Sitara™ Bluetooth® Dimmer

Bluetooth® 400W Phase Adaptive dimmer for LED and legacy light sources

Designed in Australia to meet Australian Standards and installation conditions

Introduction

Important notes and safety information

STOP	Electric shock may result in serious injury or death. Follow all warnings in this guide and on the product while working in accordance with the latest electrical safety practices. Connecting the Diginet Sitara™ Bluetooth® Dimmer to mains must be carried out by a suitably qualified installer who must work in accordance with standard safety procedures for mains-powered electrical equipment.

There are no user serviceable parts inside this device. Do not attempt to disassemble or operate the device with any covers removed.

If you require information or assistance regarding the installation or operation of this product, contact Technical Services at Diginet Control Systems. Contact details are provided on the back cover of this guide and also at www.diginet.net.au

Product summary

The Sitara™ Bluetooth® Dimmer provides remote dimming and on/off control of lighting via a Bluetooth® connection to a smart device running iOS or Android operating systems. The Dimmer can also be controlled via other suitable input devices, such as Sitara™ Bluetooth® Wall Switches.

The Sitara™ Bluetooth® Dimmer can be connected in parallel with devices which incorporate Diginet MultiMate™ technology, such as LEDsmart+™ dimmers. When connected in this way, the devices synchronise with each other, allowing control from multiple points and multiple devices, both wired and wireless.

Product Features

- Compatible with devices which include MultiMate™ technology
- Compatible with devices which include Avi-on™ 'Bluetooth with Mesh' technology
- Bluetooth® LED indicator and reset button
- Dimmer LED indicator and commissioning button to verify dimmer operation and setup MultiMate™ functions
- Neutral and Earth termination bars
- Suitable for mounting in a ceiling void
- Fits through a 90mm downlight hole
- Programmable minimum and maximum dimming levels
- Programmable optional kick-start for CFL's and some LED's
- Compatible with dimmable LED, CFL, Halogen and incandescent loads
- 400W maximum load
- 1W minimum load
- Control and monitor via iOS and Android Smart device Apps
- Control via Avi-on™ enabled input devices (for example, Sitara™ Bluetooth Wall Switches)
- Simple wireless setup directly with an iOS / Android device. No additional gateway is required
- Grouping and scenes across multiple devices can be programmed via the Avi-on™ App
- Time schedules programmable via the Avi-on™ App

Installation and wiring

Installing the Sitara™ Bluetooth® Dimmer

The Sitara™ Bluetooth® Dimmer is primarily designed for installing in a roof space. As long as the relevant AS3000 wire rules are adhered to, there are no further special requirements for the mounting of this device.

Wiring the device

> **STOP**
>
> Electric shock may result in serious injury or death. Follow all warnings in this guide and on the product while working in accordance with the latest electrical safety practices. Connecting the Diginet Sitara™ Bluetooth® Dimmer to mains must be carried out by a suitably qualified installer who must work in accordance with standard safety procedures for mains-powered electrical equipment.

Connections

The device requires Active (220Vac-240Vac), Neutral and Load connections.

A terminal block is provided for looping an Earth conductor (if a 3-core cable is used). However, an Earth connection is not required for correct operation of the device.

A separate 'Loop' terminal is also provided. This is not connected internally and can be used to loop additional conductors.
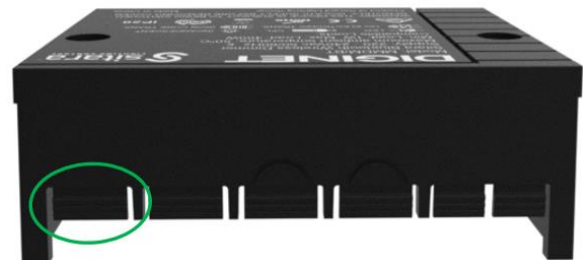

Cable entry tabs/knockouts

The terminal cover includes a series of cable entry tabs/knockouts for use with typical 1.5mm^2 and 2.5mm^2 Flat TPS/building cables. Knockouts are also provided for circular multi-core cables.


Tabs/knockouts for Active and Load cables

Tabs pushed backwards to accommodate 1.5mm^2 flat TPS cable
Tabs removed to accommodate 2.5mm^2 TPS cable

Cable Ties

Cable ties can be used to secure the Active and Load cables. The base of the cable termination area includes a series of slots for securing cables with cable-ties. A series of knockouts is also provided, should more cable tie locations be required. (Note, four suitable cable ties are included in the packaging).

Cable-tie slots

Additional knockouts for cable-ties
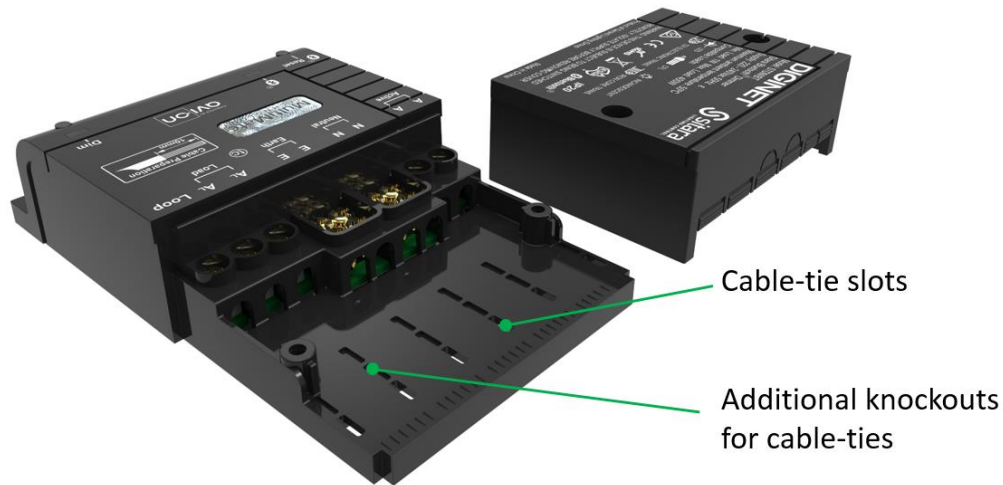
Manually testing the device when powered up

When the device is connected to mains power and a suitable lighting load, the dimming operation can be manually tested using the dimmer button (labelled 'dim') on the device. See page 5 for more information. This dimmer button is also used to configure dimmer settings. See page 6 to 9 for more information.

Wiring a Sitara™ Bluetooth® Dimmer in parallel with other MultiMate™ enabled devices
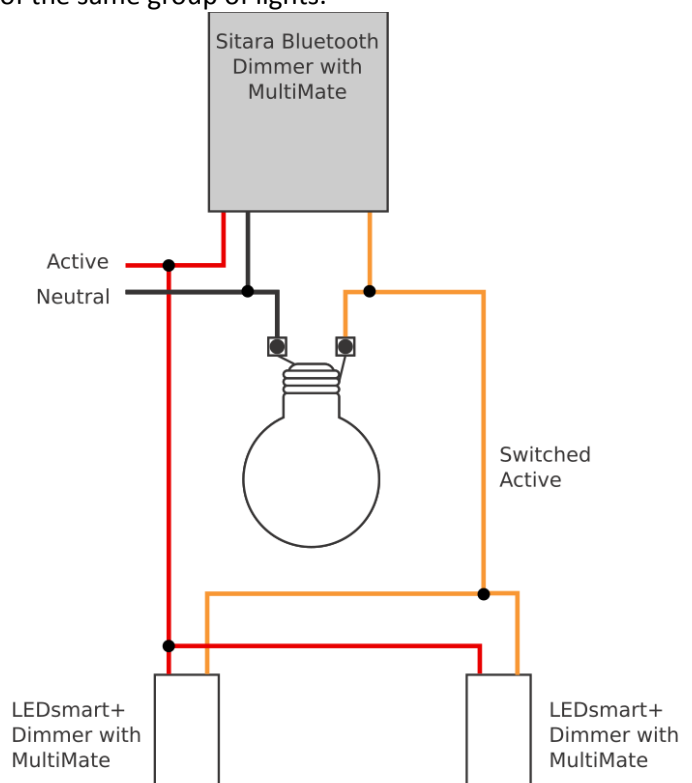
The Sitara™ Bluetooth® Dimmer included Diginet MultiMate™ technology. This allows other MultiMate™ enabled devices (such as Diginet LEDsmart+™ dimmers) to be connected in parallel with the Sitara™ Bluetooth® Dimmer, allowing multi-point control of the same group of lights.

This diagram shows a Sitara™ Bluetooth® Dimmer and two LEDsmart+™ dimmers controlling the same lighting load.

The 240Vac Active and Load connections on the three devices are connected in parallel.

The Sitara™ Bluetooth® Dimmer also requires a Neutral connection.

This configuration allow the lighting load to be controlled manually from both LEDsmart+™ wall mounted dimmers as well as from a Bluetooth® enabled device, such as a smart phone.

Indicator and button operation

The Sitara™ Bluetooth® Dimmer includes LED indicators and buttons to assist with the installation and configuration of the device.

Bluetooth® LED Indicator (blue) operation

Indicator state	Indicator meaning
OFF	Device is not powered or dimmer load is ON
ON	Device is powered and dimmer load is OFF
Flashing	Device is currently unclaimed (i.e., not linked to any Avi-on™ user account) and is ready to be claimed

Bluetooth® button operation

Press and hold the Bluetooth® button for 15 seconds – Bluetooth® is reset. This 'unclaims' the device so it can be linked to any Avi-on™ account.

Dimmer LED Indicator (white) operation

Indicator state	Indicator meaning
OFF	Device is not powered
ON	Device is powered
Flashing	Device is communicating

Dimmer button operation

When powered up and connected to a lighting load, the dimming operation can be manually tested using the dimmer button (labelled 'dim') on the device. See the table below for operation.

Button operation	Result
Short press	Each short press toggles the connected lighting load on/off
Long press	Each long press dims the connected lighting load up/down (Toggle dimmer operation)

The dimmer button is also used to configure dimmer settings. See pages 6-9 for further information.

Dimmer Setup

Dimmer Setup Functions

The Sitara™ Bluetooth® Dimmer has a number of functions which are set by entering Setup Mode and following a few simple steps. The table below shows the functions available in Setup Mode.

Dimmer Setup Functions	Default	Possible Setup values	Number of clicks*	Additional notes for Setup Mode
Set **Minimum Brightness**	20%	0 to 100%	2	Depending on the connected LED load, lights may flicker at low minimum levels
Set **Maximum Brightness**	100%	100 to 0%	3	
Enable / Disable **Kick-start**	Disabled	Enabled or Disabled	4	Connected light ON = Enabled Connected lights OFF = Disabled
Set **Toggle / Memory Dimmer****	Toggle	Toggle or Memory	7	Connected light ON = Memory Connected lights OFF = Toggle
Enable / Disable **MultiMate™**	Enabled	Enabled or Disabled	8	Connected light ON = Enabled Connected lights OFF = Disabled
Factory Defaults **Reset**	-	-	10	

Once in Setup Mode, options are selected by a series of 'clicks' of the dim button. Each 'click' must be within one second of the previous click

**This function only applies to the physical dimmer button and to other MultiMate dimmers controlling the same load. It is not relevant when controlling the dimmer from the iOS/Android app or other Sitara Bluetooth® products.*

> It is strongly recommended that the **MINIMUM AND MAXIMUM BRIGHTNESS are always setup**. The other settings are optional, depending on the application.

Setting Minimum and Maximum brightness

To enter Setup Mode – See page 7

To set MINIMUM brightness– See page 8

To set MAXIMUM brightness– See page 9

Other Settings

As shown in the table above, the following functions are also settable

- Enable / Disable Kick-start
- Set Toggle / Memory Dimmer
- Enable / Disable MultiMate™
- Factory Defaults Reset

To access these settings, the dimmer must be in Setup Mode (see page 7). When in Setup Mode, the number of button clicks needed to access a specific function is shown in the table above.

If further information is required on how to setup the other functions, please refer to the full Setup Guide which can be downloaded from the Diginet website www.diginet.net.au
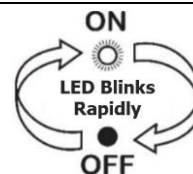
Entering Setup Mode

Step 1 | Press and hold the Dim button for at least **10 seconds**

Press & Hold!
10 Seconds

Connected lights will dim up or down, this is normal

Step 2 | The white LED Indicator will blink ON/OFF rapidly. This indicates that the dimmer is now in Setup Mode

ON
LED Blinks Rapidly
OFF

If other MultiMate™ enabled dimmer devices are connected in parallel (see pages 4), all these devices enter Setup Mode. The ON/OFF blink will be seen on all devices connected in parallel

In the unlikely event that other MultiMate™ dimmer devices connected in parallel do not enter Setup Mode, please exit and try again

Step 3 | The dimmer is now ready for the settings to be adjusted as required. Go to the relevant setup function instructions

Setup

To set **MINIMUM** brightness– See page 8

To set **MAXIMUM** brightness– See page 9

Setting MINIMUM brightness

> *i* For the majority of lamps, a minimum brightness as low as 0% can be set if required. However, some lamps can become unstable at low brightness levels
> If lamps become unstable at low brightness levels, they typically flicker or pulse on/off. The dimmer allows the minimum brightness to be set to a level above the point at which the lamp flickers/pulses

Step 1 Enter Setup Mode (see page 7)

> *i* Connected lights will dim up or down, this is normal

> *i* If other MultiMate™ enabled dimmer devices are connected in parallel (see page 4), all these devices enter Setup Mode. The ON/OFF blink will be seen on all dimmer devices connected in parallel
> In the unlikely event that other MultiMate™ dimmer devices connected in parallel do not enter Setup Mode, please exit and try again

Step 2 Click the Dim button 2 times

Step 3 LED will blink 2 times
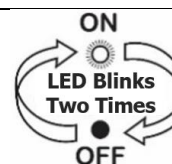
Step 4 Press and hold the dim button to adjust the current level to the required MINIMUM brightness level, releasing the button when the required level is reached

> *i* The direction of adjustment will alternate with each press

Step 5 Click once to save & exit

> *i* If multiple MultiMate™ enabled dimmer devices are connected in parallel, minimum brightness **only needs to be set in one device.** The setting is automatically saved in all MultiMate™ dimmer devices connected in parallel

> *i* To cancel/exit without saving, at any time do nothing for 30 seconds
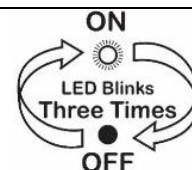
Setting MAXIMUM brightness

i	When lamps near full brightness, it is difficult to see changes in dimmed level. Therefore, when setting maximum brightness, slowly dim up to a point where no further changes in brightness can be seen. The maximum dimming level can be set at this point

Step 1 | Enter Setup Mode (see page 7) | Setup

i	Connected lights will dim up or down, this is normal

i	If other MultiMate™ enabled dimmer devices are connected in parallel (see page 4), all these devices enter Setup Mode. The ON/OFF blink will be seen on all devices connected in parallel In the unlikely event that other MultiMate™ dimmer devices connected in parallel do not enter Setup Mode, please exit and try again

Step 2 | Click the Dim button 3 times | Click! 3 Times

Step 3 | LED will blink 3 times | ON ☼ LED Blinks Three Times ● OFF

Step 4 | Press and hold the dim button to adjust the current level to the required MAXIMUM brightness level, releasing the button when the required level is reached | Adjust!

i	The direction of adjustment will alternate with each press

Step 5 | Click once to save & exit | Click! 1 Time

i	If multiple MultiMate™ enabled dimmer devices are connected in parallel, the maximum brightness **only needs to be set in one device.** The setting is automatically saved by other MultiMate™ dimmer devices connected in parallel

i	To cancel/exit without saving, at any time do nothing for 30 seconds

Connecting the dimmer to Bluetooth®

Quick Start Guide

This page covers basic information on how to register the Sitara™ Bluetooth® Dimmer and connect it to a suitable Bluetooth® enabled smart device. If further information is required, please refer to the on-line information at support.avi-on.com

Initial preparation

An internet connection (via either Wi-Fi or phone data) is needed to initially setup a Sitara™ device. After setup, the Sitara™ Bluetooth® device will operate without an internet connection.

Before attempting to connect the Sitara™ Bluetooth® Dimmer to a smart phone or tablet:-

- Ensure Bluetooth® on the phone or tablet is switched ON
- Ensure that you are within 10m range of the Sitara™ Bluetooth® Dimmer being set up
- Ensure that the Sitara™ Bluetooth® Dimmer is connected to mains (see page 3)
- Download and install the free Avi-on™ App. The App is freely available on the Apple App Store and Google Play Store. Search for 'Avi-on' (note the hyphen in 'Avi-on')

Logging into the App

- Open the Avi-on™ App on the smart phone or tablet
- Create an Avi-on™ account when prompted
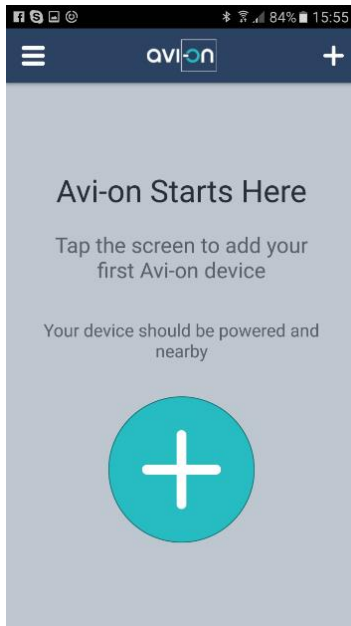- Log into the account

Connecting the Avi-on App to the Sitara™ Bluetooth® Dimmer

- When logged in for the first time, you will see the following screen. At this point, you can take a tour of the App by 'swiping right' on the screen. To start adding devices, press the 'Skip' button (Android™) or 'Dismiss' button (iOS™).
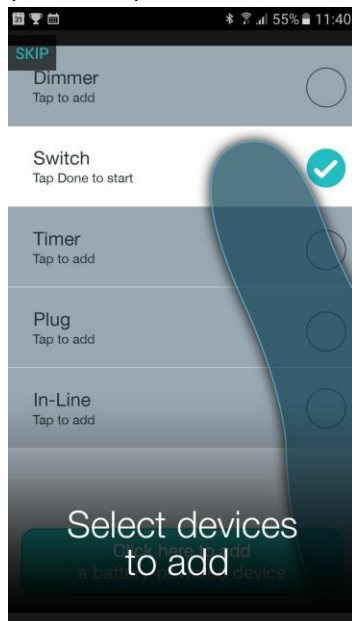

ℹ️	The App screens shown in this guide are from the Android™ App. Screens will vary slightly on iOS™ devices. There may also be some variation depending on the Android™/iOS™ App version used

- When prompted at the screen below, tap the large '+' button

- The App will find all unclaimed devices in range. Choose the device to claim and tap 'Done'. You will then see the App registering the device
- The device is now 'Claimed', i.e. it is registered to your account and only mobile devices logging into this account can view and control the device
- When claimed, you will automatically be taken to the screen where you can control the device. By tapping the menu button (see below - three dots, top right), you can edit the device name, the device picture, schedules, timers, groups and scenes
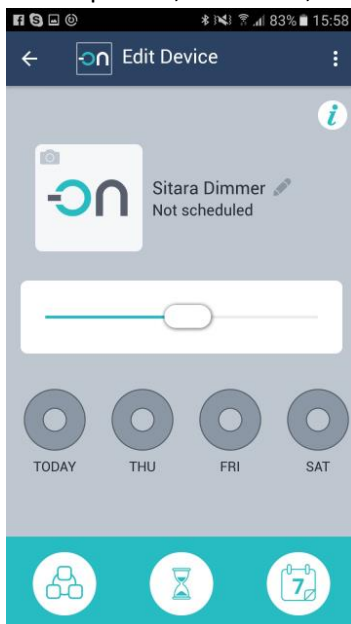
Specifications and standards compliance

Product specifications

Nominal Line Voltage Amplitude Range	220-240Vac
Line Voltage Frequency	50Hz Nominal (47-53Hz)
Load Brightness Control Range	0% to 100% (typical for LED loads)
Rated Load	Refer to Compatible Loads table (see page 13)
Minimum Load	1W
Off-state power consumption	0.5W
Operating Temp. Range	$0 - 50^\circ$C
Operating Humidity Range	10% - 95% RH non condensing
Weight	100g
IP Rating	IP20
Housing Material type	Flame Retardant Polycarbonate

Bluetooth® Specifications

Protocol	Bluetooth® with Mesh
Wireless Range	~30m typical indoor range (See important note below)
Wireless Frequency	2402MHz - 2480MHz
Security	128-bit AES with Counter Mode CBC-MAC and application layer user defined
Robustness	Adaptive frequency hopping, Lazy Acknowledgement, 24-bit CRC, 32-bit Message Integrity Check

The Bluetooth range achieved will vary depending on specific application factors, such as the building construction, unit location, location of unit relative to others and the total number of units installed

Mobile Device Requirements

- Apple® device running operating system iOS 8 or later
- Android™ device running operating system 4.4.2 or later
- Bluetooth® 4.0 or higher

Compatible Load Types

Load Symbol	Load Type	Max Load	Notes
	Dimmable LED Lamps and dimmable drivers	400W	The LED driver must be dimmable. Maximum permitted number of drivers is 400W divided by driver nameplate power rating Due to the variety of LED lamp designs, maximum number of LED lamps is further dependent on power-factor result when connected to dimmer
	Electronic Transformers	400W	
	Standard Iron-Core Transformers	250W	Due to variety of transformer designs, maximum LV lighting load is further dependent on transformer efficiency
	Toroidal Iron-Core transformers	300W	
	Incandescent	350W	
	Dimmable CFLs	400W	Due to variety of CFL designs, maximum number is make/model dependant

Incompatible Load Types

- Ceiling sweep fans
- Exhaust fans
- Other motor loads.

Dimensions
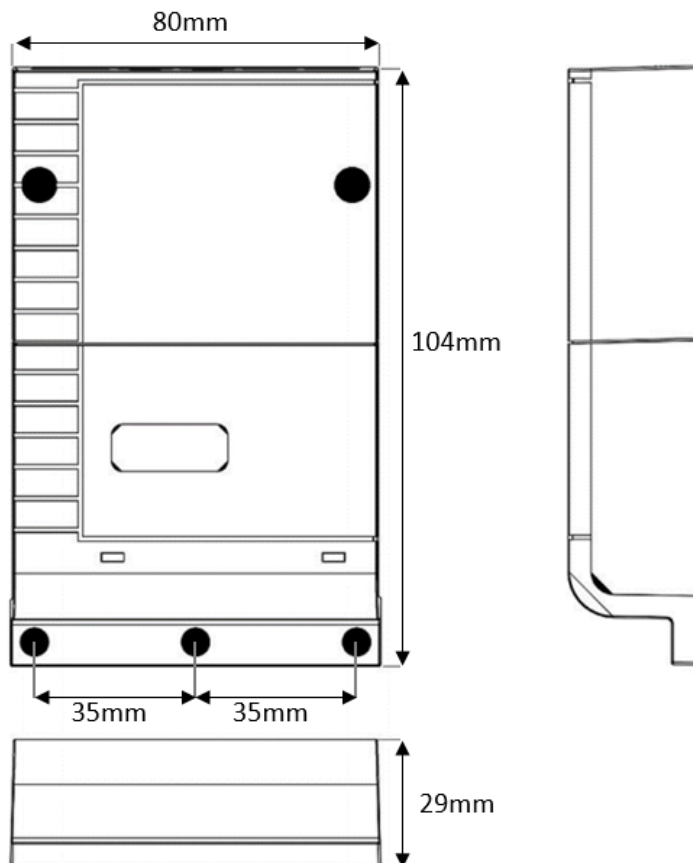
Standards and compliance

This Sitara™ Bluetooth® Dimmer is designed to meet/exceed the following Australian and International standards.

Australian/New Zealand, Europe & International EMC and Electrical Safety Frameworks and Standards

Regulation	Standard	Title
EMC	EN 55015:2013	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
	IEC 60669-2-1 EN 60669-2-1 AS/NZS 60669.2.1	Switches for household and similar fixed electrical installations - Part 2-1: Particular requirements - Electronic switches. (EMC clauses)
	IEC 61000-3-2, -3 EN 61000-3-2, -3 AS/NZS 61000-3-2, -3	Limits for harmonic current emissions. Limitation of voltage changes, voltage fluctuations and flicker.
	IEC 61000-4-2, -3, -4, -5, -6, -8, -11 EN61547:2009	ESD, Radiated Immunity, EFT/Burst, Surge, Conducted Immunity, Magnetic Immunity, Voltage dips and Short Interruptions.
	AS/NZS CISPR 15	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
	AS/NZS CISPR 32	Electromagnetic compatibility of multimedia equipment – Emission requirements
Electrical Safety	IEC 60669-1 EN 60669-1 AS/NZS 60669.1	Switches for household and similar fixed-electrical installations - Part 1: General requirements
	IEC 60669-2-1 EN 60669-2-1 AS/NZS 60669.2.1	Switches for household and similar fixed electrical installations - Part 2-1: Particular requirements - Electronic switches

Product warranty

This Diginet Sitara™ Bluetooth® Dimmer, item number STDM/BT has a two-year warranty against manufacturing defects in accordance with the following terms:

1. Nothing in this Warranty affects any person's rights under the Australian Consumer Law. The benefits to any person under the Gerard Lighting Warranty are in addition to the rights and remedies available under any Consumer Guarantees.
2. Subject to the other clauses of this Warranty, Gerard Lighting warrants that the Goods will be free of manufacturing defects and will perform to Gerard Lighting's specifications.
3. The benefit of the Gerard Lighting Warranty extends only to the owner of the property in which the Goods are installed (the Owner) for two (2) years after the date of purchase (Warranty Period).
4. If within the Warranty Period the Goods fail to perform to Gerard Lighting's specifications as a result of some defect in material or workmanship in the Goods (Defect) then Gerard Lighting will, at its option, repair the Goods or supply replacement Goods free of charge.
5. The Gerard Lighting Warranty will not apply to Goods:
    5.1. installed by any person other than a qualified tradesperson; or
    5.2. subjected to misuse, neglect, negligence or accidental damage; or
    5.3. operated in any way contrary to any operating or maintenance instructions; or
    5.4. improperly handled, installed or maintained; or
    5.5. altered or modified prior to or after installation.
6. The Gerard Lighting Warranty does not apply to faulty or defective design of Goods unless Gerard Lighting has designed the Goods and Gerard Lighting expressly accepts responsibility for such design in writing.
7. In order to make a claim under the Gerard Lighting Warranty, the Owner must:
    7.1. contact Gerard Lighting to obtain a Returned Goods Authorisation Number for the Goods and to be notified of Gerard Lighting's return address for the Goods by:
        7.1.1. freecall 1300 95 DALI (3254); or
        7.1.2. post to PO Box 314, Padstow NSW 2211; or
        7.1.3. fax to 1300 95 3257; or
        7.1.4. email to sales@diginet.net.au.
    7.2. return the Goods at the Owners expense to the return address notified by Gerard Lighting together with all accessories, instructions, specifications or other material supplied with the Goods and a notice in writing:
        7.2.1. stating the Returned Goods Authorisation Number for the Goods;
        7.2.2. describing in detail the defect or fault in the Goods;
        7.2.3. setting out the Owner's contact details (including postal address, email address and telephone numbers at which the Owner can be contacted during usual business hours).
    7.3. Gerard Lighting will not accept any returned Goods which have not been returned strictly in accordance with the above instructions.
8. Gerard Lighting will examine any returned Goods and if Gerard Lighting determines that they are defective through no fault of the Owner and are otherwise undamaged, Gerard Lighting will repair or replace the Goods free of charge.
9. Gerard Lighting will notify the Owner whether it accepts the Goods are defective within a reasonable time of return.
10. Gerard Lighting will not be responsible for any costs of de-installation, re-installation, returning Goods or for redelivery of the Goods (whether original or repaired and/or replacement Goods) by Gerard Lighting and any other related expenses of the Owner in claiming under the Gerard Lighting Warranty.
11. Gerard Lighting will not be responsible for any loss or damage to the Goods occurring while the Goods are in transit (either on return to Gerard Lighting or upon redelivery to the Owner of the original or repaired and/or replacement Goods).
12. Gerard Lighting will not be responsible (whether arising in contract or tort (including negligence) or under any statute) for any special, indirect, incidental, consequential or economic losses or damages (including loss of data, business, profits, revenue, anticipated savings, bargain, opportunity or goodwill) whether or not the possibility of those losses or damages being suffered had been brought to the attention of Gerard Lighting.

The Australian Consumer Law requires the inclusion of the following statement with the Gerard Lighting Warranty:

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

DIGINET.NET.AU

Product of Gerard Lighting Pty Ltd
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Padstow NSW 2211

Contact
General Enquiries: 1300 95 DALI (3254) or sales@diginet.net.au
Technical Services: 1300 95 3244 or support@diginet.net.au
Fax: 1300 95 3257

Diginet is a brand of Gerard Lighting

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