

TSI OmniWear Noise™ Personal Dosimeter

User Manual

P/N 6018423, Revision A
July 2025

NOTICE

Read this manual before using
the equipment.

Retain this manual for future use.



Start Seeing the Benefits of Registering Today!

Thank you for your TSI® instrument purchase. Occasionally, TSI® releases information on software updates, product enhancements and new products. By registering your instrument, TSI® will be able to send this important information to you.

<https://register.tsi.com>

As part of the registration process, you will be asked for your comments on TSI products and services. TSI's customer feedback program gives customers like you a way to tell us how we are doing.

Manual History

Revision	Date
A	July 2025

Warranty

Part Number 6018423 / Revision A
Copyright ©TSI Incorporated / 2025 / All rights reserved.
Address TSI Incorporated / 500 Cardigan Road / Shoreview, MN 55126 / USA
Fax No. 651-490-3824
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Limitation of Warranty and Liability (effective May 2024)

(For country-specific terms and conditions outside of the USA, please visit www.tsi.com.)

Seller warrants the goods, excluding software, sold hereunder, under normal use and service as described in the operator's manual (version published at the time of sale), to be free from defects in workmanship and material for the longer period of either **12 months**, or **the length of time specified in the operator's manual/warranty statement provided with the goods or made available electronically (version published at the time of sale)**, from the date of shipment to the customer. This warranty period is inclusive of any statutory warranty. **This limited warranty is subject to the following exclusions and exceptions:**

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- b. Pumps are warranted for hours of operation as set forth in product or operator's manuals (versions published at the time of sale);
- c. Parts repaired or replaced as a result of repair services are warranted to be free from defects in workmanship and material, under normal use, for 90 days from the date of shipment;
- d. Seller does not provide any warranty on finished goods manufactured by others or on any fuses, batteries or other consumable materials. Only the original manufacturer's warranty applies;
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- f. This warranty is **VOID** if the goods are opened by anyone other than a factory authorized service center with the one exception where requirements set forth in the operator's manual (version published at the time of sale) allow an operator to replace consumables or perform recommended cleaning;
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Service Policy

Knowing that inoperative or defective instruments are as detrimental to TSI as they are to our customers, our service policy is designed to give prompt attention to any problems. If any malfunction is discovered, please contact your nearest sales office or representative, or call TSI's Customer Service department at 1-800-680-1220 (USA) or +001 (651) 490-2860 (International).

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Warnings, Safety Markings, Best Practices and Compliance.

Environment

WARNING

Always be aware of the risks in the environment where you are working.

- Wear approved ear defenders when taking measurements in noisy environments.
- Wear approved PPE suitable for the environment where you are taking measurements.
- Always follow local safety regulations and be aware of risks in the area where you are working.



Handling

CAUTION

The TSI OmniWear Noise™ Dosimeter is a precision instrument. Always handle it with care. Do **NOT DROP** it or subject it to mechanical shock.



Positioning

CAUTION

The TSI OmniWear Noise™ Dosimeter should be worn on the body. It should be used near an individual's head.



Servicing and Troubleshooting

CAUTION

- The TSI OmniWear Noise™ Dosimeter contains no user serviceable parts. If a fault is suspected, return the device to Casella or a Casella-approved service center.
- Repair of this equipment shall only be carried out by the manufacturer or an authorized representative in accordance with the applicable code of practice.



Battery Care

CAUTION

The TSI OmniWear Noise™ Dosimeter operates from battery.
The TSI OmniWear Noise™ Dosimeter incorporates an internal Li-ion battery as a power source that with proper care should give years of operational service (three years is typical).

- **DO NOT** attempt to replace the battery in this device.
- **DO NOT** abuse the battery in any way as the battery may rupture or catch fire.
- **DO NOT** short-circuit, incinerate, dismantle or mutilate Lithium-ion battery.
- **DO NOT** use any battery which shows signs of damage, such as bulging, swelling, a swollen plastic wrap, liquid in the plastic wrap, etc.
- **DO NOT** leave discharged battery in the TSI OmniWear Noise™ Dosimeter.
- After use, charge the TSI OmniWear Noise™ Dosimeter prior to storage for a prolonged period. It is best not to store the TSI OmniWear Noise™ Dosimeter for any period of time in low battery condition. A prolonged period is considered to be two or more months. If the TSI OmniWear Noise™ Dosimeter is to be stored for an even longer period, it is best to take the TSI OmniWear Noise™ Dosimeter out of storage and recharge every two to three months.
- If the TSI OmniWear Noise™ Dosimeter has not been used for a prolonged period or was stored in a low battery condition, charge the device before attempting to turn it on. If not using the TSI OmniWear Noise™ Dosimeter, Always follow local regulations to dispose of used batteries.



Using Near Water

CAUTION

DO NOT immerse the device in water.



Using Near Heat

CAUTION

DO NOT expose the TSI OmniWear Noise™ Dosimeter to high temperatures.



Using the Calibrator

CAUTION

The CEL-120/2 acoustic calibrator must only be used to calibrate the TSI OmniWear Noise™ Dosimeter device.



Using the Microphone

CAUTION

To protect the microphone from wind noise it is recommended that the windscreen is always fitted in normal use.



Bluetooth®

CAUTION

When Bluetooth® is enabled, care must be taken to avoid interference with sensitive equipment such as in medical, aviation or safety critical environments.



Operating Staff Precautions

CAUTION

Follow these instructions to safely and securely operate the device. Failure to do so can result in injury and/or damage to the device.



Owner Responsibilities

CAUTION

- The owner of the device must make sure that:
- The device is operated within its intended use.
 - Operators follow all operational recommendations.
 - Operators never attempt to service parts of the device. All system components are not user-serviceable.
 - Operators fully understand and comply with the safety information in this manual, as well as with all applicable safety regulations, and occupational safety regulations.



Disposal

WEEE NOTICE

At the end of the device's life please **DO NOT** throw away with the unsorted municipal waste. Please recycle with a registered WEEE handler.



Service Information (UK & Europe)

Should your TSI® equipment need to be returned for repair or for recalibration, please contact the service department at the following number or access the online form via [Casella support](#). For technical issues, please contact Technical Support.

Service Department and Technical Support	UK +44 (0) 1234 844100
E-mail	Casella Tech Support
Internet	www.Casellasolutions.com
Address	Casella Holdings Ltd Regent House Wolseley Rd, Kempston, Bedford MK42 7JY

Disclaimer

DO NOT use the TSI OmniWear Noise™ Dosimeter until you have thoroughly familiarized yourself with this manual or have been instructed by a Casella TSI® engineer.

At the time of writing, this manual was up to date, but due to continual improvements the final operating procedures may differ slightly from those in the manual. If there are any questions, please contact TSI® for clarification.

TSI® makes continual advancements in its products and services. TSI® therefore reserves the right to make changes and improvements to any information contained within this manual.

While every care is taken to ensure that the information in this manual is correct, TSI assumes no responsibility for loss, damage or injury caused by any errors in, or omissions from, the information given.

About this Manual

Document Information

Here we describe who this manual is intended for and for what purpose. Also shown are the conventions used throughout to help you understand the meaning of symbols and indications used.

Intended Purpose

This document is intended for use by personnel to effectively operate and maintain the TSI OmniWear Noise™ Dosimeter. It will guide you through the unboxing, setting up and operation of the device. Also provided is guidance on how to look after and troubleshoot your device to ensure it maintains a high level of service for your dosimetry needs.

Text Conventions

This document uses the following conventions:

Convention	Meaning
For more information, see <i>This section</i>	A cross-reference to a related or more detailed topic.
[]	A figure in square brackets refers to an external reference document.

Safety Notices

This document uses the following safety notice conventions:

WARNING
Indicates a hazardous situation which, if not avoided, could result in serious injury to personnel or damage to equipment.



CAUTION
Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury to personnel or damage to equipment.



NOTICE
Indicates an important situation which, if not avoided, may seriously impair operations.

TIP
Indicates additional useful information.



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CHAPTER 1

Product Description

The TSI OmniWear Noise™ Dosimeter is a device that monitors and records sound pressure levels in the workplace in order to assess whether noise exposure protection is needed.

This section describes what noise dosimetry is and provides a detailed description about the TSI OmniWear Noise™ Dosimetry solution used to achieve high quality assessments.



What is Dosimetry?

Noise dosimetry measures acoustic exposure levels, or sound levels over a period of time and in various environments.

Noise Induced Hearing Loss (NIHL) remains one of the world's leading occupational diseases and it has been estimated that 16% of global hearing loss is due to occupational noise exposure. It is acute in the mining, construction, oil and gas sectors but also in a wide variety of industrial manufacturing and other commercial activities where the cumulative effects of excessive noise exposure could lead to this avoidable condition.

Noise exposure measurements using a personal noise dosimeter such as the TSI OmniWear Noise™ Dosimeter is a recognized method of making an exposure assessment as required by regulations and/or standards.

The benefits of carrying out workplace dosimetry are:

- **Preserving hearing health:**
Prolonged exposure to high sound levels is a common cause of NIHL. Effective noise dosimetry helps identify areas with potentially hazardous sound levels, enabling employers to implement control measures that protect employees' hearing.
- **Compliance to local regulations:**
Noise dosimetry ensures compliance with local regulations, helping employers avoid legal penalties and ensuring the health and safety of their workforce.
- **Employee well-being:**
Excessive noise can lead to stress, reduced productivity, and decreased job satisfaction. Monitoring sound levels demonstrates a commitment to employee well-being, fostering a positive workplace culture.
- **Accident prevention:**
High sound levels or intrusive noise can mask important sounds, increasing the risk of accidents. Effective monitoring allows for early identification of sound-related risks and facilitates preventive actions.
- **Risk identification:**
Noise dosimetry helps employers identify areas with excessive noise, enabling interventions and the effective allocation of resources.
- **Effective health and safety decision making:**
Noise dosimetry assists in making informed decisions regarding engineering controls, Personal Protective Equipment, and noise reduction strategies.
- **Employee engagement:**
Involving employees in noise dosimetry cultivates a culture of safety awareness, encouraging active participation in noise control initiatives.

The TSI OmniWear Noise™ Dosimeter

TSI's OmniWear Noise™ Dosimeter solution is body-worn noise exposure instrument, compliant with:

- CFR 1910.95 (USA)
 - OSHA HC - T80, C90, Q5
 - OSHA PEL – T90, C90, Q5
 - MSHA - T90, C90, Q5
- ISO 9612
 - ISO 9612- LEQ, C85, Q3
- ISO Aus/Nz - LEQ, C85, Q3

Workplace noise parameters are measured simultaneously where appropriate.

The data recorded can be used to make informed decisions and changes in your organization to ensure compliance with regulatory bodies or to trigger the launch of hearing conservation programs. The solution consists of:

- A portable wearable dosimeter (shown below) with Bluetooth® connectivity to the TSI OmniWear Noise™ app to control the device and to monitor and record sound level parameters.
- A drop-in wireless charging station which can interconnect with up to nine other stations, all powered from one Power Supply Unit (PSU). Chargers can be desk / bench mounted or DIN Rail-mounted for easy fixing onto walls or inside cabinets.
- Attachable calibration device (not supplied) used to reduce measurement drift.

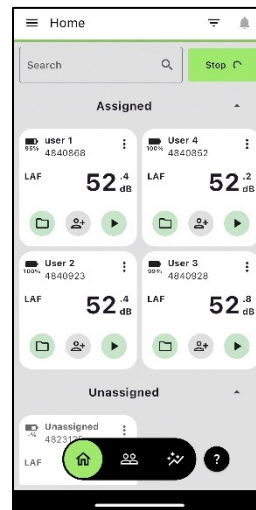


Figure 1-1. OmniWear Noise™ Solution

Key features include:

- TSI OmniWear Noise™ App software to set-up, check and monitor multiple instrument performance remotely.
- Simple, single button operation with multifunctional LED status indicator.
- Motion sensing.
- 1 second time history profiling.
- Pause function.
- Measures all noise dose parameters simultaneously.
- Intuitive app to facilitate easy set-up, deployment, storage and review of results. The app, which is installed on your mobile device works with any iOS or Android device and is available free in the Apple Store and Google Play Store.

Device Requirements

You need to meet the following minimum device requirements:

- **For iOS users:**
Software version 17 or above.
- **For Android users**
Software version 14 or above.

Hardware Components

This table below shows the components that make up the TSI OmniWear Noise™ Dosimeter solution.

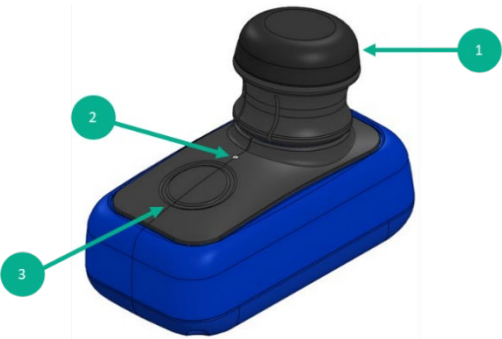
Table 1-1. Hardware Components

Item	Description	Item	Description
	TSI OmniWear Noise™ Personal Noise Dosimeter ■ Quantity: 1 ■ OW-N-DVE		TSI OmniWear Noise™ Charging module ■ Quantity: 1 ■ OW-N-CHGR
	Endplates ■ Quantity: 2 (1 with power cable access) ■ OW-N-CEP		Charger Module Links ■ Quantity: 5 ■ OW-N-CRC
	PC18 Power Supply Unit ■ Quantity: 1 ■ PC18		CEL-120 Calibrator ■ Quantity: 1 ■ CEL-120/2
	Rubber Boot Lapel Strap ■ Quantity: 1 ■ OW-N-BC		Carrycase (for 5 devices, charging modules and a calibrator kit) ■ Quantity: 1 ■ OW-N-KIT5
	Peli-case (for 10 devices, charging modules and a calibrator kit) ■ Quantity: 1 ■ OW-N-KIT10		Pelicase (for 20 devices, charging modules and calibrator kit) ■ Quantity: 1 ■ OW-N-KIT20
	Quick Start Guide ■ Quantity: 1 ■ PN 5003265		User Manual ■ Quantity: 1 ■ PN 6018423

Hardware Controls and Connections

The design of the TSI OmniWear Noise™ Dosimeter minimizes physical controls and connection points. The Personal Noise Monitoring Dosimeter has just one button, drops in to its wireless charging module and connects to your mobile device using Bluetooth® connectivity. It uses a rubber boot lapel strap to mount to a person's clothing.

The charging station connects to other modular charging stations and only one power connection is needed to power all stations up to a maximum of 10. Endplates clip to the sides of the charging station to protect the connection points.



Part	Description
1	Microphone (with removable windscreen attached)
2	Status indicator
3	Action button

Figure 1-2. Personal Noise Dosimeter Controls and Connections



Part	Description
1	Power connection
2	Drop-in bay
3	Modular charging station connection point
4	LED status indicator

Figure 1-3. Charging Station Controls and Connections

Display and Navigation Controls

The TSI OmniWear Noise™ Dosimeter User Interface (UI) is embedded in the TSI OmniWear Noise™ app, which is installed on your mobile device (phone / tablet).

The UI is intuitive; however, the figures below describe the touch screen button nomenclature used throughout this document.

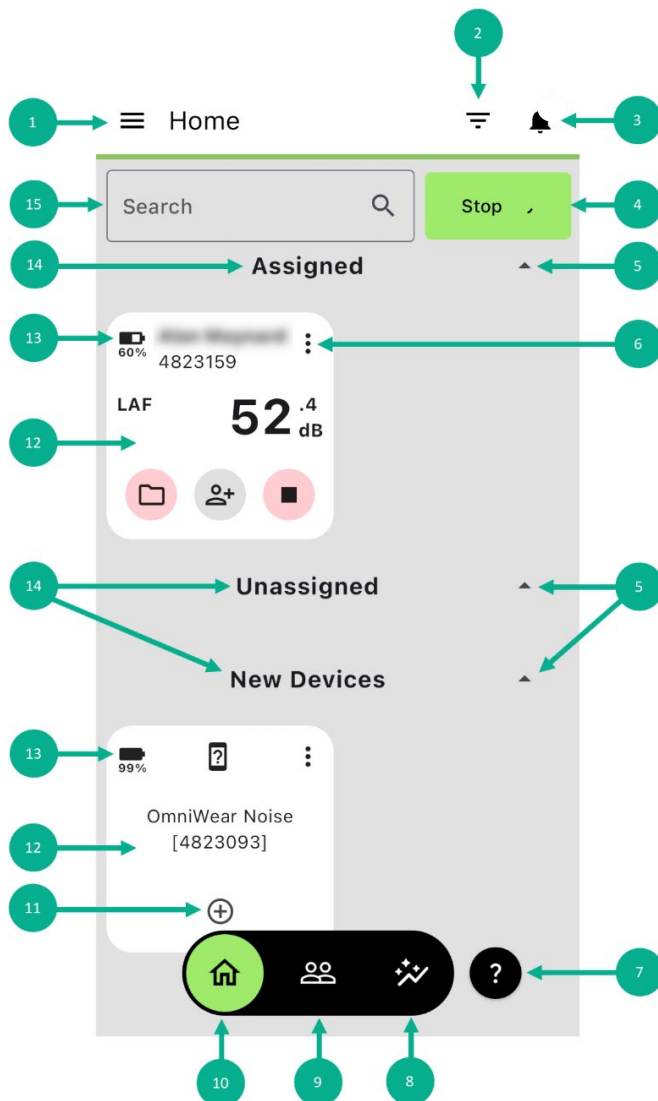


Figure 1-4. Display and Navigation Controls

Item	Type	Description
1	Menu	Navigation drawer icon used to display top-level menu items.
2	Menu	Filter/sort icon used to display options to filter or sort data tiles by.
3	Indicator	The bell icon not active.
4	Button	Used to detect available TSI OmniWear Noise™ Dosimeter. Toggles between Scan and Stop .

5	Drop-down	Used when pointing upwards to collapse the associated items on display, downwards to expand the associated items on display.
6	Menu	The three vertical dots  (also known as an ellipsis icon) give access to further menu items.
7	Button	Access to a series of help screens.
8	Button	Access to the Results screen.
9	Button	Access to the Users screen.
10	Button	Access to the Home screen.
11	Button	Used to add an item or claim a newly detected device.
12	Tile	Area to access functions and displays for each TSI OmniWear Noise™ Dosimeter Personal Noise Monitoring Instrument detected.
13	Indicator	Battery level indicator for the associated TSI OmniWear Noise™ Personal Noise Monitoring Instrument.
14	Title	Headers describing the items underneath.
15	Text box	Field used for searching items by assignment name or instrument serial number.

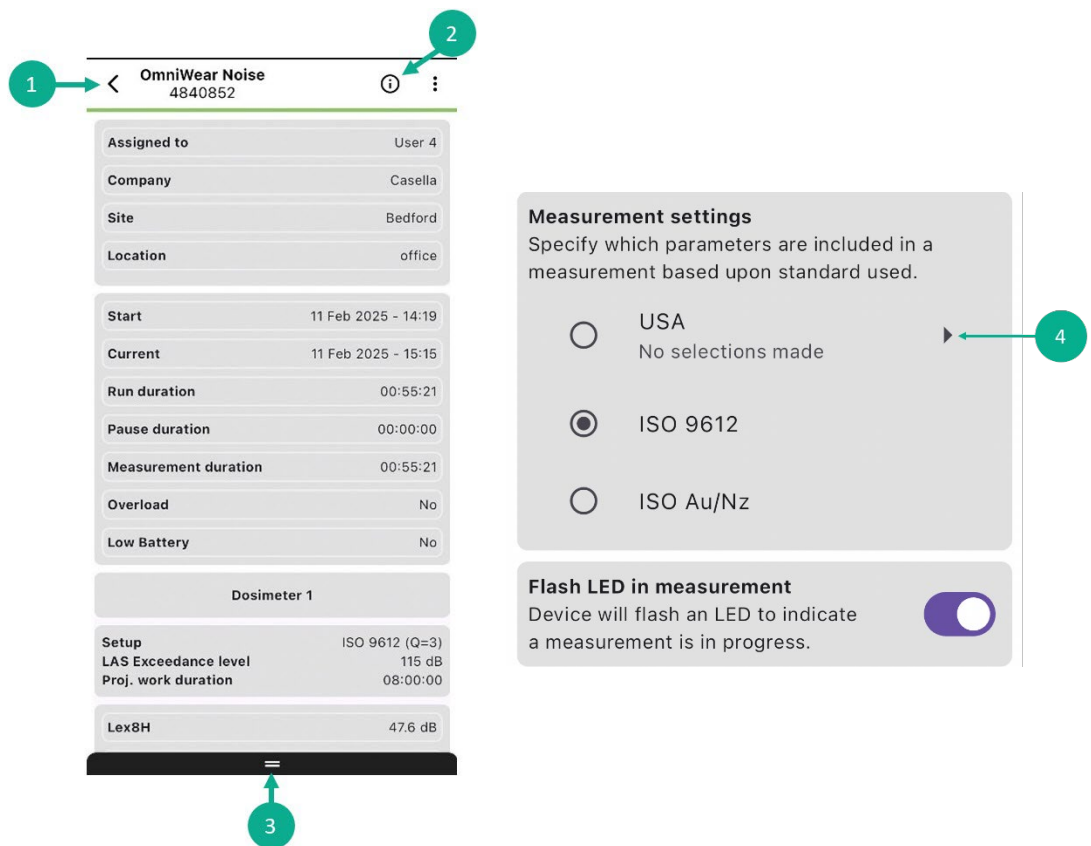


Figure 1-5. Device connected and Measurement settings screens

Display and Navigation Controls

Item	Type	Description
1	Button	Back button used to return to the previous page.
2	Button	Provides information about the device.
3	Navigation bar	Access to the remote start, pause and stop menu or calibration menu. Swipe up to reveal, swipe down to hide.
4	Button	Used to reveal sub-menu items.

The screenshot shows the 'Edit User' screen with the following elements and callouts:

- Callout 1:** Points to the edit icons (pencil) on the right side of the 'Name' and 'Maynard' text boxes.
- Callout 2:** Points to the plus (+) icons on the right side of the 'Extra Effect List', 'Office', and 'Breath' dropdown menus.
- Callout 3:** Points to the 'Administrator' checkbox, which is currently checked.

At the bottom of the screen are two buttons: 'Cancel' (black) and 'Accept' (green with a checkmark icon).

Figure 1-6. Creating a User screen

Item	Type	Description
1	Button	Used to enable your device keyboard to make edits to the text in the text box.
2	Button	Used to add an item or claim a newly detected device.
3	Checkbox	Used to toggle between enabling and disabling the associated item.

Navigation Drawer Menu Items

The navigation drawer icon () is used to access the following items:

Table 1-2. Navigation Drawer Menu Items

Item	Description
Home	Access to the Home screen. Here you can connect to, and access details about, your available OmniWear Noise™ Personal Noise Monitoring Instruments. A tile is displayed for each device where you can see: ■ Live data for each device ■ Who the device is assigned to (unless unassigned) ■ The device serial number ■ Battery status ■ Storage information indicating how many measurements can be taken ■ Whether the device is currently taking a measurement or not
Users	Access to the Users screen. All named users are listed on this screen with the following details: ■ Company name ■ Site name ■ Location ■ Status (administrator or user) Users can be added by tapping the  icon and adding the user details (for more information see Managing Users).
Companies/Sites/Locations	Access to the Companies/Sites/Locations screen. All named companies are listed in the Companies section. Tap on a company to show all the sites associated with that company in the Sites section. In turn, tap on a site to show all the locations associated with that site in the Locations section.
Results	Access to the Results screen. All previously recorded run results are listed here. Each item in the list shows a summary for that run, including: ■ Start date ■ Duration ■ User ■ Company Tapping on any of the tiles in the list opens more detailed information for that run recording.
Settings	Access to the Settings screen. ■ For more information, see Settings screen.
Onboarding	Access to help screens describing the device, how to start and stop a data collection run, how to charge the device, calibrate the device and download, review and share results.
Support	Product operational support.
Database Operations	Access to backup and restore functionality (for more information see How to Backup and Restore the Device Database).
Log Out	Allows you to log out of the system.
About TSI OmniWear Noise™	Reveals the TSI OmniWear Noise™ software version.

Users Screen

All users are listed in vertical tiles.

For each user listed, you can edit:

- First name
- Last name
- Company name
- Office name
- Site name
- Status (administrator or user)

This is done by tapping on the pencil icon (✎) in the tile for that user and editing the displayed **Edit User** screen.

Users can be added by tapping the ⊕ icon and adding the user details (for more information see Managing Users).



Figure 1-7. Users Screen

Results Screen

All run results are listed in vertical tiles.

For each run result listed, you can view result details by tapping on the tile.

Details include:

- Assignee details
- Duration details
- Calibration details
- Run notes (editable)
- Dosimeter settings
- Run data
- Profile information



Figure 1-8. Results Screen

Settings Screen

The **Settings** screen displays buttons used to configure your TSI OmniWear Noise™ Dosimeter setup.

You can configure the following parameters:

- Paper size: Used when creating PDF reports
- “Sticky” chart trace selections (on or off)
- Device settings to modify measurements standard parameters
- LED flash on/off when measurements are being made

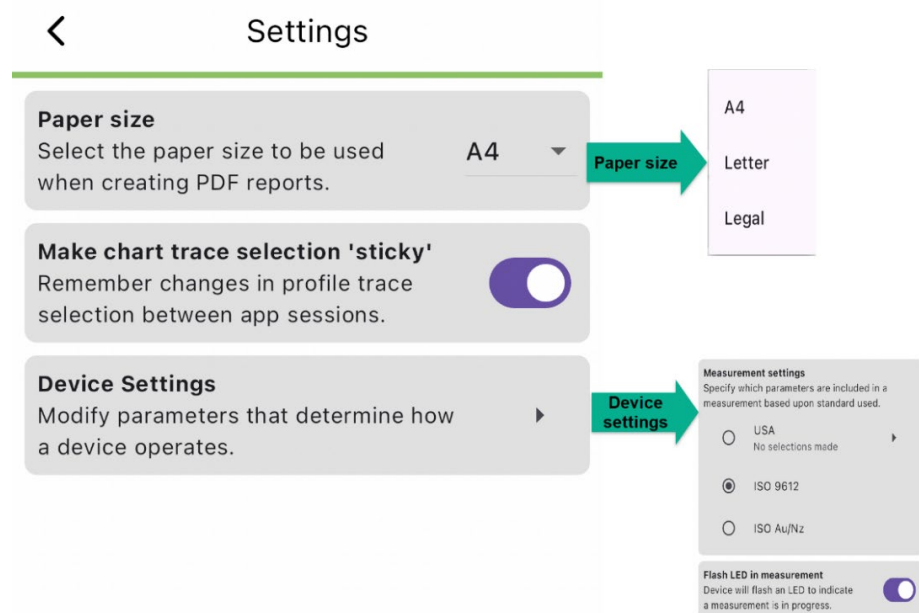


Figure 1-9. Settings Screen

CHAPTER 2

Getting Started

The TSI OmniWear Noise™ Dosimeter is packed and shipped to the highest standard. If anything is missing, or if anything appears damaged, contact TSI® immediately.

Unpacking the TSI OmniWear Noise™ Dosimeter and Accessories

1. Carefully open the box your TSI OmniWear Noise™ Dosimeter was delivered to you.
2. Lay out the contents on a clean flat surface and make sure all components are present by referencing the table in the Hardware components section and that nothing is damaged.

TIP

If you think something is missing or damaged, contact Casella (a division of TSI®) immediately.



Installing the TSI OmniWear Noise™ App

The TSI OmniWear Noise™ app allows you to set-up and run your TSI OmniWear Noise™ Dosimeter system remotely from a mobile device such as a phone or tablet.

NOTE

You need to meet the following minimum device requirements:

- **For iOS users:** Software version 17 or above.
- **For Android users:** Software version 14 or above.

1. On your mobile device, access and install the TSI OmniWear Noise™ app to your mobile device using the QR code below:



2. On your device, make sure you enable Bluetooth®.

Creating an Admin User Account

When you launch the TSI OmniWear Noise™ app for the first time, you will be prompted to add an administrator. You will not be able to access data from your Personal Noise Dosimeter(s) until this is done.

On your mobile device, open the TSI OmniWear Noise™ app. You are prompted to add an administrator.

Tap **Add Administrator**.

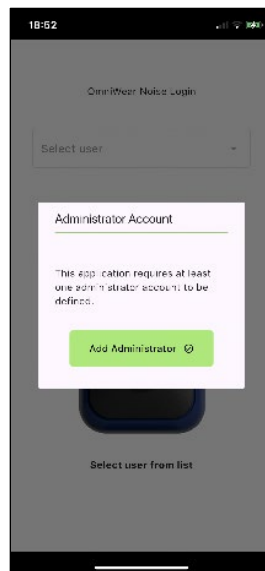


Figure 2-1. Administrator Account Screen

Read the EULA statement and tap **Accept**.

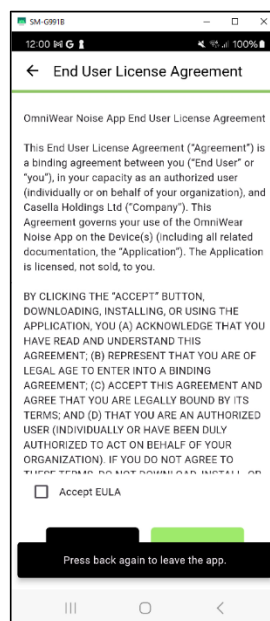


Figure 2-2. EULA Statement Screen

In the Create Administrator screen, fill in your details making sure you check the **Administrator** box. When done, tap **Accept**.

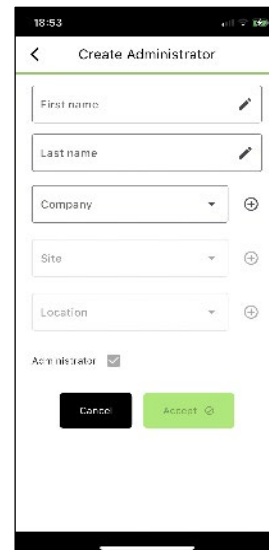


Figure 2-3. Create Administrator Screen

On the sensor graphic, tap the button to login. You are presented with a request to allow OmniWear Noise™ to use information through the Bluetooth® connection on the TSI OmniWear Noise™ app **Home** screen.

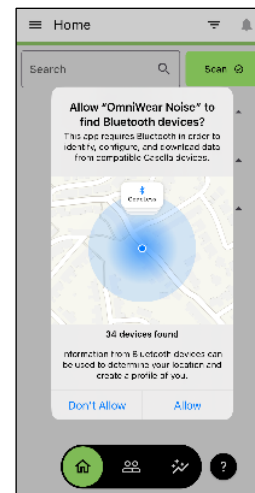


Figure 2-4. Bluetooth Screen

Tap on either **Don't Allow** or **Allow** to proceed.



Figure 2-5. Login Screen

Charging Personal Noise Dosimeter(s)

Your equipment is shipped to you with fully charged components. During transit however, some power discharge in the Personal Noise Dosimeter(s) may occur. It is advisable to charge your Personal Noise Dosimeter(s) fully before first use. For more information about battery charging times, see APPENDIX A Technical Specifications.

Charging Single Personal Noise Dosimeters

TIP

To protect the connection points on the sides of the charging station, it is advisable to attach the endplates first. To do this, attach the solid endplate to the side *without* the power connection point; attach the endplate with the entry point hole to the side *with* the power connection point.



1. Connect one end of the provided PC18 Power Supply Unit (PSU) to the charging station.



Figure 2-6. Connecting to the charging station

2. Connect the other end of the provided PC18 Power Supply Unit (PSU) to a suitable power outlet. The light on the front of the charging station is solid green.
3. Slot your Personal Noise Dosimeter into the drop-in bay. The light on the front of the charging station turns blue to show that charging is in progress. The light on the Personal Noise Dosimeter flashes orange.



Figure 2-7. Drop-in bay

When charging is complete, the light on the front of the charging station turns solid green and the light on your Personal Noise Dosimeter turns off.

4. Remove the Personal Noise Dosimeter from the charging station.

NOTE

Your charging station can be desk / bench mounted or DIN Rail-mounted for easy fixing onto walls or inside cabinets.

WARNING

The OmniWear Noise™ Dosimeter is exclusively to be charged using the OmniWear Noise™ wireless charger.



CAUTION

The OmniWear Noise™ Dosimeter charging module should only be used in environments where the ambient temperature is less than 30°C.



Charging Multiple Personal Noise Dosimeters

If you have multiple dosimeters, you will also have multiple charging stations which you can connect together allowing you to charge each of your sensors simultaneously. Up to 10 charging stations can be connected to and powered from one PC18 PSU.

1. Place the sides of each charging station together to connect them in parallel.
2. Secure them underneath with the rubber charger module links.

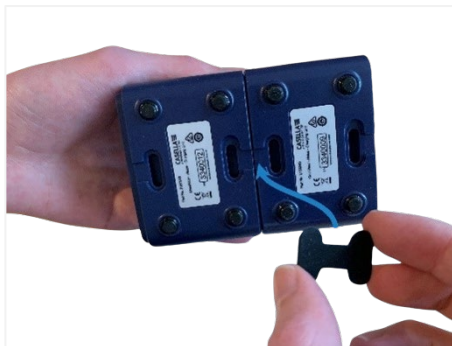


Figure 2-8. Securing rubber charger module links

TIP

To protect the connection points on the sides of the end charging stations, it is advisable to attach the endplates. To do this, attach the solid endplate to the exposed charging station side *without* the power connection point; attach the endplate with the entry point hole to the exposed charging station side *with* the power connection point.





Figure 2-9. Attaching the endplates



Figure 2-10. Connect PC18 PSU

3. Connect one end of the provided PC18 Power Supply Unit (PSU) to the charging station on the far left of the formation.
4. Connect the other end of the provided PSU to a suitable power outlet. The lights on the front of all connected charging stations are solid green.
5. Slot each of your Personal Noise Dosimeters into each of the charging station drop-in bays. The lights on the front of each charging station turns blue to show that charging is in progress. The lights on the Personal Noise Dosimeters flash orange.



Figure 2-11. Charging Station

When charging is complete, the lights on the front of each of the charging modules turn solid green and the lights on your Personal Noise Dosimeters turn off.

6. Remove each Personal Noise Dosimeter from each charging station.

NOTE

Charging stations can be desk/ bench mounted or DIN Rail-mounted for easy fixing onto walls or inside cabinets.



Powering on your Personal Noise Dosimeter

To power up your Personal Noise Dosimeter, press the action button.



Figure 2-12. Powering on your Personal Noise Dosimeter

The status indicator briefly lights up solid green, then flashes blue.

Repeat for all Personal Noise Dosimeters if you have more than one.

Powering Down your Personal Noise Dosimeter

To power down your Personal Noise Dosimeter, press and hold the action button. The status indicator briefly lights up solid green, then solid white, then goes out.

Repeat for all Personal Noise Dosimeters if you have more than one.

Pairing a Personal Noise Dosimeter to Your Mobile Device

To set up, control and manage your Personal Noise Dosimeter from your mobile device, you must first pair them together.

1. On your mobile device, open the TSI OmniWear Noise™ app and make sure Bluetooth® is enabled.

2. On your Personal Noise Dosimeter press the action button to power it on. The status indicator briefly lights up solid green, then flashes blue. This indicates that the Personal Noise Dosimeter is ready to be paired with a mobile device. In the **New Devices** section of the TSI OmniWear Noise™ app **Home** screen, a new tile for that Personal Noise Dosimeter is displayed.

NOTE

The Personal Noise Dosimeter serial number is also displayed.

3. In the new tile for the Personal Noise Dosimeter detected, tap the plus ⊕ icon to claim it. You are prompted to confirm the claim and add the Personal Noise Dosimeter to the app's inventory.
4. Tap **Yes**. When the Personal Noise Dosimeter is detected, the tile moves to the **Unassigned** section of the TSI OmniWear Noise™ app **Home** screen.
5. In the **Unassigned** section of the TSI OmniWear Noise™ app **Home** screen, tap inside the tile for the newly detected Personal Noise Dosimeter and tap **Confirm connection?** The measurement run prompt for the Personal Noise Dosimeter appears on the app screen and the status indicator turns solid blue.

The Personal Noise Dosimeter is now paired with your mobile device. Repeat the procedure above for all your Personal Noise Dosimeters.

Checking Live Measurements Are Present

To make sure the setup is working properly, you can check for live measurements.

1. Create some sound directly adjacent to the Personal Noise Dosimeter microphone (for example, click your fingers or clap your hands).
2. In the tile for the device you are checking, look for changes in the real time data screen measurement figures. If the decibel measurements are changing in real time, your setup is working correctly.

Setting the Date and Time

To use the date and time setting from your mobile device, do the following:

1. In the **Home** screen, tap the tile for an active Personal Noise Dosimeter.
2. Tap **Confirm connection?**
3. Tap the ellipsis icon ⋮ and tap **Set Date/Time**.
You are prompted to confirm that you want to update the device with the current time and date.
4. Tap **Yes**.
The date and time on the TSI OmniWear Noise™ device is now set to that on your mobile device.

Positioning Your Personal Noise Dosimeter

To make meaningful measurements your Personal Noise Dosimeter must be positioned in the hearing zone, that is, as near to your ear as possible.

1. Insert your Personal Noise Dosimeter into the rubber boot lapel strap.
2. When in place, clip it in the hearing zone (within 15cm of the ear).



Figure 2-13. Inserting PND into rubber boot lapel strap

CHAPTER 3

Operations

The TSI OmniWear Noise™ Dosimeter is designed to allow measurements to be made straight out of the box. The sections here describe the operative aspects in detail to allow you to get the most out of your purchase.

How to Check the Battery Power Level

Before you use your Personal Noise Dosimeter, check the battery level is sufficient for the period of time you are using it.

1. In the TSI OmniWear Noise™ app **Home** screen, find the tile(s) for the Personal Noise Dosimeter(s) you are using.
2. In the top left of the screen, check the battery level displayed.
3. For every Personal Noise Dosimeter that has an insufficient battery level, slot the Personal Noise Dosimeter into a powered charging station.

For more information about charging see [Charging your Personal Noise Dosimeter\(s\)](#).

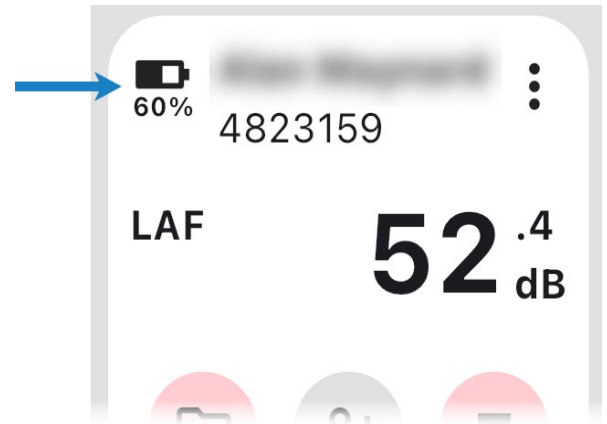


Figure 3-1. Battery Power Level Screen

How to Configure to the Required Noise Protocol

The OmniWear Noise™ Dosimeter is capable of measuring, recording and storing a wide range of sound level parameters.

You can choose from a selection of industry standards, or customize your own.

The standards available are:

- USA
 - ACGIH
 - MSHA
 - OSHA HC
 - OSHA PEL
- ISO 9612
- ISO Au/Nz

Each standard uses a different set of sound pressure level parameters. See APPENDIX A Technical Specifications for a list of the definitions of these parameters.

You can set the standard and protocol you need as follows:

1. In the TSI OmniWear Noise™ app **Home** screen, tap the navigation drawer icon  and select **Settings**. The **Settings** screen is displayed.
2. Select **Device Settings** and select the protocol you want from the **Measurement Settings** section of the screen.

For more information see Settings screen.

How to Calibrate Each Personal Noise Dosimeter

To make sure you achieve highly accurate measurements, we recommend you calibrate each Personal Noise Dosimeter before and after your measurement runs. By doing this, you will minimize any significant drift and achieve accurate measurements over a longer period of use.

NOTE

It is not mandatory to calibrate your Personal Noise Dosimeter in order to start a measurement. It is recommended to do so to get accurate, compliant data for legislative purposes.

NOTE

The CEL-120/2 calibrator is NOT SUPPLIED. To order it, contact TSI®.

1. If the Personal Noise Dosimeter windscreen is in place, carefully remove it to expose the microphone by pulling on the windshield sleeve.
2. On a CEL-120/2 calibrator (not supplied), press the power button to turn it on and select calibration level **114dB**.
3. Push the CEL-120/2 calibrator over the Personal Noise Dosimeter microphone tower. In the TSI OmniWear Noise™ app Home screen, the tile for the Personal Noise Dosimeter turns green. Ensure the light on the front of the calibrator is a solid blue. If not, push calibrator on further and check if the power is on.
4. Tap the tile to confirm the connection. You are prompted to start the calibration.
5. Tap **Start Calibration**. The Calibration screen displays.
6. Tap **Calibrate** to start the calibration. The progress bar indicates that calibration is in progress.
7. When calibration has finished, carefully remove the CEL-120/2 calibrator and replace the sensor windscreen.

TIP

At the end of the day or when you have finished taking measurements, calibrate again. Frequent calibration helps keep your device's measurement starting point constant should this level have drifted during use.



NOTE

You can start the calibration process from a Personal Noise Dosimeter's measurement screen by tapping on the ellipsis ⋮ and selecting **Calibrate**. If the calibrator is not switched on, the screen directs you through the calibration process. If the calibrator is switched on, the Calibration screen is displayed prompting you to start the calibration as per Step 6 above.

TIP

Every two years from purchase, send your Personal Noise Dosimeters & calibrator back to Casella for factory calibration.



How to Start a Measurement Run

There are two ways to start a measurement run:

- From the TSI OmniWear Noise™ app.
- From the Personal Noise Dosimeter.

NOTE

If you want the data assigned to a person, you must assign the dosimeter to a person before starting a measurement.

To start a measurement run from the TSI OmniWear Noise™ app:

1. In the TSI OmniWear Noise™ app **Home** screen, tap on the tile for the Personal Noise Dosimeter you want to take measurements from.
2. Tap **Confirm connection?**
3. In the navigation bar at the bottom of the screen, tap the play icon . The measurement run begins and the status indicator flashes alternately between blue and green. (while still connected to the device)

To start a measurement run from the Personal Noise Dosimeter:

1. Press and hold the action button until the status indicator turns green.
2. When the status indicator turns green release the action button.
The measurement run begins and the status indicator flashes alternately between blue and green.

When a measurement run starts, the measurement duration field and measurement parameter profile values are updated in real time. A graphical display for the selected parameters available is also displayed.

Tap inside the checkboxes to select or deselect any of the available profile parameters to be displayed in the graph.

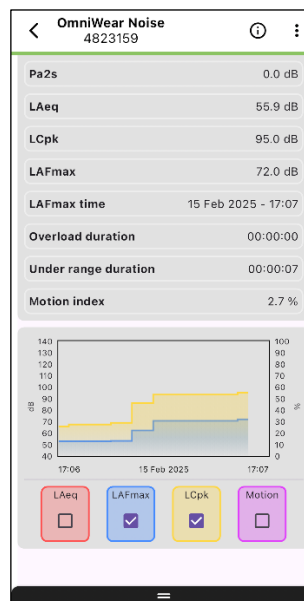


Figure 3-2. Start a measurement run screen

NOTE

You can add notes about the run as the measurement is running. For more information, see How to Add Notes About a Run.

How to Pause a Measurement Run

You can temporarily stop a measurement by using the pause function.

To pause a measurement run:

1. In the navigation bar at the bottom of the screen, tap the pause icon .
When paused,
 - A **Measurement Paused** notice is displayed in place of the **Measurement Running** notice.
 - The play icon  is displayed in place of the pause icon.
 - On your Personal Noise Dosimeter, the status indicator light flashes alternately between blue and green at a faster rate than when the measurement is running.

NOTE

The pause icon is only available when a measurement is running.

2. To continue the run, tap the play icon .

NOTE

You can add notes about the run when the run is paused.
For more information, see How to add notes about a run.

How to Clear an Alarm

When your measurement run is active, and a noise is detected that overloads the device(143dB), an alarm is generated on the device tile. To clear  the alarm, do the following:

1. In the **Home** screen, a red arrow is displayed indicating which Personal Noise Dosimeter has detected the noise.
2. Stop the measurement run (for more information, see How to Stop a Measurement Run) and start it again. The alarm clears.

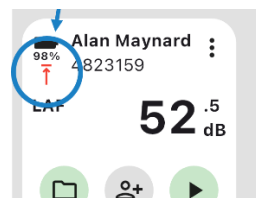


Figure 3-3. Overload Indicators

How to Stop a Measurement Run

When a measurement run is stopped, the data recorded is stored and is available to download to the Results screen.

There are two ways to stop a measurement run:

- From the TSI OmniWear Noise™ app.
- From the Personal Noise Dosimeter.

To stop a measurement run from the TSI OmniWear Noise™ app:

1. In the navigation bar at the bottom of the screen, tap the stop icon . The status indicator returns to solid blue.

NOTE

The stop icon is only available when a measurement is running.

NOTE

You can add notes about the run after the run has stopped.
For more information, see How to add notes about a run.

To stop a measurement run from the Personal Noise Dosimeter:

1. Press and hold the action button until the status indicator turns solid green.
2. When the status indicator turns green release the action button. The status indicator flashes blue.

How to Add Notes About a Run

Adding notes to a run allows you to provide additional information about the run. This is useful as a reminder of run scenarios or for background information to others.

You can add notes about a run at the following times:

- During a run when data is being collected;
- During a pause in a run;
- At the end of a run.

To add a note about a measurement run:

1. In the navigation bar at the bottom of the screen, tap **Notes**. A blank **Notes** screen displays.
2. Tap the plus  icon. The **Edit Note** screen displays.
3. If required, in the **Timestamp** field tap the pencil  icon to change the timestamp for the note. Select the time and tap **Accept**.
4. In the **Text** field, tap the pencil  icon to add your note.

NOTE

You are allowed up to 256 characters in your note.

5. Tap **Accept**.
Your note is displayed in the **Notes** screen for that run.

How to Access Your Run Reports

Your measurement runs are stored in the TSI OmniWear Noise™ app when a measurement is stopped. They are available to view as a list and to download to the **Results** screen to access detailed data recorded for that run.

NOTE

To view detailed data for any run you must first download it from the **Available Results** list.

How to View a List of Your Available Run Reports

1. In the OmniWear Noise™ app **Home** screen, tap on the tile for the Personal Noise Dosimeter you want to view measurements for.
2. Tap the ellipsis icon  and select **Available Results** from the **Menu**.
Your results are listed in the **Available Results** screen.

To view the result data you must download the result from the **Available Results** screen and access the result from the **Results** screen.

For more information see How to Download and View Your Result Data.

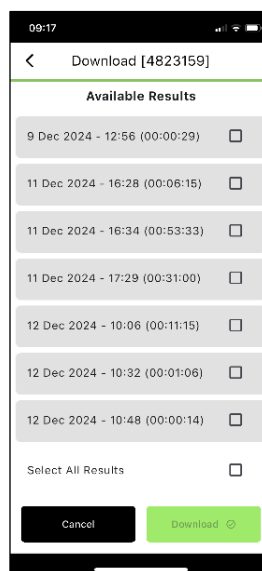


Figure 3-4. Available Results Screen

How to Download and View Your Result Data

To view the result data you must download the result from the **Available Results** screen and access the result from the **Results** screen.

1. In the **Available Results** screen listing, check the results you want to download.
2. Tap **Download**.

Once each download is complete, you can access the results data from the **Results** screen.

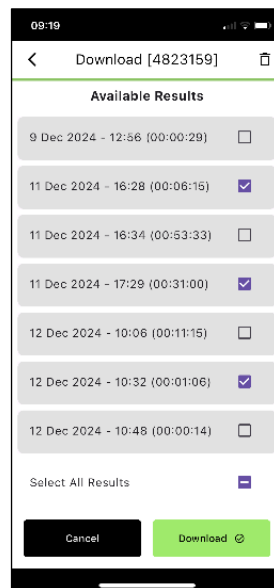


Figure 3-5. Delete Results Screen

How to View Results Data

There are two ways to get to the **Results** screen to access the results data.

1. In the **Available Results** screen listing, check the results you want to download.
2. Tap **Download**.

TIP

Tap the pencil icon  to add notes about this report.

Tap inside the checkboxes to select or deselect any of the available profile parameters to be displayed in the graph.



How to Extract a PDF Run Report

You can extract and send a PDF of any report run using any available device or communication app (for example, a printer, email or WhatsApp).

- 1. From within the report, tap the PDF icon.

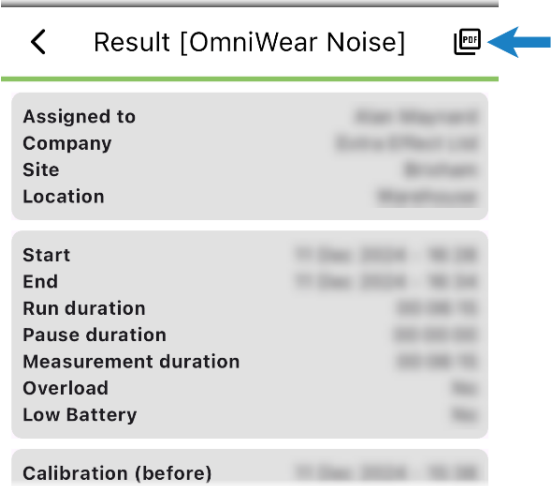


Figure 3-6. Extract a PDF Run Report Screen

- 2. From the PDF screen, tap the network icon.
- 3. Select the appropriate app you want to send the report to.



How to Delete Run Reports

Run reports can be deleted in a number of ways from a number of places.

From...	To...
Within the Personal Noise Dosimeter screen.	Delete run reports for that Personal Noise Dosimeter only.
Within the Available Results screen.	Delete a selection of run reports for one Personal Noise Dosimeter.
Within the Results screen.	Delete run reports for any Personal Noise Dosimeter.

To delete a run report from the Personal Noise Dosimeter screen:

CAUTION

This method deletes all results for the Personal Noise Dosimeter you are accessing. To delete individual results, you must access the **Available Results** screen. For more information see below.



1. In the TSI OmniWear Noise™ app **Home** screen, tap on the tile for the Personal Noise Dosimeter you want to take measurements from.
2. Tap **Confirm connection?**
3. Tap the ellipsis icon  and select **Delete All Results** from the **Menu**. You are prompted to confirm to delete all results.
4. Tap **Yes** to delete all results for that Personal Noise Dosimeter.

NOTE

If you do not want to delete all results, tap away from the **Delete All Results** window.

To delete a run report from within the Available Results screen:

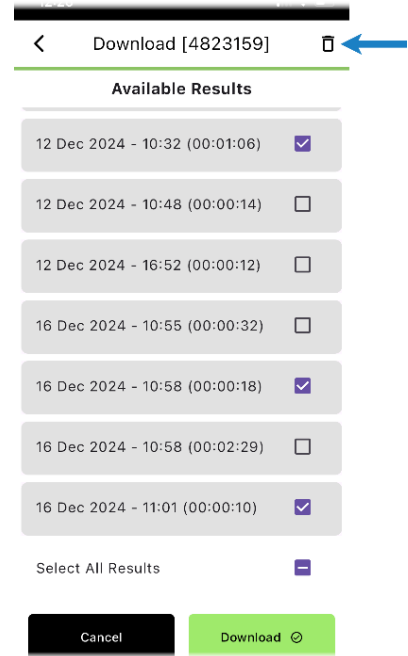
1. In the TSI OmniWear Noise™ app **Home** screen, tap on the tile for the Personal Noise Dosimeter you want to take measurements from.
2. Tap **Confirm connection?**
3. Tap the ellipsis icon  and select **Available Results** from the **Menu**. Your results are listed in the **Available Results** screen.
4. In the **Available Results** screen listing, check the results you want to delete.

TIP

Tap the **Select All Results** to select all results. If some or all results are selected, tap the minus - icon in the **Select All Results** checkbox to cancel all selections.



5. Tap the delete icon.
You are prompted to confirm to delete the selected results.



6. Tap **Yes** to delete all selected results for that Personal Noise Dosimeter.

NOTE

If you do not want to delete the selected results, tap away from the **Delete Results** window.

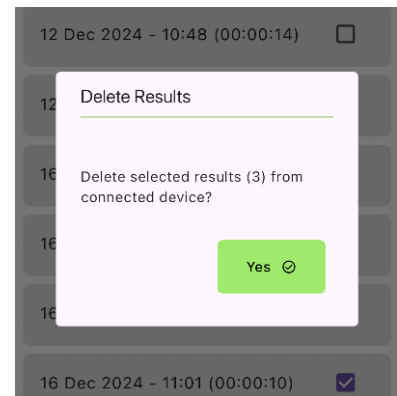


Figure 3-7. Delete Results Screen

To delete a run report from within the Results screen:

1. From the **Home** screen, either:
Tap **Home** and select **Results**.
Or
Tap the Results icon  at the bottom of the screen.
A list of your results is displayed.
2. Swipe the result you want to delete to the left.
You are prompted to confirm to delete the selected result.

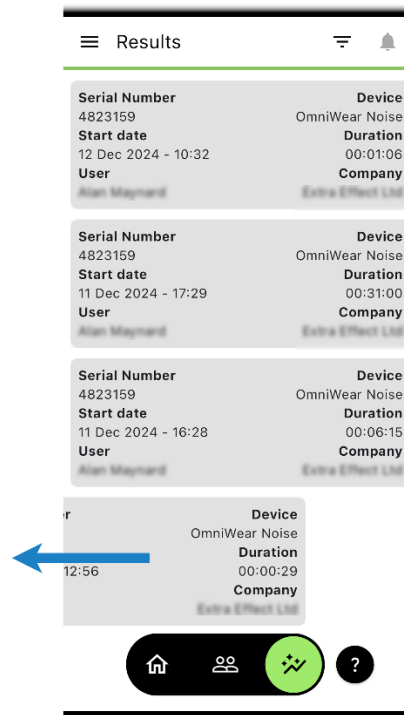


Figure 3-8. Delete Run Report

3. Tap **Yes** to delete the swiped result.

NOTE

If you do not want to delete the swiped result, tap away from the **Delete Results** window.

How to Backup and Restore the Device Database

TSI OmniWear Noise™ Dosimeter allows you to backup your current Personal Noise Dosimeter database and share it with other devices and applications. You can also import other backup databases to your own.

To make a backup, do the following:

1. Tap the navigation drawer icon  and select **Database Operations**. The **Database Operations** screen is displayed.
2. Tap the **Backup** tab and select **Backup....**
You are prompted to export the application database.
3. Tap **Yes** and select the application you want to export the database to (for example, email, Apple Cloud or SharePoint).
The data is exported.

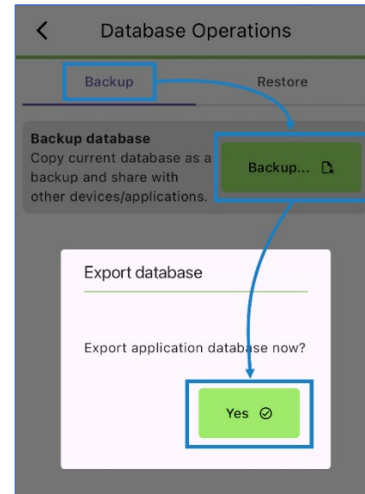


Figure 3-9. Export Database

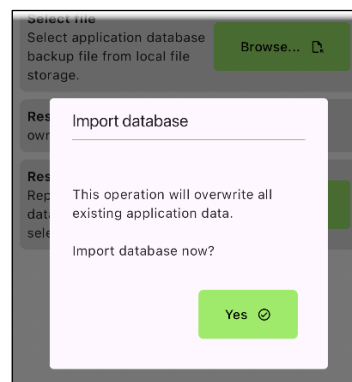
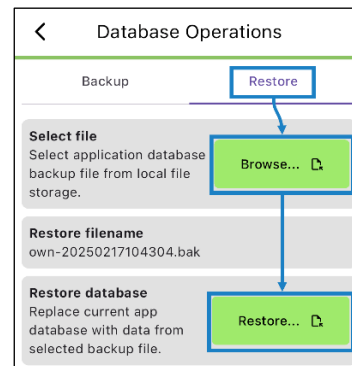
To restore another device's database to your device, do the following:

CAUTION

This procedure overwrites all existing application data.



1. Tap the navigation drawer icon  and select **Database Operations**.
The **Database Operations** screen is displayed.
2. Tap the **Restore** tab and select **Browse....**
You are prompted to select the file you want to restore.
3. Tap the file you want to restore.
The file is listed in the **Database Operations** screen and the **Restore database** option is displayed (for example device storage, Apple or Android cloud or SharePoint).
4. Tap **Restore....**
You are prompted to import the application database.
5. Tap **Yes**.
The database is imported.



How to Read Settings from a TSI OmniWear Noise™ Device

TSI OmniWear Noise™ Dosimeter allows you to import the settings from another Personal Noise Dosimeter. To import these settings, do the following:

1. Tap the active tile for the Personal Noise Dosimeter you want to import settings to.
2. Tap **Confirm connection?**
3. Tap the ellipsis icon  and tap **Device Settings**.
The **Device Settings** screen is displayed.
4. Tap **Read Settings from TSI OmniWear Noise™ device**.
You are prompted to read the device configuration.
5. Tap **Yes**.
The settings are imported.

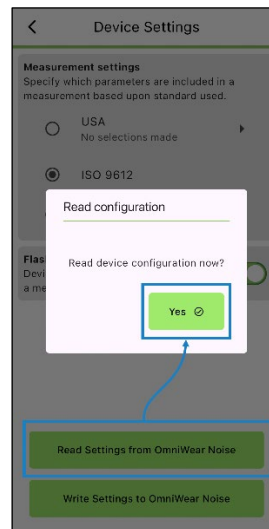


Figure 3-10. Read Settings from Device

How to Write Settings to a TSI OmniWear Noise™ Device

TSI OmniWear Noise™ Dosimeter allows you to export the settings from your Personal Noise Dosimeter so another device can use them. To export these settings, do the following:

1. Tap the active tile for the Personal Noise Dosimeter you want to export settings from.
2. Tap **Confirm connection?**
3. Tap the ellipsis icon  and tap **Device Settings**.
The **Device Settings** screen is displayed.
4. Tap **Write Settings to TSI OmniWear Noise™ dosimeter**.
You are prompted to write the device configuration.
5. Tap **Yes**.
The settings are exported.

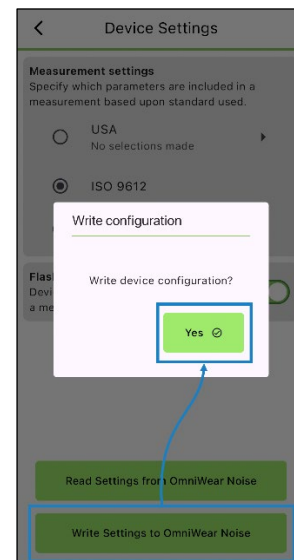


Figure 3-11. Write Settings to Device

Managing Users

All users are listed in vertical tiles. You can edit, add or delete users at any time.

For each user listed, the data available is:

- First name
- Last name
- Company name
- Office name
- Site name
- Status (administrator or user)

To edit user data, do the following:

1. Tap the navigation drawer icon  and select **Users**.
The **Users** screen is displayed.
2. Tap the tile for the user you want to edit.
The **Edit User** screen is displayed.
3. Use the pencil icons () and/or the plus icons () to edit the user fields.
4. When done, tap **Accept**.

To add a user, do the following:

1. Tap the navigation drawer icon  and select **Users**.
The **Users** screen is displayed.
2. Tap the plus icon () to add a new user.
The **Create User** screen is displayed.
3. Use the pencil icons () and/or the plus icons () to fill in the new user fields.
If the new user is the administrator, check the **Administrator** checkbox.
4. When done, tap **Accept**.

To delete a user, do the following:

CAUTION
This procedure permanently deletes the selected user.



1. Tap the navigation drawer icon  and select **Users**.
The **Users** screen is displayed.
2. Swipe the tile for the user you want to delete to the left.
You are prompted to confirm to delete the selected user.
3. Tap **Yes** to delete the selected user.

Managing Company Information

All named companies are listed in the **Companies** section of the **Companies/Sites/Locations** screen. All sites associated with that company are listed in the **Sites** section. In turn, all locations associated with that site are listed in the **Locations** section.

You can view, edit, create or delete company information at any time.

To view company details, do the following:

1. Tap the navigation drawer icon  and select **Companies/Sites/Locations**.
The **Companies/Sites/Locations** screen is displayed.
2. Tap the tile for the company you want to view.
The site and location data is displayed underneath.

To edit the company details, do the following:

1. Tap the navigation drawer icon  and select **Companies/Sites/Locations**.
The **Companies/Sites/Locations** screen is displayed.
2. Tap the pencil icon () adjacent to the company name you want to edit.
Edit the company name using your device keyboard.
3. Use the pencil icons () and/or the plus icons () to edit the company details.

To add a company, do the following:

NOTE

To create a new company, you must first create a new user and associate that user with the new company.

1. Tap the navigation drawer icon  and select **Users**.
The **Users** screen is displayed.
2. Tap the plus icon () to add a new user.
The **Create User** screen is displayed.
3. Use the pencil icons () and/or the plus icons () to fill in the new user fields.
If the new user is the administrator, check the **Administrator** checkbox.
4. When done, tap **Accept**.
The new company is displayed in the **Companies/Sites/Locations** screen.

To delete a company, do the following:

CAUTION

This procedure permanently deletes the selected company.



1. Tap the navigation drawer icon  and select **Companies/Sites/Locations**.
The **Companies/Sites/Locations** screen is displayed.
2. Swipe the tile for the company you want to delete to the left.
You are prompted to confirm to delete the selected company.
3. Tap **Yes** to delete the selected company.

CHAPTER 4

Configuring Your Device

You may wish, or need, to occasionally alter the settings for your Personal Noise Dosimeter. This section describes how to access and modify the following settings:

How to Change the Date and Time

The date and time are configured when you first set up your Personal Noise Dosimeter (for more information, see Setting the Date and Time. If this step wasn't performed at set up, you can set the date and time setting from your mobile device as follows:

1. In the **Home** screen, tap the tile for an active Personal Noise Dosimeter.
2. Tap **Confirm connection?**
3. Tap the ellipsis icon  and tap **Set Date/Time**.
You are prompted to confirm that you want to update the device with the current time and date.
4. Tap **Yes**.
The date and time is set to that on your mobile device.

How to Select Noise Protocol Settings

The TSI OmniWear Noise™ Dosimeter is capable of measuring, recording and storing a wide range of sound level parameters.

You can choose from a selection of industry standards, or customize your own.

The standards available are:

- USA
 - ACGIH
 - MSHA
 - OSHA HC
 - OSHA PEL
- ISO 9612 (for UK and EU)
- ISO Aus/Nz

Each setup has varying Thresholds, Criteria and Exchange rates:

Setup Name	Threshold (T)	Criterion (C)	Exchange Rate (Q)
OSHA HC	80	90	5
OSHA PEL	90	90	5
ACGIH	80	85	3
MSHA	90	90	5
ISO Au/Nz	N/A	85	3
ISO 9612	N/A	85	3

Each standard uses a different set of sound pressure level parameters. See APPENDIX A Technical Specifications for a list of the definitions of these parameters.

You can set the standard and protocol you need as follows:

1. In the OmniWear Noise™ app **Home** screen, tap the navigation drawer icon  and select **Settings**. The **Settings** screen is displayed.
2. Select **Device Settings** and select the protocol you want from the **Measurement settings** section of the screen.

For more information see Settings screen.

How to Enable/Disable LED Indications

You can choose to turn the LED flash function on or off when measurements are being made.

You can set the LED flash function as follows:

1. In the TSI OmniWear Noise™ app **Home** screen, tap the navigation drawer icon  and select **Settings**. The **Settings** screen is displayed.
2. Select **Device Settings**.
3. In the **Flash LED in measurement** section of the screen, either:
 - a. Swipe the radio button to the right to turn on LED flashing;
 - b. Swipe the radio button to the left to turn off LED flashing.

For more information see Settings screen.

How to Set PDF Report Paper Size

You can change the paper size to be used when creating PDF reports. The options are:

- A4
- Letter
- Legal

Set the paper size as follows:

1. In the TSI OmniWear Noise™ app **Home** screen, tap the navigation drawer icon  and select **Settings**. The **Settings** screen is displayed.
2. In the **Paper size** section of the screen, tap the drop-down icon and select the paper size you want.

For more information see Settings screen.

How to Enable and Disable Profile Selections

When you perform a measurement run, your profile selections are remembered by the application software for the next run. You can choose to enable or disable this feature.

Set the trace options as follows:

1. In the TSI OmniWear Noise™ app **Home** screen, tap the navigation drawer icon  and select **Settings**. The **Settings** screen is displayed.
2. In the **Make chart trace selection 'sticky'** section of the screen, either:
 - a. Swipe the radio button to the right to remember changes in profile trace selections;
 - b. Swipe the radio button to the left to forget changes in profile trace selections.

For more information see Settings screen.

CHAPTER 5

Frequently Asked Questions

- **Q – What is the difference between the TSI OmniWear Noise™ Dosimeter, dBadge2 and the Quest™ Edge 7 & 8?**
- A – The main difference between the TSI OmniWear Noise™ Dosimeter and the other dosimeters in the TSI® & Casella range is that the TSI OmniWear Noise™ is not intrinsically safe and has entry level functionality (no device display, no octave band analysis, no audio recordings & no combining and collating multiple run data).

- **Q – Is TSI OmniWear Noise™ Dosimeter intrinsically safe?**
- A – No, TSI OmniWear Noise™ Dosimeter is not intrinsically safe and therefore should not be used in flammable atmospheres.

- **Q – Can the TSI OmniWear Noise™ Dosimeter reports be modified or personalized?**
- A – In this first release the reports are not customizable, but we are planning to make the report customizable in the next release.

- **Q – Does the TSI OmniWear Noise™ Dosimeter record the actual audio?**
- A – No, the TSI OmniWear Noise™ Dosimeter only records the measured sound levels.

- **Q – How do you combine the data from different reports?**
- A – In this first release there is no way to combine the data from multiple reports, this is on the roadmap for a future release.

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APPENDIX A

Technical Specifications

Standards

- BS EN 61252: 1997+ A2:2017
- ANSI S1.25:1991 R2024,

Measured Parameters and Setups

Setup Name	Threshold (T)	Criterion(C)	Exchange Rate (Q)
OSHA HC	80	90	5
OSHA PEL	90	90	5
ACGIH	80	85	3
MSHA	90	90	5
ISO AUS	N/A	85	3
ISO 9612	N/A	85	3

Measured Parameters: LXY, LXYmax, LXYmin, LXeq, LXpeak, LAvg, LXleq, LTM3, LTM5, LAE. Where X is the frequency weighting A, C or Z and Y represents time weighting Fast (F), Slow (S) or Impulse (I). Some weightings simultaneously measured where appropriate. 8-hour dose values: LAep,d, LEX,8h, TWA, % Dose, including projected values. Other values: Pa²Hr and Pa2s, motion % and LASmax: time above exceedance level.

Linear Operating Range

70-140.3 dB (A) RMS

Peak Measurement Range

90.0-143.3 dB (C or Z weighted)

Sound Exposure Range

0.0-6, 100.0 Pa²Hours

Frequency Weightings

A, C and Z, Type 2

Time Weightings

Fast, Slow or Impulse

Exchange Rate

Q=3 or Q=5 dB exchange rates

Threshold

80 dB or 90 dB

Criterion

85 dB or 90 dB

Operating Temperature Ranges

Device: 0° C to +40° C (for <+/-0.5 dB error limit)

-10° C to +50° C (for <+/-0.8 dB error limit)

Charger: 0° C to +30° C

Altitude

Normal Environmental Conditions (Up to 2000m)

Pressure: 101.3kPa +/- 10%

Indoor or Outdoor Use

Dosimeter is suitable for both Indoor and Outdoor use

Pollution Degree of the Intended Environment

Pollution Degree: PD2

Humidity Range

<+/-0.5 dB over 30% - 90% (non-condensing)

Storage Temperature

-10° C to +50° C

Battery and Charging

Li-ion, 350 mAh

Run time typically 16 hours

Charge time:

- 16 hours battery operating
- 4 hours charge (85%)
- 6 hours charge (100%)

Chargers requires a PC18 power Supply

- Input 100-240 Vac 50-60Hz 0.6A
- Output 12V (DC) 15-18W (1.25-1.5A) Class II

Maximum Number of Runs

64

Device Dimensions

56 x 32 x 40 mm

Ingress Protection (IP) rating

Dosimeter - IP65 (with permeable air vent)

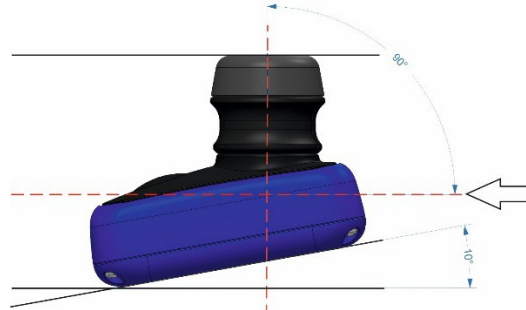
Charger - IPX0 (no ingress protection)

LED Indications

Indicator	Meaning
Flashing red	Battery charging or battery low or fatal error
Solid red	Battery charging suspended or battery error
Flashing blue	Not connected (not running)
Flashing green	Not connected (running)
Solid blue	Connected (not running)
Flashing green fast	Calibrator detected

Reference Direction

The instrument reference direction is illustrated by the arrow shown in the diagram below.



Inserting Electrical Signal

For calibration it is necessary to input an electrical signal. As the microphone is not removable, modified charger modules are used to input the signal. The part number for the test fixture is 218077B.

Please contact salesupport@casellasolutions.com to order.

Response to Unipolar Pulses

Signal Polarity	Indicated LAeq (dB)	Projected Exposure (S)	Instrument Exposure (Pa²h)	Difference	Uncertainty	Difference Extended by Uncertainty
Positive	122.3	60	11.322	Reference Exposure	Reference Exposure	Reference Exposure
Negative	122.3	60	11.322	0.0%	4.2%	4.2% (Error limits - 21% to 26%)

APPENDIX B

Glossary of Terms

A-Weighting is the standard weighting of the audible frequencies designed to approximate the response of the human ear to noise.

Acoustic Calibrator is an instrument that provides a reference noise source with a standard level and frequency. This is used to calibrate and check the performance of sound level meters and noise dosimeters.

ANSI S1.25 is the U.S. Standard for Noise Dosimeters.

C-Weighting is the frequency response of the human ear which varies with the sound intensity. At high noise levels typically greater than 100 dB, the ear's frequency response becomes flatter and is represented by the C weighting filter shape. C weighting is primarily used for Peak measurements (LCPk) or for C weighted equivalent Level (LCeq).

Criterion Level (CL) is the normalized eight-hour average weighted sound level in dB that corresponds to the maximum permitted daily exposure or 100% noise dose.

Criterion Time (CT) is the time, in hours, used in the calculation of the %Dose.

dB(A) is the A-weighted sound level in decibels.

dB(C) is the C-weighted sound level in decibels

dB(Z) is the Z-weighted sound level in decibels

Decibel (dB) is the standard physical unit for measuring sound level and noise exposure. Estimated Exposure is a calculated estimate of the exposure of the wearer if the average level measured continues for the period defined by the Criterion Time. Estimated exposure is expressed in Pascal Squared Hours (Pa²h).

Fast Time Weighting is a standard time weighting applied by the sound level measurement instrument.

IEC 61252 is the International Standard for Personal Sound Exposure Meters.

LAE is the A-weighted exposure level. It is the level that would contain the same amount of energy in one second as the actual noise has during the whole measurement period.

LAeq is the A-weighted equivalent level, i.e. the A-Weighted average noise level over the measurement period. According to ISO procedures, a doubling in energy results in a 3dB change in the Leq or an 'exchange rate' of Q=3. There is no Threshold value taken into account.

LAF is the A-weighted sound level measured with Fast Time Weighting.

LAS is the A-weighted sound level measured with Slow Time Weighting.

LASmax is the maximum A-weighted sound level measured with Slow Time Weighting.

LAvg is a parameter used in predominately in OSHA measurements. It is the average sound level over the measurement period (equivalent to L_{eq}). Normally the term is used when the exchange rate “Q” is some value other than 3, e.g. for the OSHA Hearing Conservation Amendment where $Q = 5$. A Threshold Value is also used during the calculation of LAvg where any levels below the Threshold Value are not included. For example, if the Threshold Value is set to 80dB and the exchange rate is 5dB ($Q = 5$). If a one-hour measurement was taken in an environment where the noise levels vary between 50 and 70dB, the sound level would never exceed the Threshold Value so the instrument would record no value for the LAvg. However, if the sound level exceeds the 80dB Threshold Value for only a few seconds, only these seconds will contribute to the LAvg, giving a level of around 40dB. This is much lower than the actual ambient sound levels in the measured environment. For a constant level noise signal above the threshold, the LAvg values based on exchange rates of 3 or 5dB will be identical. In an environment of changing noise levels then the energy will be accumulated according to 3 or 5dB exchange rates and so LAvg (Q3) and LAvg (Q5) will then differ (with LAvg (Q5) being the lower of the two results).

LCpk is the peak C-weighted sound level.

LEP,d is the daily personal noise exposure defined by ISO 1999. It is the L_{Aeq} normalized to an 8-hour Criterion Time, i.e. a ‘standard day’. For example, if a noise measurement was made for 4 hours and the L_{Aeq} value was 90dB(A), the LEP,d value would be calculated to be 87dB(A) as the measurement duration is half the 8-hour Criterion Time and the exchange rate is 3dB. Also $L_{EX,8Hr}$. LEP,d is calculated from the measured Sound Exposure, the Exposure Time and a Reference Time of 8 h.

LCeq is the C-weighted equivalent level i.e. the C-weighted average level over the measurement period. According to ISO procedures, doubling the energy results in a 3dB change in the L_{eq} or an ‘exchange rate’ of $Q=3$. There is no Threshold Value taken into account.

Peak is the peak level in dB reached by sound pressure at any instant during the measurement period.

Slow Time Weighting is a standard time weighting applied by the sound level measurement instrument.

SPL is the sound pressure level. This is the basic physical measure of noise, and is normally expressed in dB.

Threshold Value is the threshold below which sound levels are excluded from calculation. OSHA measurements use an 80 dB threshold and call for a hearing conservation program to be implemented when the eight-hour TWA exceeds 85 dB (50% dose).

TWA is the Time Weighted Average. Used in OSHA measurements, the TWA is the daily personal exposure level calculated from the LAvg and measurement duration.

Z-Weighting is a linear or un-weighted measurement. In TSI OmniWear Noise™ Dosimeter it is used for the measurement of peak sound pressure level against the OSHA standard.

APPENDIX C

Declarations of Compliance

Product:

DA14531MOD - SmartBond TINY™ Bluetooth® Low Energy 5.1 System-on-Chip Module

Date of Issue:

March 28, 2025

Manufacturer:

Renesas Electronics Corporation
3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan

Product Description:

The DA14531MOD is a fully integrated Bluetooth® Low Energy 5.1 module featuring the DA14531 System-on-Chip. It is designed for ultra-low-power wireless applications, operating in the 2.4 GHz ISM band, and includes an integrated antenna and all necessary external components.

Part Number:

DA14531MOD-00F0100

Compliance Statement:

Renesas Electronics Corporation certifies that the DA14531MOD module complies with the following standards and regulatory requirements:

- Bluetooth® 5.1 Core Specification
- FCC Identifier: Y82-DA14531MOD
- ETSI EN 300 328 V2.2.2 – Wideband Transmission Systems
- IEC 62368-1 – Safety Requirements for Audio/Video, Information, and Communication Technology Equipment
- RoHS Directive 2011/65/EU and Amendment (EU) 2015/863 – Restriction of Hazardous Substances
- REACH Regulation (EC) No 1907/2006 – Registration, Evaluation, Authorization, and Restriction of Chemicals

Testing and Verification:

The DA14531MOD has been tested and verified to meet the specified performance and regulatory requirements. Testing was conducted by Jacques Theunissen, Senior Director at Het Zuiderkruis 53, 's-Hertogenbosch, 5215 MV, THE NETHERLANDS and includes:

- RF output power and frequency stability
- Bluetooth® Low Energy protocol compliance
- Electromagnetic compatibility (EMC)
- Environmental and material compliance



CE DECLARATION OF CONFORMITY

Casella declares that this product is in compliance with the essential requirements and other relevant provisions of applicable EC directives. A copy of the EU Declaration of Conformity for this product may be obtained by clicking on the product compliance documentation link at www.casellasolutions.com.



WEEE - INFORMATION FOR EU MEMBER STATES ONLY

The use of the WEEE symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local waste disposal service or contact the agent where you purchased the product.

APPENDIX D

Servicing, Maintenance and Support

Servicing

The OmniWear Noise™ Dosimeter contains no user serviceable parts and if a fault is suspected, return the dosimeter to Casella or a Casella approved service center.

The warranty **DOES NOT** extend to cleaning or general servicing of the instrument.

Casella's in-house service department offers a comprehensive range of repair and calibration services designed to maintain a fast and efficient back-up for all our products.

For further information please contact our service department at our UK headquarters (salesupport@casellasolutions.com) or contact an approved servicing distributor. We will be happy to provide quotations for individual repairs or provide annual maintenance under contract.

Casella Holdings Ltd

Regent House,
Wolseley Rd,
Kempston,
Bedford MK42 7JY

Maintenance

- **DO NOT** leave the TSI OmniWear Noise™ Dosimeter battery in a discharged state.
- After use, charge the TSI OmniWear Noise™ Dosimeter prior to storage for a prolonged period. It is best not to store the TSI OmniWear Noise™ Dosimeter for any period of time in low battery condition. A prolonged period is considered to be two or more months. If the TSI OmniWear Noise™ Dosimeter is to be stored for an even longer period, it is best to take the TSI OmniWear Noise™ Dosimeter out of storage and recharge every two to three months.
- If the TSI OmniWear Noise™ Dosimeter has not been used for a prolonged period or was stored in a low battery condition, charge the device before attempting to turn it on.
- Always follow local regulations to dispose of used batteries.

Support

For support, please go to casellasolutions.com or email us at salesupport@casellasolutions.com.

Part Numbers and Accessories

TSI OmniWear Noise™ Dosimeter Models	
OW-N-5PKG	▪ 5 x OW-N devices ▪ 5 x rubber boots (each fitted with 2 croc clips) ▪ 5 x OW-N charger modules ▪ 1 x PC18 (power supply) ▪ 5 x rubber charger connectors ▪ 1 x charger end plate (left) ▪ 1 x charger end plate (right) ▪ 1 x Quick Start Guide (paper) ▪ 5 x Calibration cert (paper)
OW-N-DVE	▪ 1 x OW-N device ▪ 1 x Quick Start Guide (paper) ▪ 1 x Calibration cert (paper)
OW-N-CHGR	▪ 1 x OW-N charger module ▪ 1 x charger end plate (left) ▪ 1 x charger end plate (right)

TSI OmniWear Noise™ Accessories	
OW-N-WS	Replacement Wind Screen
OW-N-BC	Rubber boot (including 2 croc clips)
OW-N-CEP	OW-N charger end plates (2 pack)
OW-N-CRC	OW-N charger rubber connector (5 pack)
PC18	Universal 12 Vdc mains adaptor

TSI OmniWear Noise™ Kits	
OW-N-KIT5	▪ Carry case ▪ 5 x OW-N devices ▪ 5 x rubber boots (each fitted with 2 croc clips) ▪ 5 x OW-N charger modules ▪ 1 x PC18 (power supply) ▪ 5 x rubber charger connectors ▪ 1 x charger end plate (left) ▪ 1 x charger end plate (right) ▪ 1 x CEL-120 Calibrator ▪ 1 x Quick Start Guide (paper) ▪ 5 x Calibration Cert (paper)

OW-N-KIT10	▪ Peli Carry Case ▪ 10 x OW-N devices ▪ 10 x rubber boots (each fitted with 2 croc clips) ▪ 10 x OW-N charger modules ▪ 1 x PC18 (power supply) ▪ 10 x rubber charger connectors ▪ 1 x charger end plate (left) ▪ 1 x charger end plate (right) ▪ 1 x CEL-120 Calibrator ▪ 1 x Quick Start Guide (paper) ▪ 10 x Calibration Cert (paper)
OW-N-KIT20	▪ Peli Carry Case ▪ 20 x OW-N devices ▪ 20 x rubber boots (each fitted with 2 croc clips) ▪ 20 x OW-N charger modules ▪ 2 x PC18 (power supply) ▪ 20 x rubber charger connectors ▪ 2 x charger end plate (left) ▪ 2 x charger end plate (right) ▪ 1 x CEL-120 Calibrator ▪ 1 x Quick Start Guide (paper) ▪ 20 x Calibration Cert (paper)



Knowledge Beyond Measure.

TSI Incorporated – Visit our website www.tsi.com for more information.

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