FOV Measurement with Advanced Digital Imaging Processing Technology
Data Processing Software E-Max Series

In combination with Nikon's digital still camera, DS-2Mv, the new E-MAX series software provides state-of-the-art image processing technology. Automated edge detection with sub-pixel processing enables more precise and repeatable measurement. Effectively used in conjunction with a measuring microscope/profile projector, the new E-MAX series software provides the user with various advanced measurements and processing functions, ranging from two-dimensional data processing and image measurements, to data storage.

Finer video images and fast image transfer with Nikon's innovative image processing technologies

The new E-MAX DS-V software provides FOV (field-of-view) measurements without a dedicated image processing board. This allows the software to be installed in high performance laptop PCs, greatly saving work space. SVGA (800 x 600) images from the digital camera can be captured via USB2.0 and can be processed and measured using Nikon's latest Automated Video Edge Detection and measuring algorithms.

Navigation function

The graphic window displays the next measurement position in brown, preventing errors and allowing speedy measurement (during replay). The current position is displayed in pink.

Chart measurement

A Chart with nominal shapes and tolerance lines can be generated from CAD data. It can be superimposed on the actual video image for easy and quick Go/No Go judgments.
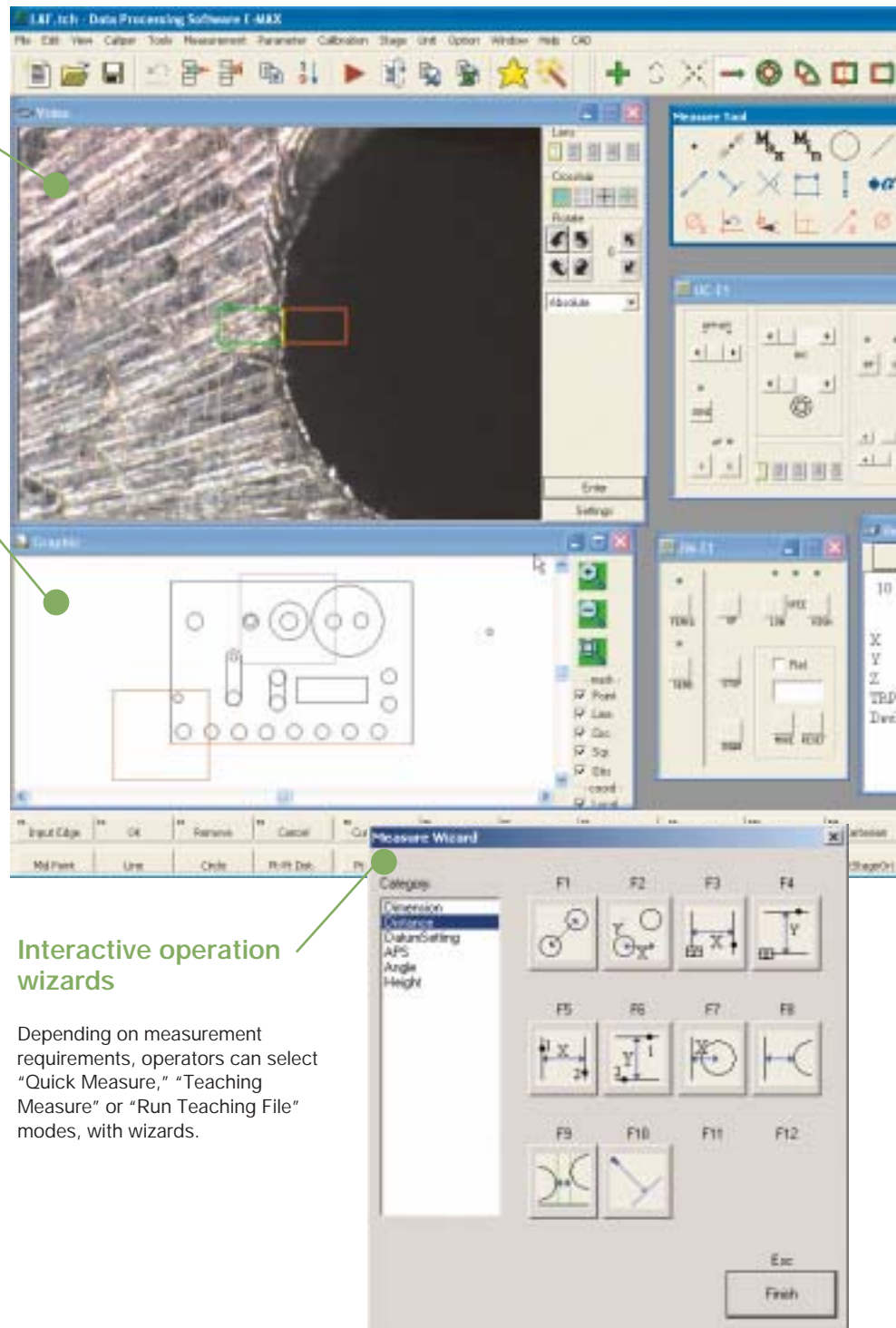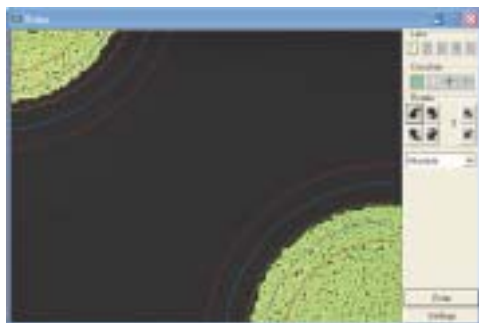
Interactive operation wizards

Depending on measurement requirements, operators can select "Quick Measure," "Teaching Measure" or "Run Teaching File" modes, with wizards.

Larger icons support touch screen operation environment

Larger Icon Mode is selectable for a touch screen operation environment. The mouseless operation enables operators to concentrate on measurements.

X	13.4595
Y	5.1995
Z	5.3250
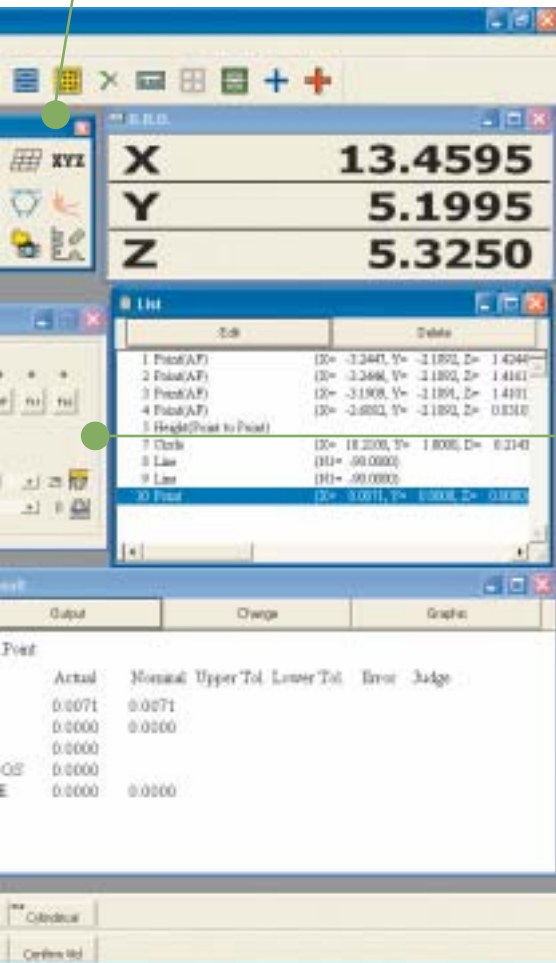
Illumination controls, motorized nosepiece, universal epi-illuminator, and TTL Laser AF controls

White LED illumination control is possible from E-MAX software. With motorized nosepiece, universal epi-illuminator and/or TTL Laser AF, E-MAX controls magnification switchover, microscopic methods, aperture setting, Laser AF, etc.

Functions provided by each set

	DS-V set	D set
Data processing	∗	∗
Navigation during replay	∗	∗
Live video monitoring	∗	–
Chart measurement	∗	–
Automated video edge detection	∗	–

Real-time SPC via DDE (Dynamic Data Exchange)

Using a DDE Link function, measured data can be immediately transferred to spreadsheets such as Microsoft Excel®, SPC-PC IV, SPC-PC IV Excel, and others, making real-time SPC analysis possible.

Note: SPC-PC IV and SPC-PC IV Excel are products of Quality America Inc.

Data Processor with improved accuracy and ease of use

DP-E1

New DP-E1 data processor has been developed to improve accuracy and efficiency as a measuring system. A 0.1μm-reading counter display is built into the compact body. The 320 x 240-pixel LCD greatly improves ease of use. Effectively used in combination with a measuring microscope/profile projector, it quickly calculates and processes measurement data.

Simple & interactive operation

Feature Oriented Operation of the DP-E1 allows the user to conduct measurements by following the graphics, providing a seamless measuring environment when used in combination with the NEXIV VMR/E-MAX series software. Measurement results are automatically memorized as teaching steps and can be easily used as a measurement routine.

GD&T compliance

Geometric Dimensioning & Tolerancing defined by the ANSI Y 14.5M Specification is supported. In addition to Location Tolerancing such as True Position, MMC and LMC, determination of Form, Orientation and Runout can be conducted interactively.

Multi-language support

English, German, Japanese and various other Asian and European languages are supported.

Data storage & software upgrades via USB drive

A USB drive can be used for storing measurement results and upgrading new functions.

Digital Thermal Printer DPU-414 (option)

Prints out measurement results.

Control panel

- LCD
- Coordinate reset keys
- DRO display
- List
- Measurement prompts, results
- Function keys
- Measurement code keys
- Macro keys
- File control keys
- Numeric keys
- Data load key

Code

Measure code key

[Basic feature elements]

• Point
Calculates entered measurement point, or average point from multiple points.

• Line
Calculates line from two entered measurement points or from multiple points by least-square method.

• Circle/arc
Calculates circle from three entered measurement points or from multiple points by least-square method.

• Rectangle
Calculates square from entered five measurement points.

[Constructed elements]

• Mid-point
Calculates middle point from two measured points.

• Pitch
Calculates pitch between multiple measured points.

• Mid-line
Calculates middle line from two measured lines.

• Distance
Calculates distance between two measured points.

• Intersection
Calculates intersection point from two measured lines.
Calculates intersection point from measured point and line.
Calculates intersection point from two measured circles.

• Tangent
Calculates tangent point from measured point and circle.
Calculates circle to contact two measured lines.
Calculates circle to contact three measured lines.

[Coordinate systems]
• Set origin (datum)
Sets up origin of local coordinate system.

• Set axis (datum)
Sets up axis of local coordinate system.

• Displacement
Sets up move, rotation and reversion of local coordinate system.

Macro code key

M1 • Macro key

MACRO **• Macro setup key**
Registers combination of measurement codes for macro keys (M1 to M4).

File key

[File run]
RUN **• Run key**
Runs teaching file.

REPEAT **• Repeat key**
Sets up repetition number of teaching file.

[File control]
PRINT **• Print key**
Conducts print output at discretionary timing during teaching.

FILE **• File key**
Shows menu to access file for file controls.

INSERT **• Insert key**
Inserts measurement codes between list items.

DELETE **• Delete key**
Deletes measurement code and entered measurement point.
Deletes file during file control.

Display setting key
DISP. **• Disp. key**
Switches display settings.

Data input key
LOAD **• Load key**
Enters measurement points.

Accessory function key
EXT1 **• Ext1 key**
Sets up print out of standard deviation.

EXT2 **• Ext2 key**
Reserved

OTHERS **• Others key**
Reserved

Function key
F1 **• Function key**
Performance differs depending on displayed screen and item.

Specifications

Processing unit	mm/in. Number of digits: 3/4/5 after decimal point selectable for mm, 4/5/6 after decimal point selectable for in. Angle. Degree/minute/second, Deg, Rad
Key switch	55 (function, measurement code, coordinate reset, file operation, macro, data load, and numeric keys)
Counter display	Display on LCD
External printer	Prints out measurement results via the RS-232C port connection
External memory	USB memory, floppy disk drive with USB interface (FAT format)
LCD	QVGA (320 x 240) monochrome LCD, backlight color: blue, non-interlace, screen size: 5.7in.
Power source	DC12V (less than 300mV ripple), less than 4A (with dedicated AC adapter), CR2032 x 2 backup battery for real-time clock
Operating/setup conditions	Operating conditions: temperature 0-40ºC, humidity 70% (non condensing), altitude 2,000m or less Storage conditions: temperature –20-60ºC, humidity 90% (non condensing) Degree of pollution: 2
Dimensions (W x D x H) (main body)	300 x 240 x 99 (feet folded) mm
Weight	2.5kg

Retrofit Unit

To use the DP-E1 data processor with Measuring Microscope models MM-40/60 or Profile Projector models, V-24B, V-12B, or V-12BS, a Retrofit Unit is required as an interface.