



Nikon  
100<sup>th</sup>  
anniversary

Digital Microscope ShuttlePix P-400Rv



Digital Microscope

# ShuttlePix

P-400Rv



A new era of microscopy: "Shuttle style."

# ShuttlePix

P-400Rv

## ShuttlePix, a revolutionary portable digital microscope

The ShuttlePix digital microscope is an all-new, one-of-a-kind digital microscope that can be used as a docked device, for high magnification and various measurements, or as a portable digital camera, for capturing any sample sizes.



### Motorized Stand

- Extended Depth-of-Focus (EDF) image capture
- Intuitive stylus and icon-driven operation using dedicated Touch Panel Monitor (advanced image capturing, simple measurement, etc.)
- Dedicated PC software expands operation and possibilities (image processing, 3D/color height-maps, etc.)

### Zoom Camera Head

- Cordless setup enabling image capture in the lab or in the field (Battery-powered with built-in illumination and SD card slot)
- Digital camera-like ease of use



## ShuttlePix

- 20x optical zoom
- High-resolution image capture
- Scene mode
- 4-segment LED ring light

### Simple Stand

- All-in-one design not needing a power source (simple reflection stand)
- Provides diascope illumination imaging capabilities (simple diascope LED stand)
- Quick view feature ensures fast image uploads to your PC
- Easy navigation with the Remote Control

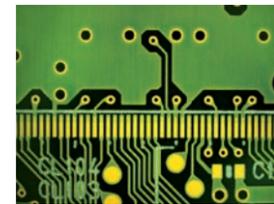


Experience the high performance by Nikon's high quality optics and advanced technologies

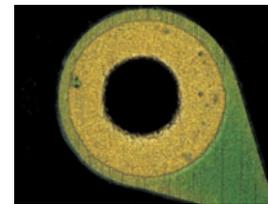
## ShuttlePix STYLE

### Compact body with no lens changing 20x optical zoom

When used on the motorized focusing stand and touch panel monitor, this magnification increases to between 20x and 400x. ShuttlePix provides ample magnification range that ensures you never have to switch or purchase different lenses for different magnifications. Magnification information is also linked to ShuttlePix's scale and simple measurement functions.



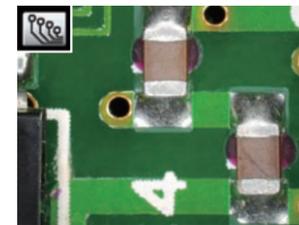
20x



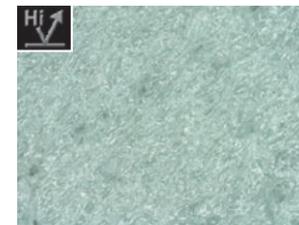
400x

### Automatic sample-optimized camera settings Scene mode

Ensure optimal settings for image capture through five types of scene mode: wafer/IC chip, metal, printed circuit board, flat panel display, and high-reflection sample.



Printed circuit board



High-reflection sample (polyethylene form)

### High NA / High definition / Wide field of view Maximum optical performance

Nikon's proprietary optics achieve precise observation and imaging with NA up to 0.2 (at 400x magnification) and 20mm-diagonal wide field of view (at 20x magnification). Changing of Resolution Preferred Mode and Depth-of-Focus Preferred Mode is also possible.



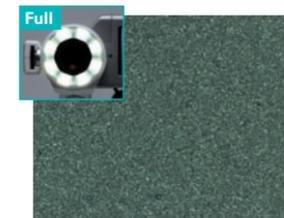
Resolution preferred



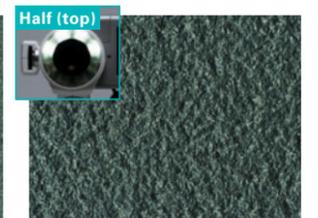
Depth-of-focus preferred

### Newly-developed design for bright, even illumination 4-segment LED ring light

ShuttlePix's new illumination technology achieves consistent brightness at all levels of magnification. Capture shaded images as well, through split-half illumination switchable among top, bottom, left, and right.



Full



Half (top)

Molded plastic

### From shooting large samples to use in the field Capable of shooting any sample size

The Handy can observe samples of all sizes, such as inspections of art displays to automobiles. Use of the stand allows for abrasion observation of electronic and aircraft parts. With the built-in battery, cable-less operation is possible.



Aerospace



Energy industry



Forensic science



Archeology



Art objects



Automotive



Production line



Plant maintenance



## High-resolution, all-focused image capturing is possible without PC

### with MOTORIZED STAND



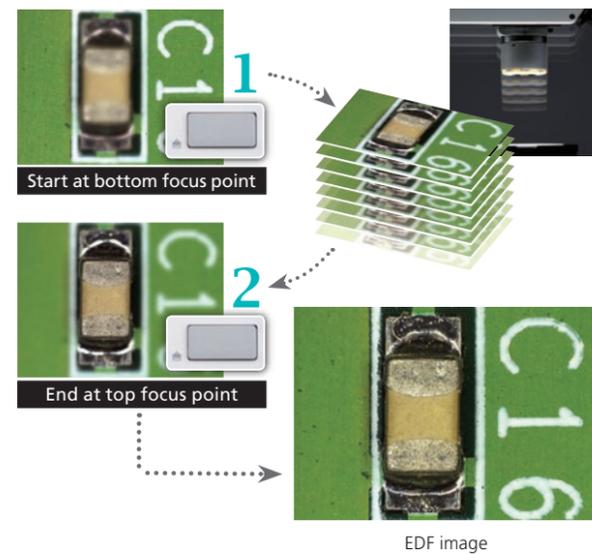
- Image capture and measurement with intuitive stylus and icon operation
- Motorized Focusing Stand plus Touch Panel Monitor**

ShuttlePix is equipped with a vertical-movement Motorized Focusing Stand and a 17", 1280x1024 color LCD Touch Panel Monitor. Through the intuitive operation of touching icons or using the screen stylus, precise image capturing and simple measurement are now possible.



- Easy capturing of all-focused images
- One-touch EDF**

EDF images can be captured simply by operating the button located on the stand.



- Perform measurements without a PC
- Simple measurements**

The touch panel monitor makes it possible to perform a truly wide range of simple measurements.

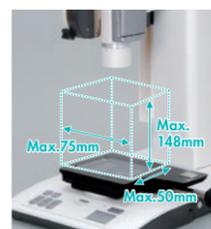


**Measurement function**  
Distance between 2 points, point-to-line distance, distance between center points of 2 circles, angle, circle, area, pitch

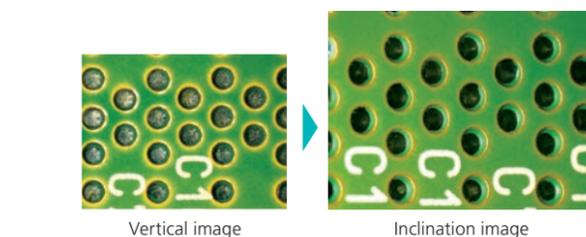
**Annotation**  
Count marking, text input, pen drawing, straight line, scale indication, cross-hairs, grid, XY scale, XY measurement

- Stage options for every application
- Stage lineup**

Image capturing for large samples (up to 75mmx50mmx148mm) is possible with the Zoom Camera Head and Motorized Focusing Stand. Select from three dedicated Stages matched to the observation sample.

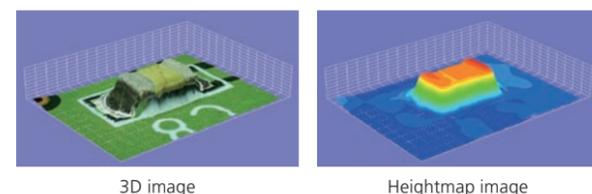


- P-SSL Sliding Stage
- P-STR Tilting Stage
- P-S32 3x2 Stage



- Quick 3D view**

Captured images are simultaneously transmitted to the Shuttle Pix Editor, where 3D images can be viewed.



## Capture digital microscopy images at any location

### ZOOM CAMERA HEAD



- Image capture with the ease of a digital camera
- Zoom Camera Head**

Image capturing is simple, with the use of the capture switch (trigger). The lightweight and ergonomic camera head allows for easy handling for all users. Voice recording is now available as a new function.



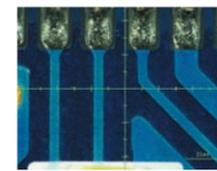
- Achieving optimal image capture
- Best shot selection mode**

When capturing images, up to 10 continuous frames are recorded and only the optimal shot is kept. This guarantees capturing sharp images even at high magnifications.



- Scale display**
- (cross hairs, H, grid)

The scale display feature allows for confirmation of a sample or defect's size.

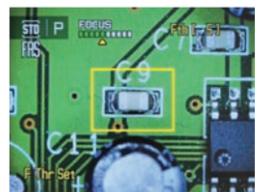


Scale (cross hairs)

- Focus assist capture function**

(scheduled release in August 2013)

During Preview Mode, images will be automatically captured at the optimum focus point.



## High magnification image capturing and simple measurements anywhere anytime

### with SIMPLE STAND

- Stands tailored to the purpose of use
- Simple reflection/ Diascopic LED stand**

An all-in-one compact reflector stand with a battery operated Zoom Camera Head and a Diascopic LED Stand capable of diascopic observation are both available.



\*When using the Diascopic LED Stand (Power cable is needed separately)

- Easy operations at hand
- Remote Controller**

Image capturing, zooming, brightness adjustment, and illumination angles, can all be controlled. Stable operation is possible even when using Zoom Camera Head.



- Automatically upload your images to PC**
- Quick view**

The free, dedicated software ShuttlePix Editor (see p.6) can automatically upload images taken with the ShuttlePix to your PC. This enables users to immediately scroll through thumbnail images and perform simple measurements on selected images right after image capturing.

Offering even greater compatibility

## Wide range of features using the dedicated software

with PC / SOFTWARE

Free download and registration of software

### ShuttlePix Editor



Conveniently outputs simple measurements and 3D EDF images or cross-section displays directly into Excel via dedicated ShuttlePix Editor\* software. Software download from the Nikon website and user registration are free.

\*Compatible with Windows XP and Windows 7 (Quick view feature only compatible with Windows® 7)

Speed capture makes it easy to measure right after shooting an image

### Interface

**Zoom camera head set:** Use the zoom head camera's SD card to upload saved images to your PC.

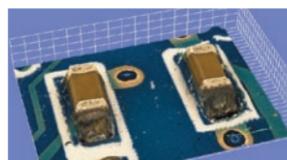
**Motorized focusing stand set:** In addition to SD card, use the USB memory connected to the stand or USB cable to upload saved images to your PC.

**Plain stand set:** In addition to the SD card and USB memory, use the Quick view feature to upload images to your PC automatically.

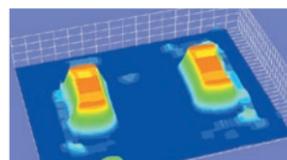
3D display of EDF images and height data

### 3D display

Use a 3D bird's-eye view to display EDF images and height data taken with ShuttlePix. Rotation, zoom in/out, scale display, color-based heightmaps, and other image display operations are available.



3D display

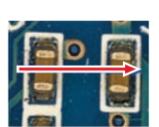


Color heightmap

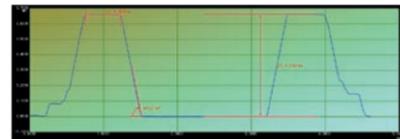
Display and simple measurement of height data cross-section

### Cross-section display and simple measurement

Display cross sections at specified positions based on height data embedded in EDF images. Perform simple measurements of the cross section including height, angle, and width, with measurement data displayable and recordable in tabular form.



Original image



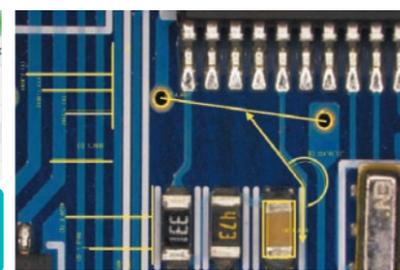
Cross section graph

Various measuring performance

### Simple measurement

Add comments and markers to key measurements. Measurement results can be output in tabular form.

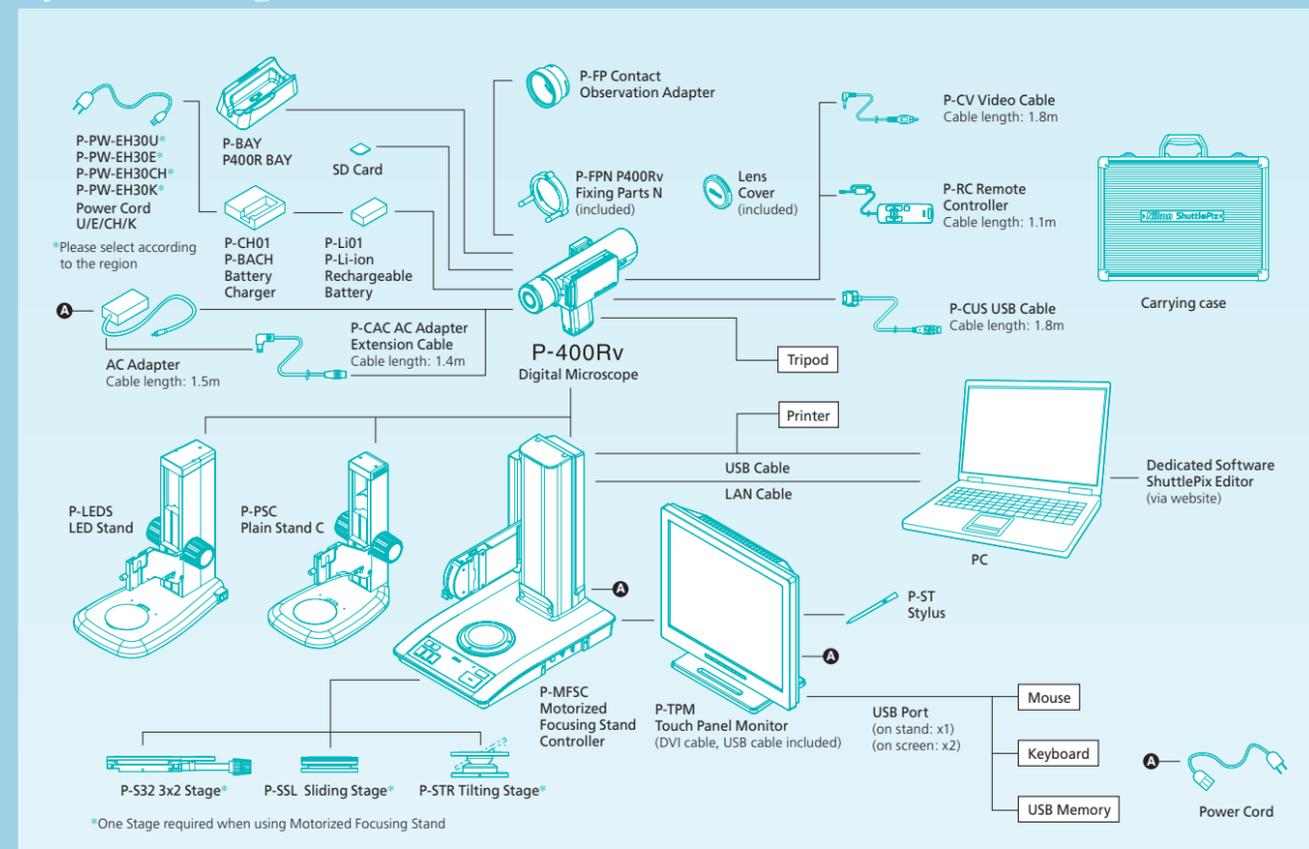
ID	Symbol	Length	Length2	Angle	Co
1	Angle Ruler			66°21'40"	
2	Horizontal ...	0.4239	0.4239		
3	Vertical Ru ...	0.6639			
4	Vertical Ru ...	0.0000			



See <http://www.nikon.com/products/instruments/lineup/digital-microscope/shuttlepix/index.htm> for details and download information regarding ShuttlePix Editor software.

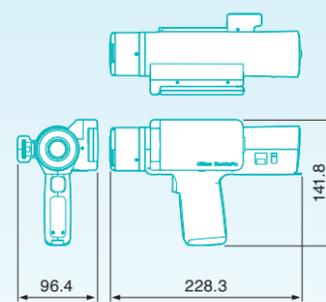
\*Download of ShuttlePix Editor is limited to registered users of the product.

## System Diagram

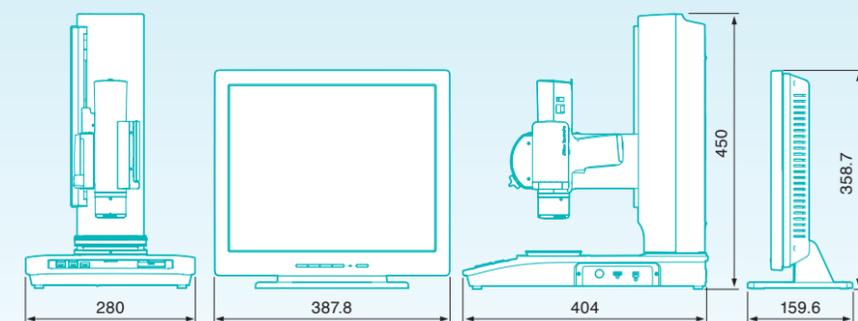


## Dimensions

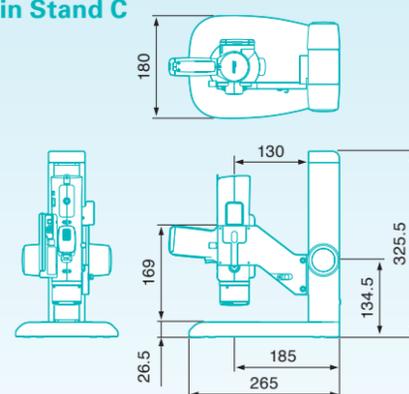
### Zoom Camera Head



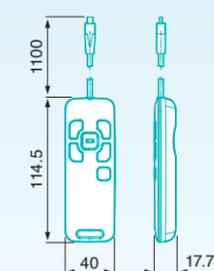
### Motorized Focusing Stand + Touch Panel Monitor



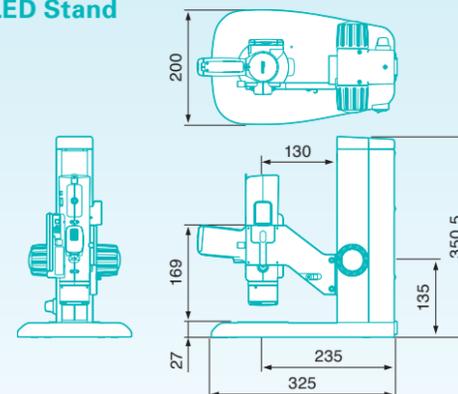
### Plain Stand C



### Remote Controller



### LED Stand



# Specifications

## Zoom Camera Head (P-400Rv)

<b>Effective pixels</b>	Approx. 2 megapixels
<b>CCD</b>	CCD: 1/1.8" color CCD, total pixels approx. 2.11 megapixels Frame rate: 28fps (selectable 28fps (800×600) or 15fps (1600×1200) when connected to Motorized Focusing Stand)
<b>Optics</b>	Magnification: 3× to 60× (magnification on built-in 2.7" monitor), 20× to 400× (magnification on dedicated 17" monitor), optical zoom ratio = 20:1
<b>Working distance</b>	29mm
<b>FOV</b>	Maximum diagonal field of view 20mm (16mm x 12mm)
<b>Illumination</b>	Light source: White LED Illumination method: Episcopic illumination from around the objective lens Illumination area: ø20mm, 4-segment ring LED (top/bottom/left/right)
<b>Recording</b>	Storage media: SD memory card, SDHC memory card (max. 16GB) (selectable USB memory or FTP when connected to Motorized Focusing Stand) Image file format: TIFF (non-compressed), JPEG (3 compression levels) Audio file format: WAV (voice memo) Recording pixels: 2M (1600×1200), 0.5M (800×600)
<b>Shooting mode</b>	Scene mode (standard, wafer/ IC chip, metal ceramic, circuit board, FPD, high-reflection sample*), BSS (Best Shot Select), timer (2 seconds fixed), interval, 4 custom settings, Focus assist capture function* (scheduled release in August 2013)
<b>Exposure</b>	Photometry method: Average photometry/peak-hold photometry Exposure control: Program AE/shutter preferred/manual exposure Exposure compensation: -2EV to +2EV in 1/3EV steps, camera gain and shutter speed can be set (manual exposure) AE lock function
<b>Aperture</b>	Resolution preferred mode/Depth-of-focus preferred mode

## Motorized Focusing Stand (P-MFSC)

<b>Stroke</b>	Z axis stroke: 150mm (upward 148mm, downward 2mm), upper and lower limit adjustable
<b>Stage</b>	3×2 Stage/Sliding Stage/Tilting Stage
<b>Image Edit</b>	EDF: Still image display, 3D image display (with ShuttlePix Editor) Halation prevention: Live display (max. 5fps, 1280×960, 800×600) High dynamic range: Still image display (1280×960/800×600) Calibration: Zoom magnification conversion/user-registered calibration Measurement function: Distance between 2 points, point-to-line distance, distance between center points of 2 circles, angle, circle, area, pitch Annotation: Count marking, text input, pen drawing, straight line, scale indication, cross-hairs, grid, XY scale, XY measurement
<b>Direct Printing</b>	Supported printer: PictBridge printer

## Touch Panel Monitor (P-TPM)

<b>Display size</b>	17.0" (display area 333.9mm×270.3mm)
<b>Resolution</b>	SXGA (1280×1024)
<b>Connector</b>	Image input: Digital input: DVI-D SXGA, video input: NTSC composite USB host: USB2.0 A connector×3 USB device: USB2.0 B connector×1

## Plain Stand C (P-PSC)

<b>Dimensions</b>	Approx. 180(W)×265(D)×325.5(H)mm
<b>Stroke</b>	Z axis stroke: 100mm (upward 98mm, downward 2mm),
<b>Size of stage glass</b>	ø90mm
<b>Weight</b>	Approx. 2.5kg

<b>Image compensation</b>	Image quality adjustment: Saturation/hue/contrast/sharpness/color effect Shading correction: Factory setting (switchable On/Off can be switched)
<b>White balance</b>	Manual setting (adjustable red/blue gain can be adjusted)
<b>LCD Monitor</b>	2.7" TFT color LCD, turned off automatically when connected to Motorized Focusing Stand
<b>Image playback</b>	Full-frame view, thumbnail view (9 frames), zoom view (scrollable)
<b>Image deletion</b>	Quick delete, select image delete, folder delete, card format
<b>Video output</b>	NTSC/PAL
<b>Connector</b>	Video output, capture input (ø3.5mm stereo mini jack), dedicated connector for stand, external remote controller input
<b>Language</b>	Japanese/English
<b>Power supply</b>	Li-ion Rechargeable Battery/AC adapter/Motorized Focusing Stand (when connected to Motorized Focusing Stand) Battery: P-Li01 P-Li-ion Rechargeable Battery AC adapter: AC adapter EA1050E-120 (optional) Auto power save: 30sec./1min./5min./10min./20min.
<b>Power consumption</b>	24VA
<b>Battery operating time</b>	Approx. 90 minutes (battery life at maximum power consumption with maximum LED brightness)
<b>Charging time</b>	Approx. 4 hours (when no charge remains)
<b>Tripod socket hole</b>	1/4-inch (ISO 1222)
<b>Dimensions</b>	Approx. 96(W)×228(D)×142(H)mm
<b>Weight</b>	Approx. 1kg (excluding battery and SD card)
<b>Usage environment</b>	Temperature: 0 to +40°C; Humidity: 60% RH max. (no condensation)

\* Zoom camera head, "P-400R", can also be used by downloading the firmware from the Nikon Website

<b>Connector</b>	Camera head IF: for connection to P-400Rv Video output: DVI-I LAN: 10Base-T/100Base-TX USB host: USB2.0 A connector×2 (for connection to USB mouse/ USB memory/ dedicated monitor) USB device: USB2.0 B connector×1 (for connection to PC)
<b>Language</b>	Japanese/English
<b>Power supply</b>	Built-in, AC100-240V 50/60Hz Auto power save: OFF/1 to 99min.
<b>Power consumption</b>	140VA
<b>Dimensions</b>	Approx. 280(W)×404(D)×450(H)mm
<b>Weight</b>	Approx. 9kg
<b>Usage environment</b>	Temperature: 0 to +40°C; Humidity: 60% RH max. (no condensation)

<b>Power supply</b>	AC100-240V 50/60Hz
<b>Power consumption</b>	140VA
<b>Dimensions</b>	Approx. 390(W)×180(D)×371(H)mm
<b>Weight</b>	Approx. 7kg
<b>Usage environment</b>	Temperature: 0 to +40°C; Humidity: 60% RH max. (no condensation)

## LED Stand (P-LEDS)

<b>Dimensions</b>	Approx. 200(W)×325(D)×350.5(H)mm
<b>Stroke</b>	Z axis stroke: 100mm (upward 98mm, downward 2mm),
<b>Size of stage glass</b>	ø90mm
<b>Weight</b>	Approx. 4.5kg

<http://www.nikon.com/products/instruments/lineup/digital-microscope/shuttlepix/index.htm>

See the URL above for product details and download information regarding ShuttlePix Editor dedicated software.

\*Download of ShuttlePix Editor is limited to registered users of the product.



Received the  
iF Design Award's  
Product Design  
Award 2012

Received the  
Good Design  
Award 2011

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N.B. Export of the products\* in this catalog is controlled under the Japanese Foreign Exchange and Foreign Trade Law. Appropriate export procedures shall be required in case of export from Japan.

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



**WARNING**

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



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