



PHYNIX Coating Thickness App

User Manual

Version 1.2.21

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1. Overview

The PHYNIX Coating Thickness App receives and processes coating thickness measurements from PHYNIX and Surfex gauge devices. It connects via Bluetooth Low Energy (BLE) or USB serial port (VCP) and provides real-time display, statistical analysis, and professional export of measurement data.

Key Features:

- Batch transfer and real-time online measurement modes
- Automatic statistics: mean, min, max, standard deviation
- Tolerance limit monitoring with pass/fail indication
- Export to CSV, PDF, and XLSX
- Measurement history with configurable data retention
- Available in English, German, and Chinese

2. System Requirements

Platform	Minimum Version	Connectivity
Windows	Windows 10 version 1809 or later (64-bit)	BLE + USB
Android	Android 8.0 (API 26) or later	BLE

A Bluetooth 4.0 (LE) adapter is required for wireless connections. For USB connections, a compatible COM/serial port is required.

3. Installation

3.1 Windows

Run the installer (PHYNIX_Schichtdicken-App_v1.2.22+10_Setup.exe) and follow the on-screen prompts. The default installation directory is C:\Program Files\PHYNIX\Schichtdicken-App. Optionally create a desktop shortcut when prompted. Launch the app from the Start Menu or desktop icon.

3.2 Android

Install the app from the provided APK or app store listing. Grant Bluetooth and location permissions when prompted.

4. Getting Started

The app has five main sections, accessible via the navigation rail (Windows) or bottom navigation bar (Android):

Tab	Purpose
Scan	Discover and connect to devices
Measure	Receive measurements and view live data
History	Browse and review saved sessions
Share	Export sessions to CSV, PDF, or XLSX
Settings	Configure display, connection, and data options

Quick Start:

- 1. Go to Scan and connect your PHYNIX device.
- 2. Go to Measure and choose Start Transfer or Start Online Mode.
- 3. Review your results on the chart and table.
- 4. Go to Share to export your data.

5. Connecting a Device

5.1 Bluetooth Low Energy (BLE)

- 1. Navigate to the Scan screen.
- 2. Select the BLE tab.
- 3. Tap Start Scan. The app scans for nearby devices for approximately 10 seconds.
- 4. Available devices appear with their name and signal strength (1–4 bars).
- 5. Tap a device to connect. The status banner shows the connection progress.
- 6. Once connected, the app navigates to the Measure screen automatically (if Auto-Connect is enabled in Settings).

Favorite Devices:

Tap the star icon next to a device to mark it as a favorite for quick identification in future scans.

5.2 USB / VCP (Serial Port)

- 1. Navigate to the Scan screen.
- 2. Select the USB tab.
- 3. Available COM ports are listed automatically.
- 4. Tap a port to connect.

Note: On Windows, COM ports may take a moment to become available after plugging in a device. The app retries the connection up to 3 times automatically.

6. Batch Transfer

Use batch transfer to download all stored measurements from the device at once.

6.1 Starting a Transfer

- 1. Connect to a device (see Section 5).
- 2. Navigate to the Measure tab.
- 3. Tap Start Transfer. The app now waits for incoming data.
- 4. Start the transfer on the device via the menu "Statistics → Transmit measurements and statistics". The exact menu label may vary by device model – refer to the device's user manual.
- 5. A progress indicator shows how many measurements have been received (e.g., "Receiving 42/100 measurements...").
- 6. The latest measurement value is displayed prominently as data arrives.

6.2 Transfer Complete

When the transfer is complete, the session is saved to the database automatically. Results are displayed with statistics, a line chart, and a data table (see Section 8 – Viewing Results).

6.3 Device Info

During transfer, the app extracts and displays device metadata: manufacturer, model, measurement mode, and any tolerance limits embedded in the device data.

7. Online Mode

Online mode receives individual measurements in real time as you take them on the device. Unlike batch transfer, measurements stream one by one.

7.1 Starting Online Mode

- 1. Connect your device on the Scan screen.
- 2. On the Measure screen, tap Start Online Mode.
- 3. Each measurement appears immediately as it is taken on the device.

7.2 Live Display

- The latest measurement is shown in large text.
- Statistics (N, mean, min, max, standard deviation) update after each measurement.
- A line chart appears once two or more measurements have been received.

7.3 Setting Tolerance Limits

Tolerance limits allow you to monitor whether measurements fall within an acceptable range.

- 1. Tap the tune icon (limits button) in the action bar.
- 2. Enter a Lower Limit and/or Upper Limit value.
- 3. Tap Apply. Limits are applied to all existing and future measurements.
- 4. Measurements outside the tolerance range are marked accordingly.

- 5. To remove limits, open the dialog again and tap Remove Limits.

Tolerance markers:

Status	Meaning
OK	Measurement is within the lower and upper limits
Below Limit	Measurement is below the lower limit
Above Limit	Measurement is above the upper limit

7.4 Managing Measurements

Action	Description
Undo	Removes the last measurement and recalculates statistics instantly.
Reset	Clears all measurements and statistics. Tolerance limits are preserved.
Save	Saves the current session to the database. A green checkmark confirms success.

7.5 Stopping Online Mode

Tap Stop in the app bar to return to the idle state. Unsaved measurements will be lost – make sure to tap Save first if you want to keep them.

8. Viewing Results

After a batch transfer or saved online session, results are displayed with two tabs:

8.1 Chart Tab

A line chart plots each measurement value in sequence. If tolerance limits are defined, they appear as horizontal reference lines. The chart responds to unit changes ($\mu\text{m} \leftrightarrow \text{mil}$).

8.2 Table Tab

Column	Description
#	Measurement number (sequential)
Thickness	Measured value in the selected unit (μm or mil)
Status	"OK", "Below Limit", or "Above Limit" (shown only when limits are defined)

8.3 Statistics Card

Displayed above both tabs:

Statistic	Symbol	Description
Count	N	Total number of measurements
Mean	$\bar{x}$	Arithmetic average

Minimum	Min	Smallest value
Maximum	Max	Largest value
Std. Deviation	σ	Standard deviation
Lower Limit	LimLw	Lower tolerance bound (if defined)
Upper Limit	LimUp	Upper tolerance bound (if defined)

9. History

The History screen lists all saved measurement sessions.

9.1 Session List

Each session tile shows:

- Measurement count (in a circular badge)
- Session name (device name + timestamp)
- Device model (if available)
- Date and time (DD.MM.YYYY HH:MM)
- Mean value
- Tolerance status icon:
 - Green checkmark – all measurements within limits (Pass)
 - Red X – one or more measurements outside limits (Fail)
 - Grey circle – no limits defined

9.2 Session Details

Tap a session to open the detail view, which shows the same chart, table, and statistics layout as the result view (see Section 8).

9.3 Deleting a Session

Tap the delete icon on a session tile. A confirmation dialog appears. Deletion is permanent and cannot be undone.

10. Exporting Data

Navigate to the Share screen to export measurement sessions.

10.1 Selecting a Session

If no session is pre-selected, pick one from the list. Each entry shows the device model, date, measurement count, and mean value.

10.2 Inspection Metadata (Optional)

Before exporting, you can fill in additional fields that will be included in the report:

Field	Description
Inspector Name	Person performing the inspection
Test Object	Component or part being measured
Coating Type	Type of coating applied
Serial Number	Serial number of the test object
Remarks	Additional notes (free text)

These fields are saved to the database and prepopulated for future exports.

10.3 Export Formats

Format	Description
CSV	Semicolon-separated text file (UTF-8 BOM). Suitable for import into spreadsheet applications such as Excel.
PDF	Professional A4 report with device info, inspection details, statistics, line chart, and measurement table.
XLSX	Excel workbook with two sheets: an Info sheet (summary and statistics) and a Data sheet (full measurement table).

10.4 File Naming

Exported files are named automatically: {DeviceName}_{YYYYMMDD_HHMM}.csv|pdf|xlsx

On Windows, a file save dialog lets you choose the destination. On Android, the system share sheet is presented.

11. Settings

11.1 Display

Setting	Options	Default
Unit	µm (Micrometers) / mil	µm
Decimal Places	0, 1, 2, or 3	1
Language	System, Deutsch, English, Français, Chinese	System

11.2 Connection

Setting	Description	Default
Auto-Connect	Automatically navigate to the Measure screen when a device connects	On

11.3 Data Management

Setting	Options	Default
Data Retention	30 / 90 / 180 / 365 days / Never	180 days

Sessions older than the configured retention period are deleted automatically when the app starts.

11.4 Keyboard Output (Windows only)

During Online Mode, each incoming measurement can be typed directly into another application (Excel, LibreOffice Calc, ERP software, inspection software ...) as if entered from the keyboard. Statistics are not forwarded — only individual online measurements.

Setting	Description
Send measurements to other app	Master switch
Append unit	e.g. "123.4 µm" instead of just "123.4"
Separator	Key sent after each value: none, Tab, Enter, Space
Decimal separator	. or , — independent of the app language
Excel/Calc compatibility	Sends DELETE before the separator to dismiss autocomplete suggestions
On device Delete key	Key sent to the target app when the Delete key is pressed on the device: none, Backspace, Delete, Undo (Ctrl+Z)

Workflow:

Start Online Mode → click into Excel / Calc / other application → every incoming measurement is typed into the active field. While the PHYNIX app itself is in the foreground, nothing is sent (self-guard).

Delete key on the device:

Pressing the Delete key on the measurement device removes the last measurement locally in the app (statistics are recalculated). Optionally a key or shortcut can be forwarded to the target app: Backspace, Delete, or Undo (Ctrl+Z). For Excel / Calc, Undo (Ctrl+Z) is usually the most reliable choice — the shortcut fully reverts the last cell entry regardless of the separator or the current cursor position. Backspace / Delete are simple single keys and only act at the current cursor position.

Autocomplete in Excel / Calc:

Both programs suggest existing cell values while typing and highlight the remainder. A subsequent Tab / Enter then accepts the suggestion instead of moving to the next cell. Two workarounds:

- Disable in the target application: Excel → File → Options → Advanced → Editing options → uncheck "Enable AutoComplete for cell values". LibreOffice Calc → Tools → AutoInput (toggle, on by default).
- Enable the "Excel/Calc compatibility" switch in the app. A DELETE key is then sent before every separator, discarding any highlighted autocomplete remainder.

Privilege limitation:

If the target application runs with administrator rights ("Run as administrator") but the PHYNIX app does not, Windows blocks the input for security reasons (UIPI). Both programs should run with the same privilege level.

11.5 Info

Displays the app version and manufacturer (PHYNIX GmbH). This section is read-only.

12. Troubleshooting

Problem	Solution
Bluetooth device not found	Ensure Bluetooth is enabled on your computer or phone. Place the gauge within range (< 10 m). On Android, grant Bluetooth Scan and Connect permissions. Try stopping and restarting the scan.
USB device not recognized	Verify the device is physically connected via USB. On Windows, check that the correct COM port driver is installed (Device Manager > Ports). Disconnect and reconnect the USB cable.
Transfer starts but no data arrives	The gauge may not have stored measurements. Verify on the device itself. Restart the app and reconnect the device.
Measurements show unexpected values	Check the Unit setting (μm vs. mil) in Settings. Verify the Decimal Places setting matches your expectations.
Export fails	On Windows, ensure you have write permission to the selected save location. Try saving to a different directory (e.g., Desktop or Documents).
App does not start (Windows)	Ensure you are running Windows 10 version 1809 or later. Try running the app as Administrator. Reinstall the app using the setup installer.

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