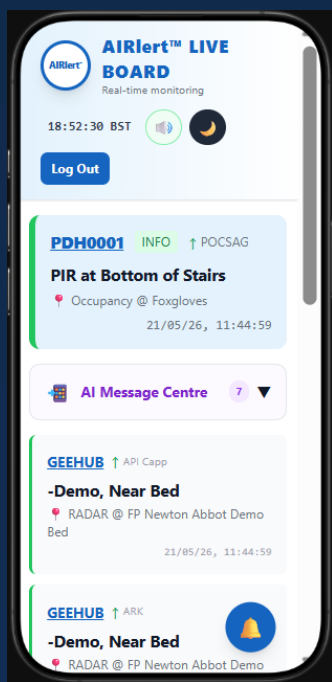


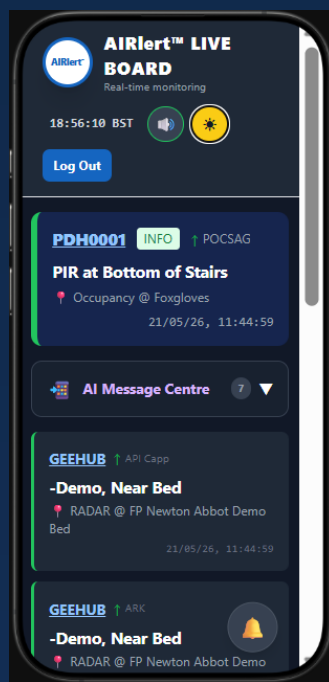


Technical brief

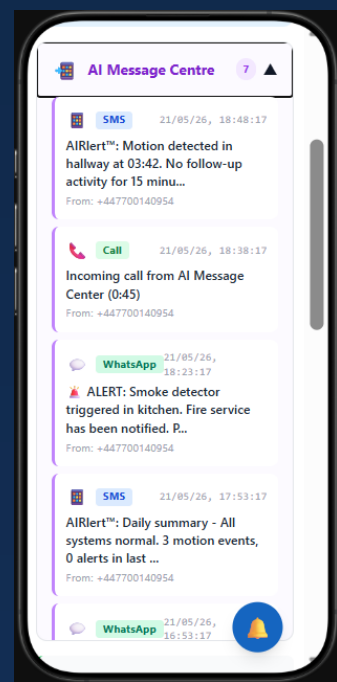
The hub, the sensors that talk to it, and how one alert reaches the nurse-call point and the family phone together.



LIVE BOARD



Dark theme



AI Message Centre

No portal subscription

Local nurse-call path

Community + professional alerts

Cyber Essentials

01 · WHAT THIS BRIEF COVERS

How one alert can travel with the AIRlert HUB

This brief is for anyone weighing up an AIRlert installation - home carers, care home managers, hospital estates teams, and monitoring-centre partners. It explains what the Wireless HUB+Relay does, which sensors connect to it, how an alert reaches both the nurse-call system and the family's phones, and how the same setup grows from one bedroom to a whole group of sites watched from a single screen.

The hub, plainly

The hub is a small gateway box. Wireless sensors and call buttons reach it by radio. On one side it drives a wired nurse-call point; on the other it logs every event to the AIRlert portal over Wi-Fi. One hub typically covers a room, a bay or a floor - larger buildings simply use more hubs. It does not replace an existing nurse-call system. It works alongside it, keeping the local clinical path exactly as staff expect while adding logging, messaging and integrations on top.

LOCAL PATH

Works without the internet

A sensor alert reaches the hub by radio. The hub pulls the nurse-call line, and any bleeper pagers, text pagers or LED message boards on site sound as usual. This is the same proven path FP systems have always used.

- If the Wi-Fi drops, the local path still fires. Cloud events queue on the hub and send when the link returns.

CLOUD PATH

Wi-Fi to the AIRlert portal

The same event is posted to the portal in parallel. The LIVE Rule Engine decides who hears about it: LIVE BOARD, the mobile app, WhatsApp, SMS, Phone AI, the Open API, and any connected monitoring centre.

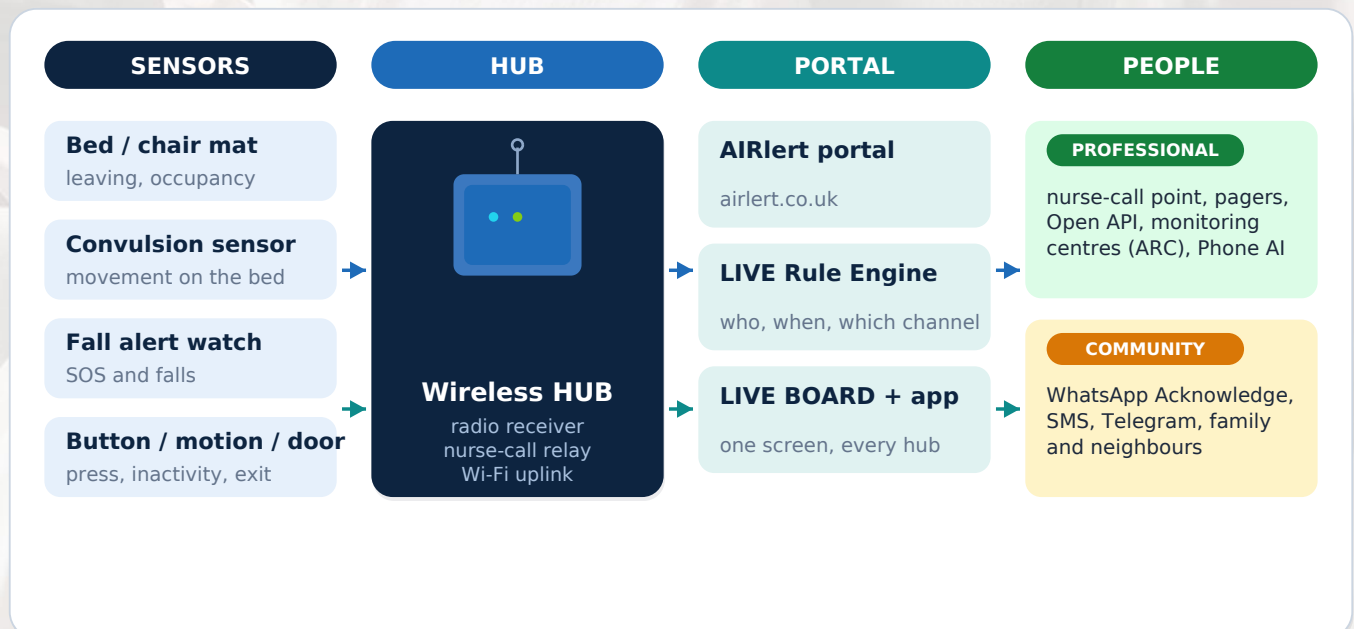


Figure 1 · One event, two paths - local nurse-call and cloud alerting fire together.

02 · COMMUNICATIONS SYSTEM

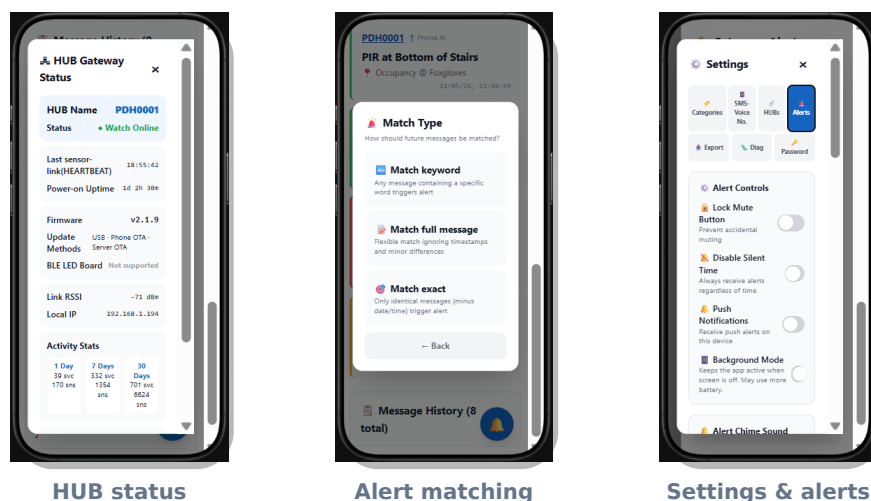
Sensors, radio, cloud, phones

Every accepted alert becomes both a wired pulse and a portal record. The diagram below shows the paths a real event takes: sensors on the left, the hub in the middle, and every channel the portal can reach on the right. The nurse-call side never depends on the internet - the cloud adds to it.



Figure 2 · The FP Wireless HUB communications system in one picture.

The portal in your pocket - hub health, alert matching and settings, from the AIRAlert app



03 · SENSORS AND CALL DEVICES

What connects to a hub

Frequency Precision's best-known sensors are the convulsion sensor and the falls prevention range. Bed and chair pressure mats, motion sensors, door sensors, call buttons and fall alert watches complete a typical room or home kit. Other makers' sensors are welcome through the Integrations Lab.

Convulsion sensor mat

Detects convulsive movement on the bed. Fires nurse-call and pagers on site and lands as a priority event on LIVE BOARD.

Bed pressure mat

Bed-leaving and not-returned-to-bed rules. Useful overnight for falls risk and wandering.

Chair pressure mat

Chair-leaving alerts for falls risk and mobility. Same alert path as the bed mats.

Motion sensor (PIR)

Movement, inactivity and occupancy. Rules decide what counts as a concern.

Door sensor

Exit alerts and site-specific phrases, configured per hub.

Call button / Easy Press

The person asks for help themselves. Same channels as an automatic sensor alert.

Fall alert watch

Wearable fall detection and SOS. Reaches the hub over the pager radio path.

Emergency phone with GPS

Location-aware wandering alerts, where the product is used.

Third-party sensors

Welcome via the Integrations Lab - your sensor in, our alert channels out.

Pagers keep working

Moving to the AIRlert cloud does not mean giving up bleeper pagers, text pagers or LED message boards. The same sensor event alerts on-site staff by radio and the wider care circle by phone at the same time.

04 · THE PRODUCT FAMILY

Frequency Precision kit

Every sensor below is designed and built by Frequency Precision and sold at frequencyprecision.com. All of them talk to the same hub, follow the same alert path, and work with the pagers your site may already own.

Seizure / Convulsion Detection



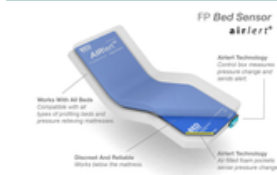
One of our most successful areas · airlert®

Detection & Prevention



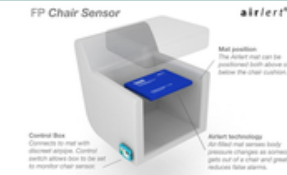
AG falls watch · white + red button

Bed Mat



Under mattress

Chair Mat



airlert® cushion

PIR Motion



Inactivity / movement

Door



Contact

Pendant



Help button

Easy Press



Call button

GPS Tracker



Wander alert

Still fully compatible with FP pagers

- the POCSAG pager pathway is kept, not replaced

FP Text Pager



Beeper Pager



LED Message Board



Sensor + Pager sets



Product photos © Frequency Precision · full range and prices at frequencyprecision.com

05 · HOW IT SCALES

From a bedroom to a care facility or multiple locations

The same pattern applies at every size. Most clients start with one room or one home, add hubs as they add wards or floors, and end up watching every site from a single LIVE BOARD login. The alert path never changes shape.

01 One person, one home

One hub and the right sensors. Family, neighbours, wardens and an optional monitoring centre are told together - and anyone's Acknowledge shows to the rest.

02 One hub, many devices

Bed mat, chair mat, convulsion sensor, motion, door, button and fall watch all report to the same hub, with the nurse-call socket and pagers alongside the cloud.

03 One building, many hubs

A hub per ward, floor or wing. Staff keep their nurse-call displays and pagers; managers see every hub on one portal page.

04 Many sites, one screen

Hubs across homes, clinics, care homes and hospital wings - all watched from one LIVE BOARD and the Mobile AIRAlert LIVE app.

The alert path - the same at every scale



Figure 3 · One person, one building or one estate - the alert path keeps its shape.

06 · LIVE BOARD

A virtual screen for the whole HUB fleet

across multiple addresses - or one HUB shared by many users

LIVE BOARD on the web and Mobile AIRLert LIVE on a phone are the operator views. Both show one shared timeline: which hub fired, who was told, who acknowledged, and whether each hub is healthy. Rules decide what counts as an emergency. Quiet times can be switched on and off without touching the audit log, and critical escalation can stay live through them.

Every hub, one view

A home, a hospital or a whole area on one page. Filter by site, category or emergency. See health, alert history and firmware at a glance.

Rules, per site

Convulsion events, falls, bed-leave with no return, door and motion phrases - configured for each hub, not one-size-fits-all. AI Messages summarise the overnight pattern.

Quiet times

Pause chimes for the night shift or family sleep, change the hours any time. The log still records everything, and critical alerts can still break through.

END-TO-END CONTROL FLOW

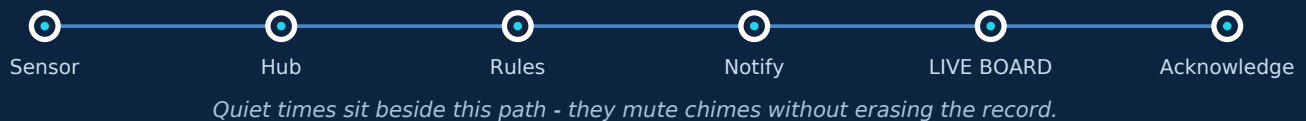
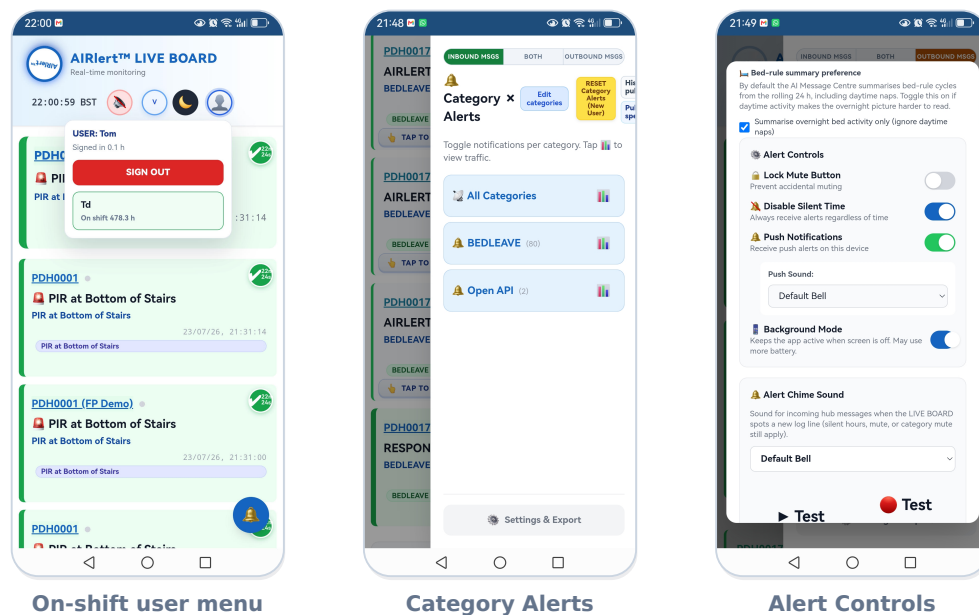


Figure 4 · The control flow every alert follows on LIVE BOARD.

In carers' hands - who is on shift, which categories chime, and how alerts behave



07 · FAMILY, FRIENDS AND THE ARC

One story for everyone who should know

When a hub reports into an Alarm Receiving Centre, AIRlert can message the people around the person as well - not just the call desk. The same closed-loop idea used for sensor emergencies covers ARC health and site-check messages: what happened, who to call, which hub and site, which ARC account, and a one-tap RESPOND to say the person is OK.

IN THE MESSAGE

- **What happened**
an ARC or hub health issue, or a clearly-labelled test
- **Who to call**
the person at the hub address - name, phone, email
- **Which hub and site**
device name and number, address, site note
- **Which ARC account**
monitoring centre, call centre, account number
- **RESPOND - they are OK**
one tap once contact confirms all is well; link lasts seven days

CHANNELS

- **Email**
the full ARC health card with a RESPOND button
- **WhatsApp**
alert plus an in-message Acknowledge tick
- **SMS / Phone AI**
short text or an AI voice call
- **Telegram / Discord**
the AIRlertBot reaches care-circle groups
- **LIVE BOARD**
logs who was messaged and who responded, and when

The closed loop - one shared record, everyone can close it



Who can send RESPONDED - to an emergency alert or a system alert:

✓ **ARC operator**

✓ **Care providers**

✓ **Friends & family**

Figure 5 · Closed-loop RESPOND - ARC, staff and family share one record and any of them can close the loop.

08 · AUDITING AND EXPORT

Every message, accounted for

Everything that moves through a hub is logged with a timestamp - inbound sensor alerts, outbound messages, phone calls, delay actions and system events. The LIVE BOARD app and the browser portal can both export that history, and every staff response is recorded with enough detail to stand up in an audit.

CSV EXPORT

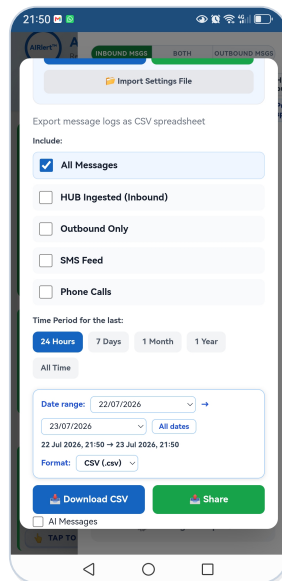
- **What**
all messages, inbound only, outbound only, SMS feed, phone calls, AI Messages
- **When**
last 24 hours, 7 days, month, year, all time - or a custom date range
- **How**
Download CSV or Share straight from the app; same options in the browser
- **Filter**
by hub, by category or sensor, by keyword; system messages and delay actions can be included or hidden

RESPONSE FORENSICS

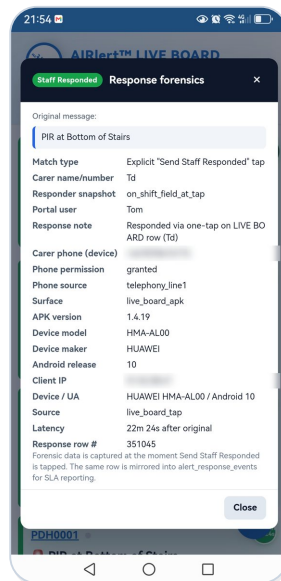
- **Who**
carer name, portal user, on-shift snapshot at the moment of the tap
- **Where from**
device model and maker, app version or browser, client IP
- **How fast**
latency from the original alert to the response tap
- **For SLAs**
each response row is mirrored into `alert_response_events` for reporting

PIN-gated Settings and Export sit behind an admin PIN in the app - carers see alerts, only admins pull data.

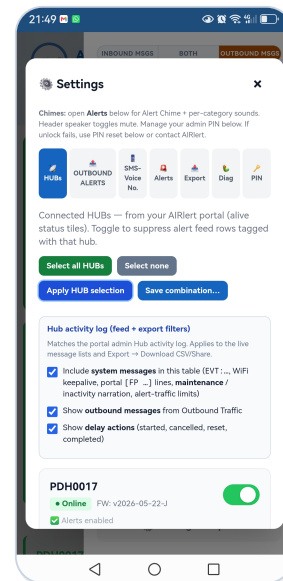
From the LIVE BOARD app



Export CSV



Response forensics

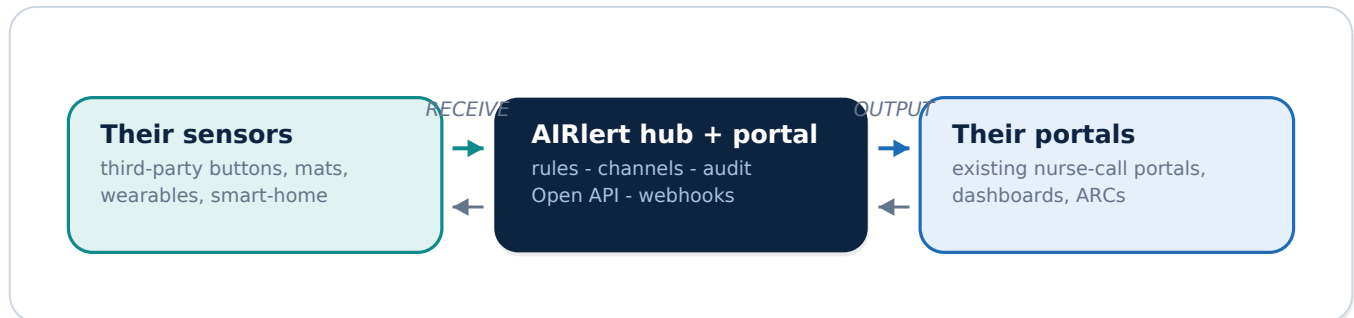


Hub filters & health

09 · INTEGRATIONS LAB AND THE OPEN API

Built to connect, not to lock in

AIRlert is a bridge, not a walled garden. The Open API carries alerts and telemetry OUT to systems a site already runs - and brings other makers' sensors IN, so they gain the same rules, channels and audit trail as FP's own. A hospital or assisted-living facility with an existing nurse-call portal keeps it; AIRlert feeds it.

**OUTPUT - alerts out**

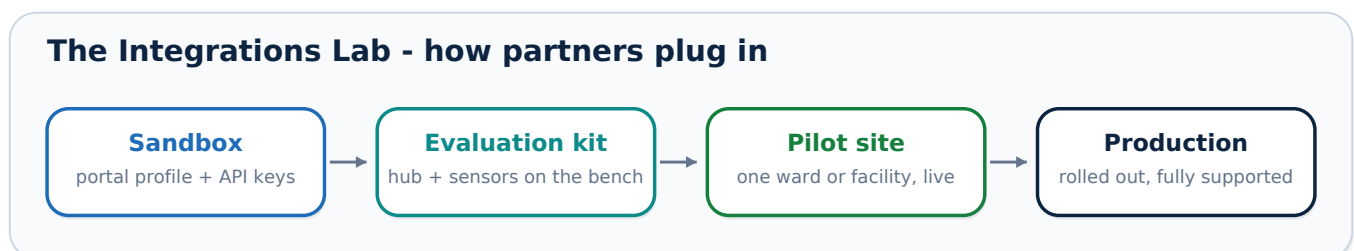
Every alert can be delivered as a webhook or REST call with hub, sensor, category and timestamp. That feeds existing hospital nurse-call portals, ward dashboards and ARC platforms (SIA DC-09, SCAIP, NOW-IP) without replacing anything already installed.

RECEIVE - sensors in

Other makers' sensors and buttons come in through the same API and gain the full AIRlert treatment: LIVE Rule Engine, WhatsApp / SMS / Phone AI channels, LIVE BOARD visibility and the export audit trail - alongside FP's own sensor range, not instead of it.

WORKED EXAMPLE - AN EXISTING NURSE-CALL PORTAL

A ward already runs its own nurse-call portal. FP bed and chair mats report to the AIRlert hub as usual, and the Open API pushes each alert straight into that portal - so it appears on the screens staff already watch, with nothing new to learn at the nurses' station. The same event still reaches LIVE BOARD, the family's WhatsApp and the export audit trail.

The Integrations Lab - how partners plug in

10 · COMMERCIAL AND ASSURANCE

From brief to trial

No portal subscription

The AIRAlert portal is not sold on a recurring cloud fee. Care shouldn't sit behind a payment gate that can lapse.

Certified quality

Cyber Essentials at organisation level, plus ISO 9001, 14001 and 45001. The AIRAlert portal runs on Google Cloud infrastructure operated in line with the same Cyber Essentials controls.

A bridge, not a walled garden

The Integrations Lab welcomes other makers' sensors and partner clouds - OUTPUT & RECEIVE, both directions.

NEXT STEP

Tell us about the site - we'll propose a hub and sensor kit.

Home, care home, hospital or multi-site. Existing nurse-call or ARC - we work alongside what's already installed. The Integrations Lab can trial partner sensors, Open API connections or an ARC sandbox profile.

Get in touch

contact@frequencyprecision.com

01837 810 590

airlert.co.uk · frequencyprecision.com

**AIRAlert**

11 · WHY FREQUENCY PRECISION

The right company to build this

CORE VISION

An open-access, community-supported assistive care portal that unifies fragmented care solutions - integrating with Alarm Receiving Centres and mobile devices, and staying entirely free at the point of access.

R&D with live feedback

FP develops against an active, established customer base. New firmware and portal features are validated by real homes, care homes and wards within days - not built in a vacuum. This whole hub programme has iterated that way, release by release.

Established pedigree, defensible IP

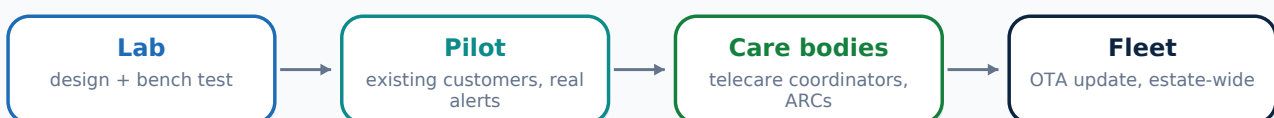
Decades of designing and manufacturing telecare sensors in Devon, foundational technology protected by registered patents, and ISO 9001/14001/45001 plus Cyber Essentials. Low risk for partners and funding bodies alike.

Modular, low-cost by design

The hub is designed down to individual components. Small-batch manufacturing keeps capital needs low; modules can be added, repaired or replaced without redesigning the core. Agile iteration, not one risky mass rollout.

Deployment with care bodies

Rollout happens alongside the people who commission care: council telecare coordinators, care groups, ARC partners and estates teams. FP supplies kit, training and the portal - the care body keeps its own protocols and response chains.

From R&D to rollout - how a feature reaches the field

12 · THE AIRLERT GATEWAY HUB

One core design, built to grow

At the heart of the Gateway HUB is the ESP32 - a proven, widely supported platform that has run reliably in the field across the FP range. Its modular accessibility is the point: the same core PCB carries the radio receiver, the nurse-call relay, Wi-Fi and BLE, and leaves room in the housing for optional modules. That is what lets one design serve different price points - a straightforward hub for a single home, up to a resilient, estate-grade unit - without changing how any of it talks to the portal.



At the socket



Sealed housing, modular inside



USB-C + Call System

Modular headroom - same housing, same PCB

4G FALLBACK + BATTERY

An internal 4G LTE module (LILYGO T-SIM7670G, ESP32-S3) with eSIM keeps the hub talking to the server when broadband fails - and, paired with a large lithium battery, right through a power cut. Mains returns, the battery recharges, nothing to reset.

POCSAG TRANSMITTER SHIELD

A transmitter shield turns the hub into a local pager station: it pages on-site carers directly, runs portal-set rules on the hub itself (inactivity, not-returned-to-bed) so alerts still fire offline, and re-transmits sensor alerts to stretch local radio coverage.

One design, three price points

Base

Wi-Fi + BLE + nurse-call relay - a home or a room

Resilient

adds 4G eSIM fallback and battery - care homes, sheltered housing

Estate

adds the POCSAG transmitter - hospital wings and campuses

Talk to us about the configuration your site needs.

contact@frequencyprecision.com · 01837 810 590 · airlert.co.uk · frequencyprecision.com