Digital Microscope

ShuttlePix
P-400R

A new era of microscopy: “Shuttle style.”
ShuttlePix, a revolutionary portable digital microscope

ShuttlePix 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
- x optical zoom spans low to high magnification
  (Magnification range of 20x to 400x*)
  *on dedicated 17” Touch Panel Monitor
- 0.2 NA (Optical Lens Numerical Aperture) achieves high-resolution image capture

Suitable for capturing images of large and heavy samples
- Automotive, Aerospace, Steelmaking, Shipbuilding, etc.

Ideal for testing, analysis and research
- Electronic Components, Devices, Assembled Parts, etc.

For wide-range use in the field
- Plant and Equipment Maintenance, Art Museums, History Museums, Forensic Science, etc.

Aerospace
Energy industry
ShuttlePix STAND

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

Capture digital microscopy images at any location

**Image capture with the ease of a digital camera**

**Zoom Camera Head**

Image capture with ShuttlePix is simple, with just three steps: 
1. Hold the Zoom Camera Head in one hand and place against the sample; 
2. Adjust focus by turning the Contact Observation Adapter while checking the Focus Indicator; 
3. Press the capture switch (Trigger). No special knowledge or complicated operations required!

The lightweight and ergonomic camera head allows for easy handling for all users.

**Compact body with no lens changing**

**20x optical zoom**

ShuttlePix’s observation magnification of 20x to 400x* spans low to high magnification without the trouble of changing lenses. Magnification information is linked to scale functions and simple measurement functions.

* Magnification on dedicated monitor used with Motorized Focusing Stand.

**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.

**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.

The image with sharpest focus is kept from among continuously captured images.

**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.
ShuttlePix STAND

High-magnification image measurement (no PC required),
Extended Depth-of-Focus image capture

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 17" 1280x1024 color LCD Touch Panel Monitor. Through the intuitive operation of touching icons or using the screen stylus, precise image capture and simple measurement are effortless and convenient.

Easy, icon-driven GUI
User interface

The Zoom Camera Head's GUI uses the same icons as Nikon's COOLPIX compact digital cameras. The Motorized Focusing Stand and Touch Panel Monitor also employ visual design that makes features clear instantly.

Automatic sample-optimized camera settings
Scene Mode

Ensure optimal settings for image capture through four types of Scene Mode: wafer/IC chip, metal, printed circuit board, and flat panel display.

PC-less, EDF image capture
One-Touch EDF

EDF image

Stage options for every application
Stage Lineup

Image capture for large samples (up to 75mm x 50mm x 148mm) is possible with the Zoom Camera Head and with the Motorized Focusing Stand. Select from three dedicated Stages matched to the observation subject.
ShuttlePix STAND with PC
Unlock a Wide Range of Features Using the Dedicated Software

Free download and registration of software
ShuttlePix Editor
Conveniently output simple measurements and EDF image 3D 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

Various measuring performance
Simple measurement
Add comments and markers to key measurements such as distance, angle, and area. Measurement results can be output in tabular form.

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.

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.

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

Dimensions

Motorized Focusing Stand + Touch Panel Monitor

Zoom Camera Head

*Please select according to the region

*One Stage required when using Motorized Focusing Stand
Specifications

Zoom Camera Head (P-400R)

Effective pixels
- Approx. 1.9 megapixels

CCD
- Chip size: 4/3" color CCD, total pixels approx. 2.17 megapixels
- Frame rate: 25fps (selectable 25fps / 60fps / 120fps) when connected to Motorized Focusing Stand

Optics
- Magnification: 1:1 (on built-in 2.7" monitor), 20x to 45x (on built-in 2.7" monitor)
- Virtual zoom range = 20:1

Working distance
- 25mm

FOV
- Maximum diagonal field of view 20mm (16mm x 12mm)

Illumination
- Light source: white LED
- Illumination method: Episcopic illumination from around the objective lens
- Illumination area: 24mm, 4-segment ring LED (alphanumeric/verbatim)

Recording
- Storage media: SD memory card inserted in the camera head (optional)
- Recording device: DT-300 (LSI memory card, max. 16GB)

Recording pixles
- Approx. 1650 (1280x600), DVI-I (1280x720, 1600x1200)

Shooting mode
- Scene mode: (Standard, Wafer/ IC chip, Metal Ceramic, Circuit Board, FPD)
- Shooting mode: (Manual, Auto, Program AE, shutter preferred, manual exposure)

Exposure
- Photometry method: Averaging, peak-hold photometry
- Exposure control: Program AE, shutter preferred, manual exposure
- Exposure compensation: -1EV to +1EV
- Frame rate: 28fps (selectable 28fps (800x600) or 15fps (1600x1200) when connected to Motorized Focusing Stand)

Exposure compensation
- Manual setting (adjustable red/blue gain can be adjusted)

Viewfinder
- 2.7" TFT color LCD, turned off automatically when connected to Motorized Focusing Stand

Image playback
- Built-in, memory card, USB memory, or FTP (when connected to Motorized Focusing Stand)
- Image deletion: Quick delete, select image delete, folder delete, card formatting

Image output
- NTSC/PAL

Input/Output
- Connector: Video output, capture input (alphanumeric mini jack), dedicated connector for stand
- Language: Japanese/English

Power supply
- Li-ion Rechargeable Battery/AC adapter/Motorized Focusing Stand
- Battery: P-Li01 P-Li-ion Rechargeable Battery
- AC adapter: AC adapter EA-1050E-120 (optional)
- Auto power save: 30sec./1min./5min./10min./20min.

Power consumption
- 24VA

Battery operating time
- Approx. 90 minutes (battery life at maximum power consumption by maximum LED brightness)

Battery charging time
- Approx. 4 hours (when no charge remains)

Tripod socket hole
- 1/4-in. (ISO 1222)

Dimensions
- Approx. 96(10x142)x128x109mm

Weight
- Approx. 900g (excluding battery and SD card)

Environment
- Temperature: 0 to +40°C
- Humidity: 60% RH max. (no condensation)

Motorized Focusing Stand (P-MFSC)

Stroke
- 2x, 3x, 4x, 5x, 6x, 7x, 8x, 9x (in the horizontal direction)

Stage
- 3x2 Stage/6x2 Stage (in the vertical direction)

Image Edit
- EBF II/III still image display, 3D image display (with ShuttlePix Editor)
- Rotation prevention: live display (max. 90°, 120°x90°, 60°x60°)
- High dynamic range: Still image display (1280x960/800x600)
- Calibration: Zoom magnification conversion (X/Y, Z axis, calibration)
- Measurement function: Distance between 2 points, point-to-line distance, distance between center points of 2 circles, angle, circle, area, pitch
- Annotation: Contour marking, text input, pen drawing, straight line, scale indication, cross/hair, grid, XY scale, XY measurement

Dedicated software
- Still image display, 3D image display (with ShuttlePix Editor)
- Still image display (1280x960/800x600)
- Image edit (with ShuttlePix Editor)
- Image deletion (Quick delete, select image delete, folder delete, card formatting)
- Image playback (built-in, memory card, USB memory, or FTP)
- Image compensation: Image quality adjustment: Saturation/hue/contrast/sharpness/color effect
- Image deletion: Quick delete, select image delete, folder delete, card formatting
- OPTICAL zoom magnification conversion (X/Y, Z axis)

Storage media
- Memory card inserted in the camera head (optional)
- Storage media: SD memory card inserted in the camera head (optional)
- Storage format: NTSC/PAL

Display size
- 17.0" (display area 333.9mm x 270.3mm)

Connector
- USB device: USB A connector x1
- USB host: USB A connector x2 (for connection to P-400R)
- Camera head IF: for connection to P-400R
- LAN: 10Base-T/100Base−TX

Power supply
- AC adapter: Built-in, AC 100-240V 50/60Hz
- Power consumption: 140VA

Dimensions
- Approx. 390(W)x240(D)x140(H)mm
- Weight Approx. 9kg

Usage environment
- Temperature: 0 to +40°C
- Humidity: 60% RH max. (no condensation)

Touch Panel Monitor (P-TPM)

Display size
- 17.3" (display area 333.9mm x 270.3mm)

Resolution
- SXGA (1280x1024)

Connector
- Image input: Digital input: DVI-D, SXGA, video input: NTSC composite
- USB host: USB A connector x3
- USB device: USB B connector x1

Usage environment
- Temperature: 0 to +40°C
- Humidity: 60% RH max. (no condensation)

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- Temperature: 0 to +40°C
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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.

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

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

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

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