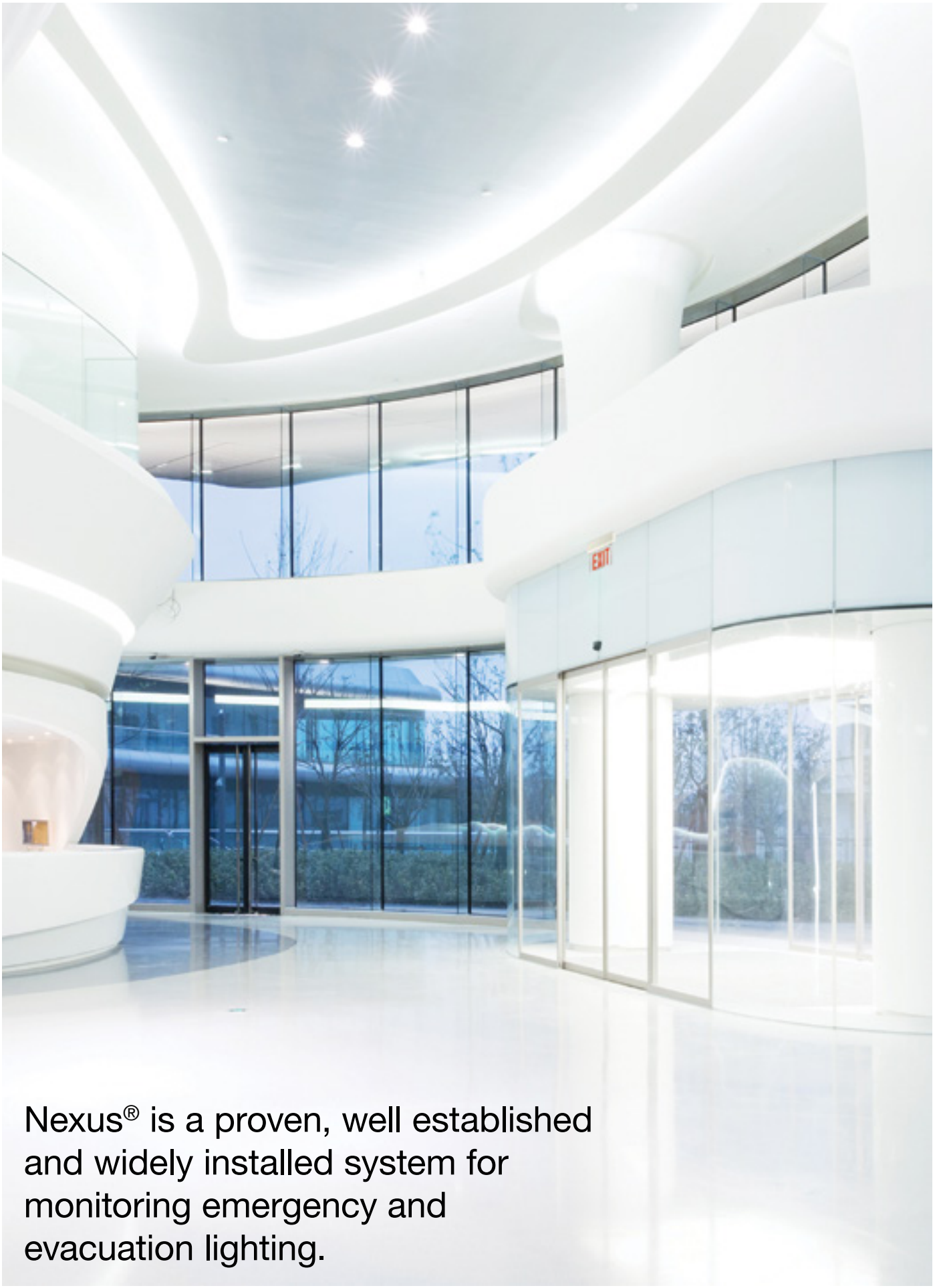
Lightalarms

Nexus®

Wireless emergency lighting Monitoring system

by ABB



Nexus® is a proven, well established and widely installed system for monitoring emergency and evacuation lighting.

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Are you prepared for an Emergency?

Owners and managers of buildings used by the public, whether that use is for work, play, shopping or any other purpose, are responsible for ensuring the safety of occupants in the event of an emergency. Their duty of care includes ensuring that emergency and evacuation lighting meets the requirements of Building and Life Safety Codes.

While the design of emergency and evacuation lighting systems is the domain of the engineer and lighting systems professional, the building owner and manager is responsible for ensuring that:

- Functional testing is conducted at 30 day intervals
- Functional testing is conducted annually
- Emergency lighting equipment is fully operational for the duration of the test required

Complying with these requirements can be both time consuming and expensive, particularly in larger buildings; manual testing of emergency and evacuation lights is labour intensive and potentially disruptive to the intended use of the building. Additionally, interruption of the power supply during manual testing may jeopardise the safety of building occupants.

What is Nexus®?

Nexus® is a proven, well established and widely installed system for monitoring emergency and evacuation lighting. The system has been designed to enable maintenance personnel to easily test and maintain the emergency lighting system, without the need to walk through the building to visually verify performance and without the need to disrupt the power supply.

Nexus® provides building owners and managers with the tools to effectively manage emergency lighting including:

- Manage the installation and removal of components.
- Cost effectively test and monitor the system.
- Assign units to groups. Units are collected in groups so that they can be tested together in a logical manner e.g. groups could represent different floors or departments.
- Manage maintenance activities. Any unit that fails a test or exhibits a fault will be automatically added to the Maintenance Group ensuring easy identification of the units requiring maintenance. The units are automatically removed from the Maintenance Group once they have been repaired and re-tested.
- Ensure tests are performed properly.
- Prepare reports. Testing and maintenance functions can be documented using the Nexus® reporting functions. You can record all maintenance operations to satisfy requirements of Building & Life Safety Codes, and plan future maintenance budgets through the use of an online log book.
- Log test results and print them as required.

Nexus® is available in two seperate configurations:

1. Nexus®, a cabled system designated which utilises the LonWorks protocol and relies upon data cable for communication between units and network infrastructure. A server computer, running Nexus® software, provides the user interface to the system.
2. Nexus® RF, a wireless system which uses a proprietary protocol for radio frequency wireless communication between the units and network infrastructure. This system does not require a server computer, nor does it require data cabling to units. User interaction with Nexus® RF is via a website browser on any computer with access to the network.

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Why choose Nexus® RF?

There are many reasons for selecting Nexus® RF as your emergency lighting monitoring system

Endless Applications:

Freed from the need for a dedicated cable network and PC, the Nexus® RF system has the potential to be used in a variety of applications that previous systems found difficult or were cost prohibitive. These include:

- Upgrading existing buildings: without the need to run cables throughout the building, the upgrade of existing sites is child's play.
- Small Sites: the elimination of the PC as the head end coupled with the elimination of the data cable means that the cost to set up a small site is significantly reduced. This means that there are long term financial benefits even to sites under 100 units.
- Multiple buildings: the flexibility in backbone selection with the Nexus® RF system means that running multiple buildings on one site through an integrated system is no hassle.

Cost Savings:

Nexus® RF will deliver the long term cost benefits of a monitored system along with the added advantage of reduced installation costs.

Slash Installation Costs

From the contractors point of view a Nexus® RF system installs in the same way as a non-monitored single point system. Once the units are connected to the appropriate power circuit there is nothing else to do:

- Cost of data cable between nodes is totally eliminated.
- Cost of data cable installation is eliminated.
- Cost of checking and correcting data cable faults between units is eliminated.

Ongoing Labour Savings

To ensure compliance with Building and Life Safety Codes, testing of a building requires many hours of labour for qualified staff to manually inspect and test every emergency light units and record the results in a log book. Manual testing is therefore very difficult and expensive to do on a large scale.

Nexus® RF enables the user to remotely activate light units and retrieve status information. The units will automatically send their status to the Area Controller in real-time ensuring the Area Controller always has an accurate record of the units' status. This information is then automatically stored in an electronic log book. Maintenance personnel needs only attend to units that require maintenance.

Reliability:

Emergency lighting is an essential building safety system. You cannot afford for this system to fall into disrepair and hence you need to be able to rely upon your monitoring system to accurately advise of required maintenance. ABB has built its reputation upon quality product and the Nexus® RF system is the result of extensive and ongoing research into the best communications platform to ensure a highly reliable diagnostic tool.

Here are just some of the reasons that you can rely upon Nexus® RF.

900 MHz Mesh Networking System

The Nexus® RF system utilises mesh networking technology which allows for neighbouring nodes to pass messages along the network and hence extend the range of the system. In addition the mesh network ensures multiple potential communication paths so that data always has a way back to the Controller. The mesh network connections are formed automatically and change dynamically to suit the RF environment.

Automatic route optimisation ensures the shortest path is used each time.

The Nexus® RF mesh network operates in the 915 - 928 MHz ISM band, providing superior penetration through building materials and ensuring network integrity.

Optimum Channel Selection

In addition to the benefits provided by the 900 MHz band, the Nexus® RF system also features optimum channel selection technology utilising the full spectrum of the band to ensure trouble free operation.

Foolproof Installation

The Nexus® RF system is as simple to install as a non-monitored single point system. The performance of the system is in no way compromised by poor cable installation between nodes. As long as the power is correctly connected to the unit, the system will be functional.

Self Monitoring

Like the Nexus® models before it, the Nexus® RF system is self monitoring and can diagnose any network problems. In fact, since there are multiple communications paths for each node, the system is virtually self-healing.

Independent System

The operation of emergency lighting is not impeded by nor dependant upon Nexus® RF which is simply used to test and monitor units. A Nexus® RF light units can be removed from or added anywhere within the Nexus® RF network without interruption to the operation of the system.

Each of the units store their own previous test results, maintenance history, location, unit type and other information. If anything should happen to the Area Controller, the network will automatically rebuild with all the unit history.

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Simplicity:

One of the guiding principles in designing the Nexus® RF system was to make it as simple as possible for both the installer and end user.

Simple Standards Compliance

Then Nexus® RF system makes compliance with Building and Life Safety Codes and therefore various state and local regulations very easy. The system is able to run the required monthly tests, create maintenance logs and run compliance reports to assist in making sure that a crucial building safety system is operational. The system provides reliable data that is not compromised by human error and makes it quick and easy to access.

Ease of Installation

With no data cables to worry about, the Nexus® RF enabled units simply need to be connected to the mains power as per a normal non-monitored installation. The contractor does not have to be concerned with network communications at all.

Hassle Free System Commissioning

ABB will provide the commissioning spreadsheet template which includes columns for the collection of the following information; MAC address, SPU ID, group number, building, position, floor, area, drawing, grid reference, distribution board and circuit.

Self Monitoring

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Easy System Controls

The Nexus® RF system features a graphical user interface (GUI) that is accessible on the wireless Area Controller, through direct PC connection or through a remote PC connection. This interface makes it very easy for the user to understand the status of the system, run system diagnostics, produce reports and much more.

Flexibility:

All buildings and building owners are inherently different. Nexus® RF wireless technology copes with building variations and the Area Controller even allows the user to choose the most suitable backbone. The system also provides for multiple communication options to enable remote system interrogation..

Wireless Technology

Buildings with difficult layouts, sites with multiple buildings, heritage sites, all of these once troublesome projects are now made child's play using wireless mesh networking. The Nexus® RF 900 MHz mesh network has been proven to penetrate difficult substrates such as masonry walls making the whole system suitable for a wide variety of applications.

User Choice

The advanced wireless Area Controller Router has been designed to give the user ultimate choice. The system can use an existing communications backbone or choose the one that best suits. Communication between the Routers and the Area Controller Router will be possible via ethernet LAN, WLAN.

Even how you use the Nexus® RF software tools is a matter of user choice. The Nexus® RF system can be accessed via remote control through an IP connection.

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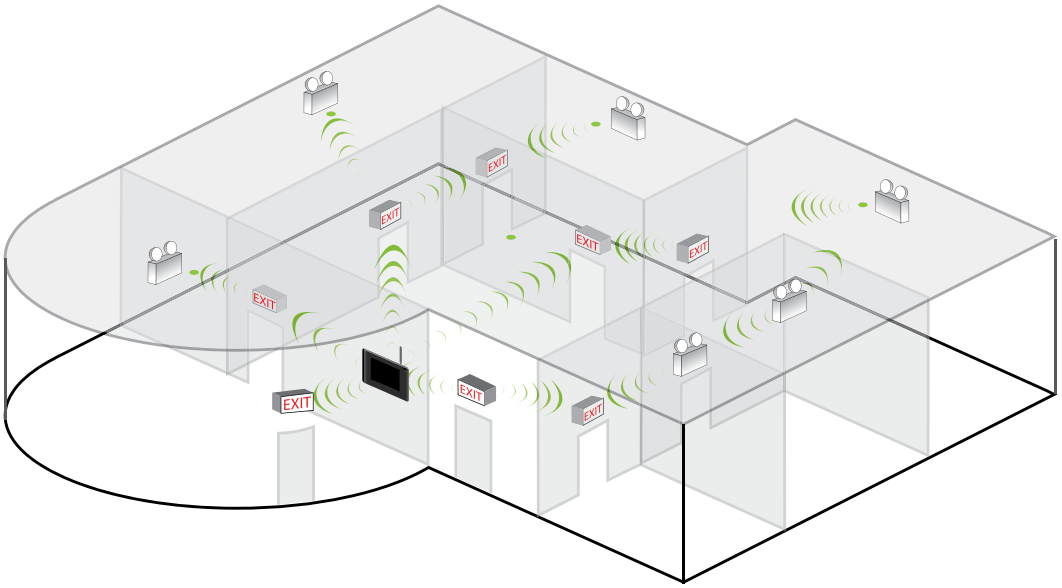
What does a Nexus® RF System looks like?

Nexus® RF Small System:

In a system of less than 100 nodes it is most likely that the only hardware required, other than the lighting units themselves, is an Area Controller Router . All communication would occur wirelessly and installation would not vary greatly from a non-monitored system. Once the units are in place, the system will self discover and establish the mesh network. The building itself could be quite large as each node only needs to be able to communicate with its close neighbours and does not need to communicate directly with the Area Controller Router.

Nexus® RF Small System



Area Controller Router

Radio Frequency (mesh network)

Exit Sign

EXIT

Battery Unit

What does a Nexus® RF System look like?

Nexus® RF Large System:

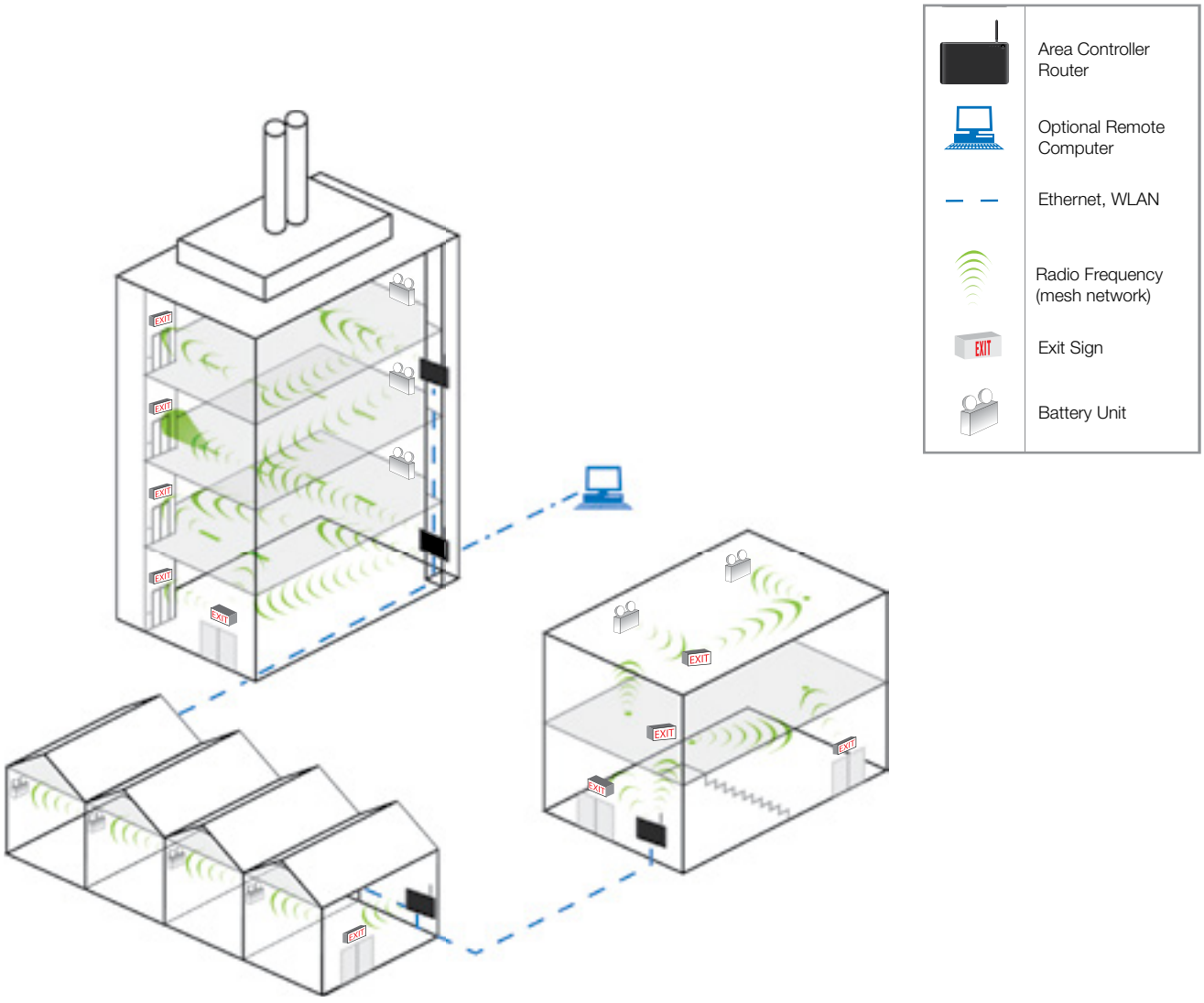
The Nexus® RF system has been designed to be extremely flexible and provides for a range of system options. Each large site will need to be assessed for the best system solution with the assistance of ABB technical staff.

The basic Nexus® RF system is designed to run on an ethernet system, which is present in most modern buildings. However, through a range of interface cards the backbone of the network could be WLAN.

As with the small system, site performance will be optimised through the careful selection and placement of Area Controller Routers to form efficient clusters. Building layout and materials will also play some role in determining the best solution to deliver a highly effective means of meeting, testing and maintenance requirements.

The interrogation of the Nexus® RF database can be achieved through a variety of means. Nexus® RF is easily adapted to local or remote monitoring of the system. Locally, the Nexus® RF utilities can be accessed through a PC connected to the Area Controller Router. Remotely, the Area Controller Router can be accessed through a broadband IP connection. In either case, the PC requires no special software other than a website browser.

Nexus® RF Large System



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