SDT Ultrasound

SDT340

Asset Health Evaluation Meter

USER MANUAL

Version 12 – 2026

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Table of Contents

1. Safety ... 3
2. Caution ... 3
3. CE compliance ... 4
4. Introduction ... 5
5. Unpack ... 5
6. Battery ... 5
7. Controls and connections ... 9
   - 7.1. Power on ... 9
   - 7.2. Sleep Mode ... 10
   - 7.3. Power Off ... 10
   - 7.4. Driver ... 10
   - 7.5. Plug & Unplug a Sensor ... 10
8. Home screen ... 10
9. Data Collection Modes ... 11
10. Proceed with ultrasound signal acquisition in Free Mode ... 12
11. ST tab for ultrasound readings ... 14
12. Proceed with vibration signal acquisition in Free Mode ... 15
13. ST tab for vibration readings ... 16
14. Open-End measurement ... 17
15. Assigning messages in SDT 340 ... 18
16. Display Ultrasound and Vibration Time Signal ... 23
17. Display ultrasound and vibration spectrum ... 24
18. Proceed with temperature measurement in Free Mode ... 25
19. Tree navigation and data storage in Free Mode ... 26
20. Working in Tree Mode ... 29
21. Working in Survey Mode ... 29
22. Working in LUBExpert Mode ... 31
23. Rotational speed ... 34
24. Alarms in the SDT340 ... 35
25. General Settings ... 36
    - 25.1. System info ... 37
      - 25.1.1. Device info ... 38
      - 25.1.2. License info ... 38
      - 25.1.3. Last calibration date ... 39
      - 25.1.4. Battery info ... 39
      - 25.1.5. Hardware info ... 40
      - 25.1.6. Software info ... 40
      - 25.1.7. Database ... 41
      - 25.1.8. Certifications ... 41
      - 25.1.9. About the update ... 41
      - 25.1.10. Manufacturer info ... 42
    - 25.2. Language ... 42
    - 25.3. Bluetooth ... 43
    - 25.4. Date and time format ... 43
    - 25.5. Brightness ... 44
    - 25.6. Auto power down ... 44
    - 25.7. Metric imperial ... 45
    - 25.8. Security ... 45
    - 25.9. Network ... 46
    - 25.10. Theme ... 46
26. Recommended calibration intervals ... 47
27. Warranty ... 47
28. Responsibility limits ... 48
29. Destruction and recycling of waste equipment ... 48
30. Copyright and Use of IP ... 48
31. Use of IP contents ... 48
32. Support and contact details ... 49

1. Safety

Carefully read the manual before using the instrument. To prevent death or injury risks and severe damage to the unit and its accessories, use only as specified in this manual. Otherwise, the protection provided by the instrument might be impaired. Make sure that all instructions are fully understood and observed. SDT340 is designed to meet the safety regulations. However, safety can be at risk if the equipment is used by unqualified staff, used improperly, or not inspected and maintained.

To avoid personal injury:

- Do not use if damaged.
- Use caution around rotating equipment and keep cords and straps contained.
- Select a safe location for the sensor and proceed with utmost care during its mounting when taking readings on exposed rotating parts.
- Do not operate around explosive gas, vapor, and dust or in damp or wet environments.
- Use proper protective equipment, as required by local or national authorities.
- Do not use the SDT340 in hazardous environments (ATEX environment). Please refer to the SDT270A (Ex proof version) and its marking before considering these restricted areas in the field.
- See emissivity information for actual temperatures. Reflective objects have lower emissivity and might pose a burn hazard.
- Never look directly at the laser beam. Never point the laser beam at a person's eye. Do not aim the laser at specular reflection surfaces. Never look at the laser using an optical instrument.

The power supply is designed to operate at ambient temperature between 0 °C to 60 °C (32 °F to +140 °F) up to 90% relative humidity, no condensation. Its storage temperature is between -20 °C to +85 °C (-4 °F to +185 °F). The power supply should never be operated or even stored at places listed below, because this could lead to operating failures:

- Places heavily exposed to moisture or where water condensing may occur.
- Places subject to constant vibrations or to high temperature fluctuations.
- Outdoors.

2. Caution

Do not disassemble the instrument, the sensors, the battery, the battery docking station, and the battery power supply. Do not attempt internal alterations. Do not attempt any repairs. Potential damages will not be covered by the Lifetime Warranty. Contact SDT Ultrasound Solutions or an SDT Authorized Service Provider.

The permissible ambient temperature range for the operation of the SDT340 is -15 °C to +60 °C (5 °F to 140 °F). Relative humidity must be less than 90%, non-condensing.

Due to the typical self-discharge rate of NiMH batteries, it is recommended to charge the battery at least every 3 months, using only the provided charger pack. It is recommended not to store an uncharged/unused battery for more than a few weeks.

The SDT 340 is equipped with a class 2 laser: risk of eye injury.

- Never look directly to the laser beam
- Never point the laser beam at a person’ eye

- Do not aim the laser at specular reflective surfaces
- Never view the laser using an optical instrument

Ultrasound inspectors using SDT instruments with audio outputs are exposed to sounds levels having noise exposure characteristics daily, which, if not managed by the manufacturer, can increase your risk of hearing loss. Legislation in Europe has fixed a threshold at 80 dB(A) for a maximum exposure of 8 hours per day.

Government Legislated Noise Exposure Levels	
Sound Level dB(A)	**Max Exposure Per Day**
80	8 hours
83	4 hours
86	2 hours
89	1 hour
92	½ hour
95	15 minutes
98	7.5 minutes

The audio output paired with the Peltor headsets supplied by SDT, having the references FUHDPH-1 and FUHDPH-2 delivers a maximum sound pressure level of 79 dB. SDT makes an additional safety guarantee for our users. When connecting a sensor, or selecting/changing sensors, SDT instruments self-adjust the volume to a default, maximum sound pressure level of 58 dB typical. This applies to all compatible, SDT manufactured sensors and is done so willingly for the protection and safety of anyone who uses our products.

3. CE compliance

SDT340 and its accessories have been designed and tested to meet the following directives and standards. The SDT340 kit meets the essential requirements of the applicable European Directives:

- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)
- 2011/65/EU; Restriction of Hazardous Substances (RoHS)

- 2014/35/EU; Low Voltage Directive (LVD)
- 2006/66/EU; Batteries and accumulators and waste batteries and accumulators

The declaration of CE conformity is available on SDT website at:
https://sdtultrasound.com/support/downloads/certificates/

4. Introduction

- Ultrasound and vibration measurements through 2 input channels
- 4 Scalar indicators
- 0 Hz to 100 kHz Bandwidth
- 10 minutes record length
- Tree database structure
- 3.5” full-color display 320x480
- On-screen time waveform and spectrum
- Spanning and expanding functions for navigation through time waveform and spectrum
- Signal play back
- On-board temperature and rotational speed measurements
- 256 kHz sample rate
- 6.5 GB data memory
- Quick and intuitive navigation through database nodes
- Recall of historical data in-the-field
- TWF and FFT 10 highest values table
- Off-route and on-route data collection modes
- Bluetooth for wireless audio streaming

5. Unpack

The items that follow are included in your purchase of the SDT340 kit. Unpack and inspect them.

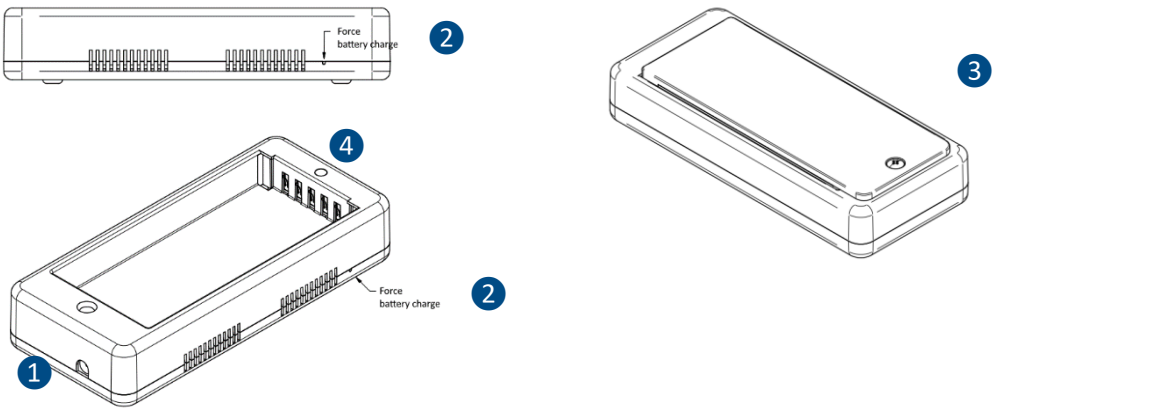
- SDT340
- Wired headset
- Spiral Cable, 2 male 7-pole LEMO connectors
- USB type C communication cable
- USB key containing user manuals and UAS Lite
- Battery pack
- Battery charger, power cord, EU, US and UK plugs
- Battery docking station
- Shoulder strap
- Multi-function screwdriver

6. Battery

Caution: **Only use the docking station and the power supply provided by SDT.**
Do not store an uncharged battery for more than a few weeks.
Perform preferably a complete charge cycle.
Charge the battery at least every 3 months, even not used.

The SDT340 operates on a rechargeable Nickel Metal Hydride (NiMH) battery. After unpacking the unit, please fully charge the battery pack before its first use. To charge the battery pack:

- Plug the power supply (*) to the main and connect it 1 to the docking station. Then the LED is blinking blue.
- Loosen the quick fastener using the screwdriver and remove the battery pack from the unit.
- Place the battery pack in the docking station 3. The LED should stay on blue for a few seconds and then flash green. Otherwise, perform a force charging by inserting a needle in the reset location 2.
- When the LED is continuously lit green, the battery is fully charged.



1 Power supply connector
2 Force battery charge location
3 Battery pack placed on the docking station
4 Docking Station LED

Figure 6-1 Recharge the battery

AC/DC power supply:	Based on XP Power, Model ACM24 series (you may find other references/brand depending on your order date. Please refer to the label)
Power supply:	Input: 100-240 VAC-0.5 A, 50/60 Hz Output: 12 VDC-2000 mA, total regulation 5%, efficiency 88.8 %
Operating temperature:	0 to +60 °C (+32 to 140 °F), < 90 % humidity, non-condensing
Storage temperature:	-20 to + 85 °C (-4 to 185 °F)
Output Power:	Max 24 W
Category:	Class II construction
EMC Emissions:	EN 55032, EN 61000-3
EMC Immunity:	IEC 60601-1-2, EN 61204-3, EN 61000-4, EN 60601-1-2

Electrical safety (LVD):	UL 60950-1, UL 62368-1, ANSI/AAMI ES 60601-1 EN 60950-1, EN/IEC 62368-1, EN 60601-1 CSA C22.2 No. 60601 CCC China Compulsory certification, GB4943 AU/NZ 60950.1 CE: meets all applicable directives UKCA: meets all applicable directives
Weight:	160 grams (0.35 lb)
Dimensions (body only):	88.0 x 30.0 x 57.0 mm (3.46 x 1.18 x2.24'')
AC input plugs:	UK, US, EU
Reference:	https://www.xppower.com/portals/0/pdfs/SF_ACM24.pdf

(*) The primary plug of the power supply is interchangeable. The procedure of changing is as per the pictures.

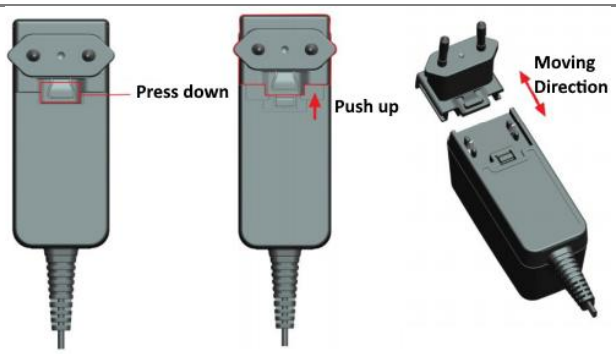


Figure 6-2 Change the primary plug of the power supply.

The color of the docking station status LED 4 shows:

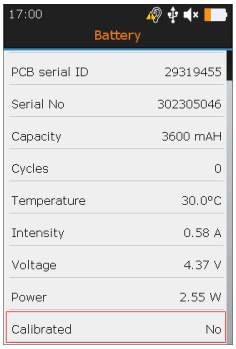
- The LED flashes blue – the docking station is powered.
- The LED remains blue illuminated a few seconds when the battery is placed in the docking station – the battery is detected.
  If not, perform a force charge by inserting a needle in the force battery charge location 2.
- The LED flashes green – the battery pack is charging.
- The LED is green lit continuously – the battery is fully charged.
- The LED flashes red – the docking station detects an abnormal current consumption or an abnormal temperature. Disconnect and then reconnect the power supply from the main to reset the docking station.

The SDT340 autonomy is typically 8 hours for a fully charged battery pack and the recharge time is about 7 hours.

Proper battery calibration/recharge cycle ensures accurate battery life readings and optimal device performance. By following these steps, you can identify and rectify battery issues with ease, ensuring a reliable user experience with your 340 equipment.

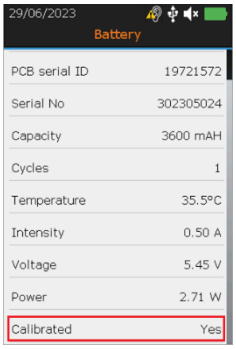
You can identify a battery calibration fault as follows:

- Power on the equipment and observe the screen during the initial boot-up process. The normal battery gauge is normally displayed in Green. However, if the battery percentage is above 20% and the battery gauge is displayed in Orange, as shown in the images below, it's recommended to perform a full charge.
- From the home screen, go to "Settings" > "Device Info" > "Battery". Check the calibration status. If it reads "No," it indicates a calibration fault that needs to be addressed with a full battery charge.



If you've identified a battery calibration fault, a full battery charge is required. Follow these steps to perform a full battery charge:

- Use the 340 until you receive the low battery message "***Low battery The device will shut down. Please recharge your device"***. Once this message appears, the equipment will automatically power off. To prevent auto power-down during this discharge process, you can disable the "Auto power Down" mode, in the menu by navigating to "Settings" >"Auto power down"
- After fullY discharging the battery, proceed with a new charge. Place the SDT340 battery in its charging dock until a full charge is achieved, indicated by the green LED continously lit.
- Once the battery is fully charged, you can verify the calibration status and ensure your battery is functioning optimally. When powered up, the battery should indicate a 100% charge level and the battery gauge should be displayed as green, as shown below, go at the Uboot level then go to "Settings" > "Device Info" > "Battery and Check the calibration status. It should now display "Yes," indicating that the battery has been successfully recalibrated.



7. Controls and connections

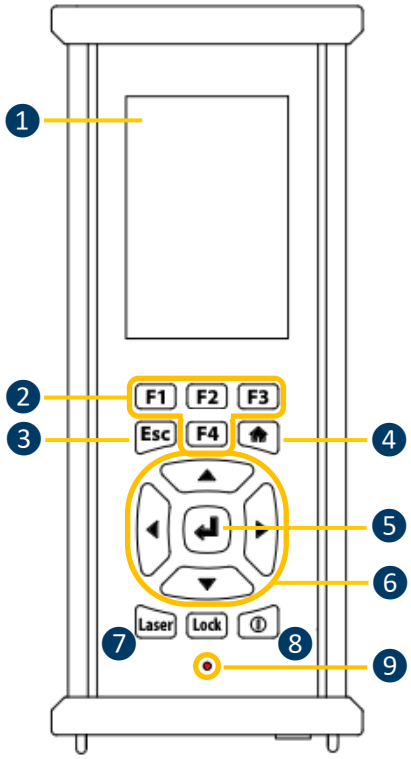


Figure 7-1 Front panel

1 Display

2 **F1** to **F4**. Their respective function is indicated in the bottom of the display.

3 **Escape** for stopping a signal acquisition and going back to the previous menu through setting screens

4 **Home** for displaying the main menu

5 **Enter** to start the acquisition and validate changes through setting screens

6 **Up**, **Down**, **Left** and **Right** navigation keys for the signal, audio amplification adjustment and navigation through the settings screens

7 Hold-on laser

8 On/Off

9 Status LED.

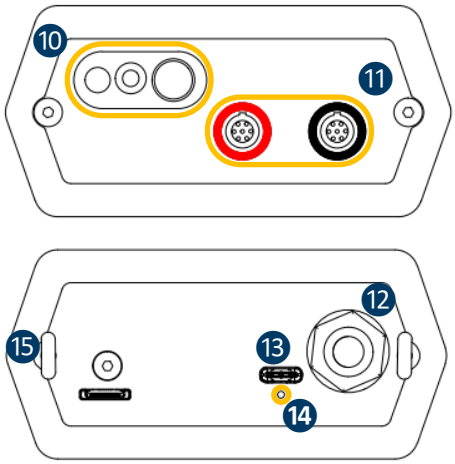


Figure 7-2 Lateral plates

10 Tachometer, laser and IR thermometer

11 Inputs channels. Black collar for ultrasound, red for vibration. To plug a connector, line up the red dot on the plug with the red mark on the connector. Insert the plug into the connector without any rotating movement. To unplug the connector, move up, towards the cable, the ring located on the bottom of the plug. Only pull the connector without any rotation.

12 Wired headset connector.

13 USB type-C Port.

14 Reset location. Insert a needle, the unit will restart.

15 Shoulder strap rings.

7.1. Power on

Press the Power button 8. At power up, device information and battery charge are displayed, then the Home menu is displayed on the screen.

7.2. Sleep Mode

After a few minutes of inactivity, the screen is powered off for battery saving and the status LED is blinking green. Press any key to reactivate the display.

7.3. Power Off

Press the Power button 8. At the prompt, select **Yes** with the **Left** navigation key 6, or **No** to continue with the operation. Confirm using **Enter** 5.

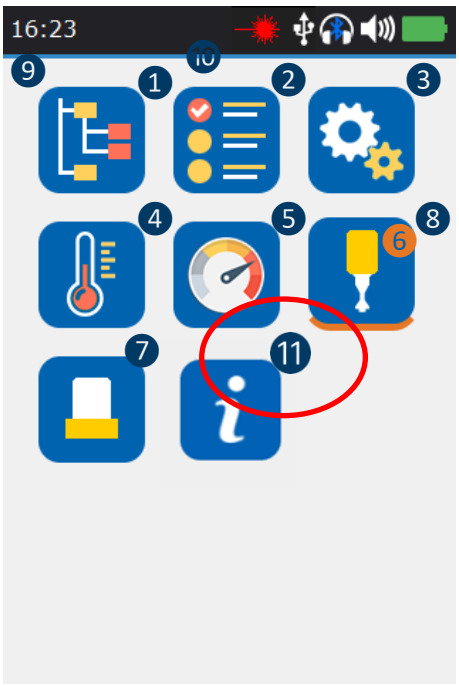
7.4. Driver

The USB driver is automatically installed from the 340, once connected to your PC.
In case of synchronization issue, the **driver** file SDT2xxDriverinstaller.exe can download from our website, by clicking this link.

7.5. Plug & Unplug a Sensor

SDT 340 has 2 input ports with 7-pole LEMO connectors for external sensors. The channel with the red collar is dedicated to vibration measurement as the black is reserved for ultrasound.
LEMO connectors have a sprung-loaded knurled barrel and mechanical polarization to go only one way round.
To plug a LEMO connector, line up the red dot on the plug with the red mark on the connector. Insert the plug into the connector without any rotating movement.
To unplug, move up the ring located on the bottom of the plug. Be sure to only pull the connector without any rotation and to never pull on the cable itself.

8. Home screen



1 Tree Data Collection Mode

2 Survey Data Collection Mode

3 General Settings

4 Temperature

5 Rotational speed

6 Ultrasound contact sensor

7 Accelerometer

8 Bottom orange line indicates which icon is currently selected

9 Time and date scrolling information

10 Laser, USB, wireless, wired headset and remaining battery charge icons

11 Info

Figure 8-1 Home screen

The **Home** screen is displayed after the device powers up.

On top left, date and time are scrolling ❾. On the top right, laser (when activated), USB (when the SDT340 is connected to a computer), wireless headset (when paired), wired headset (when connected) and battery remaining charge icons are displayed ❿.

Use the navigation keys to select an icon and press **Enter** to validate your choice. The selected icon is indicated by a bottom orange line ❽.

Press **Home** to directly come back to the Home screen from any menu.

When no sensor is connected, the sound icon is blocked without the ability to adjust the volume. However, the user hears a background noise emanating from the internal electronics.

Info ⓫ contains short instructions to be used as a reminder.

9. Data Collection Modes

Before recording data, you must first install the driver, create a tree structure from UAS 3 or UAS Lite and upload it from your PC to the instrument.

The SDT340 features 3 modes of data collection:

The **Free mode** – the user selects a sensor; the measurement settings and choose the recording location freely inside the tree structure. If the measurement type doesn't exist, the SDT340 dynamically creates it.

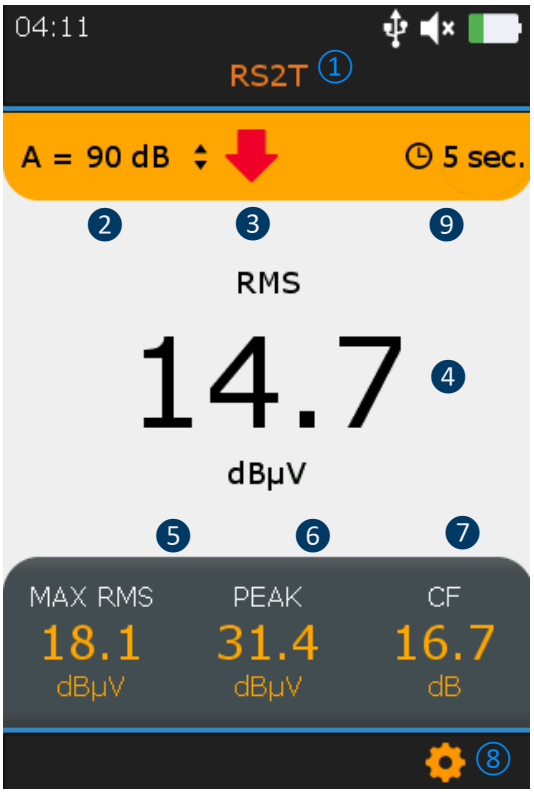
The **Tree Mode** (for UAS3, UAS Lite users only) – the user first selects at his own discretion a measurement location and then selects an existing measurement type. The user is not allowed to change the measurement settings or create a new measurement type inside the tree structure.

The **Survey Mode** (for UAS3, UAS Lite users only) – the device proposes a filtered list of measurements to collect in a predetermined order. The user is not allowed to change the measurement settings or create a new measurement type inside the tree structure.

Refer to the paragraph "Tree navigation and data storage in Free Mode" to see the definition of a measurement type.

Caution: **Measurements can only be stored at the Node level/Measurement point**

10. Proceed with ultrasound signal acquisition in Free Mode



1. Sensor in use
2. Amplification
3. Amplification adjustment indicator
4. Running RMS
5. Running Max RMS
6. Running Peak
7. Running Crest Factor
8. F3 for entering the settings menu
9. Preset acquisition time

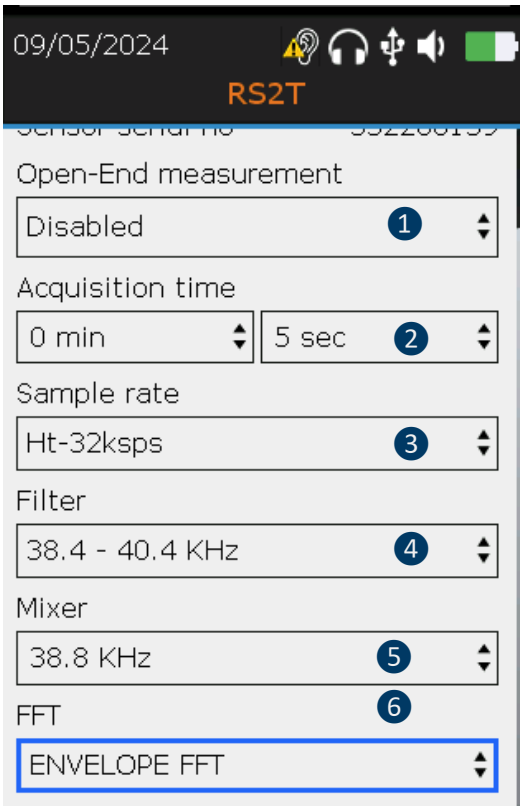
Figure 10-1 Ultrasound measurement screen

From the **Home** screen, select the ultrasound sensor and press **Enter**. Its code name 1 is confirmed in the top of the screen.

Set up amplification from 30 (preamplifier) to 90 dB 2 using **Up** and **Down** navigation keys till the amplification adjustment indicator 3 disappears. Set up the audio volume with **Left** and **Right** keys.

The 4 Condition indicator running values (4 to 7) are displayed. RMS is automatically refreshed 2 times per second. A force refresh of Max RMS, Peak and Crest Factor is manually carried out when modifying the amplification.

The preset acquisition time 9 is displayed on top right.



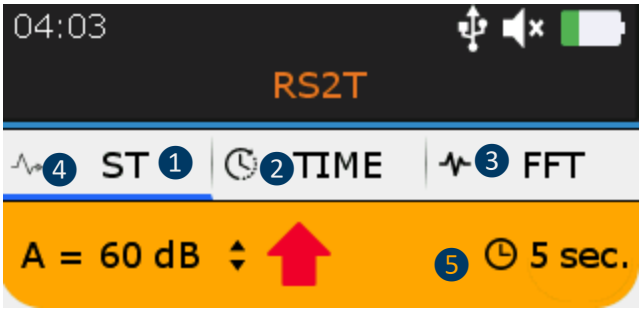
1. Open-End measurement
2. Acquisition time
3. Sample rate
4. Residual Filter (audible)
5. Mixer
6. FFT or FFT Envelope

Figure 10-2 Ultrasound Measurement Settings

Press **Enter** to trigger the acquisition or **F3** to first modify the measurement settings. 1 Choose if you want to use **Open-End measurement**, or to pre-define the acquisition time. If Open-End is selected, the acquisition time is pre-defined only by maximum time (depends on a sampling rate). Once the acquisition is started, it can be stopped and saved at any moment. If this option is disabled, you can pre-define **acquisition time** 2 from 1 to 600 seconds (depending on a sampling rate). Select the **sample rate** 3 appropriate for the application, from 32,000 to 256,000 samples per second (sps), and the **mixer frequency** 5 only if the sample rate is 32,000 sps.

Filter 4 is automatically selected according to the chosen sampling rate and the sensors. Use **Left** and **Right** navigation keys to highlight the desired field. Use **Up** and **Down** to edit the value of the highlighted field. Choose the **Envelope FFT** for advanced diagnostics or a simple **FFT** 6 analysis using **Up** and **Down**.

Press **Escape** to go back to the measurement screen without applying changes or **Enter** to go back with applying the modifications.



1. ST tab
2. TIME tab
3. FFT Tab
4. Blue underline showing the active tab
5. Acquisition time (if predefined) or maximum time (in Open-End mode)

Figure 10-3 Condition indicator, time signal and spectrum tabs

At the end of the acquisition time, you have access to the 4 condition indicators from the tab **ST** (1), the time signal from the tab **TIME** (2) and the spectrum from the tab **FFT** (3). The active tab is blue underlined (4). Press **F2** to switch between the 3 tabs.

11. ST tab for ultrasound readings

At the end of the acquisition, the device displays the ultrasound condition indicator tab **ST**.

There, the final RMS (1), final Max RMS (2), final Peak (3) and Crest factor (4) are calculated from the samples collected during the signal acquisition. The current measurement can be compared with the previous measurement (6).

Note that the **Max RMS** is the highest sub RMS observed during the acquisition time. Each Sub RMS is calculated over a period of 500 milliseconds. The **Peak** value is the highest positive amplitude of the samples. The **Crest Factor** is the ratio between the Peak and the RMS. You can choose to display the Crest factor using a natural scale or a logarithmic scale from the settings menu.

To display the time signal and then the spectrum, press **F2** (5). To record the signal, press **Enter**, select the destination, and confirm by **Enter** or press **Esc** to delete the signal. More details about the navigation inside the tree structure are below.

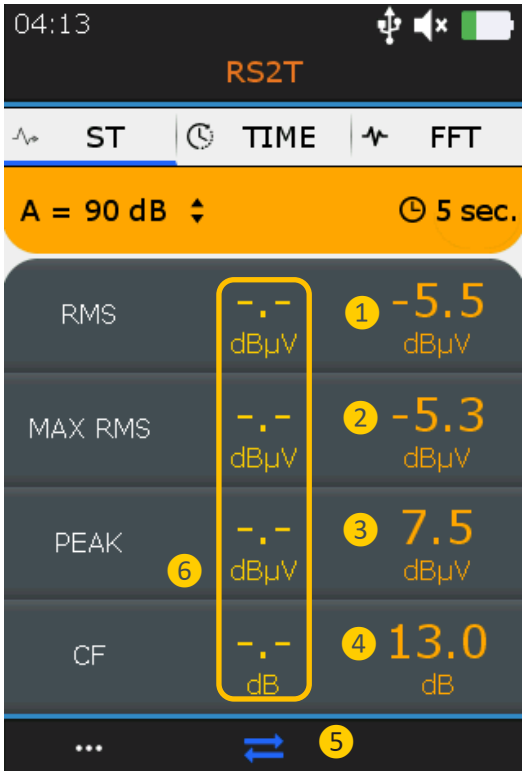


Figure 11-1 Ultrasound ST tab

(1) Final RMS

(2) Final Max RMS, the Highest of the sub RMS calculated over 500 milliseconds

(3) Final Peak

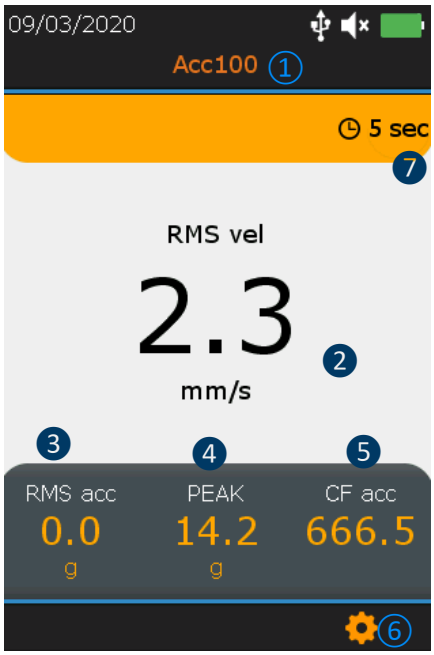
(4) Final Crest Factor

(5) **F2** to display the time signal

(6) Acquisition (1) to (4) from the previous measurement.

12. Proceed with vibration signal acquisition in Free Mode

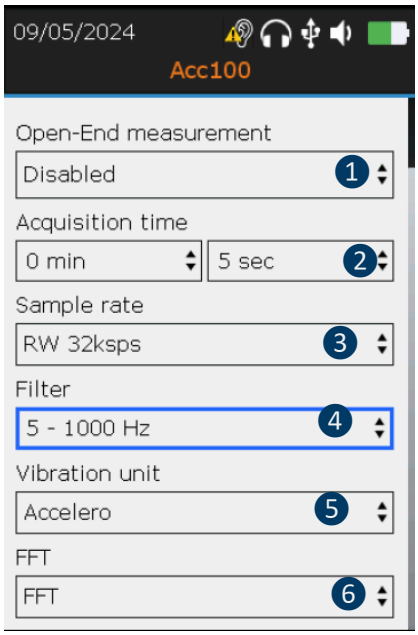
From the **Home** screen, select the accelerometer and press **Enter**. The name ❶ is confirmed in the top of the screen. The 4 Condition indicator running values (❹ to ❼) are displayed. RMS vibration velocity is automatically refreshed 2 times per second. You can choose to display the vibration velocity in millimeters per second or in inches per second and the frequencies in Hertz or in CPM from the settings menu. The preset acquisition time ❼ is displayed on top right.



❶ Sensor in use and bandwidth
❷ Running Velocity RMS
❸ Running Acceleration RMS
❹ Running Peak Acceleration
❺ Running Acceleration Crest Factor
❻ F3 for entering the settings menu
❼ Acquisition time

Figure 12-1 Vibration measurement screen

Press **Enter** to trigger the acquisition or **F3** to first modify the measurement settings.



❶ Open-End measurement
❷ Acquisition time
❸ Sample rate
❹ Bandwidth, filter
❺ Vibration unit
❻ FFT

Figure 12-2 Vibration Measurement Settings

1 Choose if you want to use **Open-End measurement**, or to pre-define the acquisition time. If Open-End is selected, the acquisition time is pre-defined only by maximum time (depends on a sampling rate). Once the acquisition is started, it can be stopped and saved at any moment. If this option is disabled, you can pre-define **acquisition time** 2 from 1 to 600 seconds (depending on a sampling rate). Select the **sample rate** 3 appropriate for the application, 32,000 or 64,000 samples per second (sps).

Select the **bandwidth** 4 from 5 to 1,000 Hz, 10 to 1,000 Hz and 10 to 10,000 Hz. Use **Left** and **Right** navigation keys to highlight the desired field. The selected field is surrounded by a blue line. Use **Up** and **Down** to edit the value of the highlighted field. Select the **Vibration unit** 5. Choose the **Envelope FFT** for advanced diagnostics or a simple **FFT** 6 analysis using **Up** and **Down**. Press **Escape** to go back to the measurement screen without applying changes or **Enter** to go back with applying the modifications.

At the end of the acquisition time, you have access to the 4 condition indicators from the tab **ST** 1, the time signal from the tab **TIME** 2 and the spectrum from the tab **FFT** 3. The active tab is blue underlined 4.

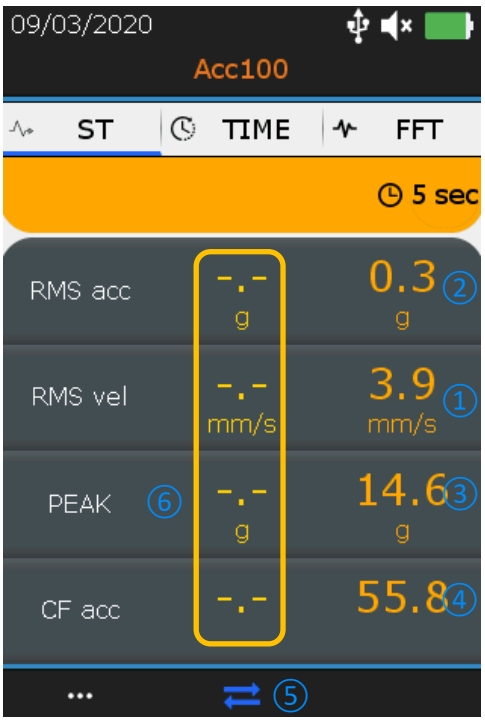
Press **F2** to switch between the 3 tabs.

1 ST tab
2 TIME tab
3 FFT Tab
4 Blue underline showing the active tab

Figure 12-3 Condition indicator, time signal and spectrum tabs

13. ST tab for vibration readings

At the end of the acquisition, the device displays the vibration condition indicator tab **ST**. There, the final Velocity RMS 1, final Acceleration RMS 2, Acceleration Peak 3 and Acceleration Crest factor 4 are calculated from the samples collected during the signal acquisition. The current measurement can be compared with the previous measurement 6.



1. Final Velocity RMS
2. Final Acceleration RMS
3. Final Acceleration Peak
4. Final Acceleration Crest Factor
5. **F2** to display the time signal
6. Previous measurement

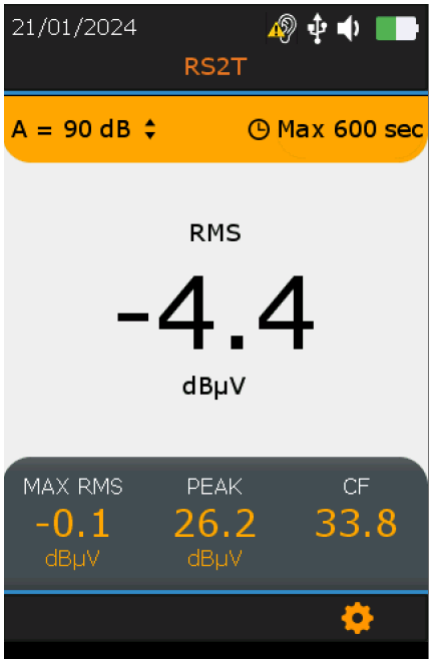
Figure 13-1 Vibration ST tab

To display the time signal and then the spectrum, press **F2** 5. To record the signal, press **Enter**, select the destination and confirm by **Enter** or press **Esc** to delete the signal. More details about the navigation inside the tree structure are below.

14. Open-End measurement

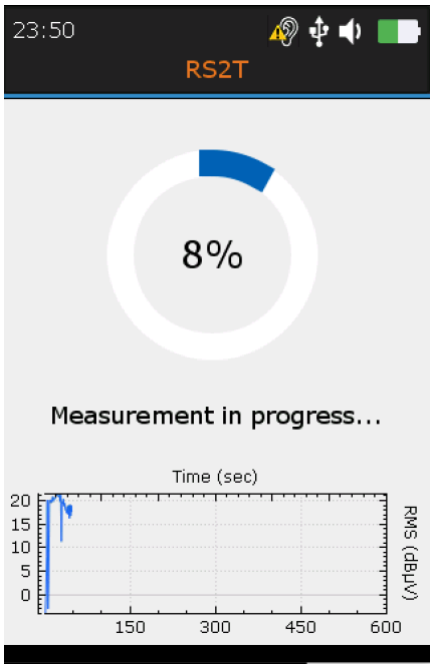
The Open-End measurement allows users to collect data without previous definition of acquisition duration. That means that the measurement process can be stopped and saved at any moment between the start of the measurement and maximum acquisition time.

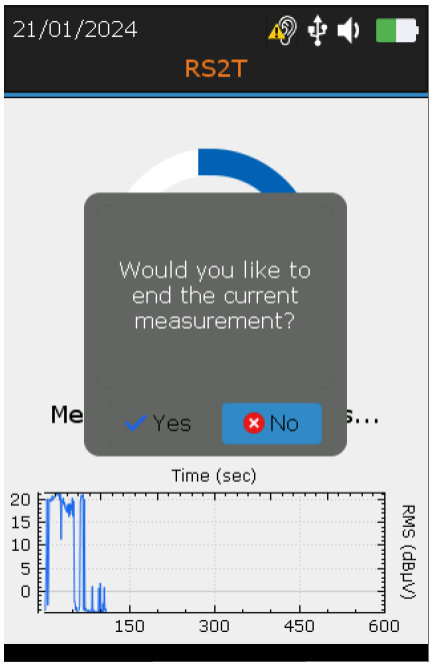
Once the Open-End measurement is defined (in UAS3 or in the instrument's Free Mode), the measurement screen is the same as in the other measurement, with a difference of displayed time: Open-End will display the maximum acquisition time:



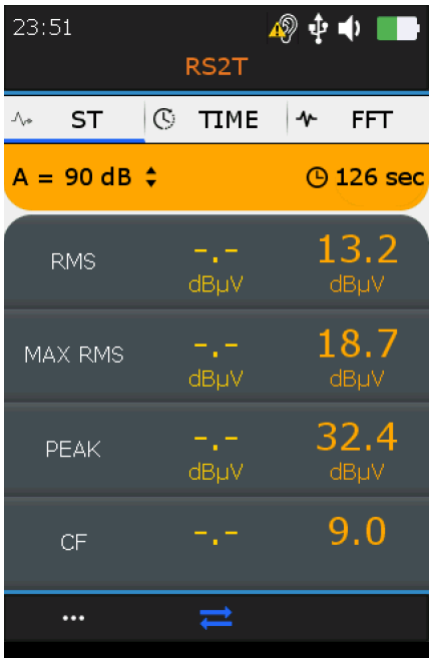
In upper right corner you can see the maximum acquisition time that depends on the selected sampling rate.

Start your measurement by pressing ENTER





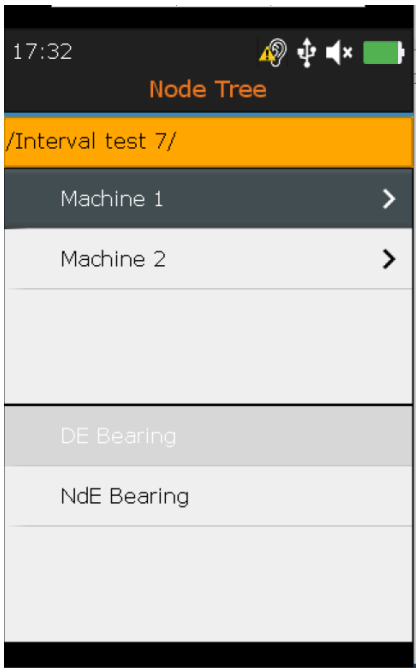
To stop the measurement process, press ENTER and confirm. Equally as in case of pre-defined measurement, 340 will display Condition Indicators, and additionally the duration of collected measurement.



15. Assigning messages in SDT 340

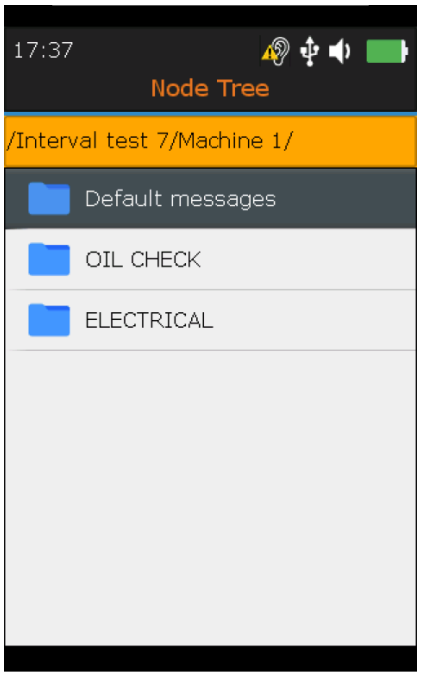
Predefined messages are created in UAS3 and transferred to SDT 340 so they can be assigned at the appropriate situation.

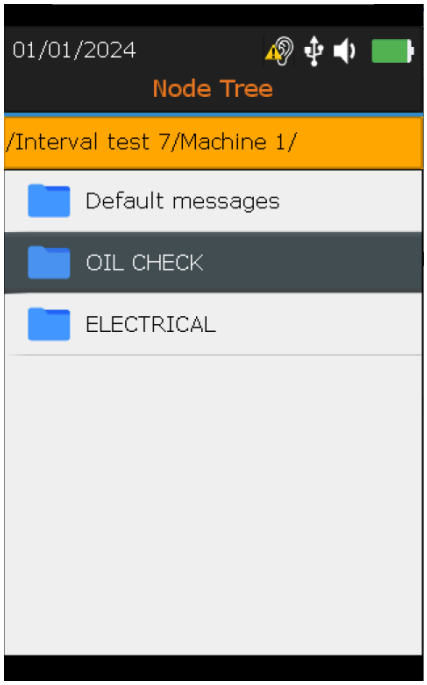
While working in Tree Mode or Survey Mode, messages are assigned as follows:



If you want to add a message to this node, press

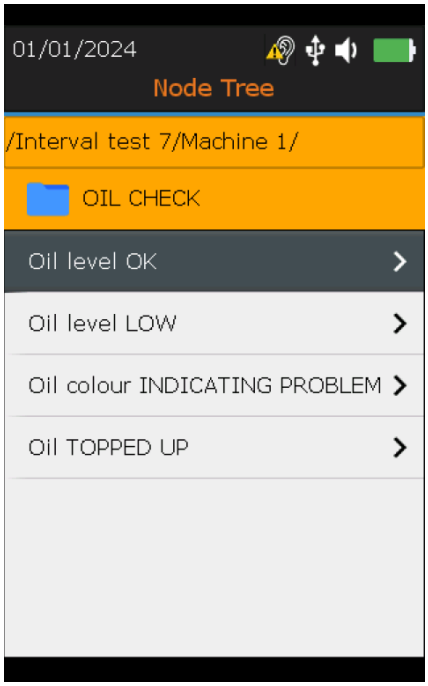
F4





Select the folder by pressing **ENTER**

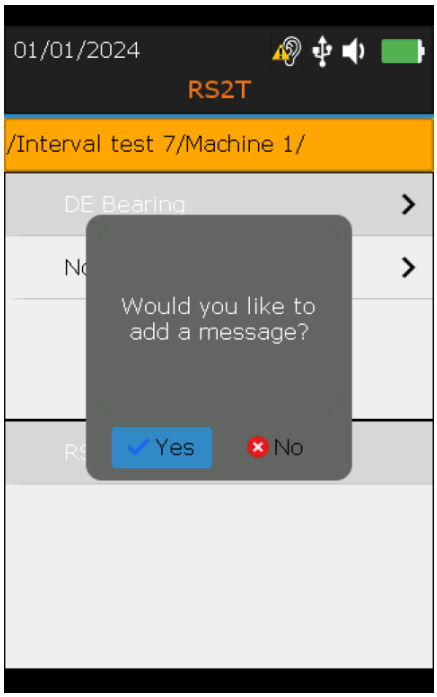
Press **LEFT ARROW** to go back to the list of folders



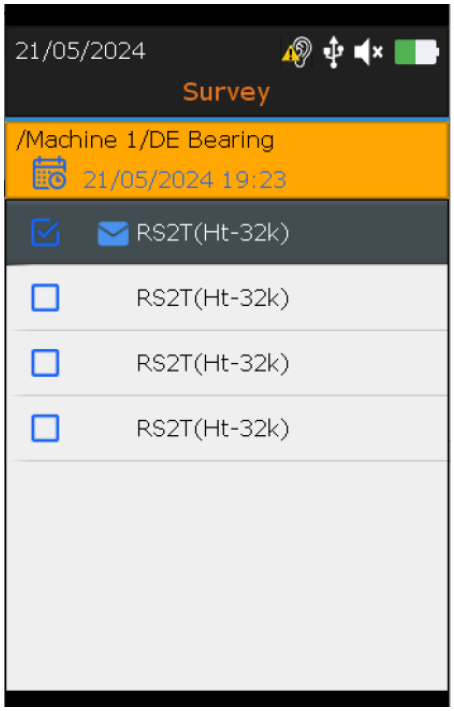
In case the message is longer than displayed, press **RIGHT ARROW** to see the whole message, and **LEFT ARROW** to go back.

To assign a selected message, press **ENTER**

If you work in **FREE MODE,** once you save your measurement in a selected node, you will be asked if you want to add a message:

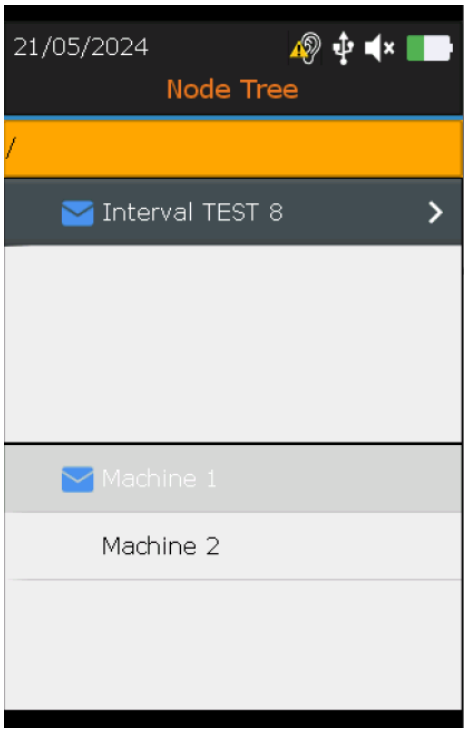


If you select **YES**, the process is the same as described before



When the message is assigned, there will be envelope icon added, so you can easily see where you have already added the message. In this case it is assigned in survey mode, at the sensor level. Message is actually assigned to the measurement point (and all measurement settings in that node).

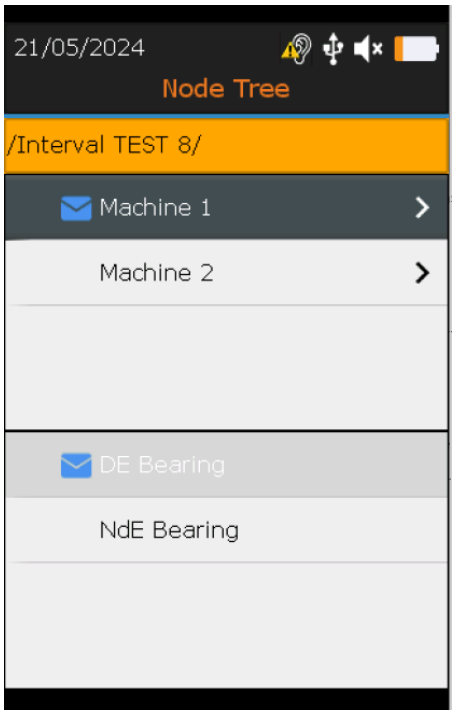
If you want to see what message you added, or to delete the message (in case it was assigned by mistake), go to three structure:

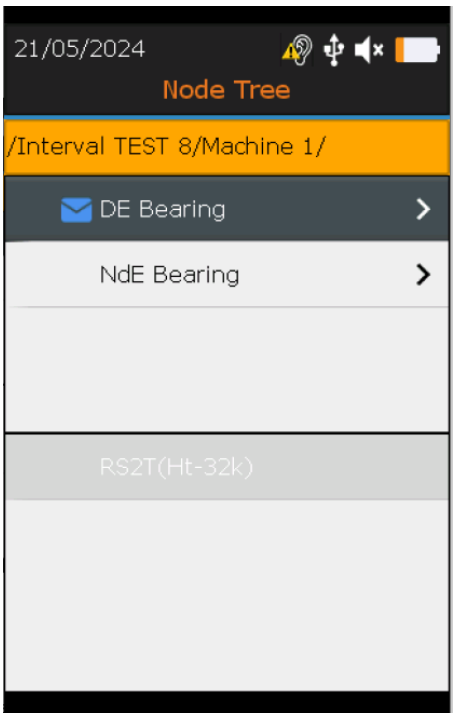


Envelope icon indicates that there is added message in the tree structure

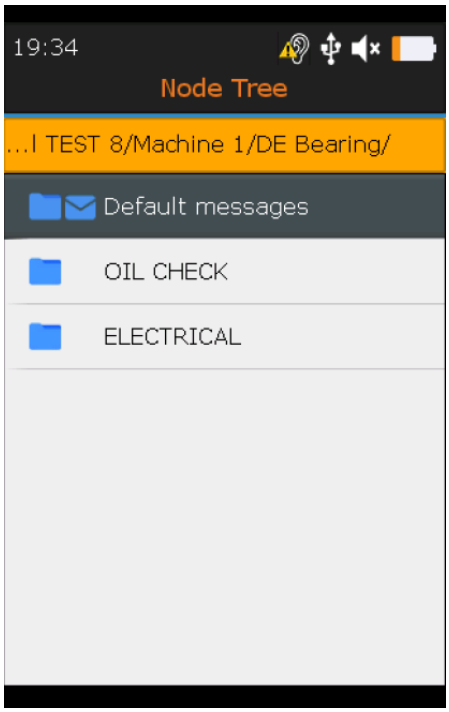
Lower window indicates that the message is added in Machine 1 node

Move further into the tree structure

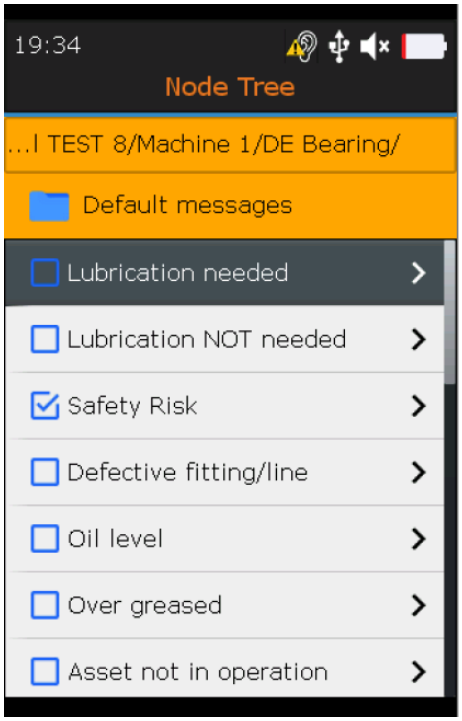




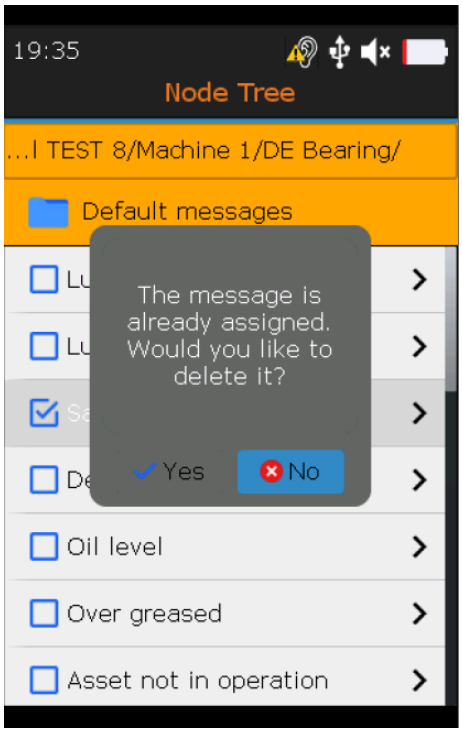
Now that you know where the message is assigned if you want to check what the message was that, or want to delete it, Press **F4,** so you can easily find it (considering that there might be many folders with many predefined messages)



Added message is from the “Default messages” folder. Press Enter to see the messages



The added message is, as indicated, “Safety risk”



If you want to delete it, select the message, press enter and confirm.

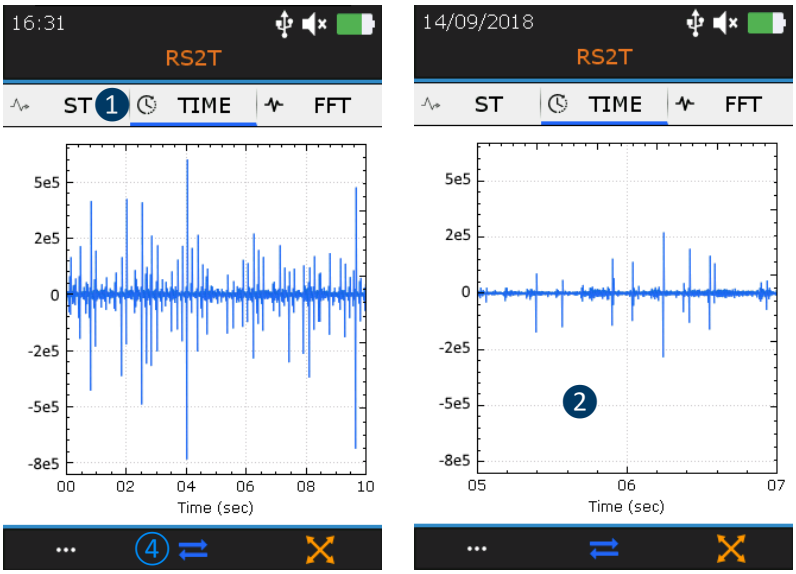
16. Display Ultrasound and Vibration Time Signal

At the end of the signal acquisition and from the **ST** tab, press **F2** to display the time signal. The **TIME** tab (1) is now active.

With **Up** and **Down** navigation keys zoom in and out a portion of the signal from a time scale of 10 seconds (2) to 1 second. With **Left** and **Right** navigation keys, navigate between the different portions of the time waveform.

Press **F1** (3) to display the list of the 10 highest values and one more time to go back to the time signal view.

Press **F2** (4) to toggle to the spectrum view or **Enter** to store the data.



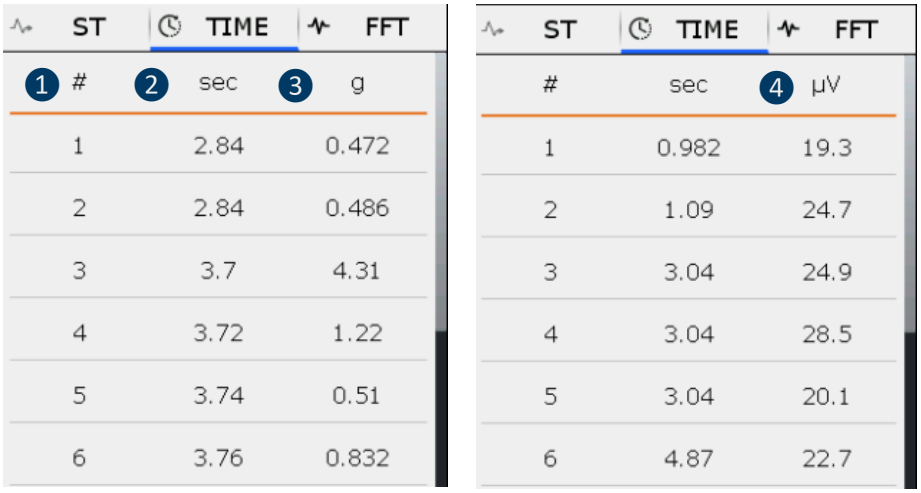
(1) TIME tab is active

(2) Zoom on 10 seconds of the time waveform

(3) F1 to display the list of the 10 highest values

(4) F2 to display the spectrum

Figure 14-1: zoomed out and zoomed in time waveform



1 10 highest values

2 10 highest values acquisition time

3 10 highest accelerations (g)

4 10 highest voltage (uV)

Figure 14-2: List of the 10 highest values, vibration left and ultrasound right

17. Display ultrasound and vibration spectrum

From the TIME tab, press **F2** to display the spectrum. The **FFT** tab 1 is now active.

With **Up** and **Down** navigation keys zoom in and out a portion of the signal. With **Left** and **Right** navigation keys, navigate between the different portions of the spectrum.

Press **F1** 2 to display the list of the 10 highest values and one more time to go back to the time signal view.

Press **F2** 3 to toggle to the **ST** tab or **Enter** to store the data.

1 **FFT** tab is active

2 **F1** to display the list of the 10 highest values

3 **F2** to switch to the ST tab

Figure 15-1: Spectrum view ultrasound right and vibration left

ST	TIME	FFT
① #	② Hz	③ g
1	216	523
2	243	630
3	244	682
4	246	725
5	248	727
6	250	686

ST	TIME	FFT
#	Hz ④	µV
1	0	2.44e+04
2	1	3.62e+04
3	1	2.16e+04
4	2	1.38e+04
5	4	6.21e+03
6	6	1.23e+04

① 10 highest values

② 10 highest values frequencies

③ 10 highest accelerations (g)

④ 10 highest voltage (uV)

Figure 15-2: List of the 10 highest values, vibration left and ultrasound right

18. Proceed with temperature measurement in Free Mode

Note that from the settings menu, you can choose to display temperature in degrees Celsius or Fahrenheit. From the **Home** screen, select the temperature icon and press **Enter**. The running temperature screen is displayed (Figure 18).
The value ① is refreshed twice per seconds. Press the **Laser** hold-on key to activate it.
Press **F2** ② to display the curve of the temperature evolution over time (Figure 19).
Press **F3** ③ to adjust the emissivity and change the unit. The setting is displayed on the running temperature screen (cf Figure 20).

Press **Enter** to freeze the temperature measurement and once more to record the measurement. Select the desired memory location and confirm your choice with **Enter**.

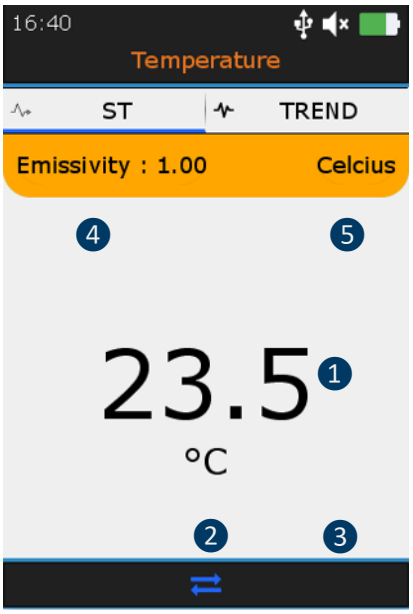


Figure 16-1: Running temperature screen.

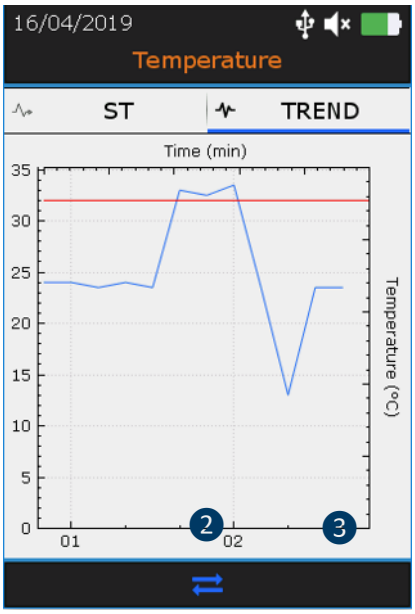


Figure 16-2: Temperature evolution curve screen

1. Running temperature
2. F2 to toggle between the running temperature screen and the temperature evolution curve
3. Temperature settings
4. Emissivity value
5. Unit (°C, °F, °K)

To accurately measure the temperature of a reflective surface, the target material emissivity which corresponds to the measure radiant temperature must be known. The true material emissivity value is continual changing property, and some typical values can be found on the WEB. Defining the correct emissivity value is not an important factor for industrial application and most material surfaces have emissivity values close to 0.95. SDT defines a default value between [0.95-1], customizable, that is close to the most common materials encountered in the industrial field. In any event, since most of the time, user is just interested in following thermal deviation or relative change, working with a fixed/predefined value leads to an estimate of the surface temperature but there is a difference between the real surface temperature and the measure value that is independent of the instrument accuracy or its factory calibration. The emissivity coefficient ε refers to the radiation of heat from a 'grey body' according to the Stefan-Boltzmann law.

19. Tree navigation and data storage in Free Mode

The example hereafter uses the following UAS tree structure:

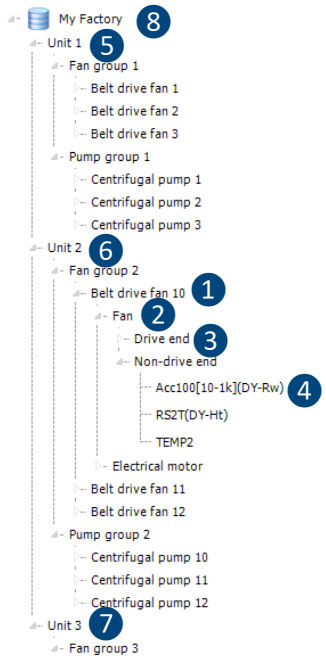


Figure 17-1: example of tree structure

Unit 1 (5), Unit 2 (6) and Unit 3 (7) are the children of My Factory (8). They have the same level in the tree structure. In the same way, Centrifugal pump 1, 2 and 3 are children of Pump group and have the same level. Fan group is the parent of Belt Drive fan 1, 2 and 3…

Belt Drive fan (1) should be considered as machinery. Fan (2) and Electrical motor are the components of one machinery. Drive end (3) and non-Drive end are the measurement locations. A measurement location is namely the contact sensor place or the target for non-contact probes. For instance, the bearing housing or pillow block is measurement locations when using the accelerometer or the RS2T.

Acc100 [10-1k] (4) as a measurement type.

A measurement type is the combination of a technology (Acc means vibration accelerometer), a sensor sensitivity (100 means 100 mV/g) and a specific setting ([10-1k] means a measurement bandwidth between 10 Hz and 1 kHz).

The SDT340 features an intuitive and quick way to navigate, going up and going down, by hierarchical levels of the tree structure.

The list of the nodes of the selected level is placed in the **upper section**. Use the **Right** key to go up the higher level, the parent (if exists). Its name is indicated with its path in the **top section**. Select the desired node of the **upper section** with the **Up** and **Down** keys. Then using the **right** key, go down the lower level, the children. The corresponding nodes are shown in the **lower** section.

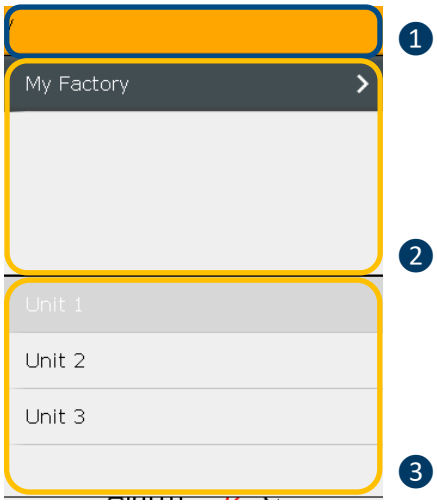
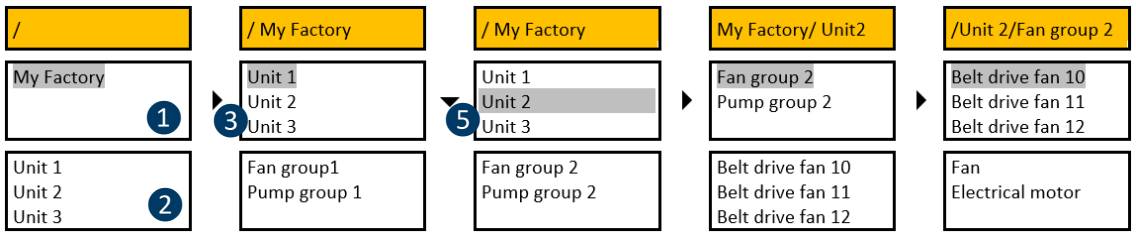
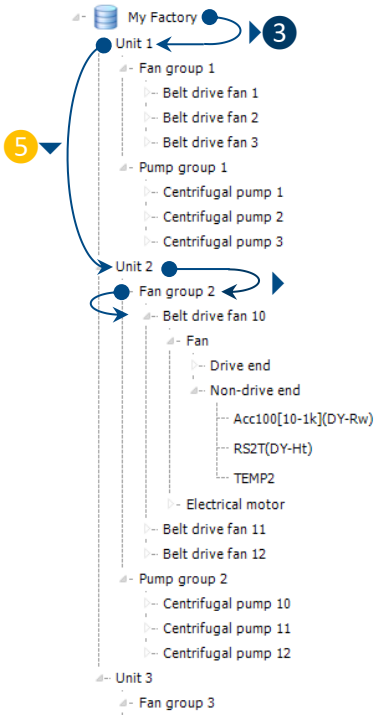


Figure 17-2: Top, upper and lower sections

This method, common to the Free Mode, the Tree Mode and the Survey Mode, makes it easy to navigate in between measurement types in large tree structure.

The way of proceeding is detailed with an example based on the following tree structure.





After freezing the measurement and pressing **Enter**, **My Factory** is selected in the **upper section** 1. The **lower section** 2 contains the lower-level nodes of **My Factory**, **Unit 1**, **Unit 2** and **Unit 3**.

Pressing the **Right** key 3, now the upper section contains **Unit 1**, **Unit 2** and **Unit 3**. The top section 4 contains the higher-level node of **Unit 1**, **Unit 2** and **Unit 3**. The **lower section** contains the lower-level nodes of **Unit 1**, **Fan group 1** and **Pump group 1**.

Pressing the **Down** key 5, **Unit 2** is now selected. The **lower section** contains its lower-level nodes: **Fan group 2** and **Pump group 2**.

Pressing the **Right** key, **Fan group 2** is selected. The **lower section** contains **Belt Drive 10**, **Belt Drive 11** and **Belt Drive 12**.

Pressing the **Right** key, **Belt Drive fan 10** is selected in the **upper section**. The **lower section** contains **Fan** and **Electrical motor**.

When reaching a measurement location node, press Enter.

Figure 17-3: Tree structure navigation (1)

You don’t need to go down to the measurement type level. You can directly store data from the measurement location level by pressing **Enter**. In Free Mode, if the measurement type doesn’t exist, it will be created automatically.

Naturally, you could also navigate from lower level to higher-level nodes, as demonstrated in the following example.

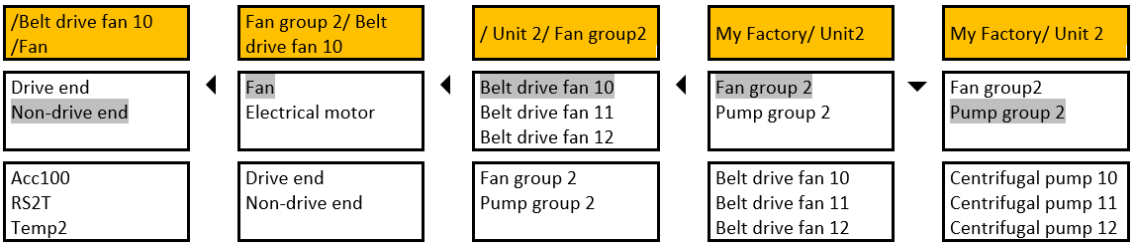
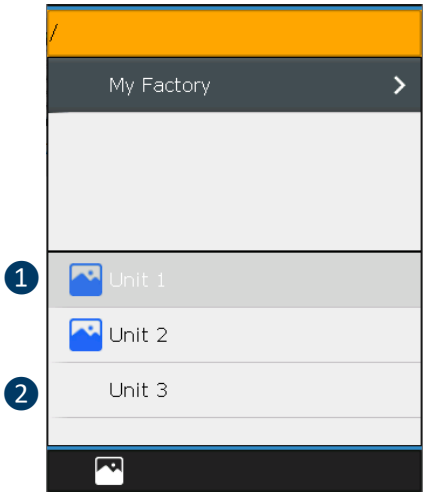


Figure 17-4: Tree structure navigation (2)

Non-Drive end is selected. Pressing **Left**, the **upper section** contains the nodes having an upper level than **Non-Drive end**: **Fan** and **Electrical motor**. Another **Left** press, the **upper section** is refreshed showing **Belt Drive fan 10**, **Belt drive fan 11**, and **Belt drive fan 12**. After the next **Left** press, **Fan 2** and **Pump group 2** appear in the **upper section**. Pressing the **Down** key will select **Pump group 2**.

The navigation pictures added in the Ultranalysis Suite software are also visible in the device.

If a picture is available an icon is displayed next to the concerned node. Use the **F1** key to view the image.



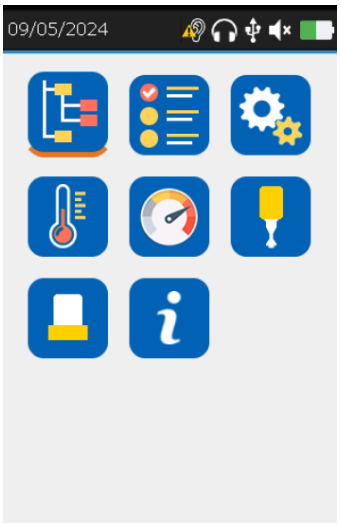
1. Image available
2. Image not available

Figure 17-5: Tree structure navigation (3)

20. Working in Tree Mode

Working in Tree Mode considers navigating through the tree structure and collecting the readings from any chosen position. The measurement setting cannot be changed from those predefined in UAS3 software.

Select highlighted icon:

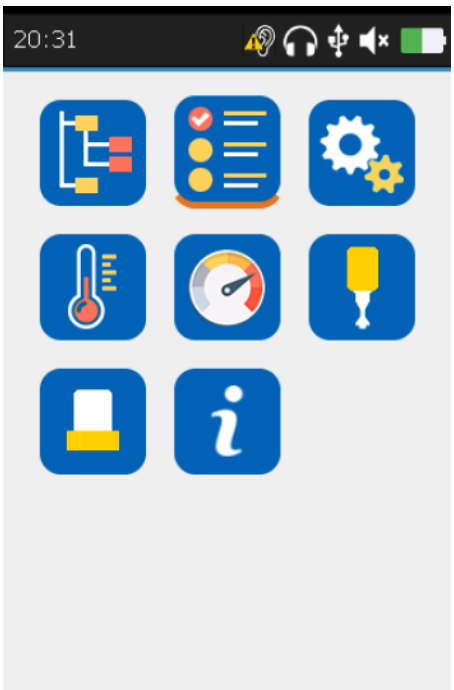


Navigate through the Tree structure as explained above, and select the measurement point for data collection.

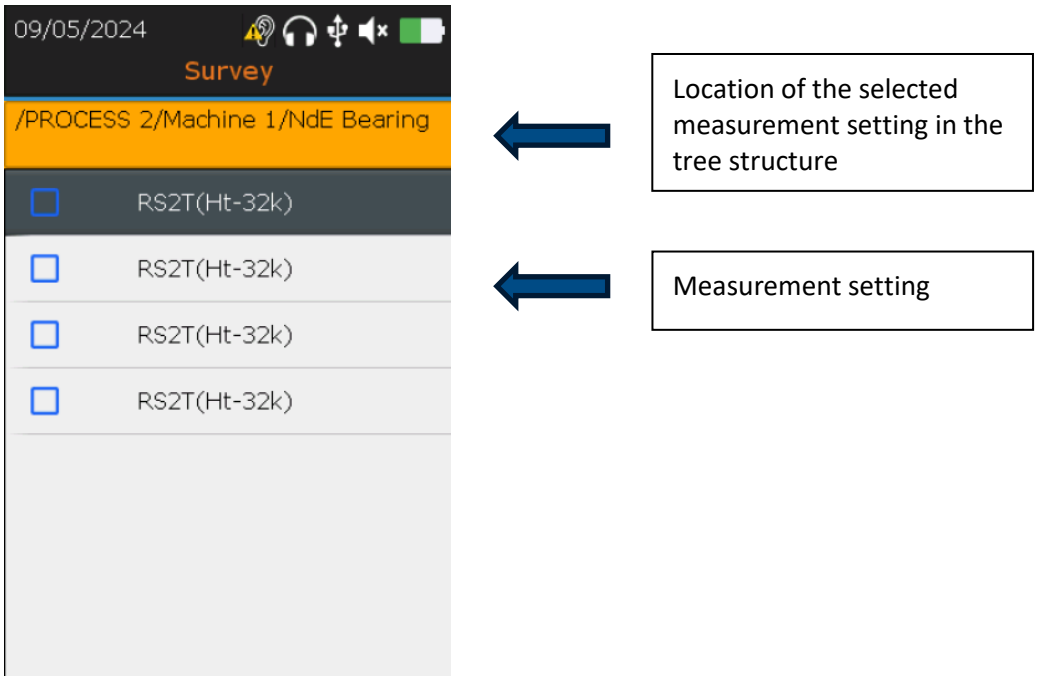
21. Working in Survey Mode

A survey is a list of selected measurement points placed in one work order, with all predefined settings.

Select highlighted icon:



A list of assets will appear:

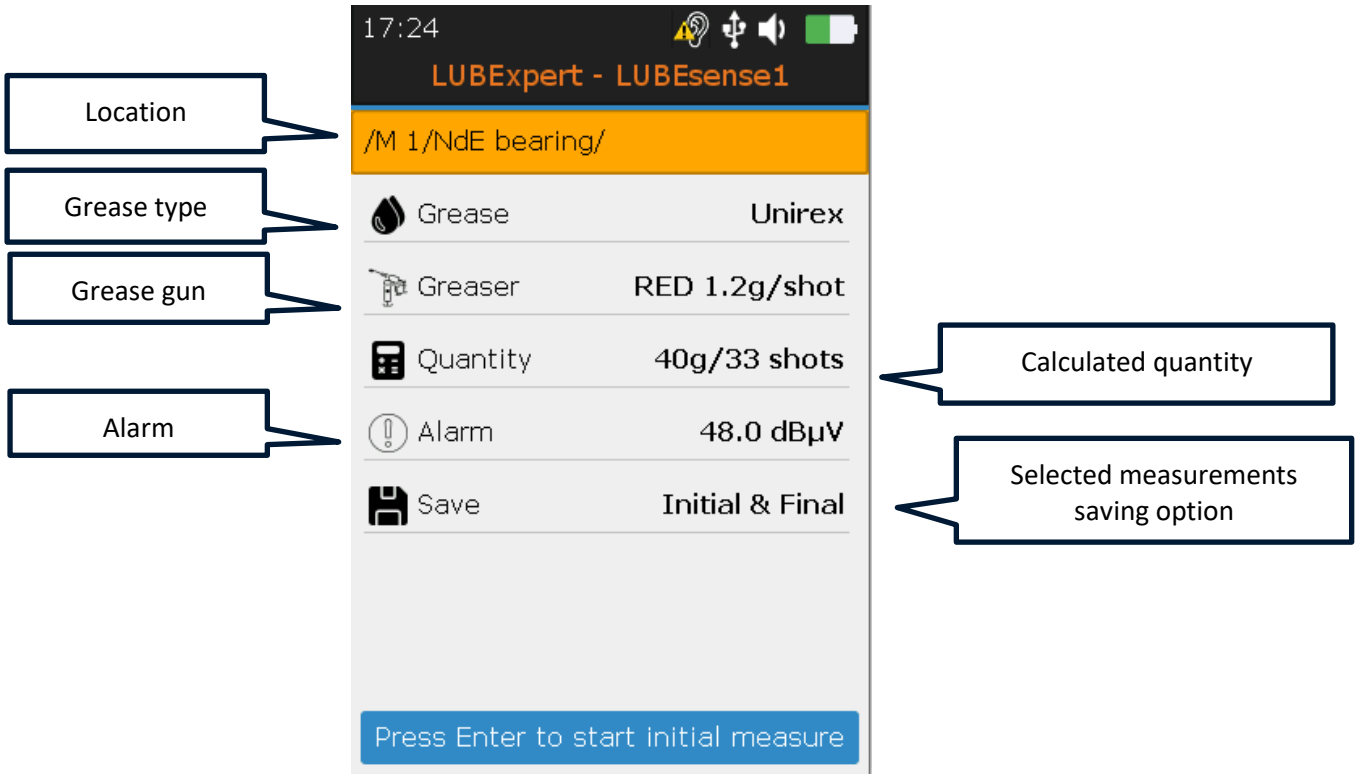


Select measurement settings one by one and collect readings.

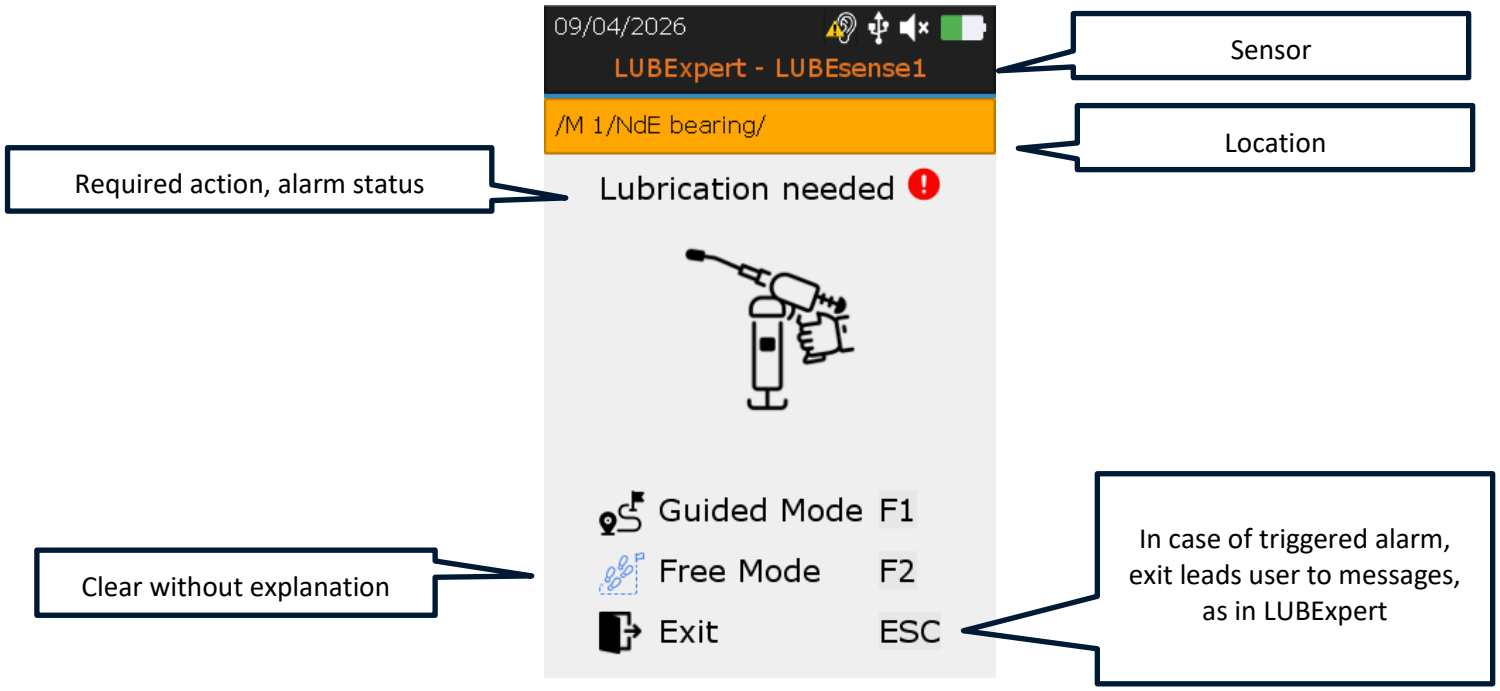
22. Working in LUBExpert Mode

The SDT340 provides a clear and intuitive interface for both guided and manual lubrication tasks. A key feature of the updated interface is a mandatory prompt for the number of grease shots added, ensuring accurate data tracking.

Upon selecting the **LUBEsense1** or **RS2T** sensor, the screen will show:



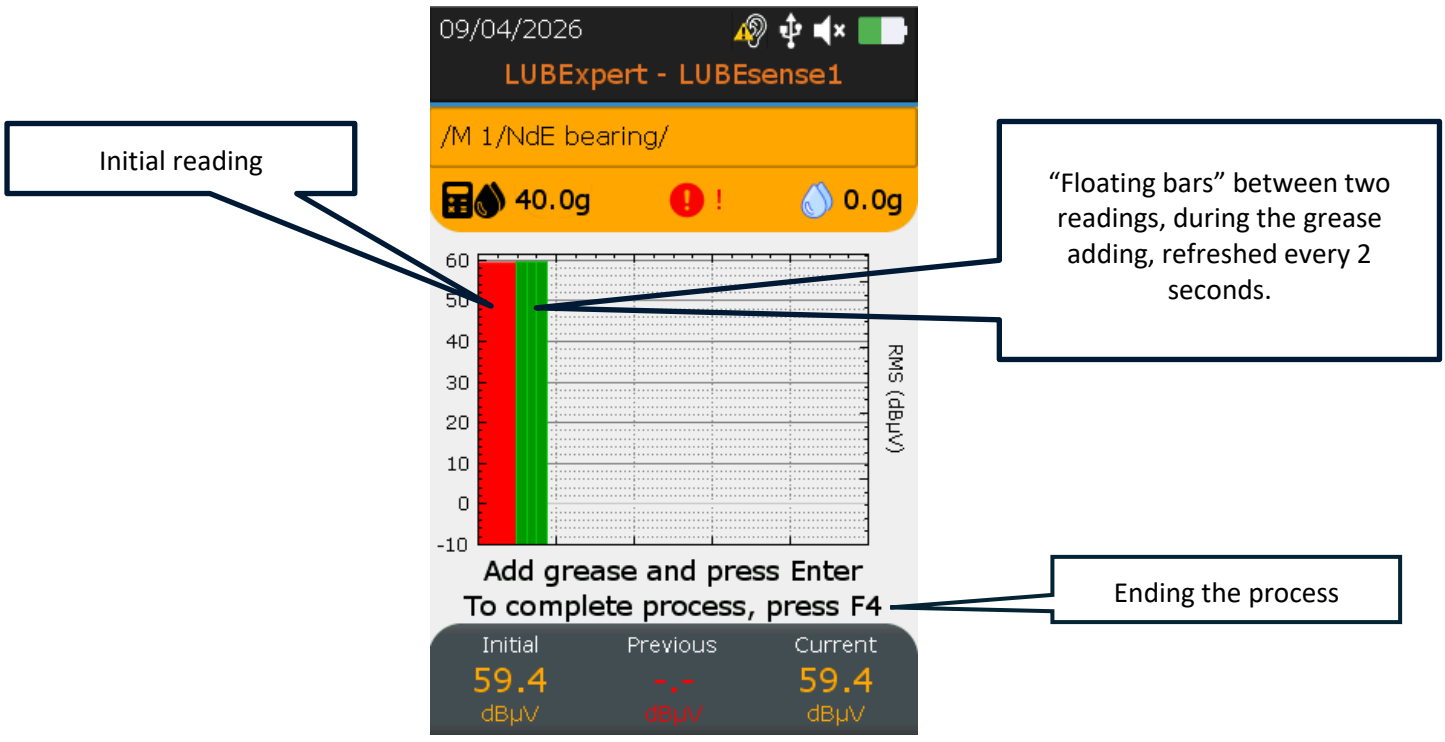
Once the initial reading is saved, the instrument will evaluate the condition. If a lubrication alarm is triggered, the screen will update to guide you through the replenishment process.

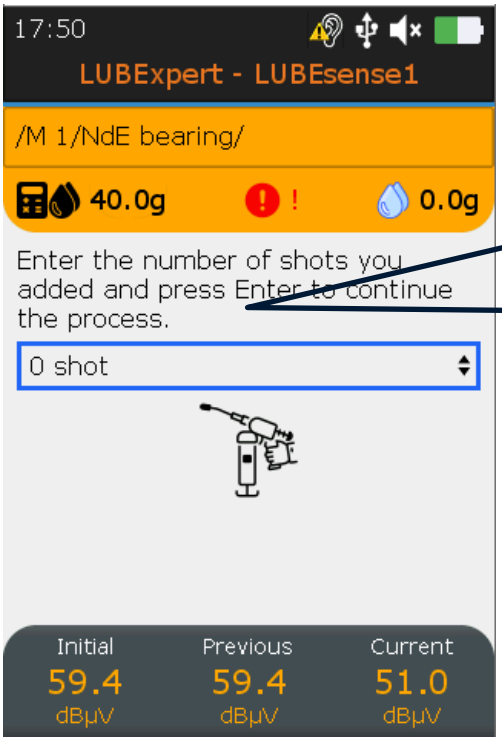


The interface adapts based on whether you are following a strictly guided survey or working independently:

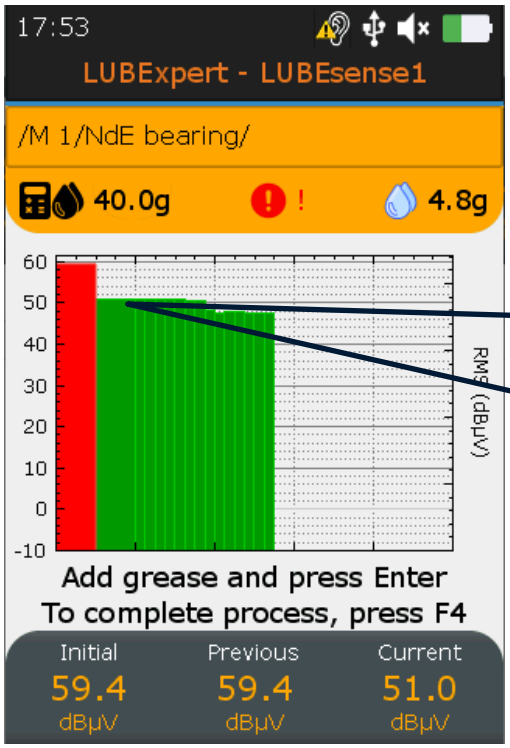
- **Guided Mode:** The screen provides step-by-step instructions based on the pre-set bearing data and grease gun settings defined in UAS3. It directs the specific number of shots required for each step.

- **Free Mode:** This mode allows for manual control over the lubrication process. To maintain data integrity, the menu now requires you to enter the number of shots added before the interface allows you to proceed to the next reading. This eliminates the risk of "forgetting" to log grease quantities.

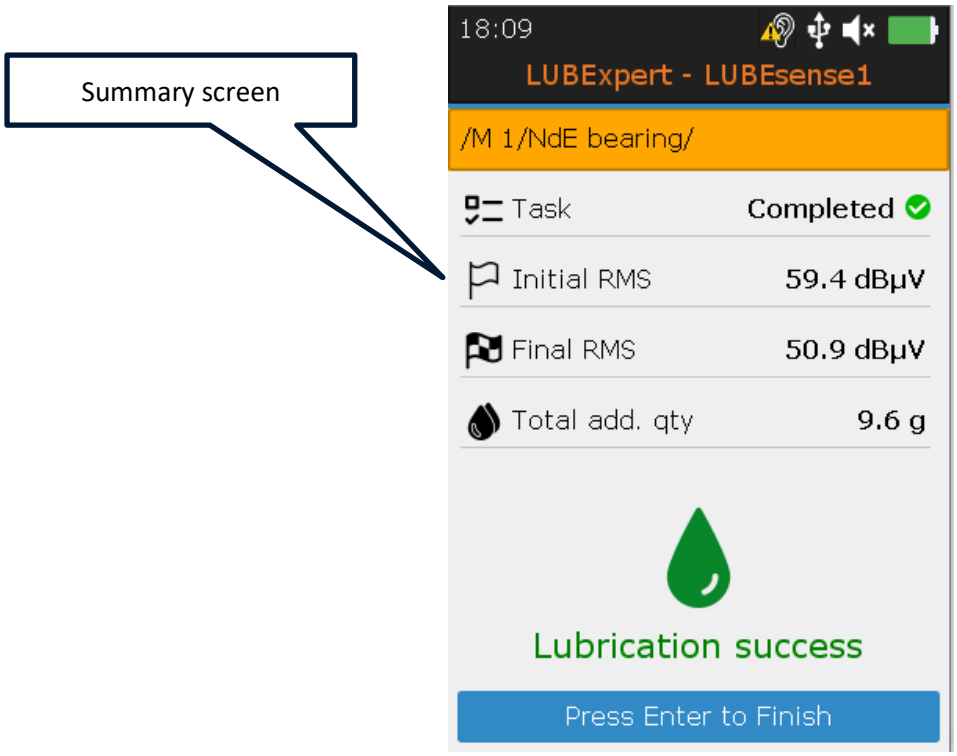




After adding grease and pressing "enter", the reading is taken (stabilization time + acquisition time), but before displayed, number of shots must be entered

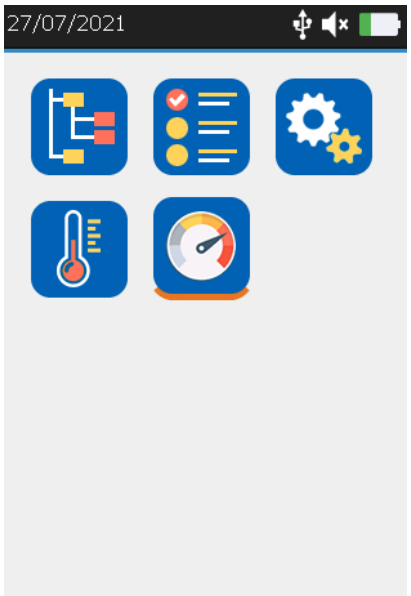


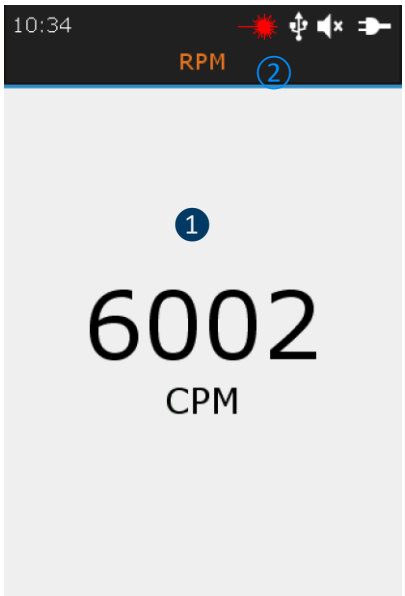
"Floating bars" from the previous step are now shown as one bar, representing the measurement that was taken, and further "floating bars "are appearing. Same in every following step.



23. Rotational speed

Before using the tachometer, a reflective band must be stuck on the rotating part to perform a measurement.





1 Running RPM/CPM

2 Laser Icon activated

Figure 18: Rotational speed

From the **Home** screen, select the RPM icon and press **Enter**. The running RPM screen is displayed (Figure 17). The value ❶ is refreshed twice per seconds (500 ms). Press the **Laser** hold-on key to activate it. The laser icon ❷ indicates when the laser is on.

Press **Enter** to freeze the RPM measurement and once more to record the measurement. Select the desired memory location and confirm your choice with **Enter**.

From the **Home** screen, select **Settings** then browse to **Metrical imperial** menu**.** Edit section **Frequency unit** according to your preference.

The following standard rotational units are available:

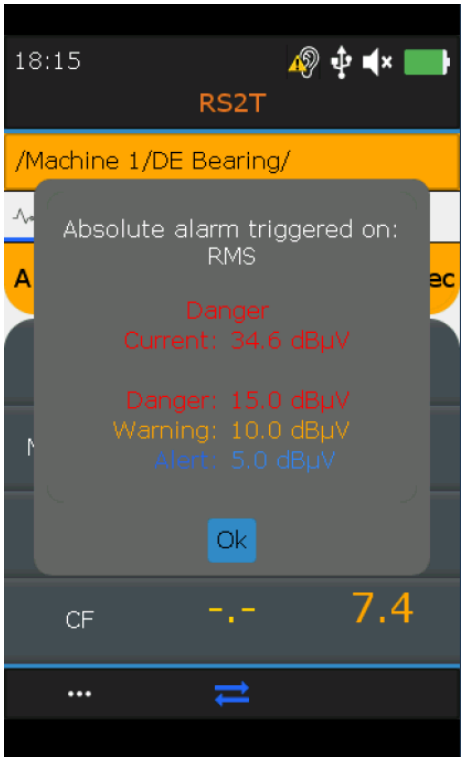
- -Hz
- -RPM (rotation per minute)/CPM (cycle per minute), where 1 Hz=60 RPM/CPM

24. Alarms in the SDT340

Alarms configuration and values are set in UAS3 and transferred to the SDT340.

Once the measurement is saved, the SDT340 will check if the alarm is assigned, and if it is, it will check for triggered alarms. Triggered alarm will be displayed on the screen, and the operator needs to acknowledge it by pressing enter, in order to proceed to the next measurement position.

Here is the example:



Notification shows the triggered alarm, at what level is triggered, as well as alarm setup for triggered value on that point

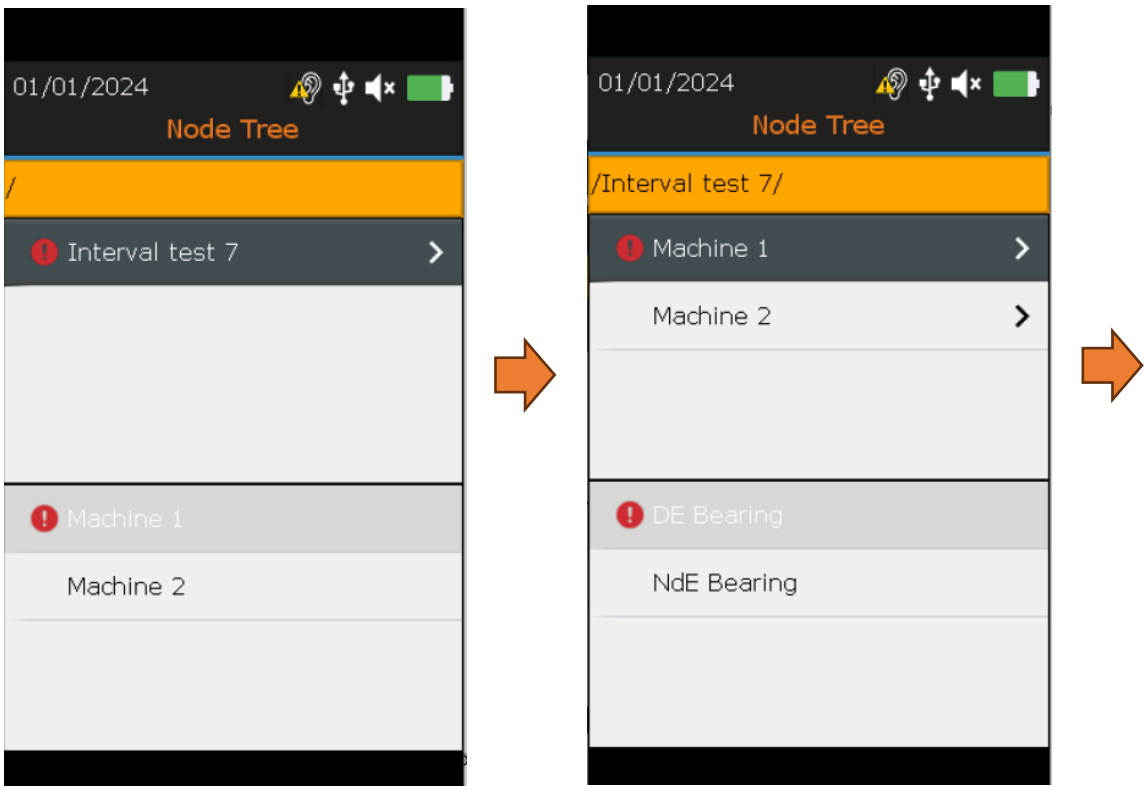
The highest alarm level will be shown in the message

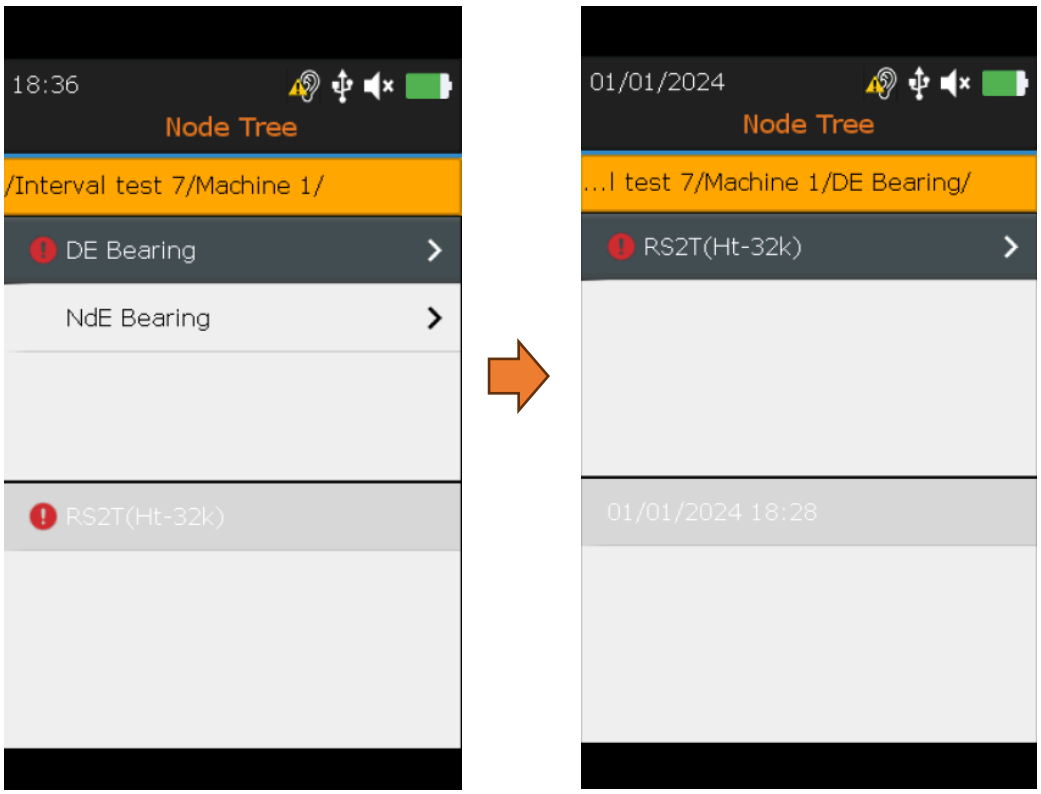
System tests for the safe alarm first, and after that in chronological order, as alarms were assigned.

Once danger level is detected, message is displayed.

Still, **all** alarms will be shown in UAS3

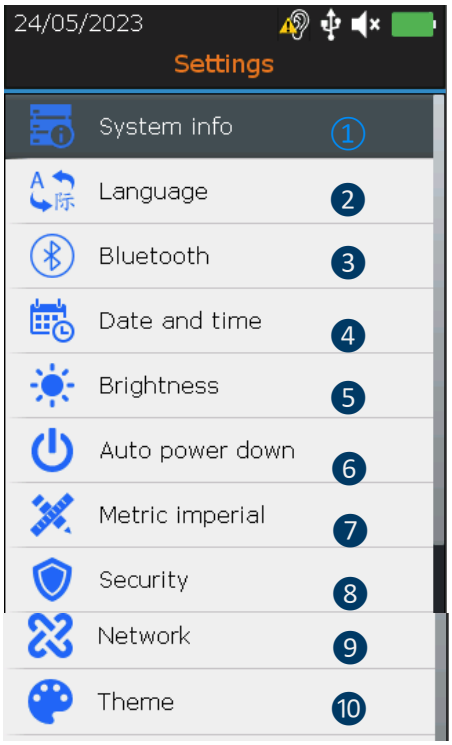
In the tree structure or survey in SDT 340, points in alarm will be shown in the same way as in UAS3





25. General Settings

From the **Home** screen, select General settings icon and press **Enter.** With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**.

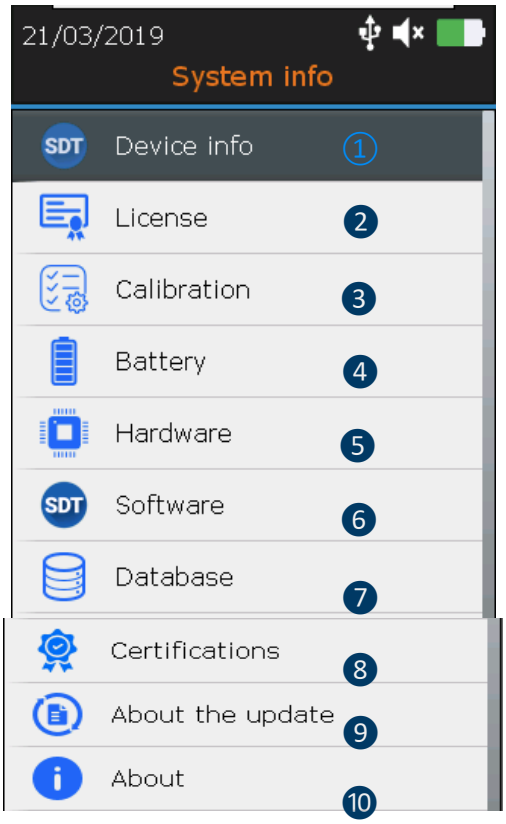


1. System info setting
2. Language setting
3. Bluetooth setting
4. Date and hour setting
5. Brightness setting
6. Auto power down setting
7. Metric imperial setting
8. Security setting
9. Network setting
10. Theme setting

Figure 19: General settings

From System info screen press **Enter.**

25.1. System info



1. Device info
2. License info
3. Calibration info
4. Battery info
5. Hardware info
6. Software info
7. Database info
8. Certifications' info
9. About the update info
10. Manufacturer Info

Figure 19-1: system Info

From Device info screen press **Enter**

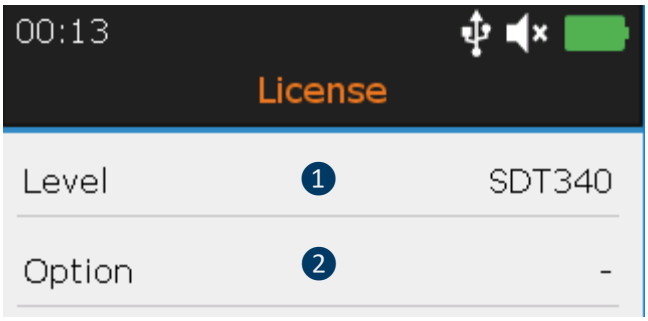
25.1.1. Device info

1. Equipment number
2. PCB Serial ID number
3. PCB number
4. PCB issue number
5. Batch number
6. Batch manufactured month
7. Batch manufactured year

Figure 19-1-1: system Info

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

25.1.2. License info

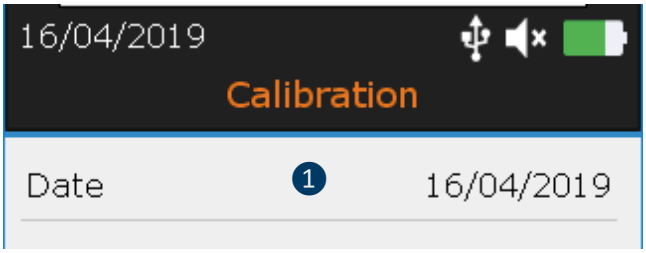


1. License level
2. License option

Figure 19-1-2: system Info

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

25.1.3. Last calibration date

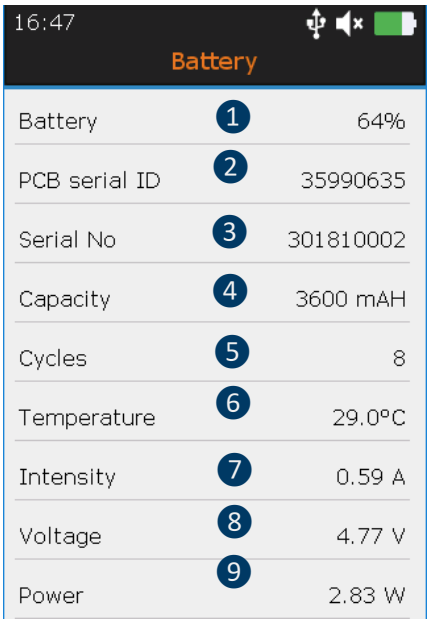


1 Last calibration date

Figure 19-1-3: calibration info

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

25.1.4. Battery info

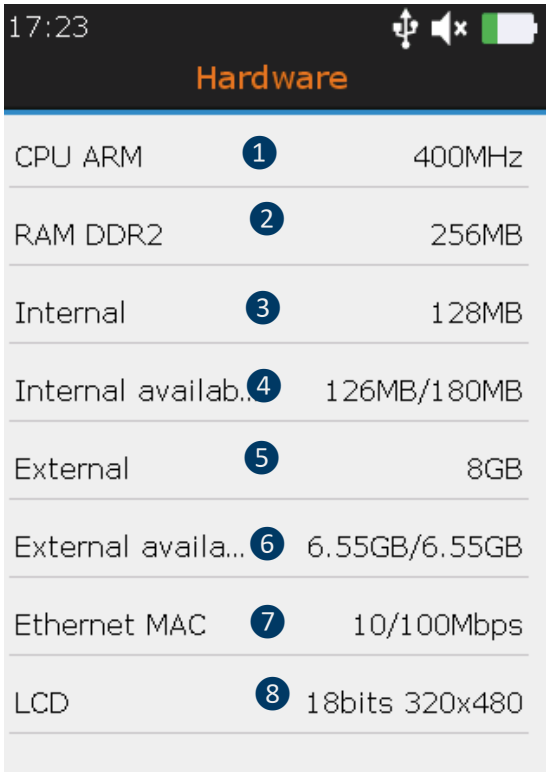


1 Current capacity (in %)
2 Battery serial ID
3 Battery serial number
4 nominal capacity (in mAH)
5 Number of charge/discharge cycles
6 Battery temperature (in °C or °F)
7 Charge/discharge current (in A)
8 Nominal voltage (in V)
9 Power (in W)

Figure 19-1-4: Battery info

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

25.1.5. Hardware info

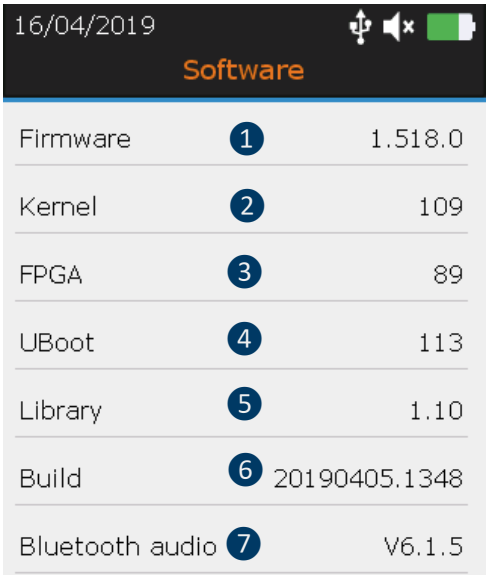


1. CPU frequency
2. RAM capacity (in MB).
3. Internal memory (in MB)
4. Internal available memory (in MB)
5. External memory (in GB)
6. External available memory (in GB)
7. Speed Ethernet MAC (in Mbps)
8. Screen resolution

Figure 19-1-5: Hardware info

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

25.1.6. Software info

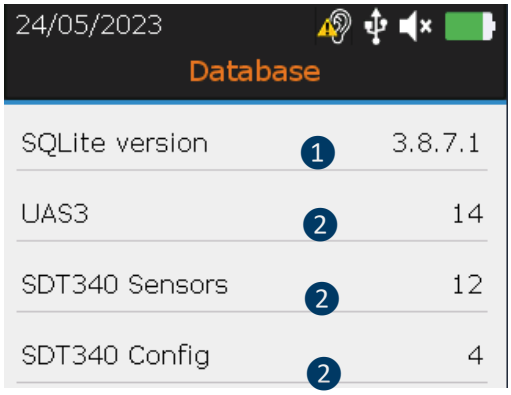


1. Firmware version
2. Kernel version.
3. FPGA version
4. UBoot version
5. Library version
6. Build version
7. Bluetooth audio version

Figure 19-1-6: Software info

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

25.1.7. Database



1 SQLite version

2 Databases

Figure 19-1-7: Database

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

25.1.8. Certifications

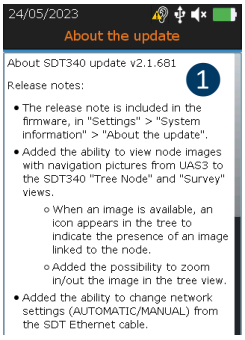
1 CE compliant

2 WEEE Directive compliant

Figure 19-1-8: Certification

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

25.1.9. About the update



1 Release notes

Figure 19-1-9: Certifications

25.1.10. Manufacturer info

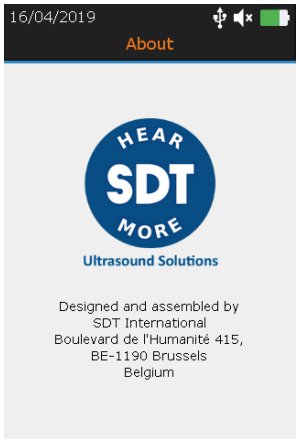


Figure 19-1-10: Manufacturer info

25.2. Language

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

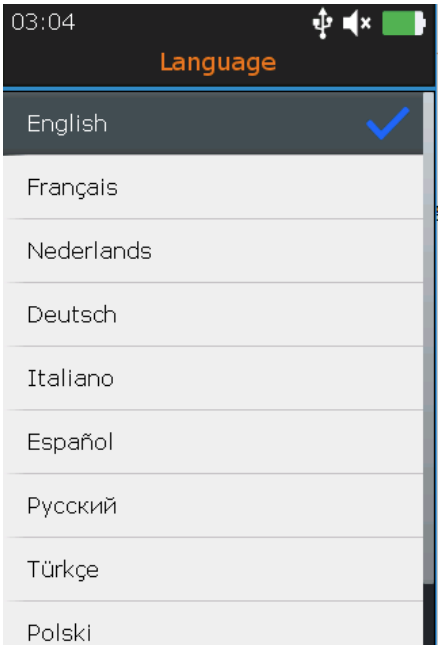
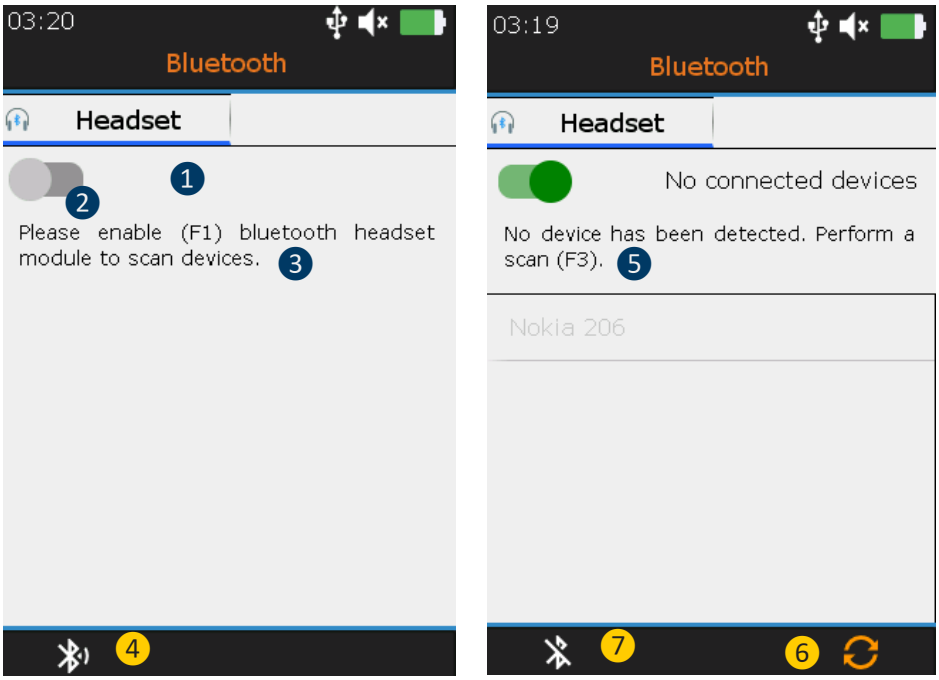


Figure 19-2: Language

25.3. Bluetooth

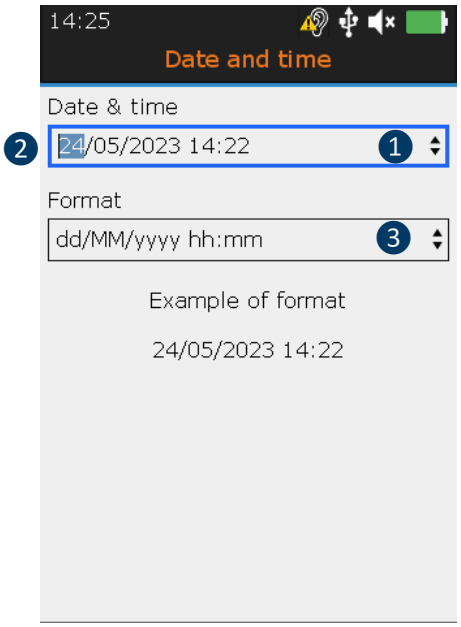


1. Bottom blue line indicates that headset is selected
2. Indicator for enable and disable Bluetooth
3. Instruction to enable the Bluetooth
4. Bluetooth off
5. Instruction to pair the headset
6. Scan
7. Bluetooth on

Figure 19-3: Bluetooth

Press **F1** 2 **to enable** the Bluetooth headset module. Switch on the headset. The headset must emit a blue flashing light. **Press F3** to pair 6 the SDT340 with the headset.

25.4. Date and time format

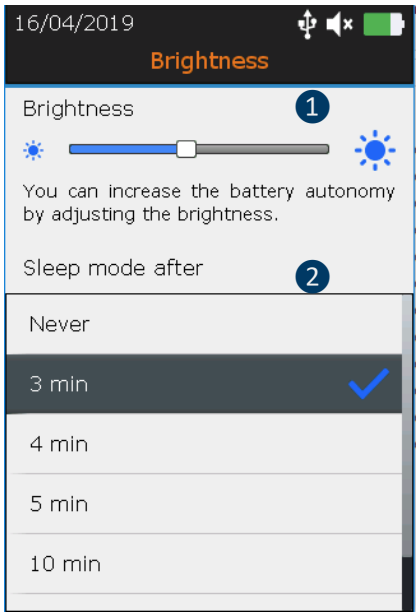


1. Locale date and time
2. Blue frame indicates the selected field
3. Date and time settings format

Figure 19-4: Date and time

With **Left and Right** Buttons highlight the desired field 2. With the **Up** and **Down** navigation keys increase or decrease the settings values. Confirm your choice with **Enter**.

25.5. Brightness



1 Brightness adjustment

2 Sleep mode delay

Figure 19-5: Brightness

With the **Left** and **Right** you can adjust the brightness of the screen. And with the Up and **Down,** you define the sleep mode delay.

25.6. Auto power down

With the **Up** and **Down** navigation keys highlight the desired settings and confirm your choice with **Enter**. Press the button **ESC** to display the previous screen.

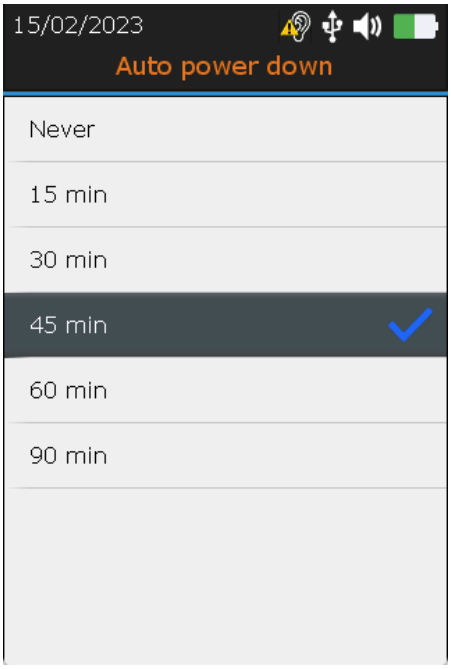
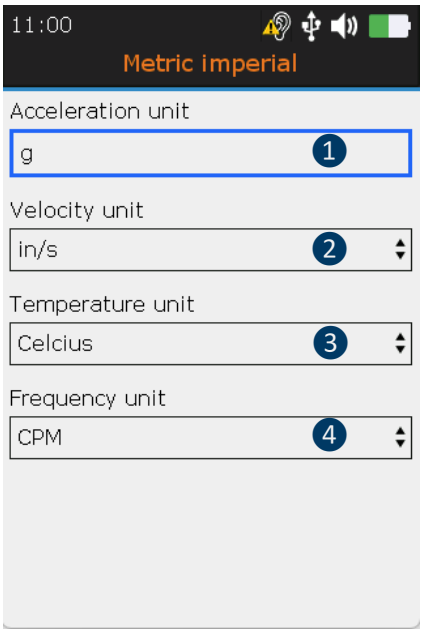


Figure 19-6: Auto power down

25.7. Metric imperial



1. Acceleration unit
2. Velocity unit
3. Temperature unit
4. Frequency unit

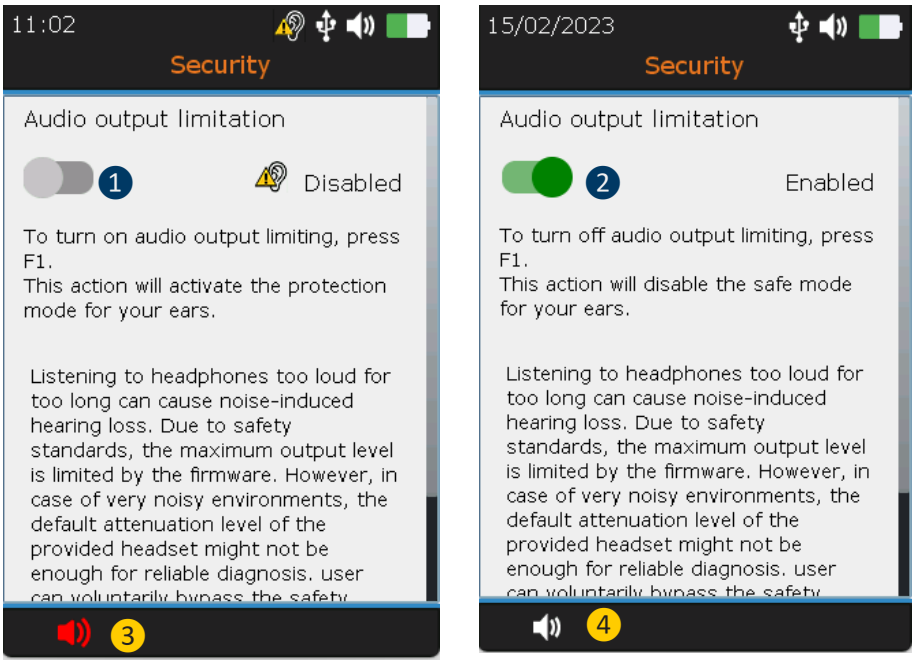
Figure 19-7: Metric imperial

With **Left and Right** Buttons highlight the desired field. With the **Up** and **Down** navigation keys change the settings values. Confirm your choice with **Enter**.

25.8. Security

Listening to headphones too loud for too long can cause noise-induced hearing loss.

Due to safety standards, the maximum output level is limited by the firmware. However, in case of very noisy environments, the default attenuation level of the provided headset might not be enough for reliable diagnosis. user can voluntarily bypass the safety protection and expose himself to potentially harmful sound levels.

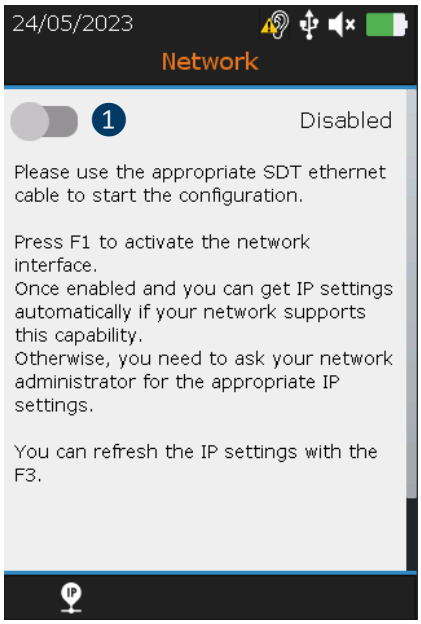


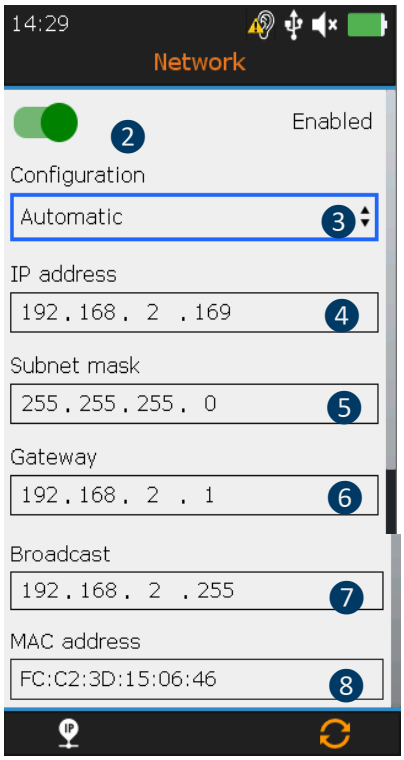
1. Turn on audio output limitation
2. Turn off audio output limitation
3. Audio output limitation is disabled
4. Audio output limitation is enabled

Figure 19-8: Security

Press **F1** ① **to enable** the audio output limitation.

25.9. Network





① Turn on to configure the network settings

② Turn off the network configuration

③ Automatic/Manual configuration

④ IP Address

⑤ Subnet mask

⑥ Gateway

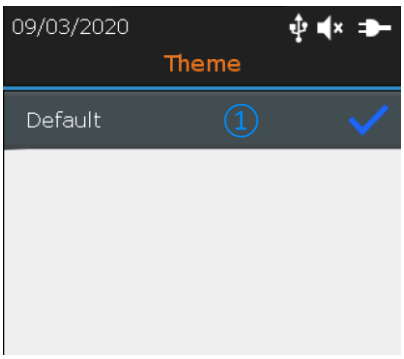
⑦ Broadcast

⑧ MAC Adress

Figure 19-9: Network

With **Left and Right** Buttons highlight the desired field. With the **Up** and **Down** navigation keys change the settings values. Confirm your choice with **Enter**. Fields can only be modified in the case of **manual** configuration.

25.10. Theme



① Choose by default

Figure 19-10: Theme

You can use this feature to change the appearance of your screen. With the **Up** and **Down** navigation keys highlight the theme you want and confirm with **Enter**.

26. Recommended calibration intervals

SDT recommends annual recalibration of SDT instruments and **annual** verification of sensors to benefit from its **limited lifetime warranty**. This periodicity is coherent with the observed long-term stability of SDT electronic equipment's.

However:

- For new equipment leaving the factory the initial period is extended to 15 months instead of 12 (to avoid any possible discrimination between users due to transportation time, customs clearance, etc.).
- SDT recognizes that each customer may have their own Quality Assurance Standards and internal requirements. If a customer has established a Quality Assurance Program that includes a documented procedure for measurement deviations, and if an instrument and the relevant sensor show acceptable deviations and do not show signs of physical damage, then calibration periodicity could be extended to two years.
- Third party organizations having more authority (Class, or State Administrations) may have defined their own regulations for example 6 months, or 2 years calibration interval: by evidence, local legally applicable regulations supersede SDT rules.

For these reasons, SDT Calibration Certificates do no more mention a "calibration due date", but simply the "last calibration date".

For user convenience, the date of the last calibration of an SDT200, SDT270, SDT LUBExpert and SDT340 instruments can also be found in the menu screens.

Note! Only the users of SDT200, SDT270, SDT LUBExpert, SDT Checkers range, SDT T-Sonic1, SDT T-Sonic9 and SDT340 can benefit from a limited lifetime warranty.

This text refers to SDT document DC.QUAL.005[1].

27. Warranty

SDT International guarantees the SDT340 unit against manufacturing faults for an unlimited period, provided that the device is calibrated annually and that other conditions to benefit from the lifetime warranty are respected. With the exception of the battery and accessories (charger, headphones) these are guaranteed for a period of 6 (six) months. The limited lifetime warranty covers all material supplied and implies the free replacement of all parts that contain a manufacturing fault.

The limited lifetime Warranty does not include shipping, handling and importation.

The limited lifetime warranty is void if misused, or an accident damages the product, if the product is altered in any way, if an unauthorized party attempts repair, or the unit is opened without written authorization of SDT International.

In the event of a defect, contact your local SDT representative or SDT International.

[1] This document is part of SDT's quality management system (ISO-9001 certified).

28. Responsibility limits

Neither the company SDT International, nor any related company, will in any circumstances be liable for any damages, including, without limitation, damages for loss of business, business interruption, loss of information, defect of the SDT340 unit or its accessories, bodily harm, loss of time, financial or material loss or any other indirect or consequential loss arising out of the use, or inability to use this product, even when it has been warned of possible damages.

29. Destruction and recycling of waste equipment

In conformance with European Union (EU) Directives and in particular with Directive 2006/66/EU "Batteries" and Directive 2012/19/EU "WEEE – Waste Electrical and Electronic Equipment", SDT International is organizing the management of waste equipment. However local legal regulations have precedence.

Thus, SDT Customers may

- Either transfer a waste apparatus to a local company
  that will recycle it in accordance with applicable local laws
- Or return the waste apparatus to SDT International or to a SDT Dealer
- For an apparatus that contains a battery, SDT International will transfer the battery to a local company that will recycle it in accordance with EU "Batteries" Directive and Belgian laws.

SDT International will transfer the rest of the apparatus to a local company that will recycle it in accordance with EU "WEEE" Directive and Belgian laws.

30. Copyright and Use of IP

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The information herein is believed to be accurate to the best of our knowledge.

Due to continued research and development, specifications of this product can change without prior notice.

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32. Support and contact details

Addresses:

SDT International	SDT North America
Phone: +32 (0) 2 332 32 25	Toll Free: 1-800-667-5325
Bd. de l'Humanité 415	Phone: 1-905-377-1313
B-1190, Brussels	7677 County Road 2
Belgium	Cobourg ON K9A 0X4,
Email: info@sdtultrasound.com	Canada

If you experience a problem with an SDT instrument, please review the information contained in this manual.

SDT provides technical information on the web to assist you in using our products. Visit our web site to download technical manuals and other documents.

12	GGH 28/04/2026	LUBExpert Mode Update	MUN
11	GGH 28/03/2025	Updates	CGI
10	CMA 18/09/2023	Note on the battery	CGI
09	MUN 24/05/2023	Updated screens + new sections	GGH
08	GGH 15/02/2023	Updated screens + new sections	MUN
07	CMA 28/07/2021	Major update	CGI
06	CGI 18/05/2021	Chapter 7 icon + text	CMA
05	MUN 09/03/2020	Updated Screens + remove ISO	CMA
04	CGI 06/03/2020	Modified version + 100 kHz reference	CMA
03	AKP 01/21/2019	updated Screens	MUN
02	AKP 12/20/2018	updated Screens	MUN
01	AKP 11/20/2018	Original version	CGR
Revision	**Writer**	**Nature of modification**	**Approved**