

Instructions

SZX2-ZMS

Zoom magnification sensor

Note

This instruction manual is for the Evident zoom magnification sensor. To ensure safety, achieve optimum performance, and familiarize yourself fully with the use of this product, we recommend that you study this manual thoroughly before operating it and ensure it is available for reference during operations.

Optical Microscope Accessory

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This product is applied with the requirements of standard IEC/EN61326-1 concerning electromagnetic compatibility.

- Emission Class A

- Immunity Industrial electromagnetic environment

Emissions exceeding the level required by aforementioned standards may occur if this product is electrically connected to other equipment.

Some interference may occur if this product is used in residential environments.

NOTE: This product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the product.

FCC Supplier's Declaration of Conformity

Hereby declares that the product

Product name: Optical Microscope Accessory

Model Number: SZX2-ZMS

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107 and Section 15.109

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party Name: Evident Scientific, Inc.

Address: 48 Woerd Ave, Waltham, MA 02453, USA

Phone Number: 781-419-3900



In accordance with European Directive on Waste Electrical and Electronic Equipment, this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately.

Refer to your local Evident distributor in EU for return and/or collection systems available in your country.

For Korea only

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

Product Concept

Product outline

The SZX2-ZMS is a product that can be combined with the SZX7, SZX10 or SZX16 to acquire zoom magnification. In combination with the PRECIV imaging and measurement software, the SZX2-ZMS enables automatic acquisition of zoom magnification, eliminating the need for manual input when measuring and reporting, thereby improving workflow efficiency.

When using this product, please also read the instruction manual of the combined system.

Intended uses

Use cases for this product

- Assembly and inspection work in manufacturing processes
- Creation of assembly and inspection manuals
- Training related to basic skills and assembly/inspection skills
- Preparation of analysis reports

Suitable samples include semiconductors, electronic components, molded products, and mechanical parts.

Industrial applications include observation, inspection, and measurement.

Do not use this product for any purpose other than the intended use.

Safety precautions

If this product is used for any purpose other than those described in this instruction manual, this could cause safety issues or product failure. Always use the product according to this instruction manual.

Handling precautions

General precautions

- NOTE** • This product is a precision instrument. Handle this product with care and avoid subjecting it to impacts.
- Before disposing of this product, be sure to follow the regulations and rules of your local government.

Restrictions

- When using this product, it is necessary to use the PC on which the PRECiV imaging and measurement software is installed.
- When combining the units of the SZX7 system, SZX10 system, or SZX16 system with this product, never use this product as a medical device, for diagnostics, or for similar purposes.
- Do not use a combination that exceeds the load capacity of the unit that installs the zoom magnification sensor.
- The zoom magnification sensor displays dimensions and magnifications but their accuracy is not guaranteed. Therefore, these values should be used for reference only.
- The zoom magnification sensor is not dustproof or mold-proof.
- The zoom magnification sensor does not support ESD.
- Note that this product cannot be used in the following combinations.
 - (a) Camera and camera adapter: only PRECiV-compatible cameras can be used.
 - (b) Universal stand: take care that the USB cable does not catch on your leg and cause you to fall.
 - (c) Zoom body: the SZX2-ZB16A cannot be combined.
- Tilting the zoom microscope frame after mounting the zoom magnification sensor to it may cause the sensor to display incorrect values. To use it tilted, set up the zoom magnification sensor again.
- If the temperature increases or decreases by 25°C or more or the humidity increases or decreases by 30% or more after the product is set up, the zoom magnification sensor value may not be obtained correctly. Adjust the zoom magnification sensor again if necessary.
- When the zoom magnification sensor is attached, minor scratches may be made on the focus adjustment knob.
- The magnification indicated on the focus adjustment knob may differ from the zoom magnification shown on the software. To avoid this confusion, remove the magnification indication sticker or the magnification ring attached to the focus adjustment knob before use.
- If the focus adjustment knob is stopped at a position other than the click position, the zoom magnification displayed on the software may not be stable due to vibration during microscope operation or the operating environment.
- Do not use a microscope instrument that is not registered in the software. The incorrect dimension information may be displayed.

1 Maintenance and Storage

Lifetime

The lifetime of this product is approximately 5 years after purchase if the product is used properly according to this instruction manual.

When using this product with the unit you are using, follow the lifetime of the unit you are using. Contact Evident for any inquiry or question.

Cleaning of each unit

Wipe with a dry soft cloth. If dirt/dust cannot be removed by dry-wiping, moisten a soft cloth with diluted neutral detergent and wipe off dirt/dust with it.

NOTE Do not use organic solvents because they may deteriorate the coated surface or plastic parts.

2 Operation procedure of each unit


2-1 Setting up the zoom magnification sensor

Match the zoom magnification displayed on the software with that indicated by the focus adjustment knob according to the procedure described below.

This section describes the procedure when connecting this product for the first time.

NOTE •To use the zoom magnification sensor correctly, the click stop must be enabled. For details, see "4-1 Attaching the zoom magnification sensor" on page 7.

•When adjusting the zoom magnification, be sure to stop the focus adjustment knob at the click position. If you stop the focus adjustment knob at a position other than the click position, the zoom magnification cannot be acquired by the zoom magnification sensor.

TIP If you want to change the settings of this product after connecting it for the first time, click [Settings]  -- [Devices] -- [Device Settings], select "SZX2 Zoom Magnification Sensor" from [General], and click the [Define Offset for Zoom Magnification Sensor] button.

1 Connect the "Zoom magnification sensor USB cable" to the PC on which the software is installed. For details, see "4-2 System Connections" on page 8.

2 When the [Device List] window is displayed, register the microscope you are using according to the procedure described below.

1) Select the microscope frame you are using (SZX7, SZX10, SZX16).

2) Select the [Microscope] tab.

3) Select "SZX2 Zoom Magnification Sensor" from the pulldown in [Zoom].

4) Check [Coaxial Illuminator] and [Tilting Trinocular Tube(SZX2-LTTR)] checkboxes according to the microscope type you are using.

NOTE If you are using SZX2-LTTR together with the coaxial illuminator, the magnification will not be displayed correctly if these checkboxes are not checked.

5) Click the [OK] button.

3 When the window is changed to the [Device Settings] window, select "SZX2 Zoom Magnification Sensor".

NOTE If the [Define Offset for Zoom Magnification Sensor] button is not clicked when connecting this product for the first time, you cannot close the [Device Settings] window.

4 Click the [Define Offset for Zoom Magnification Sensor] button.

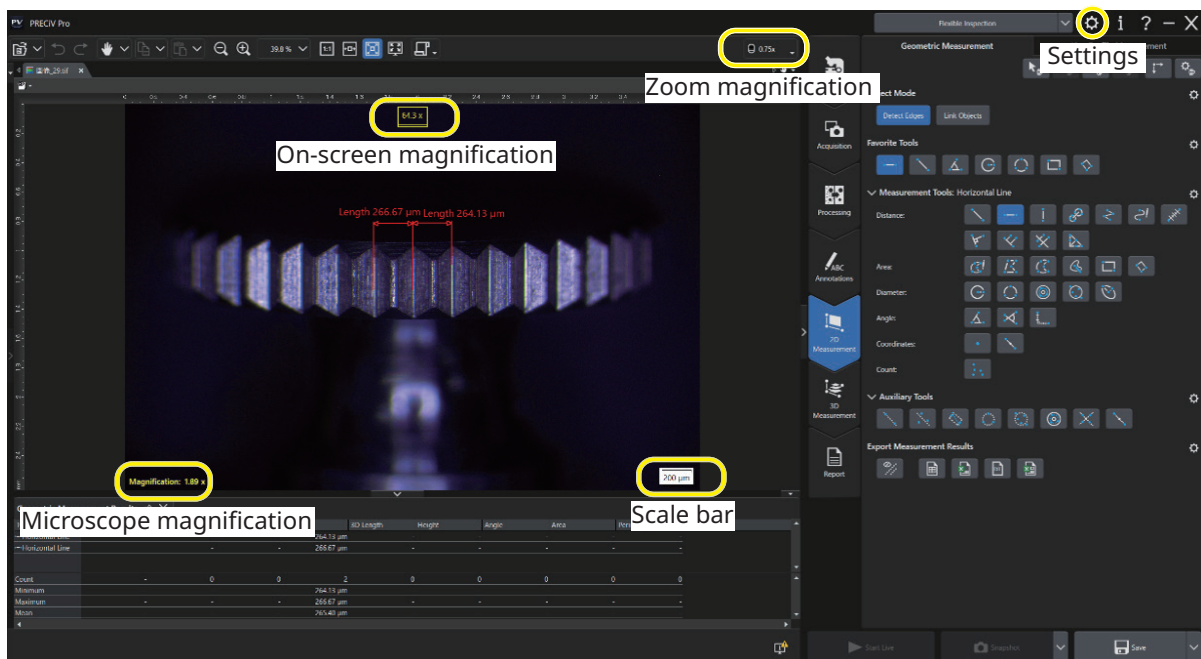
5 Set the magnification of the focus adjustment knob displayed on the software according to the instructions on the window.


2-2 How to Use the Zoom Magnification Sensor

- NOTE**
- Connect the zoom magnification sensor to the PC before starting the software. You cannot acquire the correct zoom magnification even if you perform the following operations before connecting it to the PC.
 - If the zoom magnification sensor is disconnected from the PC after starting the software, first reconnect the cable, then restart the software.

1 If you rotate the focus adjustment knob, the zoom magnification will be automatically detected and displayed on the software.

NOTE Check whether the zoom magnification selected on the product matches the zoom magnification displayed on the software.



TIP You can switch the microscope magnification between [Objective lens magnification] and [Total magnification] in [Image] -- [Zoom] on the optional window displayed by clicking [Option] in [Settings] .

- 2** Pressing buttons **A** and **B** performs the following operations.
- Button **A**: Acquires a snapshot image
 - Button **B**: Starts/Stops acquiring a live image

3 Specifications

This section describes the detail specifications such as the shape, functions, and performance of the product.

Hardware specifications

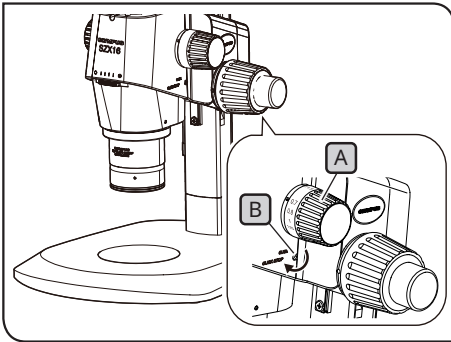
Item	Specifications
Zoom magnification sensor	<u>Main Functions:</u> (a) Gets the zoom magnification. (b) Operates the PRECiV imaging and measurement software. Output connector: USB 2.0 (Type-C)
Operating environment	<ul style="list-style-type: none">• Ambient temperature: 10 to 35°C (50 to 95°F)• Relative humidity: 20 to 85%• Supply voltage fluctuation: ±10%• Pollution degree 2 (in accordance with IEC60664-1)• Installation category (overvoltage category) : II (as defined by IEC60664-1)• Permissible stand tilt at installation location: No more than ±3°
Safety standard requirements	<ul style="list-style-type: none">• Indoor use• Altitude: Max. 2000 meters• Ambient temperature: 5 to 40°C (50 to 95°F)• Relative humidity: 20 to 80% (at temperatures up to 31°C (88°F)) (without condensation) <p>In environments over 31°C (88°F), the maximum acceptable relative humidity for the operating environment decreases linearly to 70% at 34°C (93°F), 60% at 37°C (99°F), and 50% at 40°C (104°F).</p>
Precautions for use	Do not tilt or move the microscope while using this product.

System requirements for the PC

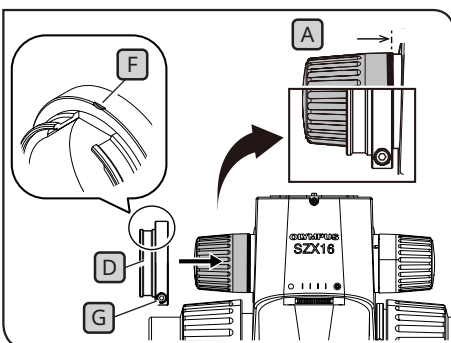
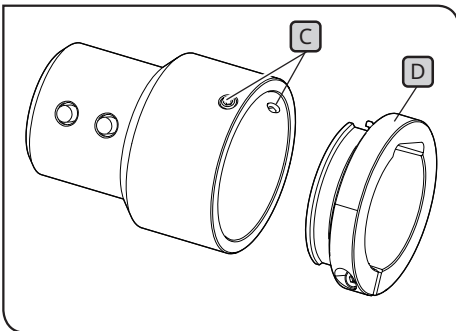
- The PC used with this product should be conformed to IEC/EN60950-1 or IEC/EN62368-1.
- The system requirements for the PC used with this product should be conformed to the requirements for the software.

4 Assembly procedures

4-1 Attaching the zoom magnification sensor



The illustration shows the SZX2-ZB16 zoom microscope frame. The click stop position differs on the SZX-ZB7 and SZX2-ZB10 zoom microscope frames.



- 1 To enable the clip-stop for the focus adjustment knob (A), rotate the click-stop screw (B) clockwise (in the arrow direction) using the Allen screwdriver provided with the zoom microscope frame until it stops.

NOTE •Be careful not to rotate the click stop screw further than necessary, as this may cause damage to the cover and the internal mechanism. Be careful of this when rotating the click stop screw counterclockwise to disable the click stop as well.

•Remove the magnification indication sticker and magnification ring on the focus adjustment knob if they are attached.

- 2 Rotate the focus adjustment knob (A) to set the zoom magnification that is most frequently used and stop at the click position.

- 3 Loosen the zoom magnification sensor clamping screws (C) (two) and remove the clamp (D).

TIP •There are two types of clamps available and the clamp that fits the zoom microscope frame used for observation must be used.

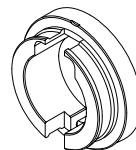
•The zoom magnification sensor is shipped with a clamp for the SZX7, so SZX7 users do not need to remove the clamp.

SZX7 zoom microscope frame:

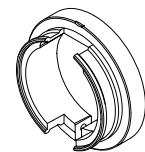
Do not remove the clamp attached and use it. (Internal diameter: Small)

SZX10 or SZX16 zoom microscope frame:

Do not use the removed clamp. Instead, use the one provided with the zoom magnification sensor. (Internal diameter: Large)



For SZX7

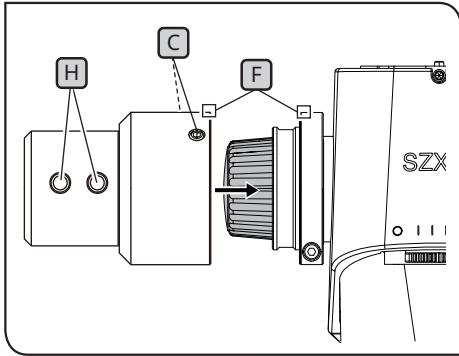


For SZX10 or SZX16

- 4 Attach the clamp (D) to the focus adjustment knob (A) (on the left-hand side when facing the microscope). Insert the clamp until the position where the end surfaces of the clamp and the focus adjustment knob (A) are aligned when viewed from the front.

NOTE Be careful not to insert the clamp too deeply, as this may interfere with the zoom microscope frame and cause damage.

- 5 Tighten the clamping screw (G) at the position where the mark (F) on the clamp comes to the top surface.

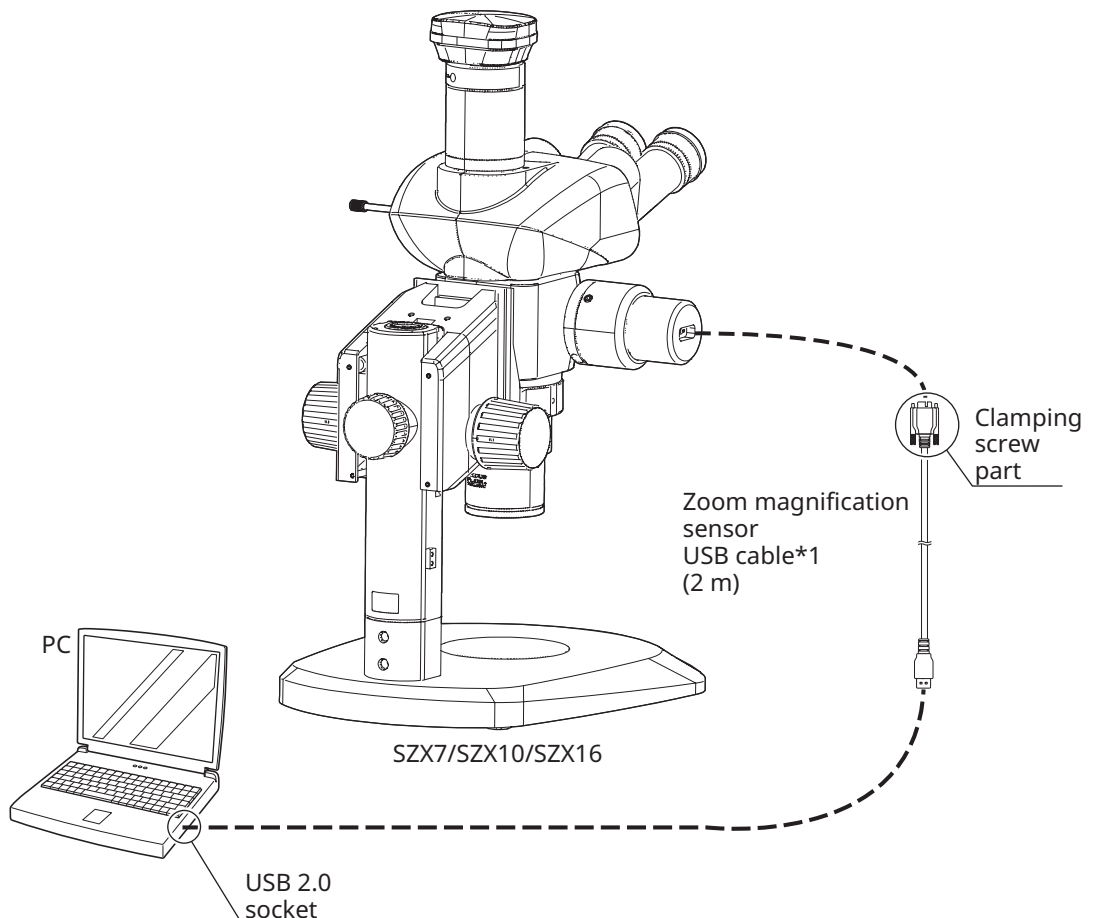


- 6 Insert the zoom magnification sensor until it contacts the clamp.
- 7 Align the zoom magnification sensor with the mark **F** on the clamp, and tighten the clamping screws **C** (2 positions) at the position where the buttons **H** come to the front.

NOTE Depending on the unit to be mounted, the tool and the unit may interfere with each other when tightening the clamping screw **C**. If this happens, rotate the focus adjustment knob and the zoom magnification sensor together and adjust their positions so that the tool can tighten the clamping screw **C**.

4-2 System Connections

- NOTE**
- Ensure that the cable specified by Evident is always used to connect each connector.
 - When connecting each connector, align the orientation of the connector correctly and insert it securely. Also, stop tightening the clamping screw when it contacts the end surface. Tightening it too firmly may damage the screw thread.
 - Ensure that the cable is wired in such a way that no load is applied to the cable. If a strong load is placed on the cable, the cable may break or the focus adjustment knob may rotate.



*1 The USB cables necessary for connections are provided with the SZX2-ZMS.

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