

CONTRACTOR GUIDE

Wireless testing and monitoring



Introduction

This is a quick reference guide for system designers and installers and can be used as an instructional tool for electrical contractors. The guide provides a basic overview and summarises the main requirements for a typical wireless emergency installation.

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LYNK WIRELESS SOLUTION

Design and installation summary

Lynk wireless products use standardised protocols to communicate with devices on the network. This allows the use of products from other compatible manufacturers and helps to deliver a competitive, value-for-money installation.

The wireless mesh uses *IEC62386-104 over Thread*. Thread was originally designed by Google for their own Nest products and uses 6LoWPAN on IEEE802.15.4.

Lynk Gateways are used to control each wireless network. Each Lynk Gateway is connected through a wired Ethernet IP switch as typically deployed in IT networks to create a full site.

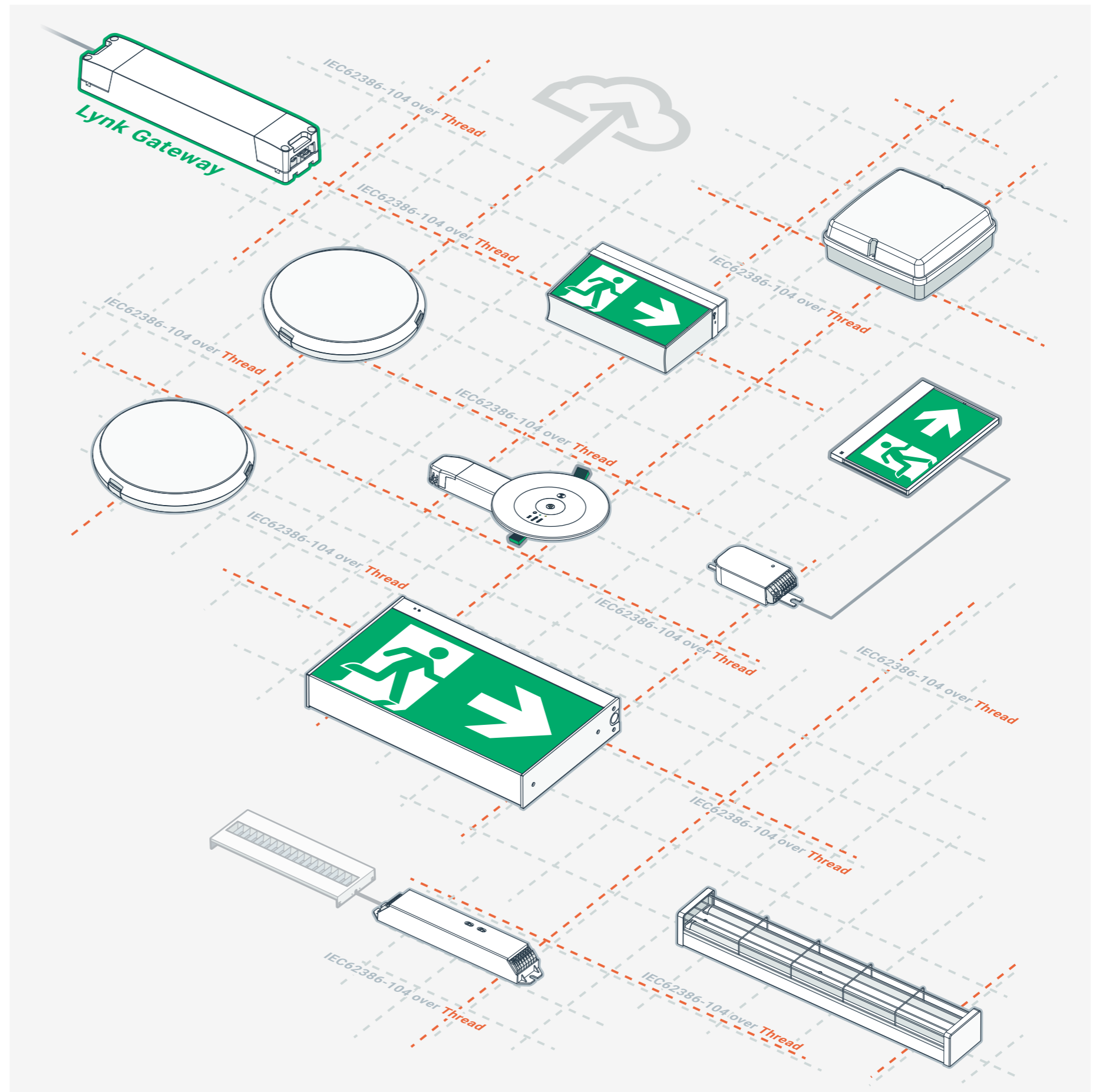
Each Lynk Gateway supports 64 emergency devices and will create a self-healing mesh between all devices in the network.

Lynk Gateways are self-contained and are provided with a Flex & Plug for easy installation. A Lynk Gateway should be installed in the ceiling space and not in the electrical cabinet to minimise the interference caused by a grounded metal case.

Lynk wireless emergency exit signs and luminaires are installed using the same method as non-monitored, standalone products. This means that Lynk products do not need any specialised connections or wiring.

Installers and customers can choose to have an on-site server for test management, or use the **zencontrol Cloud platform**. This allows users to manage multiple sites easily and remotely.

The test system provides support for manual and automatic testing, individual tenancy control, and multiple simultaneous users. Hierarchical access control is perfect for sites where tenants require their own control, monitoring, and reporting as part of a greater building system.



System design

For sites with a local server, on-site software is installed on a PC that is connected to the standard Ethernet TCP/IP network joining the Lynk Gateway devices. A PC is not required if the site is using the zencontrol Cloud platform.

The Lynk Gateway and PC are wired to standard Ethernet switches with a port allocated to each Lynk Gateway and PC. **This will require at least one router.**

The placement of the Lynk Gateways around the building is chosen to give the best coverage and multiple access points.

Lynk Gateways are wired from the Distribution Boards (DB) and are supplied with:

1. Permanent mains powers, typically supplied from the emergency lighting circuit
2. Ethernet connection typically wired from the network switch or Ethernet point located in the closet DB.

If multiple sites are being connected, standard fibre optic cables can be used to join the Ethernet networks on each site.

Where a site will use the zencontrol Cloud platform for a more advanced user experience, an internet modem can be connected into the Ethernet router.



System backbone

The system backbone, which connects the Lynk Gateways and server/PC, is an industry-standard Ethernet TCP/IP network.

Familiar hardware and technology has been chosen to make deployment easy and within the capability of most installers.

The main requirements of the Ethernet TCP/IP network are:

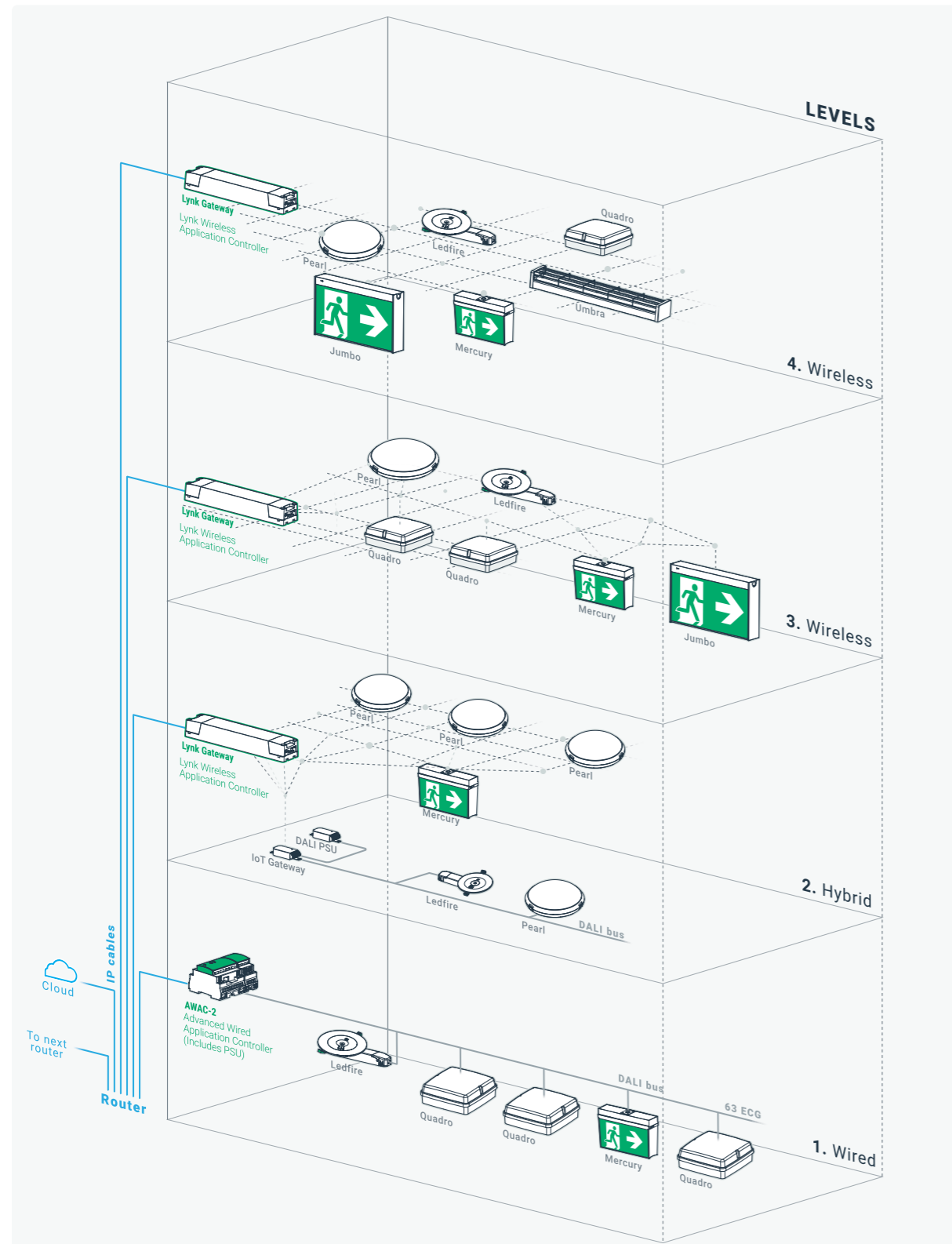
1. Network hardware such as routers and switches should support 10/100 network speeds
2. The Ethernet cable used to connect to Lynk Gateways to each switch should be CAT5 or better. The Ethernet cable used to join switches and routers should meet the requirements of those devices.
3. The network can be shared with other services, but if a managed network is employed (the network is locked down), the ports and services required for the Lynk Gateways and software must be allowed access.

Lynk Gateways do not require DB space and should be field mounted. Each Lynk Gateway will require a standard 240V socket outlet.

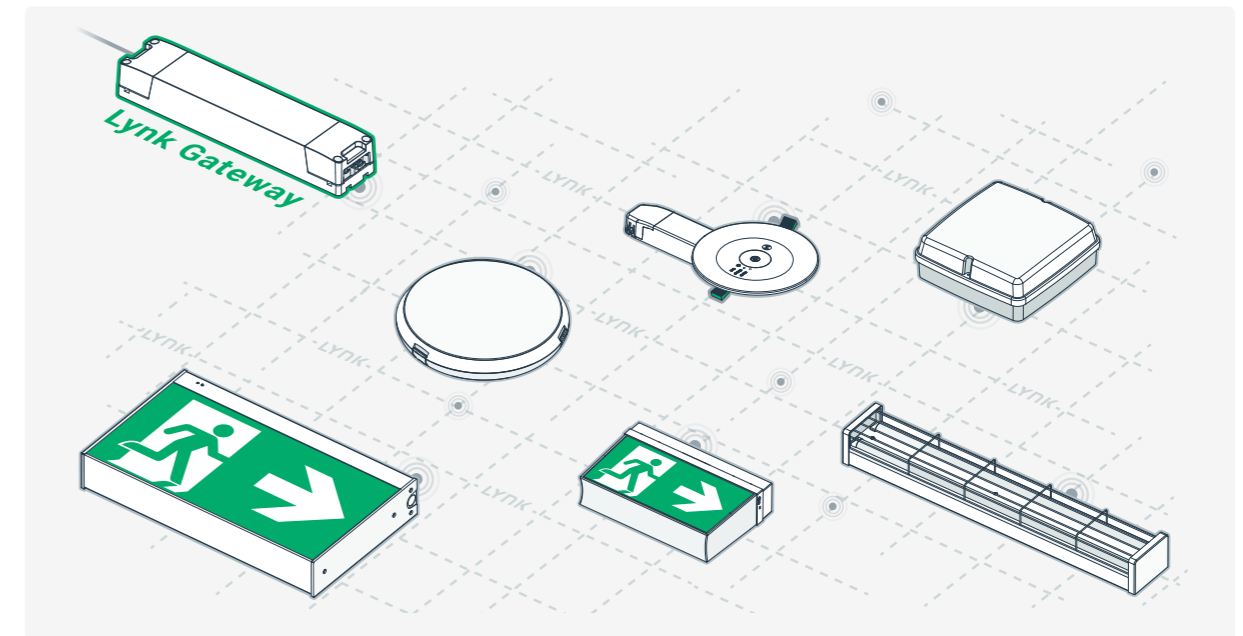
The Ethernet cable that connects to the Lynk Gateway should be fed from the network switch, typically in the closest DB.

Schematics

System diagram of multiple Lynk Gateway lines



System diagram of a single line



System diagram of multiple site connections



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Software

The emergency testing software is designed to provide a simple but very powerful interface to the network of Lynk Gateways.

FEATURES:

- Emergency testing and management
- Location-specific tracking: Tracks the location in the building and not the product
- IEC62034 certification for compliant standards-based testing
- Full device traceability with full through-life tracking of individually identifiable devices
- Full fault tracking and traceability
- Automatic backup of testing data
- Ability for full restore after malicious attack
- Group and tenancy testing
- Tenancy and access level control
- Simultaneous multi-user access
- Fault visualisation on a plan view UI
- Multiple site management from one location
- API interface for reporting to other systems
- BACnet IP interface for device information
- Analytics and other advanced features
- Ability to scale to full lighting control

NOTE: Some features are only available via the [zencontrol Cloud platform](#).




BEFORE YOU BEGIN


Step guide


The steps on the following pages set out how to install the Lynk Wireless Solution. Further information can be found at support.zencontrol.com

The **zencontrol Cloud platform** is used in the Lynk Wireless Solution. It is comprised of **the App**, and **the Cloud** (web portal).

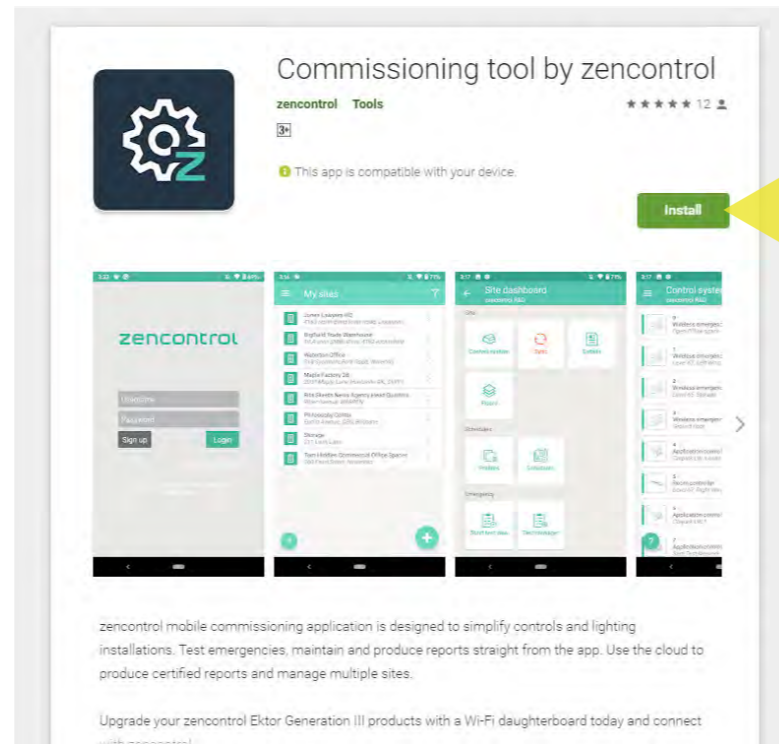
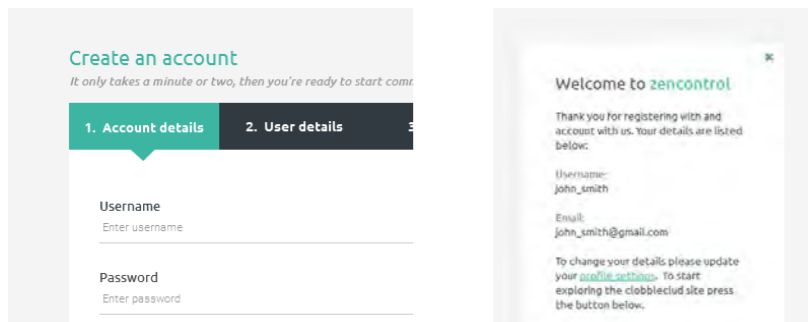
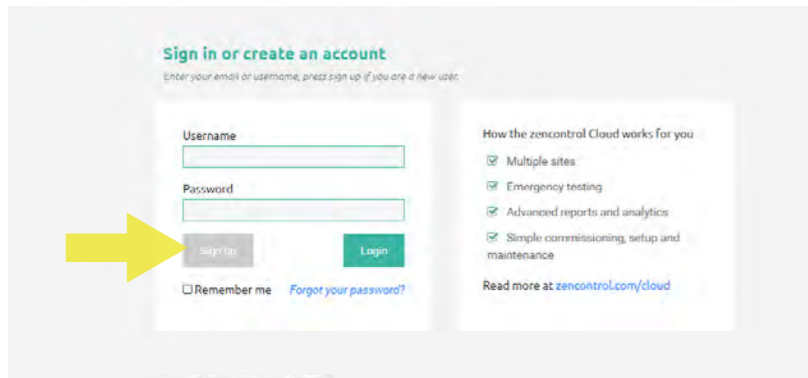
Each of the steps will have an icon in the top right corner indicating whether the App or the Cloud is best suited to complete the step.

 Use either the Cloud or the App

 Use the App

 Use the Cloud

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STEP 1

Creating a User account

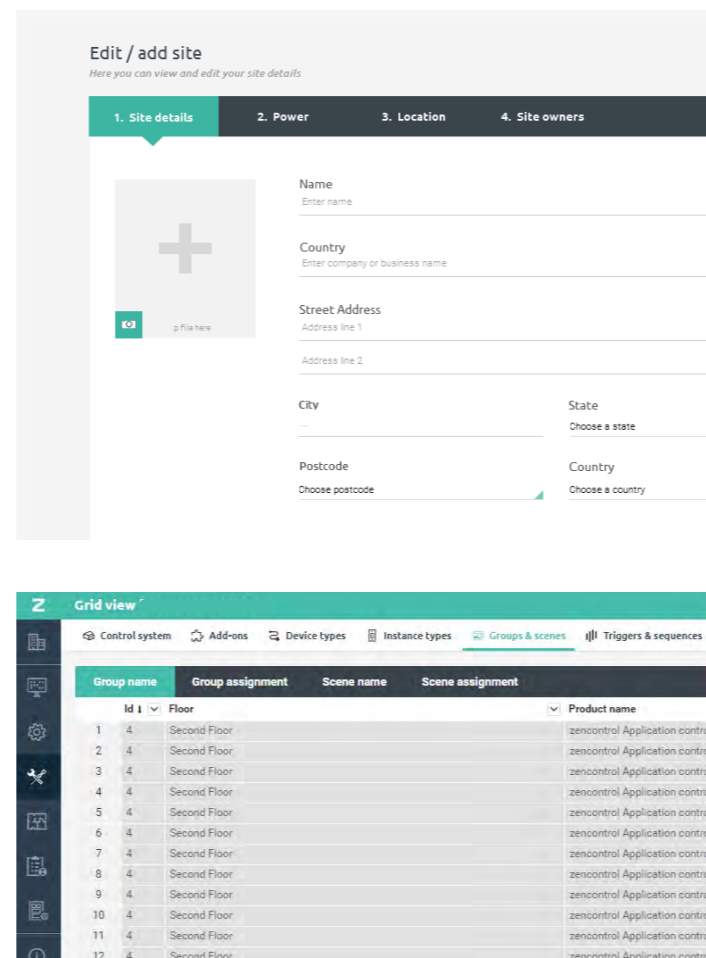
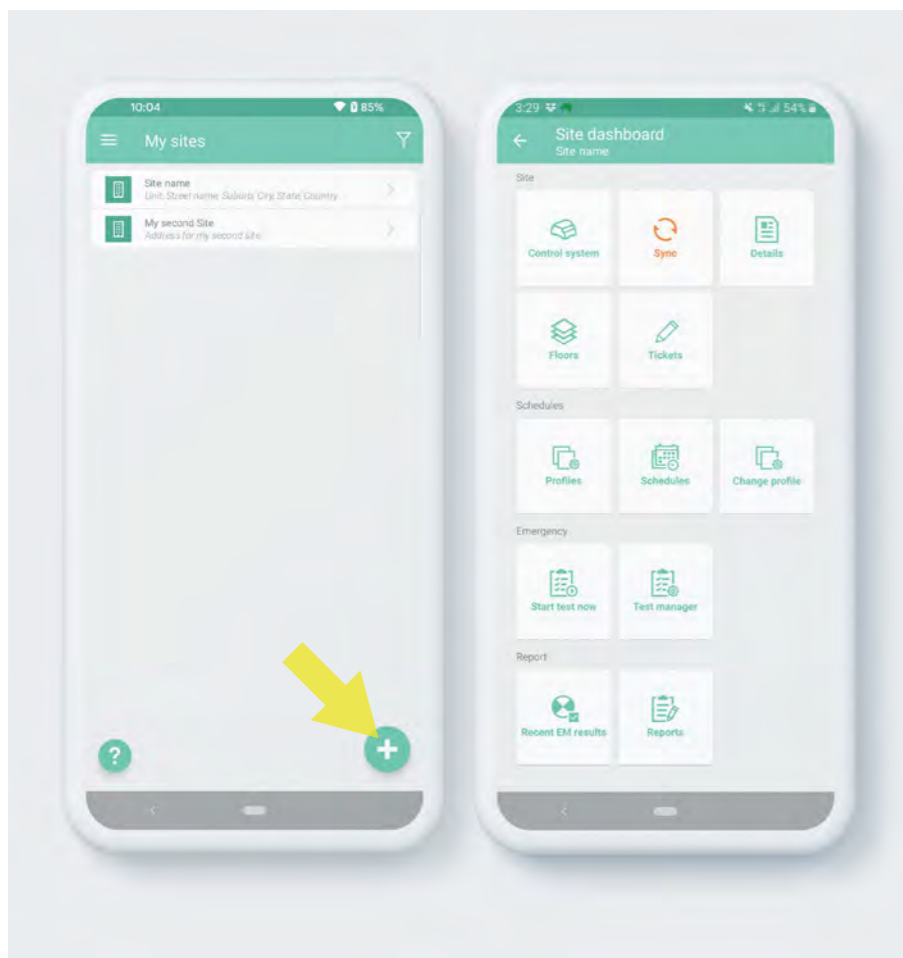


Download the “**Commissioning tool by zencontrol**” from the **Google Play store**.

Alternatively, navigate to cloud.zencontrol.com on your PC. On the login page select “Create a new account”.

Follow the prompts and add the required information. You will be sent an email to validate your identity.

Once created, you can add and view your sites by logging into the App, or the Cloud.



STEP 2

Creating a Site



Once you have created a user account, you can add a new site.

Log in to the Cloud or the App. Select **Add site (+)**.

Follow the prompts and fill in the site-specific information. This will help with time zones, holidays, and other features.

When finished, press or tap **Save** (📁) to create your new site. You can now view the site in the App or the Cloud.

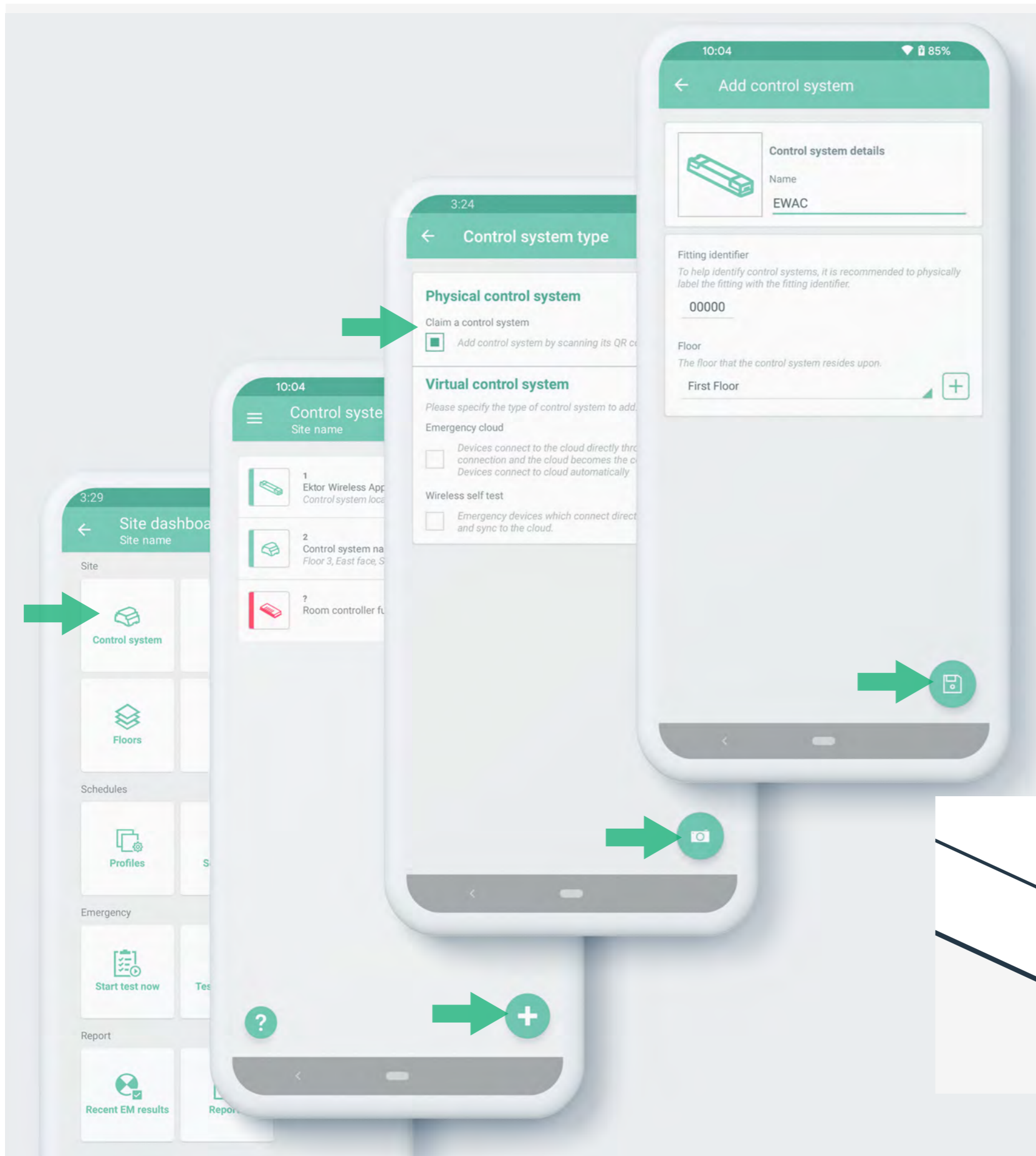
You may have other people you would like to give access to your site. You can set up **tenancy access control** (👥) via the Cloud. Furthermore, you can setup your testing schedule under **Schedules** (📅) in the App or from **Grid view** (🔧) on the Cloud. This can be done before any controllers are added, and may be adjusted at any time in the future.

For sites that want to get things done faster, setting up your testing now will start the emergency testing process as soon as an emergency device is added.

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STEP 3

Add a Link Gateway to your site



Once you have created a site, you can add a Link Gateway.

The process of adding a Link Gateway to your site does not require the Link Gateway to be powered. This means you may choose to add the Link Gateway to your site before or after installation.

Using the App, navigate to and enter the site you have created.

1. Select **Control system** (📦)
2. Tap **Add (+)** in the bottom right corner
3. Under **Physical control system**, select (☑️) the option **Add controller via QR code**
4. Tap the **camera** (📷) in the bottom right corner
5. Use the camera to **scan the QR code**

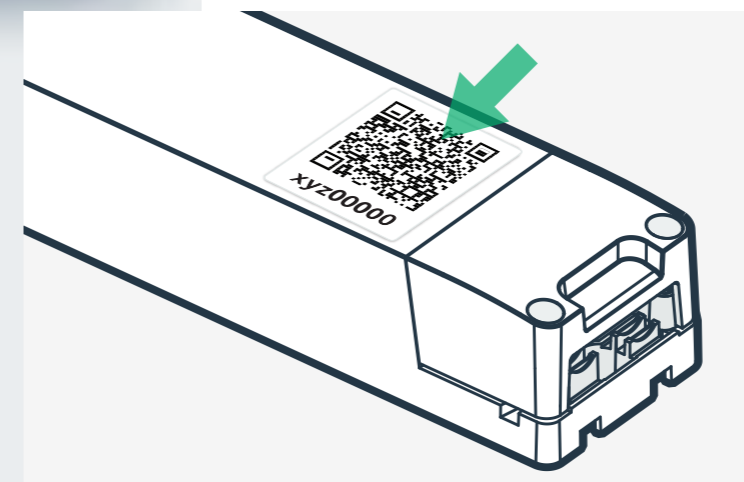
Enter the specific site information about the controller such as:

- Controller ID
- Controller location (for example "DB north riser")
- Floor

Save (💾) to associate the Link Gateway to your site.



The App is recommended for adding Link Gateways, however, it is also possible to use the Cloud. For instructions on adding a Link Gateway via the Cloud, visit support.zencontrol.com



NOTE: If needed, both the Cloud and the App can be used to change the controller settings. Most installations will not require changes to be made.

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STEP 4

Commissioning devices



Commissioning Lynk wireless emergency devices is simplified to a single pass process.

Once you have created your site, scanned the QR code, and added your Lynk Gateways, you can start adding emergency devices.

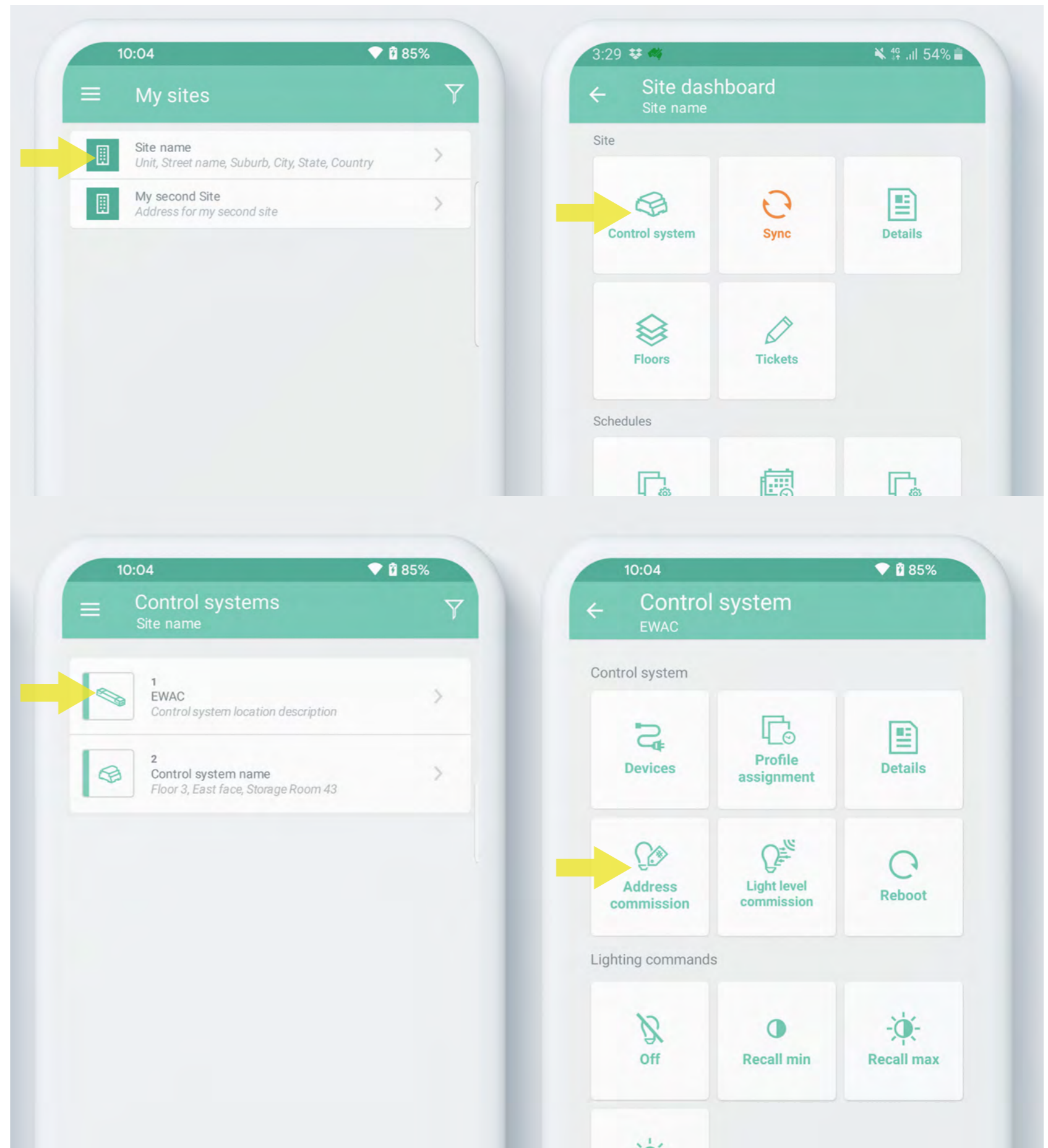
For this process, only the emergency devices need to be powered, however, also powering and connecting the Lynk Gateway to the internet will enable the mesh to build faster.

Using the App, **enter your site** (📄) and then the **Lynk Gateway** (📦) you want to connect the emergency devices to.

When deciding the correct Lynk Gateway, consider that:

- Each Lynk Gateway supports up to 64 emergency devices
- Each emergency device needs to be within 30m of another device which will be connected to the same Lynk Gateway
- Distance between each emergency device may be reduced if going through walls or obstacles
- It is best practice to connect the devices around the Lynk Gateway first to ensure they are added to the closest Lynk Gateway before it reaches the 64-device limit
- Good design will leave 3-7 spare spaces on the controller for future additions

Next, tap the **Address Commission wizard** (🔧) to start the commissioning process.



STEP 4 - COMMISSIONING DEVICES CONTINUES

After tapping the **Address Commission wizard** (🔧) follow the steps to adjust settings and select the scope, before entering the wizard.

In the wizard, you can create groups and associate the emergency device to up to two different groups. This may help if you want to test in specific groups or areas later.

Go to the **Wireless** tab.

This will show you a list of devices that are nearby and not commissioned.

This list will be sorted by the strongest Bluetooth signal, which provides a reasonable approximation of the physical distance.

Selecting a **device** (📶) by tapping on it will make the device flash/ identify. If the flashing device is not the device you would like to commission, press **NO** on the pop-up dialogue to select the next device.

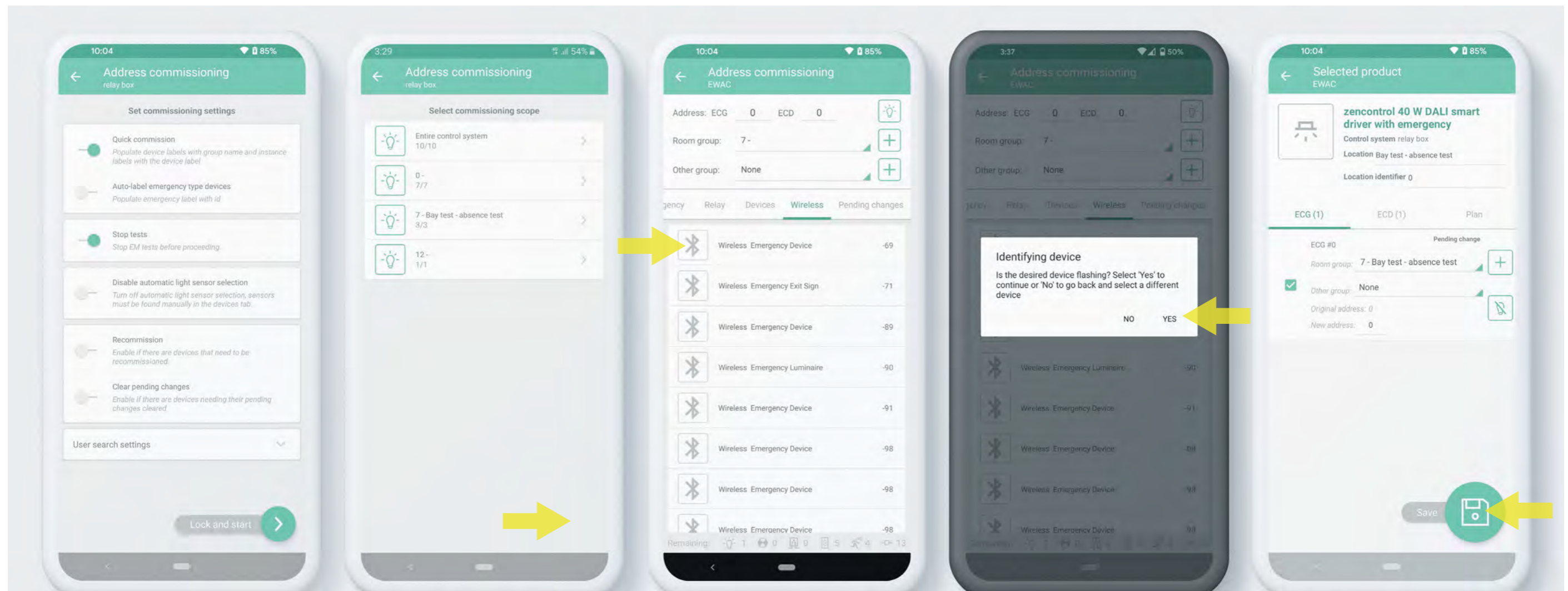
If the flashing device is the device you would like to commission, press **YES** on the pop-up dialogue then fill in the required information as follows:

Device information includes:

- **Device ID:** This is a tracking number for each device
- **Device location:** A plain text field where you can write specific information. This can be automatically filled with the group label
- **Floor:** Indicates the floor on which the device is located. This can be auto-filled to be the same floor as the controller.
- **Plan details:** Which floor-plan, and floor-plan location the current device belongs to. Typically, left blank and assigned during the Plan view commissioning stage.
- **Other device specific settings.**

Ensure the information is entered correctly.

Press **Save** (💾), and continue to the next device.



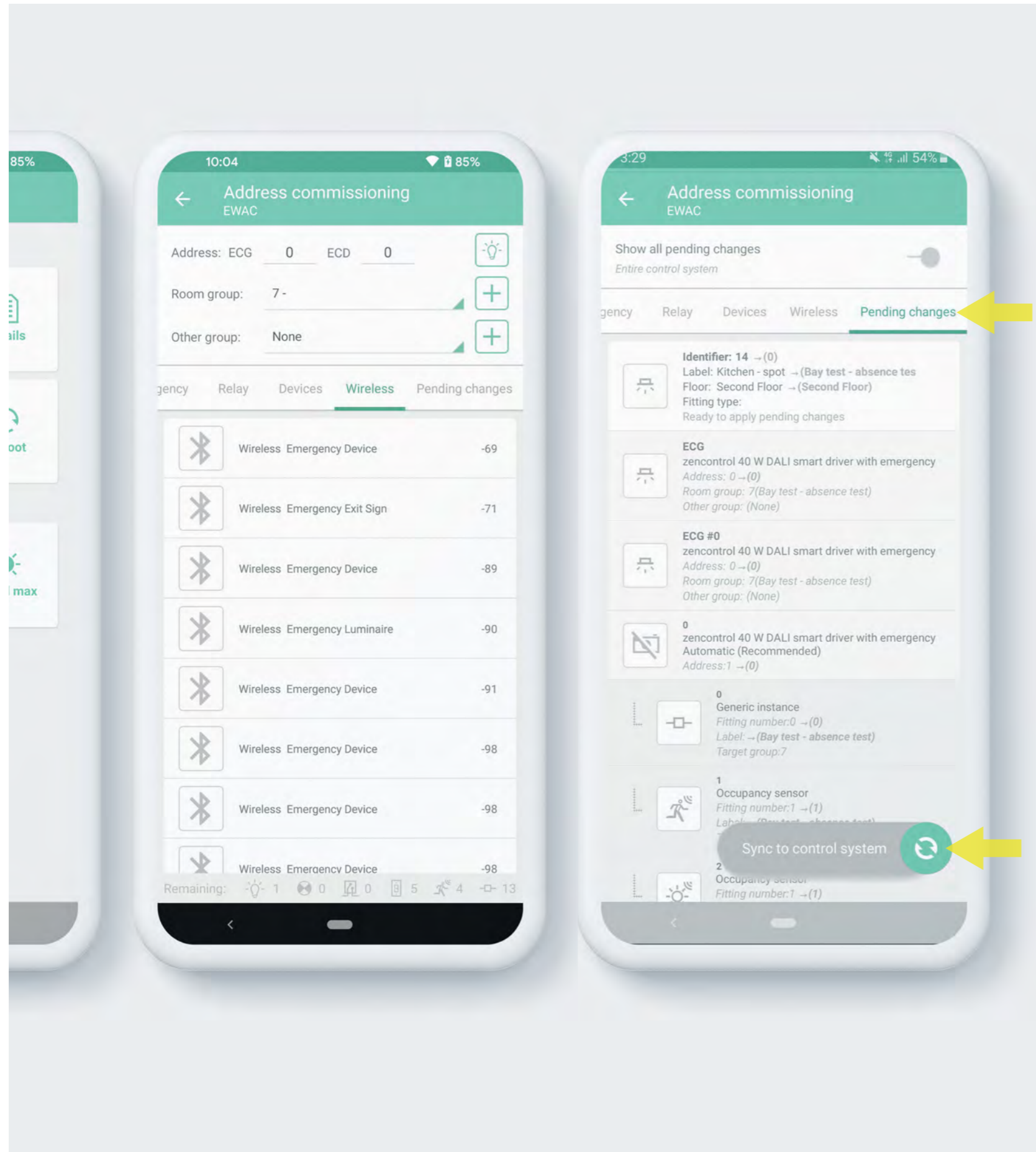
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STEP 4 - COMMISSIONING DEVICES CONTINUES

Once you have commissioned a device it will no longer appear in the device list. This means that **if you can see a device in the list, it still needs to be commissioned.**

When you are finished or wish to continue later you can swipe to the "Pending changes" tab and tap **Sync** (🔄) to save to the Cloud.

Once saved, the device will be updated on the LYNK Gateway and the mesh will be built when the LYNK Gateway next connects to the Cloud.

If the LYNK Gateway is connected to the Cloud, powered and has an Ethernet connection, the process will start as soon as the pending changes are saved.

To add new devices repeat this process as required.

You have completed the basic installation of your LYNK Wireless Application controller. From here, the following features described can be done in any order but we suggest you follow the guide as it is set out.

NOTE : In accordance with AS2293 all emergency luminaires should be physically labelled with an ID at the time of commissioning. The ID should be labelled clearly on the luminaire and must match the ID entered during the commissioning process.

Some installers may choose to uniquely label the devices before the commissioning process. If this is the case, when selecting the device, the commissioner will enter the ID written onto the fitting (or plan) into the Device ID field on the App.

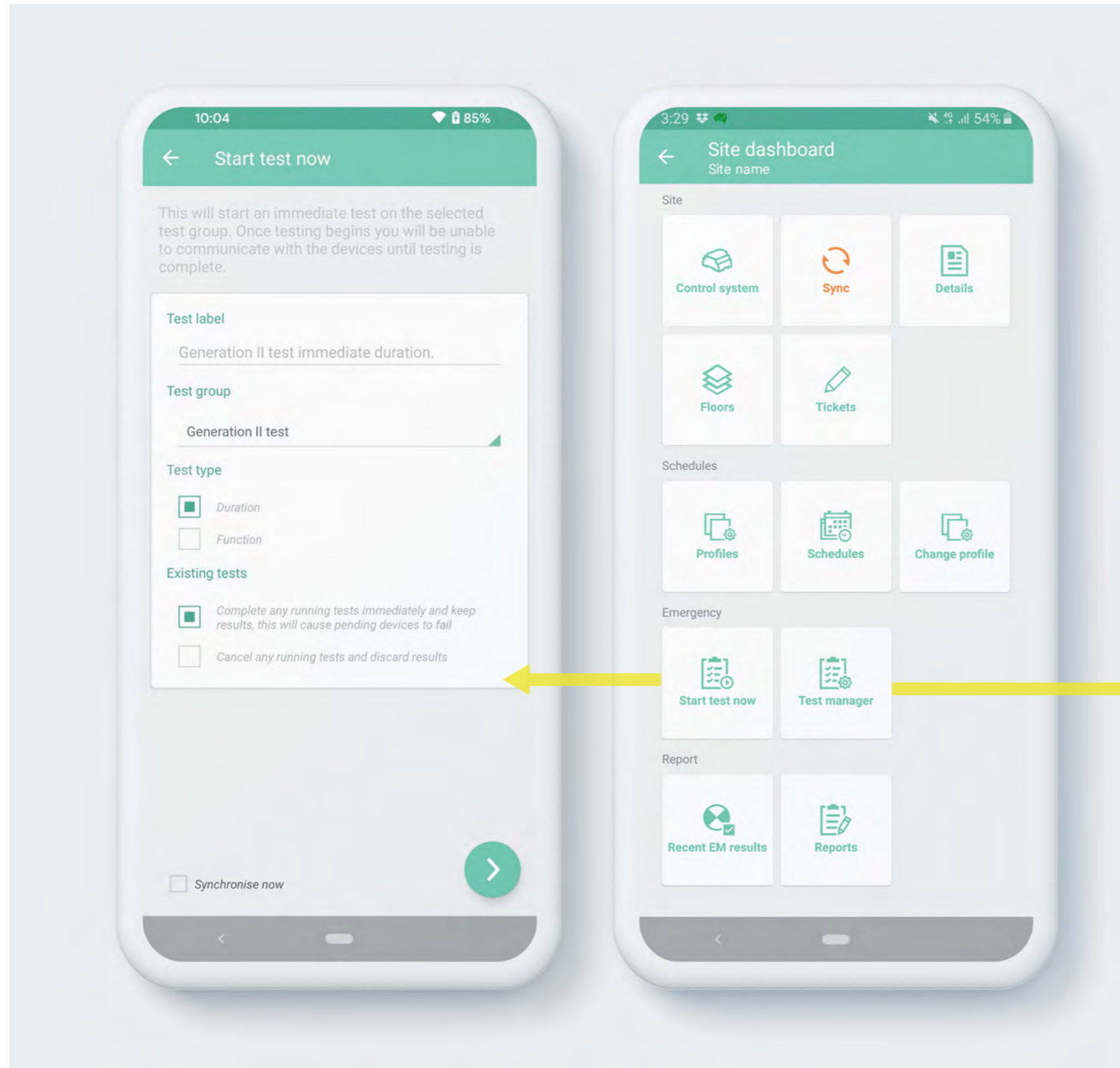


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TESTING AND MONITORING - USING THE APP



Starting a Test

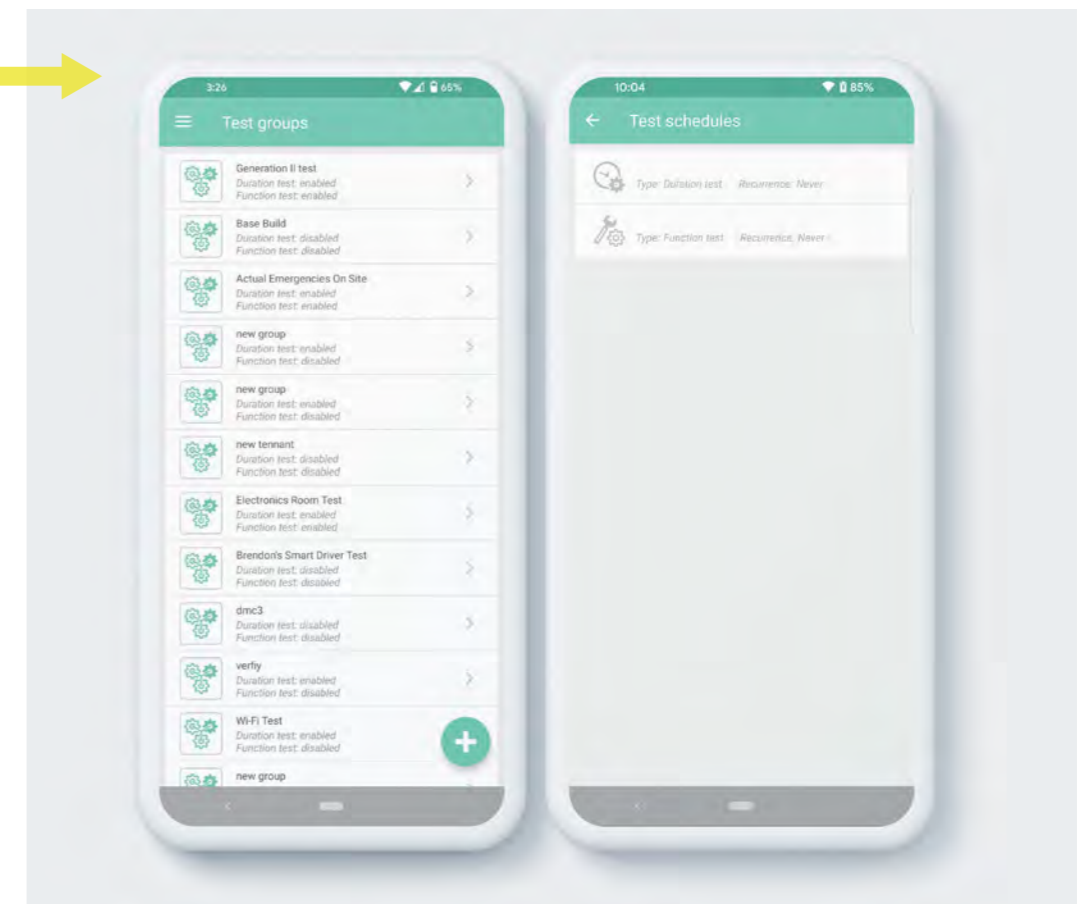
You can start a test via either the Cloud or the App

In the App, enter **your site** (🏠) and then the **Control system** (📦) where you want to perform a test.

Next, tap **Start a test now** (📅) to start a new test. Follow the prompts to set a Test label, choose a Test group and Test type (Duration or Function).

You can create as many different tests as you want. Each test can be assigned against a tenancy or the entire site. It is recommended to first create a test group and then set a schedule for that group.

Tap **Test manager** (⚙️) to manage existing or create new Test groups. Within the test group, you can schedule how and when the tests will occur. You can change these settings at any time.

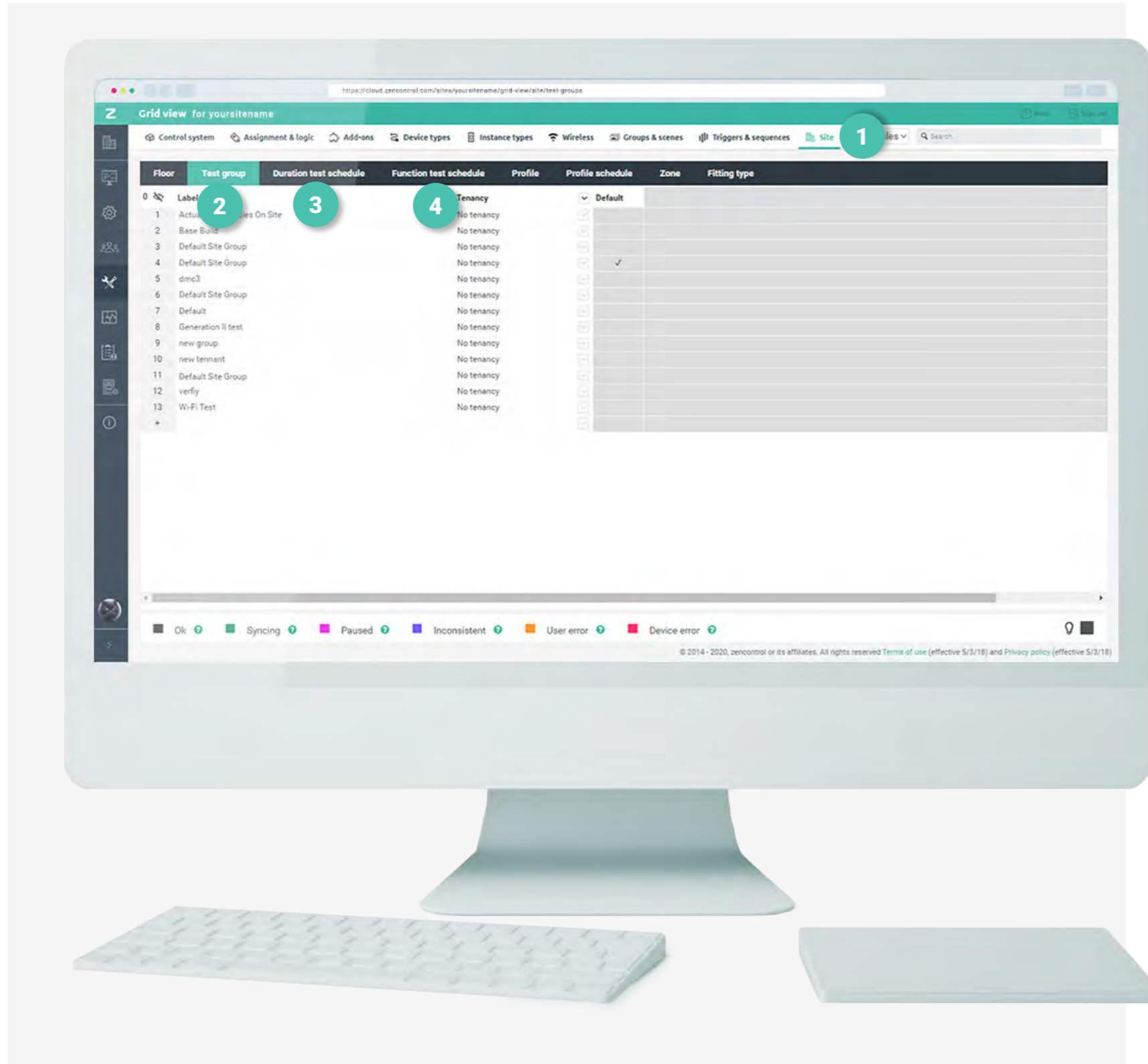


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TESTING AND MONITORING - USING THE CLOUD

On the Cloud, enter your site, go to **Grid view** (🔗) and select the **Site tab** (🏠 - 1) from the top level tabs.

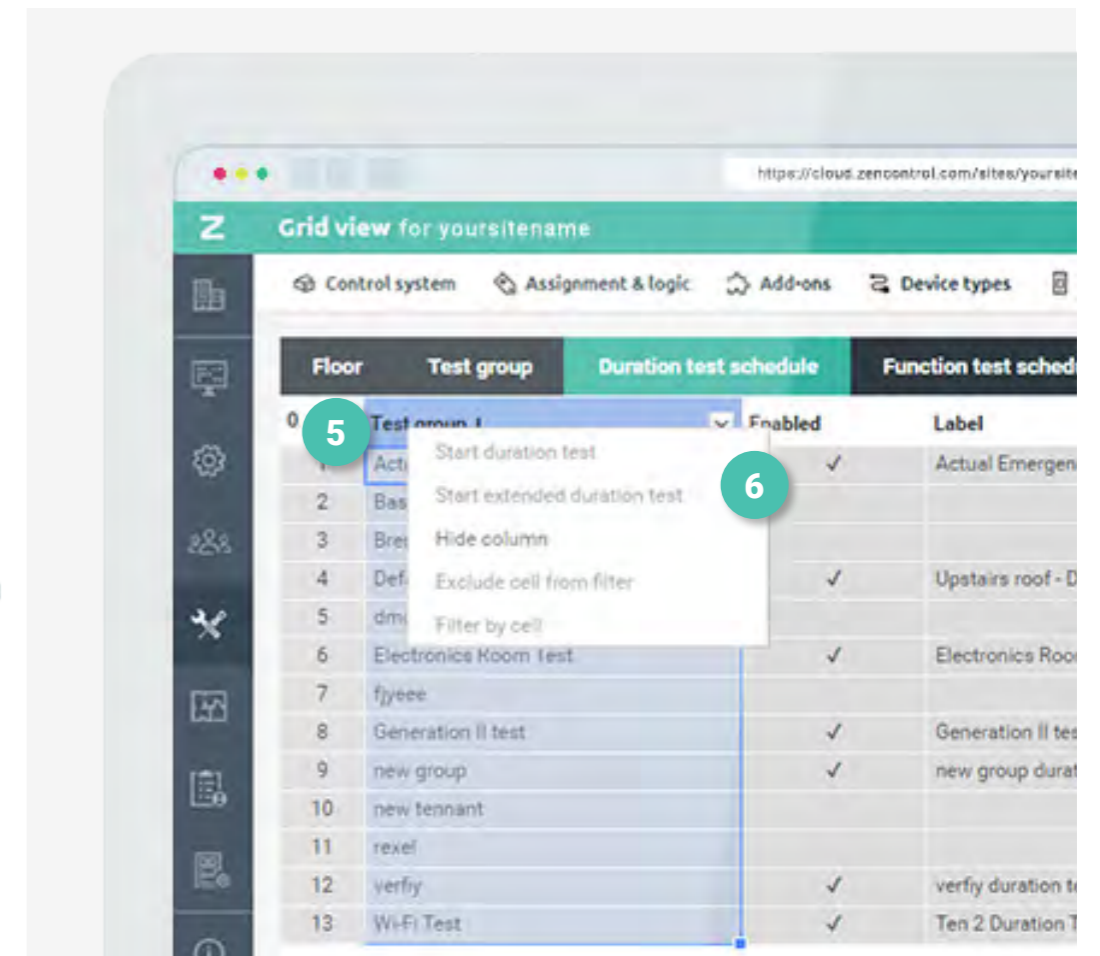
Under the Site tab (1), you will find **Test group** (2), **Duration test schedule** (3) and **Function test schedule** (4) as second level tabs.

You can create as many different tests as you want. Each test can be assigned against a tenancy or the entire site.

Within the test group, you can schedule how and when the tests will occur. You can change these settings at any time.

Under either **Duration** (3) or **Function** (4) test schedule tabs, right click on the table heading named **Test group** (5), and select one of the options from the **dropdown** (6) to start a test.

It is recommended to first create a test group and then set a schedule for that group. You can create a new test group under the second level tab **Test group** (2).



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TESTING AND MONITORING

Plan view



Plan view allows users to quickly understand where an issue or fault is located within the building with a visual representation of the device's location on a floor-plan.

On the Cloud, enter your site and go to **Plan view** (🏠) page. Installers can upload or drag and drop a PDF file of a chosen floor to get started. The floor-plan will be tiled and displayed in the background.

On the uploaded floor plan, select a floor, then press **edit** to make changes (1). You can then **drag and drop** (2) the emergency lighting from the right panel onto the plan.

Emergency lighting which is functioning correctly will show up green on the plan.

Issues such as battery, lamp or other failures will be highlighted in other colours denoting the severity of the issue (3), and will show in the issues list (4).

Clicking on an issue displayed on the side bar will automatically zoom into the device with the issue.

Plan view allows the user to quickly tell maintenance:

1. Where the issue is
2. What the fault is
3. What type of device has the fault



The screenshot shows the Plan View interface for a site. On the left, a 'Floors' panel allows selecting a floor to view (Floor 3 is selected) and an 'Edit' button. A 'Legend' panel shows issue severity levels: 1 - Critical (red), 2 - Major (orange), 3 - Significant (yellow), 4 - Moderate (green), 5 - Minor (light green), 6 - Low (light blue), 7 - Trivial (blue), 8 - No issues (dark blue), and a loading indicator (grey). The main area displays a floor plan with colored markers for issues. An 'Issues' list on the left shows details for selected issues, such as '0.65 zencontrol Sceneset' and '0.12 BOKE PUL 018A-0450Ad DT6'. On the right, an 'Add device' panel shows a list of devices with a 'Filter options' dropdown menu. The floor plan itself shows various rooms like '6 - kitchen', '5 - accounts', '4 - josh', '7 - hall', and '1 - software', each with multiple colored markers representing different issues.

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ALTERNATIVES

BACnet

Some installations require the BMS to display fault information for the user.

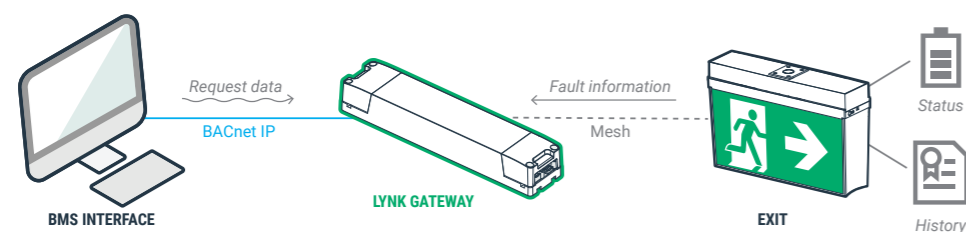
Lynk Gateways can be upgraded to also include a BACnet server interface. This interface allows the BMS to subscribe to each emergency light and obtain failure status when they occur.

A full PICs document is available for download for BMS providers who would like to add extra control.

<https://support.zencontrol.com/hc/en-us/articles/115001280792-Do-you-have-a-BACnet-PICS-document>

Each Lynk Gateway provides its own information, so some sites can choose to deploy this type of functionality to specific tenancy or clients without upgrading the entire building.

As this is a software update only, the upgrade can be done at any time. No further hardware is required.



External API Access

All testing and device data can be made available through the zencontrol Cloud API service. This allows customers to easily bring in data to display in their own custom solutions.

Information on the API can be found here
<https://developer.zencontrol.com/>

Fire Panel Interface

The Lynk solution can be connected to fire panels security systems or other devices, and can be programmed to achieve almost any result.

Some common uses are:

1. Provide location information for devices in emergency
2. Turn the emergency devices on in a desired area
3. Report on occupancy in areas
4. Run an emergency test in areas
5. Provide fault information

The Lynk Wireless Solution can be upgraded to provide many different interfaces to achieve the integration such as:

1. BACnet interface
2. UDP interface
3. UART interface
4. Low level interfaces

ALTERNATIVES

System Commissioning

The Evolt support team can assist with design, configuration, commissioning, and maintenance of the Lync wireless solution. Additionally, we can assist in training and technical support to ensure the correct outcomes.

For more information, contact our sales offices at:
sales@evolt.com.au

We can assist in training and technical support, reach out to our sales offices to get started.



Disclaimer

Evolt makes every effort to ensure information supplied is accurate, however, the installing contractor or specifier should ensure that the installation is compliant with all relevant codes and standards and information such as provided here is accurate and up to date with any changes or revisions that may apply at the time of design and installation.



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DISTRIBUTED BY

Evolt Pty Ltd

t: 1300 438 658

e: sales@evolt.com.au

f: +61 2 9502 1154

Unit 5 / 105a Vanessa Street,
Kingsgrove NSW 2208, Australia

