



# Assembly and Operating Manual

## iTENDO<sup>2</sup> seismo

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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**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

The term "product" replaces the product name on the title page in this manual.

### 1.1.3 Applicable documents

- General terms of business \*
- Contractual agreements
- Assembly and Operating Manual iTENDO<sup>2</sup> pad (ID 1494155)
- Assembly and Operating Manual iTENDO<sup>2</sup> easy connect (ID 1539948)
- Assembly and Operating Manual iTENDO<sup>2</sup> easy monitor (ID 1547510)

The documents labeled with an asterisk (\*) can be downloaded from [schunk.com](http://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, ▶ 2.5 [ 8]
- Observe the specified maintenance instructions, ▶ 7 [ 19]

This does not include special agreements detailed in the warranty and wearing parts. Wearing parts can also become worn through appropriate use before the maximum number of clamping cycles has expired. This includes all areas that come into contact with the tool or the machine (clamping range and machine mount) and sealing elements.

## 1.3 Scope of delivery

The scope of delivery includes

- 1 iTENDO<sup>2</sup> seismo
- 1 Assembly and Operating Manual

## 2 Basic safety notes

### 2.1 Intended use

- The product is used to record vibration data in industrial machines.
- The product may only be used and applied within the scope of the information in the technical data, ▶ 3 [12].
- The product is intended for industrial use.
- Appropriate use of the product includes compliance with all instructions in this manual.

### 2.2 Not intended use

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

- The mounting specifications in this manual have not been observed.
- The information in the technical data is not observed when using and operating the product ▶ 3 [12].
- The product is used in corrosive media.
- The maintenance and storage instructions are not observed ▶ 7 [19].

### 2.3 Constructional changes

#### Implementation of structural changes

Modifications, changes or reworking, e.g. additional threads, holes, or safety devices, can damage the product or impair its functionality or safety.

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

### 2.4 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.

## 2.5 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.

## 2.6 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:

#### 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.

## 2.7 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.

## 2.8 Notes on safe operation

- Do not heat the product above 60°C.
- Do not expose the product to a direct jet of coolant.
- Do not apply product to moving parts or while in their traverse paths.
- Attach the product so that it cannot come loose during operation.
- Maintain and service the product on a regular basis.
- All repair work must be performed by SCHUNK.
- The operational safety and function of the product must not be impaired by external influences.
- Follow the country-specific applicable safety, accident prevention, and environmental protection regulations for the application field of the product.

## 2.9 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.

## 2.10 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.

## 2.11 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.

## 2.12 Fundamental dangers

### General

- Observe safety distances.
- Never deactivate safety devices.
- Before commissioning the product, take appropriate protective measures to secure the danger zone.
- Disconnect power sources before installation, modification, maintenance, or calibration. Ensure that no residual energy remains in the system.
- If the energy supply is connected, do not move any parts by hand.
- Do not reach into the open mechanism or movement area of the product during operation.

### 2.12.1 Protection during handling and assembly

#### Incorrect handling and assembly

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

- Have all work carried out by appropriately qualified personnel.
- For all work, secure the product against accidental operation.
- Observe the relevant accident prevention rules.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

#### Incorrect lifting of loads

Falling loads may cause serious injuries and even death.

- Stand clear of suspended loads and do not step into their swiveling range.
- Never move loads without supervision.
- Do not leave suspended loads unattended.

### 2.12.2 Protection during commissioning and operation

#### Falling or violently ejected components

Falling and violently ejected components can cause serious injuries and even death.

- Take appropriate protective measures to secure the danger zone.
- Never step into the danger zone during operation.

## 3 Technical data

### 3.1 Product data

<b>Material number</b>	<b>1511806</b>
Maximum permissible coolant pressure with external coolant supply	20 bar
Radio transmission frequency band (ISM band)	2.4 GHz
Transmission power	< 6 dB
Acceleration range of measurement	±100 g
Maximum operating time (battery life) with active radio transmission	8 h
Maximum operating time (battery life) in standby mode	240 h (10 days)
Dimensions (L x W x H)	40 x 22 x 31.07 mm
Weight	approx. 0.1 kg

### 3.2 Ambient conditions and operating conditions

Operating temperature range	+20°C to +60°C
Transport temperature range	-10°C to +60°C
Storage temperature range	+10°C to +30°C
Cleaning temperature range	0°C to +60°C

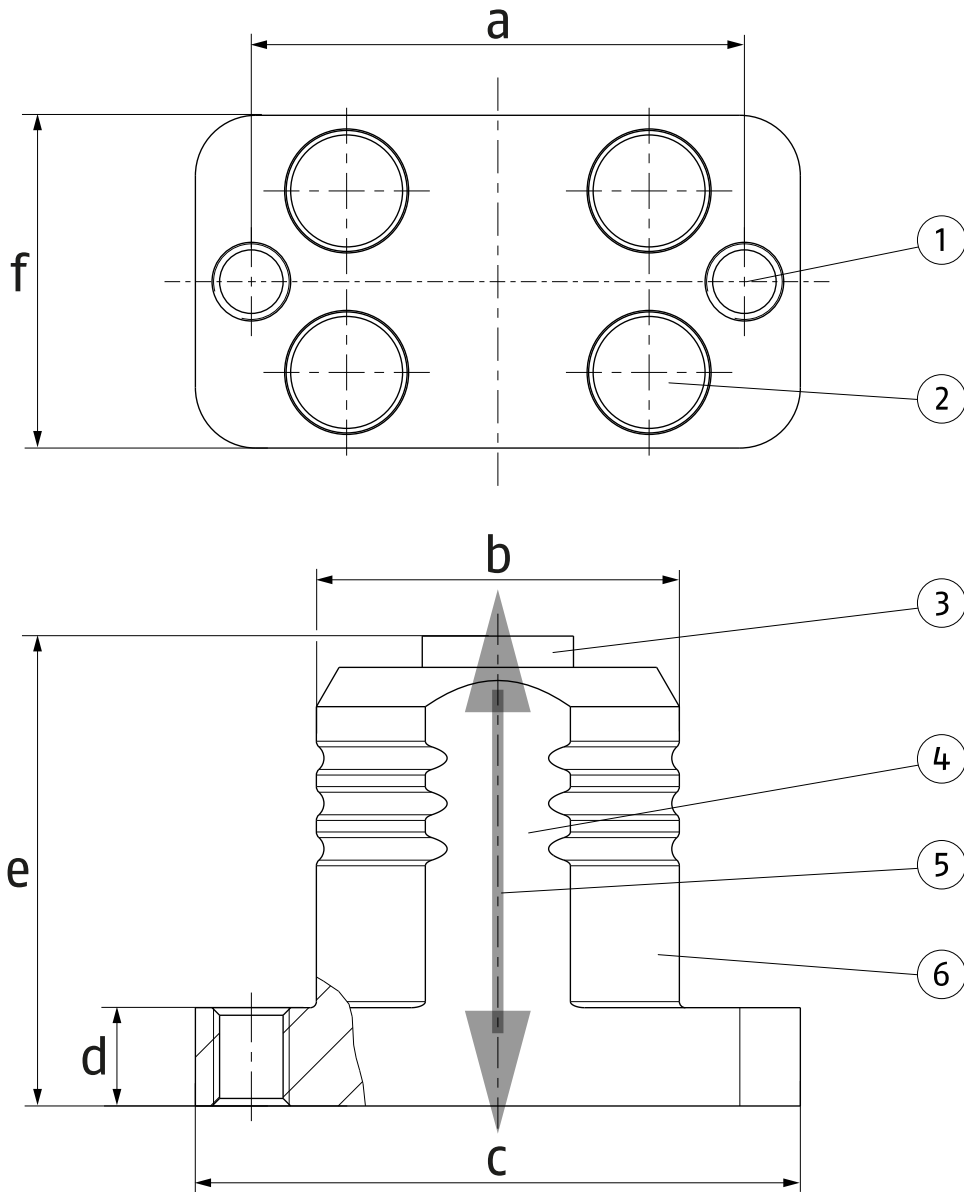
**NOTE:** The temperatures refer to the product.

### 3.3 Installation details

Number of mounting holes	2
Thread size	M5
Number of mounting magnets	4

## 4 Design and description

### 4.1 Design



**NOTE:** Illustration may differ from the actual design.

Position	Description
1	Mounting thread (M5)
2	Magnets
3	Antenna
4	Wrench flat (A/F 22)
5	Sensor measuring direction
6	Base body

Dimension	Value [mm]
a	32.6
b	Ø24
c	40
d	6.5
e	31.07
f	22

## 4.2 Functional description

This product is used to record vibration data in industrial machines.

The product can be mounted in the machine room via the integrated magnets and/or mounting holes.

The iTENDO<sup>2</sup> sensor built into the product makes it possible to detect vibrations during the machining process.

Using a compatible tablet and the iTENDO<sup>2</sup> app, the detected vibrations can be displayed and recorded. The data is transmitted via a wireless connection between the product and the tablet.

**NOTE:** The data of the iTENDO<sup>2</sup> seismo cannot be compared directly with the data of the iTENDO<sup>2</sup> toolholder, because the iTENDO<sup>2</sup> toolholder acquires data dynamically at a different location and the iTENDO<sup>2</sup> seismo is attached statically. In addition, the recorded data is location-dependent. A change in position of the iTENDO<sup>2</sup> seismo can lead to changed data. The data collected is machine and process dependent and must therefore be considered, assessed and evaluated individually for each application.

## 5 Assembly

### 5.1 Basic information



#### **⚠ WARNING**

##### **Risk of injury due to incorrect assembly!**

Incorrect assembly may lead to the product being flung out, causing severe injuries.

- Do not mount product on moving parts.
- Do not mount the product in the traverse path of machine parts.
- Attach the product so that it cannot come loose during machine operation.
- Take suitable protective measures to secure the danger zone.
- 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.



#### **⚠ WARNING**

##### **Risk of injury if the product falls during transport, assembly or disassembly.**

Due to the oily surface required to preserve it, the product can slip through your hands, resulting in injury.

- Take appropriate safety measures to prevent the product from falling.
- Only install the product on machines with the appropriate connection dimensions.
- Wear suitable protective equipment, especially safety gloves.



### ⚠ CAUTION

**Risk of crushing, impact and cutting when assembling and disassembling the product!**

- Do not reach between the product and machine.
- Wear suitable protective equipment, especially protective gloves and safety boots.

### NOTICE

**Risk of possible damage to the product!**

- When transporting and handling the product, ensure that it is not damaged by knocks, impact, etc.

## 5.2 Assembly of the product

To ensure optimal measurement results, the product has to be positioned correctly on the machine spindle and secured.

When assembling the product, observe the following points:

- Do not apply product to moving parts or while in their traverse path.
- Place the product as close as possible to the location where the vibrations are to be monitored.
- Observe the sensor measuring direction when aligning the sensor.
- Ensure that the product is not exposed to a continuous stream of coolant after assembly.
- Attach the product so that it cannot come loose during machine operation.
- Mount the product in such a way that it is protected from flying chips.

Perform the mounting as follows:

1. Charge the battery of the iTENDO<sup>2</sup> sensors. **NOTE:** Please refer to the chapters "iTENDO<sup>2</sup> Power Plug" and "iTENDO<sup>2</sup> Charger" in the operating manual for the iTENDO<sup>2</sup> pads (1484493).
2. Clean the contact surfaces of the product and machine.
3. Attach the product to a suitable location using the magnets or mounting holes. **NOTE:** The M5 mounting holes can also be used as through-holes for M4 screws.

## 6 Operation

### 6.1 Evaluation of the vibration data

To evaluate the recorded vibration data, refer to the chapter "iTENDO<sup>2</sup> Tablet and iTENDO<sup>2</sup> App" in the iTENDO<sup>2</sup> pad operating manual (1484493).

Consider the following when evaluating the vibration data:

- The data collected is dependent on the machine and process and must therefore be considered, assessed and evaluated individually for each application.
- The data of the iTENDO<sup>2</sup> seismo can **not** be directly compared with the data of the iTENDO<sup>2</sup> toolholder, because
  - the data is location-dependent and collected at a different point, and
  - the sensor in the iTENDO<sup>2</sup> seismo is statically mounted in the machine.

## 7 Maintenance

### 7.1 Basic information



#### **⚠ WARNING**

**Risk of injury due to sharp edges and rough or slippery surfaces!**

- Wear suitable protective equipment, especially protective gloves.



#### **⚠ 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.

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**

### 7.2 Intervals and tasks

Operation	Interval period
Cleaning the product	daily

The specified maintenance intervals are based on empirical data gathered by SCHUNK and are a recommendation. Depending on the ambient conditions and operating conditions, the maintenance intervals need to be adapted and noted accordingly. For maintenance intervals with two or more specifications, the specification that applies first is valid.

**CAUTION: For maintenance, either disassemble the product ▶ 9 [ 22] or switch off the power supply to the machine and ensure that there is no residual energy in the system.**

### 7.2.1 Cleaning the product

1. Disassemble the product ▶ 9 [📄 22].
2. Clean the entire product with compressed air.
3. Carefully remove any stubborn dirt with a suitable tool.
4. Wipe all surfaces dry with a clean cloth.
5. Check the product for deformation, damage or wear.
6. Lightly oil the entire metal surface of the product.
7. Wipe the charging contact dry with a clean cloth and clean it 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.

## 8 Troubleshooting

Malfunction/error	Possible cause	Solution(s)
Product dissolves	Product is not correctly positioned on the machine	Clean the contact surfaces of the product and machine
Product not transmitting a signal	Battery is flat	Charge battery

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

**Service telephone: +49-7133-103-2956**  
**service.toolholder@de.schunk.com**

## 9 Disassembly

### 9.1 Basic information



#### **⚠ WARNING**

**Risk of injury if the product falls during transport, assembly or disassembly.**

Due to the oily surface required to preserve it, the product can slip through your hands, resulting in injury.

- Take appropriate safety measures to prevent the product from falling.
- Only install the product on machines with the appropriate connection dimensions.
- Wear suitable protective equipment, especially safety gloves.



#### **⚠ 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, impact and cutting when assembling and disassembling the product!**

- Do not reach between the product and machine.
- Wear suitable protective equipment, especially protective gloves and safety boots.

#### **NOTICE**

**Risk of possible damage to the product!**

- When transporting and handling the product, ensure that it is not damaged by knocks, impact, etc.

## 9.2 Disassembly of the product

1. Clean the product.
2. Secure the product against falling down.
3. Loosen connection to the machine.
  - ⇒ When fastening via magnets: tilt the product.
  - ⇒ When fastening with fastening screws: unscrew the fastening screws.
4. Remove the product.

**NOTE:** To avoid damage, only place the product on a clean and soft surface.

## 10 Storage

When storing the product for a longer period of time, observe the following points:

- Clean the product and lubricate it lightly.
- Only store the product in dry rooms.
- Protect the product from major temperature fluctuations.
- Completely charge the battery regularly every year.
- Comply with the storage temperature specified in the technical data.
- Store the product in a suitable transport container.

## 11 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.

## 12 EU Declaration of Conformity

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

Manufacturer/  
Distributor SCHUNK SE & Co. KG  
Spanntechnik | Greiftechnik | Automatisierungstechnik  
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> pad – 1484493  
ID: iTENDO<sup>2</sup> HSK-A63 Ø20 x 90 – 1484050  
iTENDO<sup>2</sup> HSK-A63 Ø32x125 – 1519203  
iTENDO<sup>2</sup> HSK-A100 Ø32x115 – 1509955  
iTENDO<sup>2</sup> SK40 Ø20x110 – 1484710  
iTENDO<sup>2</sup> SK50 Ø32x103 – 1509960  
iTENDO<sup>2</sup> CAT40 Ø3/4 "x101.6 – 1495390  
iTENDO<sup>2</sup> BT30 Ø20x90 – 1495389  
iTENDO<sup>2</sup> BT40 Ø20x110 – 1509899  
iTENDO<sup>2</sup> Capto C6 Ø32x110 – 1509962  
iTENDO<sup>2</sup> seismo – 1511806

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 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

*Signature: see original declaration*

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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