

DALI USB Interface Device



PATENT PENDING
REGISTERED DESIGN



Designed in Australia to
meet Australian Standards
and installation conditions



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A member of the Gerard Lighting Group

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1. Product Item

This guide provides user operation and product specification information for the DALI USB Interface Device, item number **DGLMIFU01**.

2. Product package contents

The DALI USB Interface Device package includes the following.

- 1 x DALI USB Interface Device
- 1 x 1.5m USB cable (USB 'A' plug to USB 'B' plug)
- 3 x 1.5m banana plug test leads (two required for using the device, one spare is provided)
- Banana plug connectors
 - 2 x pin-tip probes
 - 2 x alligator clips
 - 2 x test hooks



The DALI USB Interface Device does not require a separate power pack or batteries. The DALI part of the device is powered from the DALI network and the USB part of the device is powered via the USB connector (when connected to a PC).

3. Important notes and safety information

WARNING – 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.

- The DALI USB Interface Device does not have a mains supply connection. DALI lines operate on an ELV dc supply between 9.5V and 22.5V but must be considered at **mains** potential due to basic equipment isolation and cable segregation between mains and DALI. The installer must be suitably qualified and should work in accordance with standard safety procedures for mains-powered electrical equipment.
- Appropriate segregation is to be maintained between the USB cabling and mains/DALI line cabling in accordance with local regulations.
- There are no user serviceable parts inside the DALI USB Interface Device. Do not attempt to disassemble or operate the device with any covers removed.
- The DALI USB Interface Device is intended for indoor use as a commissioning tool or DALI test device. The user should ensure adequate safety is maintained when using the device within electrical switchboards and when connected in an open plan environment. Outdoor installations will require the device to be housed in a suitable IP rated enclosure.
- Consult the manufacturer's instructions for Lighting Control Gear and other DALI units that may be connected to the DALI lines.

If you require information or assistance regarding the installation, configuration, or operation of the DALI USB Interface Device, 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

4. Product summary

The DALI USB Interface Device is part of the Diginet Lighting Management System, which incorporates the **Digital Addressable Lighting Interface (DALI)** open standard protocol for lighting control.

The device provides the installer with a quick and easy tool to test basic communication functions of a DALI line. Also, when connected to a PC as well as a DALI line, the DALI USB Interface Device allows the installer to program and re-program DALI Short Addresses into DALI Lighting Control Gear and DALI Emergency Control Gear.

5. Product capabilities

The DALI USB Interface Device connects to one DALI line with up to 64 DALI units, such as DALI LED Drivers, DALI Fluorescent Control Gear, DALI sensors and DALI Emergency Control Gear.

The device allows the installer to carry out the following functions.

- Functions which require a connection to a DALI line, but not to a PC
 - Manually switch ON/OFF all DALI Lighting Control Gear connected to a DALI line
 - Manually fade UP/DOWN all DALI Lighting Control Gear connected to a DALI line
 - Cycle ON/OFF the following every 2 seconds
 - All DALI Lighting Control Gear
 - DALI Emergency Control Gear with appropriate indicators
 - Lighting Control Devices with appropriate indicators
- Functions available via a connection to a PC and a DALI line



To perform PC-based functions, Diginet *RAPIX Addressing* software is required. Diginet *RAPIX Addressing* software also provides installers with the ability to easily and quickly commission DALI Lighting Control Gear and DALI Emergency Control Gear from a smart phone or tablet device with Wi-Fi capabilities. Diginet *RAPIX Addressing* software is available separately. For further information on Diginet *RAPIX Addressing* software, please contact Diginet Control Systems Pty Ltd, or visit www.diginet.net.au

- Switch ON/OFF all DALI Lighting Control Gear
- Switch ON/OFF specific DALI Lighting Control Gear
- Cycle ON/OFF the following every 2 seconds
 - All DALI Lighting Control Gear
 - DALI Emergency Control Gear with appropriate indicators
 - DALI Lighting Control Devices with appropriate indicators
- Cycle ON/OFF specific DALI units every 2 seconds, including
 - DALI Lighting Control Gear
 - DALI Emergency Control Gear with appropriate indicators
 - DALI Lighting Control Devices with appropriate indicators
- Identify all DALI Emergency Control Gear
- Identify specific DALI Emergency Control Gear
- Find the Short Addresses of DALI Lighting Control Gear and DALI Emergency Control Gear
- Program / re-program the DALI Short Addresses of DALI Lighting Control Gear and DALI Emergency Control Gear
- Test that DALI Lighting Control Gear and DALI Emergency Control Gear is functioning correctly.

6. Connecting the device to a DALI line



Connecting the DALI USB Interface Device to a DALI line must be carried out by a suitably qualified installer who must work in accordance with standard safety procedures for mains-powered electrical equipment.

Connecting the device to a DALI line is carried out as follows.

1. Connect two of the supplied banana plug test leads to the device, along with the preferred connectors (alligator clips, test hooks or pin-tip probes).
2. At any suitable location, connect one banana plug lead to each of the two DALI line communication cables.



Note that DALI lines are **not** polarity sensitive, so either lead can be connected to either of the two DALI line communication cables.

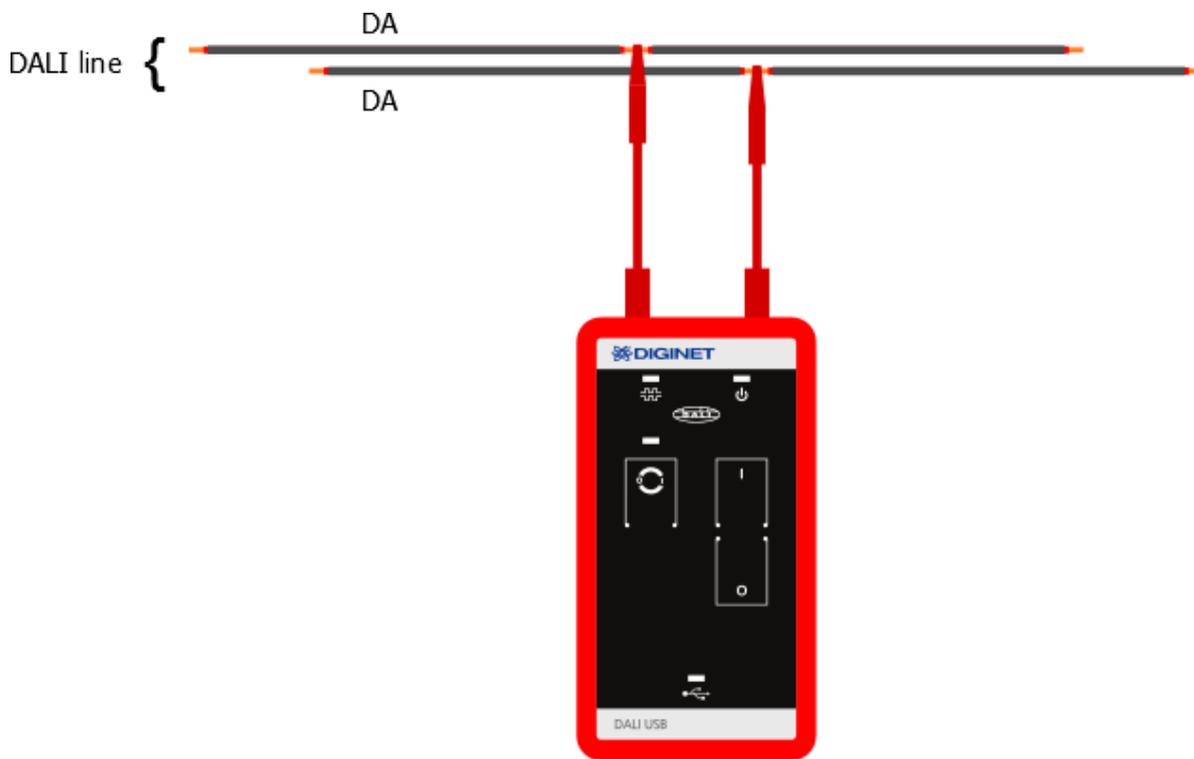


Figure 1 – Connecting a DALI USB Interface Device to a DALI line



If using alternative banana plug leads and/or connectors to the ones supplied, the installer must ensure that these leads/connectors are designed to be connected to mains-powered electrical equipment and that they comply with all the relevant electrical and safety standards.

7. Indicator Locations on a DALI USB Interface Device

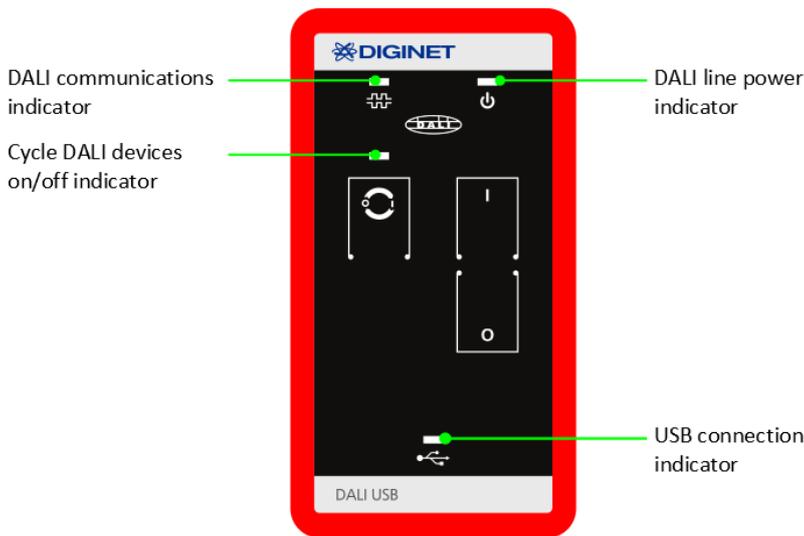


Figure 2 – DALI USB Interface Device Indicators

DALI Line Power Indicator

Indicator Operation	Outcome
Green on	DALI line power present and within the normal operating range
Off	DALI line power is not functioning correctly. Check the: <ul style="list-style-type: none"> • test leads are correctly connected to both the device and the DALI line • DALI power supply is connected and delivering the correct voltage/current to the DALI line • DALI line for a short circuit condition • DALI line for a 220/240V mains supply connection

DALI Line Communication Indicator

Indicator Operation	Outcome
Green – on with brief flash off every 2-3 seconds	Correct operation and DALI power supply present
Green – fast flash*	Data is being transmitted from USB to DALI line
Off	DALI line power is not functioning correctly. Check the: <ul style="list-style-type: none"> • DALI power supply is connected & delivering the correct voltage/current • DALI line for short circuit condition • DALI line for a 220/240V mains supply connection

USB connection Indicator

Indicator Operation	Outcome
Green – On**	USB connected and powered
Off	No USB connection/power – check the connection at the PC and the DALI USB Interface Device, and check the USB lead for possible damage

Cycle mode indicator

Indicator Operation	Outcome
Green – On	Device is in Cycle mode. All DALI units connected to the DALI line cycle ON/OFF every 2 seconds
Off	The device is not in cycle mode and DALI units will not be cycled ON/OFF

* When initially connected to DALI line power the indicator will flash once a second for up to 30 seconds

** This indicator does not necessarily indicate that a compatible USB driver is installed on the PC

8. Testing a DALI line without a PC using the DALI USB Interface Device

The DALI USB Interface Device allows an installer to carry out basic testing of the DALI line without at PC. The installer can ensure all DALI units are connected to both mains and the DALI line and are operating correctly.

Once the DALI USB Interface Device is connected to a DALI line (see section 6), basic tests of the DALI line can be carried out as follows.

- Turn ON all DALI Lighting Control Gear on the connected DALI line. This is achieved by pressing the button labelled 'I' on the DALI USB Interface Device
- Fade UP all DALI Lighting Control Gear on the connected DALI line. This is achieved by pressing and holding the button labelled 'I' on the DALI USB Interface Device
- Turn OFF all DALI Lighting Control Gear on the connected DALI line. This is achieved by pressing the button labelled 'O' on the DALI USB Interface Device
- Fade DOWN all DALI Lighting Control Gear on the connected DALI line. This is achieved by pressing and holding the button labelled 'I' on the DALI USB Interface Device
- Cycle ON/OFF all DALI units on the connected DALI line every 2 seconds (i.e. 2 seconds ON and 2 seconds OFF, repeating cycle). This is achieved by pressing the button labelled  on the DALI USB Interface Device.

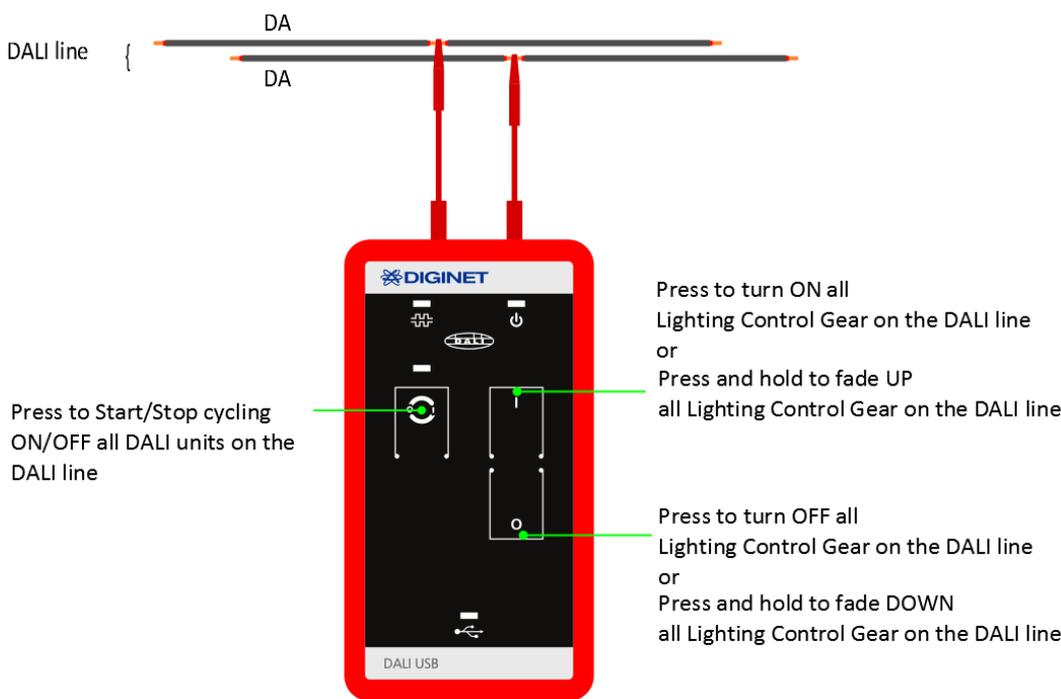


Figure 3 – Button functions on a DALI USB Interface Device



DALI Emergency Control Gear which is not in Maintained Emergency Mode will not respond on ON/OFF button presses.

The 'Cycle' button will activate the DALI identification process and will cycle ON/OFF all units connected to a DALI line, including DALI Emergency Control Gear and DALI Lighting Control Devices with appropriate indicators.



Note to carry out the above DALI line testing functions, a connection to a PC is **not** required.

9. Connecting the device to a PC via a USB connection

The DALI USB Interface Device can be connected to a PC via the supplied 1.5m USB lead.

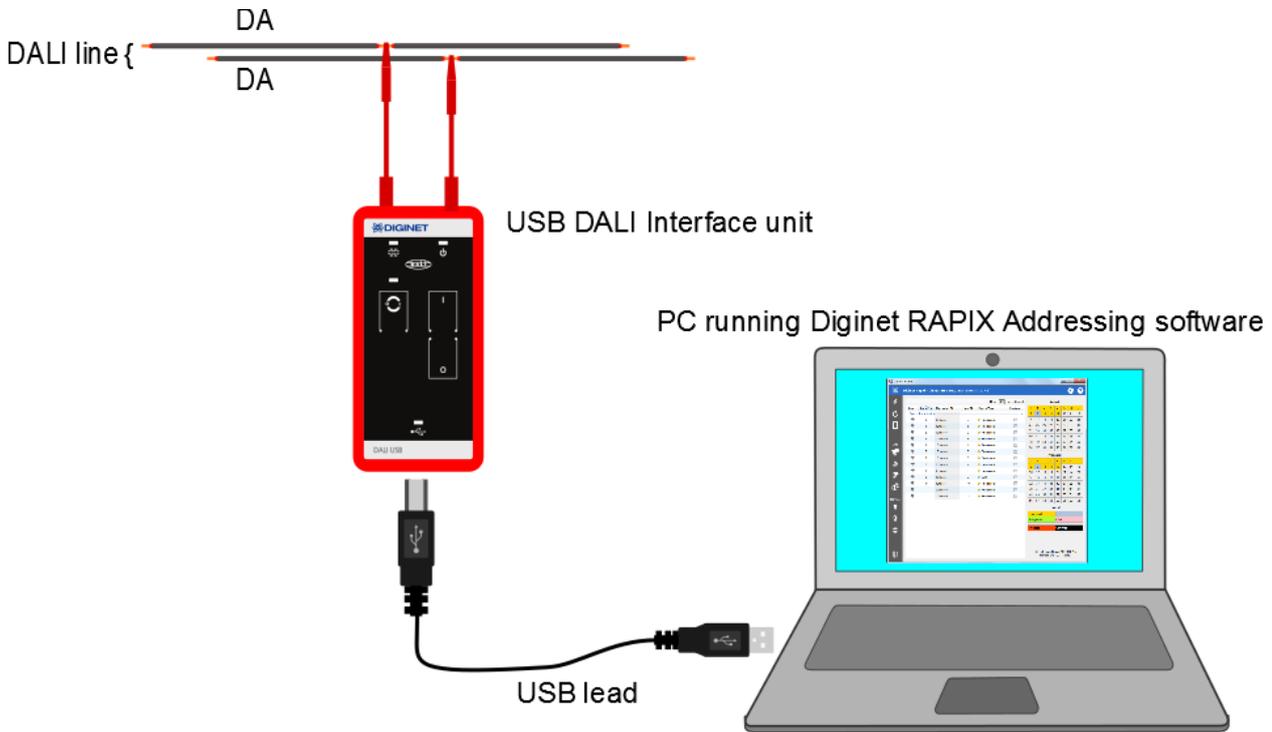


Figure 4 – Connecting a DALI USB Interface Device to a PC

10. Commissioning a DALI line via a PC

Connecting the DALI USB Interface Device to a DALI line and to a PC running Diginet *RAPIX Addressing* software enables simple and fast discovery and commissioning of DALI Devices. This software allows the installer of a DALI system to quickly connect to a DALI Line via a PC and carry out the following tasks.

- Find the Short Addresses of DALI Lighting Control Gear and DALI Emergency Control Gear
- Assign Short Addresses to DALI Lighting Control Gear and DALI Emergency Control Gear
- Re-program the short addresses of DALI Lighting Control Gear and DALI Emergency Control Gear
- Test that DALI Lighting Control Gear and Diginet DALI Emergency Control Gear



Diginet *RAPIX Addressing* software is available separately. For further information on the benefits of using Diginet *RAPIX Addressing* software, and the requirements for running the software, please contact Diginet Control Systems Pty Ltd or visit www.diginet.net.au



The supplied 1.5m USB lead can be extended with standard USB extension cables, or can be replaced with a longer cable. However, the total lead length from the DALI USB Interface Device to the PC should not exceed 5m.

11. Commissioning a DALI line via a smart phone or tablet

The flexibility and speed of commissioning a DALI line can be significantly increased by using a Wi-Fi enabled smart phone or tablet together with the DALI USB Interface Device and a PC running Dignet *RAPIX Addressing* software.



A standard Ethernet Wi-Fi router or access point is required to be connected to the PC running Dignet *RAPIX Addressing* software.

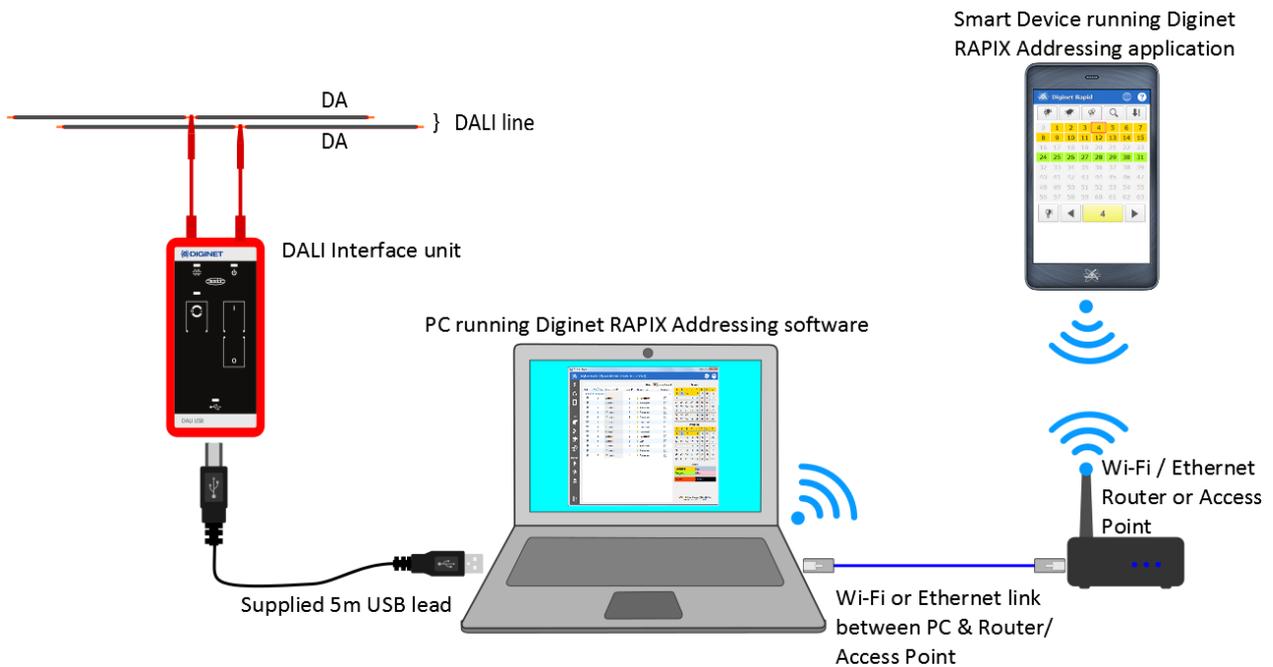


Figure 5 – Connections required for commissioning a DALI network via a smart phone or tablet



Dignet *RAPIX Addressing* software is available separately. For further information on the benefits of using Dignet *RAPIX Addressing* software, and the requirements for running the software, please contact Dignet Control Systems Pty Ltd or visit www.dignet.net.au

12. Power surges

The DALI USB Interface Device has no mains connection. However induced voltages or surges may occur on electrical circuits and communication cabling in an installation as a result of excessive voltages from external influences which can damage electronic equipment. It is strongly recommended that the electrical and data installation be fitted with suitable over-voltage protection at the electrical switchboard and IT cabinets to avoid these situations.

13. Insulation resistance testing

It is generally not a requirement to perform an IR test on DALI lines. In the event it is required, the DALI line cables must be disconnected from the DALI USB Interface Device to conduct the test and then reconnected.

14. Product specifications

Parameter	Specification
DALI line capacity	1
DALI line operating voltage	18V dc (nominal) supplied by external DALI power supply
DALI line current draw	8mA (nominal)
Isolation	5kV ac USB to DALI
Start-up time	2 seconds
Ambient operating temperature	0 to 50° C
Ambient storage temperature	-10 to 70° C
Humidity	0% to 95% RH non condensing
Ingress protection	IP40
Materials	Enclosure – Flame retardant ABS
	Sleeve – Silicon rubber
Weight	250 grams
Device Dimensions	See separate diagram on page 12
Banana plug accessories	
Plug and socket connector size	4mm
Test lead length	1.5m
Electrical test equipment safety ratings	
Test leads	1000V Cat III
Pin-tip probes	600V Cat II
Alligator clips	300V Cat II
Test hooks	600V Cat II
Approvals	    

15. Product dimensions

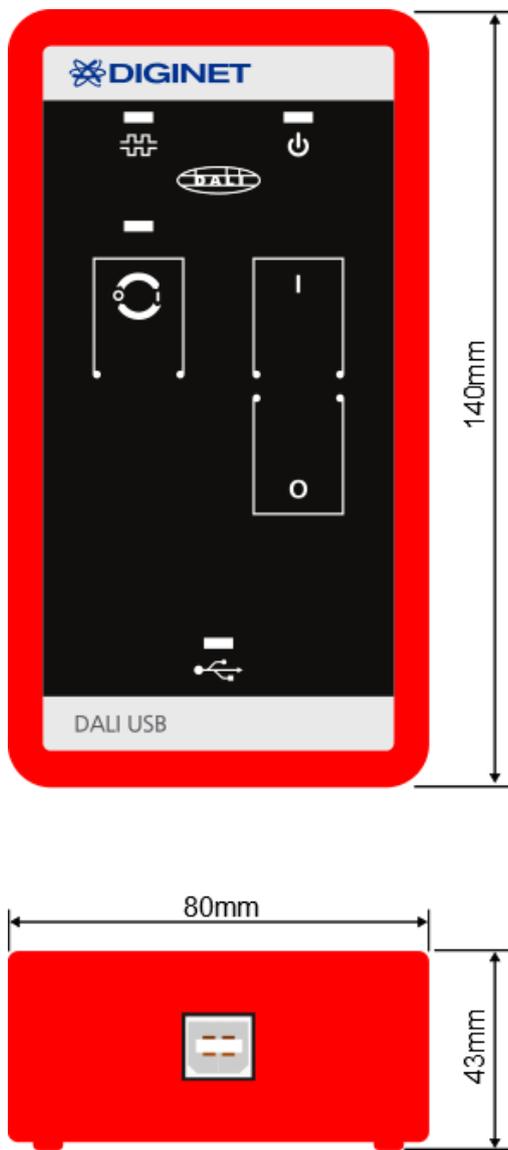


Figure 6 – DALI USB Interface Device dimensions

16. Standards and compliance

The DALI USB Interface Device is designed to meet/exceed the following Australian and International standards.

Australian/New Zealand EMC and Electrical Safety Frameworks and Standards

Regulation	Standard	Title
EMC	AS/NZS CISPR 22:2009	Information Technology Equipment – Radio Disturbance Characteristics – Limits and Methods of Measurement
	AS/NZS CISPR 22-A:2010	
Electrical Safety	AS/NZS 60950-1:2011	Information Technology Equipment – Safety

The product is in conformity with the essential requirements of the following EC Directives and accordingly carries the CE marking.

EC Council Directive	Title
2006/95/EC	Low Voltage
2004/108/EC	Electromagnetic Compatibility (EMC)
2011/65/EU	Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment

Other International Directives and Standards

Regulation	Standard	Title
Digital Addressable Lighting Interface (DALI)	IEC 62386-101	Digital Addressable Lighting Interface – Part 101: General Requirements – System
	IEC 62386-102	Digital Addressable Lighting Interface – Part 102: General Requirements – Control Gear
	IEC 62386-202	Digital Addressable Lighting Interface – Part 202: Particular requirements for control gear – Self-contained emergency lighting (device type 1)

17. Product warranty

The DALI USB Interface Device 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 DIGINET Warranty are in addition to the rights and remedies available under any Consumer Guarantees.
2. Subject to the other clauses of this Warranty, DIGINET warrants that the Goods will be free of manufacturing defects and will perform to DIGINET's specifications.
3. The benefit of the DIGINET 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 DIGINET's specifications as a result of some defect in material or workmanship in the Goods (Defect) then DIGINET will, at its option, repair the Goods or supply replacement Goods free of charge.
5. The DIGINET 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 DIGINET Warranty does not apply to faulty or defective design of Goods unless DIGINET has designed the Goods and DIGINET expressly accepts responsibility for such design in writing.
7. In order to make a claim under the DIGINET Warranty, the Owner must:
 - 7.1. contact DIGINET to obtain a Returned Goods Authorisation Number for the Goods and to be notified of DIGINET'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 DIGINET 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. DIGINET will not accept any returned Goods which have not been returned strictly in accordance with the above instructions.
8. DIGINET will examine any returned Goods and if DIGINET determines that they are defective through no fault of the Owner and are otherwise undamaged, DIGINET will repair or replace the Goods free of charge.
9. DIGINET will notify the Owner whether it accepts the Goods are defective within a reasonable time of return.
10. DIGINET 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 DIGINET and any other related expenses of the Owner in claiming under the DIGINET Warranty.
11. DIGINET will not be responsible for any loss or damage to the Goods occurring while the Goods are in transit (either on return to DIGINET or upon redelivery to the Owner of the original or repaired and/or replacement Goods).
12. DIGINET 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 DIGINET.

The Australian Consumer Law requires the inclusion of the following statement with the DIGINET 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.

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