



Assembly and Operating Manual

iTENDO² easy monitor

ID 1516313

Translation of Original Operating
Manual

Hand in hand for tomorrow

Imprint

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Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

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Dear Customer,

Thank you for trusting our products and our family-owned company, the leading technology supplier of robots and production machines.

Our team is always available to answer any questions on this product and other solutions. Ask us questions and challenge us. We will find a solution!

Best regards,

Your SCHUNK team

Customer Management

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cms@de.schunk.com



Please read the operating manual in full and keep it close to the product.

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1 General

1.1 About this manual

This manual contains important information for a safe and appropriate use of the product.

This manual is an integral part of the product and must be kept accessible for the personnel at all times.

Before starting work, the personnel must have read and understood this operating manual. Prerequisite for safe working is the observance of all safety instructions in this manual.

In addition to these instructions, the documents listed under ▶ 1.1.3 [6] are applicable.

NOTE: The illustrations in this manual are intended to provide a basic understanding and may deviate from the actual version.

1.1.1 Presentation of Warning Labels

To make risks clear, the following signal words and symbols are used for safety notes.



⚠ DANGER

Dangers for persons!

Non-observance will inevitably cause irreversible injury or death.



⚠ WARNING

Dangers for persons!

Non-observance can lead to irreversible injury and even death.



⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

NOTICE

Material damage!

Information about avoiding material damage.

1.1.2 Definition of Terms

In this manual, "product" replaces the product designation on the title page and refers to the complete system with all the individual components.

1.1.3 Applicable documents

- General terms of business *
- Contractual agreements
- Assembly and Operating Manual iTENDO² (ID 1522399)
- Assembly and Operating Manual iTENDO² pad (ID 1494155)
- Assembly and Operating Manual iTENDO² easy connect (ID 1539948)
- Documents of the individual components

The documents labeled with an asterisk (*) can be downloaded from [schunk.com](https://www.schunk.com).

1.2 Warranty

If the product is used as intended, the warranty is valid for 24 months from the ex-works delivery date under the following conditions:

- Observe the applicable documents, ▶ 1.1.3 [6]
- Observe the ambient conditions and operating conditions, ▶ 2.6 [8]
- Observe the specified maintenance instructions.

This does not include special agreements regarding the warranty and wearing parts.

1.3 Scope of delivery

The scope of delivery includes

- 1 iTENDO² easy monitor (ID 1516313)
- 1 Activation code for iTENDO² easy monitor
- 1 Assembly and Operating Manual (ID 1547510)

1.4 Prerequisites

To use the product, the following products are necessary:

- 1 iTENDO² easy connect system

2 Basic safety notes

2.1 Product safety

The product represents the state of the art and the recognized safety rules. However, the product can pose hazards if, for example:

- The product is not used as intended.
- The product is not installed, maintained, stored or transported properly.
- The safety and installation instructions in this manual are not followed.

Avoid any manner of working that could interfere with the function and operational safety of the product.

2.2 Intended use

- The product is solely intended for use in machine tools to record process data from the iTENDO² used.
- The Wireless Receiver may only be connected to an iTENDO² and the iTENDO² Connect Box or the iTENDO² app.
- The product may only be installed and used within the scope of the information in the technical data.
- The product is intended for industrial use.
- Appropriate use of the product includes compliance with all instructions in this manual.

2.3 Inappropriate use

The product is not being used as intended if, for example:

- The information in the technical data is not observed when using and operating the product.
- The product is operated in corrosive media.
- The maintenance and storage specifications are not complied with.

2.4 Constructional changes

Implementation of structural changes

By conversions, changes, and reworking, e.g. additional threads, holes, or safety devices can impair the functioning or safety of the product or damage it.

- Structural changes should only be made with the written approval of SCHUNK.

2.5 Spare parts

Use of unauthorized spare parts

Using unauthorized spare parts can endanger personnel and damage the product or cause it to malfunction.

- Use only original spare parts or spares authorized by SCHUNK.

2.6 Environmental and operating conditions

Required ambient conditions and operating conditions

Incorrect ambient and operating conditions can make the product unsafe, leading to the risk of serious injuries, considerable material damage and/or a significant reduction to the product's life span.

2.7 Personnel qualification

Inadequate qualifications of the personnel

If the personnel working with the product is not sufficiently qualified, the result may be serious injuries and significant property damage.

- All work may only be performed by qualified personnel.
- Before working with the product, the personnel must have read and understood the complete assembly and operating manual.
- Observe the national safety regulations and rules and general safety instructions.

The following personal qualifications are necessary for the various activities related to the product:

Trained electrician

Due to their technical training, knowledge and experience, trained electricians are able to work on electrical systems, recognize and avoid possible dangers and know the relevant standards and regulations.

Qualified personnel

Due to its technical training, knowledge and experience, qualified personnel is able to perform the delegated tasks, recognize and avoid possible dangers and knows the relevant standards and regulations.

Instructed person

Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.

Service personnel of the manufacturer

Due to its technical training, knowledge and experience, service personnel of the manufacturer is able to perform the delegated tasks and to recognize and avoid possible dangers.

2.8 Obligations of the operator

The operator must ensure that:

- The product is only used as intended.
- The product is only operated in a perfect and fully functional status.
- The correct functioning of the product is checked regularly.
- The operating manual is always kept in a complete and legible condition close to the product.
- The product may only be operated and maintained by sufficiently qualified and authorized personnel.
- The personnel is familiar with the contents of the operating manual, in particular the safety notes contained therein.
- The personnel are regularly instructed in occupational safety and environmental protection.

2.9 Personal protective equipment

Use of personal protective equipment

Personal protective equipment serves to protect staff against danger which may interfere with their health or safety at work.

- When working on and with the product, observe the occupational health and safety regulations and wear the required personal protective equipment.
- Observe the valid safety and accident prevention regulations.
- Wear protective gloves to guard against sharp edges and corners or rough surfaces.
- Wear heat-resistant protective gloves when handling hot surfaces.
- Wear protective gloves and safety goggles when handling hazardous substances.
- Wear close-fitting protective clothing and also wear long hair in a hairnet when dealing with moving components.

2.10 Notes on safe operation

Incorrect handling of the personnel

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Avoid any manner of working that may interfere with the function and operational safety of the product.
- Use the product as intended.
- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. This does not apply to products that are designed for special environments.
- Eliminate any malfunction immediately.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention and environmental protection regulations regarding the product's application field.

2.11 Transport

Handling during transport

Incorrect handling during transport may impair the product's safety and cause serious injuries and considerable material damage.

- When handling heavy weights, use lifting equipment to lift the product and transport it by appropriate means.
- Secure the product against falling during transportation and handling.
- Stand clear of suspended loads.

To prevent damage to the product during transport, the following must be observed:

- Protect the product from penetrating humidity (e.g. with suitable packaging).
- The ambient conditions specified in the technical data must be observed.
- The product must be protected from vibrations and impacts.

2.12 Malfunctions

Behavior in case of malfunctions

- Immediately remove the product from operation and report the malfunction to the responsible departments/persons.
- Order appropriately trained personnel to rectify the malfunction.
- Do not recommission the product until the malfunction has been rectified.
- Test the product after a malfunction to establish whether it still functions properly and no increased risks have arisen.

2.13 Maintenance

For trouble-free, long-lasting use, clean, maintain and check the functionality of the product regularly.

Repair work may only be carried out by SCHUNK!

If you have any questions regarding maintenance and servicing, our technical after-sales service is available during our business hours:

Service telephone: +49-7133-103-2956

service.toolholder@de.schunk.com

The specified maintenance intervals are based on practical experience gathered by SCHUNK and are recommended. Depending on the ambient and operating conditions, as well as the clamping frequency of the product, the maintenance intervals must be adapted and noted accordingly. For maintenance intervals with two or more specifications, the valid specification is the one that applies first.

After completing essential maintenance work, any required settings and functional tests must be carried out again.

2.14 Disposal

Handling of disposal

The incorrect handling of disposal may impair the product's safety and cause serious injuries as well as considerable material and environmental harm.

- Follow local regulations on dispatching product components for recycling or proper disposal.



In accordance with the Waste Electrical and Electronic Equipment (WEEE) Directive, the following must be observed during disposal:

- This product may not be disposed of in household waste. It must be taken to a collection point for material recovery and recycling.

2.15 Fundamental dangers

General

- Observe safety distances.
- Never deactivate safety installations.

Disconnect the power source before installation, conversion, maintenance, or calibration. Ensure that no residual energy remains in the system.

2.15.1 Protection during handling and assembly

Incorrect handling and assembly

Incorrect handling and assembly can make the product unsafe and can risk the danger of serious injuries and considerable material damage.

- Order all work to be performed only by appropriately qualified personnel.
- Observe the relevant accident prevention regulations.
- Use suitable assembly and transport equipment.
- Take precautions against pinching and crushing.

2.15.2 Protection during commissioning and operation

Falling and ejected components can lead to serious injury or death.

- Observe the specifications in the iTENDO² operating manual.
- Only use iTENDO² in machines with closed protective equipment.
- Do not exceed the permissible speed range of the iTENDO² (see iTENDO² operating manual).

3 iTENDO² easy monitor

This product is a software-based system extension of the iTENDO² easy connect system.

Therefore, a functioning iTENDO² easy connect system is required for its use. Information on the setup and function of the iTENDO² easy connect system is provided in the product-specific Assembly and Operating Manual (1539948).

The iTENDO² easy connect software extension increases the functionality of the iTENDO² app. This allows processes to be assigned to the memory banks and thus recordings to be made and saved directly using the iTENDO² app. If the recordings are started via Digital IN on the iTENDO² Connect Box, the trend history of these recordings can be monitored. In addition, alarm limits can be set in the processes, which can also be read out directly by means of the iTENDO² Connect Box.

4 iTENDO² Connect Box

The technical data of the iTENDO² Connect Box are noted in the iTENDO² easy connect Assembly and Operating Manual (1539948). This manual also contains all additional connections for iTENDO² easy monitor:

- Digital IN iTENDO² easy monitor (start recording)
- Digital OUT iTENDO² easy monitor (live alarm)
- iTENDO² easy monitor (alarm for trend upper limit)
- iTENDO² easy monitor (alarm for trend lower limit)

5 iTENDO² app with easy monitor

5.1 Basic information

NOTICE

Possible transmission errors of the sensor data.

Obstacles or electromagnetic interference from the environment can cause transmission errors during the transmission of sensor data.

- Correct interpretation of the sensor data is the responsibility of the user.

NOTICE

Possible material damage due to humidity.

Penetrating humidity can damage the iTENDO² tablet and impair its functionality.

- Protect the iTENDO² tablet from humidity.

Information regarding the warnings and risks of using the iTENDO² tablet can be found in the Assembly and Operating Manual for the iTENDO² pad (ID 1494155) and in the tablet manufacturer's "Quick start" manual.

NOTICE! Select "ITN-EM-...." to connect to the iTENDO² Wireless Receiver! If a sensor with the description "ITN-TH-...." is selected, the pad version of the iTENDO² app will start! This version has a different range of functions!

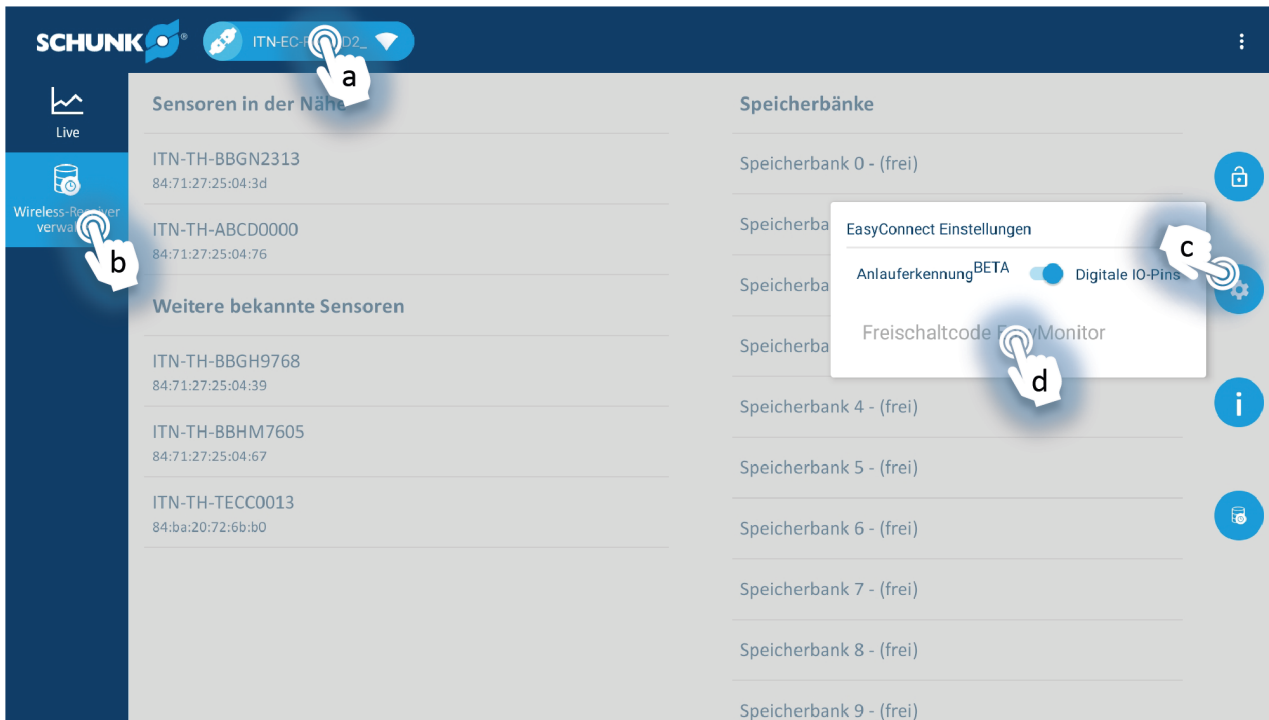
5.2 Setting up the iTENDO² tablet

To set up the tablet, follow the instructions in the iTENDO² pad Assembly and Operating Manual (ID 1494155).

5.3 Opening and closing the iTENDO² app

To open and close the iTENDO² app, follow the instructions in the iTENDO² pad Assembly and Operating Manual (ID 1494155).

5.4 Update from easy connect to easy monitor



The software update is carried out using the iTENDO² app on the iTENDO² Wireless Receiver.

1. Start the iTENDO² app.
2. Connect the iTENDO² Wireless Receiver ("ITN-EC-...") with the iTENDO² app (a).
3. Open the "Wireless Receiver management" area (b).
4. Open the settings (c).
5. Select the input field for the activation code (d).
6. Enter the activation code and confirm with "OK". **NOTE:** The activation code is supplied in a separate document.
7. Disconnect the iTENDO² Wireless Receiver in the iTENDO² app.
8. Press the reset button on the iTENDO² Connect Box for at least 5 seconds.
 - ⇒ The iTENDO² app can now connect to the updated version of the iTENDO² Wireless Receiver ▶ 5.6.2 [📄 20].

5.5 Creating screenshots



There are two ways of creating screenshots in the iTENDO² app:

- Briefly press the On/Off button and the Volume down button simultaneously (1). **NOTE:** This allows screenshots to also be created outside of the iTENDO² app.
 - ⇒ Screenshot is saved in the gallery.

or

- Tap the camera button in the iTENDO² app (2).
 - ⇒ Screenshot is saved in the gallery.

Accessing the screenshots

To call up the screenshots, follow the instructions in the iTENDO² pad Assembly and Operating Manual (ID 1494155).

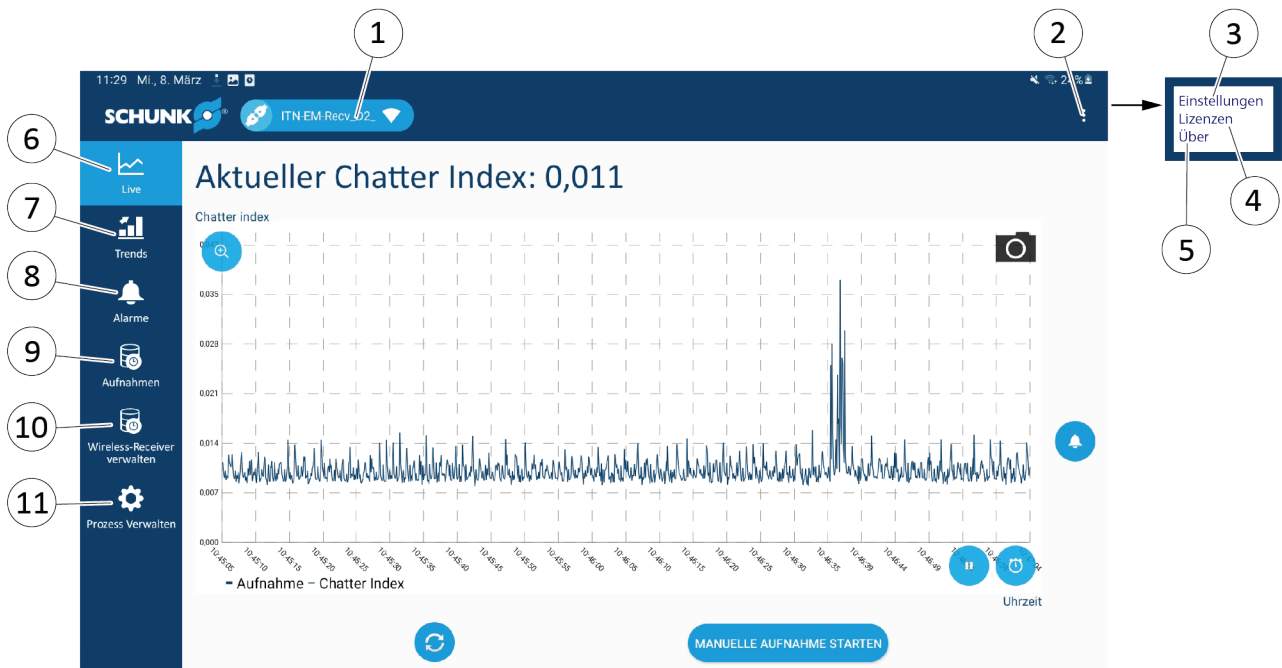
5.6 Operating the iTENDO² app with easy connect

NOTE

If the tablet no longer responds to inputs, a restart can be forced. To do this, press the "ON/OFF" button and the "Volume down" button simultaneously for 7 seconds.

NOTICE! Select "ITN-EM-...." to connect to the iTENDO² Wireless Receiver! If a sensor with the description "ITN-TH-...." is selected, the pad version of the iTENDO² app will start! This version has a different range of functions!

5.6.1 Design and description of the iTENDO² app with easy monitor



- | | |
|----|------------------------------|
| 1 | Wireless Receiver selection |
| 2 | Configuration area |
| 3 | Settings |
| 4 | Licenses |
| 5 | About |
| 6 | Live display |
| 7 | Trend display |
| 8 | Alarm display |
| 9 | Recordings |
| 10 | Wireless Receiver management |
| 11 | Manage process |

Wireless Receiver selection

The Wireless Receiver can be selected here.

Configuration area

Submenu with settings and general data.

Settings

Allows you to select different languages and change the separators for the data export for iTENDO² pad and iTENDO² easy monitor as well as the creation of a backup and restoration of this.

Licenses

Provides information about different software licenses.

About

Contains general information about contacts and the iTENDO² app.

Live display

Graphical display of the current chatter index and the possibility to record it.

Trend display

Area for monitoring the development over time of vibration values from the recording controlled via Digital IN (ON). An upper and lower exact limit can be set for each process.

Alarm display

Area for monitoring the current vibration index using adjustable alarm limits for the recordings controlled via Digital IN (ON).

Recordings

Enables selection and graphical illustration of recordings controlled via Digital IN (ON) and manual recordings.

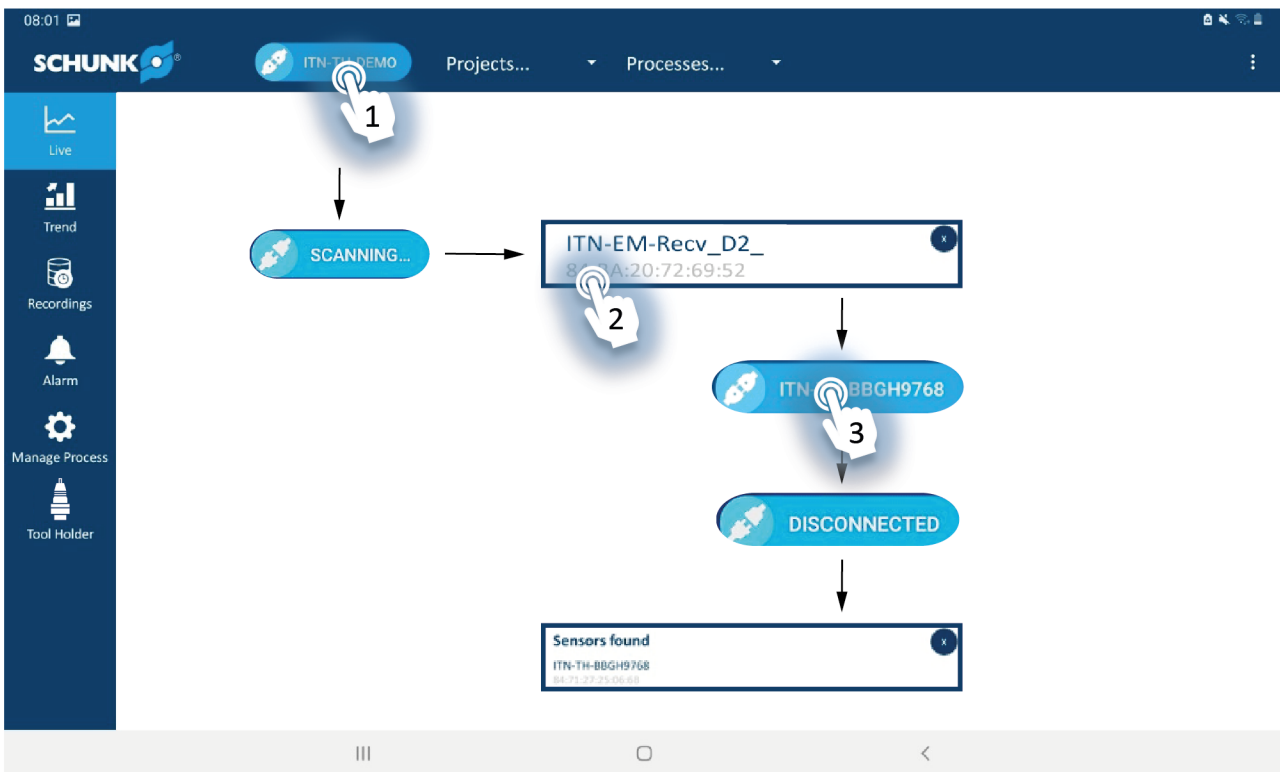
Wireless Receiver management

This is where information about the Wireless Receiver can be displayed, the memory banks can be filled and the values table for the memory banks can be displayed.

Manage process

Enables the adding of processes and the specification and modification of process data.

5.6.2 Connecting/disconnecting the iTENDO² Wireless Receiver



Connecting the Wireless Receiver

1. Make sure that the Bluetooth connection is enabled on the iTENDO² tablet ▶ 5.2 [15].
2. Start the iTENDO² app ▶ 5.3 [15].
3. Start the scan process by tapping the "ITN-TH-DEMO" button (1).
 - ⇒ A list of sensors and iTENDO² Wireless Receivers to which a connection is possible appears. **NOTE:** If the desired iTENDO² Wireless Receiver does not appear, check the cable connection of the iTENDO² Wireless Receiver.
4. Tap the desired iTENDO² Wireless Receiver (2). **NOTICE!** **Wireless Receivers have the description "ITN-EM-...."! If a sensor with the description "ITN-TH-...." is selected, the pad version of the iTENDO² app will start! This version has a different range of functions!**
 - ⇒ Connection to the iTENDO² Wireless Receiver is established, the data appears in the iTENDO² app.

Disconnecting the Wireless Receiver

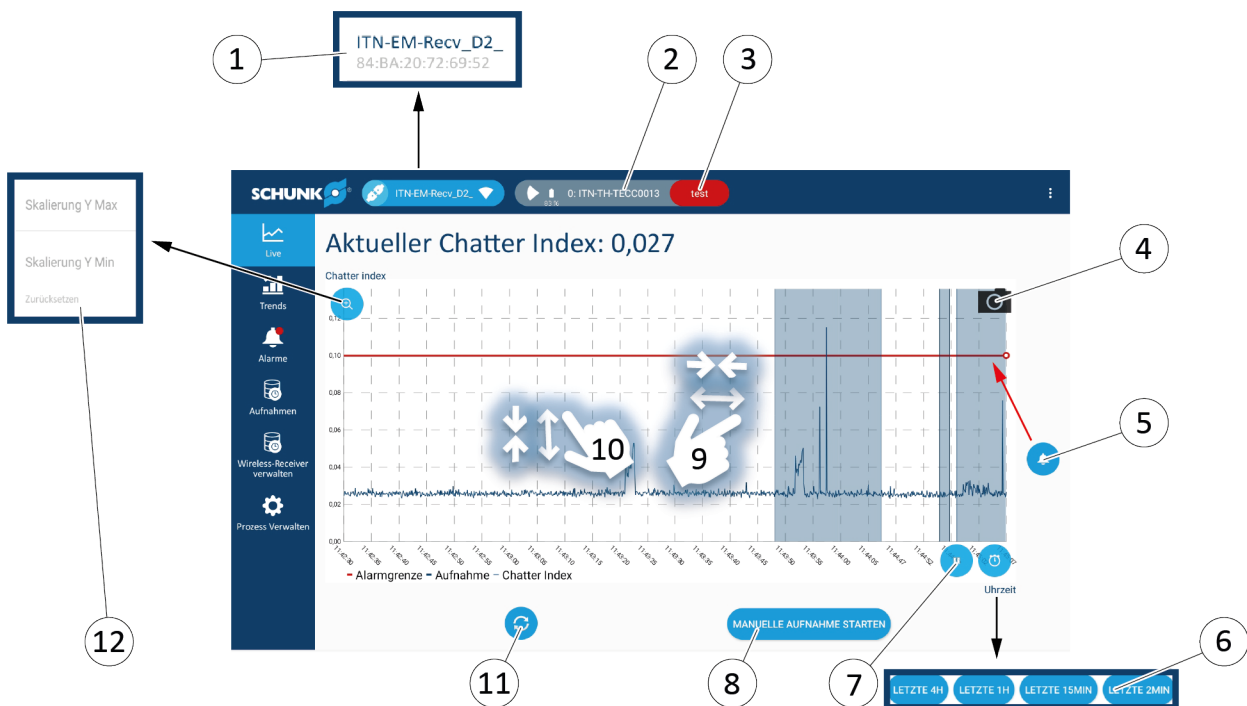
- Tap the selection field with the description of the iTENDO² Wireless Receiver (3).
 - ⇒ The connection is terminated and a list of sensors and iTENDO² Wireless Receivers to which a connection is possible appears.

5.6.3 Display modes of the iTENDO² app with easy monitor

There are different display modes that can be selected by tapping the corresponding button.

5.6.3.1 Live display mode

In the "Live" display mode, the detected vibration data from the sensor is displayed in the central diagram. The corresponding iTENDO² Wireless Receiver can be selected in the "Live" display mode. Data from other iTENDO² sensors that have been connected to the iTENDO² app in the last 4 hours can also be displayed in the central diagram.



- 1 iTENDO² Wireless Receiver selection
- 2 Connected iTENDO² sensor
- 3 Active process
- 4 Camera button
- 5 Display alarm limit
- 6 Time range selection button
- 7 Stop the display
- 8 Activate/stop manual recording button
- 9 Manual zoom (X-axis)
- 10 Manual zoom (Y-axis)
- 11 Reset view
- 12 Settings menu scale parameters of the Y-axis

iTENDO² Wireless Receiver selection

Allows data to be selected and accessed from the iTENDO² Wireless Receiver connected to the iTENDO² app ▶ 5.6.2 [📄 20].

Connected iTENDO² sensor

Display field of the iTENDO² sensor to which the system is connected. The connection strength, battery status, memory bank number and name of the iTENDO² sensor are displayed.

Active process

This field shows the process stored in the currently active memory bank. If the field is blue, no Digital IN (ON) recording is active. If the field is red, a recording triggered by Digital IN (ON) is active.

Camera button

Allows screenshots of the central diagram to be taken ▶ 5.5 [📄 17]. The screenshots are saved in the gallery.

Display alarm limit

This button displays the value of the alarm limit set for the active process. The alarm limit is displayed as a red line in the central diagram. If the exact limit of the live alarm is exceeded, an alarm is displayed in the alarm area of the app and the Digital OUT (3) is switched for 5 seconds. A red dot also appears on the alarm button. **NOTE:** Parameters can be set in the Manage process area, but cannot be changed while the connection between the wireless receiver and sensor is active.

Time range selection button

Allows the time range to be selected for the data to be displayed in the central diagram.

Stop the display

Allows the display of the central diagram to be stopped. This prevents automatic scaling and ensures a detailed view with manual zoom.

Activate/stop manual recording button

Button for starting (blue) or stopping (red) manual recording. Recording starts immediately after starting. **NOTE:** The background is not colored blue in the manual recording. Manual recordings are only available in Recording mode and not in the Trend mode. No alarms are triggered during manual recording.

Manual zoom (X-axis)

Allows arbitrary zooming in or out of the diagram view from the X-axis (time) by expanding or contracting the fingers.

Manual zoom (Y-axis)

Allows arbitrary zooming in or out of the diagram view from the Y-axis (chatter index) by expanding or contracting the fingers.

Reset view

Allows the settings of the scale parameters to be reset for the axes and the manual zoom in the live diagram.

Settings menu scale parameters of the Y-axis

Allows the settings of the scale parameters to be set and reset for the Y-axis of the central diagram.

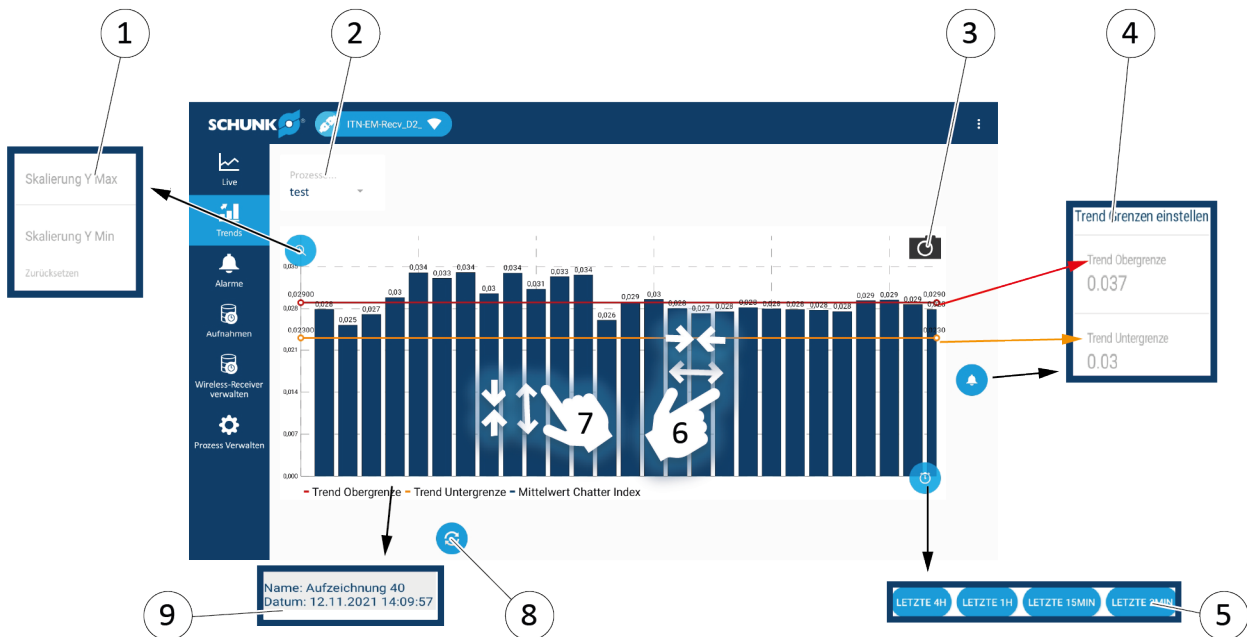
Recordings controlled via Digital In (ON)

If the iTENDO² Wireless Receiver is connected to an iTENDO² and a process is also stored in the memory bank, the recording function can be controlled via the digital input "ON" of the iTENDO² Connect Box. As long as a signal is present at "ON", a recording is active. An active recording is represented by a red process field and the blue background in the central diagram. **NOTE:** The alarm output via Digital OUT also works without connection to the iTENDO² tablet. However, it is only possible to save recordings and alarms if the iTENDO² app is connected to the iTENDO² Wireless Receiver.

5.6.3.2 "Trend" display mode

In the "Trend" display mode, it is possible to determine the average values of individual recordings from the recording controlled via Digital IN (0N). In the central diagram, the average values can be compared and the exact limits defined for the process can be displayed.

NOTE: Trends can only be displayed if recordings exist for the selected process.



1 Settings menu scale parameters of the Y-axis

2 Process selection

3 Camera button

4 Display trend limits

5 Number of bars shown button

6 Manual zoom (X-axis)

7 Manual zoom (Y-axis)

8 Reset view

9 Bar-specific information

Settings menu scale parameters of the Y-axis

Allows the settings of the scale parameters to be set and reset for the Y-axis of the central diagram.

Process selection

The drop-down menu allows you to select a process stored in the Wireless Receiver project to display its trend history.

Camera button

Allows screenshots of the central diagram to be taken ▶ 5.5 [17]. The screenshots are saved in the gallery.

Display trend limits

Allows you to display the values set in the process for the trend limits. Trend upper limit and trend lower limit values are displayed as colored lines in the central diagram. When a trend alarm is triggered, it is listed in the "Alarm" display mode. In addition, Digital OUT 5 is switched for 5 seconds at the trend lower limit and Digital OUT 4 is switched for 5 seconds at the trend upper limit. A red dot also appears on the alarm button.

NOTE: Parameters can be set in the Manage process area, but cannot be changed while the connection between the wireless receiver and sensor is active.

Number of bars shown button

Allows the number of bars to be selected for the data to be displayed in the central diagram.

Manual zoom (X-axis)

Allows arbitrary zooming in or out of the diagram view from the X-axis (number of bars) by expanding or contracting the fingers.

Manual zoom (Y-axis)

Allows arbitrary zooming in or out of the diagram view from the Y-axis (chatter index) by expanding or contracting the fingers.

Reset view

Allows the settings of the scale parameters to be reset for the axes and the manual zoom in the trend diagram.

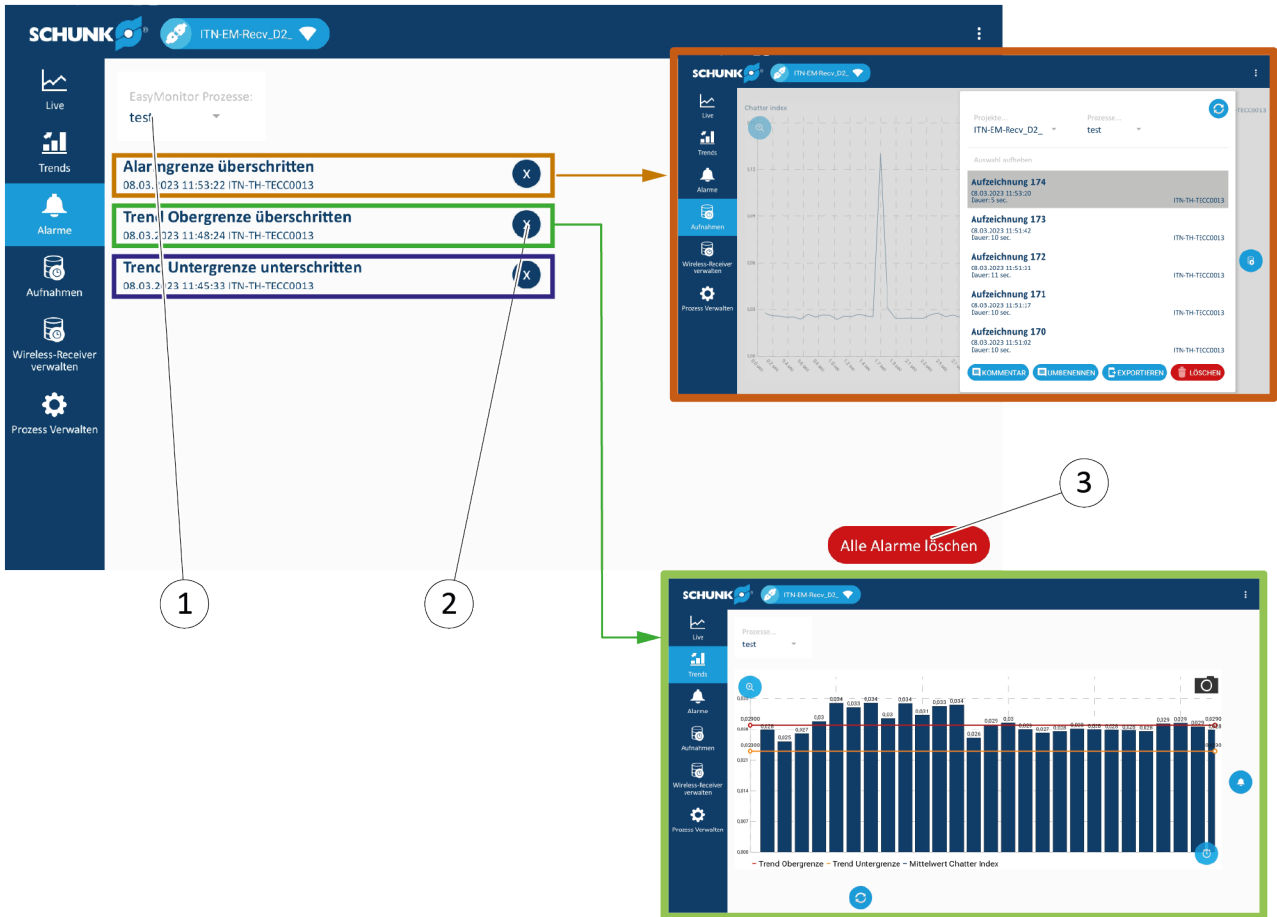
Bar-specific information

Tapping the bars displays information about the individual recordings.

5.6.3.3 "Alarms" display mode

In the "Alarms" display mode, all alarms that have occurred recently are displayed.

NOTE: If an alarm occurs, the associated Digital OUT output is switched for 5 seconds.



The drop-down menu (1) can be used to select and display a process stored in the Wireless Receiver and its alarms.

To delete an individual alarm, you have to tap the "X" button (2). To delete all alarms, you have to tap the "Delete all alarms" button (3).

There are 3 different types of alarms:

- Alarm from the Live display when the exact limit is exceeded
- Alarm from the trend display for the upper exact limit
- Alarm from the trend display for the lower exact limit

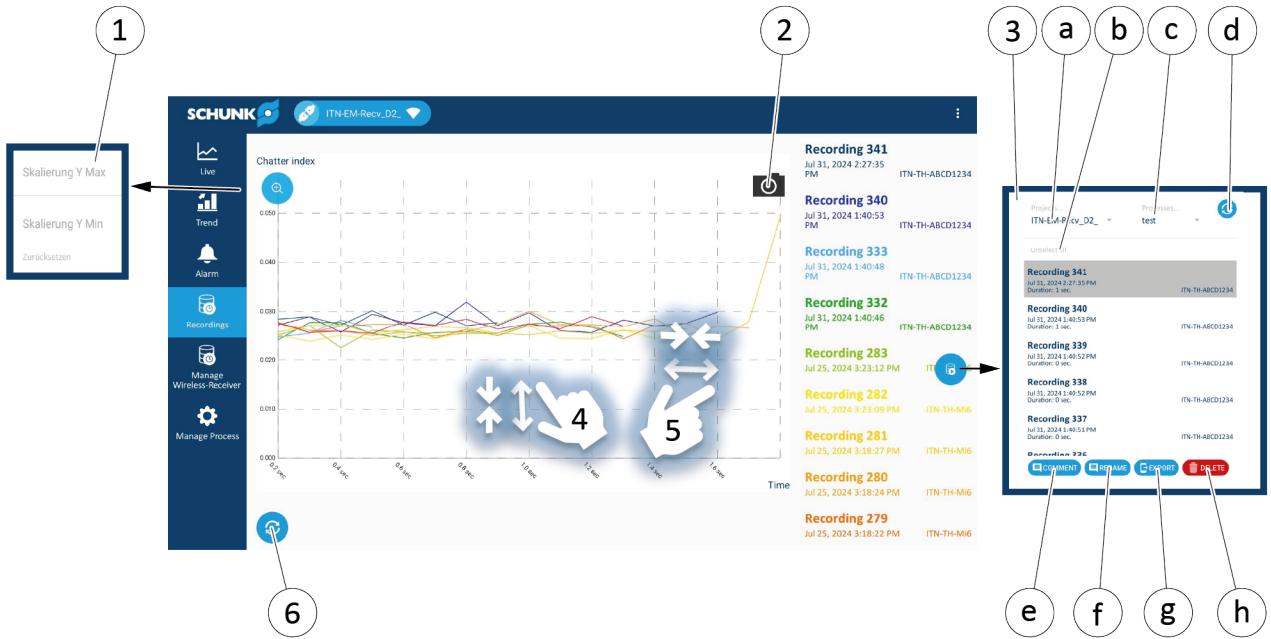
For more detailed information on an alarm, tap the corresponding alarm. Tapping an alarm opens the Trend display or the Recording display and selects the corresponding recording of the alarm.

NOTE: The respective trend exact limits can be set in the "Manage process" area ▶ 5.6.3.6 [33].

5.6.3.4 Display mode recordings

The "Recordings" display mode lists all manual recordings of processes, as well as all recordings of processes controlled via Digital IN (ON). If required, the different recordings can be displayed as different colored lines in the central diagram.

NOTE: A maximum of 10 recordings can be displayed simultaneously. The legend to the right of the central diagram assigns a recording to each colored line.



- 1 Settings menu scale parameters of the Y-axis

- 2 Camera button

- 3 Overview of recorded processes

- 4 Manual zoom (Y-axis)

- 5 Manual zoom (X-axis)

- 6 Reset view

Settings menu scale parameters of the Y-axis

Allows the settings of the scale parameters to be set and reset for the Y-axis of the central diagram.

Camera button

Allows screenshots of the central diagram to be taken ▶ 5.5 [📄 17]. The screenshots are available in the tablet's gallery.

Overview of recorded processes

A list of all recorded processes. The processes can be selected and displayed as colored lines in the central diagram. The following functions can be used:

- Drop-down menu to display a saved project and the recordings of the processes of the project (a)
- Deselect recordings (b)
- Drop-down menu to display a process saved in the selected project and its recordings (c)
- Reload the recording list (d)
- Add a comment for the selected recording (e)
- Rename the selected recording (f)
- Exporting all recordings for the selected process or the recordings selected in the list in CSV file format ▶ 5.6.3.5 [📄 29] (g)

NOTE: The decimal separator in the CSV file can be changed in the settings (point or comma) ▶ 5.6.1 [📄 18].

- Delete the selected recordings (h)

Manual zoom (Y-axis)

Allows arbitrary zooming in or out of the diagram view from the Y-axis (chatter index) by expanding or contracting the fingers.

Manual zoom (X-axis)

Allows arbitrary zooming in or out of the diagram view from the X-axis (time) by expanding or contracting the fingers.

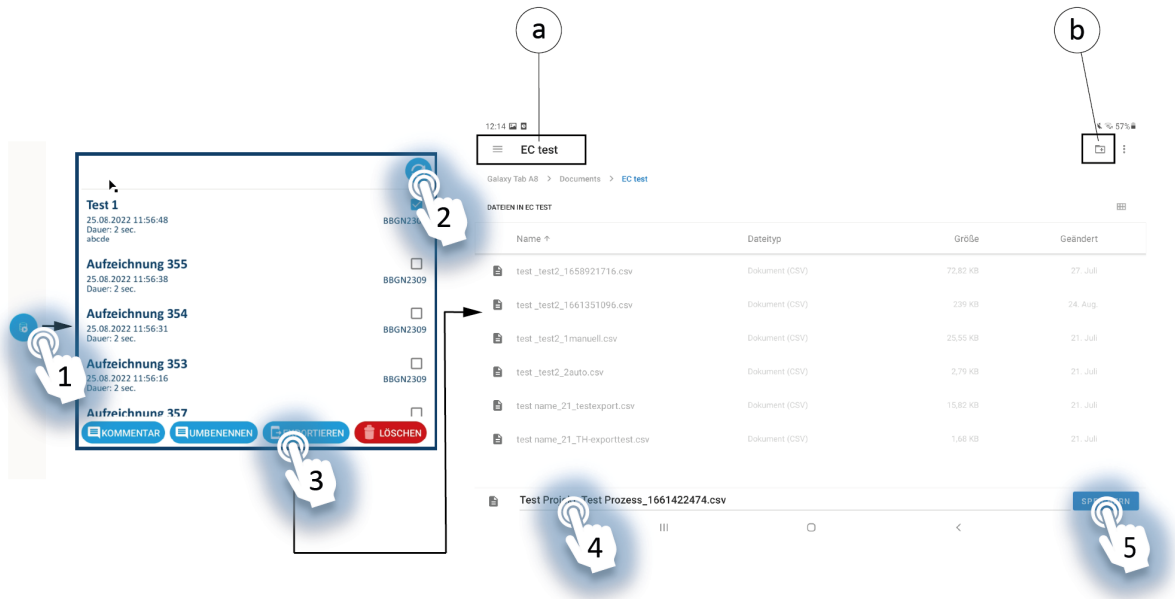
Reset view

Allows the settings of the scale parameters to be reset for the axes and the manual zoom in the diagram.

5.6.3.5 Exporting recordings / managing exported recordings**Exporting recordings**

In the Recordings display mode, data can be exported in CSV file format. To do this proceed as follows.

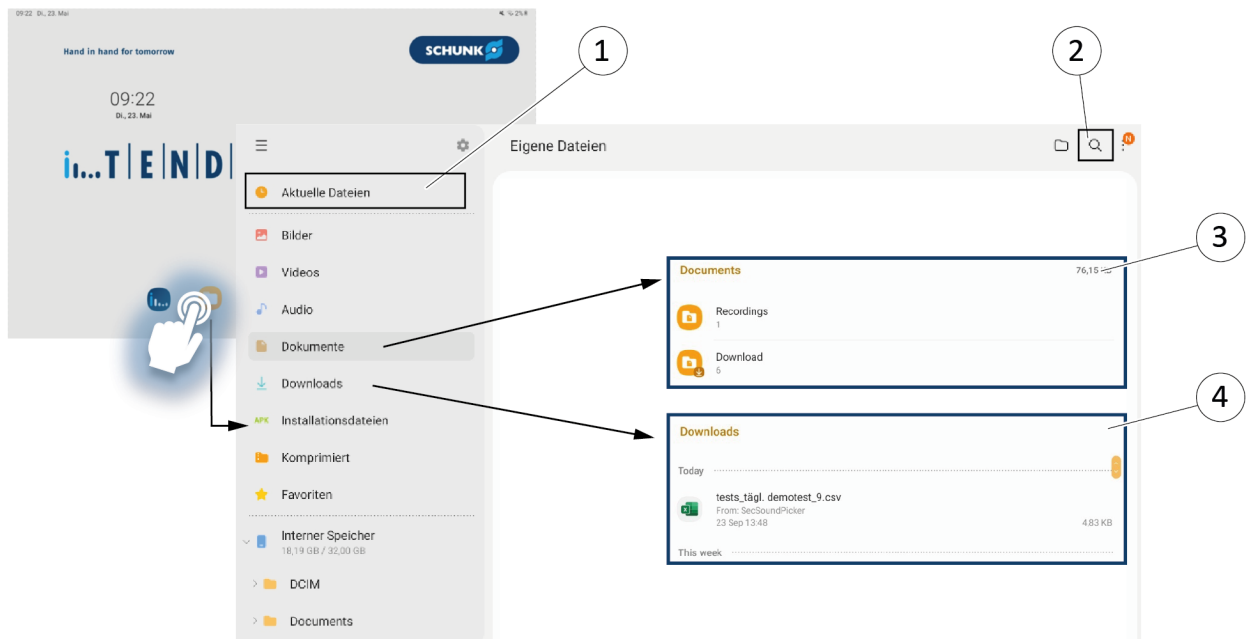
NOTE: The decimal separator in the CSV file can be changed in the settings (point or comma) ▶ 5.6.1 [📄 18].



1. Open the overview of recorded processes by tapping the button.
2. Select the recording whose data is to be exported. **NOTE:** One or more recordings can be selected before exporting. If no recording is selected, all recordings are exported.
3. Tap the "EXPORT" button to specify the storage location of the data.
 - ⇒ A destination folder for saving can be set (a) or newly created (b).
4. Adjust the name of the exported data as needed. **NOTE:** The extension .csv is determined by the file format and must not be changed.
5. Tap the "Save" button to export the data.

Finding exported recordings

To access the exported data open the "My Files" button.



1 Current files

2 Search

3 Documents

4 Downloads

Current files

Under "Current files" you can see the last saved files.

Search

Under "Search" files can be searched for by their file name.

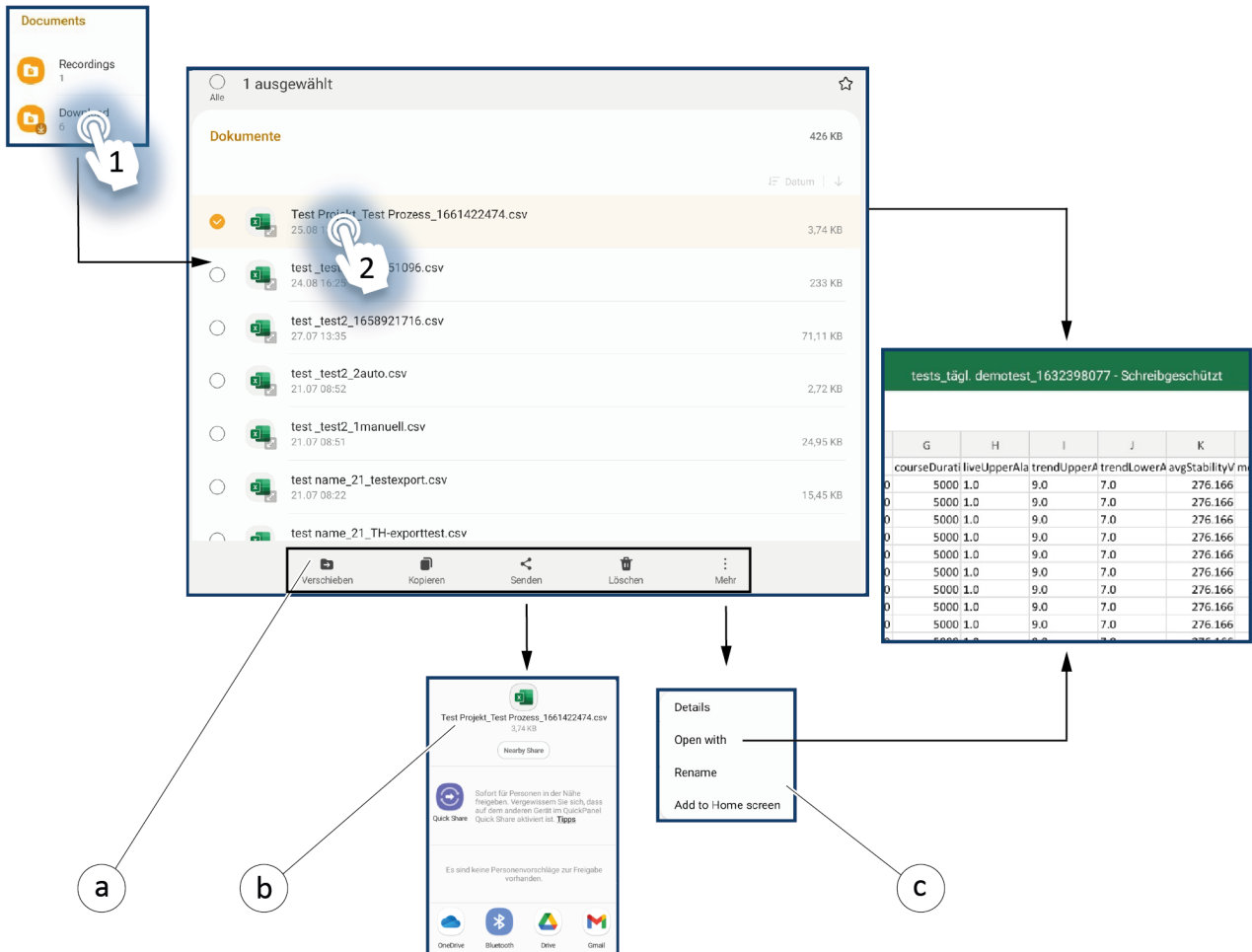
Documents

An overview of all folders appears under "Documents". Here you can open the desired file.

Downloads

Under "Downloads" you can see all recently downloaded files.

Managing exported recordings



1. Open the appropriate folder with the desired file.
2. Tap and hold the file with your finger for a few seconds.
 - ⇒ A selection bar (a) opens in which the file can be released (b) or, for example, renamed (c).
3. Tap the file to open it. To open the file with a special program, tap and hold the file with your finger for a few seconds, then tap "More" and "Open with" in the selection bar (a).

5.6.3.6 "Wireless Receiver management" display mode

In the "Wireless Receiver management" display mode, iTENDO² sensors and processes can be assigned to a memory bank. 64 memory banks are available for this purpose.

Speicherbänke - Belegung der digitalen Eingänge																			
Speicherbank	Digital IN					Speicherbank	Digital IN					Speicherbank	Digital IN						
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				
0	0	0	0	0	0	21	1	0	1	0	1	0	42	0	1	0	1	0	1
1	1	0	0	0	0	22	0	1	1	0	1	0	43	1	1	0	1	0	1
2	0	1	0	0	0	23	1	1	1	0	1	0	44	0	0	1	0	1	0
3	1	1	0	0	0	24	0	0	0	1	1	0	45	1	0	1	1	0	1
4	0	0	1	0	0	25	1	0	0	1	1	0	46	0	1	1	0	1	0
5	1	0	1	0	0	26	0	1	0	1	1	0	47	1	1	1	0	1	0
6	0	1	1	0	0	27	1	1	0	1	1	0	48	0	0	0	0	1	1
7	1	1	1	0	0	28	0	0	1	1	1	0	49	1	0	0	0	1	1
8	0	0	0	1	0	29	1	0	1	1	1	0	50	0	1	0	0	1	1
9	1	0	0	1	0	30	0	1	1	1	1	0	51	1	1	0	0	1	1
10	0	1	0	1	0	31	1	1	1	1	1	0	52	0	0	1	0	1	1
11	1	1	0	1	0	32	0	0	0	0	1	1	53	1	0	1	0	1	1
12	0	0	1	1	0	33	1	0	0	0	1	1	54	0	1	1	0	1	1
13	1	0	1	1	0	34	0	1	0	0	1	1	55	1	1	1	0	1	1
14	0	1	1	1	0	35	1	1	0	0	1	1	56	0	0	1	1	1	1
15	1	1	1	1	0	36	0	0	1	0	0	1	57	1	0	0	1	1	1
16	0	0	0	1	0	37	1	0	1	0	0	1	58	0	1	0	1	1	1
17	1	0	0	1	0	38	0	1	1	0	0	1	59	1	1	0	1	1	1
18	0	1	0	0	1	39	1	1	1	0	0	1	60	0	0	1	1	1	1
19	1	1	0	0	1	40	0	0	0	1	0	1	61	1	0	1	1	1	1
20	0	0	1	0	1	41	1	0	0	0	1	1	62	0	1	1	1	1	1
													63	1	1	1	1	1	1

- 1 Selection area sensors nearby
- 2 Selection area other known sensors
- 3 Description of the sensor in memory bank
- 4 Description of the process in memory bank
- 5 Selection area memory banks
- 6 Button for removing a sensor and process from memory bank
- 7 Projects and processes area
- 8 Wireless Receiver project
- 9 Process in the iTENDO² Wireless Receiver project
- 10 Lock or unlock the "Wireless Receiver management" display mode
- 11 Information
- 12 Values table memory banks

Selection area sensors nearby

Sensors that are within the connection range are displayed here.

Selection area other known sensors

Sensors that are currently not within the connection range are displayed here.

Description of the sensor in memory bank

The description of the sensor stored in the memory bank is displayed here.

Description of the process in memory bank

The description of the process stored in the memory bank is displayed here.

Selection area memory banks

All available memory banks as well as the description of the respectively stored sensors and processes are displayed here.

Button for removing a sensor and process from memory bank

Allows you to remove a sensor and process from its assigned memory bank.

Projects and processes area

This area shows all projects and their processes known to the iTENDO² app on the tablet.

Wireless Receiver project

A project is created for each iTENDO² Wireless Receiver easy monitor. Processes can be added to this project. All processes assigned to the iTENDO² Wireless Receiver project can be assigned to a memory bank.

Process in the iTENDO² Wireless Receiver project

Processes stored in the project of the currently connected iTENDO² Wireless Receiver.

Lock or unlock the "Wireless Receiver management" display mode

Allows you to lock or unlock the "Wireless Receiver management" display mode

Information

Provides more information about the Wireless Receiver.

Values table memory banks

Values table of the necessary activation of the digital IN inputs at the iTENDO² Connect Box for the different memory banks.

To store a sensor and a process in a memory bank, proceed as follows:

1. Unlock "Memory banks management" display mode by tapping the icon (a).
2. Tap suitable sensor in the available sensors selection area or known versions selection area and keep your finger pressed (b).
 - ⇒ The description of the sensor is grayed out and can be moved around the screen.
3. Drag the selected sensor to the desired memory bank (c).
4. Lift finger from screen.
 - ⇒ The sensor is assigned to the memory bank.

To store a process in a memory bank, also select the process from the iTENDO² Wireless Receiver project and drag it to the desired memory bank.

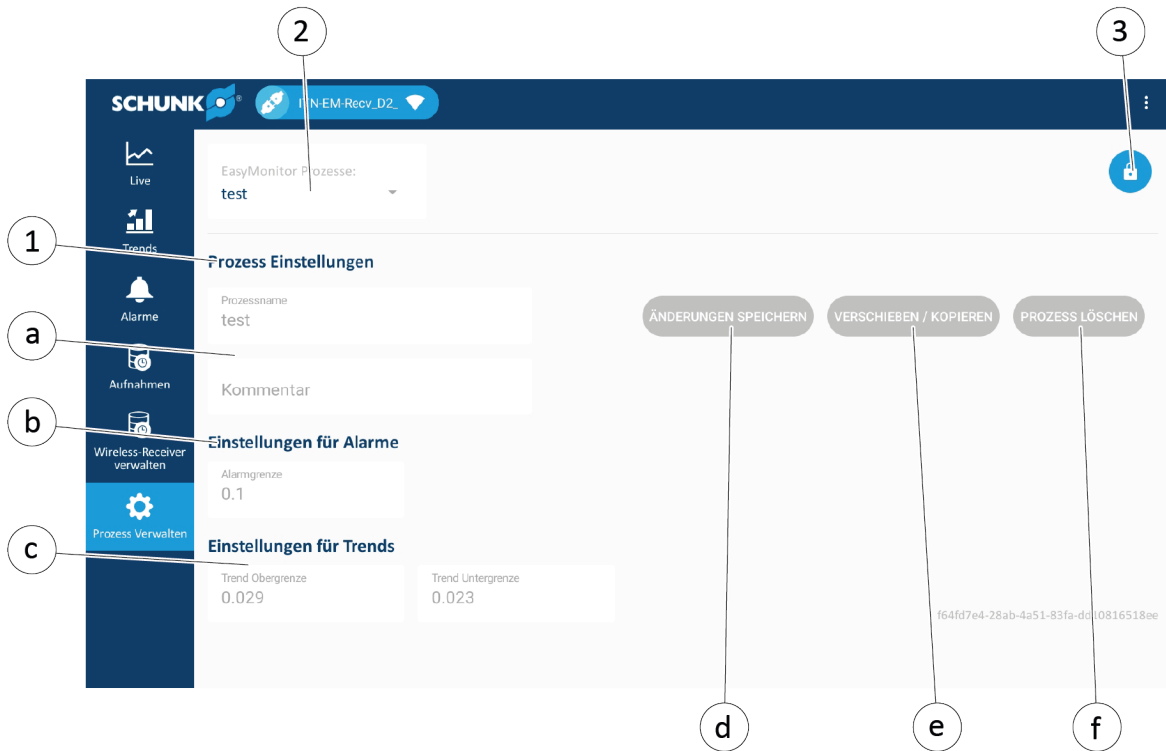
To remove a sensor and process from a memory bank, proceed as follows:

1. Unlock the "Memory banks management" display mode by tapping the icon (a).
2. Tap the "Remove sensor and process from memory bank" button next to the sensor and process to be removed.
 - ⇒ The sensor and process are removed from the memory bank.

5.6.3.7 Manage process display mode

In the "Manage process" display mode, the settings of the process can be managed and new processes can be added.

NOTE: Processes must be created before they can be managed. Only processes can be added to the iTENDO² Wireless Receiver project and only processes from this project can be edited.



- 1 Process settings

- 2 Add and edit process

- 3 Lock or unlock the "Manage process" area

NOTE: If not all areas are visible, you can scroll down or adjust the font size of the tablet.

Process settings

In this area the selected process can be renamed, commented on or deleted.

- Change the process name or write a comment (a). **NOTE:** A process name is always required.
- Area for setting the alarm from the "Live" display mode (b).
- Area for setting the alarms from the "Trend" display mode (c).
- Button for saving the changes (d).
- Button to move (with recordings) or copy (without recordings) the process to another project (e).
- Button for deleting the process (f).

Add and edit process

A new process can be added in this area. In addition, existing processes can be selected and the respective settings can be adjusted.

Lock or unlock the "Manage process" area

Enables the locking or unlocking of the "Manage process" area.

NOTE: Unlocking is only possible if the currently connected iTENDO² Wireless Receiver is not connected to an iTENDO² sensor.

Area for editing information

The screenshot displays the 'Area for editing information' in the iTENDO² app. The interface is divided into three main sections, each with a dashed border and a callout label:

- 3a: Prozess-Informationen** (Process Information): Includes 'Bearbeitungsverfahren' (Manteln), 'Maschinenname', 'Spindeldrehzahl (U/min)' (60000), 'Vorschubgeschwindigkeit (mm/...)' (80), 'Axiale Schnitttiefe (ap) [mm]' (8.0), 'Schnittgeschwindigkeit (m/min)' (600), 'Vorschub pro Zahn [mm]' (0.05), and 'Radiale Schnitttiefe (ae) [mm]' (8.0).
- 3b: Werkzeug-Informationen** (Tool Information): Includes 'Werkzeug-Typ' (Fräser), 'Vollmaterial / Wendschneidplatten' (Massiv Vollhartmetall), 'ID-Nummer des Werkzeugs' (000000), 'Eingetragene ID-Nummer' (000000), 'Gesamtlänge' (12.0), 'Durchmesser Ø [mm]' (8.0), 'Schneiden Anzahl' (3), 'Werkzeugüberstand [mm]' (9.0), and 'Steigungswinkel [°]' (45.0).
- 3c: Werkstück-Informationen** (Workpiece Information): Includes 'Material des Werkstücks' (1.17458), 'Festigkeit des Materials [N/mm²]' (670), and 'Zustand des Materials' (+QT).

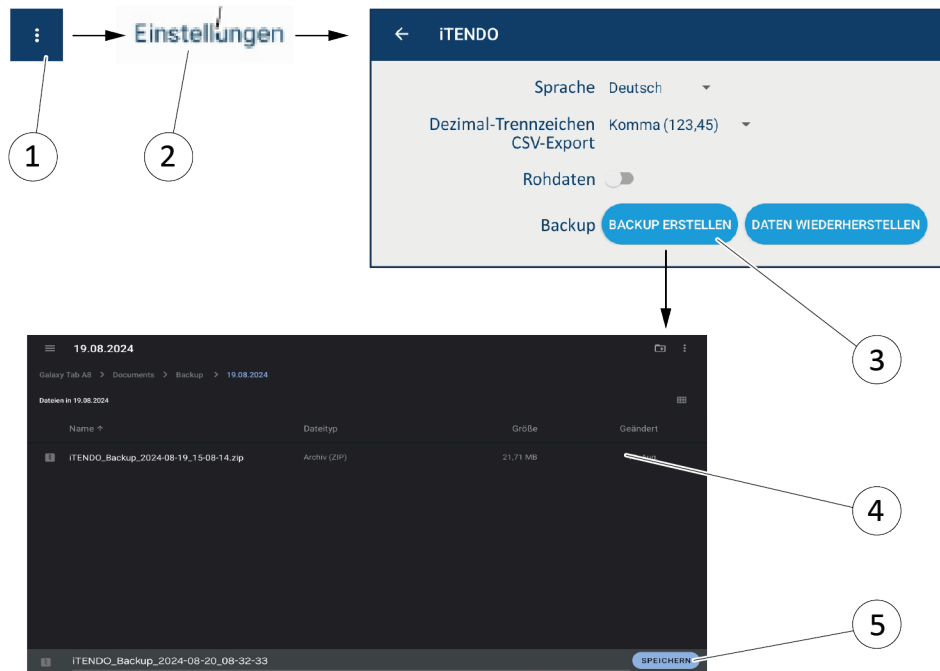
The app's top navigation bar shows 'SCHUNK', 'ITN TH BBKF9990', and 'project' / 'process' dropdowns. The left sidebar contains icons for 'Live', 'Trends', 'Aufnahmen', 'Rohsignal', 'Alarme', 'Prozess Verwalten', and 'Sensor'.

Information on the process (3a), the tool (3b) and the workpiece (3c) can be stored in this area.

5.6.4 Backup

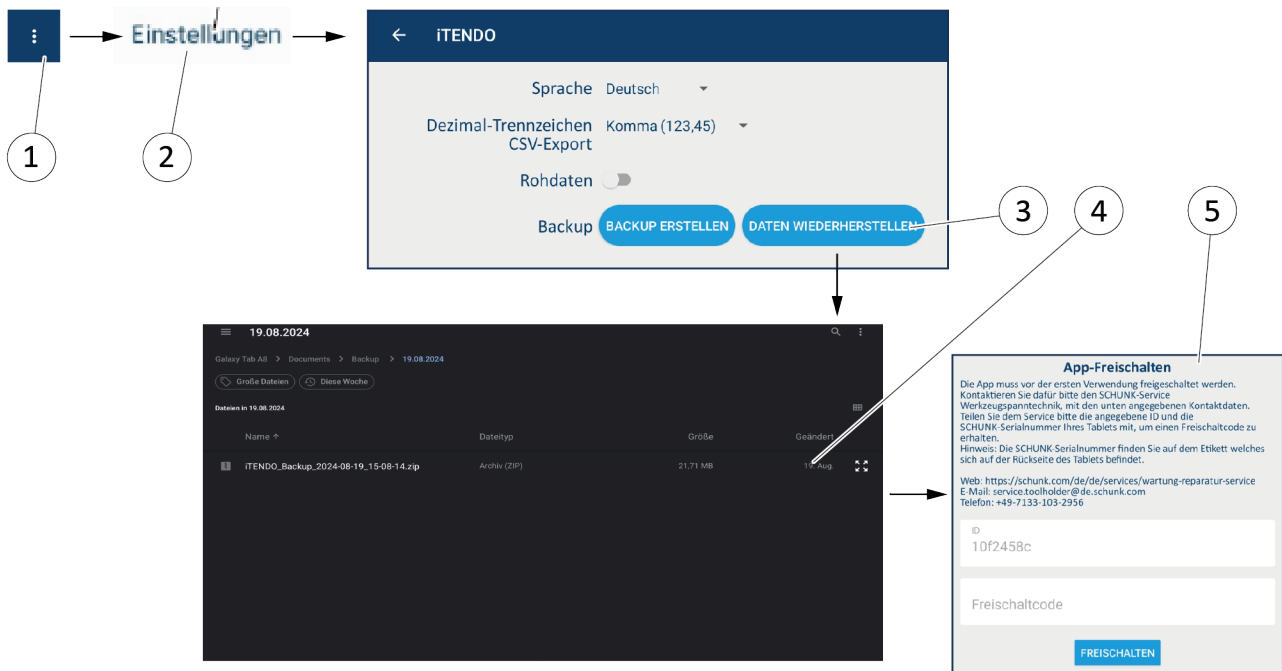
The backup is a copy of all data available in the app at the time the backup is created. Data that is recorded or saved after the backup has been created is not included in this copy.

Save data as a backup



1. Select the three-point menu (1).
2. Select Settings (2).
3. Select the Create backup button (3).
4. Select memory location (4).
5. Select the Save button (5).

Restore data from backup



CAUTION! Restoring the backup overwrites all existing data in the app and the app also needs to be activated again!

1. Select the three-point menu (1).
2. Select Settings (2).
3. Select Restore data button (3).
4. Select backup file (4).
5. Close and restart the app.
6. Enter the activation code (5). **NOTE:** The process for obtaining the activation code is described in the app.

6 Troubleshooting

Repair work may only be carried out by SCHUNK!

If you have any questions regarding maintenance and servicing, our technical after-sales service is available during our business hours:

Service telephone: +49-7133-103-2956

service.toolholder@de.schunk.com

NOTE: All other errors are described in the Assembly and Operating Manual for iTENDO² easy connect (1539948).

Possible malfunction / occurring errors	Possible causes	Remedial measures
Data is not being transferred or is being transferred incorrectly	Incorrect process assignment	Assign the correct process to the memory bank: ▶ 5.6.3.6 [33]
	Tablet is not connected	Connect the tablet during recordings: ▶ 5.6.2 [20]
	Incorrect memory bank	Check the memory bank assignment in the iTENDO ² app: ▶ 5.6.3.6 [33]
		Check the commands for Digital IN 0-5: ▶ 5.6.3.6 [33]
	Wrong program sequence	Check the sequence of the commands for Digital IN. See chapter 6.2.3.1 in the Assembly and Operating Manual for iTENDO ² easy connect (1539948).
	Program sequence too fast	Adhere to waiting times. See chapter 6.2.3.1 in the Assembly and Operating Manual for iTENDO ² easy connect (1539948).
Output is only being switched for 5 seconds	Observe alarm times. See ePlan in the appendix. TIP: To trigger a permanent signal, the customer can use self-locking functions or circuits.	

Possible malfunction / occurring errors	Possible causes	Remedial measures
Alarm is not being issued correctly	Parameters of the alarm limits are not correct	Check the values of the process-specific alarm limits: ▶ 5.6.3.7 [36]
	Components are indicating a fault	Check the outputs on the iTENDO ² Connect Box and cable connections. See the Assembly and Operating Manual for iTENDO ² easy connect (1539948).

7 Spare parts list

ID	Designation
1484494	iTENDO² easy connect package with <ul style="list-style-type: none"> • iTENDO² Connect Box • iTENDO² Wireless Receiver cable • iTENDO² Wireless Receiver • iTENDO² pad complete system
1484688	iTENDO² easy connect upgrade with <ul style="list-style-type: none"> • iTENDO² Connect Box • iTENDO² Wireless Receiver cable • iTENDO² Wireless Receiver
1532118	iTENDO² easy connect package, magnetic with <ul style="list-style-type: none"> • iTENDO² Connect Box • iTENDO² Wireless Receiver cable • iTENDO² Wireless Receiver, magnetic • iTENDO² pad complete system
1532117	iTENDO² easy connect upgrade, magnetic with <ul style="list-style-type: none"> • iTENDO² Connect Box • iTENDO² Wireless Receiver cable, magnetic • iTENDO² Wireless Receiver
1532197	iTENDO² easy connect accessories <ul style="list-style-type: none"> • Lock nuts M12 • Cable fitting 90° • Insulated wire end ferrules • Twin wire end ferrules
1484702	iTENDO ² Connect Box
1516309	iTENDO ² Wireless Receiver cable
1484701	iTENDO ² Wireless Receiver
1516790	Cover for iTENDO ² Wireless Receiver
1542546	Housing for iTENDO ² Wireless Receiver
1456724	Mounting magnet for iTENDO ² Wireless Receiver (1 piece)
9872698	O-ring for cover and housing of iTENDO ² Wireless Receiver
1522380	Locking screw for housing of iTENDO ² Wireless Receiver
1522381	Cable fitting iTENDO ² Wireless Receiver M12x1.5, brass with contact sleeve
1522382	90° cable fitting iTENDO ² Wireless Receiver M12x1.5, brass with contact sleeve
1522383	Nut for cable fitting for iTENDO ² Wireless Receiver
1541069	iTENDO ² Wireless Receiver housing, magnetic

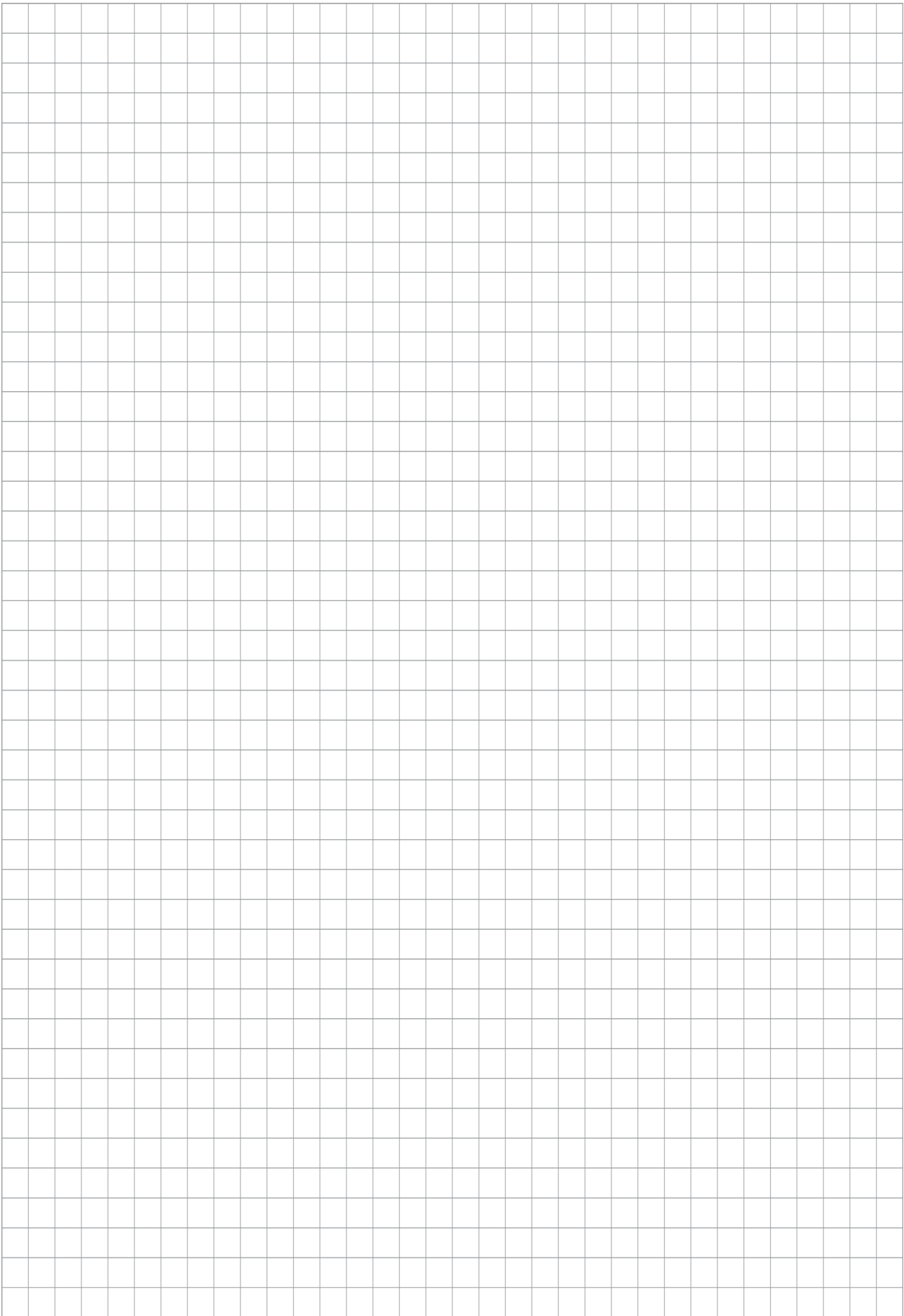
ID	Designation
1532110	iTENDO ² Wireless Receiver, magnetic
1484493	iTENDO² pad complete system with <ul style="list-style-type: none">• iTENDO² case• iTENDO² tablet including iTENDO² app• iTENDO² charger• iTENDO² tablet charger• iTENDO² power plug
1484677	iTENDO ² tablet with iTENDO ² app installed
1484683	iTENDO ² charger
1484679	iTENDO ² tablet charger
1484675	iTENDO ² power plug
1484670	iTENDO ² case

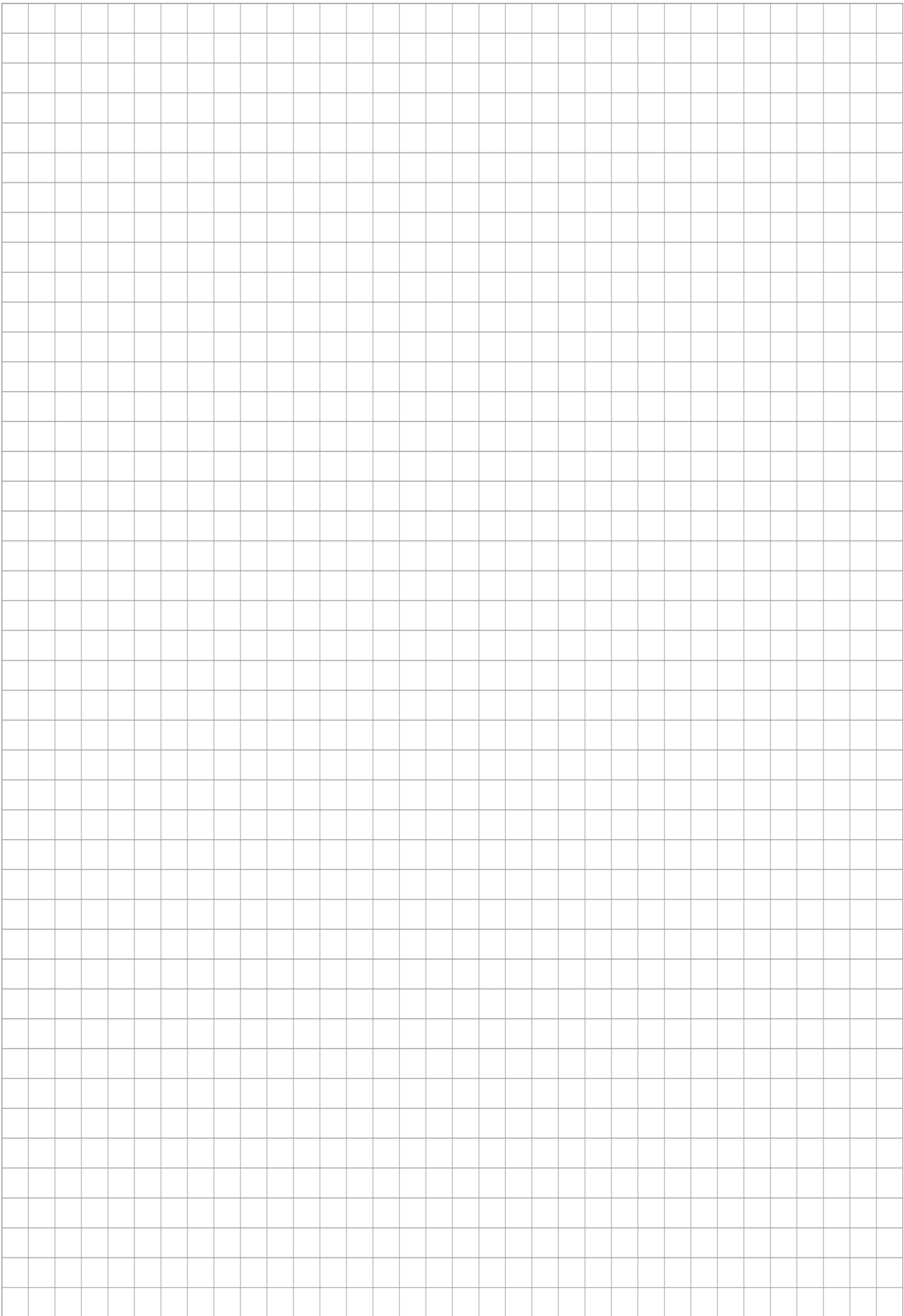
8 Disposal



- This product may not be disposed of in household waste. It must be taken to a collection point for material recovery and recycling.
- Follow local regulations on dispatching product components for recycling or proper disposal.

Alternatively, you can return the product to SCHUNK for correct disposal.









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