BARRON EXITRONIX®

GUARDIAN G3

Building Specification for Guardian G3

Emergency Lighting Monitoring and Reporting System

VERSION 1.0

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1. General Overview

This specification outlines the requirements for the installation and operation of the GUARDIAN G3 emergency lighting monitoring and reporting system, which includes the use of primary and secondary gateways for self-testing, self-diagnostics, remote monitoring, and reporting.

2. Features and Benefits

- Scalability: The system supports up to 2,350 emergency fixtures per location, ensuring comprehensive coverage for large buildings.
- Secure Communication: Utilizes state-of-the-art algorithms with 128-bit AES-based encryption to ensure secure data transmission between the gateways and emergency fixtures.
- Autonomous Testing: Automatically performs testing on all connected emergency fixtures to meet code compliance. Tests include battery connection, low battery voltage, charger circuit failure, transfer function failure, integral lamp fault, remote lamp fault, and exit LED strip failure
- Remote Monitoring and Reporting: Allows for centralized monitoring and reporting, reducing maintenance costs and improving response times. Reports can be easily accessed, exported (CSV or PDF), and sent via email (Pro model only).
- Easy Commissioning: The system is designed for easy setup and use, with a user-friendly interface accessible via the Guardian G3 app on a tablet.
- Backup and Restore Functions: Ensures full system and user data safety with comprehensive backup and restore capabilities.
- Ethernet Gateway Connectivity: Gateways can be linked via Ethernet cables, expanding system range and ensuring reliable communication across larger networks.
- Fail-Safe Operation: If a fixture becomes offline or loses communication with the G3 system, it continues to operate as a standard G2 standalone self-test/self-diagnostic unit, maintaining local code compliance.

3. Guardian G3 System Options

- Guardian G3 Standard System
  - Records are stored locally on the Primary Gateway and Tablet. Ideal for facilities that prefer closed-system operation without internet connectivity
- Guardian G3 PRO System
  - Adds advanced features including:
    - Automated email notifications of fixture status reports
    - Notification delivery immediately following test events
    - 5-Year Cloud-based storage of testing and maintenance records
  - Requires internet connectivity via Ethernet, Wi-Fi, or cellular modem

4. Technical Specifications

- Primary Gateway:
  - Input Power: 120VAC to 5VDC/500mA via a wall adapter.
  - Ports:
    - 1 x 10/100 Mbps Ethernet port.
    - 1 x USB 3.0 port.
  - Radio Properties: 2.4GHz WiFi and Zigbee with +19.5dBm transmit power.
  - Encryption: 128-bit AES.
  - Operating Temperature: -20°C to 65°C (-4°F to 149°F).
  - Battery Backup: Internal battery provides 3 hours of power during outages.

    - Indicator and Output Functions:
        - PWR Indicator: Solid Yellow (external power), Solid Red (internal battery).
        - STS Indicator: Various states for booting, running, and fault conditions.
        - NWK Indicator: Solid Green (Zigbee network running), Off (network faults).
- Secondary Gateway:
    - Input Power: 120VAC to 5VDC/500mA via a wall adapter.
    - Ports:
        - 1 x 10/100 Mbps Ethernet port.
        - 1 x USB 3.0 port.
    - Radio Properties: 2.4GHz WiFi and Zigbee with +19.5dBm transmit power.
    - Encryption: 128-bit AES.
    - Operating Temperature: -20°C to 65°C (-4°F to 149°F).
    - Battery Backup: Internal battery provides 3 hours of power during outages.
    - Indicator and Output Functions:
        - PWR Indicator: Solid Yellow (external power), Solid Red (internal battery).
        - STS Indicator: Various states for booting, running, and fault conditions.
        - NWK Indicator: Solid Green (Zigbee network running), Off (network faults).
- LEMD-G3 Series Emergency LED Driver:
    - Input Power: 120-277VAC, 50/60Hz input
    - Battery: Maintenance-free NiMH Battery
    - Operating Temperature: 0°C to 50°C (32°F to 122°F)
    - Battery Backup: 90 minutes emergency runtime, 24 hour recharge time
    - Electrical: Output short/overcurrent protection, Input overcurrent protection: Fusible link
- VEX-G3 Series:
    - Input Power: 120/277VAC dual primary, 60Hz
    - Battery: Maintenance-free NiCad battery
    - Operating Temperature: 10°C to 40°C (50°F to 104°F)
    - Battery Backup: 90 minute emergency run time, 24 hour recharge time
    - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- S900-G3 Series:
    - Input Power: 120/277VAC Dual Primary, 60Hz
    - Battery: Maintenance-free NiCad battery
    - Operating Temperature: 10°C to 40°C (50°F to 104°F)
    - Battery Backup: 90 minute emergency run time, 24 hour recharge time
    - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- WPX-G3 Series:
    - Input Power: 120/277VAC Dual primary, 60Hz input
    - Battery: Maintenance-free NiCad battery
    - Operating Temperature: 0°C to 50°C (32°F to 122°F) or optional -25°C to 50°C (-13°F to 122°F) (Option: IH)
    - Battery Backup: 90 minute emergency run time, 24 hour recharge time
    - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- 400WX-G3 Series:
    - Input Power: 120/277VAC Dual Primary, 60Hz
    - Battery: Maintenance-free NiCad battery
    - Operating Temperature: 10°C to 40°C (50°F to 104°F)
    - Battery Backup: 90 minute emergency run time, 24 hour recharge time
    - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer

- WPXC-G3 Series:
  - Input Power: 120/277VAC Dual primary, 60Hz
  - Battery: Maintenance-free NiCad battery
  - Operating Temperature: 0°C to 50°C (32°F to 122°F) or optional -25°C to 50°C (-13°F to 122°F) (Option: IH)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- VLED-EL90L-G3 Series:
  - Input Power: 120/277V Dual primary, 60Hz input
  - Battery: Maintenance-free NiCad battery
  - Operating Temperature: 10°C to 40°C (50°F to 104°F)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- TPXC-G3 Series:
  - Input Power: 120/277VAC dual primary, 60Hz
  - Battery: Maintenance-free NiCad battery
  - Operating Temperature: 10°C to 40°C (50°F to 104°F)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- S900C-G3 Series:
  - Input Power: 120/277VAC Dual primary, 60Hz
  - Battery: Maintenance-free NiMH battery
  - Operating Temperature: Surface Mount: 10°C to 40°C (50°F to 104°F), Recessed Mount: 5°C to 40°C (41°F to 104°F)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Low voltage disconnect, overload disconnect, solid state transfer
- WPX-EM-G3 Series:
  - Input Power: 120-277VAC Dual primary, 50/60Hz
  - Battery: Maintenance-free NiCad battery
  - Operating Temperature: 0°C to 50°C (32°F to 22°F) or optional -25°C to 50°C (-13°F to 22°F) (Option: IH)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- TRITON-G3 Series:
  - Input Power: 120-277VAC Dual primary, 60Hz
  - Battery: Maintenance-free NiCad battery
  - Operating Temperature: 0°C to 50°C (32°F to 122°F) or optional cold weather (Option: CL) package -25°C to 50°C (-13°F to 122°F)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Low voltage disconnect, overload disconnect, shortcircuit disconnect, solid state transfer
- SLW-G3 Series:
  - Input Power: 120-277VAC, 60Hz driver
  - Battery: Maintenance-free NiCad battery
  - Operating Temperature: -25°C to 50°C (-13°F to 122°F)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer

- NFT-G3 Series:
  - Input Power: 120-277VAC, 50/60Hz
  - Battery: Maintenance-free LiFePO4 battery
  - Operating Temperature: 10°C to 40°C (50°F to 104°F)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- LED-90L-G3 Series:
  - Input Power: 120/277VAC Dual primary, 60Hz
  - Battery: Maintenance-free NiCad battery
  - Operating Temperature: 10°C to 40°C (50°F to 104°F)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- LED-51/52-G3 Series:
  - Input Power: 120/277VAC input, 60Hz
  - Battery: Maintenance-free NiCad (LED-51/52-G3) or NiMH (LED-52-G3-R2)
  - Operating Temperature: 10°C to 40°C (50°F to 104°F)
  - Battery Backup: 90 minute emergency run time, up to 48 hour recharge time
  - Electrical: Low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer
- EMX-G3 Series:
  - Input Power: 120/277VAC Dual primary, 60Hz
  - Battery: Maintenance-free NiCad battery
  - Operating Temperature: 10°C to 40°C (50°F to 104°F)
  - Battery Backup: 90 minute emergency run time, 24 hour recharge time
  - Electrical: Brownout protection, low voltage disconnect, overload disconnect, short circuit disconnect, solid state transfer

5. Installation

- Installation must be performed in accordance with Barron Lighting Group's installation instructions. Ensure that all gateways are securely installed, and that network connections are properly configured.
- Installation of the GUARDIAN G3 emergency lighting monitoring and reporting system must be performed with strict adherence to safety protocols and industry standards. The following precautions are mandatory:
  - Disconnect AC Power Supply: Always disconnect the AC power supply before servicing the equipment to prevent electrical shock or injury.
  - Qualified Personnel: Installation and servicing of this equipment should be performed only by qualified service personnel with expertise in electrical systems.
  - Compliance with NEC and Local Regulations: Ensure that all electrical wiring conforms to the National Electrical Code (NEC®) and any applicable local regulations.
  - Avoid Hazardous Locations: Do not mount the equipment near gas or electrical heaters to avoid potential fire hazards.
  - Tamper Prevention: Equipment should be installed in locations and at heights that minimize the risk of tampering by unauthorized personnel.
  - Use of Approved Accessories: Only use accessory equipment recommended by the manufacturer to prevent unsafe conditions and ensure the integrity of the system.
  - No Unauthorized Modifications: Any modification to the equipment or use of non-original components will void the warranty and product liability. Do not alter the equipment or use it for any purpose other than its intended use.
  - These precautions are essential to ensure the safe and effective installation of the GUARDIAN G3 system, maintaining the reliability and longevity of the emergency lighting system.

6. System Components

- Primary Gateway: Serves as the central hub for remote monitoring and reporting. It supports up to 50 emergency fixtures and can communicate with up to 23 secondary gateways.
- Secondary Gateway: Extends the range of the primary gateway and allows for the connection of up to 100 additional emergency fixtures. Multiple secondary gateways can be connected to a single primary gateway to scale the system.
- LEMD-G3 Series Emergency LED Driver:
  - Construction: Galvanized steel enclosure with 18" conduits on both ends
  - Mounting Options: Suitable for top or remote installation of an LED fixture.
  - Certification: UL 924 Listed for Damp Locations. meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements. Class 2 compliant output classification
  - Remote Charge/Power "ON" LED illuminated push to test switch button for mandated code compliance test provides manual verification of the transfer circuit and LED fixtures
- VEX-G3 Series LED Exit Sign:
  - Illumination: Long-life, high-intensity red or green LEDs.
  - Construction: Rugged, injection-molded UL 94 5VA flame-retardant, high-temperature thermoplastic housing.
  - Mounting Options: Ceiling, end, or wall mounted, canopy included.
  - Legend: Fully illuminated 6" characters with 3/4" stroke and field-selectable directional chevrons.
  - Finishes: Black or White
  - Certification: UL 924 Listed for Damp Locations and meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- S900-G3 Series Universal Swivel Mount LED Edge-Lit Exit Sign:
  - Illumination: Long-life, high-intensity red or green LEDs.
  - Construction: Extruded aluminum housing with a high-grade acrylic panel.
  - Mounting Options: Ceiling, end, or wall mounted, canopy included.
  - Legend: Fully illuminated 6" characters with 3/4" stroke and field-selectable directional chevrons.
  - Certification: UL 924 Listed for Damp Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- WPX-G3 Series:
  - Illumination: Long-life, high-intensity red or green LEDs.
  - Construction: Rugged, injection-molded UL 94 5VA flame retardant, high-temperature thermoplastic housing with impact-resistant polycarbonate shield.
  - Mounting Options: Ceiling, end, or wall mounted, canopy included. Legend: Fully illuminated 6" characters with 3/4" stroke and field-selectable directional chevrons.
  - Certification: UL 924 Listed for Wet Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- 400WX-G3
  - Illumination: Long-life, high-intensity red or green LEDs.
  - Construction: Die-cast aluminum
  - Mounting Options: Ceiling, end, or wall mounted, canopy included.
  - Legend: Fully illuminated 6" characters with 3/4" stroke and field-selectable directional chevrons.
  - Certification: UL 924 Listed for Damp Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- WPXC-G3
  - Illumination: Long-life, high-intensity red or green LEDs with (2) 1.2W LED lamp heads or (2) 0.75W lamp heads (Option: R)
  - Construction: Rugged, injection-molded UL 94 5VA flame retardant, high-temperature thermoplastic housing with impact-resistant polycarbonate shield.
  - Mounting Options: Ceiling, end, or wall mounted, canopy included.
  - Legend: Fully illuminated 6" characters with 3/4" stroke and field-selectable directional chevrons.

- VLED-EL90L-G3
  - Illumination: Long-life, high-intensity red or green LEDs with 0.75W LED lamp heads
  - Construction: Rugged, injection-molded UL 94 5VA flame-retardant, high-temperature thermoplastic housing.
  - Mounting Options: Ceiling or wall mount, canopy included.
  - Legend: Fully illuminated 6” characters with 3/4” stroke and field-selectable directional chevrons.
  - Certification: UL 924 Listed for Damp Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- TPXC-G3
  - Illumination: Long-life, high-intensity red or green LEDs with (2) 1.2W LED lamp heads or (2) 0.75W lamp heads (Option: R)
  - Construction: Rugged, injection-molded UL 94 5VA flame-retardant, high-temperature thermoplastic housing.
  - Mounting Options: Ceiling or wall mount, canopy included.
  - Legend: Fully illuminated 6” characters with 3/4” stroke and field-selectable directional chevrons.
  - Certification: UL 924 Listed for Damp Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- S900C-G3
  - Illumination: Long-life, high-intensity red or green LEDs with (2) 2.5W LED lamp heads
  - Construction: Steel or aluminum housing with a high-grade acrylic panel
  - Mounting Options: Surface ceiling, surface wall, recessed ceiling and recessed wall mounting, canopy included or recessed mount hardware
  - Legend: Fully illuminated 6” characters with 3/4” stroke and field-selectable directional chevrons.
  - Certification: UL 924 Listed for Damp Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- WPX-EM-G3
  - Illumination: (2) 2.5W LED lamp heads, (2) 1.3W LED lamp heads (Option: R)
  - Construction: Rugged, injection-molded UL 94 5VA flame retardant, high-temperature thermoplastic housing
  - Mounting Options: Wall mount
  - Certification: UL 924 Listed for Wet Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- TRITON-G3
  - Illumination: Two (2) long lasting, energy efficient, ultra-bright white 6W, 5000K CCT LED
  - Construction: Low-profile, streamlined, die-cast aluminum housing
  - Mounting Options: Wall mount, universal J-box mounting pattern or surface wiring through top conduit power feed.
  - Certification: UL 924 Listed for Wet Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- SLW-G3
  - Illumination: 15 Watt high-power LED light engine delivers 1750 lumens (650 lumens in emergency mode)
  - Construction: Die-cast aluminum housing
  - Mounting Options: Wall mount, universal J-box mounting pattern or surface wiring through top conduit power feed.
  - Certification: UL 924 Listed for Wet Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- NFT-G3
  - Illumination: (2) 2.7W LED lamp heads, (2) 5.4W LED lamp heads (Option: HO)
  - Construction: Rugged, injection-molded UL 94 5VA flame retardant, high-temperature thermoplastic housing
  - Mounting Options: Ceiling or wall mount
  - Certification: UL 924 Listed for Damp Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements

- LED-90L-G3
  - Illumination: (2) 1W LED lamp heads, (2) 1.5W LED lamp heads (Option: 3W), (2) 3W LED lamp heads (Option: 6W)
  - Construction: Rugged, injection-molded UL 94 5VA flame retardant, high-temperature thermoplastic housing
  - Mounting Options: Ceiling or wall mount
  - Certification: UL 924 Listed for Damp Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- LED51/52-G3
  - Illumination: (2) 1W LED lamp heads (LED51), (2) 1.5W LED lamp heads (LED52)
  - Construction: Rugged, injection-molded UL 94 V-0 flame retardant, high-temperature thermoplastic housing
  - Mounting Options: Ceiling or wall mount
  - Certification: UL 924 Listed for Damp Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements
- EMX-G3
  - Illumination: (2) 0.85W lamps or (3) 0.85W lamps
  - Construction: 20 Gauge steel
  - Mounting Options: Wall mount
  - Certification: UL 924 Listed for Damp Locations, meets or exceeds NFPA 101 Life Safety Code, NEC, and California Energy Commission (CEC) Title 20 requirements. Meets City of New York Emergency Code requirements

7. Accessories (Optional)

- Wireless Internet Router (P/N: ROUTER): For internet connectivity.
- Tablets: Available in 11” (P/N: TAB11) and 12.4” (P/N: TAB12) sizes, with Guardian G3 software pre-installed.
- Tablet Wall Brackets (P/N WALLBRK-LOCKXX): Available for both 11” and 12.4” tablets.
- Network Switch (P/N: NETWORK-SWITCH-XX) available in 5,8,16, or 24 port.

8. Quality Assurance

- Inspection and Verification
  - Ensure all installed components match approved submittals
  - Verify proper placement of emergency lighting and exit signs
  - Conduct visual inspections for physical damage or defects
- System Functionality Testing
  - Perform initial power-on self-test
  - Verify communication between Gateway and fixtures
  - Conduct emergency mode activation test
- Compliance and Certification Checks
  - Confirm UL listings and adherence to NFPA and NEC codes
  - Verify photometric data meets required illumination levels
  - Ensure documentation is complete for inspection approval
- Software and Firmware Validation
  - Test system responsiveness and reporting features
  - Ensure proper network integration for remote monitoring
- Maintenance and Support Planning
  - Establish periodic maintenance schedules
  - Document replacement part availability
  - Train personnel on system troubleshooting and repairs

9. Delivery, Storage, and Handling

- Delivery Requirements
  - Verify shipment contents against packing lists
  - Inspect for any visible damage upon arrival
  - Ensure all components are received in factory-sealed packaging
  - Verify plan layout
- Storage Guidelines
  - Store equipment in a dry, climate-controlled environment 20°C to 30°C
  - Keep batteries and electronic components away from moisture and extreme temperatures
  - Use appropriate shelving and containers to prevent physical damage
- Handling Procedures
  - Follow manufacturer guidelines for safe handling of sensitive components
  - Use proper lifting techniques for heavy equipment
  - Avoid dropping or exposing electronic parts to static electricity

10. Project Site Conditions

- Environmental Conditions
  - Assess temperature, humidity, and ventilation requirements
  - Verify exposure to dust, moisture, or hazardous substances
- Electrical Infrastructure
  - Confirm availability of proper voltage and power supply
  - Ensure compliance with local electrical codes and regulations
- Structural Considerations
  - Verify wall and ceiling support for fixture installation
  - Assess potential obstructions or interference with equipment placement
- Network and Communication
  - Ensure network availability for Guardian G3 monitoring and control
  - Identify potential sources of interference affecting wireless communication
- Site Accessibility
  - Confirm access to installation areas for personnel and equipment
  - Verify compliance with safety regulations and access restrictions
  - Emergency Preparedness
  - Ensure coordination with site safety teams for installation
  - Verify egress routes remain clear and functional during installation

11. Submittals

- Building Layout
  - Scaled floor plans indicating all rooms, corridors, and exits
  - Identification of emergency egress paths
  - Placement of emergency lighting and exit signs
- Path of Egress
  - Designated routes for safe evacuation
  - Compliance with NFPA 101 Life Safety Code and IBC Code
  - Emergency lighting coverage verification
- Naming Convention
  - Standardized labeling for emergency lighting fixtures
  - Consistent room and zone naming aligned with building plans
- Groups and Scheduling
  - Define logical groupings for fixtures
  - Establish automated schedules for testing

- Recommended Gateway Installation Location
  - Preferred locations such as IT closets, electrical rooms, or storage closets
  - Distance from major interference sources
  - Access to power and network connections
- Fixture Models
  - List of Barron Lighting Group emergency and exit fixtures used in the project
  - Model numbers and specifications for each fixture
  - UL compliance details (UL 924, UL 1598, etc.)
- Fixture Types
  - Exit signs
  - Emergency lighting units
  - Combination exit/emergency units
  - Remote heads and additional emergency lighting solutions
  - Emergency Drivers

12. Maintenance Material

- Replacement Batteries
  - Backup batteries for emergency lighting units, exit signs, and gateways

13. Warranty

- The GUARDIAN G3 system components are covered by a five-year warranty against manufacturing defects. The warranty excludes physical damage, abuse, and damage caused by uncontrollable natural forces. Refer to the full Exitronix warranty document for detailed terms and conditions.
- This specification ensures that the building's emergency lighting system is fully compliant with code requirements while providing a high level of security, reliability, and ease of use.