



Tech note

Recommendations for EN1221S-60 Senior Living Pendant Power System Management

Introduction

This tech note provides important information and recommendations for monitoring and managing the power system for the EN1221S-60 family of senior living pendants.

Caution: If the power system management recommendations are not followed, the device can enter a state that is not recoverable, and will need to be replaced.

Power Management System Overview

The EN1221S-60 pendants employ a proprietary power management system that consists of a two-stage power system as described below:

Power Source Classification	Description	User Accessibility	Role in Power Management
Coin cell battery.	CR2032 lithium metal coin cell battery.	User replaceable.	Energy source for recharging the internal energy storage component.
Internal energy storage component.	Lithium polymer pouch energy cell.	Non-accessible and non-replaceable.	Provides peak power capacity for all RF transmissions, plus LED and vibration motor operation.

What The Device Does When a Low Power/Critical Condition is Detected

The EN1221S-60 device firmware monitors and reports on the condition of the power sources to ensure that any device issues can be identified and resolved on a timely basis.

Power Source	Notifications	Status/Bit Location	Device Indicator	Results and Actions
Primary CR2032 lithium metal coin cell battery.	<p>Low battery message sent at check-in or with next alarm transmission.</p> <p>This message will be sent for seven days, or until the coin cell battery has been changed.</p>	STAT 0/Bit 6	If the coin cell battery is not changed within the first two days, a yellow light will flash for an additional five days, or until the coin cell battery has been changed.	<p>If the depleted coin cell battery is not replaced with a fresh coin cell battery within seven days, the device will send a one-time high priority shutdown message and then automatically place itself into shutdown mode.</p> <p>Following that, it will cease to send a check-in message.</p>
	<p>If coin cell battery is not changed within the seven day period, a one-time, high priority low battery shutdown message is sent.</p>	STAT 0/Bit 6 and STAT 0/Bit 2.	Yellow indicator light will cease flashing after entering shutdown mode.	<p>As such, it will manifest as a missing device in your supervision reporting</p> <p>As long as there is sufficient power in the internal energy storage component, this condition is recoverable by replacing the coin cell battery.</p>
Internal energy storage component.	<p>When a low power threshold has been met, a low power message is sent with high priority.</p> <p>This condition is latched and reported at each subsequent check-in or with the next alarm transmission.</p>	STAT 0/Bit 7	No indication on device.	<p>Upon detection of the critical power condition, the device transmits its status a single time and immediately places itself into shutdown mode.</p> <p>After that occurs, the device will cease to send a check-in message.</p> <p>As such, it will manifest as a missing device in your supervision reporting.</p>
	<p>When a critical power threshold is met, a one-time high priority device shutdown condition message is sent at the next check-in or with the next alarm transmission.</p>			<p>The low power and device shutdown conditions are not recoverable and the entire device must be replaced.</p>

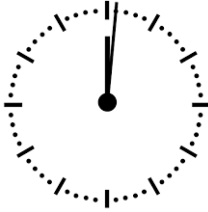
System Level Recommendations

Monitoring, notifying and reporting for low battery or device shutdown condition and associated missing device conditions:

Condition/ Power Source	Device Alerting Frequency and Priority	Supervision Window	Application Software Reporting Frequency	Urgency of Staff Notification	Recommended Actions
Low battery/ coin cell battery.	At 60 minute check-in interval and/or when alarm is sent for seven days. Medium priority.	No greater than 12 hours.	Daily.	HIGH.	<ul style="list-style-type: none"> • Replace coin cell battery.** • Test device operation in system. • Redeploy to resident.
Low battery shutdown/ coin cell battery	One time at next check-in or with next alarm transmission. High priority.	No greater than 12 hours.	Immediately.	HIGH.	<ul style="list-style-type: none"> • Replace coin cell battery.** • Test device operation in system. • Redeploy to resident.
Low Power/ internal energy storage component	At initial detection, a one-time high priority message is sent. The message is then latched and sent at each check-in or at next alarm condition as low priority.	No greater than 12 hours.	Immediately.	CRITICAL. Same as for alarm message. Notify immediately.	<ul style="list-style-type: none"> • This condition is not recoverable. • Replace entire device. • Test new device operation in system. • Deploy to resident.
Device shutdown/ internal energy storage component.	One time. At 60 minute check- in interval and/ or when alarm is sent. High priority.	No greater than 12 hours.	Immediately.	CRITICAL. Same as for alarm message. Notify immediately.	<ul style="list-style-type: none"> • This condition is not recoverable. • Replace entire device. • Test new device operation in system. • Deploy to resident.
Missing device (due to low battery condition on coin cell).	Not applicable.	No greater than 12 hours.	Daily.	CRITICAL. Same as for alarm message. Notify immediately.	<ul style="list-style-type: none"> • Review against low battery report. • Replace coin cell battery.** • Test device operation in system. • Redeploy to resident.

Condition/ Power Source	Device Alerting Frequency and Priority	Supervision Window	Application Software Reporting Frequency	Urgency of Staff Notification	Recommended Actions
Missing device (due to device shutdown on internal energy storage component).	Not applicable.	No greater than 12 hours.	Immediately.	CRITICAL. Same as for alarm message. Notify immediately.	<ul style="list-style-type: none"> • This condition is not recoverable. • Replace entire device. • Test new device. • Deploy to resident.

* Note on supervision windows.

	<p>A supervision window of no greater than 12 hours is recommended to enhance resident safety and to ensure that your reporting meets the allowed 24 hour missing device detection (and corrective action) period under the <i>UL 2560 Standard for Safety for Emergency Call Systems in Assisted Living and Independent Living Facilities</i>.</p> <p>For example, if you use a 24 hour supervision window and a system misses a single, final check-in message immediately after the expiration of the initial 24 hour time period, the missing device may not be reported until the end of the subsequent 24 hour period.</p> <p>Please note that the EN1221S-60 family of senior living pendants is certified for use in UL 2560 listed emergency call systems.</p>
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** Inovonics has tested and recommends the following brands of CR2032 coin cell batteries: Panasonic®, Energizer® and FDK® (formerly Sanyo).