



# Assembly and Operating Manual iTENDO<sup>2</sup> easy connect

ID 1484494 / 1484688 / 1532117 / 1532118

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 [📄 7] 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 iTENDO<sup>2</sup> (ID 1522399)
- Assembly and Operating Manual iTENDO<sup>2</sup> pad (ID 1494155)
- 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 \[ 7 \]](#)
- Observe the ambient conditions and operating conditions, ▶ [2.6 \[ 10 \]](#)
- Observe the specified maintenance instructions.

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

## 1.3 Scope of delivery

Depending on the design, the scope of delivery includes:

**iTENDO<sup>2</sup> easy connect package (ID 1484494) with:**

- 1 iTENDO<sup>2</sup> wireless receiver cable (ID 1516309)
- 1 iTENDO<sup>2</sup> wireless receiver (ID 1484701)
- 1 iTENDO<sup>2</sup> Connect Box (ID 1484702)
- 1 iTENDO<sup>2</sup> pad package with tablet (ID 1484493)
- 1 Assembly and Operating Manual (ID 1539948)

or

**iTENDO<sup>2</sup> easy connect package (ID 1484688) with:**

- 1 iTENDO<sup>2</sup> wireless receiver cable (ID 1516309)
- 1 iTENDO<sup>2</sup> wireless receiver (ID 1484701)
- 1 iTENDO<sup>2</sup> Connect Box (ID 1484702)
- 1 Assembly and Operating Manual (ID 1539948)

or

**iTENDO<sup>2</sup> easy connect package (ID 1532118) with:**

- 1 iTENDO<sup>2</sup> wireless receiver cable (ID 1516309)
- 1 iTENDO<sup>2</sup> wireless receiver, magnetic (ID 1532110)
- 1 iTENDO<sup>2</sup> Connect Box (ID 1484702)

- 1 iTENDO<sup>2</sup> pad package with tablet (ID 1484493)
- 1 Assembly and Operating Manual (ID 1539948)

or

**iTENDO<sup>2</sup> easy connect upgrade package, magnetic (ID 1532117) with:**

- 1 iTENDO<sup>2</sup> wireless receiver cable (ID 1516309)
- 1 iTENDO<sup>2</sup> wireless receiver, magnetic (ID 1532110)
- 1 iTENDO<sup>2</sup> Connect Box (ID 1484702)
- 1 Assembly and Operating Manual (ID 1539948)

#### **1.4 Accessories**

The following optional accessories are available for the product:

**iTENDO<sup>2</sup> easy connect accessories (ID 1532197) with:**

- 1 Lock nuts M12x1.5, brass
- 1 Cable fitting 90° M12x1.5, brass with contact sleeve
- 8 Insulated wire end ferrules 0.15 mm<sup>2</sup>, L = 6 mm
- 4 Twin wire end ferrules 0.25 mm<sup>2</sup> Partially insulated

## 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 iTENDO<sup>2</sup> used.
- The wireless receiver may only be connected to an iTENDO<sup>2</sup> and the iTENDO<sup>2</sup> Connect Box or the iTENDO<sup>2</sup> 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 iTENDO<sup>2</sup> operating manual.
- Only use iTENDO<sup>2</sup> in machines with closed protective equipment.
- Do not exceed the permissible speed range of the iTENDO<sup>2</sup> (see iTENDO<sup>2</sup> operating manual).



## 4 iTENDO<sup>2</sup> wireless receiver cable

### 4.1 Technical data

#### 4.1.1 Product data

ID	1516309
Maximum bending radius	8 x cable diameter
Number of wires	8
Pre-assembled length	15 m*

\* can be shortened by customer if required.

#### 4.1.2 Ambient conditions and operating conditions

Operating temperature range	-5°C to +50°C
Transport temperature range	-5°C to +50°C
Storage temperature range	+20°C ±10°C

### 4.2 Design and description

All information about the design and description of the iTENDO<sup>2</sup> wireless receiver cable can be found in the data sheet of the cable manufacturer. **NOTE:** The data sheet is not included in the scope of delivery.

### 4.3 Crimping the iTENDO<sup>2</sup> wireless receiver cable



#### **⚠ WARNING**

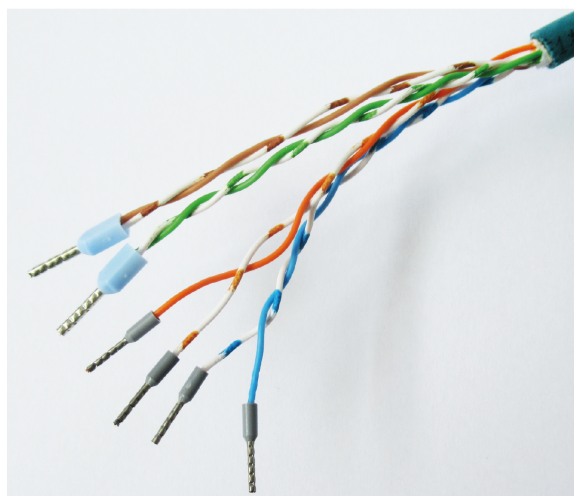
#### **Risk of injury from electric shock due to contact with live parts!**

Touching live parts can lead to an electric shock and cause serious injuries.

- Only allow a qualified electrician to perform work on electrical components.
- Prior to commencing work on electric components, restore to a de-energized state.
- Check the iTENDO<sup>2</sup> wireless receiver cable regularly for damage.
- In the event of damage to the iTENDO<sup>2</sup> wireless receiver cable, shut off the voltage supply immediately and arrange for a repair.
- Wear suitable protective equipment.

	Color	RAL color	Abbreviation	(plain text)
	brown	8003	BN	(brown)
	brown-white	-	BNWH	(brown-white)
	orange	2003	OG	(orange)
	orange-white	-	OGWH	(orange-white)
	green	6018	GN	(green)
	green-white	-	GNWH	(green-white)
	blue	5015	BU	(blue)
	blue-white	-	BUWH	(blue-white)
	white	1013	WH	(white)

- Strip approx. 10 cm of the iTENDO<sup>2</sup> wireless receiver cable with a stripping tool.
- Remove shielding.
- Strip the individual wires with a stripping tool.
- Using crimping pliers, crimp the wire end ferrules on the stripped wires as follows:
  - ⇒ Wire end ferrules 0.14 mm<sup>2</sup>, L= 6 mm for blue, blue-white, orange and orange-white.
  - ⇒ Twin wire end ferrules 0.25 mm<sup>2</sup> for green + green-white and brown + brown-white. **NOTE:** Twist wire strands beforehand.
- Repeat steps 1 to 4 for the other end of the iTENDO<sup>2</sup> wireless receiver cable.



Correctly crimped iTENDO<sup>2</sup> wireless receiver cable

## 4.4 Installing the iTENDO<sup>2</sup> wireless receiver cable



### **⚠ CAUTION**

#### **Risk of injury due to tripping or falling!**

If the iTENDO<sup>2</sup> wireless receiver cable is placed in walkways, this can lead to injuries due to tripping or falling.

- Do not place the iTENDO<sup>2</sup> wireless receiver cable within the operator's range of movement.
- Do not place the iTENDO<sup>2</sup> wireless receiver cable in walkways.



### **⚠ CAUTION**

#### **Risk of injury due to moving cable!**

If the iTENDO<sup>2</sup> wireless receiver cable is installed near moving parts, the cable may get caught and move. The moving cable can catch and injure the machine operator.

- Install the iTENDO<sup>2</sup> wireless receiver cable so that it cannot be caught by moving parts.
- Install the iTENDO<sup>2</sup> wireless receiver cable so that the machine operator cannot get caught.

### **NOTICE**

#### **Material damage due to improper laying of the cable.**

Improper laying can damage the cable and limit functionality.

- Do not bend the iTENDO<sup>2</sup> wireless receiver cable.
- Do not pinch the iTENDO<sup>2</sup> wireless receiver cable.

When routing the iTENDO<sup>2</sup> wireless receiver cable make sure that:

- The cable is not laid along moving parts.
- The cable is not laid within the operator's range of movement.
- The cable is not laid in walkways.
- The cable is not exposed in the machine room.
- The cable is not kinked or pinched.
- The cable is not laid over or along sharp edges.
- The cable is not laid in the direct cutting area.
- The cable is not exposed to a continuous jet of coolant.
- The cable is not laid too tautly.
- The maximum bending radius of the cable is not exceeded.

## 4.5 Maintenance of the iTENDO<sup>2</sup> wireless receiver cable

### 4.5.1 Intervals and tasks

Operation	Interval period
Checking the iTENDO <sup>2</sup> wireless receiver cable	monthly or as needed

#### 4.5.1.1 Checking the iTENDO<sup>2</sup> wireless receiver cable



#### ⚠ CAUTION

#### Injury of the eyes due to dirt particles!

When cleaning with compressed air, the eyes may be injured by flying dirt particles.

- Wear suitable protective equipment, particularly protective goggles.

1. Disconnect the iTENDO<sup>2</sup> wireless receiver cable from the voltage supply.
2. Remove any contamination with compressed air.
3. Check the iTENDO<sup>2</sup> wireless receiver cable for damage or wear and replace if necessary.

**NOTE:** Damage or wear can compromise the functioning of the product. If non-replaceable parts of the product are worn or damaged, return the product to SCHUNK for inspection.

### 4.6 Storage of wireless receiver cable

When storing the iTENDO<sup>2</sup> wireless receiver cable, the following points must be observed:

- Store the iTENDO<sup>2</sup> wireless receiver cable in dry rooms only.
- Protect the iTENDO<sup>2</sup> wireless receiver cable from major temperature fluctuations.
- Comply with the storage temperature specified in the technical data.

## 5 iTENDO<sup>2</sup> wireless receiver

### 5.1 Technical data

iTENDO<sup>2</sup> wireless receiver (ID 1484701)



iTENDO<sup>2</sup> wireless receiver, magnetic (ID 1532110)



#### 5.1.1 Product data

ID	1484701 / 1532110
Diameter	48 mm
Height	35 mm
Weight	approx. 0.1 kg
Range of the wireless connection	2 m

**NOTE:** The dimensions refer to the basic housing of the wireless receiver without cable fittings.

#### 5.1.2 Ambient conditions and operating conditions

Operating temperature range	+20°C to +50°C
Transport temperature range	+20°C to +50°C
Storage temperature range	+20°C ±10°C

#### 5.1.3 Compatible devices

- iTENDO<sup>2</sup> sensors
- iTENDO<sup>2</sup> tablet
- iTENDO<sup>2</sup> Connect Box

**NOTICE!** The product may only be connected to compatible devices!

## 5.2 Design and description

### 5.2.1 Design



- |    |  |
|----|--|
| 1  | Housing  |
| 2  | Cover  |
| 3  | O-ring cover   |
| 4  | <span style="color: green;">■</span> Status LED: PWR supply OK   |
| 5  | <span style="color: red;">■</span> Status LED: Error / problem between wireless receiver and Connect Box |
| 6  | <span style="color: green;">■</span> Status LED: iTENDO <sup>2</sup> connected with wireless receiver    |
| 7  | <span style="color: blue;">■</span> Status LED: iTENDO <sup>2</sup> data is being transferred            |
| 8  | Opening radial   |
| 9  | O-ring housing   |
| 10 | Opening axial  |
| 11 | Cable fitting  |
| 12 | Magnets  |

### 5.2.2 Functional description

This product is a directional antenna with transmitter. In conjunction with the iTENDO<sup>2</sup> Connect Box, the iTENDO<sup>2</sup> tablet, the iTENDO<sup>2</sup> app and an iTENDO<sup>2</sup> sensor, process data from machine tools can be recorded and displayed.

During the machining process, process vibrations are detected by the iTENDO<sup>2</sup> sensor and sent to the iTENDO<sup>2</sup> wireless receiver via a wireless connection. From there, the data is sent to the iTENDO<sup>2</sup> Connect Box and the iTENDO<sup>2</sup> tablet. The iTENDO<sup>2</sup> app on the iTENDO<sup>2</sup> tablet allows the recorded data to be displayed. In addition, the data can be forwarded via the iTENDO<sup>2</sup> Connect Box to other systems via analog signal.

## 5.3 Assembling the iTENDO<sup>2</sup> wireless receiver

The iTENDO<sup>2</sup> wireless receiver can be mounted in the machine either via a screw connection or magnets.

### 5.3.1 Mounting via magnets



#### **⚠ WARNING**

#### **Risk of injury from electric shock due to contact with live parts!**

Touching live parts can lead to an electric shock and cause serious injuries.

- Only allow a qualified electrician to perform work on electrical components.
- Prior to commencing work on electric components, restore to a de-energized state.
- In the event of damage to the iTENDO<sup>2</sup> wireless receiver, shut off the voltage supply immediately and arrange for a repair.
- Wear suitable protective equipment.



#### **⚠ WARNING**

#### **Risk of injury due to magnetic fields!**

The integrated high-performance permanent magnets can pose a risk to persons with active or passive implants!

- Persons with pacemakers or active or passive implants are prohibited from entering the range of the magnetic field.



### ⚠ CAUTION

**Risk of crushing and impact when assembling and dismantling the product.**

- Do not reach in between the product and the machine.
- Wear suitable protective equipment.



### ⚠ CAUTION

**Allergic reactions if lubricating grease comes into contact with the skin.**

- Wear protective gloves.

### NOTICE

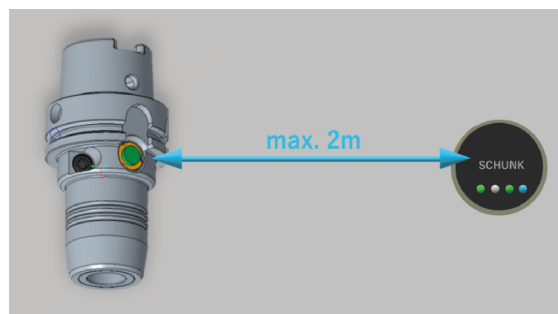
**Possible material damage due to humidity.**

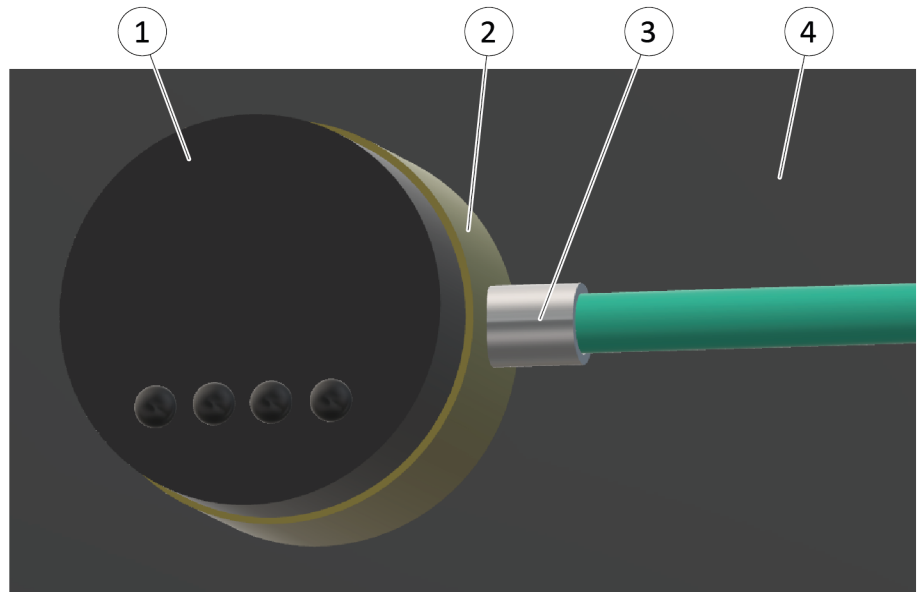
Humidity that penetrates into the iTENDO<sup>2</sup> wireless receiver can damage the iTENDO<sup>2</sup> wireless receiver and impair its functionality.

- Ensure correct fit of the O-rings of the iTENDO<sup>2</sup> wireless receiver.

To select a suitable location for mounting the iTENDO<sup>2</sup> wireless receiver, observe the following points:

- Do not attach the iTENDO<sup>2</sup> wireless receiver to moving parts.
- Do not mount the iTENDO<sup>2</sup> wireless receiver in the direct area of the chip ejection.
- Mount the iTENDO<sup>2</sup> wireless receiver in such a way that it is not exposed to a permanent jet of coolant.
- Mount the iTENDO<sup>2</sup> wireless receiver with the black cover facing the iTENDO<sup>2</sup>.
- Mount the iTENDO<sup>2</sup> wireless receiver so that the status LEDs in the cover are clearly visible.
- Mount the iTENDO<sup>2</sup> wireless receiver in such a way that the range of the radio connection (2 m) is not exceeded.





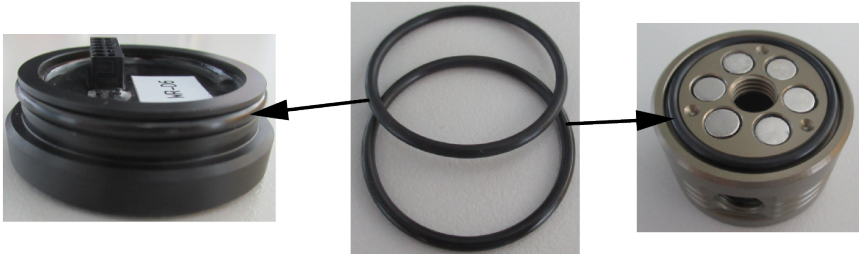
- 1 Cover
- 2 Housing
- 3 Cable fitting
- 4 Machine housing / sheet metal

Perform the mounting as follows:

- 1. Hand-tighten the locking screw from the inside to the axial opening on the end face. **NOTE:** We recommend a slotted screwdriver with a blade width of 8 mm for this purpose.



- 2. Clean the grooves for the 0-rings on the housing and cover.
- 3. Carefully grease the 0-rings with Super 0-Lube. **NOTICE! Use only very little grease!**
- 4. Insert 0-rings into the grooves in the housing and cover.

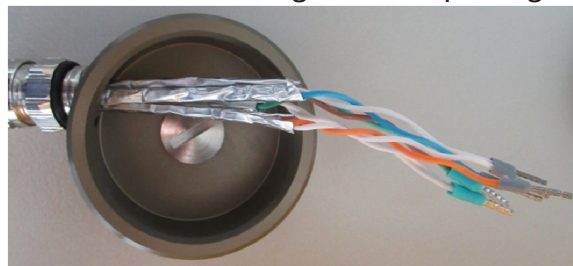


5. Mount the cable fitting onto the iTENDO<sup>2</sup> wireless receiver cable in such a way that the thread is facing the exposed



wires of the cable.

6. If required: shorten and crimp the iTENDO<sup>2</sup> wireless receiver cable ▶ 4.3 [16].
7. Carefully clamp the housing of the iTENDO<sup>2</sup> wireless receiver in a vise with soft jaws. **NOTE:** Make sure that the opening that is not closed with the locking screw is easily accessible.
8. Insert the cable into the housing via the opening.



9. Tighten the cable fitting with an SW15 wrench.
10. Open the spring contacts on the cover by pressing lightly with a slotted screwdriver and insert the wires of the iTENDO<sup>2</sup> wireless receiver cable according to the terminal diagram ▶ 6.1.4 [33]. **NOTE:** We recommend a slotted screwdriver with a blade width of 1.5 mm for this purpose.  
⇒ iTENDO<sup>2</sup> wireless receiver cable is connected to the cover.



11. Check O-ring on cover for correct fit.
12. Carefully press the cover into the housing as far as the stop. **NOTICE! Make sure that no wires are crushed and that the O-ring is not damaged and has not slipped!**
13. Clean contact surface of iTENDO<sup>2</sup> wireless receiver and machine.
14. Attach iTENDO<sup>2</sup> wireless receiver via the magnets to a suitable location in the machine room.
15. Laying the iTENDO<sup>2</sup> wireless receiver cable ▶ 4.4 [18].
16. Check the tight fit of iTENDO<sup>2</sup> wireless receiver.

### 5.3.2 Mounting via screw connection



#### **⚠ WARNING**

##### **Risk of injury from electric shock due to contact with live parts!**

Touching live parts can lead to an electric shock and cause serious injuries.

- Disconnect the iTENDO<sup>2</sup> wireless receiver from the voltage supply.
- Check the iTENDO<sup>2</sup> wireless receiver regularly for damage.
- Wear suitable protective equipment.



#### **⚠ CAUTION**

##### **Risk of crushing and impact when assembling and dismantling the product.**

- Do not reach in between the product and the machine.
- Wear suitable protective equipment.



#### **⚠ CAUTION**

##### **Allergic reactions if lubricating grease comes into contact with the skin.**

- Wear protective gloves.

#### **NOTICE**

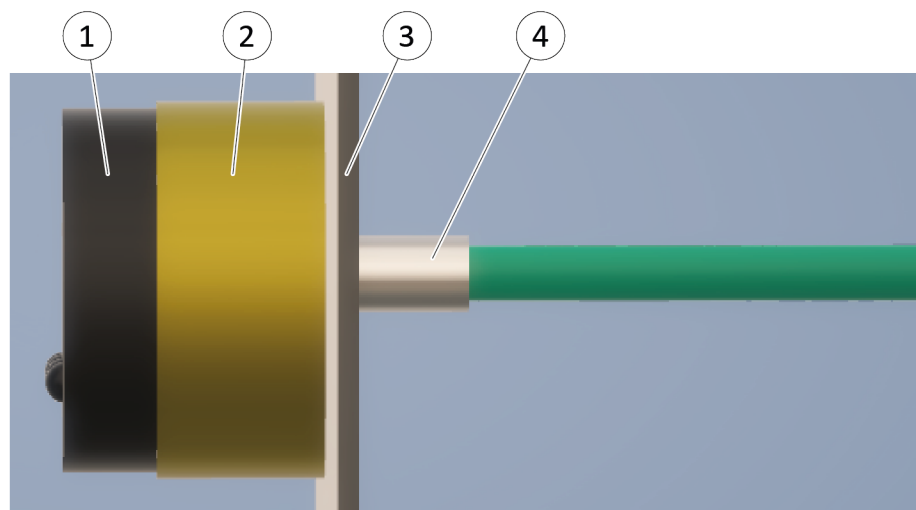
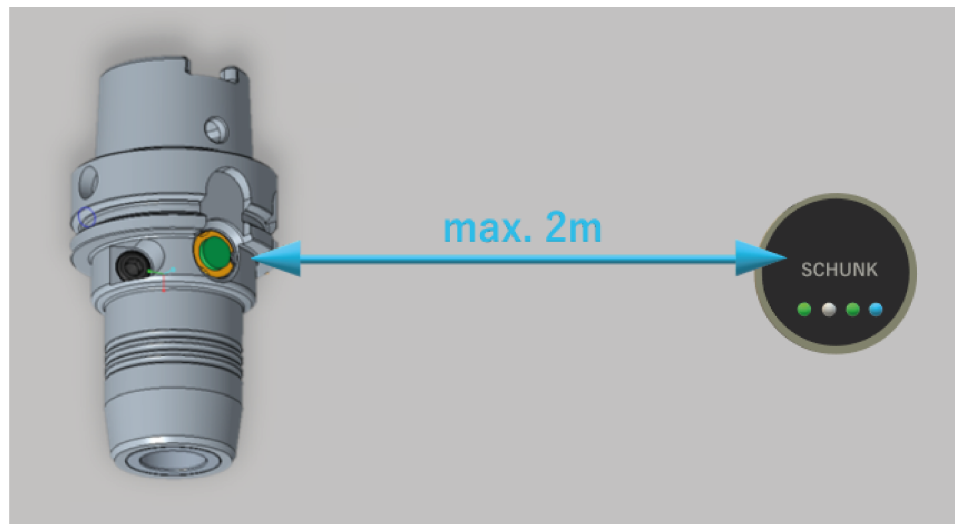
##### **Possible material damage due to humidity.**

Humidity that penetrates into the iTENDO<sup>2</sup> wireless receiver can damage the iTENDO<sup>2</sup> wireless receiver and impair its functionality.

- Ensure correct fit of the O-rings of the iTENDO<sup>2</sup> wireless receiver.

To select a suitable location for mounting the iTENDO<sup>2</sup> wireless receiver, observe the following points:

- Do not attach the iTENDO<sup>2</sup> wireless receiver to moving parts.
- Do not mount the iTENDO<sup>2</sup> wireless receiver in the direct area of the chip ejection.
- Mount the iTENDO<sup>2</sup> wireless receiver in such a way that it is not exposed to a permanent jet of coolant.
- Mount the iTENDO<sup>2</sup> wireless receiver with the black cover facing the iTENDO<sup>2</sup>.
- Mount the iTENDO<sup>2</sup> wireless receiver so that the status LEDs in the cover are clearly visible.
- Mount the iTENDO<sup>2</sup> wireless receiver in such a way that the range of the radio connection (2 m) is not exceeded.



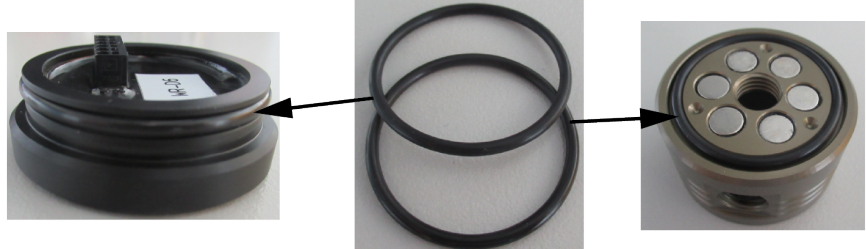
- |   |                               |
|---|-------------------------------|
| 1 | Cover                         |
| 2 | Housing                       |
| 3 | Machine housing / sheet metal |
| 4 | Cable fitting                 |

Perform the mounting as follows:

1. Hand-tighten the locking screw from the outside to the radial opening on the sheath face. **NOTE:** We recommend a slotted screwdriver with a blade width of 8 mm for this purpose.



2. Clean the grooves for the O-rings on the housing and cover.
3. Carefully grease the O-rings with Super O-Lube. **NOTICE! Use only very little grease!**
4. Insert O-rings into the grooves in the housing and cover.



5. Make a hole with  $\varnothing$  12.5 mm at a suitable place (later position of the iTENDO<sup>2</sup> wireless receiver) on the housing of the machine. **NOTICE! Make sure that there are no sharp edges!**
6. Mount the cable fitting onto the iTENDO<sup>2</sup> wireless receiver cable in such a way that the thread is facing the exposed



wires of the cable.

7. Feed the iTENDO<sup>2</sup> wireless receiver cable through the  $\varnothing$  12.5 mm hole into the inside of the machine. **NOTE:** Take care that the cable is not damaged!
8. If required: shorten and crimp the iTENDO<sup>2</sup> wireless receiver cable ▶ 4.3 [16].
9. Insert the cable into the housing via the opening.
10. Hold the housing tightly.
11. Tighten the cable fitting with an SW15 wrench.  
⇒ The housing of the iTENDO<sup>2</sup> wireless receiver is mounted.

12. Open the spring contacts on the cover by pressing lightly with a slotted screwdriver and insert the wires of the iTENDO<sup>2</sup> wireless receiver cable according to the terminal diagram ▶ 6.1.4 [📄 33]. **NOTE:** We recommend a slotted screwdriver with a blade width of 1.5 mm for this purpose.  
⇒ iTENDO<sup>2</sup> wireless receiver cable is connected to the cover.



13. Check O-ring on cover for correct fit.
14. Carefully press the cover into the housing as far as the stop.  
**NOTICE! Make sure that no wires are crushed and that the O-ring is not damaged and has not slipped!**
15. Laying the iTENDO<sup>2</sup> wireless receiver cable ▶ 4.4 [📄 18].
16. Check the tight fit of iTENDO<sup>2</sup> wireless receiver.

## 5.4 Maintenance of the iTENDO<sup>2</sup> wireless receiver

### 5.4.1 Intervals and tasks

Operation	Interval period
Clean the iTENDO <sup>2</sup> wireless receiver	daily or as needed
Check the iTENDO <sup>2</sup> wireless receiver mounting	weekly
Check the O-rings of the iTENDO <sup>2</sup> wireless receiver	yearly or as needed

#### 5.4.1.1 Cleaning the iTENDO<sup>2</sup> wireless receiver



#### **⚠ CAUTION**

#### **Injury of the eyes due to dirt particles!**

When cleaning with compressed air, the eyes may be injured by flying dirt particles.

- Wear suitable protective equipment, particularly protective goggles.

1. Remove chips and contamination with compressed air.
2. Use a suitable tool to carefully remove any stubborn dirt.
3. Check the iTENDO<sup>2</sup> wireless receiver for damage or wear.

**NOTE:** Damage or wear can compromise the functioning of the product. If non-replaceable parts of the product are worn or damaged, return the product to SCHUNK for inspection.

#### 5.4.1.2 Checking the iTENDO<sup>2</sup> wireless receiver mounting

##### **Check mounting via magnets**

1. Disconnect the iTENDO<sup>2</sup> wireless receiver from the voltage supply.
2. Remove chips and contamination with compressed air.
3. Check the tight fit of iTENDO<sup>2</sup> wireless receiver. Clean contact surface of iTENDO<sup>2</sup> wireless receiver and machine if necessary.

##### **Check mounting via screw connection**

1. Disconnect the iTENDO<sup>2</sup> wireless receiver from the voltage supply.
2. Remove chips and contamination with compressed air.
3. Check the tight fit of iTENDO<sup>2</sup> wireless receiver. If necessary, retighten the cable fitting.

### 5.4.1.3 Checking the O-rings of the iTENDO<sup>2</sup> wireless receiver



#### **⚠ WARNING**

#### **Risk of injury from electric shock due to contact with live parts!**

Touching live parts can lead to an electric shock and cause serious injuries.

- Disconnect the iTENDO<sup>2</sup> wireless receiver from the voltage supply.
- Check the iTENDO<sup>2</sup> wireless receiver regularly for damage.
- Wear suitable protective equipment.

1. Disconnect the iTENDO<sup>2</sup> wireless receiver from the voltage supply.
2. Remove chips and contamination with compressed air.
3. Disassemble the iTENDO<sup>2</sup> wireless receiver ▶ 5.5 [ 31].
4. Check O-rings for damage or wear and replace if necessary.

**NOTE:** Damage or wear can compromise the functioning of the product. If non-replaceable parts of the product are worn or damaged, return the product to SCHUNK for inspection.

### 5.5 Disassembling the iTENDO<sup>2</sup> wireless receiver



#### **⚠ WARNING**

#### **Risk of injury from electric shock due to contact with live parts!**

Touching live parts can lead to an electric shock and cause serious injuries.

- Disconnect the iTENDO<sup>2</sup> wireless receiver from the voltage supply.
- Check the iTENDO<sup>2</sup> wireless receiver regularly for damage.
- Wear suitable protective equipment.



#### **⚠ CAUTION**

#### **Risk of crushing and impact when assembling and dismantling the product.**

- Do not reach in between the product and the machine.
- Wear suitable protective equipment.



## ⚠ CAUTION

### Injury of the eyes due to dirt particles!

When cleaning with compressed air, the eyes may be injured by flying dirt particles.

- Wear suitable protective equipment, particularly protective goggles.

### Disassembly when mounting via magnets

1. Disconnect the iTENDO<sup>2</sup> wireless receiver from the voltage supply.
2. Remove chips and contamination with compressed air.
3. Clean the iTENDO<sup>2</sup> wireless receiver.
4. Remove the iTENDO<sup>2</sup> wireless receiver.

### Disassembly when mounting via screw connection

1. Disconnect the iTENDO<sup>2</sup> wireless receiver from the voltage supply.
2. Remove chips and contamination with compressed air.
3. Remove the cover of the iTENDO<sup>2</sup> wireless receiver. **NOTE:** Take care that the O-ring is not damaged!
4. Open the spring contacts in the cover by pressing lightly with a slotted screwdriver and remove the wires of the iTENDO<sup>2</sup> wireless receiver cable carefully. **NOTE:** We recommend a slotted screwdriver with a blade width of 1.5 mm for this purpose.
5. Remove the cover.
6. Secure the housing against falling down and loosen the cable fitting.
7. Remove housing.
8. Pull out the iTENDO<sup>2</sup> wireless receiver cable from the machine. **NOTE:** Take care that the cable is not damaged!

## 5.6 Storage of the iTENDO<sup>2</sup> wireless receiver

When storing the iTENDO<sup>2</sup> wireless receiver, the following points must be observed:

- Store the iTENDO<sup>2</sup> wireless receiver in dry rooms only.
- Protect the iTENDO<sup>2</sup> wireless receiver from major temperature fluctuations.
- Comply with the storage temperature specified in the technical data.

## 6 iTENDO<sup>2</sup> Connect Box

### 6.1 Technical data

#### 6.1.1 Product data

ID	1484702
Depth	111 mm
Width	70 mm
Height	75 mm
Weight	approx. 0.2 kg

#### 6.1.2 Ambient conditions and operating conditions

Operating temperature range	+20°C to +50°C
Transport temperature range	+20°C to +50°C
Storage temperature range	+20°C ±10°C

#### 6.1.3 e-Plan

The e-Plan for the product is included with this manual.









If required, the e-Plan can also be requested in digital form by stating the product ID number.

For this, contact our technical after-sales service:

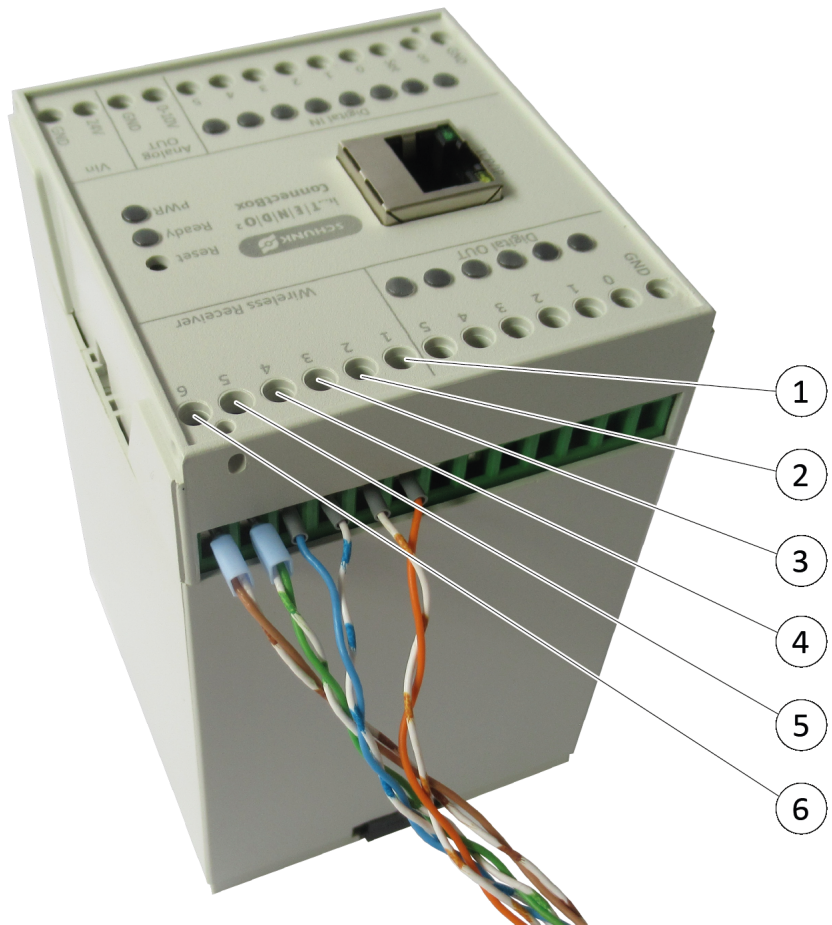
**service.toolholder@de.schunk.com**









#### 6.1.4 Terminal diagram

##### Overview of the iTENDO<sup>2</sup> wireless receiver cable wires

	Color	RAL color	Abbreviation	(plain text)
	brown	8003	BN	(brown)
	brown-white	-	BNWH	(brown-white)
	orange	2003	OG	(orange)
	orange-white	-	OGWH	(orange-white)
	green	6018	GN	(green)
	green-white	-	GNWH	(green-white)
	blue	5015	BU	(blue)
	blue-white	-	BUWH	(blue-white)
	white	1013	WH	(white)









## iTENDO<sup>2</sup> Connect Box



1		OG
2		OGWH
3		BUWH
4		BU
5		GN + GNWH
	+	
6		BN + BNWH
	+	

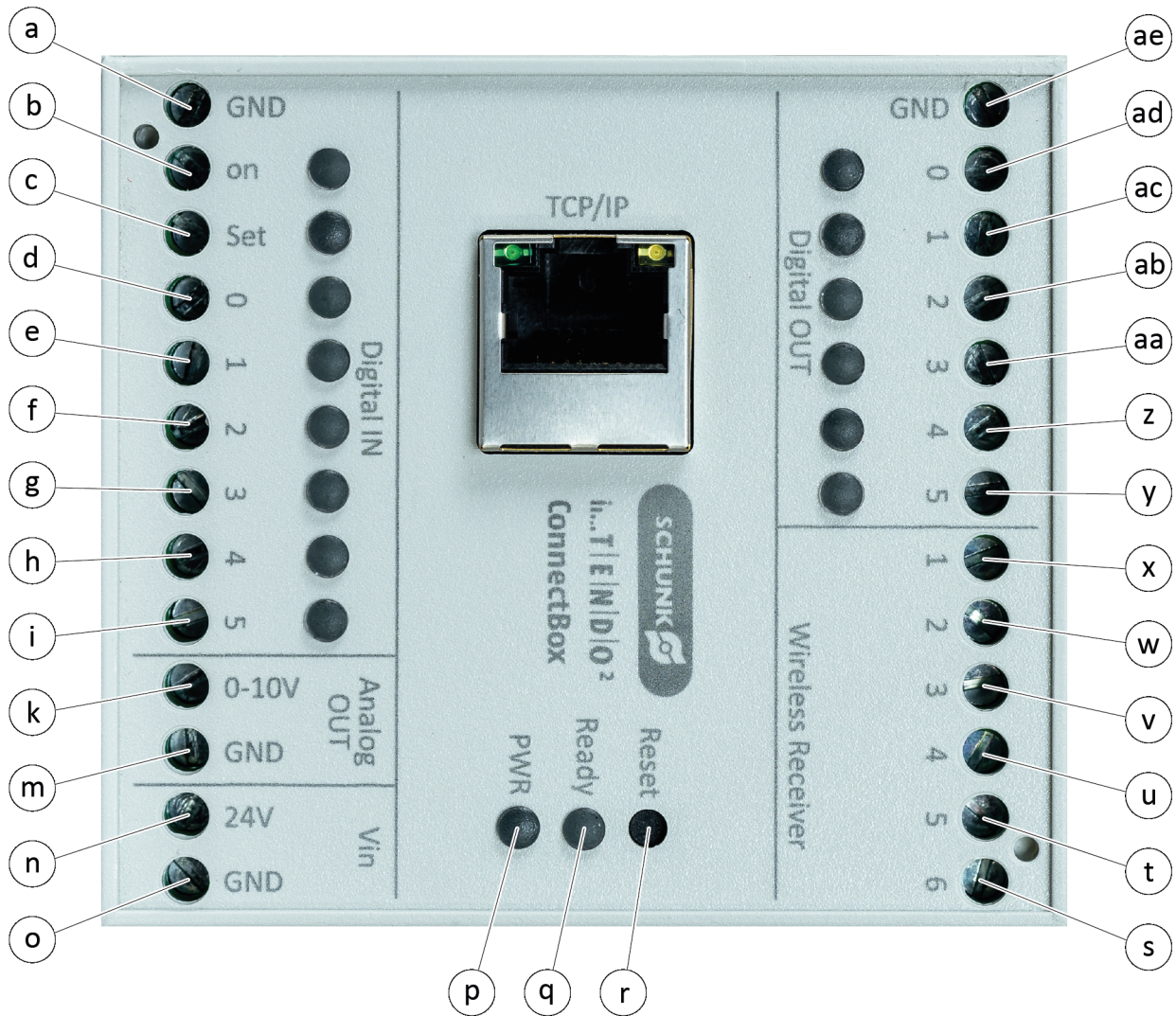
iTENDO<sup>2</sup> wireless receiver

**NOTICE!** When connecting, it is essential to pay attention to the correct orientation of the iTENDO<sup>2</sup> wireless receiver!

1		BN + BNWH
	+	
2		GN + GNWH
	+	
3		OG
4		OGWH
5		BUWH
6		BU

## 6.2 Design and description

### 6.2.1 Structure/connection diagram



a	Ground voltage supply digital input (digital IN)
b	Option for iTENDO <sup>2</sup> easy monitor (start recording)
c	Establishing the connection to iTENDO <sup>2</sup>
d	Digital IN 0 (memory bank selection)
e	Digital IN 1 (memory bank selection)
f	Digital IN 2 (memory bank selection)
g	Digital IN 3 (memory bank selection)
h	Digital IN 4 (memory bank selection)
i	Digital IN 5 (memory bank selection)
k	Analog output* (chatter index) +
m	Analog output* (GND) -
n	Voltage supply of the iTENDO <sup>2</sup> Connect Box 24 V

o	Voltage supply of the iTENDO <sup>2</sup> Connect Box GND/ground
p	Control LED voltage supply OK
q	Control LED iTENDO <sup>2</sup> wireless receiver ready
r	Reset/restart of the iTENDO <sup>2</sup> Connect Box
s	Brown + brown-white
t	Green + green-white
u	Blue
v	Blue-white
w	Orange-white
x	Orange
y	Digital OUT 5 (iTENDO <sup>2</sup> easy monitor – alarm trend lower limit)
z	Digital OUT 4 (iTENDO <sup>2</sup> easy monitor – alarm trend upper limit)
aa	Digital OUT 3 (iTENDO <sup>2</sup> easy monitor – live alarm)
from	Digital OUT 2 (iTENDO <sup>2</sup> easy monitor – system ready)
ac	Digital OUT 1 (alarm battery level iTENDO <sup>2</sup> below 20%)
ad	Digital OUT 0 (iTENDO <sup>2</sup> connected)
ae	Ground voltage supply digital output (digital OUT)

\* 0V = no connection; 1- 10 V = chatter index of the connected iTENDO<sup>2</sup>.

### 6.2.2 Functional description

Signals can be recorded and output with the iTENDO<sup>2</sup> Connect Box. In conjunction with the iTENDO<sup>2</sup> tablet, the iTENDO<sup>2</sup> app and an iTENDO<sup>2</sup> sensor, process data from machine tools can be recorded and displayed.

During the machining process, process vibrations are detected by the iTENDO<sup>2</sup> sensor and sent to the iTENDO<sup>2</sup> wireless receiver via a wireless connection. The data is forwarded from the wireless receiver to the iTENDO<sup>2</sup> Connect Box, and from there it can be forwarded to other systems via analog signal. The iTENDO<sup>2</sup> app on the iTENDO<sup>2</sup> tablet allows the recorded data to be displayed.

### 6.2.3 Programming sequence

When programming, first set the bits for the memory bank and wait at least 0.5 seconds before setting the SET bit. To establish a new connection after disconnection, you also have to wait 0.5 seconds. The waiting time can be bridged, for example, by existing traverse paths or a tool change.

### 6.2.3.1 iTENDO<sup>2</sup> easy monitor

The iTENDO<sup>2</sup> easy monitor includes a recording function via digital IN. This must be taken into account when programming. To do this, first set the memory bank and then the SET bit. Once the connection is established for 0.5 seconds, the ON bit can be set to start a recording. The recording must be at least 0.5 seconds long. To save the recording in the correct process, allow a further 0.5 seconds to pass after the recording has ended until the connection (SET bit) is interrupted.

## 6.3 Assembling the iTENDO<sup>2</sup> Connect Box

### 6.3.1 Assembly in the control cabinet



#### ⚠ WARNING

#### **Risk of injury from electric shock due to contact with live parts!**

Touching live parts can lead to an electric shock and cause serious injuries.

- Only allow a qualified electrician to perform work on electrical components.
- Prior to commencing work on electric components, restore to a de-energized state.
- In the event of damage to the iTENDO<sup>2</sup> Connect Box, shut off the voltage supply immediately and arrange for a repair.
- Only use the iTENDO<sup>2</sup> Connect Box in a dry environment.
- Wear suitable protective equipment.



#### ⚠ CAUTION

#### **Risk of crushing and impact when assembling and disassembling the product.**

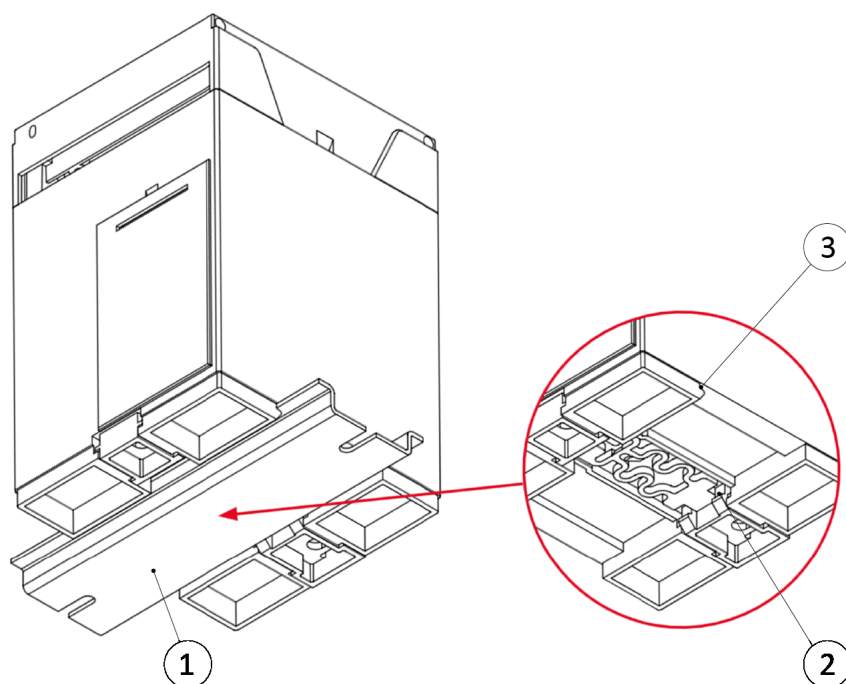
- Do not reach between the product and DIN rail.
- Wear suitable protective equipment.

#### NOTICE

#### **Possible material damage due to humidity.**

Humidity that penetrates into the iTENDO<sup>2</sup> Connect Box can damage the iTENDO<sup>2</sup> Connect Box and impair its functionality.

- Protect the iTENDO<sup>2</sup> Connect Box from humidity.



- 
- |   |               |
|---|---------------|
| 1 | Top-hat rail  |
| 2 | Movable latch |
| 3 | Fixed latch   |
- 

To install the iTENDO<sup>2</sup> Connect Box in the control cabinet, proceed as follows:

1. Clean contact surfaces of the iTENDO<sup>2</sup> Connect Box and top-hat rail.
2. Place the bottom of the iTENDO<sup>2</sup> Connect Box on the top-hat rail via the fixed latch.
3. Carefully tilt the iTENDO<sup>2</sup> Connect Box downwards until the movable latch engages. **NOTE:** Make sure that the load on the top-hat rail does not exceed 400 Ncm!  
⇒ iTENDO<sup>2</sup> Connect Box is mounted.

### 6.3.2 Connecting the iTENDO<sup>2</sup> wireless receiver cable



#### **⚠ WARNING**

##### **Risk of injury from electric shock due to contact with live parts!**

Touching live parts can lead to an electric shock and cause serious injuries.

- Only allow a qualified electrician to perform work on electrical components.
- Prior to commencing work on electric components, restore to a de-energized state.
- In the event of damage to the iTENDO<sup>2</sup> Connect Box, shut off the voltage supply immediately and arrange for a repair.
- Only use the iTENDO<sup>2</sup> Connect Box in a dry environment.
- Wear suitable protective equipment.



#### **⚠ CAUTION**

##### **Risk of injury due to tripping or falling!**

If the iTENDO<sup>2</sup> wireless receiver cable is placed in walkways, this can lead to injuries due to tripping or falling.

- Do not place the iTENDO<sup>2</sup> wireless receiver cable within the operator's range of movement.
- Do not place the iTENDO<sup>2</sup> wireless receiver cable in walkways.

#### **NOTICE**

##### **Possible material damage due to humidity.**

Humidity that penetrates into the iTENDO<sup>2</sup> Connect Box can damage the iTENDO<sup>2</sup> Connect Box and impair its functionality.

- Protect the iTENDO<sup>2</sup> Connect Box from humidity.

#### **NOTICE**

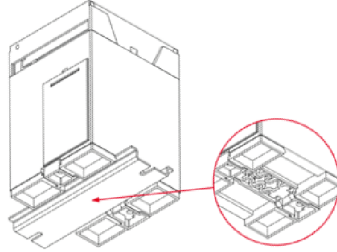
##### **Material damage due to improper laying of the cable.**

Improper laying can damage the cable and limit functionality.

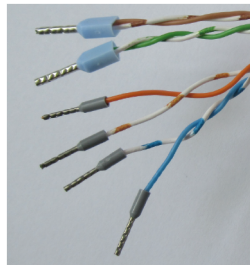
- Do not bend the iTENDO<sup>2</sup> wireless receiver cable.
- Do not pinch the iTENDO<sup>2</sup> wireless receiver cable.

To connect the iTENDO<sup>2</sup> wireless receiver cable to the iTENDO<sup>2</sup> Connect Box proceed as follows:

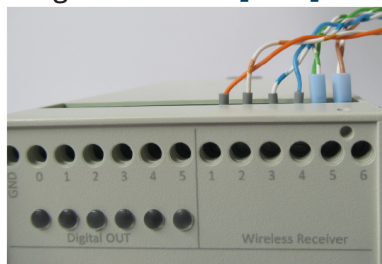
1. Make sure that the iTENDO<sup>2</sup> wireless receiver is mounted ▶ 5.3 [ 22]. **NOTICE! The iTENDO<sup>2</sup> wireless receiver must be mounted before connecting the iTENDO<sup>2</sup> wireless receiver cable to the iTENDO<sup>2</sup> Connect Box!**
2. Ensure correct mounting of the iTENDO<sup>2</sup> Connect Box.



3. Make sure that the voltage supply of the iTENDO<sup>2</sup> Connect Box is disconnected.
4. Loosen the screws of the clamping connections of the iTENDO<sup>2</sup> Connect Box with a suitable slotted screwdriver. **NOTE:** We recommend a slotted screwdriver with a blade width of 2.5 mm for this purpose.
5. Shorten the iTENDO<sup>2</sup> wireless receiver cable if required. **CAUTION! If the cable is shortened, it must be crimped ▶ 4.3 [ 16] again! NOTE:** Keep enough clearance in the cable length for possible future changes!
6. Make sure that the wires of the iTENDO<sup>2</sup> wireless receiver cable are crimped correctly ▶ 4.3 [ 16].



7. Insert the wires of the iTENDO<sup>2</sup> wireless receiver cable into the clamping connections according to the terminal diagram ▶ 6.1.4 [ 33].



8. Hand-tighten the screws of the clamping connections.

## 6.4 Maintenance of the iTENDO<sup>2</sup> Connect Box

### 6.4.1 Intervals and tasks

Operation	Interval period
Clean and check the iTENDO <sup>2</sup> Connect Box	monthly or as needed

#### 6.4.1.1 Cleaning and checking the iTENDO<sup>2</sup> Connect Box



#### **⚠ WARNING**

##### **Risk of injury from electric shock due to contact with live parts!**

Touching live parts can lead to an electric shock and cause serious injuries.

- Only allow a qualified electrician to perform work on electrical components.
- Prior to commencing work on electric components, restore to a de-energized state.
- In the event of damage to the iTENDO<sup>2</sup> Connect Box, shut off the voltage supply immediately and arrange for a repair.
- Only use the iTENDO<sup>2</sup> Connect Box in a dry environment.
- Wear suitable protective equipment.



#### **⚠ CAUTION**

##### **Injury of the eyes due to dirt particles!**

When cleaning with compressed air, the eyes may be injured by flying dirt particles.

- Wear suitable protective equipment, particularly protective goggles.

1. Disconnect the iTENDO<sup>2</sup> Connect Box from the voltage supply.
2. Remove any dust with a suitable tool (e.g. cloth) or compressed air.
3. Check the tight fit of iTENDO<sup>2</sup> wireless receiver cable wires in iTENDO<sup>2</sup> Connect Box.
4. Check the iTENDO<sup>2</sup> Connect Box for damage or wear and replace if necessary.

**NOTE:** Damage or wear can compromise the functioning of the product. If non-replaceable parts of the product are worn or damaged, return the product to SCHUNK for inspection.

## 6.5 Disassembling the iTENDO<sup>2</sup> Connect Box



### ⚠ WARNING

#### Risk of injury from electric shock due to contact with live parts!

Touching live parts can lead to an electric shock and cause serious injuries.

- Only allow a qualified electrician to perform work on electrical components.
- Prior to commencing work on electric components, restore to a de-energized state.
- In the event of damage to the iTENDO<sup>2</sup> Connect Box, shut off the voltage supply immediately and arrange for a repair.
- Only use the iTENDO<sup>2</sup> Connect Box in a dry environment.
- Wear suitable protective equipment.



### ⚠ CAUTION

#### Risk of crushing and impact when assembling and dismantling the product.

- Do not reach in between the product and the machine.
- Wear suitable protective equipment.

1. Disconnect the iTENDO<sup>2</sup> Connect Box from the voltage supply.
2. Loosen the screws of the clamping connections of the iTENDO<sup>2</sup> Connect Box with a suitable slotted screwdriver. **NOTE:** We recommend a slotted screwdriver with a blade width of 2.5 mm for this purpose.
3. Remove the wires of the iTENDO<sup>2</sup> wireless receiver cable from the clamping connections.
4. Secure iTENDO<sup>2</sup> Connect Box against falling down.
5. Insert the slotted screwdriver into the opening of the movable latch and push the latch down.
  - ⇒ iTENDO<sup>2</sup> Connect Box is no longer firmly connected to the top-hat profile.
6. Tilt the iTENDO<sup>2</sup> Connect Box upwards and remove it from the top-hat profile.

## 6.6 Storage of the iTENDO<sup>2</sup> Connect Box

When storing the iTENDO<sup>2</sup> Connect Box for a longer period of time, the following points must be observed:

- Store the iTENDO<sup>2</sup> Connect Box in dry rooms only.
- Protect the iTENDO<sup>2</sup> Connect Box from major temperature fluctuations.
- Comply with the storage temperature specified in the technical data.

## 7 iTENDO<sup>2</sup> app with easy connect

### 7.1 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 iTENDO<sup>2</sup> tablet and impair its functionality.

- Protect the iTENDO<sup>2</sup> tablet from humidity.

Information regarding the warnings and risks of using the iTENDO<sup>2</sup> tablet can be found in the Assembly and Operating Manual for the iTENDO<sup>2</sup> pad (ID 1494155) and in the tablet manufacturer's "Quick start" manual.

**NOTICE! Select "ITN-EC-...." to connect to the iTENDO<sup>2</sup> wireless receiver! If a sensor with the description "ITN-TH-...." is selected, the pad version of the iTENDO<sup>2</sup> app will start! This version has a different range of functions!**

### 7.2 Setting up the iTENDO<sup>2</sup> tablet

To set up the tablet, follow the instructions in the iTENDO<sup>2</sup> pad Assembly and Operating Manual (ID 1494155).

### 7.3 Opening and closing the iTENDO<sup>2</sup> app

To open and close the iTENDO<sup>2</sup> app, follow the instructions in the iTENDO<sup>2</sup> pad Assembly and Operating Manual (ID 1494155).

## 7.4 Creating screenshots



There are two ways of creating screenshots in the iTENDO<sup>2</sup> 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 iTENDO<sup>2</sup> app.  
⇒ Screenshot is saved in the gallery.

or

- Tap the camera button in the iTENDO<sup>2</sup> app (2). **NOTE:** This function is only available in the 'Live' display mode.  
⇒ Screenshot is saved in the gallery.

### Accessing the screenshots

To call up the screenshots, follow the instructions in the iTENDO<sup>2</sup> pad Assembly and Operating Manual (ID 1494155).

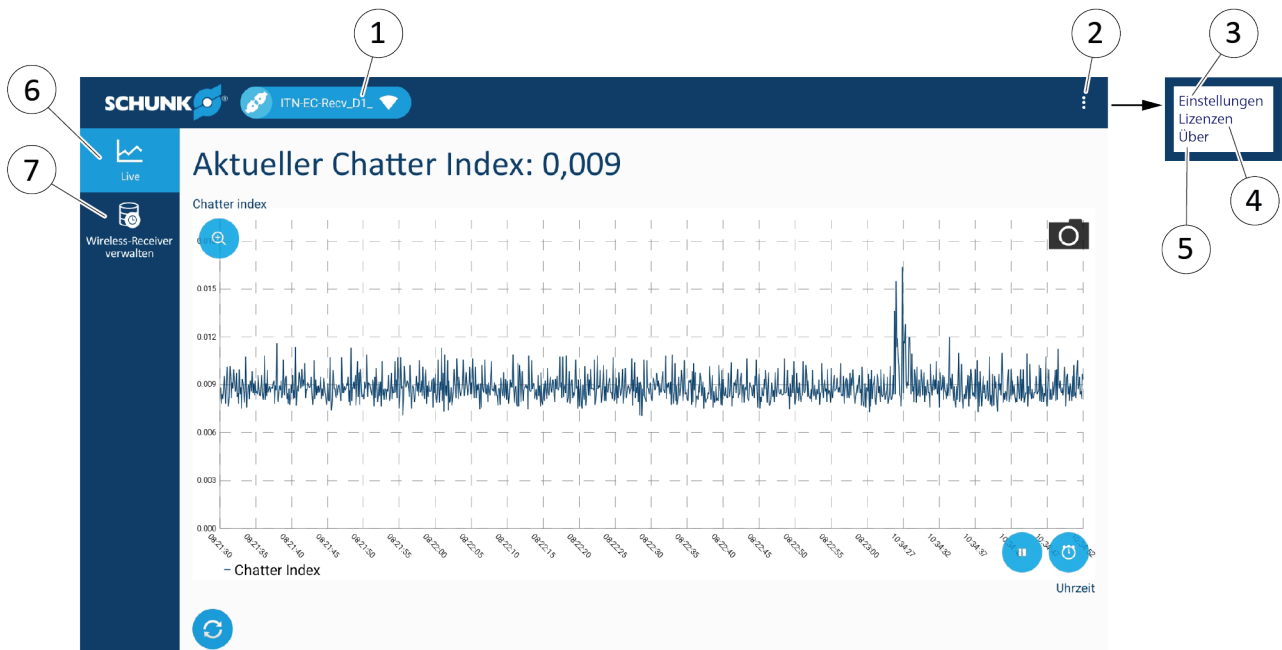
## 7.5 Operating the iTENDO<sup>2</sup> app with easy connect

### 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-EC-...." to connect to the iTENDO<sup>2</sup> wireless receiver! If a sensor with the description "ITN-TH-...." is selected, the pad version of the iTENDO<sup>2</sup> app will start! This version has a different range of functions!

## 7.5.1 Design and description of the iTENDO<sup>2</sup> app with easy connect



- |   |                                     |
|---|-------------------------------------|
| 1 | Wireless receiver selection         |
| 2 | Configuration area                  |
| 3 | Settings                            |
| 4 | Licenses                            |
| 5 | Over                                |
| 6 | Live display mode button            |
| 7 | Wireless receiver management button |

### 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 iTENDO<sup>2</sup> pad and iTENDO<sup>2</sup> easy monitor.

### Licenses

Provides information about different software licenses.

### Over

Contains general information about contacts and the iTENDO<sup>2</sup> app.

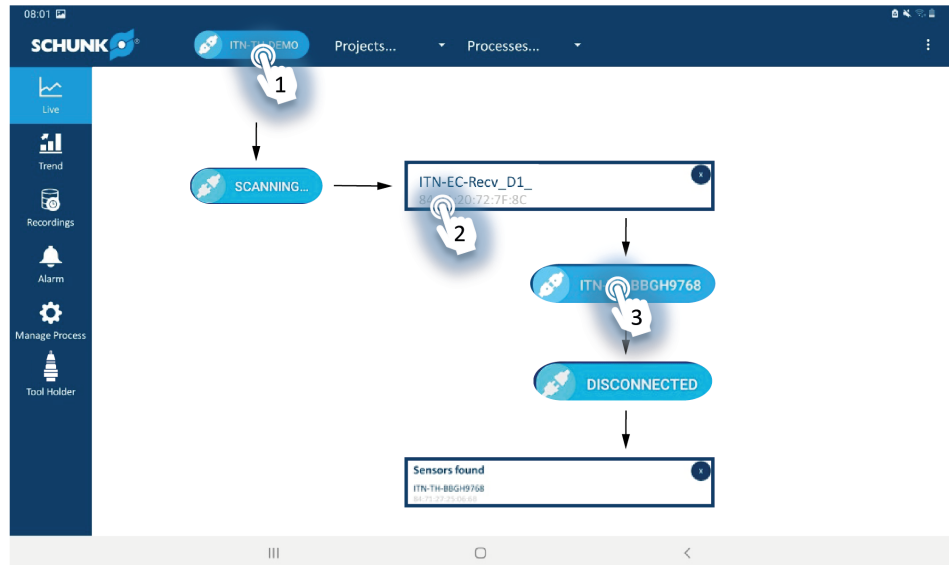
### Live display mode

Graphical display of the current chatter index.

## Wireless receiver management

Information about the wireless receiver can be displayed here, the connection setup with the sensor can be changed from digital commands to start-up detection, and the values table for the memory banks can be displayed.

### 7.5.2 Connecting/disconnecting the iTENDO<sup>2</sup> wireless receiver



### Connecting the wireless receiver

1. Make sure that the Bluetooth connection is enabled on the iTENDO<sup>2</sup> tablet ▶ 7.2 [📄 45].
2. Start the iTENDO<sup>2</sup> app ▶ 7.3 [📄 45].
3. Start the scan process by tapping the "ITN-TH-DEMO" button (1).
  - ⇒ A list of sensors and iTENDO<sup>2</sup> wireless receivers to which a connection is possible appears. **NOTE:** If the desired iTENDO<sup>2</sup> wireless receiver does not appear, check the cable connection of the iTENDO<sup>2</sup> wireless receiver.
4. Tap the desired iTENDO<sup>2</sup> wireless receiver (2). **NOTICE! Wireless receivers have the description "ITN-EC-...."! If a sensor with the description "ITN-TH-...." is selected, the pad version of the iTENDO<sup>2</sup> app will start! This version has a different range of functions!**
  - ⇒ Connection to the iTENDO<sup>2</sup> wireless receiver is established, the data appears in the iTENDO<sup>2</sup> app.

### Disconnecting the wireless receiver

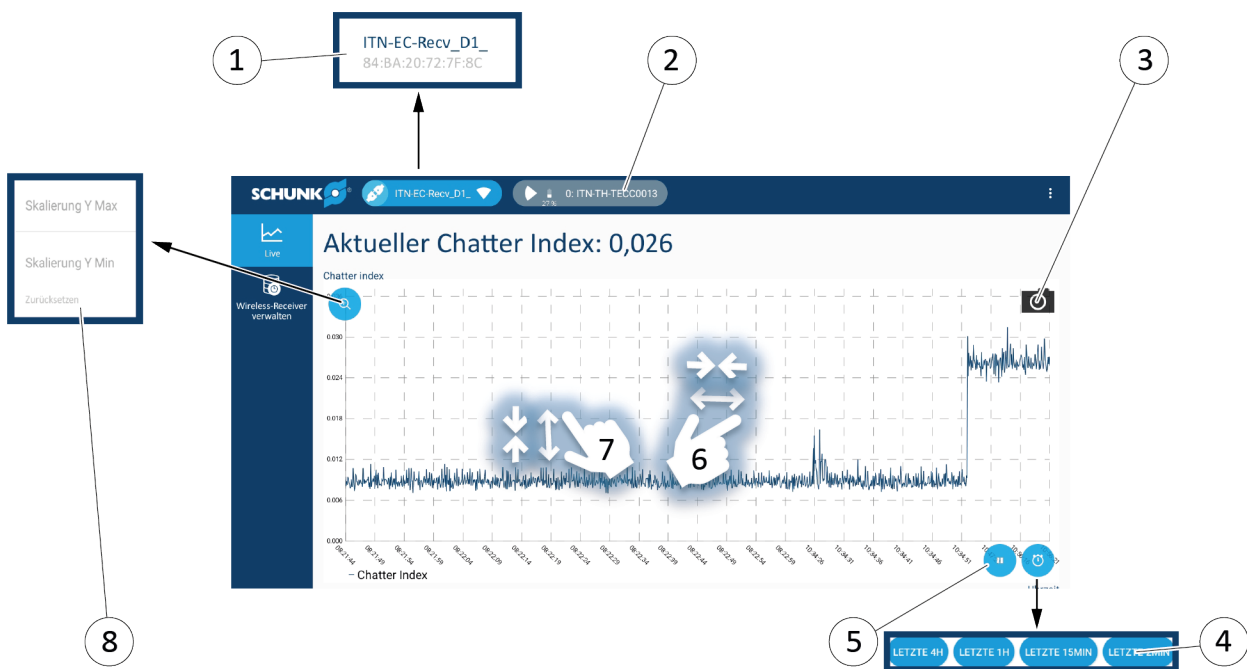
- Tap the selection field with the description of the iTENDO<sup>2</sup> wireless receiver (3).
  - ⇒ The connection is terminated and a list of sensors and iTENDO<sup>2</sup> wireless receivers to which a connection is possible appears.

### 7.5.3 Display modes of the iTENDO<sup>2</sup> app with easy connect

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

#### 7.5.3.1 Live display mode

In the 'Live' display mode, the detected vibration data from the sensor is displayed in the central diagram. The corresponding wireless receiver can be selected in the 'Live' display mode. Data from other sensors that have been connected to the iTENDO<sup>2</sup> app in the last 4 hours can also be displayed in the central diagram.



- 1 Wireless receiver selection
- 2 Connected sensor
- 3 Camera button
- 4 Time range selection button
- 5 Stop the display
- 6 Manual zoom (X-axis)
- 7 Manual zoom (Y-axis)
- 8 Settings menu scale parameters of the Y-axis

**Wireless receiver selection**

Allows data to be selected and accessed from the wireless receiver connected to the iTENDO<sup>2</sup> app ▶ 7.5.2 [48].

**Connected sensor**

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

**Camera button**

Allows screenshots of the central diagram to be taken ▶ 7.4 [46]. The screenshots are saved in the gallery.

**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.

**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)**

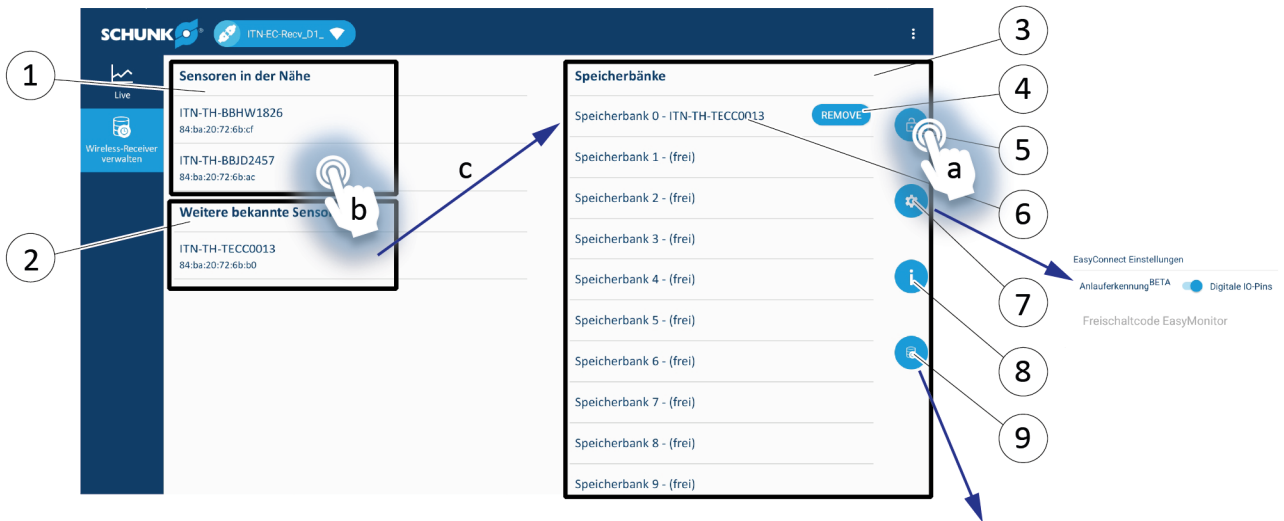
Allows arbitrary zooming in or out of the diagram view from the Y-axis (chatter index) by expanding or contracting the fingers.

**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.

**7.5.3.2 Wireless receiver management display mode**

In the 'Wireless receiver management' display mode, sensors 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	0 1 2 3 4 5	21	1 0 1 0 1 0	42	0 1 0 1 0 1
1	1 0 0 0 0 0	22	0 1 1 0 1 0	43	1 1 0 1 0 1
2	0 1 0 0 0 0	23	1 1 1 0 1 0	44	0 0 1 1 0 1
3	1 0 0 0 0 0	24	0 0 0 1 1 0	45	1 0 1 1 0 1
4	0 1 0 0 0 0	25	1 0 0 1 1 0	46	0 1 1 1 0 1
5	1 0 1 0 0 0	26	0 1 0 1 1 0	47	1 1 1 1 0 1
6	0 1 1 0 0 0	27	1 1 0 1 1 0	48	0 0 0 0 1 1
7	1 1 1 0 0 0	28	0 0 1 1 1 0	49	1 0 0 0 1 1
8	0 0 0 1 0 0	29	1 0 1 1 1 0	50	0 1 0 0 1 1
9	1 0 0 1 0 0	30	0 1 1 1 1 0	51	1 1 0 0 1 1
10	0 1 0 1 0 0	31	1 1 1 1 1 0	52	0 0 0 0 1 1
11	1 1 0 1 0 0	32	0 0 0 0 0 1	53	1 0 1 0 1 1
12	0 0 1 1 0 0	33	1 0 0 0 0 1	54	0 1 1 0 1 1
13	1 0 1 1 0 0	34	0 1 0 0 0 1	55	1 1 1 0 1 1
14	0 1 1 1 0 0	35	1 1 0 0 0 1	56	0 0 0 1 1 1
15	1 1 1 1 0 0	36	0 0 1 0 0 1	57	1 0 0 1 1 1
16	0 0 0 0 1 0	37	1 0 1 0 0 1	58	0 1 0 1 1 1
17	1 0 0 0 1 0	38	0 1 1 0 0 1	59	1 1 0 1 1 1
18	0 1 0 0 1 0	39	1 1 1 0 0 1	60	0 0 1 1 1 1
19	1 1 0 0 1 0	40	0 0 0 1 0 1	61	1 0 1 1 1 1
20	0 0 1 0 1 0	41	1 0 0 1 0 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 Selection area memory banks
- 4 Remove sensor from memory bank button
- 5 Lock or unlock the 'Wireless receiver management' display mode
- 6 Description of the sensor in memory bank
- 7 Settings
- 8 Information
- 9 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.

**Selection area memory banks**

All available memory banks as well as the description of the respective stored sensors are displayed here.

**Remove sensor from memory bank button**

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

### Description of the sensor in memory bank

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

### Lock or unlock the 'Wireless receiver management' display mode

Allows you to lock or unlock the 'Wireless receiver management' display mode

### Settings

A slider can be used to set how the connection to the sensor is to be established: either via start-up detection or via digital inputs.

### 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 iTENDO<sup>2</sup> Connect Box for the different memory banks.

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

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

### 7.5.4 Values table memory bank

The value table indicates in which combination the digital IN connections ▶ 6.2.1 [📄 36] must be supplied with voltage for the associated memory bank.

- 0 = no voltage
- 1 = voltage (permanent presence of 24 V)

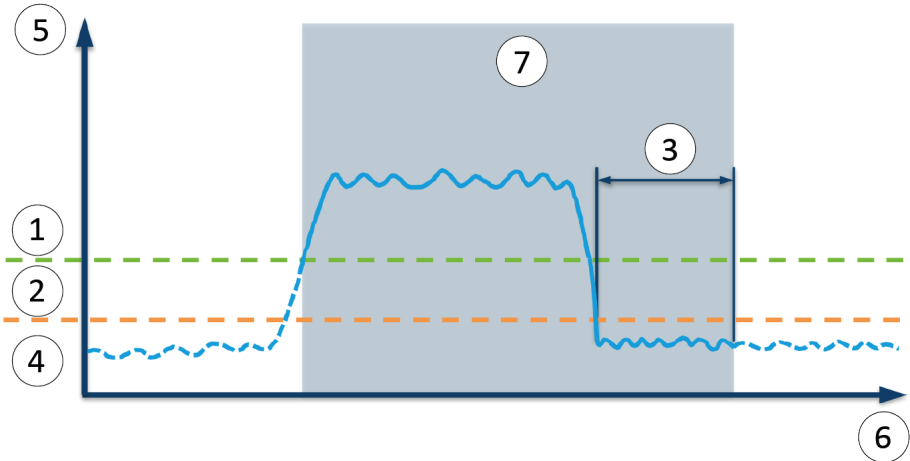
Digital IN 0	Digital IN 1	Digital IN 2	Digital IN 3	Digital IN 4	Digital IN 5	Memory bank
0	0	0	0	0	0	0
1	0	0	0	0	0	1
0	1	0	0	0	0	2
1	1	0	0	0	0	3
0	0	1	0	0	0	4
1	0	1	0	0	0	5
0	1	1	0	0	0	6
1	1	1	0	0	0	7
0	0	0	1	0	0	8
1	0	0	1	0	0	9
0	1	0	1	0	0	10
1	1	0	1	0	0	11
0	0	1	1	0	0	12
1	0	1	1	0	0	13
0	1	1	1	0	0	14
1	1	1	1	0	0	15
0	0	0	0	1	0	16
1	0	0	0	1	0	17
0	1	0	0	1	0	18
1	1	0	0	1	0	19
0	0	1	0	1	0	20
1	0	1	0	1	0	21
0	1	1	0	1	0	22
1	1	1	0	1	0	23
0	0	0	1	1	0	24
1	0	0	1	1	0	25
0	1	0	1	1	0	26
1	1	0	1	1	0	27
0	0	1	1	1	0	28
1	0	1	1	1	0	29

Digital IN 0	Digital IN 1	Digital IN 2	Digital IN 3	Digital IN 4	Digital IN 5	Memory bank
0	1	1	1	1	0	30
1	1	1	1	1	0	31
0	0	0	0	0	1	32
1	0	0	0	0	1	33
0	1	0	0	0	1	34
1	1	0	0	0	1	35
0	0	1	0	0	1	36
1	0	1	0	0	1	37
0	1	1	0	0	1	38
1	1	1	0	0	1	39
0	0	0	1	0	1	40
1	0	0	1	0	1	41
0	1	0	1	0	1	42
1	1	0	1	0	1	43
0	0	1	1	0	1	44
1	0	1	1	0	1	45
0	1	1	1	0	1	46
1	1	1	1	0	1	47
0	0	0	0	1	1	48
1	0	0	0	1	1	49
0	1	0	0	1	1	50
1	1	0	0	1	1	51
0	0	1	0	1	1	52
1	0	1	0	1	1	53
0	1	1	0	1	1	54
1	1	1	0	1	1	55
0	0	0	1	1	1	56
1	0	0	1	1	1	57
0	1	0	1	1	1	58
1	1	0	1	1	1	59
0	0	1	1	1	1	60
1	0	1	1	1	1	61
0	1	1	1	1	1	62
1	1	1	1	1	1	63

### 7.5.5 Start-up detection (BETA)

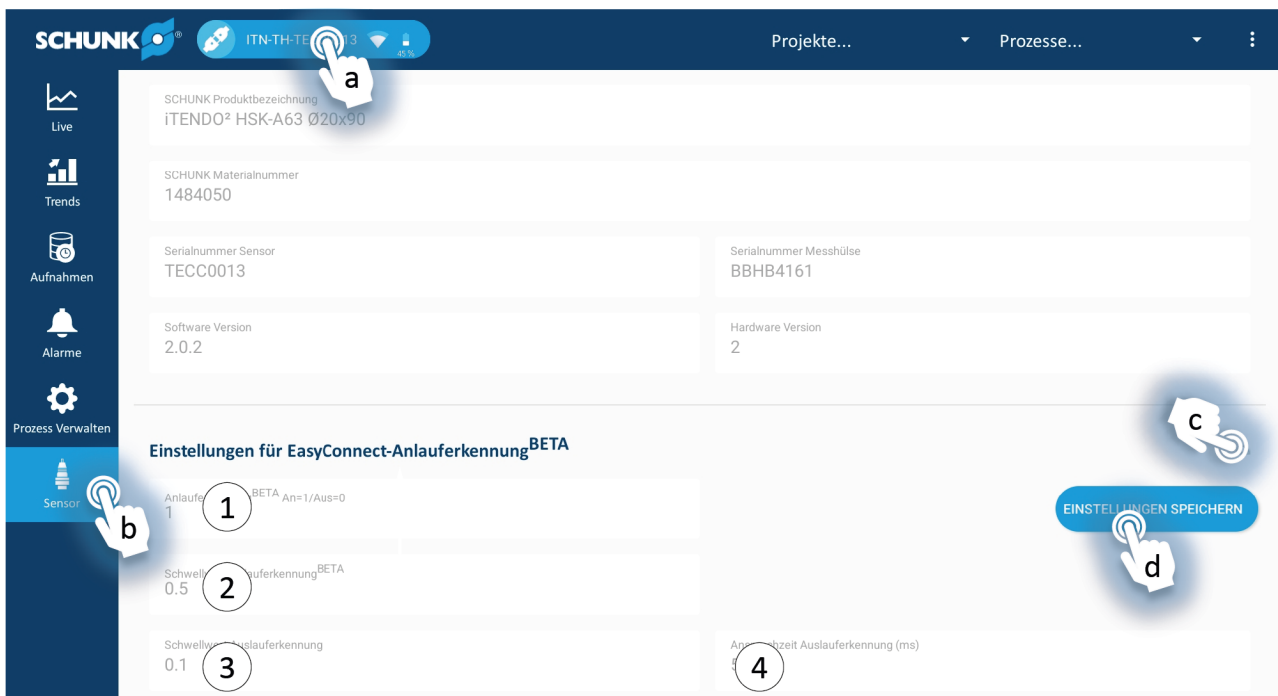
The start-up detection makes it possible to activate the connection between the iTENDO<sup>2</sup> wireless receiver and iTENDO<sup>2</sup> sensor without digital inputs.

**NOTE:** Start-up detection is only a BETA version. Activation via digital inputs is always preferable!



1	Threshold value start-up detection (chatter index)
2	Threshold value run-out detection (chatter index)
3	Response time run-out detection [ms]
4	Current chatter index value
5	Chatter index
6	Time
7	iTENDO <sup>2</sup> sensor connected to iTENDO <sup>2</sup> wireless receiver

## Setup of the start-up detection on the iTENDO<sup>2</sup> sensor



- 1 On/Off start-up detection
- 2 Threshold start-up detection
- 3 Threshold run-out detection
- 4 Response time run-out detection in milliseconds

### On/Off start-up detection

1 = Connection via start-up detection activated for this iTENDO<sup>2</sup> sensor. 0 = Connection via start-up detection not activated for this iTENDO<sup>2</sup> sensor.

### Threshold start-up detection

Threshold value that the chatter index must exceed to establish the connection to the iTENDO<sup>2</sup> sensor.

### Threshold run-out detection

Threshold value that the chatter index for the response time must fall below to remove the connection to the iTENDO<sup>2</sup> sensor.

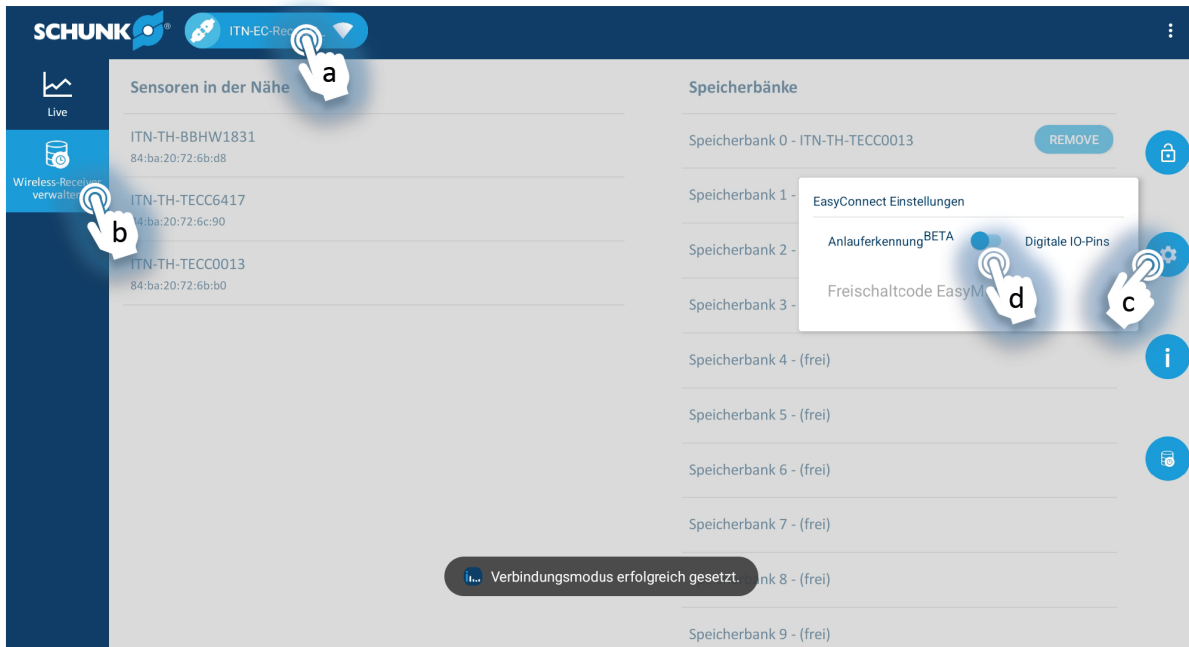
### Response time run-out detection in milliseconds

Time span that the chatter index must remain below the threshold value to remove the connection to the iTENDO<sup>2</sup> sensor.

1. Connect app to iTENDO<sup>2</sup> sensor (a).
2. Select the "Sensor" area (b).
3. Expand "Settings for EasyConnect start-up detection"<sup>BETA</sup> drop-down field (c).
4. Set and save parameters (d)

⇒ Start-up detection is set up on the iTENDO<sup>2</sup> sensor and is ready to be used.

### Setup of the start-up detection on the iTENDO<sup>2</sup> wireless receiver



1. Connect app to iTENDO<sup>2</sup> wireless receiver (a).
2. Select the "Wireless receiver management" area (b).
3. Open settings via gear button (c).
4. Activate start-up detection with the slider (d).
  - ⇒ Start-up detection is set up on the iTENDO<sup>2</sup> wireless receiver and is ready to be used. **NOTE:** Start-up detection can only be used for memory bank 0.

## 8 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**

Possible malfunction / occurring errors	Possible causes	Remedial measures
iTENDO <sup>2</sup> does not connect to the iTENDO <sup>2</sup> wireless receiver	iTENDO <sup>2</sup> is not charged	Charge the iTENDO <sup>2</sup>
	iTENDO <sup>2</sup> wireless receiver is not connected properly	Check "Ready" LED on Connect Box and LED display on iTENDO <sup>2</sup> wireless receiver ▶ 6.2.1 [36]
	Incorrect assignment of memory bank and iTENDO <sup>2</sup> (name)	Check memory bank assignments in the iTENDO <sup>2</sup> app
	Incorrect memory bank selection due to incorrect selection of digital IN 0 – 5	Check bit setting for desired memory bank ▶ 7.5.4 [54]
	iTENDO <sup>2</sup> is out of range of the iTENDO <sup>2</sup> wireless receiver	Reduce distance iTENDO <sup>2</sup> / iTENDO <sup>2</sup> wireless receiver
	Obstacles prevent a stable connection	Position iTENDO <sup>2</sup> wireless receiver differently and try to avoid having <ul style="list-style-type: none"> <li>• obstacles,</li> <li>• operating personnel,</li> <li>• many layers of metal,</li> </ul> between the iTENDO <sup>2</sup> and iTENDO <sup>2</sup> wireless receiver
	Interference signals in the environment	Check the environment for other wireless devices
	Firm software versions are not compatible	Contact SCHUNK technical after-sales service
	Program sequence too fast	Adhere to waiting times ▶ 6.2.3 [37]
iTENDO <sup>2</sup> is connected to the iTENDO <sup>2</sup> wireless receiver, but no data is being output	Malfunction of the easy connect system	Restart the easy connect system by pressing "Reset" on the iTENDO <sup>2</sup> Connect Box (for 5 seconds)
	Firm software versions are not compatible	Contact SCHUNK technical after-sales service

Possible malfunction / occurring errors	Possible causes	Remedial measures
iTENDO <sup>2</sup> tablet does not connect to the iTENDO <sup>2</sup> wireless receiver	Incorrect iTENDO <sup>2</sup> wireless receiver selected in the app	Check which iTENDO <sup>2</sup> wireless receiver should be connected
	iTENDO <sup>2</sup> wireless receiver is not connected properly	Check "Ready" LED on Connect Box and LED display on iTENDO <sup>2</sup> wireless receiver ▶ 6.2.1 [ 36]
	iTENDO <sup>2</sup> tablet is out of range of the iTENDO <sup>2</sup> wireless receiver	Reduce distance iTENDO <sup>2</sup> tablet / iTENDO <sup>2</sup> wireless receiver
	Obstacles prevent a stable connection	Position the iTENDO <sup>2</sup> tablet differently and try to avoid having <ul style="list-style-type: none"> <li>• obstacles,</li> <li>• operating personnel,</li> <li>• many layers of metal, between the iTENDO<sup>2</sup> tablet and iTENDO<sup>2</sup> wireless receiver</li> </ul>
	Interference signals in the environment	Check the environment for other wireless devices
	Firm software versions are not compatible	Contact SCHUNK technical after-sales service
iTENDO <sup>2</sup> tablet is connected to the iTENDO <sup>2</sup> wireless receiver, but no vibrations are displayed	Live diagram zoom is not reset	Reset zoom ▶ 7.5.3.1 [ 50]
	Malfunction of the iTENDO <sup>2</sup> app	Restart the iTENDO <sup>2</sup> app
	Malfunction of the easy connect system	Restart the easy connect system by pressing "Reset" on the iTENDO <sup>2</sup> Connect Box (for 5 seconds)
"Ready" LED on iTENDO <sup>2</sup> Connect Box not illuminated	iTENDO <sup>2</sup> wireless receiver is not connected properly	Check connection cable from iTENDO <sup>2</sup> wireless receiver to iTENDO <sup>2</sup> Connect Box
"PWR" LED on iTENDO <sup>2</sup> Connect Box not illuminated	Voltage supply error	Check voltage sources and connection lines
Error-LED on iTENDO <sup>2</sup> wireless receiver lights up red	Error in the connection from iTENDO <sup>2</sup> Connect Box to iTENDO <sup>2</sup> wireless receiver	Check connection cable between iTENDO <sup>2</sup> Connect Box and iTENDO <sup>2</sup> wireless receiver

## 9 Spare parts list

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

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

## 10 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.

## 11 EU Declaration of Conformity

according to the European Directive 2014/53/EU, Annex VI.

Hersteller/  
Inverkehrbringer

SCHUNK GmbH & Co. KG Spann- und Greiftechnik  
Bahnhofstr. 106 – 134  
D-74348 Lauffen/Neckar

We hereby declare that on the date of the declaration, the product described below complied with all basic safety and health regulations found in Directive 2014/53/EU of the European Parliament and of the Council on machinery. The declaration shall be rendered invalid if modifications are made to the product.

Product designation – iTENDO<sup>2</sup> easy connect upgrade – 1484688  
ID: iTENDO<sup>2</sup> easy connect (complete package) – 1484494  
iTENDO<sup>2</sup> easy connect upgrade, mag. – 1532117  
iTENDO<sup>2</sup> easy connect (complete package), mag. – 1532118

Harmonized standards and technical specifications applied:

EN 61000-6-2:2019	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments
EN 61000-6-4:2018	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments
EN 301 489-1 V2.2.3 (2019-11)	Electromagnetic compatibility (EMC) – Standard for radio equipment and services – Part 1: Common technical requirements – Harmonized standard for electromagnetic compatibility
EN 301 489-17 V3.2.4 (2020-09)	Electromagnetic compatibility (EMC) for radio equipment and services – Part 17: Specific conditions for broadband data transmission systems – harmonized standard for electromagnetic compatibility
EN 300 328 V2.2.2 2019-07	Wideband Transmission Systems – Data transmission equipment operating in the 2.4 GHz band – Harmonized standard on the use of the radio spectrum

**Additionally, the product is declared to conform with the following standards and EU directives:**

DIN EN ISO 12100	Safety of the machines
2014/30/EU	EMC Directive
2014/53/EU	Radio Equipment Directive
2011/65/EU	RoHS Directive

Person authorized to compile the technical documentation:  
Moritz Wiedmann, address: refer to manufacturer's address

Signed for and on behalf of: SCHUNK GmbH & Co. KG

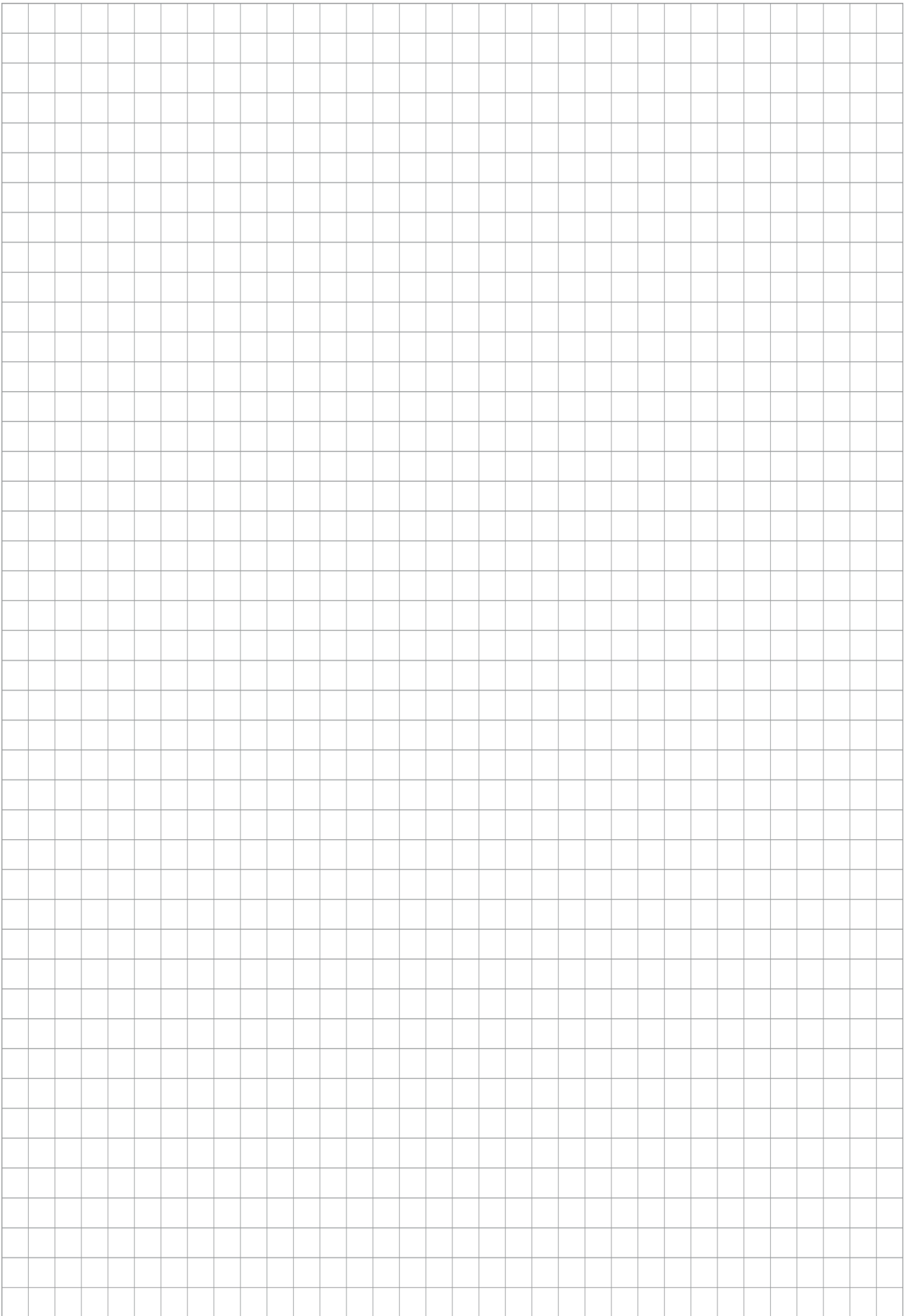
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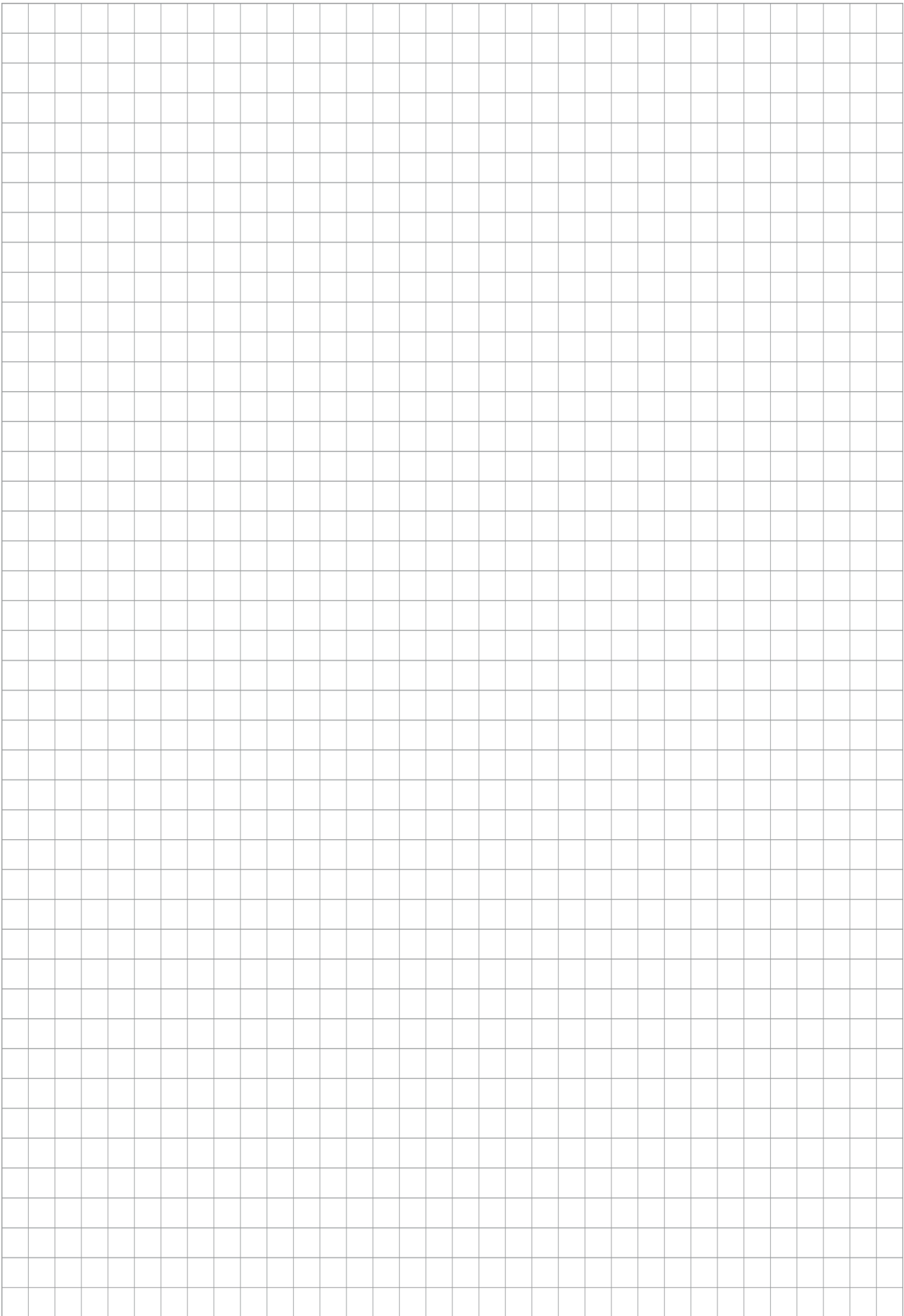
Lauffen/Neckar, February 2020

p.p. Moritz Wiedmann;  
Head of Development Clamping Technology

*Signature: see original declaration*

p.p. Jörn Rastetter;  
Head of Functional Safety;  
Safety Assurance Manager (SAM)







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