



INSTRUCTION MANUAL

Space-Magnetic Field Visualization System

MODEL EPS-02Hv2

NOISE LABORATORY CO., LTD.

Edition 2.00
AEA00083-00E-1

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1. Usage Limitations

Please use the Software for the purposes described in the instruction manuals or the specifications. Do not use the Software for purposes other than these.

2. Intended Users

Please ensure that individuals who use the Software have received the appropriate training and practice with regard to the entire system in which the Software runs, including the usage environment, equipment safety, and operating methods.

3. Ability to Make Copies

The Software may be installed and used on multiple personal computers by individuals who are members of the business location (factory, branch office, business office, etc.) that purchased the Software.

4. Handling of Intellectual Property Rights

The Software and the intellectual property rights including copyrights for the Software belong to NoiseKen.

5. Usage Period

The usage period designated by NoiseKen shall take effect when the installation of the Software or the prescribed procedure for use, whichever is later, has been completed by the Customer, and the Customer's right to use the Software shall be deemed to have expired at the end of this usage period.

6. Usage Termination Conditions

If the Customer has violated any of the provisions in this document, or has infringed on the copyrights or other intellectual property rights of NoiseKen, NoiseKen shall have the ability to revoke the Customer's license to use the Software.

7. Procedures Upon Usage Termination

The Customer shall promptly uninstall the Software. (If other instructions have been issued by NoiseKen, these shall be followed by the Customer.)

8. Disclaimer

NoiseKen and its dealers and affiliates will not be liable for any customer damages arising from the use of this software or for claims of damages by third parties against customers except in the case of intentional or gross negligence by NoiseKen, its dealer, or affiliates.

9. Prohibitions

The following actions are prohibited with regard to the Software.

- (1) Modifications, additions, and other alterations to the functionality of the Software
- (2) Any form of reverse engineering, including decompilation and disassembly, of the Software
- (3) Reselling, transferring, redistributing, licensing, etc. of the Software, or the accessories provided by NoiseKen for the Software, to third parties
- (4) Storing the Software, or the information, documentation, and the like provided by NoiseKen for the Software, on a network in a state wherein it may be conveyed to a third party

10. Handling of USB and other protection keys

The software provided by NoiseKen may require USB or other protection keys.

- (1) If a protection key is included in the accessories, the protection key must be mounted in the computer where the software is used.
- (2) As a general rule, the protection key is not reissued. In the event that the protection key is damaged or lost, please contact the NoiseKen Sales (or Repair) Division.

2. IMPORTANT SAFETY PRECAUTIONS

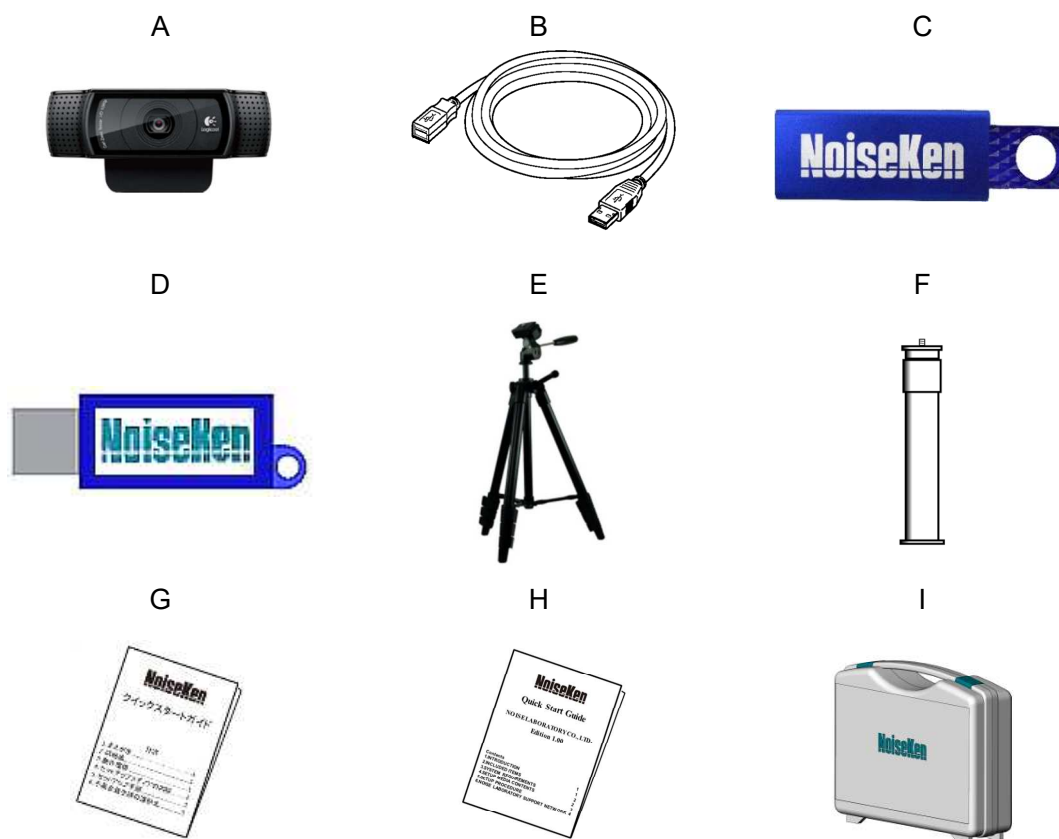
This software performs visualization of magnetic field emissions in space. Important information for safe operation when performing visualization using this software is provided below, and so be sure to read it carefully before use.

Also, be sure to carefully read this manual and the instruction manual for each device to be used before using this software.

- 1. Incorrect or careless operation could result in a fatal injury.**
- 2. Avoid use in locations exposed to high humidity and large amounts of dust.**
- 3. When making connections, electric shock can occur due to contact with the supply voltage, and so before performing any connection work, be sure to turn off the power to the each device, and check that no power is flowing.**
- 4. Do not turn off the power to the each device or disconnect any cables while this software is running. This could cause PC operation to become unstable or the OS to malfunction. Be sure to always exit this software before turning off the power to the each device.**

3. Item Check List

Before starting use, check that the parts and accessories below are included with the product.



A: Web camera	
• Main part	1
• Warranty	1
B: USB extension cable (2 m)	1
C: Setup media (EPS-02Hv2)	1
D: USB protect key	1
E: Camera tripod	
• Main part	1
• Storage bag	1
G: Extension pole	1
G: Japanese Quick Start Guide	1
H: English Quick Start Guide	1
I: Storage case	1

Please check our list of EPS-02EMFv2 supplied with the person who purchased the EPS-02EMFv2.

* The key of A, C, G and H are included in the upgrade version, and the key of C is disk media.

* The key of C, D, G and H are included in the secondary license version, and the key of C is disk media.

* If the software version at the time of purchase is earlier than Ver.1.0.1.0, refer to the instruction manual at the time of purchase.

4. Introduction

Thank you for purchasing the EPS-02Hv2 Space-Magnetic Field Visualization System.
Before using the EPS-02Hv2, be sure to carefully read this manual to ensure that you maximize its performance when operating the EPS-02Hv2.

-
- **This User Guide is provided to ensure that people who follow the operating procedures and safety information can safely use the EPS-02Hv2 and maximize its performance.**
 - **Place this User Guide in a location where it is easily accessible whenever operating the EPS-02Hv2.**
-

4—1. Features

Enabling visualization of magnetic field emissions in space

- The FT3470-91 magnetic field measuring instrument by Hioki is used to obtain magnetic field emission data and to map to the emission location.
- The emission location is mapped relative to the sensor location recognized using the web camera.
- An area of up to 64 blocks × 48 blocks can be measured.
- A superimposed image of the measurement strength distribution diagram and web camera image are displayed for enabling easy identification of the emission source. The density of the strength distribution can also be specified.
- Measured results can be saved to a file, and the content of the measurement results and saved file can be compared for enabling visualization of the effects of corrective actions.
- Measurement sensor location detection by hand instead of using a positioner is possible for enabling easy measurement in cramped spaces, outdoors, and other difficult-to-access locations.

5. Contents






1. SOFTWARE LICENSING TERMS	1
2. IMPORTANT SAFETY PRECAUTIONS.....	2
3. ITEM CHECK LIST.....	3
4. INTRODUCTION	4
4-1.Features	4
5. CONTENTS.....	5
6. OVERVIEW	7
6-1.Notation Used in This Guide.....	7
6-2.EPS-02Hv2 Features	7
6-3.Measurement Principle.....	8
7. SYSTEM CONFIGURATION DIAGRAM.....	10
7-1.System Configuration Diagram.....	10
7-2.Functions of Each Device	11
8. PREPARATION	12
8-1.System Backup	12
8-2.Magnetic Field Measuring Instrument Settings.....	12
8-3.System Connections	13
9. OPERATION PROCEDURE.....	14
9-1.Starting and Exiting the Software.....	14
Starting the Software	14
Exiting the Software.....	14
9-2.Image Recognition Settings.....	15
Image Recognition Setting Dialog Box	15
Device Name	15
Device Filters	16
Other Settings.....	17
Image Recognition Setting	18
9-3.New Measurement (Setting Measurement Conditions)	19
View Window	19
Condition Tab	20
Image Division Size	20
Capturing	21
Measurement Mode.....	21

Unit	21
MEASUREMENT RANGE	22
SLOW FUNCTION	22
9—4.New Measurement (Performing Measurement)	23
Performing Measurement.....	23
Deleting Measurement Data	24
Recapturing Camera Image.....	25
9—5.Measurement Data Analysis.....	26
Measurement Data.....	26
Auto Distribution	27
Interpolation	28
AXIS FOR MEASUREMENT	28
Transmittance	29
Measurement Information	29
Memo	29
Matching Map View Data	30
Exporting Measurement Data	31
10. SETUP	32
10—1.Important Notes on Setup	32
10—2.Installation of Magnetic Field Measuring Instrument Driver	32
10—3.Installing the Software	32
11. SPECIFICATIONS.....	33
11—1.Specifications	33
11—2.System Requirements	34
12. WARRANTY	35
13. NOISE LABORATORY SUPPORT NETWORK	38

6. Overview

6—1. Notation Used in This Guide

The marks used in this guide and their meanings are provided below.

	Provides an additional explanation.
	Indicates a location for further reference.
	Indicates a setting restriction.
	Indicates that you must check before usage.
	Indicates information inscribed on the panel of this testing device.

6—2. EPS-02Hv2 Features

* **Measurement sensor is detected from the image for recognizing the measurement location**

The measurement object and measurement sensor are captured by a camera, and the measurement sensor is found within the image for identifying the measurement location. The recognized measurement location is a relative location within the camera image.

Any user-selected color can be specified for the measurement sensor. However, selecting a color with the same tone as the background color will result in a reduced rate of recognition and even mistaken recognition in certain cases.

The measurable range is the area shown in the camera, but it is restricted to a range that can be recognized by the measurement sensor.

* **Automatic control by software**

Measurement sensor recognition from the camera image and control of the magnetic field measuring instrument are performed automatically. The measurement results can be output as a CSV file, and the image can be output in BMP format.

Also, because the software is a Microsoft Windows application, it provides an easily-accessible interface that uses mouse operations while viewing the screen.

* **Visual display of measurement results**

The measurement strength distribution and camera image are displayed as a superimposed image on the computer screen. Also, the mouse pointer in the image can be used to confirm measurement results for any selected position.

In addition, an interpolation view of the surrounding strength can be used to provide easier assessment of the generation points.

6—3. Measurement Principle

The EPS-02 system performs two main operations for enabling visualization of the electromagnetic field. First, it performs image recognition that identifies the measurement sensor location from the recording image. Second, it provides a color-coded distribution on the image indicating the strength of the signals detected by the measurement sensor.

In image recognition, 640 x 480 pixel video from the camera is monitored in real time, and a specific color only is extracted based on the specified parameters for "hue", "brightness", and "saturation". By finding the focal point of the area with the specific color, the location of the specific object (measurement sensor) can be found in the image.

If an object with the same color as the specified color, but that is not the measurement sensor, appears in the image, the measurement sensor location cannot be recognized correctly because the focal point of all objects of this color is calculated. Therefore, the parameter settings for "hue", "brightness", and "saturation" that are used to detect the measurement sensor, the brightness and light exposure in the recording location, and selection of the lighting are important factors. Depending on the color of the measurement object, in certain cases, measurement sensor covers that are provided as standard for magnetic field measuring instruments cannot be used.

The magnetic field strength is measured using a configuration with the FT-3470-91 magnetic field measuring instrument by Hioki, which is compliant with the IEC-62233:2005 (JIS TS C0044:2010) standards for protecting from human exposure due to household appliances. The magnetic field sensor consists of 100 cm² loop coils combined as the X, Y, and Z rectangular coordinates for capturing the magnetic flux of the respective field. (This magnetic field sensor is a specially-order model for this system, and other models may not work correctly in this system.)

Magnetic Field Measurement Process

The FT3470-91 is connected to the PC by a USB cable. This connection is used by the FT-3470-91 to output 10 Hz to 400 kHz magnetic field strength data at four times per second. This strength is superimposed on the PC image for creating a magnetic field strength distribution diagram. If data arrives at the same image location, it is overwritten or written by Max Hold.

The magnetic field data can be displayed by selecting the units of magnetic flux density T (tesla) or G (gauss), or magnetic field strength A/m (ampere per meter) in magnetic field strength mode. In human exposure mode, the limit value can be displayed as a percentage (%) based on the reference level for general public exposure and reference level for occupational exposure specified in the ICNIRP Guidelines* for 2010.

In this case, the total amount of the magnetic field for the X, Y, and Z axes for 10 Hz to 400 kHz is combined and displayed, and no information about the frequency is provided.

*ICNIRP Guidelines

These are guidelines provided by the International Commission on Non-Ionizing Radiation

Protection (ICNIRP), and they are available in a 1998 version and 2010 version. Most of the current restrictions and standards for human health protection are based on these guidelines. These guidelines are available for download free of charge from the websites below.

<http://www.icnirp.de/>

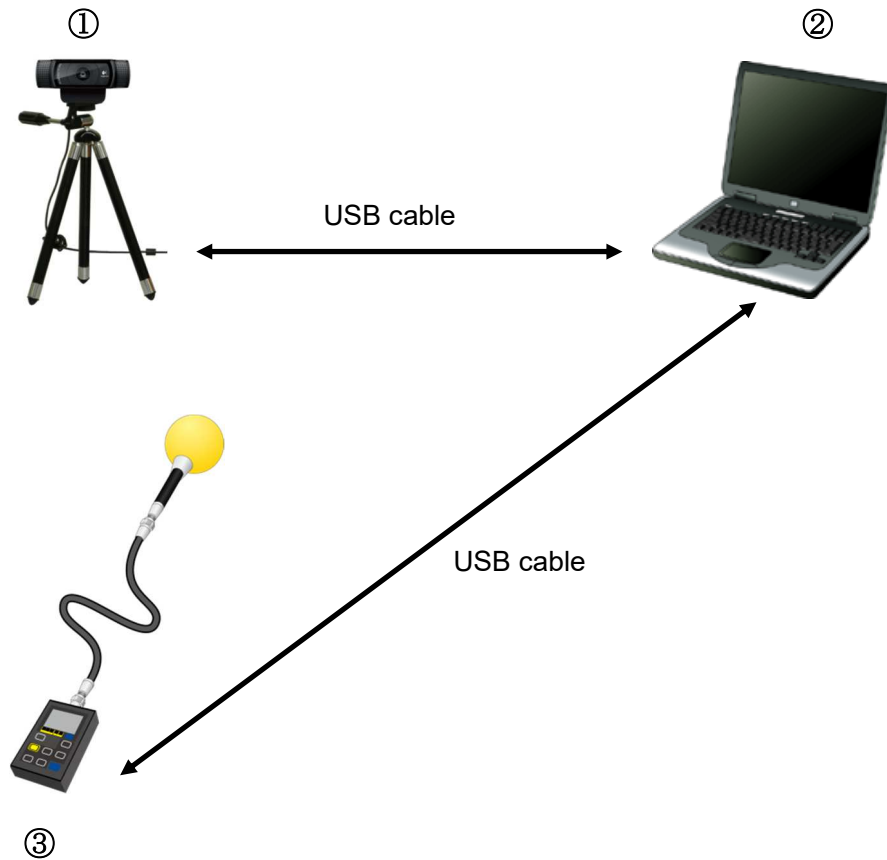
ICNIRP website

<http://www.jeic-emf.jp/social/icnirp.html>

Japan EMF Information Center website

7. System Configuration Diagram

7-1. System Configuration Diagram



① Web camera

This displays the measurement object.

② Control PC

This is used to control various devices and perform magnetic field frequency measurement.

③ Magnetic field measuring instrument and measurement sensor

The FT3470-91 magnetic field measuring instrument and FT3471-91 measurement sensor by Hioki are used. The magnetic field measuring instrument was specially adjusted for this system, and so its specifications are different from the typical product. For details, please contact NoiseKen or Hioki.

7—2. Functions of Each Device

① Web camera

This is a general-purpose web camera. The measurement object is displayed and transferred to the PC. The web camera is connected to the PC by a USB cable. If necessary, the connection can be extended by a USB extension cable.

② Control PC

This enables running of system control software. This software imports images from the web camera, identifies the measurement sensor within the image, and finds its location. The magnetic field strength is received from the magnetic field measuring instrument, and it is mapped to that location.

③ Magnetic field measuring instrument and measurement sensor

This is the FT3470-91 magnetic field measuring instrument and FT3471-91 measurement sensor by Hioki. These are used to measure the magnetic field strength emitted from the measurement object.

To increase the rate of recognition, a special cover provided with the magnetic field measuring instrument is attached to the sensor.

A 5-meter sensor extension cable is also included for easier measurement. The measurement path including the extension cable was calibrated at factory shipping.

8. Preparation



CAUTION

Environments having poor signal reception

In environments exposed to extremely large amounts of external noise, the equipment may be unable to realize its maximum performance.

Even when indoors, the equipment can be affected by lighting and other electronic devices. During measurement, try to minimize the effect of the electromagnetic environment to prevent external noise from affecting the equipment. Also, certain PCs may generate large amounts of noise emissions and may not be suitable for measurement systems.

8—1. System Backup

NoiseKen provides an optional service (additional charges apply) for installing the EPS-02Hv2 program in your PC before providing the program, but if the program is erased, install it from the supplied setup media. Copy the content of the setup media to a hard disk, removable disk, or other location and store it there in case of loss.

For details of setup, see "10. Setup" (P32).

8—2. Magnetic Field Measuring Instrument Settings

- ① A sphere-shaped cover for improving the rate of recognition is attached to the measurement sensor section. When attaching the cover, align the sensor X/Y/Z with the cover X/Y/Z. The measurement sensor and measuring instrument are connected by the extension cable included with the measuring instrument.
- ② Press the "POWER/BATT" button on the magnetic field measuring instrument to turn on the instrument power. The instrument startup process takes several seconds.
- ③ Connect the magnetic field measuring instrument and the PC with a USB cable. The USB cable for connecting the magnetic field measuring instrument and PC is included with the accessories provided with the measuring field measuring instrument.
- ④ To turn off the power for the magnetic field measuring instrument, hold down the "POWER/BATT" button for about two seconds.

For further details, see the instruction manual for the magnetic field measuring instrument.

8—3. System Connections

- ① Connect the web camera to the PC using the USB cable. Any commercially-available USB cable can be used, but it must be a cable that supports the USB 2.0 standards. Be aware that the USB 2.0 standards limit the cables to a maximum of 1 extension and maximum length of 5 m.
- ② The magnetic field sensor and magnetic field measuring instrument are connected by the 9758 extension cable included with the magnetic field measuring instrument. The magnetic field measuring instrument and PC are connected by a USB cable.
Do not connect the magnetic field measuring instrument to other measuring instruments. This could result in damage to the instruments.



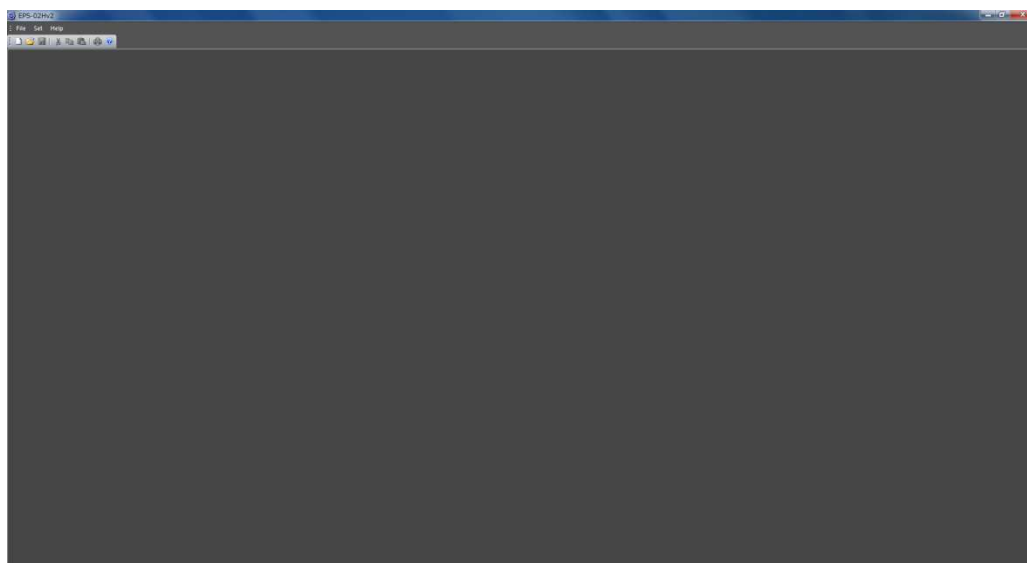
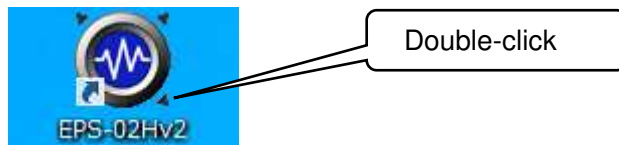
Do not connect magnetic field measuring instruments to an analog signal (BNC) and PC (USB) at the same time. Doing so could damage the instrument.

9. Operation Procedure

9—1. Starting and Exiting the Software

Starting the Software

To start the software, double-click the EPS-02Hv2 shortcut icon on the desktop.

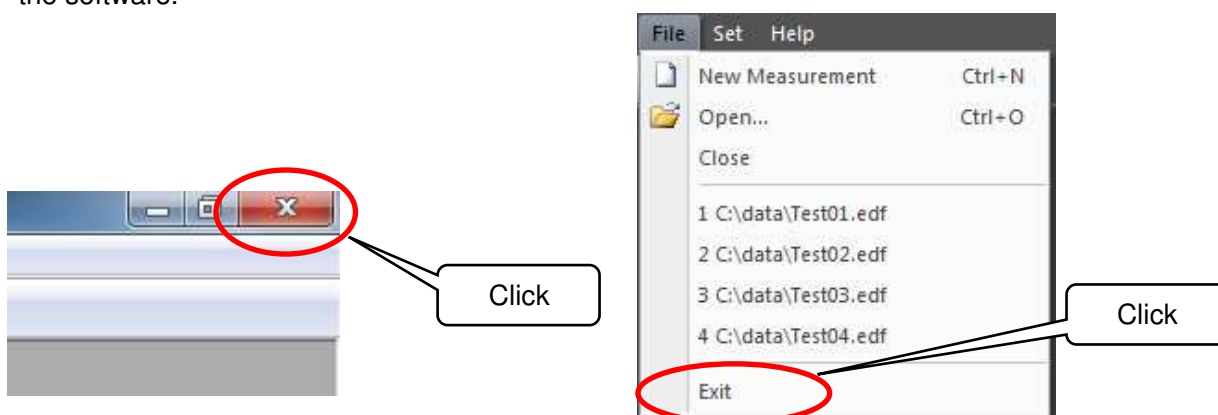


Screen displayed immediately after the software is started

Exiting the Software

To exit the software, click the close button on the right end of the title bar or click **Exit** from the **File** menu.

Because the software cannot be closed during measurement, finish measurement before exiting the software.



9—2. Image Recognition Settings

Image Recognition Setting Dialog Box

To open the **Image Recognition Setting** dialog box, click **Image Recognition Setting** from the **Set** menu.

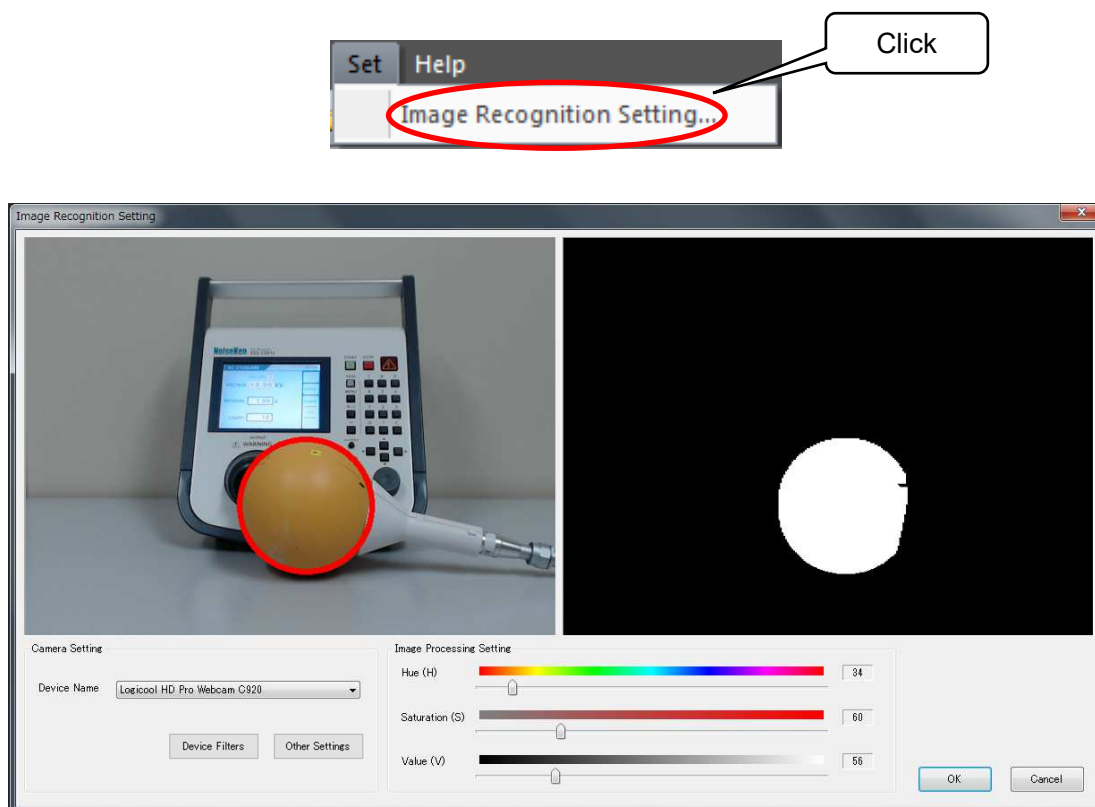


Image Recognition Setting dialog box

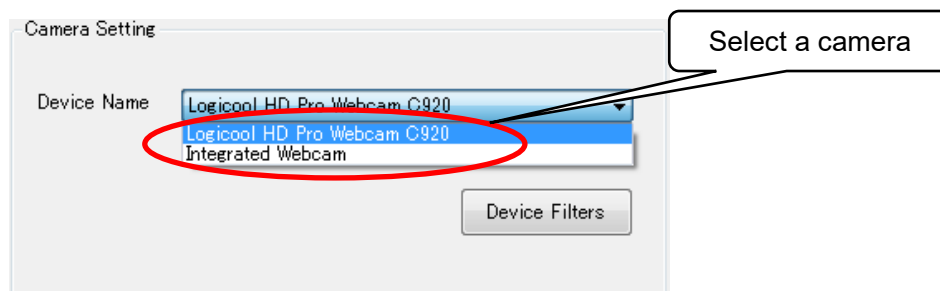


Adjust the camera position so that the measurement object can be captured by the camera. Take the following conditions into account during adjustment. Changing camera properties or adjusting the lighting may be required depending on the circumstances.

- Sufficient brightness is provided so that the measurement object and the measurement sensor can be fully recognized.
- There is no object whose color is similar to that of the measurement sensor.

Device Name

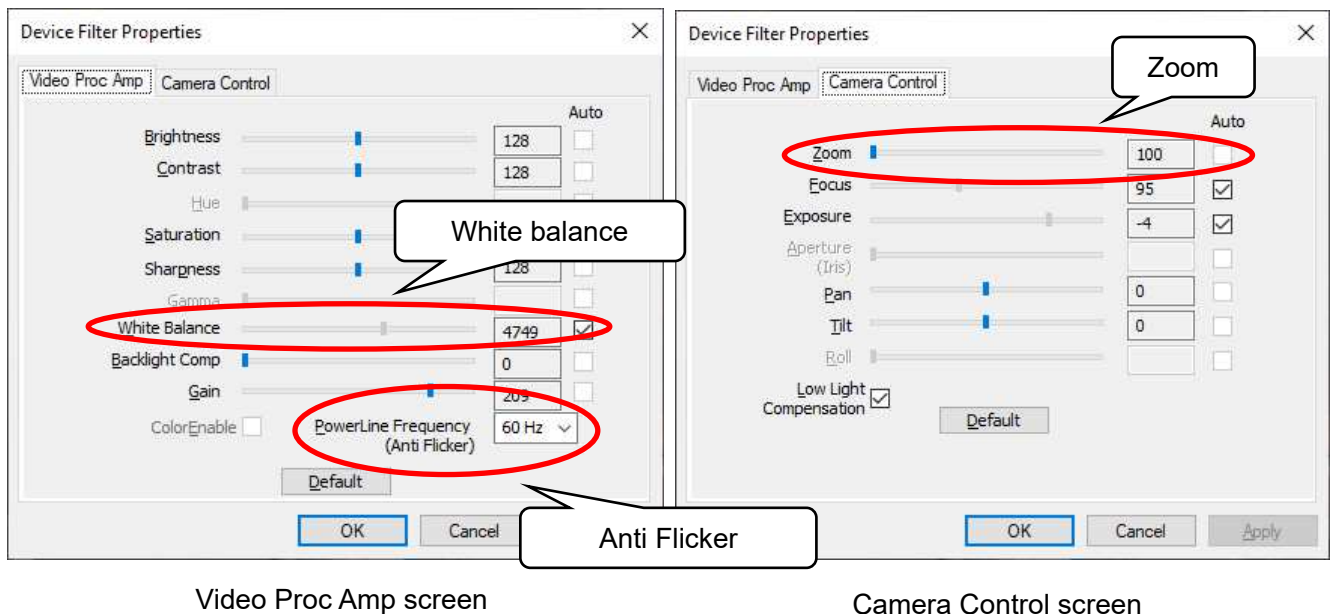
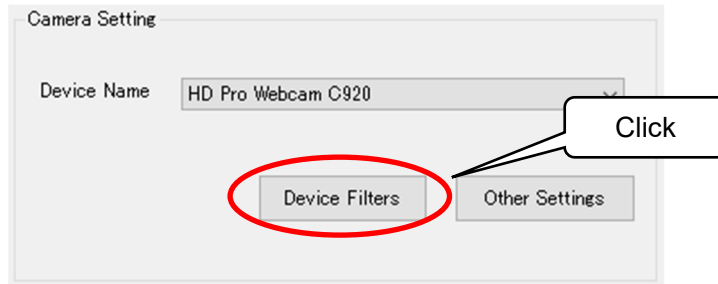
Camera names are displayed in the **Device Name** list. If multiple cameras are connected, select the camera to be used from the device name list.



Device Filters

To open the **Webcam Properties** dialog box, click the **Device Filters** button.

In the dialog box, the camera properties, such as zoom, white balance, and anti-flicker, can be set.



Video Proc Amp screen

Camera Control screen

➤ White balance

White balance is a function to perform color correction so that a white object appears white. If the light source, such as sunlight, light bulb, or fluorescent, makes the white object look bluish or reddish, adjust white balance.

➤ Anti Flicker

Anti Flicker is a function to reduce flicker in images.

➤ Zoom

Zooming may not be possible depending on the model, driver, or color space / compression settings. Refer to “Other Settings” on page 17 for the color space / compression.

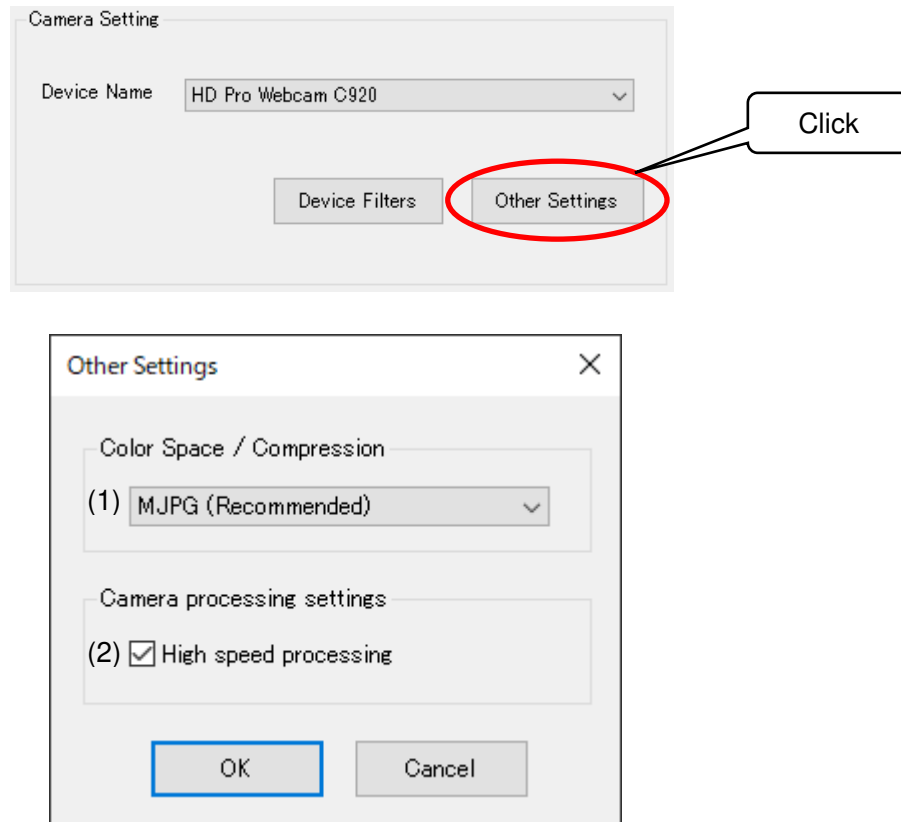


The Properties screen may vary depending on the model or driver version of the connected camera.

Other Settings

To open the **Other Settings** dialog box, click the **Other Settings** button.

In the dialog box, the color space / compression and camera processing can be set.



Other Settings dialog box

(1) Color Space / Compression

The color space / compression of the camera can be changed. If the camera is not working properly, changing it may improve the situation. The first item in the list is the recommended method.

(2) High speed processing

Speed up camera processing. If the camera is not working properly, unchecking the checkbox may improve the situation.

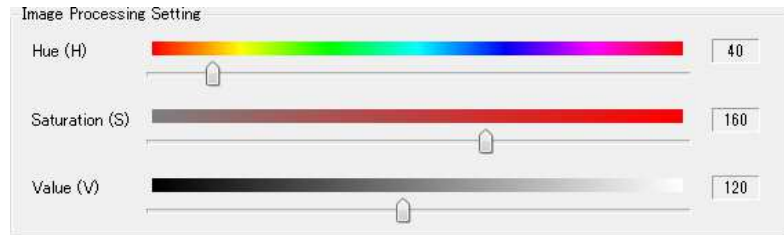
Image Recognition Setting

Adjust the three parameters, **Hue**, **Saturation**, and **Value**, in the **Image Processing Setting** so that the color of the magnetic sensor can be recognized. The binarized image on the right side can be changed by moving the slider of each parameter.

Hue: Sets the hue, such as red, blue, or yellow

Saturation: Sets the intensity and purity of a hue

Value: Sets the lightness of a color.

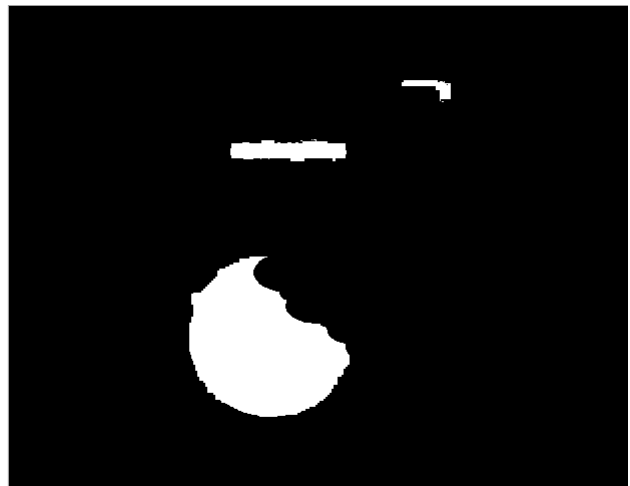


Adjust the parameters until the magnetic field measurement sensor is recognized as a circle and no other object is recognized. If there is any object whose color is similar to that of the sensor in the background, hide the object or change the color of the sensor.

Once the sensor is recognized as a circle, click **OK** to complete adjustment.



Desirable recognition state
The shape of the sensor is almost circular.
There are no recognized areas in the background.



Not desirable recognition state
The shape of the sensor is not circular.
There are recognized areas in the background.



Procedure for successful sensor recognition setting

1. Set the **Saturation** and **Value** to 0.
2. Adjust the **Hue** so that the sensor is most clearly recognized.
3. Increase the **Saturation** gradually to remove other recognized areas around the sensor.
Do not increase the **Saturation** excessively to prevent the recognized sensor area from being impaired.
4. Increase the **Value** in the same manner.
5. Finally, move the sensor outside of the camera view, and make sure that there is no object to be recognized.
If any other object is recognized, repeat steps 3 and 4.
When the mal-recognition is not solved even if steps 3 and 4 are repeated, start over from step 1.

9—3. New Measurement (Setting Measurement Conditions)

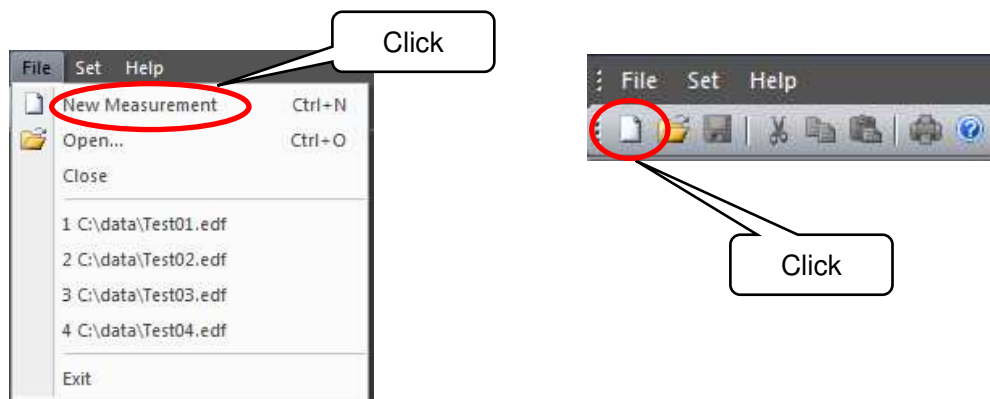
View Window

To open a **View** window, click **New Measurement** from the **File** menu or click the **New Measurement** button on the toolbar.

Whenever a **View** window is newly opened, it is numbered as follows: View1, View2, View3 ...

These names can be changed freely when the file is saved after measurement.

Before starting measurement, set an image division size, properties for the magnetic field measuring instrument, and other conditions in the **View** window.



View window (before measurement)



If a web camera or USB protect key is not connected, new measurement is not possible.

Condition Tab

In the **Condition** tab, set the image division size, properties for the magnetic field measuring instrument, and other conditions.

Condition items can be set only before measurement. After completion of measurement, all items are displayed but cannot be changed.

Conditions (before measurement)

Conditions (after measurement)

Image Division Size

Set the division size by which a camera image of 640×480 pixels is divided.

The image division size can be selected from 10 pixels (H: $64 \times$ V: 48 squares), 16 pixels (H: $40 \times$ V: 30 squares), 20 pixels (H: $32 \times$ V: 24 squares), 32 pixels (H: $20 \times$ V: 15 squares), 40 pixels (H: $16 \times$ V: 12 squares), 80 pixels (H: $8 \times$ V: 6 squares), or 160 pixels (H: $4 \times$ V: 3 squares).

Select 32 or 40 pixels normally.



Image division size: 10 pixels



Image division size: 160 pixels

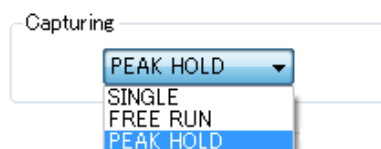
Capturing

How to store spectrum data at the same measurement point (the same square of the grid) can be selected from **SINGLE**, **FREE RUN**, or **PEAK HOLD**.

SINGLE: done only one time

FREE RUN: overwritten and the latest data is retained

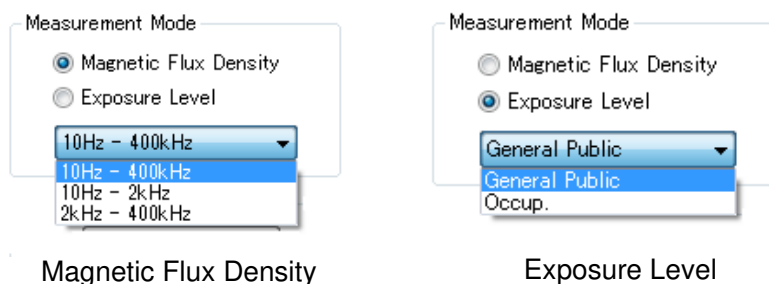
PEAK HOLD: overwritten and the measurement data with the maximum value is retained



Measurement Mode

Selectable between two measurement modes: Magnetic Flux Density (10 Hz to 400 kHz/10 Hz to 2 kHz/2 kHz to 400 kHz) and Exposure Level (general public/occupational)

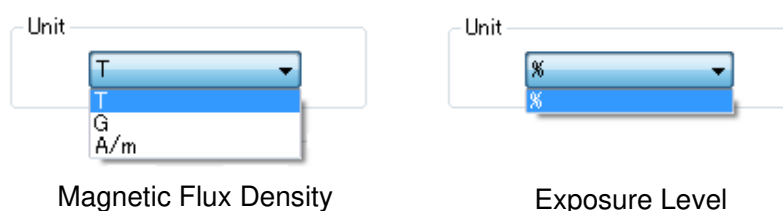
For details for each mode, refer to the table shown below:



Flux density	10 Hz to 400 kHz : broadband measurement
	10 Hz to 2 kHz : power line frequency measurement
	2 kHz to 400 kHz : measurement for a higher side than power line frequency
Exposure level	General public: Environments for individuals of all ages and of varying health status. Most human exposure, typically to an EMF from home appliances during daily activities.
	Occupational: Environments for adults who are generally exposed under known conditions and are trained to be aware of potential risk and to take appropriate precautions.

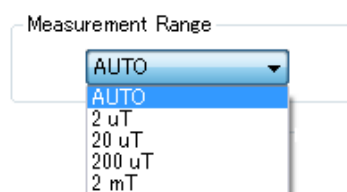
Unit

Measurement units are available among [T], [G] and [A/m] for flux density. Only percent [%] is available for exposure level. Unit cannot be changed after measurement.

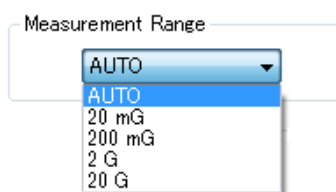


MEASUREMENT RANGE

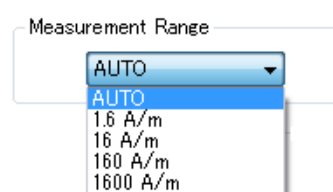
Select either AUTO or Manual range. Different ranges are provided according to the selected measurement unit. Select an appropriate range in Manual range setting. In AUTO range, the system automatically selects the most appropriate range. Normally, select the AUTO range.



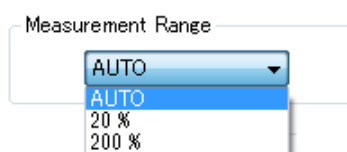
Measurement Range [T]



Measurement Range [G]



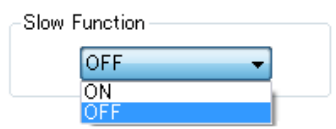
Measurement Range [A/m]



Measurement Range [%]

SLOW FUNCTION

When Slow Function is on, measurement is performed based on 1s sampling. Normally set the Slow Function to off, since on status requires a much longer duration for data in-take.



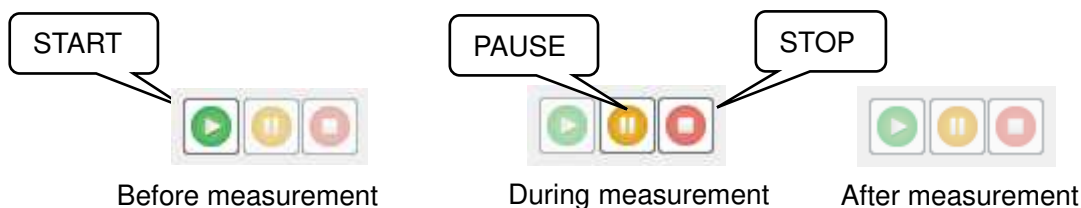
9—4. New Measurement (Performing Measurement)

Performing Measurement

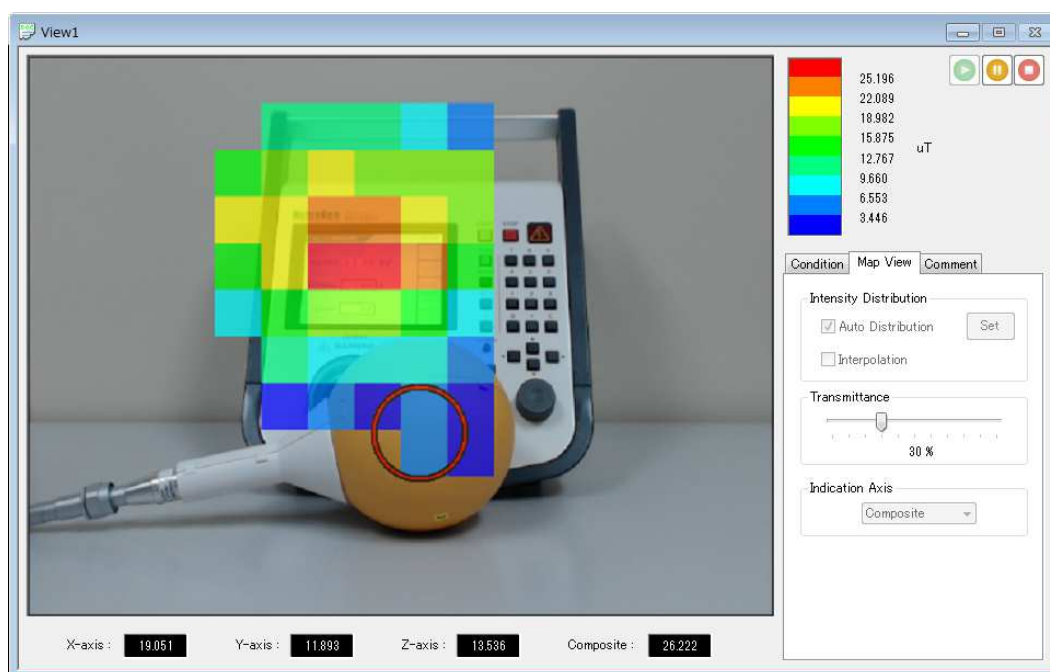
To start measurement, click the **START** button in the upper right of the **View** window. During measurement, the **PAUSE** and **STOP** buttons are enabled.

To suspend measurement, click the **PAUSE** button to suspend measurement, and to finish measurement, the **STOP** button.

After completion of measurement, all buttons are disabled. When performing measurement again, click **New Measurement** from the **File** menu or click the **New Measurement** button on the toolbar.



Once measurement is started, the **Map View** and **Comment** tabs appear next to the **Condition** tab. In the **Map View** tab, only **Transmittance** can be changed during measurement, and all items can be set after completion of measurement. Items in the **Comment** tab can be set even during measurement. Points (squares of the grid) that have been measured are color-coded according to the peak value and overlaid on the camera image during measurement. In addition, the measured values are displayed in the lower part of the **View** window, on a point-by-point basis.



Move the measurement sensor while keeping the same direction and maintaining a constant distance from the object to be measured.

Also, align X/Y/Z of the measurement sensor with the vertical and horizontal axes.

The EPS-02Hv2 software sends a command for data in-take to the Hioki magnetic field meter immediately after the sensor is recognized. After completion of data in-take, the software recognizes the sensor position again, and only when the sensor is found at the same point (position) where it was placed at the start of data in-take, the data is stored.

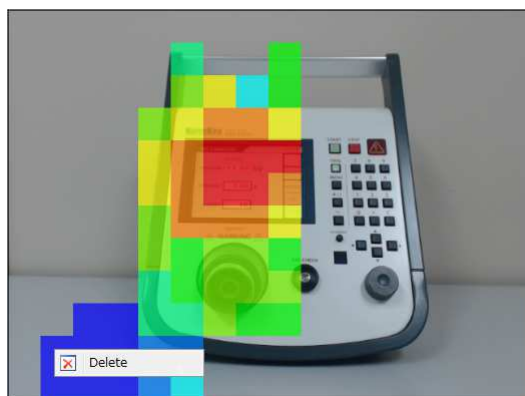
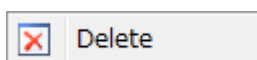
If the sensor is moved quickly, the point at the start of data in-take differs from that at the completion of data in-take, and as a result, measurement data is not stored. When data is not obtained smoothly, move the sensor more slowly or set to a larger image division size.

If the sensor is not recognized or other object is falsely recognized, reconfigure the image recognition setting. Click **Image Recognition Setting** from the **Set** menu to change the setting. Please note that it is possible during measurement.

Deleting Measurement Data

Stored measurement data can be deleted on a point-by-point basis.

When data to be deleted is right-clicked during measurement, the **Delete** menu will appear. Click this menu to delete the measurement data for the corresponding point.



Before deleting data



After deleting data

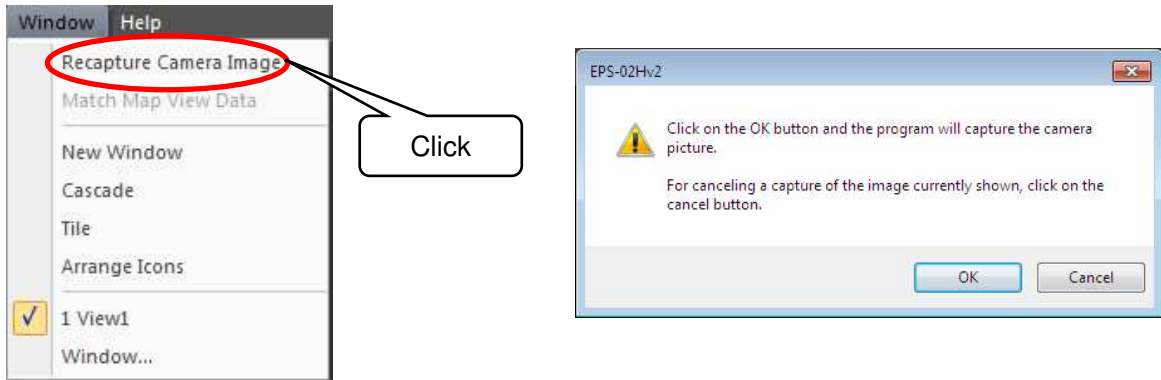


Data can be deleted only during measurement and cannot be deleted after completion of measurement.

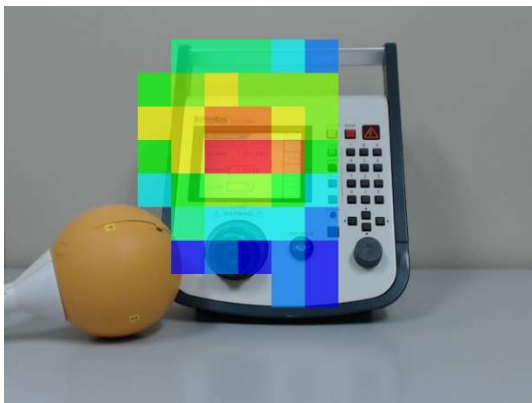
Recapturing Camera Image

If the **STOP** button is clicked after completion of measurement, the camera image switches from video to still image. If the still camera image includes an unnecessary object, such as the sensor, the camera image can be recaptured.

Click **Recapture Camera Image** from the **Window** menu. The still image will switch to video and the following message will be displayed.



Clicking the **OK** button switches the camera image from video to still image to capture a new camera image. To return the original camera image, click the **Cancel** button.



Before recapturing




After recapturing

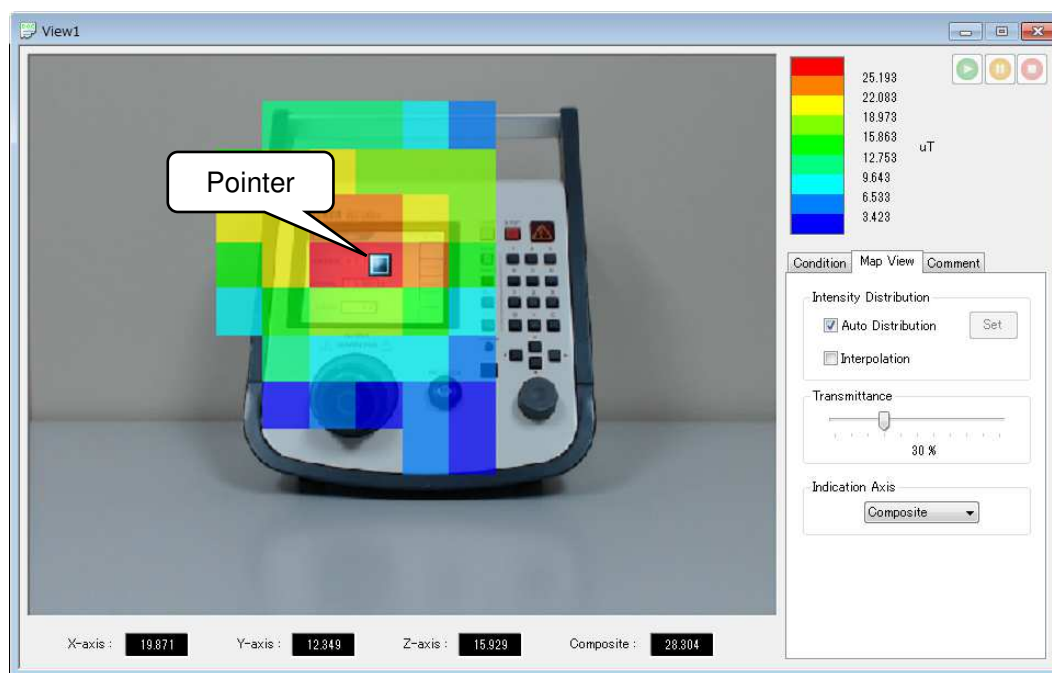


Recapturing is possible as many times as needed before the file is saved.
Note that recapturing is not possible once the file is saved.

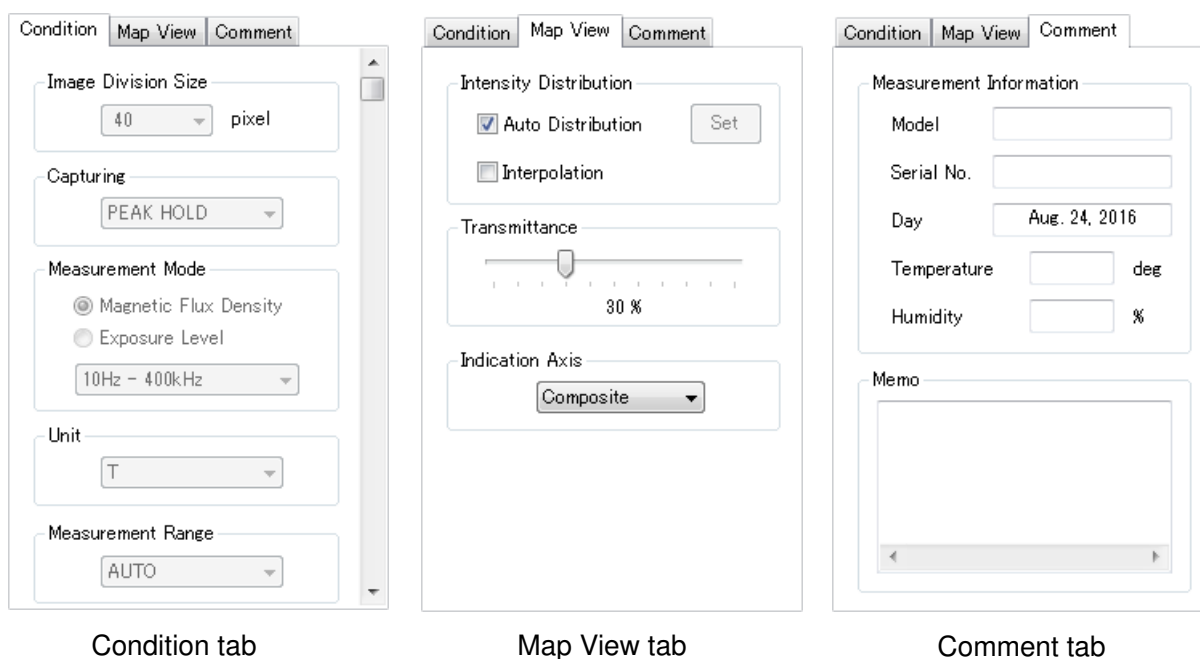
9—5. Measurement Data Analysis

Measurement Data

After completion of measurement, a square pointer  will be displayed on the camera image. Dragging this pointer to the desired point can display the measurement data at the relevant point. The pointer automatically moves to the highest level point immediately after measurement is complete or the file is opened.

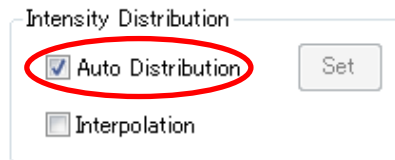


In the **Condition** tab, the conditions configured before measurement can be checked. The representation of measurement data can be changed in the **Map View** tab. In the **Comment** tab, measurement information and other comments can be entered.

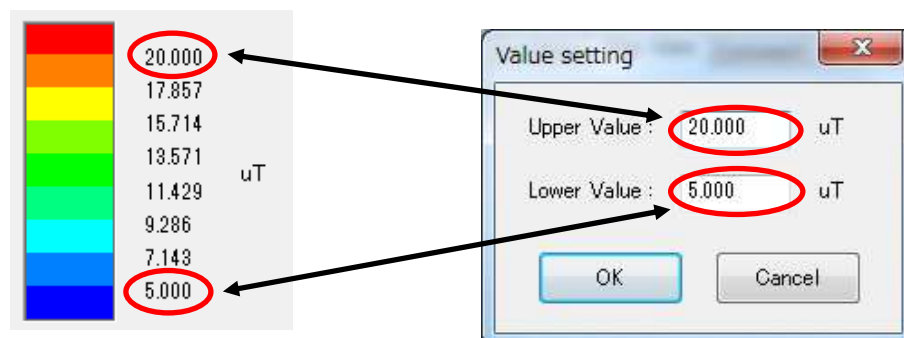


Auto Distribution

When the **Auto Distribution** checkbox is checked, the color map is made according to automatic distribution between the highest and lowest intensity. Immediately after measurement is complete or the file is opened, the **Auto Distribution** checkbox is always checked.

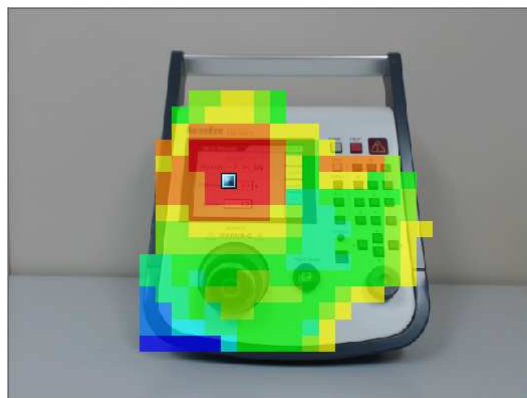
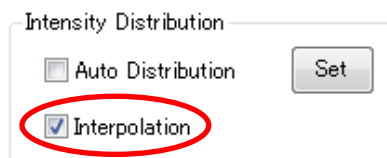


To change the **Upper/Lower Value** to desired values, uncheck the **Auto Distribution** checkbox and click the **Set** button. The set upper/lower value settings will be reflected applied to the map data color bar.

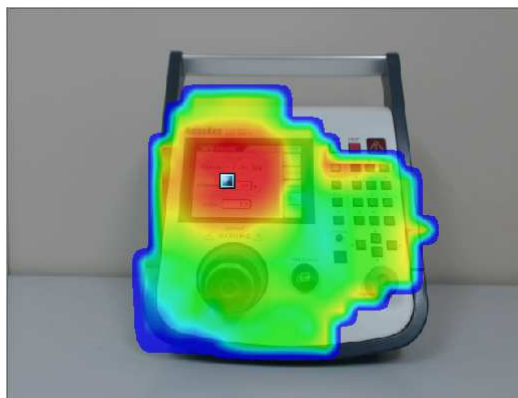


Interpolation

When the **Interpolation** checkbox is checked, the map data image is smoothly displayed by interpolation of the boundaries between divisions.



Without interpolation

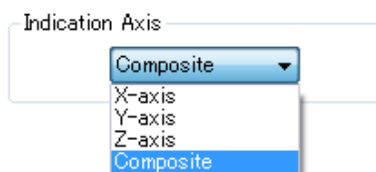


With interpolation

AXIS FOR MEASUREMENT

Select the desired axis for measurement.

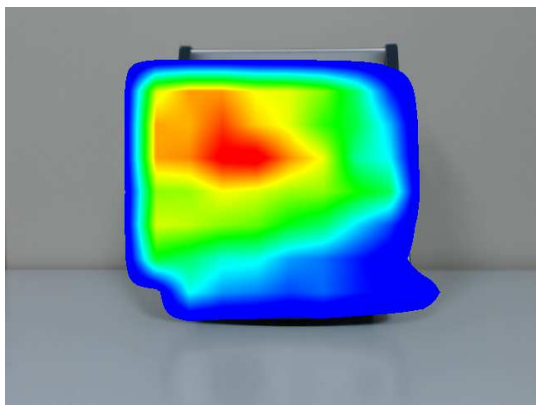
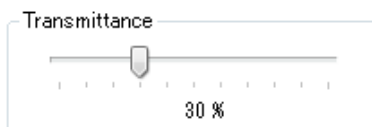
Intensity distribution map is shown according to the selected axis. .



Transmittance

The transparency of the color map can be changed.

When **Transmittance** is set to 100%, the map is invisible and only the camera image will be displayed. When **Transmittance** is set to 0%, the camera image is invisible at the points where data exist.



Transmittance: 0%



Transmittance: 100%

Measurement Information

The measurement date is automatically input in the **Day** field. For other items, enter information freely. If no information is required, leave the field blank.

Measurement Information	
Model	<input type="text"/>
Serial No.	<input type="text"/>
Day	<input type="text" value="Aug. 24, 2016"/>
Temperature	<input type="text"/> deg
Humidity	<input type="text"/> %

Memo

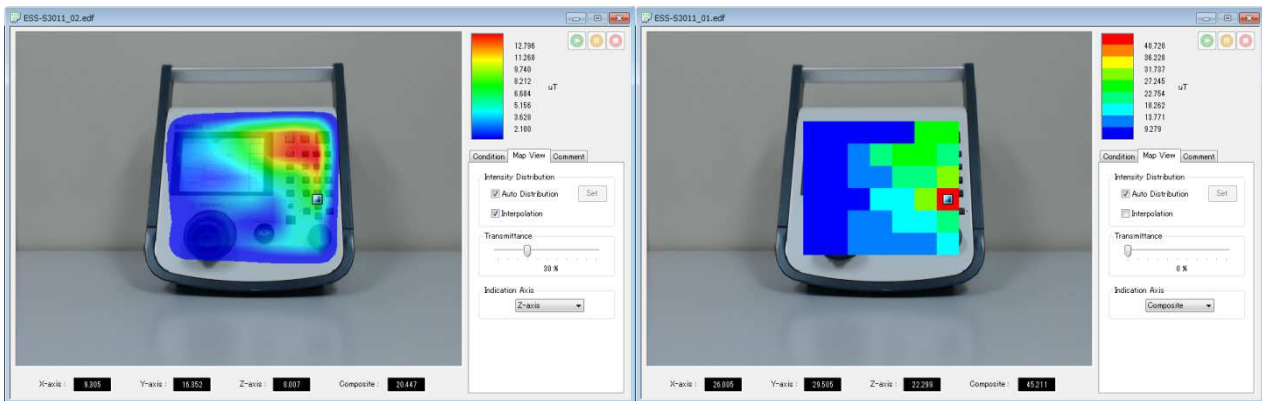
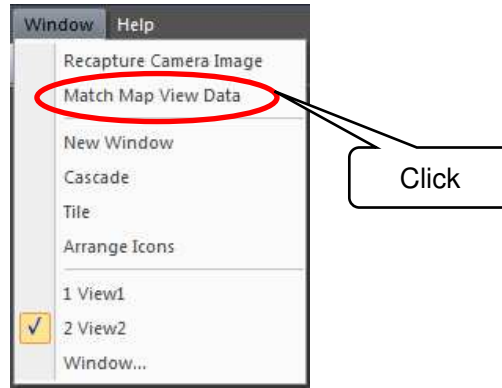
Any information about measurement can be entered freely. In the **Memo** field, there is no limit of the number of characters.

Memo
<div><div></div></div>

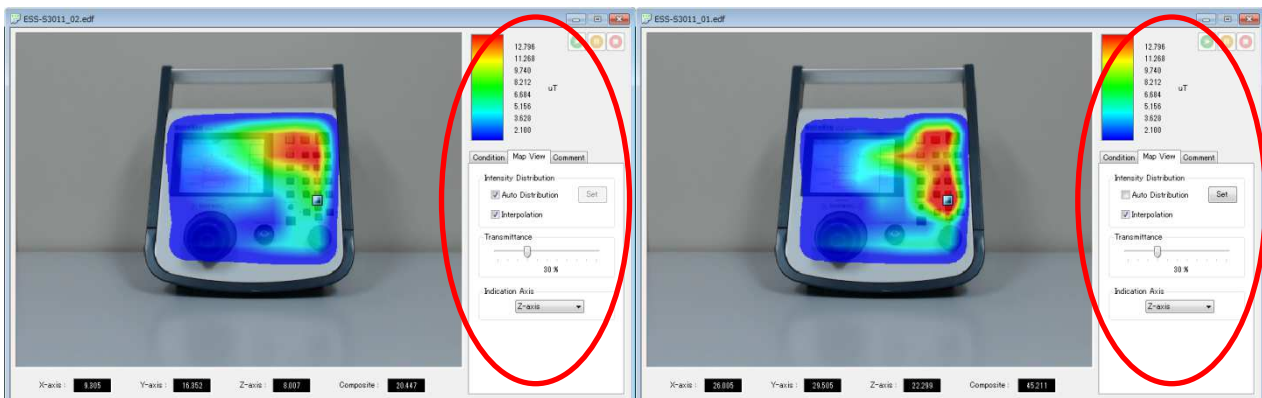
Matching Map View Data

The same setting can be applied to all maps on the **View** windows that are currently open.

When **Match Map View Data** in the **Window** menu is clicked, the map view settings of the last active **View** window will be applied to all of open **View** windows. The settings to be applied include **Upper/Lower Value**, **Interpolation**, **Transmittance**, and **Indication Axis**. Use this function to compare measurement data before and after corrective actions.



Before matching map view

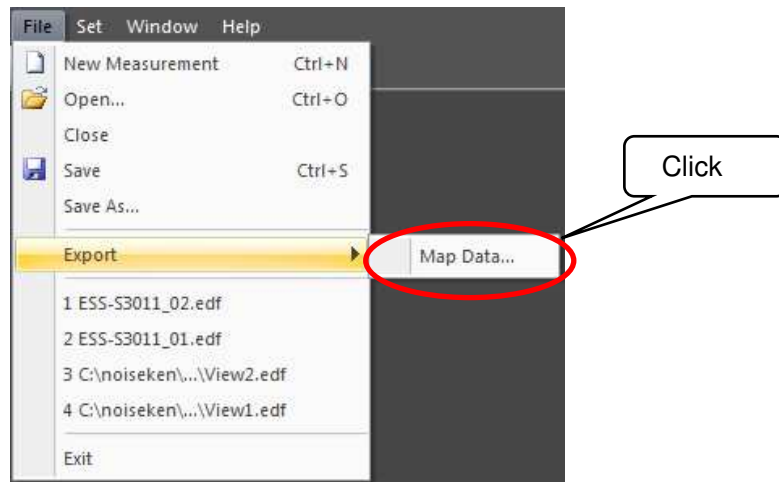


After matching map view data

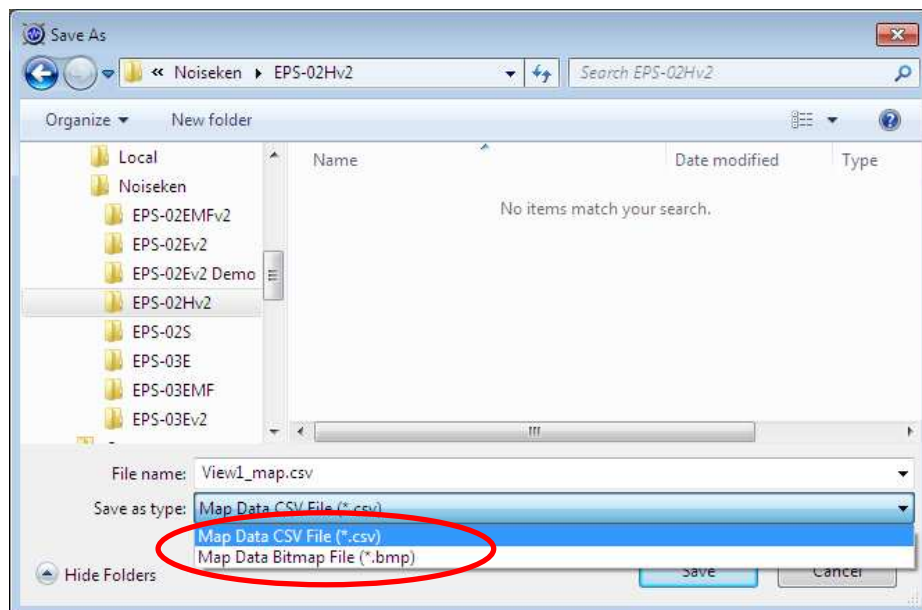
Exporting Measurement Data

Measurement data can be exported to an external file.

Select **Export** from the **File** menu, and select **Map Data**. The **Save As** dialog box will appear.



In **Save as type** on the **Save As** dialog box, either **CSV File** or **Bitmap File** can be specified.



➤ Map Data

CSV file: The peak values for each measurement point are exported.

BMP file: The map data image pasted on the camera image is exported.

10. Setup

10—1. Important Notes on Setup

This section describes setup for the software and peripheral devices. To perform setup, you must be logged in with administrator privileges.

Also, it is recommended that setup be performed by some engineer with a certain degree of proficiency in computers, including having an understanding of Ethernet addresses and other terminology.

Be aware that some details may vary for different OS versions, PC display settings, and other environments.

10—2. Installation of Magnetic Field Measuring Instrument Driver

Installation of Magnetic Field Measuring Instrument Driver

Connect the magnetic field measuring instrument and PC using a USB cable, and turn on the power to the magnetic field measuring instrument.

Load the CD included with the magnetic field measuring instrument into the PC, and open the "Japanese" folder. Run driverSetup.msi to start the installation process. Then, perform installation by following the instructions from the installer.

10—3. Installing the Software

1) Installing the EPS-02Hv2 Software

Load the supplied setup media, and open the "EPS-02Hv2" folder.

Run EPS-02Hv2_En.msi to start the installation process. Then, perform installation by following the instructions from the installer.

* If a previous version of EPS-02Hv2 software is already installed, uninstall it before performing the installation.

2) Use of the supplied USB protect key

The supplied protect key is not required for checking the measurement data. For carrying out a measurement by controlling the peripherals, the supplied protect key is required.

It is required to install the driver of the USB protect key before use. The driver file is in "JSP USB" folder in the supplied setup media. After you insert the USB protect key into a USB port of the PC where EPS-02Hv2 software is installed, open Device Manager and select "unknown devices" or "HardKey" of "other devices" and install the driver.

The program can run a measurement only when the USB protect key is inserted into the PC. The USB protect key can be plugged into any USB port.

11. Specifications

11-1. Specifications

1) Sensor Measurement Unit (FT3470-91 by Hioki)

Item	Specifications
Measurement frequency	10 Hz to 400 kHz
Sensor	Loop coil
Measurement axes	X, Y, Z
Rated magnetic flux density	2 mT
Measurement mode	Magnetic flux density: 10 Hz to 400 kHz, 10 Hz to 2 kHz, 2 kHz to 400 kHz Exposure levels: General Public / Occupational
Measurement range	Magnetic flux density: 2 μ T / 20 μ T / 200 μ T / 2 mT *Rated magnetic flux density: 2 mT Exposure level: 20% / 200%
Measurement units	Magnetic flux density: T / Exposure level %
Display update rate	Approx. 250 ms
Interface	USB 1.1

2) Control Software, PC, Camera

Item	Specifications
Image size	640 × 480 pixels
Image division size	10, 16, 20, 32, 40, 80, or 160 pixels
Capturing type	Single / Free Run / Peak Hold
Measurement mode	Magnetic flux density / Exposure level
Unit	T / G / A/m / %
Indication axis	X-axis / Y-axis / Z-axis / Composite
Camera image display	Still image / Video
Auxiliary functions	Save / Load / Export / Comment Input
Compatible OS	Windows 10 / 11

11—2. System Requirements

OS	:	Microsoft Windows 10 (Japanese / English version) Microsoft Windows 11 (Japanese / English version)
CPU	:	Dual Core 2.4 GHz or faster recommended
Memory	:	8 GB or more recommended
Storage	:	5 GB or more
Display	:	1366 × 768 dots or more 1920 × 1080 dots recommended

Other requirements:

- Operation cannot be guaranteed when using online storage or software that uses cloud services.
- 3 empty USB ports

* The upgrade version and the secondary license version require a DVD drive for installation. The magnetic field measuring instrument driver require a DVD drive for installation.

* If software with high CPU utilization is running, the operation may become unstable.

* Refer to the manufacturer's website for the latest operation warranty of each device such as camera.

12. Warranty

Repair Service Warranty

This repair service warranty applies to the repair services provided for maintaining the designated functions and performance of NoiseKen products.

1. **Warranty Coverage**
This warranty covers NoiseKen products and their accessories.
2. **Technology and Work Fees**
If a breakdown occurs in a NoiseKen product, NoiseKen will provide repair services free of charge based on the warranty terms and conditions as long as the warranty period is still valid. If the warrant period has expired, the customer will bear the actual costs associated with technology and work for the repair.
3. **Ownership of Replacement Parts**
The ownership of all defective parts replaced in the course of performing the repair belong to NoiseKen. If the repair service fees are borne by the customer, NoiseKen will receive the replaced defective parts unless the customer specifically requests otherwise.
4. **Limitation of Liability**
If the customer incurs any damages due to the repair service or breakdown of the NoiseKen product purchased by the customer, the liability of compensation for damages by NoiseKen to the customer is limited to the amount paid by the customer for the applicable NoiseKen product or the applicable non-NoiseKen product (product by other manufacturer) only if these damages are due to the willful intent or negligence by NoiseKen. However, for damages incurred by the customer due to the above-described repair service provided by NoiseKen or breakdown of the applicable NoiseKen product, under no circumstances will NoiseKen be liable for any loss of potential income occurring directly or indirectly or any direct or indirect damages due to compensation by the customer to a third party.
5. **Wrong Parts, Missing Parts, or Breakage**
If the product cannot be used when a wrong part, missing part, or breakage occurs in a NoiseKen product purchased by the customer, NoiseKen will not be liable for any damages whatsoever for losses incurred by the customer due to loss of sales or other derived losses, special losses, or indirect or punitive damages, or any damages due to compensation by the customer to a third party.
6. **Decline to Repair**
The company may not accept a repair order in the following cases.
 - More than 5 years have passed since manufacture of a product discontinued.
 - More than 8 years have passed after delivery.
 - Required component for servicing already discontinued and no alternative is available.
 - Product changed, repaired or remodeled without obtaining a prior permission from the Company.
 - Product severely damaged to the extent it has lost its original form.

Product Warranty

For breakdowns that occur within the product warranty period, NoiseKen will repair or replace the product free of charge. The extent and content of the repair work for the equipment will be determined by NoiseKen. This product warranty is valid in Japan only.

1. Device Coverage

This warranty covers NoiseKen products and their accessories.

2. Product Warranty Period

- This warranty is for one year starting from the delivery date of the product.
If the same breakdown at the same location is repaired, the warranty period is six months from the date that the repair was completed.
- For non-NoiseKen products, the product warranty of the supplier (manufacturer) applies.

3. Exceptions

Regardless of the above stipulations, the warranty does not cover breakdowns due to one of the following.

- ✧ Replacement of consumable parts, including the replacement (for used products) of mercury relays, high-voltage relays, coaxial cords, coaxial connectors, automatic switchers, contactors, and other consumables
- ✧ Damage or breakdowns that occurred due to failure to follow proper operating procedures.
- ✧ Product failures resulting from damage or breakdowns due to modifications not involving NoiseKen
- ✧ Product failures resulting from damage or breakdowns that occurred when someone unauthorized by NoiseKen attempted to perform repairs
- ✧ Product failures resulting from damage or breakdowns caused directly or indirectly by natural disasters, war, riots, civil strife, or other force majeure
- ✧ Product failures resulting from damage or breakdowns caused by transportation, vibrations, dropping, impact, or other misuse after delivery
- ✧ Product failures resulting from damage or breakdowns caused by the usage environment
- ✧ When the customer takes the product outside Japan

Software Warranty

A warranty is provided for the software produced by NoiseKen and its update files under the following terms and conditions. This warranty is valid in Japan only.

1. **Scope of Warranty**
This warranty applies to the software produced by NoiseKen and its update files.
2. **Free Support**
If a fault occurs in the system as a result of this software by NoiseKen, NoiseKen will provide support free of charge through software fixes and updates or other means only within the warranty period. However, please be aware that we may discuss when to implement corrective measures for minor issues.
3. **Total Maximum Liability**
If the customer incurs losses or damages due to a fault of this NoiseKen software purchased by the customer, unless the losses or damages are the result of willful or negligent actions, the maximum amount of NoiseKen's liability for compensation for these losses or damages to the customer is equal to the amount that the customer paid for this NoiseKen software. But, NoiseKen assumes no liability for any losses or damages incurred by the customer due to faults arising from this software by NoiseKen, including but not limited to, direct or indirect potential lost earnings and direct or indirect damages due to third party claims for compensation against the customer.
4. **Warranty Period**
The warranty period is the support period of the OS by the provider (including extended support periods) for the OS where operation is guaranteed by NoiseKen. When the support period of this OS ends, support for this software in this OS will also come to an end.
The after service of the software ends support when the production and sales of the specific control equipment are discontinued.
5. **Exclusions**
These terms and conditions do not constitute a full and complete guarantee of operation or compatibility with the customer's system. Also, the following situations are outside the scope of support.
[Combining with products]
Although every effort will be made to provide comprehensive software support, in combination with products other than those recommended by NoiseKen, some faults may be unable to be resolved due to lack of compatibility or conflicts with PCs, peripherals, and other hardware, and OS and other software. In addition, even in combination with products recommended by NoiseKen, faults may be unable to be resolved due to serious defects occurring in the recommended products.
[Added functions and OS upgrades]
Please note that support for added functions and OS upgrades are outside the scope of free support.

13.NOISE LABORATORY SUPPORT NETWORK

- If a symptom which seems a trouble is found, check the symptom, software version, model name of connected device, and serial number, and inform this information to Noise Laboratory or your nearest sales agent of Noise Laboratory.

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