Tunstall

English

# Lifeline - Pendant / Fall Detector

## Installation Guide

Revision 2.0

# Table of Content

# Tunstall Lifeline Pendant / Fall Detector

The Tunstall Lifeline Pendant and Lifeline Fall Detector mark a new generation of wearable triggers from Tunstall. They are the first devices of their kind to be announced as compliant with the European cybersecurity requirements set out in the EN 18031 series of standards, which become mandatory from August 1, 2025, for all internet connected devices, wearables, and products that handle personal data within the EU.

This product range builds on Tunstall's earlier wearable triggers, with a redesigned approach focused on improved usability, stronger cybersecurity, sustainability, and better lifecycle management. The devices offer extended battery life, up to five years for the Pendant and up to two years for the Fall Detector, and support battery replacement. Both the top and bottom components can be replaced, and the devices are designed to be fully disassembled, enabling proper recycling at the end of their lifecycle.

# Part Numbers

Tunstall Lifeline Pendant SKUs

| |
|---|
| 62505/005 – Tunstall Lifeline Pendant - 2-Way Secure Radio |
| 62405/002 – Tunstall Lifeline Pendant - Classic AP |
| 62405/001 – Tunstall Lifeline Pendant - Classic ALB |
| 62505/011 – Battery Service Kit |

Tunstall Lifeline Fall Detector SKUs

| |
|---|
| 62505/007 – Lifeline Fall Detector – 2-Way Secure Radio |
| 62405/007 – Lifeline Fall Detector – Classic AP |
| 62505/011 – Battery Service Kit |

# Radio Protocols

Launching in August 2025, Tunstall's updated sensors are being released with support for three communication protocols, designed to meet emerging device standards while maintaining backward compatibility (some product requires specific SKUs to achieve this) with existing systems for support and warranty purposes.

Please ensure the correct SKU is selected and verify system compatibility before purchase. Consult your Tunstall support team if needed.

The three protocol options are:

**Tunstall 2 Way Secure Radio Protocol (2WS)**
The "2WS" protocol is the default communication standard for new devices. Tunstall's enhanced two way radio protocol provides secure, encrypted communication and is primarily used with Tunstall Lifeline Digital. It complies with the latest RED directive and EN18031-1 and EN18031-2 standards, ensuring high integrity and secure communication.

Key features:

- NIST level secure communication design
- Standby functionality for improved power efficiency
- Optimized status reporting and escalation management

Devices supporting the 2WS protocol can also operate using the unencrypted TX4 protocol, which serves as a fallback when required.

The 2WS protocol is used with:

- Lifeline Digital, all versions
- Careline, including 4G and earlier models

**Tunstall Classic Radio AP Protocol**
This protocol provides one way communication to pre Lifeline Digital hubs such as Smart Hub, Vi, and Caresse or GSM systems.

Key features:
• Regular transmission of AP notifications, status alerts, to confirm devices are active in the field
• Low battery alerts to ensure reliable operation

The Classic Radio AP protocol is used with:

- Lifeline VI and VI+
- Lifeline Caresse
- Lifeline Smart Hub

### Tunstall Classic Radio ALB Protocol

This protocol is similar to Classic Radio AP but operates without AP notifications. It is intended for use with Communicall systems where the infrastructure does not support AP alerts. It provides low battery alerts only and is not recommended for modern systems.

Recommended for:

- Communicall

# Features and Introduction

### Key Features

The Lifeline Pendant is a discreet and lightweight personal alarm that can be worn comfortably around the neck or on a wrist strap. It is water resistant and features a replaceable battery, making it both practical and long-lasting.

The Lifeline Pendant is designed for anyone living independently who may need to request help in an emergency. It is especially useful for older adults, people who are frail or have disabilities, those with long-term health conditions, or individuals recovering after a hospital stay.

To call for assistance, simply press the alarm button. The pendant sends a radio signal to a local alarm unit, such as a speech module or Lifeline Digital Hub, which then raises an emergency call to an alarm receiving centre or another designated responder.


When the button is pressed, the red LED flashes briefly to show that the signal is being sent. Once the signal has been successfully received by the local alarm unit, the green LED flashes briefly to confirm the connection.

### The Lifeline Pendant Family

The Tunstall Lifeline Pendant and Lifeline Fall Detector share a common design to streamline product lifecycle management, from design and manufacturing to recycling.

The main difference lies in the additional components of the Fall Detector, which enable fall detection functionality and are not present in the standard Lifeline Pendant.

Due to these enhancements, one key distinction between the two devices is battery lifetime, as outlined below.

### Battery Lifetime

- Lifeline Pendant: Up to 5 years or approximately 30,000 alarm transmission (with 2WS protocol)
- Fall Detector: Up to 2 years or approximately 30,000 alarm transmissions.

Both devices use an energy-efficient standby mode when not in use, which extends their battery life compared to previous generations. This is only available with the 2WS protocol in use.

### Replaceable Batteries and Sustainability

The unit can be refurbished by replacing the battery and/or the top cover, extending its operational life.

- Once the unit reaches end of life, it can be disassembled for individual component recycling.
- Where possible, parts should be returned to Tunstall for proper handling.

- Regional procedures may vary, so please contact your customer support team to set up a recycling workflow that aligns with your organization's sustainability goals and EU environmental standards.

### Periodic Link Tests and Low Battery Alarms

The new Tunstall 2-Way Secure Protocol introduces a Periodic Link Test feature that ensures continuous connectivity between the trigger and the hub.

- A link test is automatically sent every 22 hours (configurable via DMP).
- Each test is validated by the hub, then acknowledged by the trigger.
- If supported, for example by the Lifeline Pendant, a visual confirmation is displayed.
- If no validation is received, the system retries up to eight times.
- By default, if two consecutive link tests are missed (approximately 54 hours), the hub raises an alarm to the ARC. This threshold can be modified in DMP, for example to 72 hours to include 3 checks before alerting the ARC.

### FOTA (Firmware Over-The-Air) Updates

The radio unit can be remotely updated by Tunstall through its connection to Lifeline Digital Hub, ensuring devices remain up to date with the latest firmware. Firmware over the air is only available for units using the 2WS.

### IP67 Rating

The device is water resistant and shower proof, designed for everyday use and maximum reliability in wet environments.

# Fall Detection

### Capturing Falls and Fall Detector Wearability

The Tunstall Lifeline Fall Detector is designed to detect fall situations where the user collapses and falls heavily to the ground, resulting in an inability to move. It is not intended to detect all types of falls, for example soft falls or cases where the person manages to support themselves or lower themselves to the ground. These situations often do not prevent the individual from manually activating an alarm and are therefore considered less critical to detect automatically.

A detected fall event is typically defined by the following four steps:

- The person is standing and active,
- A sudden or unexpected loss of balance occurs,
- There is a significant, unprotected impact with the floor which is detected,
- The person remains on the floor, with or without movement.

Note: After any fall, it is always recommended to manually press the alarm button to ensure that help is called. The device, with its current optimized design, is not intended to capture all falls, but rather collapses and severe, hard falls.

The algorithm in the fall detector is specifically designed for elderly users. The recommended way to wear the device is around the neck, as this position improves detection accuracy and reduces the likelihood of false alarms. The product has been tested in laboratories, through internal testing, and in field trials with elderly participants to ensure it meets its purpose and customer expectations.

If the device is worn on the wrist, it is recommended not to wear it on the dominant arm, as that arm is more active and may cause false alarms due to rapid movements.

### Reporting and Follow-Up

When a call is received by the Alarm Receiving Centre (ARC), the operator can choose from a range of resolution codes to ensure accurate reporting and effective performance tracking of the device. These codes should be implemented and consistently used by the ARC to support follow up actions, enable continuous staff training and improvement, help end users reduce false alarms, and provide valuable product feedback to the manufacturer. The proposed resolution codes are as follows:

- **Fall alarm** – Used when a fall is confirmed.
- **Manual alarm - after a hard fall** – Used when a user has fallen but the device did not automatically activate. The operator must confirm that it was a direct fall without any support from the hands.
- **Manual alarm - after a soft fall** – Used when the user has fallen and the device did not automatically activate, but the operator confirms that the fall was softened (e.g., by using hands for support or falling onto an object that reduced the impact).

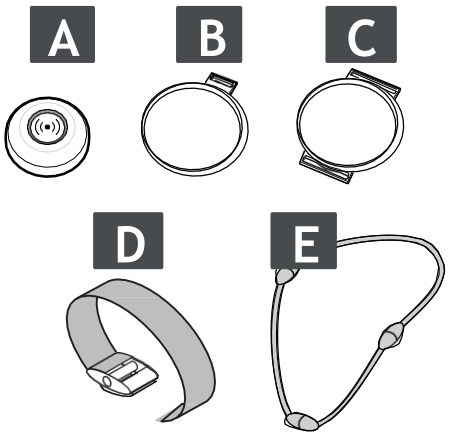
- **False alarm (no fall detected)** – Used when a fall alarm is triggered without an actual fall, such as through sudden movement. In these cases, the user should be instructed to cancel the alarm on the device first; however, if the call still reaches the ARC, this is the appropriate code for reporting.

**Warning!!**

The Tunstall Lifeline Fall Detector is designed to identify sudden, uncontrolled falls where the user may lose control of their body, such as incidents that could involve unconsciousness. It does not detect controlled or intentional movements, such as when a user braces themselves during a fall, nor does it respond to minor trips or stumbles where control is maintained.

The device is not intended to detect every type of fall. Its focus is on serious, uncontrolled incidents, particularly in situations where the user may be unable to activate an alarm manually. Whenever possible, users should press the alarm button themselves if they are conscious and able, rather than relying solely on automatic fall detection.

# Getting Started




**What's in the box?**

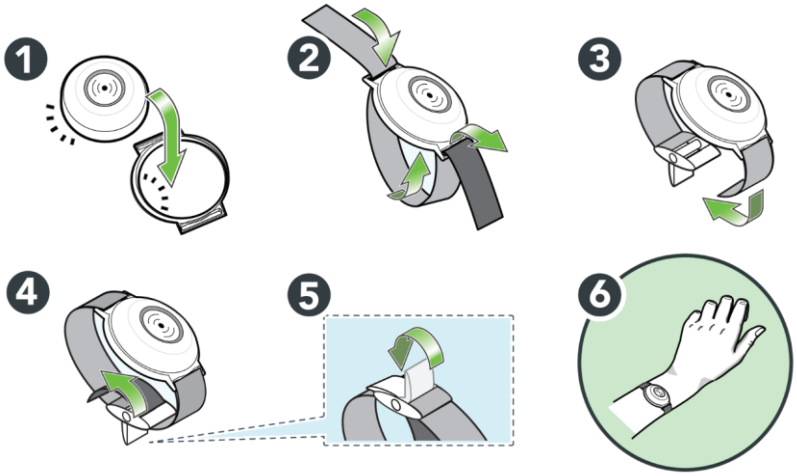
1 x Lifeline Pendant (A)
1 x Necklace Holder (B)
1 x Wristband Holder (C)
1 x Wristband (D)
1 x Necklace with Safety Links (E)
1 x Safety Instructions with instructions

**Unpacking and installation**

The **Lifeline Pendant** can be worn either on the wrist or around the neck. Two different plastic holders are supplied for these purposes.

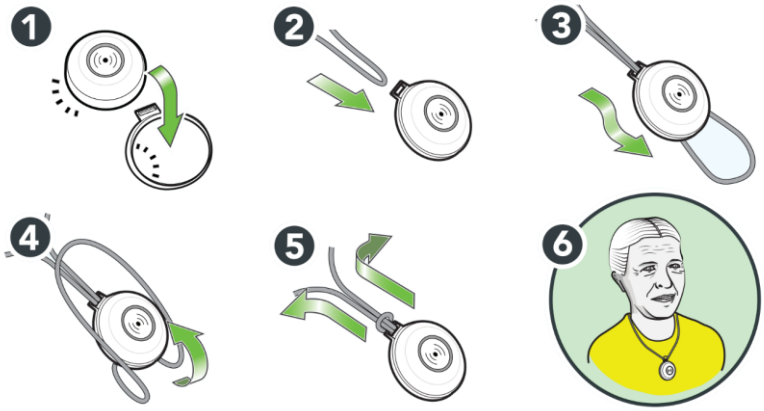
**Wearing the device on the wrist:**

1) Unpack the wrist strap holder (C) and locate the notch on the inside of the ring.
2) Find the corresponding notch on the back of the trigger button (A).
3) Insert the trigger button (A) into the wrist strap holder (C) until the back of the trigger button is flush with the back of the holder.
4) Thread the elastic wrist strap (D) through the slots in the holder.
5) Fasten the device on the arm using the strap lock, ensuring that the strap is snug but not too tight, so it does not cause discomfort to the user.



**Wearing the device around the neck:**

1) Unpack the neck strap holder (B) and locate the opening for the trigger button (A).
2) Insert the trigger button (A) into the neck strap holder (B) until the back of the trigger button is flush with the back of the holder.
3) Thread the neck cord through the slots on the holder.
4) Adjust the cord length to ensure the pendant rests comfortably around the neck, without being too tight or causing discomfort.
5) Fasten the cord securely using the provided clasp.




**Pairing the Lifeline Pendant / Fall Detector with a Tunstall Carehub**

To transmit an alarm signal, the Lifeline Pendant must be paired with a Carehub or Group Living System, such as the Tunstall Lifeline Digital. For detailed pairing instructions, please refer to the user manual for your specific hub, provided by your Customer Success Team.

Pairing is typically performed by placing the hub or system into pairing mode, after which activating the pendant (by pressing its button) can initiate the pairing process from the Pendant side.

Once the Lifeline Pendant / Fall Detector is successfully paired and any required setup or initialization is complete, a test alarm must always be triggered to confirm full connectivity and proper operation from device to ARC.

The installation guide for pairing the Lifeline Pendant or Fall Detector with the Tunstall Lifeline Digital is available online in selected languages here:

https://www.tunstall.com/lifeline-digital-documentation/

### Changing the Battery

**Note:** Prior to changing the battery, it is important to inform the appropriate alarm receiver of your intended actions, as a test alarm call will need to be carried out. The battery exchange should also only be carried out by a trained professional and should always be disposed correctly and never mixed with another disposal. Make sure you check the warning

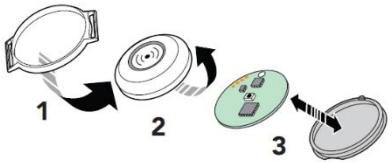
The Battery Service Kit contains a battery, a front cover, and a back cover.

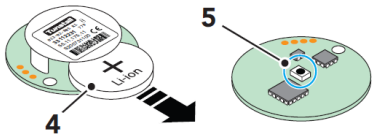
When a battery replacement is required, first ensure that the correct version of the Tunstall Battery Service Kit is available (SKU 62505/011).

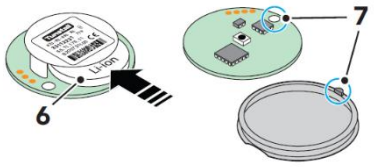
As the design of the front cover is specific to each model of trigger, care must be taken to use the correct kit. If using Battery Service Kit 62505/011, verify that one of the SKUs listed above is etched on the battery holder of the circuit board, along with the text ST. If the etched SKU does not match those listed, or if the text ST cannot be located, do not use Battery Service Kit 62505/011. Instead, consult the manual for the product SKU in question for proper instructions.

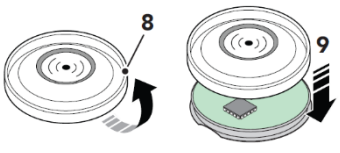
To replace the battery in the Lifeline Pendant:

1. Remove the Lifeline Pendant from the chosen wearing option.
2. Take off the front cover.
3. Separate the Lifeline Pendant circuit board from the back cover.
4. Place the circuit board on a flat surface with the battery facing upwards. & use a tool made from a non-conductive material, such as plastic, to push the battery out from the side.
5. Turn over the circuit board and press the small black reset button until you feel it click.
6. Slide the new battery into position.
7. Place the circuit board into a new back cover, ensuring that the round hole in the circuit board fits over the elevation on the cover's edge.
8. Fold up the edges of a new front cover.
9. Place the new front cover on top of the circuit board and fold the edges over the back cover.
10. Return the Lifeline Pendant to the chosen wearing option, ensuring that the ring of the wearing option fits into the recess of the back cover.
11. Raise a test alarm by activating the Lifeline Pendant with a button press. If possible, press the green Cancel button before the alarm call is transmitted to the alarm receiver. Alternatively, inform the alarm receiver that a test alarm has been conducted following the battery change. The alarm call will then be closed.



**Caution**: The used front and back covers, along with the expired battery, must be disposed of in accordance with current local regulations.

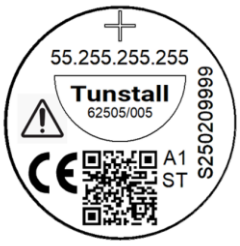
**Warning**: Batteries must be kept out of reach of children. Swallowing a battery can be life-threatening, and immediate medical attention must be sought.

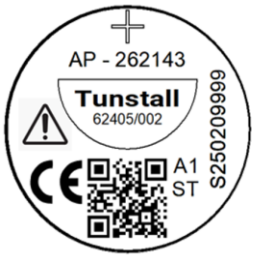
**Caution**: Only use new battery kits from Tunstall, as reusing old parts could compromise protection against water and dust ingress.

**Warning**: It is essential to use batteries provided by Tunstall only, as using an incorrect battery type could cause an explosion.

# Label Information

Label Pictures: 1) 2-Way Secure Radio, 2) Classic AP, 3) Classic ALB





**Label Contents**

The contents of the label are summarized below:

- Tunstall logo
- CE mark
- QR Code
- Part Number: 62X05/00X
- Revision: A1ST
- Serial: S250209999
- 2WS ID 55.255.255.255
- Classic ID: AXX – 262143

Note that contents such as Serial, Classic ID and CR ID will differ between products

# Technical Specifications

## General

| | |
|---|---|
| **Weight** | 16g (without attachments) |
| **Dimensions** | H: 13 mm, ⌀: 35mm (without attachments) |
| **Battery** | Lithium primary cell; 3V CR2450 (replaceable) |
| **Battery lifetime Pendant** | Up to 5 years or 30,000 alarm transmissions* |
| **Battery Lifeline Fall Detector** | Up to 2 years or 30,000 alarm transmissions* |
| **Radio frequencies** | 869.2125 MHz + 868.3000 MHz |
| **Radio power** | < 1 mW e.r.p |
| **Connection** | Bi-directional |
| **Range** | At least 30 meters indoors, at least 250 meters outdoors |
| **Water resistant** | IP67 (water resistant to a depth of 1 meter for 30 minutes) |
| **Radio protocol(s)** | Tunstall 2-Way Secure Radio, Tunstall Classic Radio. |
| **Radio encryption** | AES 128-bits |
| **Region** | Europe and United Kingdom |

## Environmental

Operating Temperature 0°C to +45°C
Storage Temperature: -10 °C to +55°C
Operating Humidity: Up to 90% non-condensing
IP67 (water resistant, safe to use in the shower)

## Standards

| | |
|---|---|
| **Directive Compliance** | RED, EMC, RoHS3, REACH |
| **Safety** | EN 62368-1:2024 + A11:2024 |
| **EMC** | EN 301 489-3 V2.2.1: 2019<br>EN 55032:2015 + A1:2020<br>EN 50130-4:2011 + A1:2014 |
| **Social alarms** | EN50134-2:2017 |
| **Radio** | EN 300 220-3-1 V2.1.1:2016<br>EN 300 220-2 V3.2.1:2018<br>EN 62311:2020<br>EN 18031-1:2024<br>EN 18031-2:2024 |
| **Design, manufacture, installation & service** | ISO9001:2015 |
| **CE, UKCA, UKNI compliant** | Yes |

* Battery life can be affected by extreme temperatures, weak or intermittent connectivity, or battery aging.

Tunstall | Contact us:
t: +44 (0)1977 661 234
e: enquiries@tunstall.com
w: www.tunstall.com