

Data Processor / Data Processing Software for Measuring Microscopes and Profile Projectors

DP-E1A/E-MAX Series

Data Processor

DP-E1A



Effectively used in combination with a measuring microscope/profile projector, the DP-E1A quickly calculates geometrical features with simple and interactive operations. Measurement results are automatically memorized as teaching steps and can be easily used as a measurement routine.

Compact, User-Friendly Design

A compact unit that integrates measurement counter functionality. The highly visible display enables smooth and efficient operation.

Easy-to-Use Operation Keys

Intuitive measurement code buttons and measurement result list operation enable users, including first-time operators, to perform measurements easily.

Digital Thermal Printer (Optional)

Connects to the rear controller section of the MM-400N/MM-800N Measuring Microscope or to a Retro Counter/DP Unit to print calculation results.

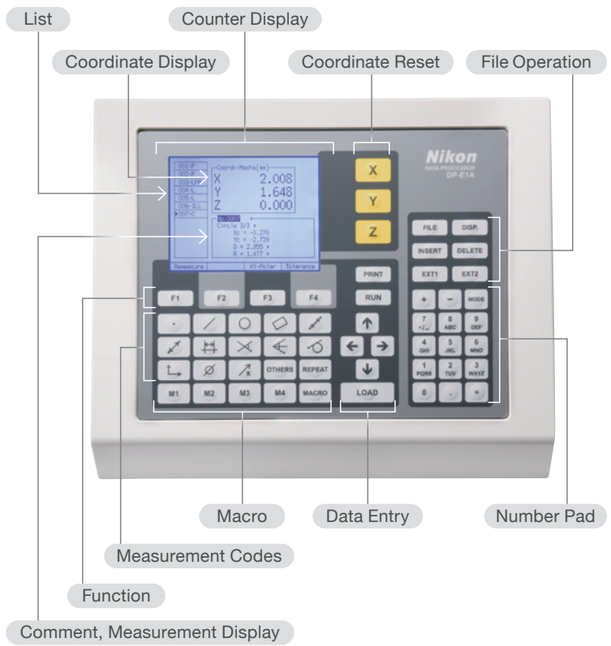
Model: TSP743II (Paper width: 58 mm or 80 mm)



Main Specifications

Processing Unit	mm
Display Resolution	Selectable: 3, 4, or 5 decimal places
Angle Display	Degrees/Minutes/Seconds, Deg, Rad
Keys	55
Function Keys	4
Counter Display	Displays DP system counter values when connected
External Printer	Outputs measurement results via RS-232C
External Memory	USB Memory
Display	5.7-inch LCD, blue backlight, non-interlaced
Power Supply	DC 12V (ripple ≤300 mV), ≤4A (using dedicated AC adapter) CR2032 ×2 (for real-time clock)
Operating	Temperature 0 to 40°C
Environment	Humidity up to 70% RH (non-condensing) Altitude up to 2,000 m
Dimensions	300(W) × 240(D) × 99(H) mm (*H when feet are folded)
Weight	2.5 kg

Control Panel



Measurement Code Keys

- **Point**
  Calculates the entered measurement point or the average point from multiple input points.
- **Circle / Arc**
  Calculates a circle from three measured points or from multiple points using the least-squares method.
- **Line**
  Calculates a line from two measured points or from multiple points using the least-squares method.
- **Rectangle**
  Calculates a rectangle from five measured points.
- **Midpoint**
  Calculates the midpoint between two measured points.
- **Distance Between Two Points**
  Calculates the distance between two measured points.
- **Point Pitch**
  Calculates pitch between multiple entered points.
- **Intersection**
  Calculates:
  Intersection of two measured lines
  Intersection of a measured circle and line
  Intersection of two measured circles
- **Bisector**
  Calculates the angle bisector from two measured lines.
- **Tangent**
  Calculates:
  Tangent point from a measured point and circle
  Circle tangent to two measured lines
  Circle tangent to three measured lines
- **Origin Setting**
  Sets the origin of a local coordinate system.
- **Coordinate System Shift**
  Moves, rotates, or restores the local coordinate system.
- **Coordinate System Setup**
  Defines a local coordinate system.

Macro Keys

M1 M2 M3 M4 — **Macro Keys**

MACRO — **Macro Setup Key**
Registers combinations of measurement codes to Macro keys (M1-M4).

File Operation Keys

- **RUN** — Executes teaching files.
- **REPEAT** — Performs repeated measurements of selected measurement items.
- **PRINT** — Outputs data at any desired timing during teaching operation.
- **INSERT** — Inserts measurement codes between list items.
- **FILE** — Used for file operations. Displays the file access menu.
- **DELETE** — Deletes entered measurement points or measurement codes. Also deletes files during file operations.

Display Key

- **DISP.** — Switches display settings.

Data Entry Key

- **LOAD** — Loads measurement points.

Support Keys

- **EXT1** — Sets standard deviation output.
- **EXT2** — Macro selection.
- **OTHERS** — Unused.

Soft Keys

- **Function Keys**
  Operation changes depending on the displayed screen or item.

F1 F2 F3 F4

Retro Counter / DP Unit

Used when combined with universal profile projectors:

• V-20B • V-12BDC • V-12BD

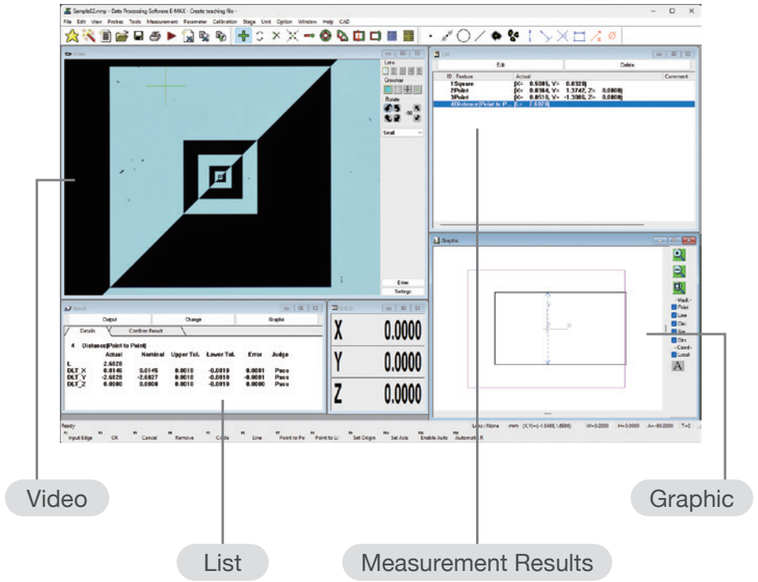
(Counter display sold separately)



Data Processing Software E-MAX

Combining a measuring microscope with a dedicated digital camera enables high-resolution digital image measurement. From 2D data processing to image measurement and data storage, advanced and comprehensive measurement and processing functions can be used easily.

Main Display (V3 Set)

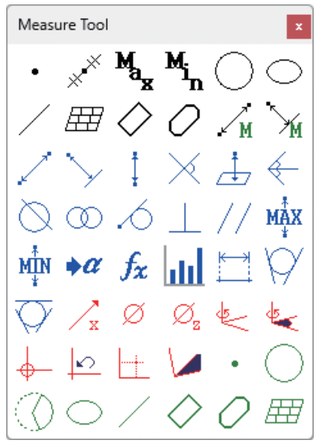


Color-Coded Measurement Icons

Measurement codes are grouped by color:

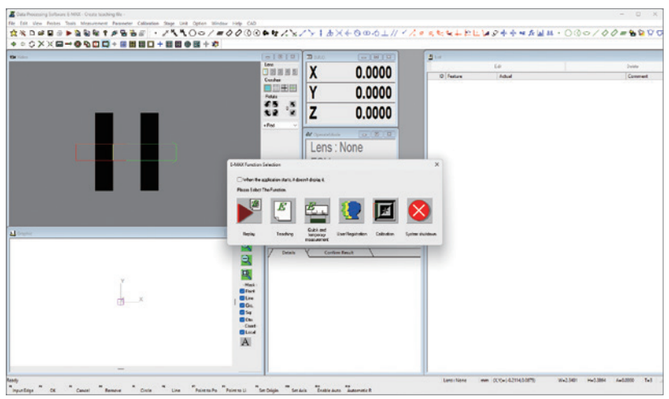
- General Measurement (Black)
- Coordinate System Setup (Red)
- Recall Measurement (Blue)
- Keyboard Input (Green)

All operations can be executed with a single click.



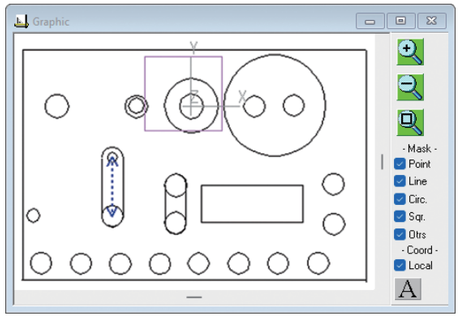
Initial Display (V3 Set)

Wizard functions are also provided to support, quick measurement, teaching file creation, and replay operation.



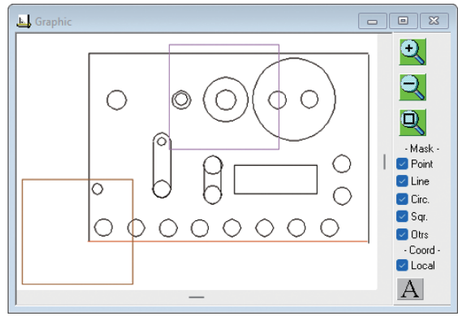
Graphic Display

Measured elements are displayed graphically in real time. Tolerance judgment results are clearly indicated in red. Clicking a measured element allows it to be used directly as a measurement point, simplifying recall measurement.



Navigation System

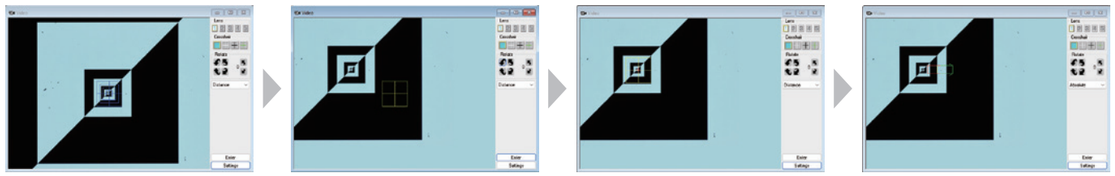
During replay measurement, the graphic window displays the next measurement input position as a brown highlighted area, helping prevent input mistakes and enabling faster operation. The pink area represents the current coordinate position.



Automatic Replay Measurement (V3 Set)

Simply move the stage into the guided measurement area. Automatic on-screen measurement can then be performed during replay operation. There is no need to move the measurement position to the center of the screen or perform alignment adjustments

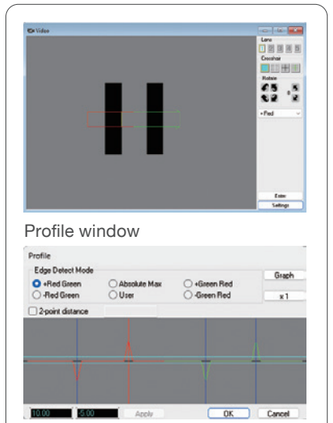
E-MAX quickly searches stored images, automatically corrects positioning, and detects edges. This greatly contributes to reduced measurement time and lower operating costs.

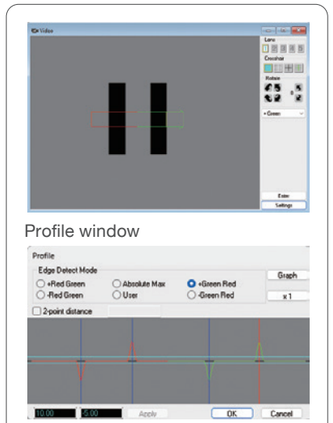


Position and Image | Stage search during replay | Search finished instantly | Automatically corrects measurement positions and detects edges

Custom Edge Select

When selecting a desired edge among multiple detected edges, detection position moves instantly and edge hierarchy distribution is graphically displayed. Operators can visually confirm and confidently select the correct edge required for calculation.





E-MAX

Image Search

Searches and compares registered images to simplify positioning during edge detection. Selectable search criteria are distance, score, distance + score. Image-match scoring between the registered image and search result image is also available.

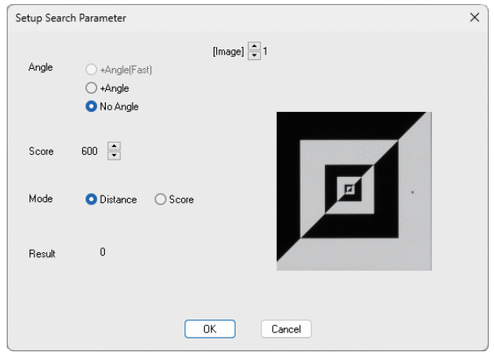
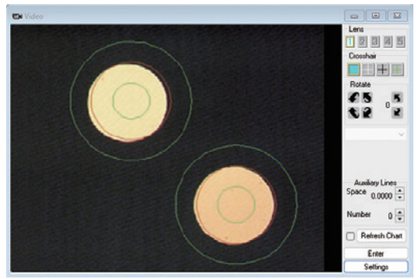


Chart Measurement

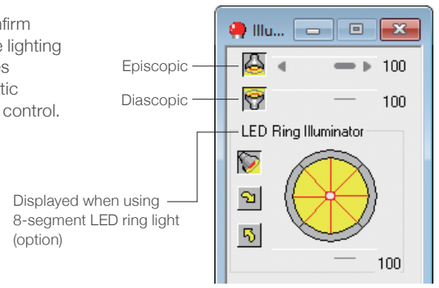
Displays chart drawings from imported CAD data directly in the video window, allowing efficient chart measurement.



Lighting Reproduction During Replay Measurement (V3 Set)

Lighting conditions used during teaching are saved for each measurement point and accurately reproduced during replay. No manual lighting adjustment is required on the measuring microscope even for samples requiring frequent illumination changes. This improves measurement efficiency significantly and is particularly effective for repetitive measurements.

*Please confirm compatible lighting accessories for automatic brightness control.



Measurement Result Output

Measurement results can be displayed in Microsoft Excel in real time. Even during manual measurement, measurement result files can be saved and Excel can be launched directly from E-MAX.

*Installation of Microsoft Excel is required.

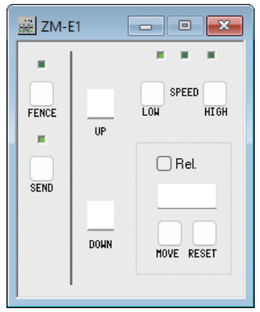
Saving Image (V3 Set)

Images displayed in the video window can be saved in BMP and JPEG format.

Motorized Z-Axis Control (ZM-E1)

Vertical motorized movement can be controlled directly from the PC.

Compatible models:
MM-400N/LM
MM-800N/LM
MM-400N/LMU
MM-800N/LMU



▲ Control window

DDE (Dynamic Data Exchange)

Measurement results can be transferred directly to specified Excel worksheet cells.
Users can perform measurements while monitoring the results in real time.
Out-of-specification results can be remeasured and overwritten. Suitable for inspection reports and quality documentation.

Types of E-MAX

E-MAX/V3 set

Equipped with image-processing functions for high-resolution image measurement on measuring microscopes.

- Replay navigation functionality
- External illumination control via program control
- Chart measurement directly on the processing screen
- Image filing capability
- Supports Notebook PC



▲ MM-400N Measuring Microscope + E-MAX/V3

E-MAX/D set

System specialized for measurement data processing.

- Comprehensive 2D data-processing functions
- Extensive optional software packages
- Supports Notebook PC



▲ V-12B Profile Projector + E-MAX/D

Configuration List

	V3 Set	D Set
Data Processing	○	○
Replay Navigation	○	○
Image Capture / TV Measurement	○	—
Chart Measurement	○	—
Image Measurement	○	—

Supported Products

	V3 Set	D Set
Profile Projectors	—	○
Measuring Microscopes	○*	○

* Trinocular and TV-tube types

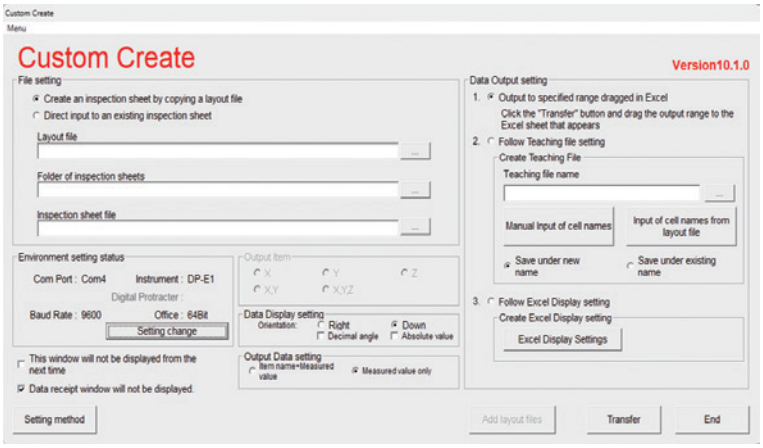
*"E-MAX" software is not sold separately. To ensure operation, it is sold only as a package with a compatible PC.

Optional Software

Custom Create

Measurement data from counters and/or data processors can be transferred directly to Excel sheets. Multiple worksheets can be transferred at once, achieving efficient measurements.

- Compatible measuring instruments: MM-400N/800N series, DP-E1A, V-20B, V-12B
- Allows data transfer to customized inspection-result sheet forms
- 3 standard inspection result sheets are available



Operating environment:

• OS: Windows 10, Windows 11 (32 bit / 64 bit) • Microsoft Office: 2016–2024 (32 bit / 64 bit) • Codevelopment: Aria Co., Ltd.

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***Products: Hardware and its technical information (including software)**

⚠ WARNING	TO ENSURE CORRECT USAGE, READ THE CORRESPONDING MANUALS CAREFULLY BEFORE USING THE EQUIPMENT.

NIKON CORPORATION
1-5-20, Nishioi, Shinagawa-ku, Tokyo 140-8601, Japan
Tel: +81 3 6743 5742
https://industry.nikon.com/

ISO 14001 Certified for NIKON CORPORATION

NIKON METROLOGY EUROPE NV
Interleuvenlaan 86, 3001 Leuven, Belgium
Tel: +32 16 74 01 01
Sales.NM@nikon.com

NIKON METROLOGY UK LTD.
UNITED KINGDOM Tel: +44 1332 811 349
Sales.UK.NM@nikon.com

NIKON METROLOGY SARL
FRANCE Tel: +33 1-60 86 09 76
Sales.France.NM@nikon.com

NIKON METROLOGY GMBH
GERMANY Tel: +49 211 94140
Sales.Germany.NM@nikon.com

NIKON METROLOGY, LLC
12701 Grand River Road, Brighton, MI 48116 U.S.A.
Tel: +1 810 220 4360
Sales.NM-US@nikon.com

NIKON METROLOGY - MEXICO
Sales.NM-US@nikon.com

NIKON PRECISION (SHANGHAI) CO., LTD.
CHINA Tel: +86 21 6841 2050 (Shanghai)
CHINA Tel: +86 10 5831 2028 (Beijing branch)
CHINA Tel: +86 20 3882 0551 (Guangzhou branch)
Web.Nis@nikon.com

NIKON INSTRUMENTS KOREA CO., LTD.
KOREA Tel: +82 2 6288 1900
NIK.Sales@nikon.com

NIKON SINGAPORE PTE LTD.
SINGAPORE Tel: +65 6559 3651
NSG.Industrial-sales@nikon.com

PT. NIKON INDONESIA
INDONESIA Tel: +62 213 873 5005
PTN.Instruments@nikon.com

NIKON SALES (THAILAND) CO., LTD.
THAILAND Tel: +66 2633 5100
NST.Inst@nikon.com

MI-DPEM2611EN