

Nikon

DS Camera Control Unit DS-L2

DS Camera Head DS-Fi1 / DS-5M/DS-2Mv / DS-2MBW

DS Cooled Camera Head DS-Qi1Mc / DS-5Mc / DS-2MBWc

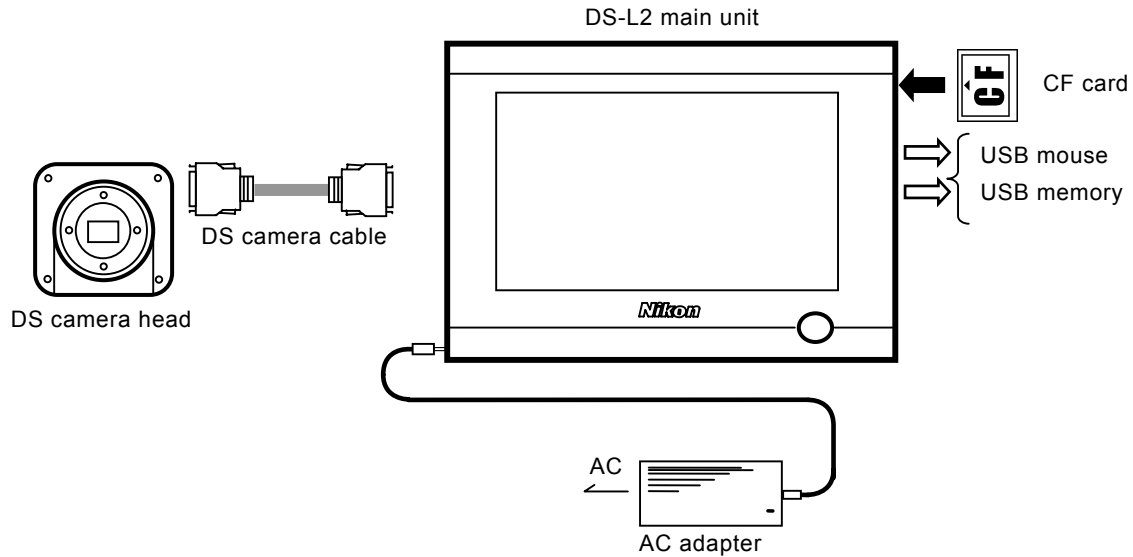
< Quick Reference >

(Ver. 3.2)

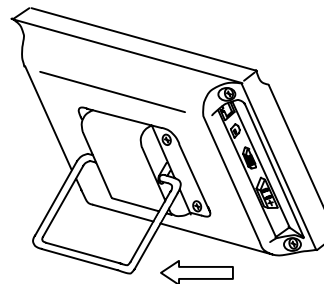
Setup and Startup

1. Setting up External Equipment

Connect the DS camera head, AC adapter, and USB mouse to the DS-L2, and insert a USB memory into the USB connector, or a CF card into the CF card connector.

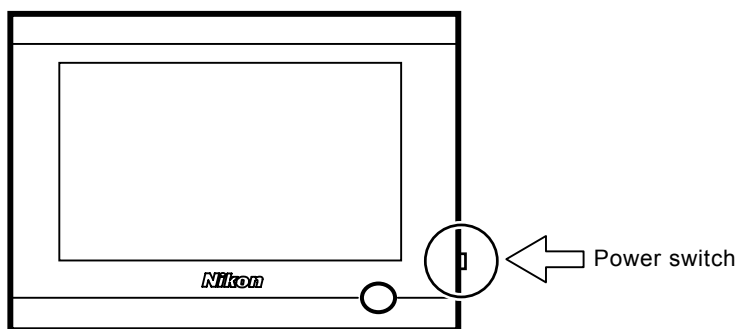


Install the DS-L2 by extracting the stand arm.



2. Starting

Turn on power by pressing the power switch located on the right side.



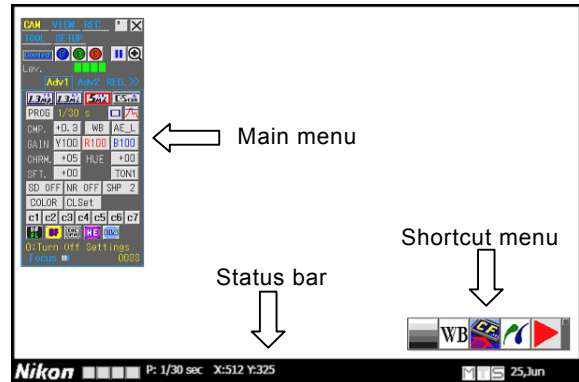
3. Displaying Menus

Right-clicking the mouse displays a menu.
What menu appears depends on where you click the mouse.

Upper third of screen : Main menu

Center of screen : Main menu or shortcut menu

Lower third of screen : Shortcut menu



The status bar appears when a menu appears for the first time after the DS-L2 is started.

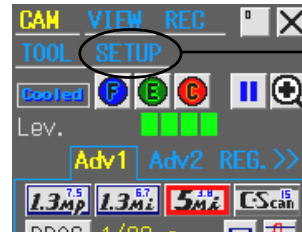
* In this document, the term "DS camera head" refers collectively to the DS-Fi1, DS-5M, DS-2Mv, DS-2MBW, DS-5Mc, DS-2MBWc, and DS-Qi1Mc.

Initial Settings

When you use the DS-L2 for the first time, set date/time, etc.

1. Displaying the SETUP Menu

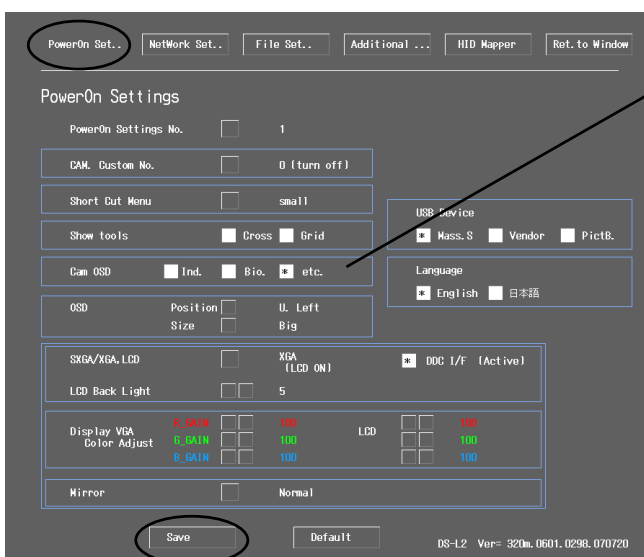
Open the **SETUP** menu by selecting the **[SETUP]** tab from the main menu.



Select the **[SETUP]** tag.

2. Selecting a Scene Mode Type

Select **PowerOn Set...** and specify the type of scene modes to be displayed in the main menu.



Selects a type of scene menu.

Industrial type: The CAM menu includes wafer/IC-chip, metal ceramic, circuit board, and FPD scene modes.

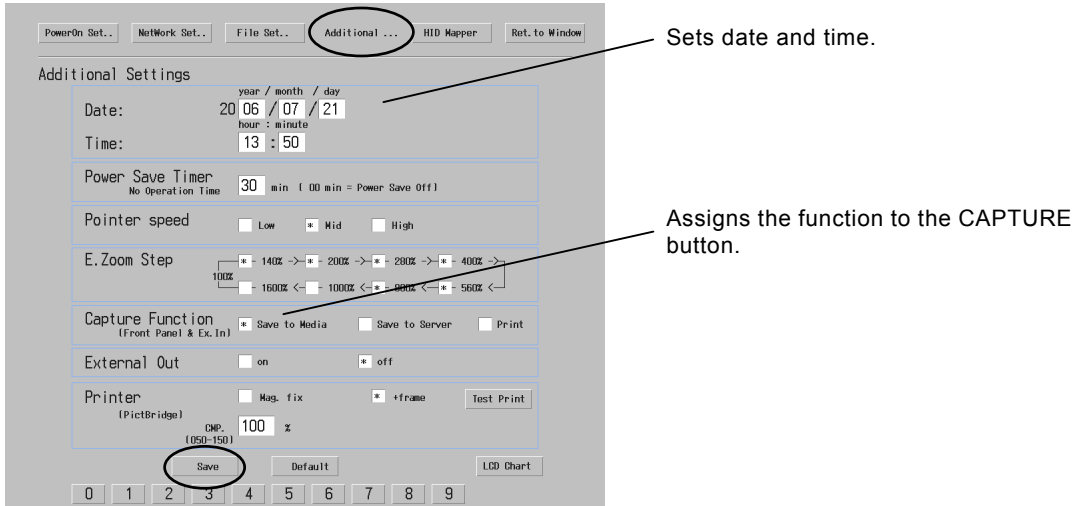
Biological type: The CAM menu includes dark field/fluorescent, bright field, differential interference/phase contrast, HE stained specimen, and enzyme labeled antibody method scene modes.

Other type: The CAM menu includes asbestos specimens (2 types) scene modes.

When finished, click **Save** to save the settings.

3. Setting Date and Save Destination

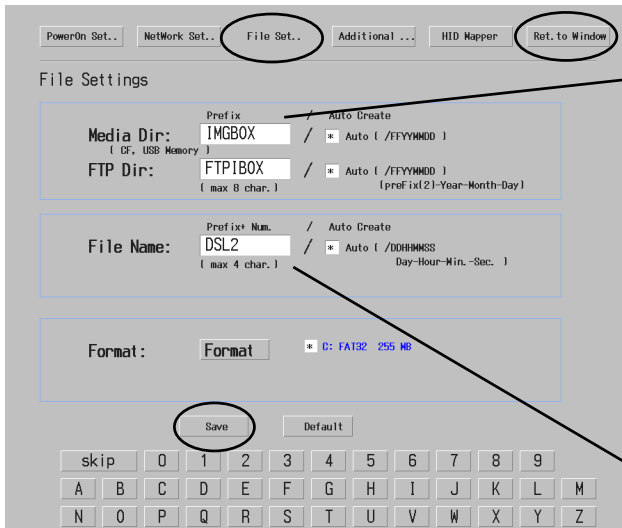
Select **Additional...** and set date and time. Then assign the [Save to Media] function to the **CAPTURE** button.



When finished, click **Save** to save the settings.

4. Specifying the Save Folder and File names

Select **File Set...** and name the folder and file where you want to save photographed images.



Names a save folder.

To specify a folder name:

In the [Media Dir] field, specify a folder name of up to eight characters. If the [Auto] check box is checked, a folder will be automatically created based on the save date. (The folder name consists of the two first characters specified in the [Media Dir] field, followed by six characters denoting the date.)

Names a save file.

To specify a file name:

Specify the first string of up to four characters. This string will be followed by an automatically assigned serial number, which together form the name of the save file.

If the [Auto] check box is checked, the name of the file name will consist of eight characters representing the day, hours, minutes, and seconds.

When finished, click **Save** to save the settings.

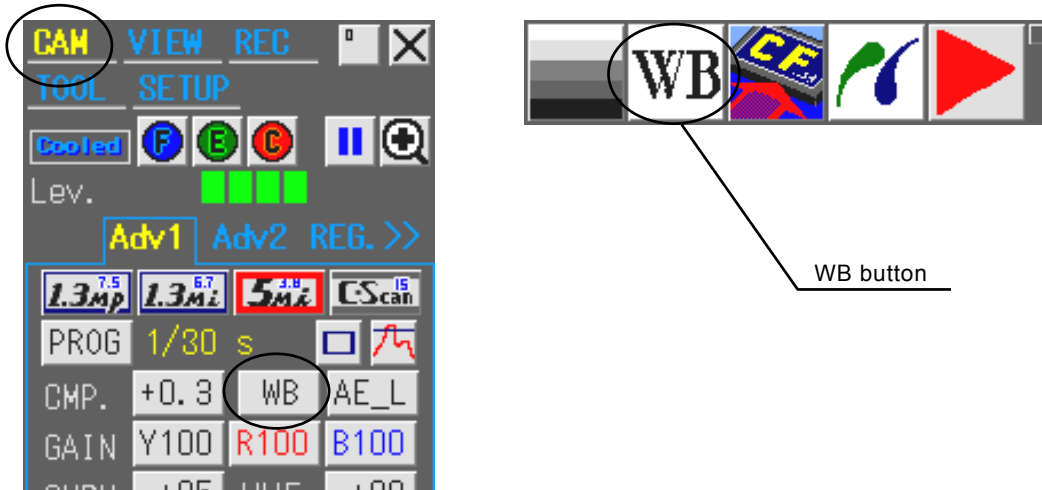
Finally, click **Ret. to Window** in the top right of the window to return to the original image view.

Photographing

1. Preparations Before Photographing

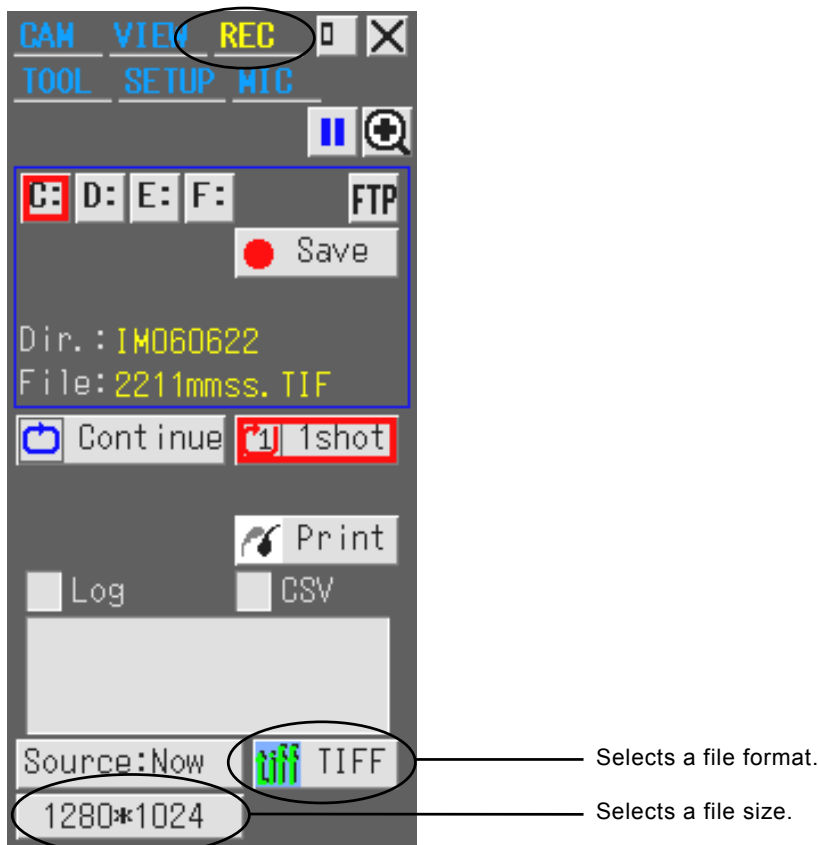
1.1 Adjusting White Balance

To adjust white balance, observe an evenly white subject, such as the transparent part of a preparation. With this subject, select [CAM] from the main menu and click **WB** on the CMP. row, or click the WB button in the shortcut menu.



1.2 Setting File Format and Size

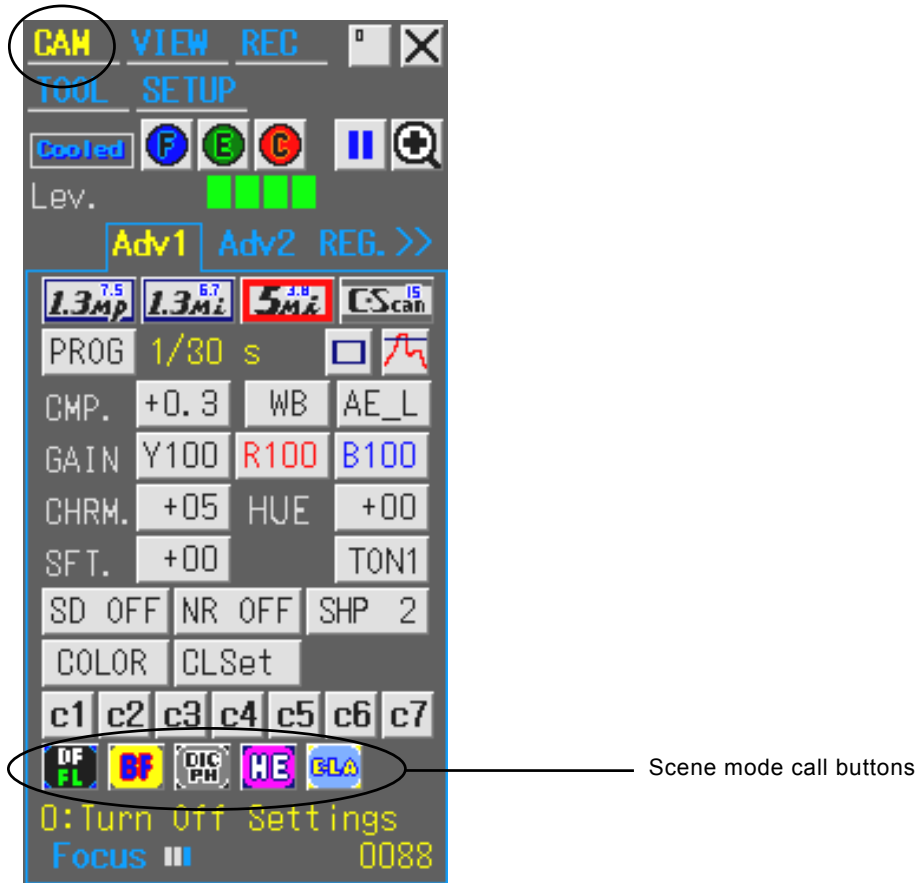
Use [REC] in the main menu to select the format and size of the file you want for photographing images.



2. Photographing

2.1 Selecting a Scene Mode

The [CAM] menu in the main menu provides scene mode call buttons, allowing you to select a scene mode appropriate for the specimen to be photographed.



For details of scene modes, see the following.

● Industrial specimen scene modes



[Wafer IC-chip]

Suitable for wafer or IC chip.



[Metal Ceramic]

Bright parts of a metal specimen are expressed as white, and dark parts are expressed as transparent.

This mode can also be used for ceramic and plastic specimens.



[Circuit Board]

Suitable for photographing of mounting defects on a part-mounted circuit board.

Clipping of highlights in component leads and solder joints are suppressed, allowing defects to be easily detected.

This mode is also suitable for high-contrast subjects such as gears and other metal components.



[FPD] :

This mode is suitable for photographing the color filters for flat display devices, such as liquid crystal display and plasma display.

* On FPD scene mode, better color reproduction could be obtained by setting color temperature of the display to 5000K, which is close to the lamp temperature of microscope, when you display images on an external screen. If setting the color temperature on the display is difficult, a better result could also be obtained by setting B of the color balance adjustment to 80. However, there would be a difference in histogram curve even after white balance adjustment.

● **Biological specimen scene modes**



[DF / FL] : Dark field photography/fluorescent photography

Use this mode to photograph a dark subject.

The camera operability for position or focus adjustment is improved by increasing the camera's sensitivity. High-resolution images can be obtained from the photographed data.



[BF] : Bright field photography

Intended for general stained specimens.

In the case of EVG staining, a good result may be obtained by setting R of the color balance adjustment to 94.



[DIC / PH]

Contrast is enhanced for differential interference and phase contrast photography purposes.



[HE]

Provided for photographing of HE stained specimens.

This mode is optimized for color reproduction specific to HE.



[ELA]

Provided for photographing of ELA (Enzyme labeled antibody method).

This mode is optimized for color reproduction specific to DAB.

● **Other scene modes**



[Asbestos / Red]

Provided for photographing of asbestos specimens.

This mode is optimized for the colors specific to chrysotile (immersed in a liquid with refractive index of 1.550), crocidolite (immersed in a liquid with refractive index of 1.680), and amosite (immersed in a liquid with refractive index of 1.680).



[Asbestos / Blue]

Provided for photographing of asbestos specimens.




This mode is optimized for the colors specific to crocidolite (immersed in a liquid with refractive index of 1.700).

* Using DS-5Mc may cause poorer reproducibility than using DS-Fi1 or DS-2Mv for some asbestos specimen. We recommend using DS-Fi1 or DS-2Mv for asbestos observation.

2.2 Adjusting Brightness

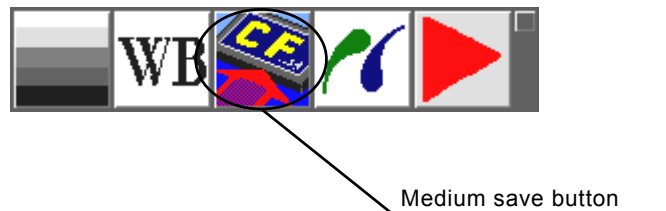
To adjust brightness, select [CAM] from the main menu and click **+0.3** on the **CMP.** row, or click the exposure compensation button in the shortcut menu.




When you click the exposure compensation button, its design changes to .
Click the  or  button to adjust the brightness.

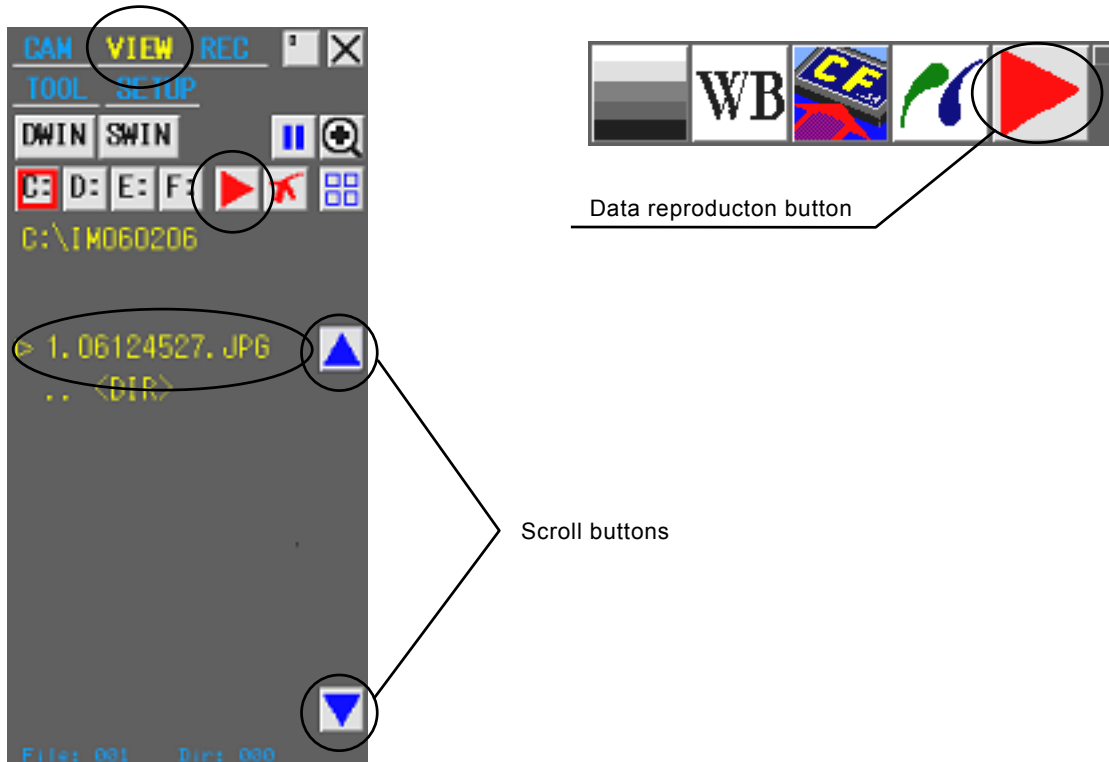
2.3 Photographing

To photograph and save an image, select [CAM] from the main menu and click  , or click the Medium save button.



3. Reviewing a Saved Image

To review (display) a photographed image, click [VIEW] on the main menu and select the desired file name. Alternatively, move the desired file name to the top by clicking scroll buttons and click , or click the data reproduction button in the shortcut menu.



Data reproduction button

Scroll buttons

Measurement

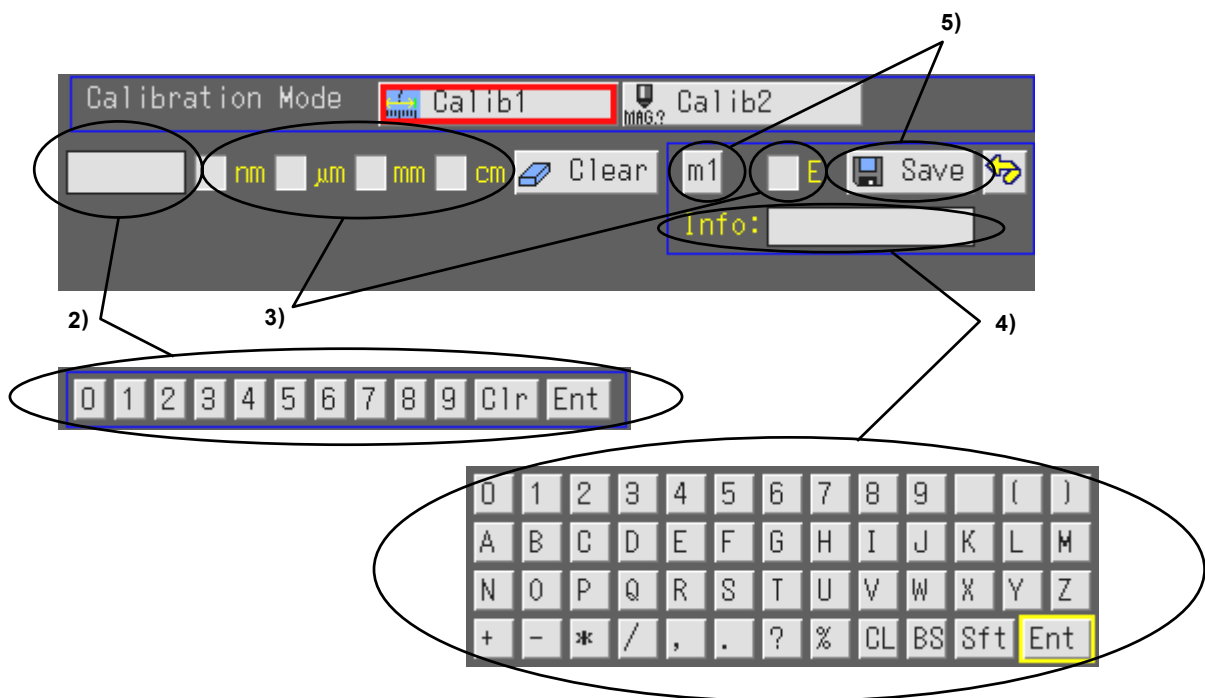
1. Performing Calibration and Saving Values

In the main menu, select [TOOL] - [REG>>] - [OTHER]. Click , and then select the desired calibration mode: or .

1.1 Manual Mode

Calibration in this mode is performed based on the value converted from the known length of a scale (for example, an objective micrometer).

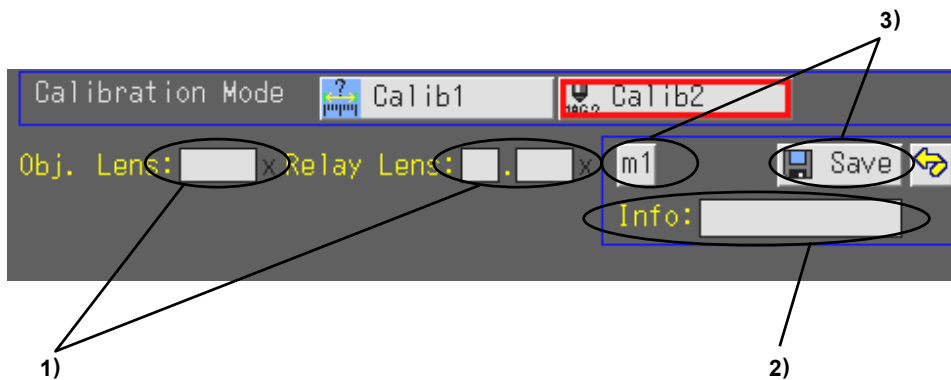
- 1) Specify, by clicking, the start point and end point of the displayed micrometer.
- 2) Click in the numeric display field, and using the soft keyboard that appears, enter the actual length between the points specified in step 1), and then click to fix the entry.
- 3) Select the desired unit of measurement. Remove any check mark that may be shown in the field.
- 4) Click in the [Info] field, and using the soft keyboard that appears, enter a comment (*), and then click to fix the entry.
- 5) Select the desired save destination number. Finally, click .



1.2 Optical Mode

Calibration in this mode is performed based on the value converted from the magnifications of the objective and relay lenses.

- 1) For each of the objective lens and relay lens, click in the magnification field. When the soft keyboard appears, enter the magnification, and then click **Ent** to fix the entry.
- 2) Click in the [Info] field, and using the soft keyboard that appears, enter a comment (*), and then click **Ent** to fix the entry.
- 3) Select the desired save destination number. Finally, click **Save** .

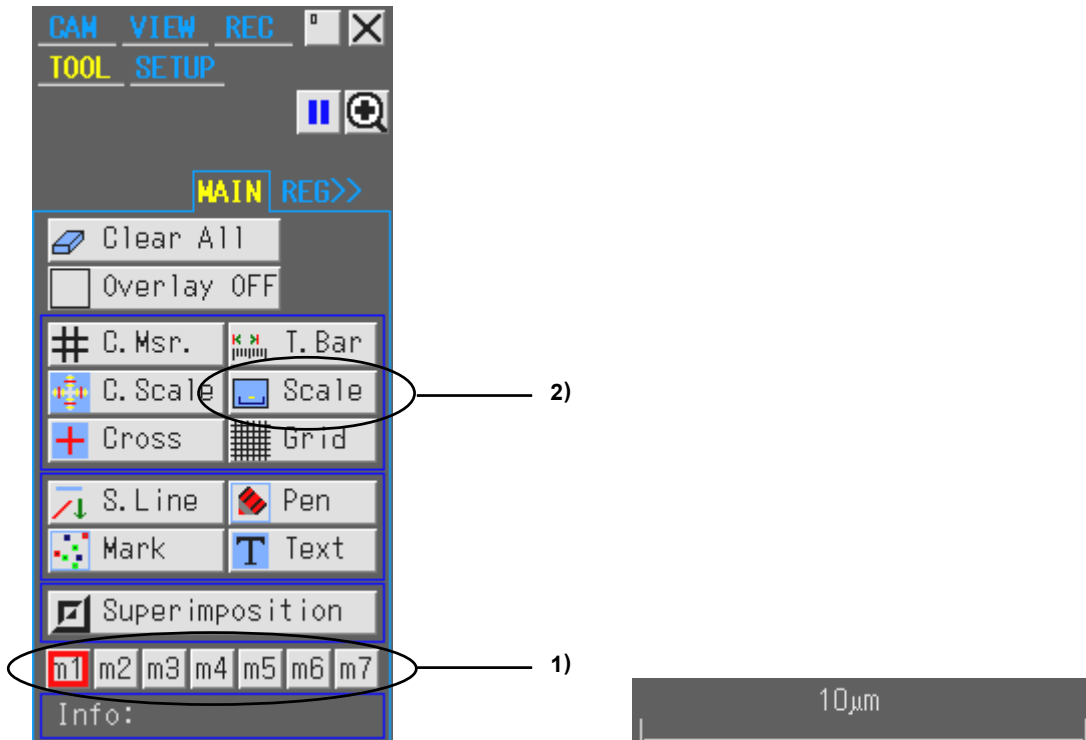


(*) The comment is saved as a name for m1 through m7 as specified by selecting [TOOL] - [MAIN].

2. Displaying a Scale

In the main menu, select [TOOL] and select **Scale** . A scale appears, allowing you to measure the approximate size of the subject.

- 1) From [TOOL] in the main menu, select the calibration number you want to use, by clicking one of the options **m1** to **m7** .
- 2) Select **Scale** to display the scale in the lower right of the screen.



The scale length and color can be changed:

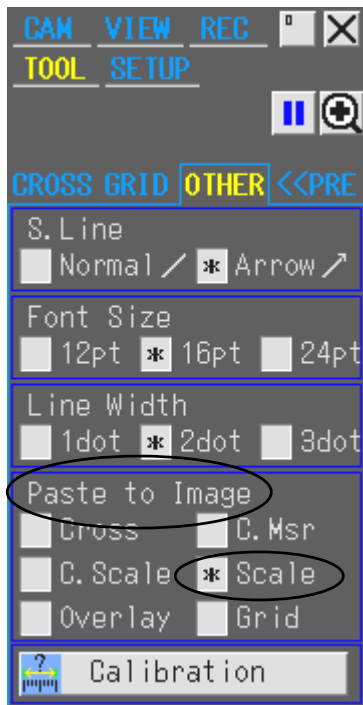
- 1) Select **Scale** in the main menu, move the cursor over the displayed scale and left-click the mouse.
- 2) A menu for changing the scale length and color appears.



- 3) To change the length, enter the desired value using the software keyboard, and then press **Ent**.
- 4) To change the color, select one from the six colors: red, green, yellow, blue, white, and black.

* The unit cannot be changed. If you change the scale length to a value out of the display range, the scale will be displayed as a length multiplied or divided by a factor of 10, resulting in 10x, 100x, ..., or 1/10, 1/100,

To render the scale in the saved image or a printout, use the main menu and select [TOOL] - [REG>>] - [OTHER]. In the [Paste to Image] area, add a checkmark to [Scale].



En Symbol for separate collection applicable in European countries

This symbol indicates that this product is to be collected separately. The following apply only to users in European countries.

- This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.
- For more information, contact the retailer or the local authorities in charge of waste management.

No Symbol for kildesortering i europeiske land

Dette symbolet indikerer at produktet skal kildesorteres. De nedenstående punktene gjelder for alle europeiske brukere.

- Dette produktet skal kildesorteres og innleveres til dedikerte innsamlingspunkter. Må ikke kastes med normalt husholdningsavfall.
- For mer informasjon, ta kontakt med din forhandler eller lokale myndigheter.

De Symbol für getrennte Wertstoff-/Schadstoffsammlung in europäischen Ländern

Dieses Symbol zeigt an, dass dieses Produkt separat entsorgt werden muss.

Folgendes gilt für Verbraucher in europäischen Ländern:

- Dieses Produkt darf nur separat an einer geeigneten Sammelstelle entsorgt werden. Eine Entsorgung im Hausmüll ist unzulässig.
- Wenden Sie sich für nähere Informationen bitte an Ihren Händler oder die örtlich für Abfallentsorgung zuständigen Behörden.

Se Symbol för separat upphämtning i europeiska länder

Den här symbolen anger att produkten måste hämtas separat. Följande gäller bara användare i europeiska länder.

- Den här produkten är avsedd för separat upphämtning vid ett lämpligt uppsamlingsställe. Produkten får inte kastas i hushållsavfall.
- För mer information, kontakta återförsäljaren eller de lokala myndigheter som ansvarar för avfallshantering.

Fr Symbole pour la collecte sélective applicable aux pays européens

Ce symbole indique que ce produit doit être collecté séparément. Les mesures suivantes concernent uniquement les utilisateurs européens.

- Ce produit doit être jeté séparément dans un point de collecte approprié. Ne jetez pas ce produit dans une poubelle réservée aux ordures ménagères.
- Pour plus d'information, contactez le détaillant ou les autorités locales responsables de la gestion des ordures.

Fi Erillisen keräyksen merkki Euroopan maissa

Tämä merkki osoittaa, että tuote kerätään erikseen. Seuraavat maininnat koskevat vain eurooppalaisia käyttäjiä.

- Tämä tuote kerätään erikseen asianmukaisista keräyspisteistä. Älä hävitä tuotetta talousjätteen mukana.
- Lisätietoja saat jälleenmyyjältä tai paikallisilta jätehuoltoviranomaisilta.

Es Símbolo para recogida separada aplicable en países Europeos

Este símbolo indica que este producto se recogerá por separado. Lo siguiente sólo se aplicará en países Europeos.

- Este producto ha sido designado para su recogida en un punto de almacenamiento apropiado. No lo tire como un deshecho doméstico.
- Para más información, contacte con el vendedor o autoridades locales al cargo de la gestión de residuos.

Ru Символ сортировки мусора, использующийся в европейских странах

Данный символ означает, что этот продукт должен утилизироваться отдельно от других.

Приведенная ниже информация касается только пользователей из стран Европы.

- Данный продукт должен утилизироваться отдельно от других в соответствующих приемных пунктах. Не выбрасывайте данный продукт вместе с бытовым мусором.
- Дополнительную информацию Вы можете получить у продавца или у местных властей, отвечающих за утилизацию мусора.

Dk Symbol for special bortskaffelse af denne type produkter i de europæiske lande

Dette symbol angiver, at dette produkt skal bortskaffes specielt. Det efterfølgende er kun til forbrugere i de europæiske lande.

- Dette produkt skal bortskaffes på fx en genbrugsplads el .lign. Det må ikke smides væk som normalt husholdningsaffald.
- For yderligere information kontakt din forhandler eller de lokale myndigheder, som fx teknisk forvaltning.

Gr Σύμβολο για την ξεχωριστή αποκομιδή απορριμμάτων στις Ευρωπαϊκές χώρες

Αυτό το σύμβολο υποδηλώνει ότι η αποκομιδή αυτού του προϊόντος πρέπει να γίνει ξεχωριστά.

Τα κάτωθι απευθύνονται μόνο σε Ευρωπαίους χρήστες.

- Αυτό το προϊόν είναι σχεδιασμένο έτσι ώστε να γίνεται η αποκομιδή του σε ειδικά σημεία. Μην το πετάτε μαζί με τα υπόλοιπα απορρίμματα.
- Για περισσότερες πληροφορίες, επικοινωνήστε με τον διανομέα του προϊόντος ή με τις υπεύθυνες τοπικές αρχές για θέματα διαχείρισης απορριμμάτων.

Nl Symbol voor gescheiden inzameling zoals dat wordt gebruikt in Europese landen

Dit symbool betekent dat dit product apart moet worden ingezameld. Het volgende is alleen van toepassing op gebruikers in Europa

- Dit product dient gescheiden ingezameld te worden op een daartoe bestemd inzamelpunt. Niet wegwerpen bij het normale huisvuil.
- Neem voor meer informatie contact op met het verkooppunt, of met de lokale instantie die verantwoordelijk is voor het verwerken van afval.

Pl Symbol oznaczający segregowanie odpadów, stosowany w krajach Europy

Ten symbol oznacza, że produkt musi być wyrzucany oddzielnie. Poniższe uwagi mają zastosowanie tylko dla użytkowników z Europy.

- Ten produkt jest przeznaczony do oddzielnej utylizacji i powinien być dostarczony do odpowiedniego punktu zbierającego odpady. Nie należy go wyrzucać z odpadami gospodarstwa domowego.
- Aby uzyskać więcej informacji, należy skontaktować się z przedstawicielem przedsiębiorstwa lub lokalnymi władzami odpowiedzialnymi za zarządzanie odpadami.

Pt Símbolo para recolha de resíduos em separado utilizado nos países Europeus

Este símbolo indica que este produto é para ser recolhido separadamente.

Esta norma aplica-se só para os utilizadores nos países Europeus.

- Este produto está designado para recolha de resíduos em separado num recipiente apropriado. Não deitar no caixote do lixo doméstico.
- Para mais informações, contactar o revendedor ou as autoridades locais responsáveis pela gestão dos resíduos.

Hu Európai országokban érvényes "Elkülönített hulladékgyűjtés" jelzése

Ez a jelzés azt jelenti, hogy ezt a terméket elkülönítve kell gyűjteni. Az alábbiak csak az európai országokban élő felhasználókra érvényes.

- Ezt a terméket a megfelelő hulladékgyűjtőhelyen, elkülönítve kell gyűjteni. Ne dobja ki háztartási hulladékként.
- További információkért forduljon a forgalmazóhoz, vagy a helyi hatóság hulladékgyűjtésért felelős részlegéhez.

It Simbolo per la raccolta differenziata applicabile nei paesi europei

Questo simbolo indica che il prodotto va smaltito separatamente. La normativa che segue si applica soltanto agli utenti dei paesi europei.

- Il prodotto è designato per lo smaltimento separato negli appositi punti di raccolta. Non gettare insieme ai rifiuti domestici.
- Per maggiori informazioni, consultare il rivenditore o gli enti locali incaricati della gestione dei rifiuti.

Cz Symbol pro oddělený sběr odpadu platný v evropských zemích

Tento symbol znamená, že tento produkt se má odkládat odděleně. Následující pokyny platí pro uživatele z evropských zemí.

- Tento produkt se má odkládat na místě sběru k tomuto účelu určeném. Neodhazujte spolu s domácím odpadem.
- Více informací o způsobu zacházení s nebezpečným odpadem vám podá příslušná místní instituce.



This symbol is provided for use in the People's Republic of China, for environmental protection in the fields of electronic information products.

このマークは、中国のお客様に向けたもので、電子情報製品分野における環境保護を目的としています。

Jp ヨーロッパにおける廃棄物個別回収のシンボルマーク

このシンボルマークは本製品が個別に回収されなければならないことを示しています。

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- 本製品は指定された収集場所にて個別に回収されるように定められています。家庭ゴミとして廃棄しないでください。
- 詳細については販売代理店または地域の廃棄物処理機関にご連絡ください。

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