It's DALI, just without the cable

W-DALI is a wireless alternative to the DALI cable - the ideal alternative to running DALI cables for retrofit or modernization projects.

With no need for extensive rewiring or construction work, W-DALI gives you an instant wireless lighting network. Compared to a wired project, W-DALI cuts installation times, simplifies planning and allows contractors to take on jobs in buildings where running new cables is just not possible.

And as W-DALI is DALI in-DALI out, programming and commissioning is just the same – no need to learn a new system or change your DALI controller.

W-DALI PRODUCT RANGE

W-DALI NODE

- Receiver for groups of lighting fixtures
- Fitted inside fixture or in junction box

W-DALI DIN RAIL

- Transmitter
- Designed to be mounted in electrical cabinet beside existing DALI controller

SAVE TIME AND MONEY

Make installation projects more profitable with LumenRadio's W-DALI lighting control. Contractors can carry out building retrofits in record time with no need for extensive rewiring or complex construction work.

SIMPLE INSTALLATION

The W-DALI DIN RAIL transmitter clicks straight into the electrical cabinet, right next to the existing DALI controller, and the W-DALI Nodes can connect up to 10 fixtures at once. The network is created at the touch of a button.

FULL DALI SUPPORT

Use your preferred wired DALI controller together with any DALI compatible lighting and/or DALI sensors. W-DALI is fully transparent to any forward and backward DALI frames – and there is no change to commissioning or programming.
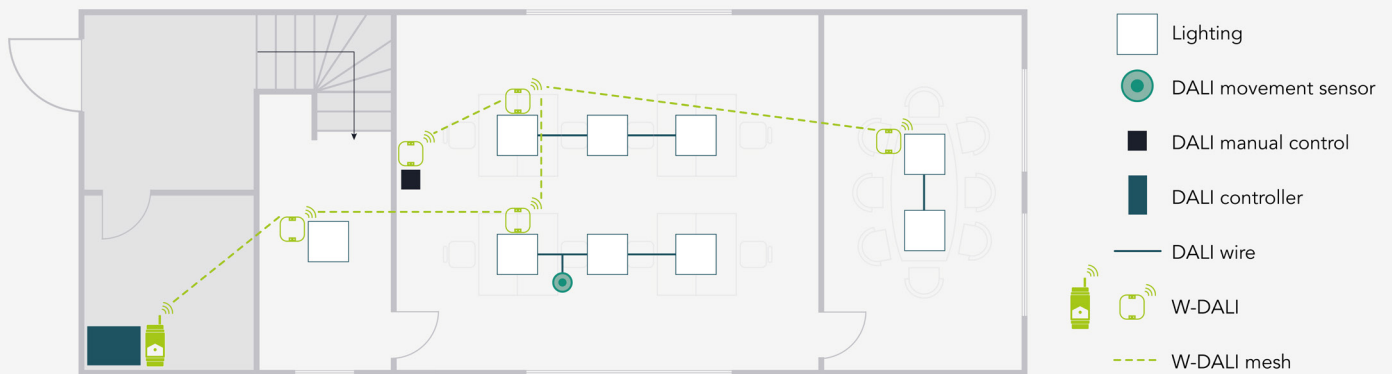
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W-DALI

FEATURES

- Out-of-the-box installation – just power up and connect to your W-DALI device and you are up and running.
- Instant wireless setup – with just one push of a button, the W-DALI network is set up within minutes.
- Mesh network – W-DALI is built on LumenRadio's ultra-reliable long-range MiraMesh. Cover an entire building, utilizing the mesh network as your infra-structure.
- Range – up to 500 meters (line of sight) between two meshing W-DALI units.
- Reliability – LumenRadio's patented frequency-friendly Cognitive Coexistence technology provides rock-solid connectivity and immunity to interference.

- Self-optimizing network – the mesh network will always find the best way to send messages through the network between devices.
- Individual or multiple control – W-DALI can be used for individual wireless control or used in a wired daisy chain, with one W-DALI to many lighting fixtures. You can even add a DALI sensor to the same DALI line.

Read more

SYSTEM OVERVIEW

- ☐ Lighting
- ◉ DALI movement sensor
- ■ DALI manual control
- ▮ DALI controller
- — DALI wire
- ☐ W-DALI
- --- W-DALI mesh

WHY CHOOSE LUMENRADIO?

LESS HASSLE, LESS COST

Get instant wireless control with no construction work, just faster project completion.

ROCK-SOLID PERFORMANCE

Replace cables with wireless communication in challenging environments where nothing but perfection is accepted.

ENERGY EFFICIENCY

Upgrade existing buildings with wireless control to enable energy savings and meet sustainability targets.

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LumenRadio is a Swedish technology company offering reliable wireless product-to-product connections for business-critical IoT applications. Our scalable solutions build on patented wireless technology for lighting control, building automation and industrial communication. We have a zero vision when it comes to cables and every day we deliver – Wireless Without Worries.

CONTACT

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W-DALI Technical sheet

TECHNICAL DATA

	W-DALI NODE	W-DALI DIN RAIL
Power		
Voltage range	216-253VAC	12-24VDC / 24VAC +/-10%
Max power consumption	<1W*	<1W
Frequency	50Hz	50Hz
Current Consumption	<5mA	<100mA
Conductor cross section (stranded)	0.5-2.5mm^2 ■	0.2-2.5mm^2 ■
Conductor cross section (solid)	0.5-4mm^2 ■	0.2-2.5mm^2 ■
DALI		
DALI PSU guaranteed current	30mA	–
DALI PSU max current	40mA	–
Max number of DALI units on bus	10	–
Max DALI bus current consumtion	–	120mA
DALI start up time	–	<5s
Conductor cross section (stranded)	0.5-2.5mm^2 ■	0.5-2.5mm^2 ■
Conductor cross section (solid)	0.5-4mm^2 ■	0.5-2.5mm^2 ■
Environment		
Ambient temperature range	-20 - +55 °C	-20 - +55 °C
Storage temperature range	-30 - +80 °C	-30 - +80 °C
Humidity (non-condensing)	10-95%	10-95%
Mechanical		
Dimensions	46x46x21mm	36x93x59mm (excluding antenna)
Weight	21g	75g
Protection level	IP20	IP20

* with full DALI PSU load

WIRELESS

Frequency range of operation: 2402-2480MHz
Number of nodes: 128 nodes to one DIN rail
Number of hops: 8 hops in the meshing network
Range per hop: 500m line of sight (approximately 50-70m indoors
Output (ERP): Max 20 dBm

CONFORMANCE

RoHS: IEC 63000
Radio: EN 300 328
Electrical safety: IEC 61347-2-11
EMC: EN 301 489-1, EN 301 489-17

SAFETY

Only qualified electricians may perform installations with this product. Always follow local electrical code and regulations.

Insulation classification: Basic insulation between DALI terminal and all other terminals. W-DALI Node and DIN Rail should be mounted in an enclosure, cabinet or similar for full protection against accidental contact with live parts.
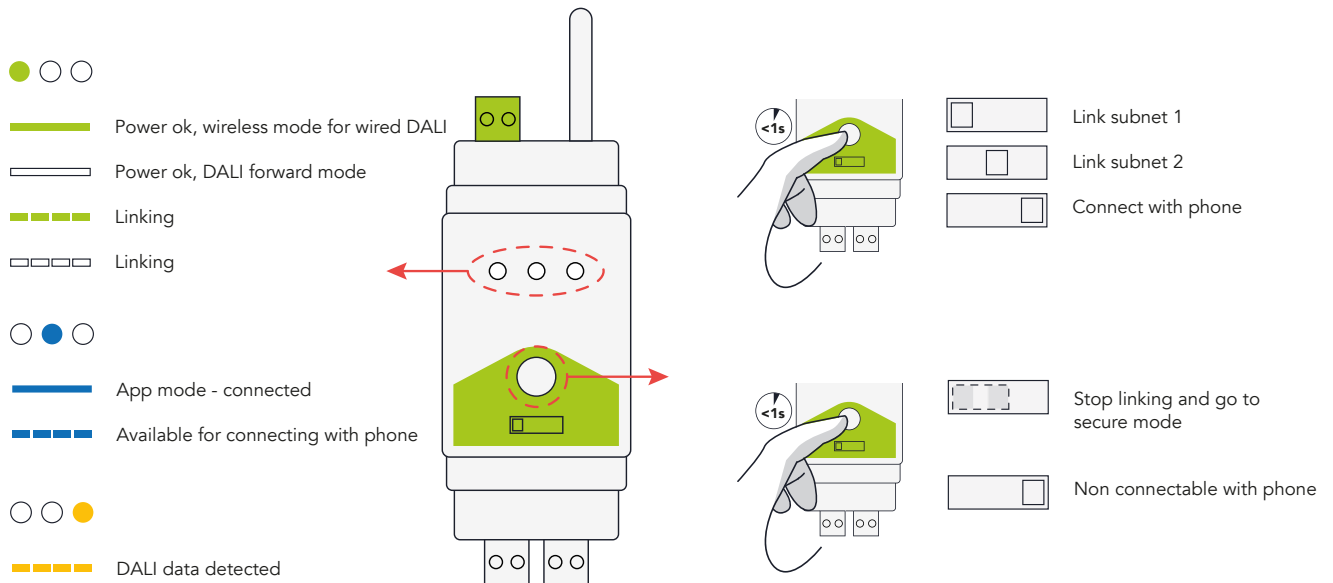
If W-DALI DIN RAIL is installed using an isolated AC or DC supply, this must be in accordance with IEC 61558-1 and applicable part 2 of IEC 61558.

Do not use the product if the product is damaged. Only use cables within the specified conductor sizes.

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Instructions for use

W-DALI DIN RAIL OPERATION

● ○ ○

▬▬▬ Power ok, wireless mode for wired DALI

▭▭▭ Power ok, DALI forward mode

▬ ▬ ▬ Linking

▭ ▭ ▭ Linking

○ ● ○

▬▬▬ App mode - connected

▬ ▬ ▬ Available for connecting with phone

○ ○ ●

▬ ▬ ▬ DALI data detected

▣	Link subnet 1
▣	Link subnet 2
▣	Connect with phone

|	
▭	Stop linking and go to secure mode
▣	Non connectable with phone

W-DALI DIN RAIL MODES

Green LED indicates LumenRadio wireless for wired DALI transparent operation. This is the default mode.

White LED indicates DALI forward frame mode for basic lighting control setups. In this mode only DALI forward frames will be sent.

Only the W-DALI DIN rail requires modes settings, no additional settings are needed for the W-DALI node.


● ○ ○

▬▬▬ Power ok, wireless mode for wired DALI

○ ○ ○

▭▭▭ Power OK, forward frame mode

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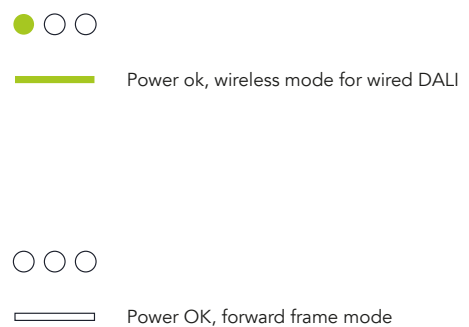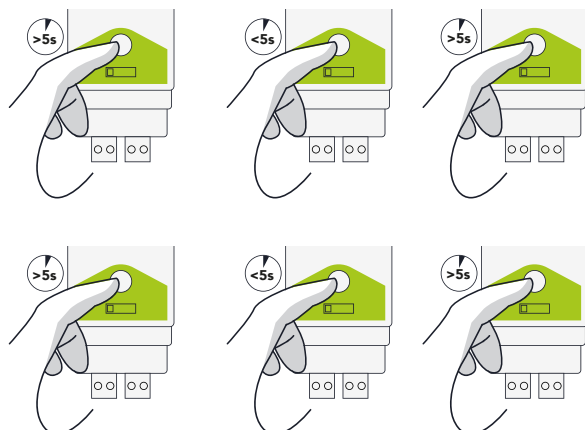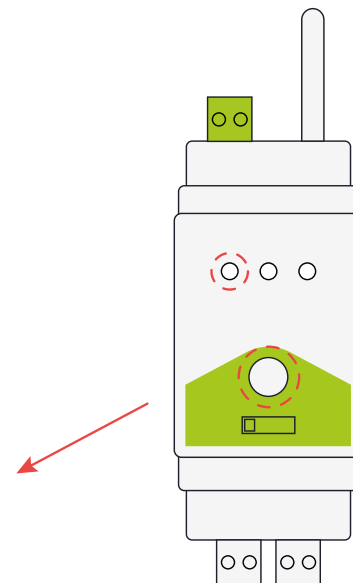
To manually link W-DALI nodes to the system, follow these steps:

1. On both the W-DALI DIN rail and W-DALI node, set the subnet switch to either subnet 1 or 2. This will allow for simultaneous linking of two different W-DALI networks.
2. Press and release the button on the front panel of the W-DALI DIN rail within 1 second.
3. The W-DALI nodes that receive the linking signal from the W-DALI DIN rail will start a pulsing fade with an intensity of 50% - 80% - 50%.

4. Wait for all W-DALI nodes to join the system.
5. Once all nodes have joined, press the button again on the W-DALI DIN rail to stop the linking process and enter operational mode. Alternatively, If the button is not pressed, the W-DALI DIN rail will automatically enter operational mode after 1 hour.
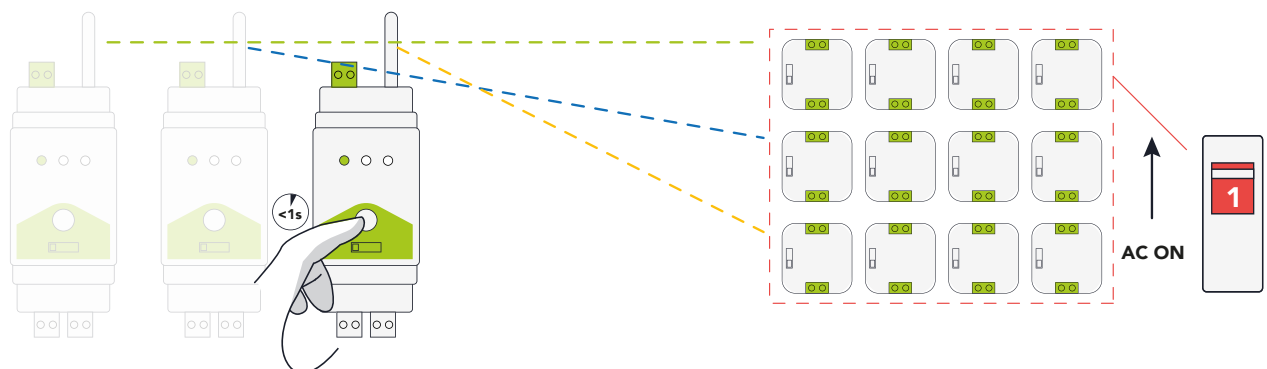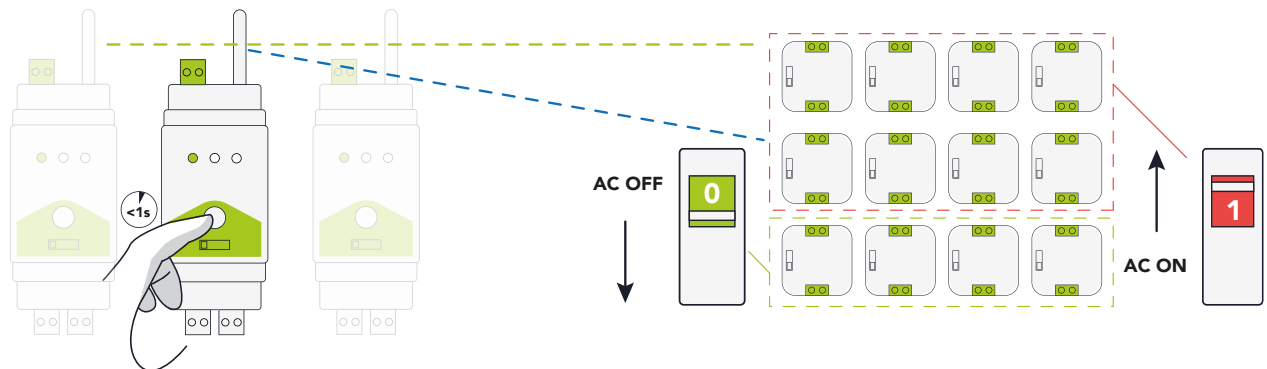

100%

Linking mode

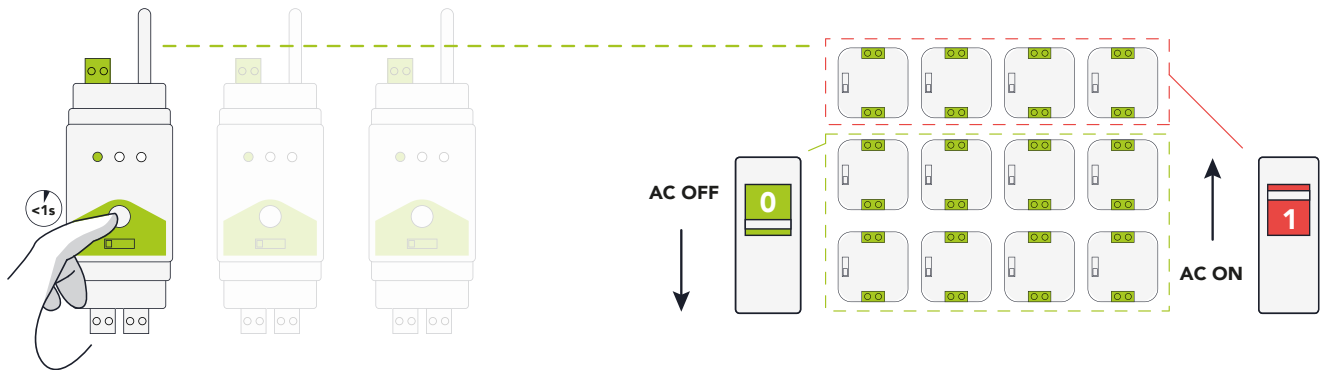50% - 80% - 50%

Secure mode
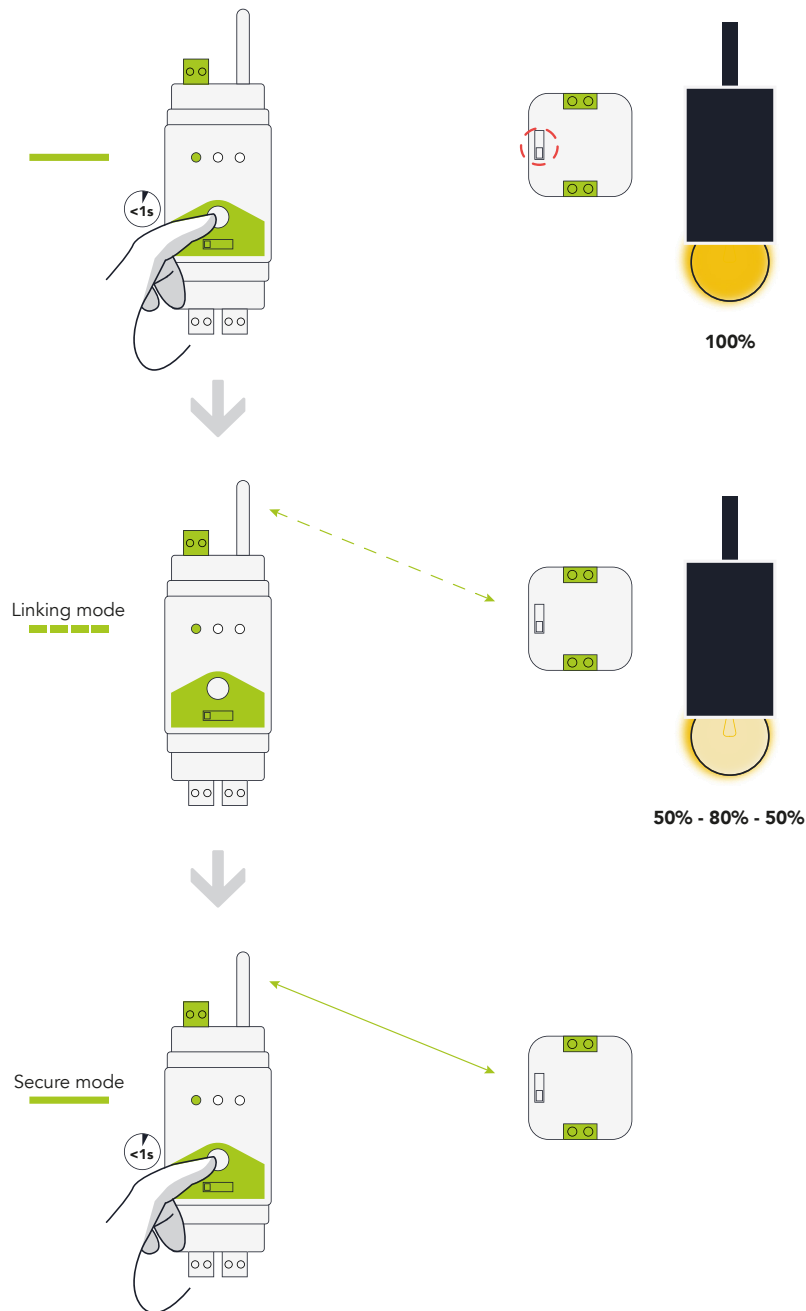
To unlink W-DALI nodes, please follow these steps:

1. Disconnect the power supply to the W-DALI node that needs to be unlinked.
2. Change the position of the switch to the opposite setting.
3. Restore power to the W-DALI node.
4. The W-DALI node is now reset and ready to be linked again.

AC OFF

0

AC OFF

0

AC ON

1

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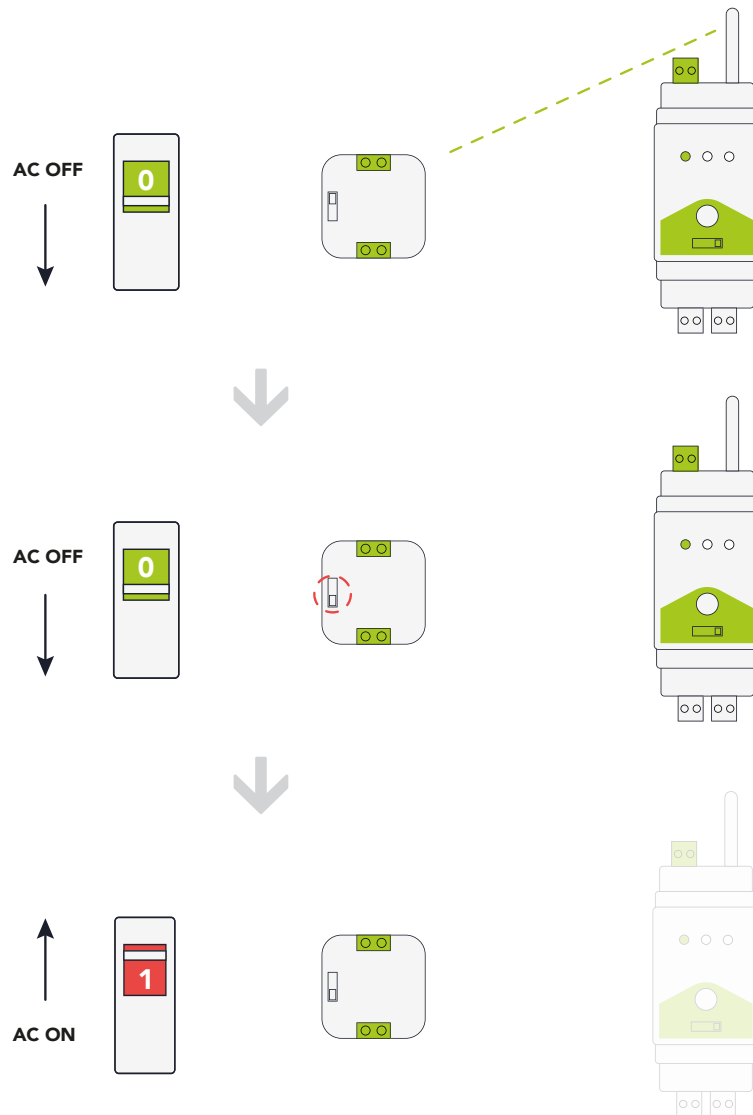
An alternative method for manually linking W-DALI nodes in systems with more than 2 subnets:

1. Disconnect the power supply to the W-DALI node that should not be linked.
2. Press and release the button on the front panel within 1 second of the first W-DALI DIN rail.
3. Wait for all W-DALI nodes to join the system.
4. Once all nodes have joined, press the button again on the W-DALI DIN rail to stop the linking process and enter operational mode.
5. Restore power to the next batch of W-DALI nodes that should be linked to the next W-DALI DIN rail. There is no need to disconnect power to the already linked W-DALI nodes.
6. Repeat steps 2 to 5 until all W-DALI nodes have been linked.

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TECHNICAL DATA

	W-DALI NODE	W-DALI DIN RAIL
Power		
Voltage range	216-253VAC	12-24VDC / 24VAC +/-10%
Max power consumption	<1W*	<1W
Frequency	50Hz	50Hz
Current Consumption	<5mA	<100mA
Conductor cross section (stranded)	0.5-2.5mm² ∎	0.2-2.5mm² ∎
Conductor cross section (solid)	0.5-4mm² ∎	0.2-2.5mm² ∎
DALI		
DALI PSU guaranteed current	30mA	–
DALI PSU max current	40mA	–
Max number of DALI units on bus	10	–
Max DALI bus current consumtion	–	120mA
DALI start up time	–	<5s
Conductor cross section (stranded)	0.5-2.5mm² ∎	0.5-2.5mm² ∎
Conductor cross section (solid)	0.5-4mm² ∎	0.5-2.5mm² ∎
Environment		
Ambient temperature range	-20 - +55 °C	-20 - +55 °C
Storage temperature range	-30 - +80 °C	-30 - +80 °C
Humidity (non-condensing)	10-95%	10-95%
Mechanical		
Dimensions	46x46x21mm	36x93x59mm (excluding antenna)
Weight	21g	75g
Protection level	IP20	IP20

* with full DALI PSU load

SAFETY

Only qualified electricians may perform installations with this product. Always follow local electrical code and regulations.

Insulation classification: Basic insulation between DALI terminal and all other terminals.

If W-DALI DIN RAIL is installed using an isolated AC or DC supply, this must be in accordance with IEC 61558-1 and applicable part 2 of IEC 61558.

Do not use the product if the product is damaged. Only use cables within the specified conductor sizes.

MANUFACTURER

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3

AC OFF

0

30mA
(Max 40mA)

LED-Driver

Movement sensor

LED-Driver

... Max 10 units

4

AC ON

1

W-DALI app → **5**

W-DALI app → **7**

5

<1s

✓

✓

✗

50% - 80% - 50%

100%

6

<1s

✓

50% - 80% - 50%

50% - 80% - 50%

7

<1s

W-DALI app

8

W-DALI app