check that the circuit breaker for the SILC Power Supply has not detected a fault. – Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Network Drivers and LED Fittings, push buttons and Junction Boxes. – Contact Clipsal for support.
Press and hold the push button for several seconds	All SILC LED lights within the switch group **decrease in intensity**	– Check that the circuit breaker for the SILC Power Supply has not detected a fault. – Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Network Drivers and LED Fittings, push buttons and Junction Boxes. – Contact Clipsal for support.
Short press the push button switch	All SILC LED lights within the switch group switch **OFF**	– Check that the circuit breaker for the SILC Power Supply has not detected a fault. – Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Network Drivers and LED Fittings, push buttons and Junction Boxes. – Contact Clipsal for support.
	All relay-connected devices within the switch group switch **OFF**	– Check that the circuit breaker for the SILC Power Supply has not detected a fault. – Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Network Drivers and LED Fittings, push buttons and Junction Boxes. – Contact Clipsal for support.

5.3 Master Off switch test

Aim of test

Ensure that:

- all Master Off switches operate as intended
- all SILC LED lights and relay-connected devices respond to Master Off input.

Test procedure

① Perform the tests in the table below for every Master OFF switch in the installed SILC System.

Master Off switch operation

Test action	Expected result	Action on unexpected result
Ensure that all SILC LED lights and relay-connected devices in the System are switched ON	N/A	N/A
Short press the Master Off switch	A green LED within the Master Off switch blinks for a few seconds	– Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Master Off switch and Junction Box. – Contact Clipsal for support.
	All SILC LED lights in the SILC System switch **OFF**	– Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Master Off switch and Junction Box. – Contact Clipsal for support.
	All relay-connected devices in the SILC System switch **OFF**	– Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Master Off switch and Junction Box. – Contact Clipsal for support.

5.4 Wireless Gateway Unit connection test

Aim of test

Ensure that the Wireless Gateway Unit enters Access Point mode when a push button is pressed and held for 25 seconds.

Test procedure

Before starting this test, ask everyone on site to check the Wi-Fi settings on their smart phones and tablets and make sure that they are not connected to a network with ‘Clipsal SILC...’ in the name.

- If there are many people on site, it may be better to wait until a quieter time to perform this test. It is important that only the smart phone or tablet you use for the test be connected to the Clipsal SILC System.

① Obtain a Wi-Fi enabled tablet or smart phone for this test and ensure that you can access the device's Wi-Fi connection settings.
② Choose any push button (not Master Off switch) and perform the tests below.

Wireless Gateway Unit connection

Test action	Expected result	Action on unexpected result
Press and hold the push button (Do not release the button until the next step)	After 25 seconds, the SILC LED lights connected to the push button blink three times	– Check that power is being supplied to the SILC Power Supply. – Try another push button. If this works, check the wiring of the push button that did not work. – Check the wiring to the Wireless Gateway Unit and Junction Box. – Contact Clipsal for support.
Release the push button after the third blink of the SILC LED lights, then access the Wi-Fi settings on your tablet or smart phone	The Wi-Fi name 'Clipsal SILC' and an address number (e.g. 'Clipsal SILC 1010FF') appears in the Wi-Fi settings as an available access point	– Try standing closer to the Wireless Gateway Unit and repeat the test – Check that power is being supplied to the SILC Power Supply. – Check the wiring to the Wireless Gateway Unit and Junction Box. – Contact Clipsal for support.

6 Troubleshooting

6.1 SILC LED lights and relay-connected devices

Problem	Checks and remedial action
All lights are flashing when a push button switch is pressed	– Check that the push button switch is not connected to more than one Junction Box – Rewire any push button switch that is connected to more than one Junction Box
All SILC LED lights are ON	– Check the circuit breaker for the lighting circuit to which the SILC Power Supply is connected – If the circuit breaker is in the normal (no fault) position, the SILC Power Supply may not be working – Replace the SILC Power Supply if necessary
When 2 push buttons within a switch group are pressed at the same time, the lights behave abnormally	– This can happen when two push buttons are pressed at exactly the same time – Try short-pressing one push button only, to verify normal operation – If the problem persists, check the push button switch wiring

6.2 Wireless Gateway Unit

Problem	Checks and remedial action
Unable to open the Wireless Access Gateway Unit Access Point mode after pressing and holding a Master Off switch for 25 seconds	– Master Off switches cannot be used to open the The Wireless Gateway Unit Access Point mode – Press a regular push button switch for 25 seconds to open the Wireless Gateway Unit Access Point mode
Unable to open the Wireless Access Gateway Unit Access Point mode after pressing and holding a push button switch for 25 seconds	– Ensure that you are not pressing a Master Off switch – Check that the LED light flashes after 25 seconds – Check the wiring to the Wireless Gateway Unit

7 Glossary

The terms and definitions in this Glossary are written in the context of the Clipsal SILC Lighting Control System, its components, installation and application.

A

Android platform

An operating system installed in some tablets and smart phones.

The Clipsal SILC Application is compatible with the following Android versions and compatible devices.

Operating System	Hardware
Android platform – Versions 4.1, 4.2, 4.3 (Jellybean) – Version 4.4 (KitKat) – Versions 5.0, 5.1 (Lollipop)	Any tablet or smart phone with: – IEEE 802.11 b/g/n Wi-Fi capability, and – One of the Android versions listed on the left installed on the device

Apple

Vendor of the iOS operating system installed on iPads and iPhones.

AS/NZS 3000

Australian and New Zealand Standard AS/NZS 3000: Electrical Installations.

Also known as the Australian/New Zealand Wiring Rules.

AS/NZS 3100

Australian and New Zealand Standard AS/NZS 3100: Approval and test specification – General requirements for electrical equipment.

C

C1-C2

Refers to the Power and Communications wiring for the Clipsal SILC Lighting Control System.

Example:

‘Connect the Master OFF switch (DA-DA) to the C1-C2 cabling at the most convenient Junction Box’.

(See also: ‘SILC cable connection point’ on page 58)

ceiling space

The cavity between a building interior ceiling and external roof.

Clipsal SILC Application

Software that can be installed on a compatible tablet or smart phone to control the devices in a Clipsal SILC Lighting Control System via the Clipsal SILC Wireless Gateway.

The Clipsal SILC Application may also be referred to as ‘the App’ throughout this guide.

Clipsal SILC Lighting Control System

A system used to control lighting (and SILC relay-connected devices) via momentary push buttons, tablets and smart phones.

Clipsal SILC devices

The components that comprise a Clipsal SILC Lighting Control System.

A typical Clipsal SILC Lighting Control System includes the following components:

Clipsal SILC Component	Description
Power Supply DIN mounted	1 per Clipsal SILC Lighting Control System, installed in the meter box on the lighting circuit and connected to the power and communications wiring C1-C2
Junction Box and Plug Assembly	1 per connected LED / relay-connected device
Network Driver with LED Fitting	1 per LED, 3000 K warm white or 4000 K cool white available
Network Relay Unit	1 per relay-connected device, e.g. bathroom exhaust fan, pendant light, external security light
Wireless Gateway Unit	1 per Clipsal SILC Lighting Control System, for remote control of lights and relay-connected devices via the Clipsal SILC Application
Master Off Mech 30 Series (6 max.)	1 per desired ‘all off’ location—typically building entry/exit points
Momentary push button (bell press) switch	1 per desired location / multiway location

cordset

A cable consisting of one or more conductors and a connector or device at each end. A cordset may also include an inline controller, such as a switch.

D

device

The general term used in this guide to refer to an item connected to the Clipsal SILC Lighting Control system (e.g. relay-connected device). The term may also be used to refer to a tablet or smart phone.

diagram

A two-dimensional representation, used in this guide to:

- Depict a wiring diagram or schematic, and
- Illustrate how to perform an action.

DIN mount

A standard mounting rail used to secure RCBOs and similar equipment in a meter box.

The power supply for the Clipsal SILC Lighting Control System power and communications wiring (C1-C2) is a DIN mount component.

F

factory default

The original software or firmware configuration of an electronic device as shipped from the manufacturer.

fixed wiring

Electrical cables that have been laid and secured to prevent dislodgement.

In this guide, fixed wiring refers to the 3-core (mains supply) and 2-core (power and communications C1-C2) cabling associated with the Clipsal SILC Lighting Control System.

No special cabling is required. The Clipsal SILC Lighting Control System uses standard 1.5 mm^2 3-core TPS and standard 1.5 mm^2 2-core TPS cable.

G

‘green’ button

An alternate name for the Master Off Mech 30 Series used to turn off all devices connected to the Clipsal SILC System.

The term ‘green’ is a reference to the button’s purpose of providing a convenient way to switch all lights and devices off, encouraging end users to reduce their power consumption when leaving the building or going to sleep.

group assignment

The short term for switch group assignment.

group selection switch

The combination of slider and rotary switches on a Clipsal SILC Network Relay Unit and Network Driver with LED Fitting.

An installer uses the group selection switch on a Network Relay Unit or Network Driver with LED Fitting to set its switch group assignment within the Clipsal SILC Lighting Control System.

I

iOS

The mobile device operating system developed by Apple Inc.

The Clipsal SILC Application is compatible with the following iOS versions and Apple devices.

Operating System	Hardware
Apple iOS 7 or later	– iPhone 4S or later – iPad 3 or later – iPod Touch 4th generation or later

J

Junction Box and Plug Assembly

A component of the Clipsal SILC Lighting Control System that provides a standard interface between the fixed wiring and all Clipsal SILC devices.

In this guide, the Junction Box and Plug Assembly may also be called the:

- Junction Box, or
- Plug and Base.

L

LED over-temperature protection

A feature built into the Clipsal SILC Network Driver with LED Fitting that reduces the rating of the LED when the ambient temperature exceeds a maximum level.

load

An electrical term describing the power demand of a device.

Electrical loads can be Resistive or Conductive:

Load type	Examples
RESISTIVE loads	Incandescent lighting
	Halogen/dichroic 240 V lamps
INDUCTIVE loads	Exhaust and ceiling fans
	Small motor loads

M

Master Off Mech 30 Series

The momentary push button switch used as a Master OFF switch in a Clipsal SILC Lighting Control System.

When pressed, a connected Master Off Mech 30 Series sends a data signal over the SILC Connection C1-C2 that causes all Clipsal SILC devices to switch OFF.

In this guide, the Master Off Mech is referred to as the ‘Master Off switch’, or as the ‘green’ button due to its purpose.

The Clipsal SILC Lighting Control System supports up to 6 Master Off switches.

Megger tester

A device used to test electrical insulation resistance.

mounting hole

A hole created to accommodate a device such as a Clipsal SILC LED Fitting, or hole drilled for a mounting screw or bolt.

mounting springs

A part of a Clipsal SILC LED Fitting used to secure the LED in the ceiling hole.

multiway

The method of connecting 2 or more compatible momentary push button (bell press) switches to control a single switch group within a Clipsal SILC Lighting Control System.

The multiway switching capability within the Clipsal SILC Lighting Control System provides installers with an easily expandable system for configuring not just 2- and 3-way switching, but more complex dimming and switching options.

N

Network Driver

An abbreviated term used in this guide for the Clipsal SILC Network Driver with LED Fitting.

Network Driver with LED Fitting

An LED light and driver used in the Clipsal SILC Lighting Control System. The Network Driver provides switch group Identification for the connected light and is designed to be controlled via a switched active input or via the Clipsal SILC Wireless Gateway Unit.

In this guide, the Driver component of a Network Driver with LED Fitting may also be called a ‘Network Driver’ or just ‘Driver’.

Network Relay Unit

The Network Relay Unit provides a means of switching a mains supply to a connected Clipsal SILC compatible device via a switched active input or via the Clipsal SILC Wireless Gateway Unit.

In this guide, a Network Relay Unit may also be called a ‘Network Relay’ or just ‘Relay’.

P

Plug and Base

Abbreviated name for the Junction Box and Plug Assembly.

Power Supply DIN Mounted

The power supply for the Clipsal SILC power and communication wiring C1-C2.

The power supply is installed in the building meter box and connected to the:

- Active and Neutral of an existing, protected, building circuit (usually lighting), and
- Clipsal SILC power and communication C1-C2 wiring.

push button

Abbreviated name for the momentary push button (bell press) switch used in the Clipsal SILC Lighting Control System.

Push buttons are used as on/off/dimmer switches in the Clipsal SILC Lighting Control System. For Master OFF operation, only the Master Off Mech 30 Series can be used.

Q

quick connect plug

The plug fitted to the Junction Box and Plug Assembly (the quick connect plug is the Plug Assembly).

The quick connect plug provides a simple and convenient way to connect a Network Relay Unit or Network Driver with LED Fitting to a Junction Box.

R

relay-connected device

A device such as an exhaust fan or external floodlight that is connected to the Clipsal SILC Lighting Control System via a Network Relay Unit.

roof truss

The supporting structure within a roof cavity (the ceiling space).

S

SILC cable connection point

The C1-C2 connectors for the Clipsal SILC Power and Communications wiring.

SILC connection

A connection to C1-C2, the Power and Communications wiring for the Clipsal SILC Lighting Control System.

SILC LED light

The LED Fitting component of the CLSK12WF/CF Network Driver with LED Fitting. The term ‘SILC LED light’ is used when referring to operation of the lights.

Examples of usage

‘SILC LED lights and relay-connected devices’, or ‘adjust the intensity of the SILC LED lights’.

soffit

The underside of an architectural element, such as an architrave or projecting cornice.



For the purposes of this guide, it is recommended that the Wireless Gateway Unit be installed below the ceiling in buildings with steel frames or foil insulation, preferrably within a space enclosed by a soffit, or in the top of a built-in cupboard.

strain relief

A component designed to prevent undue stress on connected conductors.

In the Clipsal SILC Lighting Control System, strain relief is featured on the:

- Network Relay Unit, and
- Junction Box.

structure

In this guide, structure refers to the roof truss and other structural beams accessible within either the ceiling space of a building, or within wall cavities for push button switches and wall-mounted Clipsal SILC Lighting Control System compatible devices.

switch group address

A unique group address that can be set on one or more Network Relay Units and/or Relay Units with LED Fitting. All such components set with the same switch group address can be simultaneously operated by one switch or multiway switches (or via the Clipsal SILC Application)

switch group assignment

A unique identifier set on each Network Driver with LED Fitting and Network Relay Unit in a Clipsal SILC Lighting Control System. Every light and compatible device connected to an Network Driver with LED Fitting or Network Relay with the same switch group assignment can be operated simultaneously via a single push button or via the Clipsal SILC Wireless Gateway Unit.

switched active button

The momentary push button (bell press) used to control a group of Clipsal SILC Network Relays and Network Drivers with LED Fitting.

switched active input

The supply of electrical power via a switch.

In this guide, switched active input may be referred to as A' in diagrams and text.

W

Wi-Fi

A generic term for a particular wireless local area network (WLAN) technology in common use.

Wi-Fi mode

Clipsal SILC Wireless Gateway Unit 'Wi-Fi' mode (normal operating mode).

wire

The process of electrically connecting a Clipsal SILC device or Clipsal SILC compatible device using approved electrical cabling.

Wireless Gateway Unit

A component of the Clipsal SILC Lighting Control System that provides a wireless connection to a tablet or smart phone with the Clipsal SILC Application installed.

wiring schematic

A 2D representation of an electrical circuit or circuits.

8 Installation Record

Write key information in this record that may be useful for other installers and maintainers who may be requested to extend, upgrade, modify or otherwise perform work on the installed System.

8.1 General Installation Details

Name of installer:	Company:
Contact No.:	Date installation completed:
Building address:	

8.2 Switch Group Assignments

		Network Driver or Network Relay Unit	
Switch Group Name	**Group No.**	**Slide Switch Setting**	**Rotary Switch Setting**
e.g. Lounge Room	**0**	A	0
	1	A	1
	2	A	2
	3	A	3
	4	A	4
	5	A	5
	6	A	6
	7	A	7
	8	A	8
	9	A	9
	10	A	A
	11	A	B
	12	A	C
	13	A	D
	14	A	E
	15	A	F
	16	B	0
	17	B	1
	18	B	2
	19	B	3
	20	B	4
	21	B	5
	22	B	6
	23	B	7
	24	B	8
	25	B	9
	26	B	A
	27	B	B
	28	B	C
	29	B	D
	30	B	E
	31	B	F

clipsal.com

Contact Us:
clipsal.com/feedback

Schneider Electric (Australia) Pty Ltd
33-37 Port Wakefield Road, Gepps Cross, South Australia 5094

Australia National Customer Care Enquiries: Tel 1300 202 525
Fax 1300 202 556

Schneider Electric (NZ) Pty Ltd
30 Business Parade South, Highbrook, East Tamaki, Manukau 2013

New Zealand National Customer Care Enquiries: Tel 1300 202 525
Fax 1300 202 556

04 August-15

Schneider Electric (Australia) Pty Ltd reserves the right to change specifications, modify designs and discontinue items without incurring obligation and whilst every effort is made to ensure that descriptions, specifications and other information in this document are correct, no warranty is given in respect thereof and the company shall not be liable for any error therein.

© 2015 Schneider Electric. All Rights Reserved.
Trademarks are owned by Schneider Electric Industries SAS or its affiliated companies.