



User Documentation

SONAPHONE AssetExpert App

Highly Specialized App for route-based data collection with the SONAPHONE handheld unit

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1 Introduction

This section is intended to explain function, structure and representations of the document to simplify handling of the document.

1.1 Notes on this document

Purpose

This document constitutes an integral part of the product and contains important advice on safe operation as well as all information on intended and efficient use. Thus, any person using the product must have read and understood this document.

Accessibility

The staff working with this product must have constant access to this document to prevent handling errors and guarantee trouble-free operation.

Up-to-dateness

Every effort has been made to ensure that the information contained in this document is complete and correct at the time of release. This document describes all units and functions known of at the current point of time.

1.2 Representations in this document

Illustrations

Illustrations used in this document do not always contain all details or special cases. They only represent the relevant information.

Tips

Tips are marked as follows:

ⓘ Tips describe specific information or particular features that might not be evident, even for experienced users. The neglect of a tip poses no direct safety risk. However, it can lead to workflow disruptions.

General icons

The following general icons are used for visual emphasis:

Icon	Function
🔗	Indicates a link to external content.

Inputs and outputs

Certain recurring symbols or descriptions marking possible inputs and outputs for users are used as follows:

Input/output	Representation
Button	Button
Dialog window	Window
User interface element	GUI element

General icons of the user interface

At several instances, the user interface contains recurring icons with the following general meaning:

Icon	Usage	Function
⋮	Menu	Opens a menu with further features.
≡	Sort	Opens a menu with functions for sorting lists.
🔍	Search	Activates the search box.
←	Back	Switches the view to the previous screen.

2 Safety instructions

No alterations to the software

Do not alter the supplied software or commission software alterations to third parties. The software may not be disassembled, decrypted or decompiled in full or in part.

Data loss

The loss of measurement data may lead to incomplete measuring chains or misinterpretations.

- Always make sure to backup measurement data regularly on external data media.

Cyber security measures

Based on analysis of vulnerabilities according to IEC 62443-4-1 and IEC 62443-4-2, no cyber security measures are necessary for the product.

However, a cyber attack on the product and its environment can never be completely ruled out. Thus, we strongly recommend to implement safety measures (e.g. anti-virus programs, firewalls, access restrictions) against potential cyber attacks within the product environment.

3 Description of the AssetExpert app

This section describes the use and the components of the SONAPHONE AssetExpert App user interface.

3.1 Intended use

The SONAPHONE AssetExpert App is a highly specialized app for the SONAPHONE handheld unit and is used for route-based collection of measuring point data. This allows for condition monitoring of an asset.

For collection and evaluation, the following applications are supported:

- Machine condition monitoring
- Steam trap testing
- Leak detection in compressed air systems
- Electrical inspection
- Lubrication checks
- Bearing monitoring
- Valve testing
- Tightness testing of unpressurized systems

Individual routes and their measuring points may be managed and organized with the "SONAPHONE DataSuite" web app and synchronized with one or several SONAPHONE handheld units.

The measurement configuration of the respective measuring points will be transferred and monitored. Manual modifications of the measurement configuration will be documented and displayed.

3.2 Prohibited use

Any use not approved by SONOTEC GmbH is prohibited and may lead to injury or damage to property.

SONOTEC GmbH accepts no liability for damage caused by prohibited use of the product.

Prohibited are in particular:

- Use of the software within a hardware or software environment that does not match the System requirements.
- Unauthorized modifications of the software.
- Transfer of the software to third parties with or without financial remuneration.
- Public distribution of the software.
- Rental or sub-licensing of the software.

3.3 System requirements

Minimum requirements

- SONAPHONE – Ultrasonic testing device
- SONAPHONE Measurement Core V2.0.0
- SONAPHONE LevelMeter App V2.0.0
- SONAPHONE DataSuite V2.0.0

Optional

- SONAPHONE SteamExpert App V1.2.2

3.4 User interface

This section describes the individual screens of the SONAPHONE AssetExpert App.

3.4.1 Route list

Structure

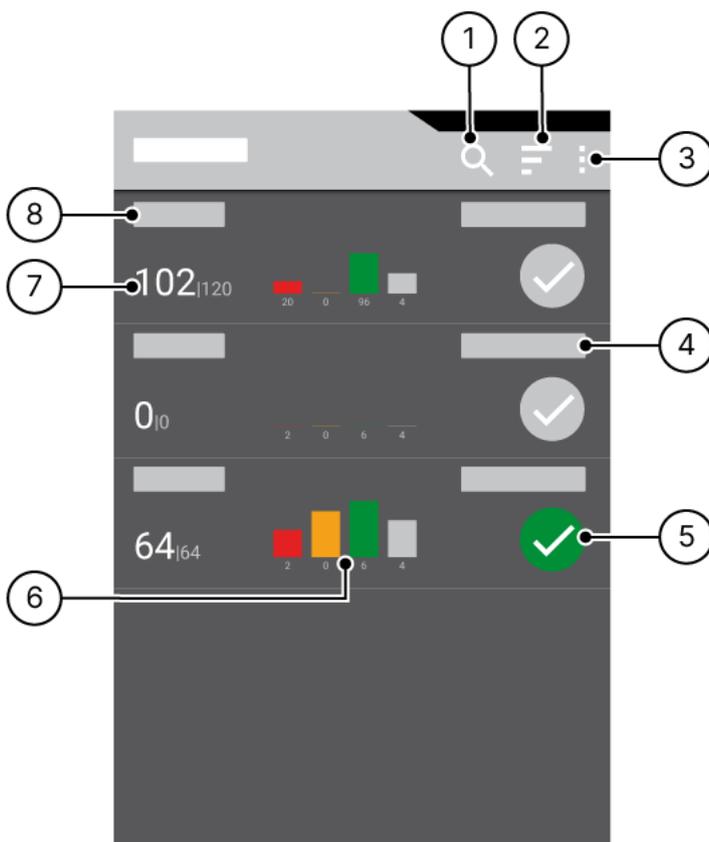


Figure 1: Screen "Route list"

Description

No.	Type	Description/function
1	Search	Opens a search box for searching for routes by route name or route ID.
2	Sortierung	Opens the Sort by window with functions for sorting the route list according to: <ul style="list-style-type: none"> • Name: route name (ascending or descending order) • Date: date of route creation (ascending or descending order) • Sum of points: number of measuring points within a route (ascending or descending order)
3	Menu	Opens a menu with functions for route management: <ul style="list-style-type: none"> • Import routes: Adding of further routes from the SONAPHONE DataSuite • Export all routes: All routes of the route list are exported • Select routes to export: Selection of the routes to be exported • Clear database: Deletion of all routes including their measuring points and measuring point details • Settings: Opens the "Settings" screen.
4	Route date	Shows the date of the next scheduled route inspection.
5	Route selection	Indicates the selection of the particular route. After selection of a route, the "Route details" screen opens.
6	Mini statistics	Shows a diagram of the measuring points sorted by current status in relation to the indicated threshold values: <ul style="list-style-type: none"> • gray = no threshold set or no measurement values available • green = current measurement value below warning limit • yellow = current measurement value above warning limit • red = current measurement value above alert limit
7	Number of measuring points	Shows the amount of already processed measuring points and their total number.
8	Route name	Shows the name of the route.

3.4.2 Route details

Structure

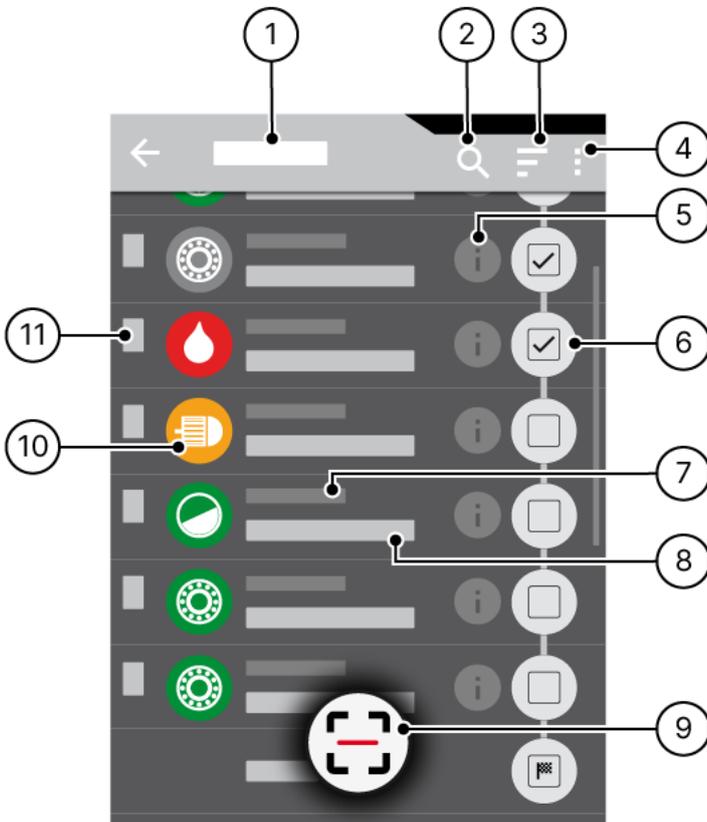


Figure 2: Screen "Route details"

Description

No.	Type	Description/function
1	Route name	Shows the name of the route.
2	Search	Opens a search box for searching for a measuring point by a specific measuring point name.
3	Sort	<p>Opens the Sort by window with functions for sorting the measuring point list according to:</p> <ul style="list-style-type: none"> • Name: measuring point name (either ascending or descending) • Application: type of application (either ascending or descending) • Location: Last level above the measuring point (either ascending or descending)
4	Menu	<p>Opens a menu with the following functions:</p> <ul style="list-style-type: none"> • Toggle scanbutton: Hides or unhides the scan button. • Settings: Opens the "Settings" screen with global options for the AssetExpert app.

No.	Type	Description/function
5	Measuring point information	Opens a dialog window with the complete path (position within the project/asset hierarchy) of the measuring point.
6	Processing status	Shows the current processing status of a measuring point as a checkbox: <ul style="list-style-type: none"> <input type="checkbox"/> (grayed out): No measurement values are available for the measuring point yet. <input checked="" type="checkbox"/> (activated): A measurement has already been performed at the measuring point. Measurement values are available.
7	Measuring point location	Shows the level within the asset tree that is positioned directly above the measuring point.
8	Measuring point name	Shows the name of the measuring point.
9	Scan	Opens the "Please Scan ID" screen for direct scanning of a measuring point ID by QR code.
10	Measuring point status	Indicates for a particular measuring point: <ul style="list-style-type: none"> the set application type by a specific symbol the current status in relation to the set threshold values
11	Measuring point number	Indicates the order of the measuring points within the route. <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p> The order of the measuring points within the route is determined by the sorting order selected in the DataSuite.</p> </div>

3.4.3 Measuring point details

Structure

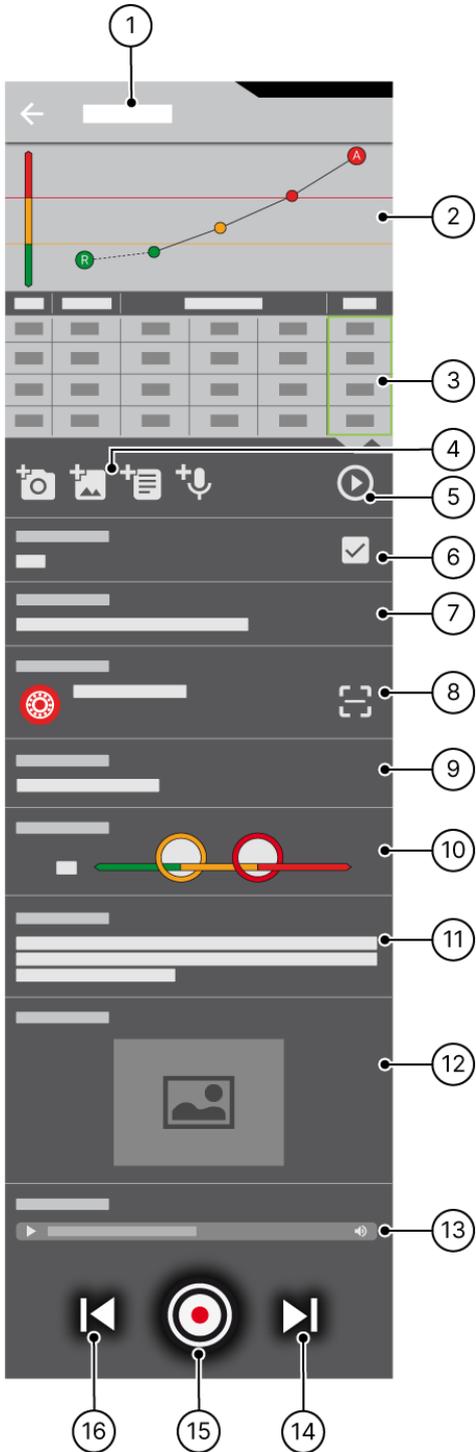


Figure 3: Screen "Measuring Point Details"

Description

No.	Type	Description/function
1	Measuring point name	Shows the name of the selected measuring point.
2	Trend diagram	<ul style="list-style-type: none"> Shows the measurement results of the applied key metrics as time-based trend. Shows the alarm and warning limits as horizontal lines. <div style="border: 1px solid #0070C0; padding: 5px; margin-top: 10px;"> <p>Automatic Scaling Based on the existing values, the y-axis is scaled automatically. Alarm and warning limits will only be displayed in the diagram if values are above the set thresholds.</p> </div>
3	Key metric summary	Shows the measurement values of the applied key metrics as time-based trend in a table. <div style="border: 1px solid #0070C0; padding: 5px; margin-top: 10px;"> <p>The column with current values is highlighted in color.</p> </div>
4	Additional data	Contains the following icons for adding additional data:  : Taking a photo with the camera  : Selecting a photo from the gallery  : Writing a text note  : Recording a voice memo
5	Playback	Opens the measurement in the SONAPHONE LevelMeter app's playback mode.
6	Actual value	Shows the current value of the command variable selected as reference. Shows the current value of the command variable selected as reference. <ul style="list-style-type: none"> <input type="checkbox"/> (grayed out): No measurement values are available for the measuring point yet. <input checked="" type="checkbox"/> (activated): A measurement has been performed at the measuring point. Measurement values are available.
7	Position	Shows the complete path of the measuring point (position within the project/plant/asset hierarchy).
8	Measuring point ID	<ul style="list-style-type: none"> Shows the measuring point ID. Shows the application type as a symbol and the measuring point status in a specific color. Shows the confirmation method of the measuring point.
9	Last Measurement	Shows the time stamp of the previous measurement.
10	Threshold values	Shows the threshold values (warning and alert limit) for the command variable selected as reference.

No.	Type	Description/function
11	Note	Shows text notes that have been added to the measuring point as additional data.
12	Images	Display, editing or deletion of saved photos. <div style="border: 1px solid black; padding: 2px; margin-top: 5px;">ⓘ Images may only be edited or deleted as long as they have not been transferred to the SONAPHONE DataSuite yet.</div>
13	Voice memos	Shows recorded voice memos that have been added to the measuring point as additional data.
14	Next measuring point	Switches to the subsequent measuring point of the current route. <div style="border: 1px solid black; padding: 2px; margin-top: 5px;">ⓘ For the last measuring point of a route, the icon will be replaced by a flag icon.</div>
15	Starting a measurement	<ul style="list-style-type: none">• Regular mode: Opens the screen for measuring point ID matching according to the defined confirmation method.• Fast forward mode: Opens the LevelMeter app (or an optionally installed specialized app) for recording the measurement.
16	Previous measuring point	Switches to the previous measuring point of the current route.

3.4.4 Measurement

Description

Measurements are recorded with the LevelMeter app pre-installed on the SONAPHONE handheld unit. If the optional specialized app "SteamExpert App" is installed, it will be used for recording the measurements during steam trap testing.

Further information

Within the user documentation of the corresponding measurement application

- [☑ "Measurement value recording" screen of the SONAPHONE LevelMeter App](#)
- [☑ "Measurement value recording" screen of the SONAPHONE SteamExpert App](#)

3.4.5 Settings

Description

The "Settings" screen is opened via the menu in the "Route list" or "Route details" screens. The following global settings may be set and following information may be found in the "Settings" screen:

Basic settings	Description/function
User name	Customizing/modifying the currently set user name.
Delete old data when importing	Activating/deactivating deletion of route data during route import.
Fast forward mode	Activating/deactivating Fast forward mode. In Fast forward mode, the app automatically switches to the route's subsequent measuring point after completing measurement at a measuring point. During switching, the measuring point ID matching for each measuring point will be skipped.
Units	Switching the units between metric and imperial.
Licenses	Opens the "Licenses" screen with a list of installed software packages. By tapping on a software package, the license terms of the corresponding software package are displayed in detail.

4 Working with the AssetExpert app

This section contains instructions on working with the SONAPHONE AssetExpert App. The structure and order of these instructions follow the typical (recommended) work flow.

4.1 Preparing a route tour

Routes constitute a detailed work plan for examiners. Depending on the maintenance schedule, each route contains an order of measuring points to be processed.

The following tasks are part of preparing a route tour:

4.1.1 Starting the app

Description

All measuring points of a route are processed with the SONAPHONE handheld unit and the AssetExpert app.

Procedure

1. Turn on the SONAPHONE handheld unit.
→ The start screen appears.
2. Unlock the start screen.
3. Tap the SONAPHONE AssetExpert App icon.
→ The app starts up.

4.1.2 Importing route(s)

Routes are created and managed in the SONAPHONE DataSuite. For walking along the measuring points and collection of measurement and inspection data, the created routes have to be transferred to a SONAPHONE handheld unit.

Before the import

1. Download the particular route(s) from the SONAPHONE DataSuite.
(☞ see "[Synchronizing routes](#)")
2. Backup existing route data in the SONAPHONE handheld unit.
(see "4.3.1 Exporting route(s)", page 32)

Procedure

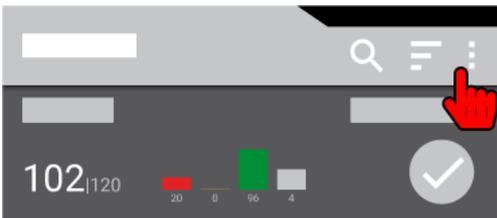
ATTENTION

Possible data loss during route data loading

When importing new route data, all existing route data (measuring points, measurement values, additional data, ...) will be deleted from the SONAPHONE handheld unit.

- Before importing new route data, make sure that you have backed up all existing route data (see "4.3.1 Exporting route(s)", page 32).

1. In the "Route list" screen, tap the "Menu" (☰) icon.



2. Tap the item **Import routes**.
→ The Clear database? window opens.
3. Tap the "Apply" (✓) icon.
→ The window closes.
→ All existing route data are deleted.
→ The new route data are imported from the import directory of the SONAPHONE handheld unit.

Further information

For importing routes, please also see the description of the following screen:

- Route list

4.1.3 Selecting a route

Description

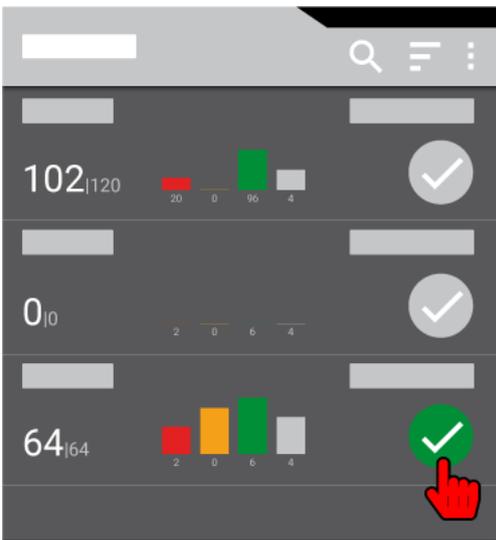
The AssetExpert app is able to load several routes simultaneously. To perform a specific route, the respective route has to be selected in the route list.

Customizing the route list

If the number of loaded routes is very high, we recommend to sort the route list or to look for the particular route.

Selecting the specific route

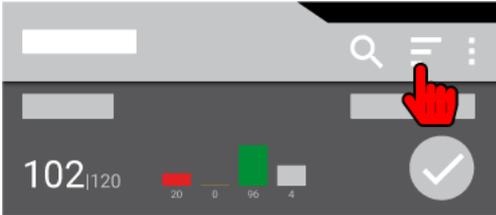
1. In the "Route list" screen, tap the "Accept" icon (✓) of the particular route.



- The "Accept" icon changes to the color green.
- The "Route details" screen opens.

Sorting the route list

1. In the "Route list" screen, tap the "Sort by" (≡) icon.

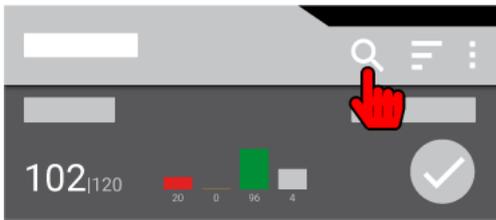


→ The Sort by window opens with the available sorting options.

2. Tap the preferred sorting option.
 - The window closes.
 - The routes within the route list are shown sorted by the selected sorting option.

Searching for a route

1. In the "Route list" screen, tap the "Search" (🔍) icon.



→ The search box is displayed, along with the on-screen keyboard.

2. Type the name of the particular route.
3. Tap the Search key of the on-screen keyboard.
 - After correct input of the route name and matching with the route list, the particular route is displayed.

Further information

For the selection of a route, please also see the description of the following screen:

- Route list

4.2 Performing measurements

Description

Measurements are recorded with the LevelMeter app pre-installed on the SONAPHONE handheld unit. Depending on the application, the particular sensor (structure-borne sound, air-borne sound) needs to be connected to the SONAPHONE handheld unit.

If the optional specialized app “SteamExpert App” is installed, it will be used for recording the measurements during steam trap testing.

Apart from measurement results, extensive information is available for each measuring point and may be complemented if necessary.

4.2.1 Selecting a measuring point

Description

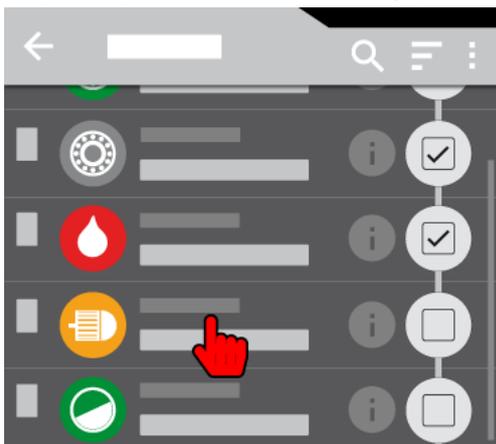
Measuring points are to be processed in a certain order determined by the route. To record a measurement at a specific measuring point, the measuring point has to be selected in the “Route details” screen.

When recording a new measurement, existing measurement results and information may be included, comprising among others:

- Measurement value history
- Measuring point status
- Additional data

Procedure

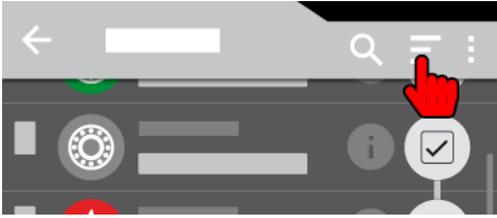
1. Select the specific route.
→ The “Route details” screen opens with a list of all measuring points within this route.
2. Tap the particular measuring point.



- The measuring point is selected.
→ The “Measuring point details” screen opens.

Sorting measuring points

1. In the "Route details" screen, tap the "Sort" (≡) icon.

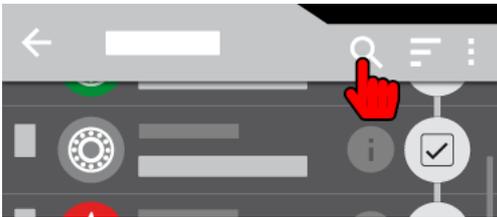


→ The Sort by window opens with the available sorting options.

2. Tap the preferred sorting option.
 - The window closes.
 - All measurement points are displayed sorted by the selected sorting option.

Searching for a measuring point

1. In the "Route details" screen, tap the "Search" (Q) icon.

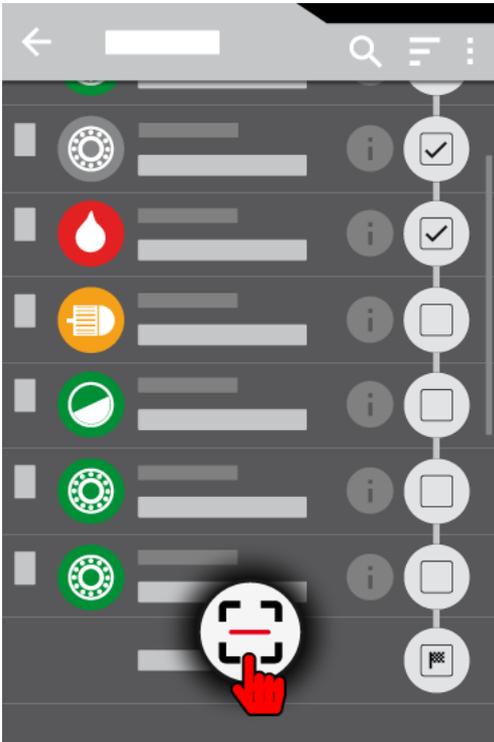


→ The search box is displayed, along with the on-screen keyboard.

2. Enter the name of the particular measuring point.
3. Tap the Search key of the on-screen keyboard.
 - After correct entry of the measuring point name and finding a match, the particular measuring point is displayed.

Selecting a measuring point by scanning

1. In the “Route details” screen, tap the “Scan” icon.



2. Point the camera of the SONAPHONE handheld unit at the QR code of the measuring point.
→ If the measuring point ID within the QR code matches a measuring point ID of the current route, the measuring point details of the particular measuring point will be opened automatically.

Further information

For the selection of a measuring point, please also see the following descriptions and/or instructions:

- Route list
- Route details
- Selecting a route

4.2.2 Matching the measuring point ID

Description

Unambiguous identification of a measuring point is critical to collect measurement values and additional information for the proper measuring point. The SONAPHONE DataSuite offers functions to specify an ID and the confirmation method within the plant/asset.

The specified confirmation method is indicated in the measuring point details. After selection of a measuring point, the stored confirmation method is marked by an icon as follows:

Icon	Confirmation method	Description
	None	No confirmation will be performed at the point of measurement. A heightened attention is required for measuring point identification.
	Scan	The alphanumeric information is automatically confirmed via QR code with the help of the SONAPHONE handheld unit's camera function.
	Visual	The alphanumeric information is displayed on the SONAPHONE handheld unit to manually confirm its concurrence to the information on-site by reading it.

Scanning

1. Select the particular measuring point.
2. Tap the “Start measurement” icon or push the customizable hardware button on the SONAPHONE handheld unit.



→ The “Please scan ID” screen opens.



3. Point the camera of the SONAPHONE handheld unit at the QR code on the measuring point.
 - The unit scans the measuring point's QR code. If the measuring point ID at the measuring point is consistent with the one in the SONAPHONE handheld unit, the "Accept" icon changes to the color green. The "Measurement value recording" screen of the corresponding measurement app opens.



① Direct scanning of measuring points with QR code

By tapping the "Scan" icon in the "Route details" screen, measuring points equipped with a QR code may be scanned directly and independently from their order within the route.

Visual

1. Select the particular measuring point.
2. Tap the “Start measurement” icon or push the hardware button on the SONAPHONE handheld unit.
→ The “Please check ID” screen opens.



ⓘ If a picture has been stored in the Additional data of the measuring point, it will be displayed in the “Please Check ID” screen. This allows for simplified matching of the measuring point.
If more than one pictures have been stored, the first picture of the list will be displayed. If a particular picture has been marked as favorite in the SONAPHONE DataSuite, this picture will be displayed.

3. Compare the ID displayed on the SONAPHONE handheld unit to the ID on the measuring point.
4. If the IDs match, tap the “Accept” icon (✔).
→ The “Measurement value recording” screen of the corresponding measurement app opens.

Further information

For matching measuring point IDs, please also see the following descriptions and/or instructions:

- Route list
- Route details
- Selecting a route
- Selecting a measuring point

4.2.3 Recording a measurement

Description

For each measuring point, current values may be recorded. For recording of measurement values, the "LevelMeter App", pre-installed on the SONAPHONE handheld unit, is used. If the optional specialized app "SteamExpert App" is installed, it will be used for recording the measurement values during steam trap testing.

Procedure

1. Select the particular measuring point.
2. In regular mode: match the measuring point ID.
→ The "Measurement value recording" screen of the corresponding measurement app opens.
3. Record the measurement values with the corresponding measurement app.
→ After completion of the measurement value recording, the "Measuring point details" screen opens.

Further information

For recording measurements, please also see the following descriptions and/or instructions:

Within this user documentation

- Selecting a route
- Selecting a measuring point
- Matching the measuring point ID

Within the user documentation of the corresponding measurement application

- [☑ "Measurement value recording" screen of the SONAPHONE LevelMeter App](#)
- [☑ "Measurement value recording" screen of the SONAPHONE SteamExpert App](#)
- [☑ Recording measurement values with the SONAPHONE LevelMeter App](#)
- [☑ Recording measurement values with the SONAPHONE SteamExpert App](#)

4.2.4 Using fast forward mode

Description

Fast forward mode is used for faster measurements along the measuring points of a route. After measurement at one measuring point, the app automatically switches to the next measuring point of the route. Matching of measuring point IDs is skipped.

Activating Fast forward mode

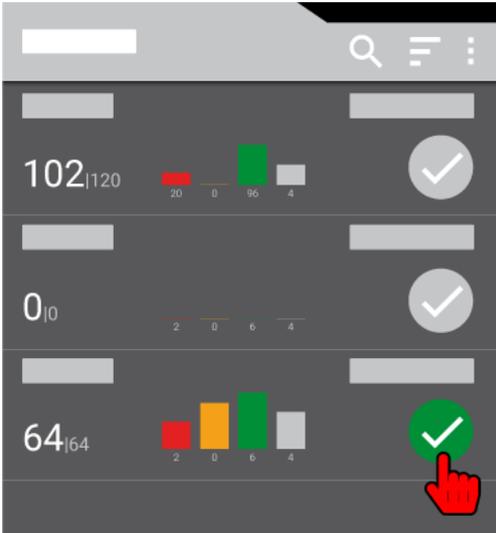
1. In the “Route list” or “Route details” screen, tap the “Menu” (:) icon.



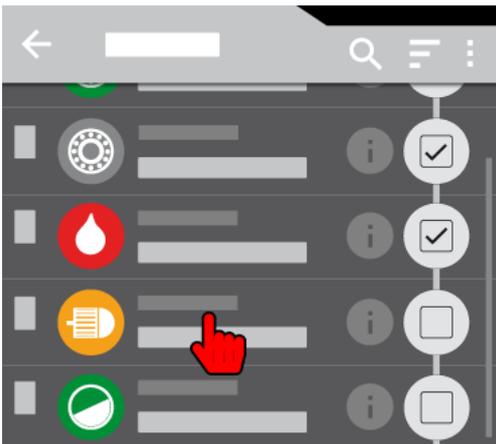
2. Tap the menu item “Settings”.
3. In the “Settings” screen, activate the **Fast forward mode** checkbox.

Starting a measurement

1. Position the sensor according to the measuring task.
2. In the "Route list" screen, select the particular route.



3. In the "Route details" screen, select the particular measuring point.



4. In the "Measuring point details" screen, tap the "Start measurement" icon.



- The LevelMeter app or the optional specialized app opens. The measurement is started.
- As soon as the measurement is completed, the app for measurement at the subsequent measuring point is opened.

Further information

For working with the Fast forward mode, please also see the following descriptions and/or instructions:

- Route list
- Route details
- Measuring point details
- Selecting a route
- Selecting a measuring point

4.2.5 Evaluating a measuring point

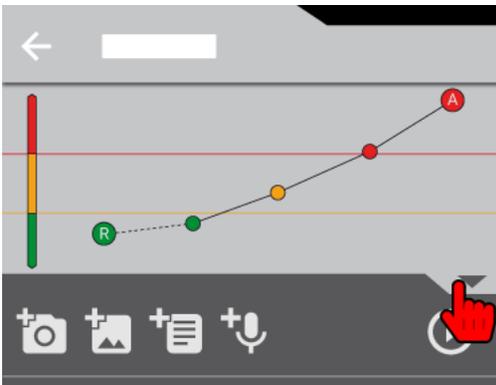
Description

All data collected for a specific measuring point are displayed in the “Measuring point details” screen. For evaluation of a measuring point and documentation of the results, it is possible to:

- view the key metric summary,
- view existing additional data, as well as
- add further additional data.

Viewing the key metric summary

1. Under the trend diagram, tap the “Show” icon.



→ The key metric summary opens. Currently recorded measurement values may be compared to existing historical measurement results as diagram and/or list.

Viewing existing additional data

Viewing text notes and photos

In the “Measuring point details” screen, scroll to the corresponding section to:

- read existing text notes or
- look at existing photos.

Listening to voice memos

1. In the “Measuring point details” screen, scroll to the “Voice memos” section.
2. Tap the “Playback” icon of the particular voice memo.



→ The voice memo is played back.

Adding additional data

1. In the “Measuring point details” screen, tap the icon of the particular additional data in the “Additional data” section.



- Depending on the selection, the following will open:
- camera for taking a photo
 - photo gallery for selecting an existing photo
 - text field including on-screen keyboard for writing a text note
 - screen for recording a voice memo

Further information

For the evaluation of a measuring point, please also see the description of the following screen:

- Measuring point details

4.3 Concluding a route tour

All test and measurement values as well as context information that have been collected during doing a route will be exported to a ZIP file and will be transmitted to the SONAPHONE DataSuite.

4.3.1 Exporting route(s)

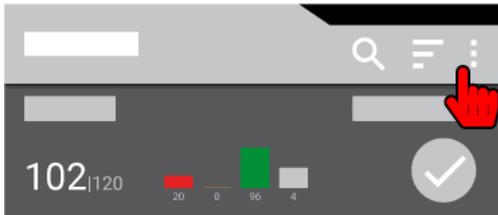
Description

After completion of a route, the collected measurement and inspection data of the route or routes will be exported. The exported data are:

1. saved in a container file (ZIP) on the SONAPHONE handheld unit,
2. directly synchronized or buffered on the desktop computer and uploaded manually to the SONAPHONE DataSuite and
3. evaluated in the SONAPHONE DataSuite.

Exporting one or more selected routes

1. In the "Route list" screen, tap the "Menu" (:) icon.



2. Tap the item **Select routes to export**.
→ The Select routes window opens.
3. In the dialog window, activate the particular route(s).
4. Tap the "Apply" (✓) icon.
→ The window closes.
→ The selected route(s) are exported.
→ A ZIP file is created for each route. This ZIP file is saved in the **Routes > Export** directory of the SONAPHONE handheld unit's file system.

Exporting all routes

1. In the "Route list" screen, tap the "Menu" (:) icon.
2. Tap the **Export all routes** item.
 - All routes are exported.
 - A ZIP file is created for each route. This ZIP file is saved in the **Routes > Export** directory of the SONAPHONE handheld unit's file system.

ⓘ Automatic deletion of imported route data

Route data (ZIP files) that have already been imported to the route list will be deleted automatically from the **Routes > Import** directory after export.

Further information

For the export of routes, please also see the description of the following screen:

- Route list

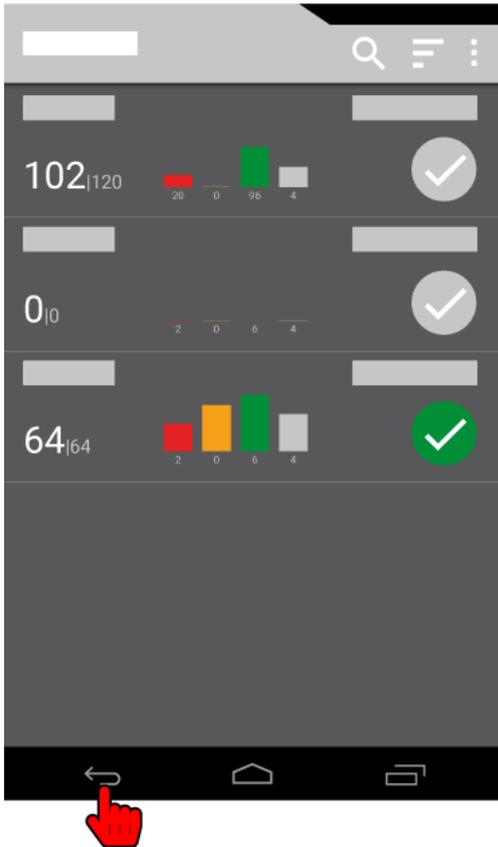
4.3.2 Closing the app

Description

Apart from the methods for hiding or ending an app that are common in Android operating systems, the SONAPHONE AssetExpert App may be closed as follows.

Procedure

1. In the "Route list" screen, tap the "Back" icon on the toolbar.



- The Close App? window opens.
2. In the dialog window tap **OK**.
→ The app closes.

5 Warranty

Condition at delivery

The software has been thoroughly tested at the manufacturer's site and is a state-of-the-art product that adheres to all applicable safety regulations at the time of delivery.

Warranty

SONOTEC GmbH will eliminate all software deficiencies that result from software bugs free of charge. For this, files will be provided to update or replace the software.

Exceptions

Defects resulting from improper use of the software are exempt from warranty.

Responsibility of the user/operator

It lies within the responsibility of the users to ensure that the product has been installed and set-up properly and is used in a manner that does not impair safe operation.

Operating errors

Operating errors can never be completely ruled out by the manufacturer. SONOTEC GmbH is in no way liable for any direct or indirect damage caused by operating errors (e.g. damage on software and/or hardware, damage by downtime, damage by malfunction as well as damage or loss of measurement and test data).

Quality of captured data

The determination of valid test results, their interpretation and the actions derived therefrom are exclusively subject to the personal responsibility of the users. SONOTEC GmbH does not guarantee the correctness of determined test values and/or test results. SONOTEC GmbH does not assume liability for any faults or damages that might occur due to further use of determined test and measurement values.

6 Copyright and contact

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