

Tabletop Microscopes

TM4000PlusIII /  
TM4000III

**HITACHI**  
Inspire the Next

# TM4000 Series

The next-generation tabletop microscope is here

**Debut**



## Reduce Your Workload and Achieve More Consistent Results

### Automated observation of multiple specimens: Recipe Control\*

The TM4000PlusIII recipe function can be used to automatically execute operations, such as stage movement, magnification setting, and image capturing. Once the user builds a recipe, it can be executed to run the tool automatically with no further intervention. This significantly reduces the workload on operators and allows for more consistent results, even from inexperienced users.

### Faster automatic particle analysis: High-current function + AZtecLiveLite particle analysis package\*

Tasks such as purity analysis of industrial products and particle analysis of filters can be time consuming as data is required from many locations to complete the analysis. The TM4000PlusIII is equipped with a new high-current setting, Mode 5, which provides increased signal for imaging and EDS analysis. In combination with the Oxford Instruments EDS AZtecLiveLite particle analysis package, this helps to increase throughput.

### Field-of-view navigation with less noise: High-current function

SEM field-of-view navigation is performed using fast scanning modes, so images tend to be prone to noise. The high-current function allows for easy field-of-view navigation due to its high signal-to-noise (S/N) ratio. This takes the stress out of specimen navigation!

## Plan Ahead with the Filament Monitoring Function

### Maintenance planning: Filament monitoring function

The TM4000PlusIII is equipped with a system that monitors the filament and displays graphics to show the remaining lifetime of the filament. If the equipment is being operated by multiple users, this makes it possible to plan the use of the tool in a systematic way. There is no more need to worry about the filament suddenly running out when the tool is most needed.

## Ideal for Educational Purposes

### Experience the world of electron microscopy with no preprocessing required: Low-vacuum function + high-sensitivity backscattered-electron detector

Users can try out electron microscopy with all kinds of specimens: picked flowers, treasured minerals or familiar foods, with no need for metal coating. The low-vacuum function of the TM4000PlusIII/TM4000III reduces preprocessing, and the high-sensitivity backscattered-electron detector (BSED) allows images to be obtained quickly.

### Build programming skills with workflow automation functions (TM4000PlusIII\*):

Developing and maintaining digital skills is vital in today's world. The automation support function allows you to experientially learn important programming concepts such as "sequential execution," "repetition," and "conditional branching" through the operation of the TM4000PlusIII.

\*Optional

## TM4000PlusIII / TM4000III Specifications

### Specifications

Item	Description	
Model name	TM4000PlusIII	TM4000III*1
Model No.	TM4000Plus	TM4000
Magnifications	10x - 100,000x (Photographic magnification*2) 25x - 250,000x (Monitor display magnification*3)	
Accelerating voltage	5 kV, 10 kV, 15 kV, 20 kV*4	
Probe current mode	5 steps	
Specimen current display function	Included	Not available
Image signal	Backscattered electron Secondary electron Mix (Backscattered electron + Secondary electron)	Backscattered electron
Vacuum mode	Conductor: BSE Standard: BSE/SE/Mixed Charge-up reduction: BSE/SE/Mixed	BSE: Standard/ Charge-up reduction
Image mode (BSE)	Normal/Shadow 1/Shadow 2/TOPO	
Specimen stage	Motorized stage	Manual stage
camera navigation system	Included	Not available
Stage Travel range	X: 40 mm, Y: 35 mm	
Maximum sample size	80 mm (diameter), 50 mm (height)	
Filament Type	Pre-centered cartridge tungsten filament	
Filament indicator	Included	
Signal detection system	High-Sensitivity 4-segment BSE detector High-Sensitivity Low-Vacuum SE detector (UVD)	High-Sensitivity 4-segment BSE detector
Auto image-adjustment function	Auto start, Auto focus, Auto brightness	
image data saving	2,560 × 1,920 pixels, 1,280 × 960 pixels, 640 × 480 pixels	
Image format	BMP, TIFF, JPEG	
Data display	Micron marker, micron value, magnification, date and time, image number and comment, WD (Working Distance), accelerating voltage, vacuum mode, image signal, image mode	
Evacuation system (vacuum pump)	Turbo molecular pump: 67 L/s x 1 unit Diaphragm pump: 20 L/min x 1 unit	
Operation help functions	Raster rotation, Magnification presets (3 steps), Image shift ( $\pm 50 \mu\text{m}$ @ WD6.0 mm)	
Safety functions	Over-current protection function, built-in ELCB	

### Required PC specifications

Item	Description	
Model name	TM4000PlusIII	TM4000III
OS	Microsoft® Windows® 11 (64bit)	
Memory device	HDD, DVD-ROM Drive	

### Size/weight

Item	Description	
Model name	TM4000PlusIII	TM4000III
Main unit	330 (width) × 614 (depth) × 547 (height), 55 kg	330 (width) × 617 (depth) × 547 (height), 53 kg
Diaphragm pump	144 (width) × 270 (depth) × 216 (height), 5.5 kg	

### Optional accessories

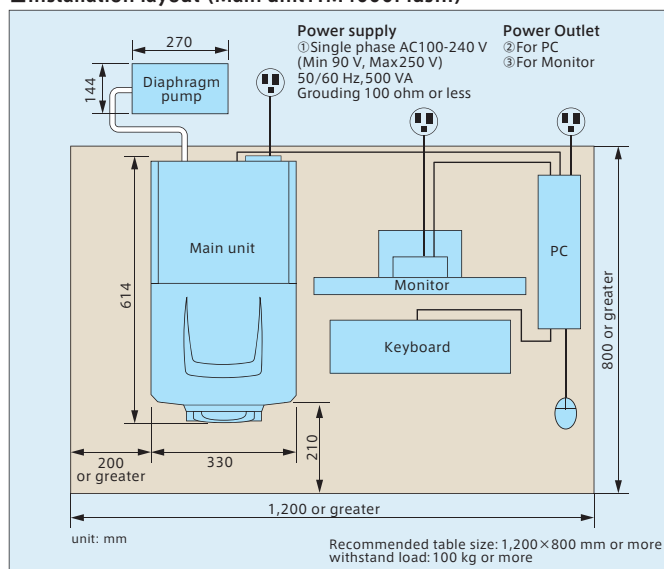
Energy Dispersive X-ray Spectrometer (EDS)	Tilt & rotation stage*5
Three-dimensional image display/ measurement function Hitachi map 3D	Cooling stage*5
Macro function*6	Multi Zigzag function*6
	STEM holder*6

### Installation conditions

Item	Description
Room temperature	15-30 °C ( $\Delta t = \text{within } \pm 2.5 \text{ }^\circ\text{C/h}$ or less)
Humidity	-70% RH (no condensation)
Power supply (main unit)	Single phase AC100-240 V (Min 90 V, Max 250 V)

\* Another power source for PC is required.

### Installation layout (Main unit: TM4000PlusIII)



- \* 1 The KC Mark Certificate has not been issued.
- \* 2 Defined at photo size of 127 mm × 95 mm (4" × 5" picture size)
- \* 3 Defined at display size of 317 mm × 238 mm
- \* 4 There is a limit to the focus when using 20 kV
- \* 5 Optional, available only for TM4000III
- \* 6 Optional, available only for TM4000PlusIII
- \* Please make room for more than 200 mm to the left side of a main unit and put it the closest to the center position of the table.
- \* A table with caster is not suitable to put a main unit of TM4000 Series.
- \* Please put a diaphragm pump under the table.
- \* Periodical maintenance is required for this apparatus.
- \* Powercables, earth terminal and table should be prepared by users.
- \* TM4000 Series is not approved as a medical device.
- \* Dedicated mentors, teachers who received the operation training of the instrument are required at compulsory schools.
- \* It is advisable not to install or relocate the instrument by yourselves.
- \* When relocating the system, please contact in advance the sales department that handles your account or a maintenance service company designated by Hitachi.
- \* Screen shows simulated image.
- \* Windows® is a registered trademark of U.S. Microsoft Corp. in U.S.A. and other countries.
- \* Intel® is a registered trademark of Intel Corp. or its affiliated companies in the United States and/or other countries.

 **Science for a better tomorrow**

\* This logo is the trademark of Hitachi High-Tech Corporation throughout the world.

Notice: For correct operation, follow the instruction manual when using the instrument.

Specifications in this catalog are subject to change with or without notice, as Hitachi High-Tech Corporation continues to develop the latest technologies and products for our customers.

Copyright © Hitachi High-Tech Corporation 2024 All rights reserved.

 **Hitachi High-Tech Corporation**

Tokyo, Japan  
[www.hitachi-hightech.com/global/science/](http://www.hitachi-hightech.com/global/science/)

