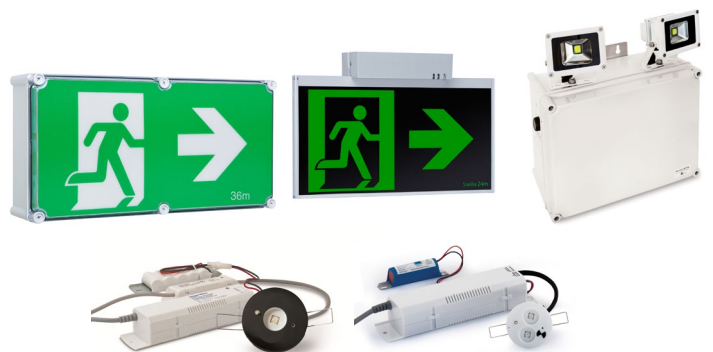

Consultant Specification

Nexus® RF Infinity specification

Emergency and exit
lighting monitored system

Version : 1.0



Technical Specification – Nexus® RF Infinity

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1 General

Provide a Stanilite NexusRF Infinity computerised automatic testing and monitoring system for the exit and emergency lighting comprising of:

- Self-contained emergency luminaires
- Self-contained illuminated exit signs
- Wiring and controls
- Associated monitoring system equipment

1.1 Scope

Provide emergency and exit lighting systems comprising:

- Self-contained emergency and exit luminaires with Nexus RF Infinity capability
- Luminaire wiring and controls
- All exit and emergency lights to be classified by an approved authority in accordance with AS/NZS 2293 with the classification being clearly identified on the luminaire
- Local power and data cabling to be provided to each Nexus RF Infinity controller
- Prior to installation contact the manufacturer to confirm coverage of all exit and emergency luminaires and produce a single line diagram showing locations of Nexus RF Infinity routers. Allow to adjust from nominal locations indicated on electrical drawings if required
- Installation of the system in accordance with the manufacturers installation and commissioning guidelines

1.2 Standards

Reference documents

Comply with the following standards:

- AS/NZS 2293 – Emergency Escape Lighting and Exit Signs for Buildings
- AS/ACIF S009 - installation requirements for customer cabling (wiring rules)
- AS 3000 - exit and emergency lighting complying with all relevant clauses in the luminaires section of this specification

1.3 Regulatory Requirements

Comply with requirements of:

- Building Code of Australia
- National Construction Code of Australia
- Applicable Local Government Authority

2 Product Specification

2.1 Emergency Luminaires

Provide emergency luminaires supplied and installed to comply with AS/NZS 2293 and AS/NZS 3000 with the following:

- Be tested to comply with EMC Standard AS/NZS CISPR 15:2017
- Be tested in accordance with AS/NZS 2293.3 with respect to thermal/duration, and photometry resulting in a classification
- The photometric classification shall be clearly labelled on the luminaire
- Test results of luminaire from a NATA or a recognised registered laboratory shall be available on request.
- EMC test results
- Heat rise test results
- Be adequately ventilated
- Be positioned to permit easy access for maintenance and replacement
- Have long life, low energy LED lamp source/s
- Have a minimum design life of 10 years
- Contain a mains failure relay or solid-state switch
- Have reverse battery polarity protection
- Have a clearly visible test push button and indicator LED

All emergency luminaires will be self-contained, non-maintained fittings complete with batteries, charger, electronic controls.

Provide mounting brackets, rods or wire suspension for ceiling mounting, surface wall mounting and cantilevered wall mounting as required.

2.2 Illuminated Exit Signs

Provide illuminated exit signs that incorporate the same general features as specified for emergency luminaires. In general:

- Front of house areas provide edgelit blade style exits signs
- Back of house areas provide slide connect quickfit style exit signs
- IP/IK rated exit signs to be utilized as required or specified in the luminaire schedule

All emergency luminaires will be self-contained, maintained fittings complete with batteries, charger, electronic controls.

Provide mounting brackets, rods or wire suspension for ceiling mounting, surface wall mounting and cantilevered wall mounting as required.

2.3 Batteries

Removable Stanilite Lithium Iron LiFePO₄ single cell batteries to be used.

Batteries shall be suitably located away from heat sources such as transformers, ballasts and lamps to achieve optimum battery life. Batteries shall be securely fastened using purpose made clamps, incorporated into the battery pack or luminaire body. Battery connection shall be by quick connect tabs and receptacle connectors.

- Design life of 10 years
- Initial emergency period: 2 hours
- In service emergency period: 1.5 hours
- Labelling: date of manufacture, ampere hour rating and replacement part number

2.4 Nexus RF Infinity System

Provide a Stanilite NexusRF Infinity computerized automatic testing system to provide a real-time monitoring and testing of multiple networks of exit and emergency luminaires in accordance with the requirements of ASNZS 2293.

The System:

- All exit and emergency luminaires shall comply with the requirements of the radio communications class licence 2000 from ACMA (Australian Communications and Media Authority) for low interference potential devices (LIPD) and operate in the 915 to 928 MHz band with a maximum radiated power of 3mW
- Operate autonomously in a dynamic manner so that the mesh network forms automatically and adjusts automatically to changes in the RF environment
- Have autonomous inbuilt route optimisation to ensure that the minimum number of relay paths are used to connect each wireless luminaire to a router
- Be able to operate in areas of multiple wireless networks without interference with each other
- If multiple NexusRF Infinity routers are required they shall be networked together via LAN/WAN
- Where no LAN/WAN is available a network will be formed using CAT6 and standard ethernet network switches to create a network
- There should be no limit to the amount of NexusRF Infinity Routers and exit and emergency luminaires in a system
- No external software application or PC/Server is required

The system does not require the use of a PC/Server or remotely run software as this functionality is integral to the NexusRF Infinity Router/s. The user interface is accessible to local and remote users utilizing any web browser (Chrome, IE, Firefox, Opera etc) as a gateway that has access to the same IP backbone via SSL encryption (HTTPS)

2.5 Luminaires

All Stanilite NexusRF Infinity exit and emergency luminaires shall have the following:

- be able to disconnect the emergency unit from the mains supply to test the emergency operation of the unit in the event of power failure
- record the battery discharge time achieved during this test
- store the data and results of its 7 previous discharge tests in retainable non-volatile memory
- store all of their commissioned identification and configuration data in non-volatile memory so that the main system database can be rebuilt automatically at any time

2.6 System Emergency and Exit Lighting Controllers

2.6.1 Nexus RF router

Each Nexus RF router in the system shall

- Communicate wirelessly with a network of up to 250 luminaires
- Be able to connect to an IP backbone network (Ethernet or LAN)
- Be able to store and maintain a copy of the main system database in each unit
- Have an integrated web server application to enable remote operation of the system using an internet enabled device with a web browser
- Have HTTPS (SSL) and DHCP via static IP compatibility

- Have connection points: USB A; USB B; Ethernet port; flash drive (compact)
- Have Minimum 8GB onboard flash memory
- Programmable with a client selected IP address, subnet mask and gateway or DHCP via static IP address
- Comply to CISPR 22

2.6.2 Nexus RF area controller

In addition to router properties above, each NexusRF area controller shall have

- Minimum 7" colour LCD resistive touchscreen
- Colour graphical user interface application for complete self-contained operation of the system
- Battery back-up for mobile operation
- Wireless communication with up to 125 luminaires

Each Nexus RF router and Nexus RF area controller requires local power and data point.

2.6.3 IP backbone data network

The system shall be able to share an IP (Ethernet or LAN) data network with other systems. Any such IP (Ethernet or LAN) network shall be installed in accordance with the AS/ACIF S009 cabling standard.

2.7 Nexus RF System Programming and Commissioning

Full commissioning of the Stanilite Nexus RF system shall be performed by the manufacturer. The contractor must engage the manufacturer directly to perform initial commissioning and testing of the system, ensure the system is fully updated with the correct device data, configured and operational.

This will form part of the acceptance of the emergency lighting system for the issuing of project practical completion.

The manufacturer shall also be engaged to perform the 6 and 12 monthly tests and produce a work instruction for any required remediation work during this period per ASNZS2293.

Hard copies of all test reports to be supplied and filed.

2.7.1 Commissioning

The system shall have the ability to be commissioned during construction without power being available.

Mobile device Tap & Scan Commissioning Process

NexusRF Infinity allows the installing contractor to pre-commission luminaires into a system prior to the luminaires being energized or network infrastructure being installed/operational.

The manufacturer provides the installer with an SSL encrypted login and username/access to a site specific URL address accessible via any mobile web browser.

The installing contractor can then use any mobile device with a camera (such as an android/iphone) and web connectivity to scan the barcode on the luminaire to capture it's MAC address, input a Single Point Unit ID and locality information as required below. This enables the building to be pre-commissioned as it is constructed.

Once the site is energized and network infrastructure is in place, the manufacturer finalizes commissioning.

The following information is required and forms part of the baseline data requirement of ASNZS2293

- MAC address
- Single point unit ID
- Part number
- Unit type
- Location including building, area, position
- Drawing number and grid reference
- Floor level
- Circuit and distribution board

Common Requirements:

Single point unit ID numbers (SPU_ID) are to be clearly marked on all luminaires in accordance with ASNZS 2293. The SPU_ID cannot be duplicated in the system and is to consist of numerical digits up to 5 characters in length. Consult the manufacturer for recommendations of SPU_ID start sequences for multiple floored/multiple site systems.

Building	Level	Label examples
1	0	1001,1002,1003, etc
1	1	1101,1102,1103, etc
2	0	2001,2002, etc
2	1	2101,2102, etc

Detailed as-built drawings must also be provided at the commissioning stage with the following information:

- Location of the Nexus RF routers and area controller and emergency/exit luminaires with SPU_ID's
- Data cable installation routes if Ethernet backbone differs to original single line diagram supplied by the manufacturer