NEX-G
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NEX-G AUTOMATION LLP

SOS ALERT WEARABLES KIT

Wireless Personal Safety & Emergency Response System

DOCUMENT	**Product User Manual**
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Installation Configuration Operation Integration Maintenance

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1. Product Overview

The **SOS Alert Wearables Kit** by Nex-G Automation LLP provides a wireless emergency alert system designed for workers in high-risk, remote, or isolated environments. A one-touch SOS activation sends an immediate emergency alert through long-range, low-power Sub-GHz / LoRa RF communication. Repeaters extend signal coverage across extensive plant floors and trigger powerful local sirens for instant site awareness.

Typical Applications:

- Manufacturing & heavy assembly plant safety.
- Oil, gas, mining, and hazardous remote site worker protection.
- Construction projects, lone worker monitoring, and security patrols.
- Hospitals, research laboratories, and large industrial campuses.

2. Safety Information

> **Important Use Limitation:** Do not rely on this system as the sole life-safety notification method unless the exact model configuration has been assessed and integrated into the site emergency protocol. Follow all local safety regulations.

- **Qualified Personnel:** Setup and integration should be performed by personnel familiar with wireless systems and industrial safety protocols.
- **Audible Hazard:** Sirens output up to 110 dB. Avoid close-range exposure during testing and wear appropriate hearing protection.
- **Enclosure Protection:** IP54 rating applies when the wearable enclosure and charging port seals are correctly closed.

3. Product Features & Specifications

Parameter	Specification Details	Notes
Wireless Technology	Proprietary Sub-GHz / LoRa	Long-range, low-power RF protocol
Operating Range	Up to 200m Line-of-Sight (LOS)	Extendable via repeater nodes
Alert Latency	< 1 Second	Specified response time from press to alert
Wearable Battery Life	3–5 Days typical usage	Rechargeable lithium battery operation
Charging Method	USB-C or Magnetic Charging	Standard industrial charging options
Siren Output	90–110 dB at 1 m	High-decibel audible site warning
Power Supply	12V DC or USB	Repeater / Gateway power configuration
Enclosure Material	Anodized Aluminum, IP54-rated	Ruggedized industrial wear enclosure
Cloud Protocols	MQTT, HTTPS, REST API	Remote dashboard & custom software integration
Data Logging	Wearer ID, Timestamp, Zone	Event logging for audit trails
Operating Temperature	−10°C to +60°C	Specified operating temperature range

4. System Architecture & Event Flow

How an emergency SOS event moves from worker press to rapid site response:

01. Wearable Press
Worker presses dedicated SOS button on wearable.

02. Wireless RF
Sub-GHz signal transmits instantly across site.

03. Repeater Hub
Extends range and activates 90–110 dB siren.

04. Monitoring
Dashboards, apps, or dispatch units notified.

5. Control & System Integration

The system supports centralized web monitoring and direct API integration into existing enterprise stacks:

Interface / Option	Supported Functionality
Centralized Web Dashboard	Browser-based real-time monitoring for device status, battery levels, and active emergency alerts.
REST API & HTTPS	API-ready endpoints for custom software integration and dispatch system triggers over secure HTTPS.
MQTT Protocol	Lightweight IoT messaging protocol ideal for cloud dashboards and real-time event streaming.
SCADA / ERP / Fleet Connection	Connect supported interfaces directly into SCADA systems, ERP databases, or fleet management software.

6. Key System Advantages

Fast Alert Delivery
Latency under 1 second ensures rapid notification during critical safety events.

Smart Mesh Architecture
Repeater-based expansion covers large facilities without extensive re-cabling.

Rugged Industrial Build
Anodized aluminum enclosure rated IP54 protects against dust and light splash.

Worker Identification
Logged event data includes Wearer ID, precise timestamp, and zone location.

7. Frequently Asked Questions (FAQ)

- **What wireless technology does the system use?** Proprietary Sub-GHz / LoRa for reliable long-range performance.
- **How quickly is an SOS alert delivered?** Specified alert latency is less than one second.
- **How long does the wearable battery last?** Typical battery life spans 3 to 5 days on a single charge.
- **Can the wireless range be extended?** Yes, modular repeaters can extend coverage across expansive sites.

8. Troubleshooting Guide

Symptom	Possible Cause	Recommended Action
Wearable button press yields no light/signal	Battery depleted	Connect wearable to magnetic/USB-C charger and verify LED charge status.
Alert not received at monitoring station	Out of wireless range / network disconnect	Check repeater node power, verify Sub-GHz link, or add an intermediate repeater.
Siren does not sound during alert	Siren power supply isolated	Verify 12V DC power input to the local siren module and test connection cables.
API data missing wearer ID	Configuration unassigned	Access device settings in Web UI and assign valid Wearer ID to the hardware unit.

9. Maintenance & Storage

- Inspect the wearable enclosure and charging contacts periodically for dirt, oil, or physical damage.
- Clean the exterior with a dry or slightly damp cloth. Do not submerge or use aggressive solvent cleaners.
- Perform routine alert testing in coordination with plant operators to verify signal reception and siren output.
- Store units in a cool, dry place within the specified −10°C to +60°C temperature range.

10. Support and Service

For technical datasheets, integration guides, or commissioning assistance, contact Nex-G Automation LLP:

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