Digital Microscope

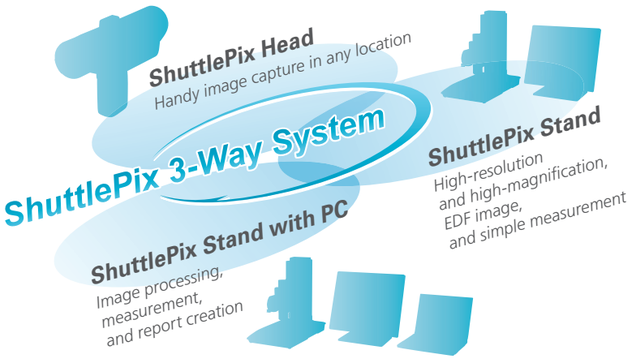
ShuttlePix

P-400R

A new era of microscopy: “Shuttle style.”

ShuttlePix
P-400R

ShuttlePix, a revolutionary portable digital microscope

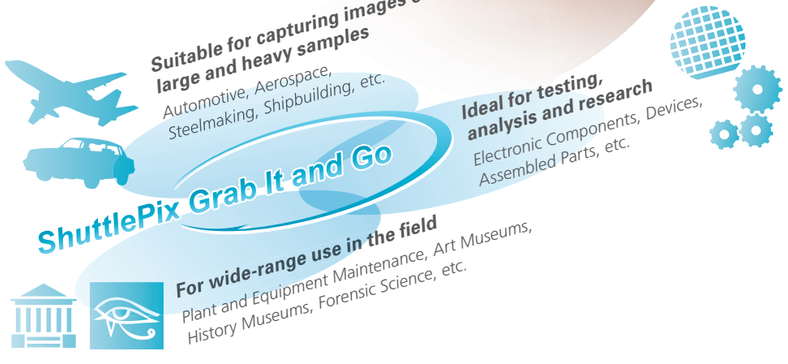


ShuttlePix HEAD

- 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
- 20x 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

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.)




Aerospace


Energy industry


Forensic science

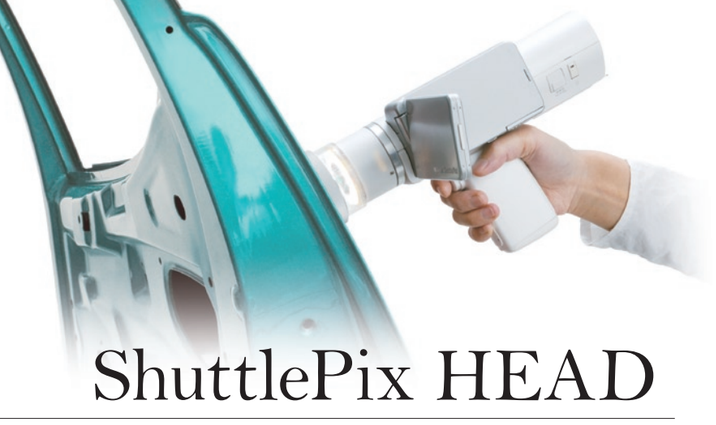

Archeology


Art objects


Automotive


Production line


Plant maintenance



ShuttlePix HEAD

Capture digital microscopy images at any location

Handy-Style

Full-featured

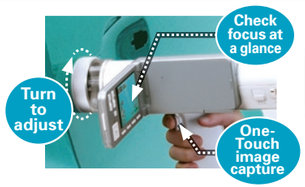
ShuttlePix STAND

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

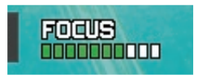
Image capture with the ease of a digital camera

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.



Focus Indicator



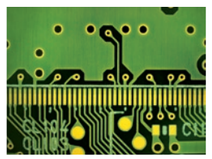
Automatically displays luminance value (Focus Index) during image capture

Compact body with no lens changing

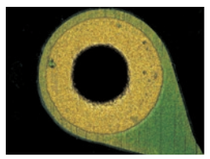
20x optical zoom

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.



20x

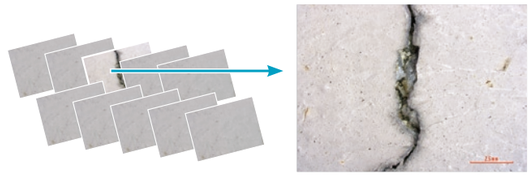


400x

Achieving optimal image capture

Best Shot Selection mode

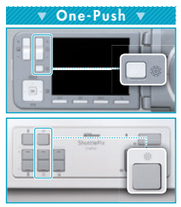
When capturing images, up to 10 continuous frames are recorded and only the optimal shot is kept. This guarantees capturing sharp images even at high magnifications.



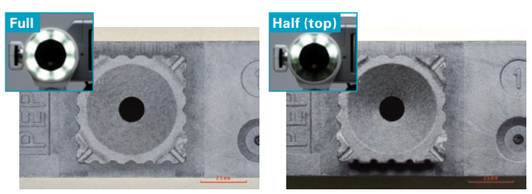
The image with sharpest focus is kept from among continuously captured images.

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.

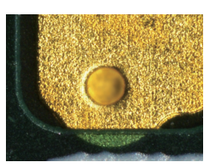


Full illumination yields bright, evenly-lit images, while half illumination enables images with shadows.

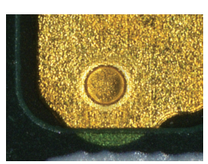
High NA / High definition / Wide field of view

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

Image capture and measurement with intuitive stylus and icon operation

Motorized Focusing Stand plus Touch Panel Monitor

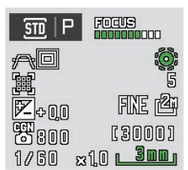
Use with Stand

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.



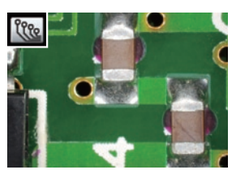
Zoom Camera Head GUI (close-up)

Motorized Focusing Stand GUI icons (close-up)

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.



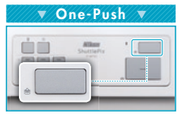
Printed circuit board

Metal

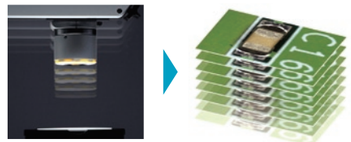
PC-less, EDF image capture

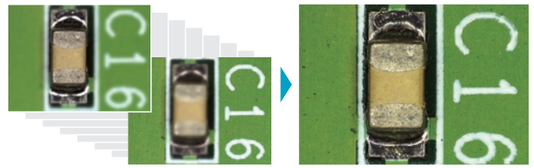
One-Touch EDF

Use with Stand



EDF image is easily available by pressing the button at any lower and upper position of the sample on the screen. All operations are performed from the Stand. The addition of a PC and dedicated software further enable 3D display and height display based on EDF data and height data.





EDF image

Stage options for every application

Stage Lineup

Use with Stand

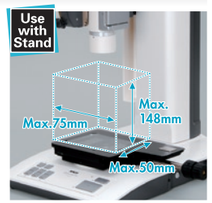
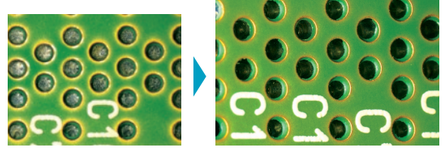


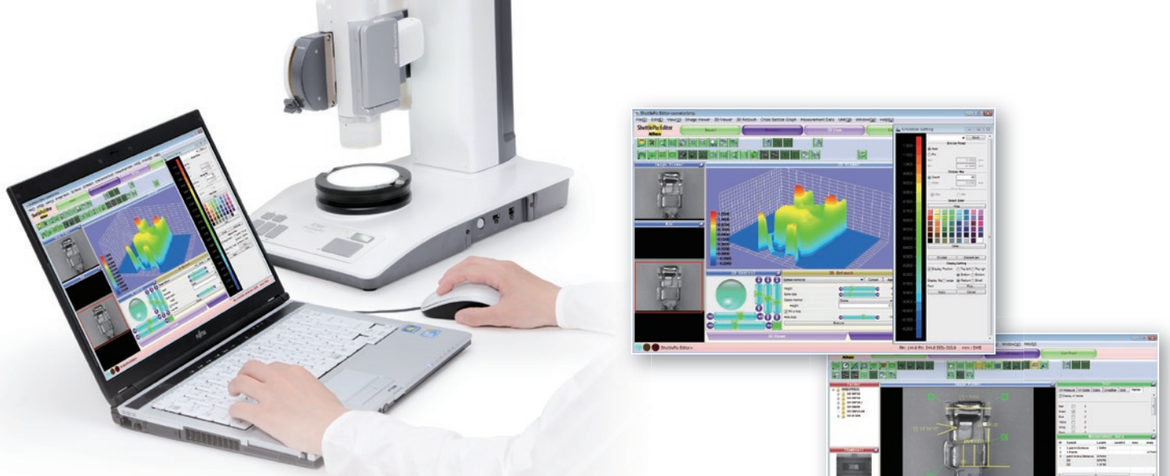
Image capture for large samples (up to 75mm x 50mm x 148mm) is possible with the Zoom Camera Head and with the Motorized Focusing Stand. Select from three dedicated Stages matched to the observation subject.

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



Vertical image

Slanted image



ShuttlePix STAND with PC

Unlock a Wide Range of Features Using the Dedicated Software

Free download and registration of software

ShuttlePix Editor

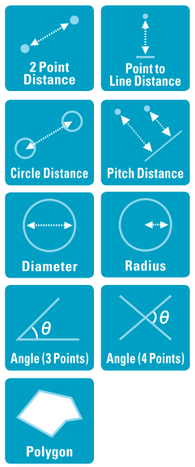
Conveniently output simple measurements and EDF image 3D or cross-section displays directly into Excel via dedicated ShuttlePix Editor* software. Software download from the Nikon website and user registration are free.

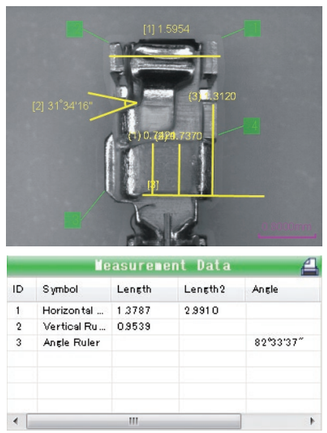
* Compatible with Windows XP and Windows 7

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.





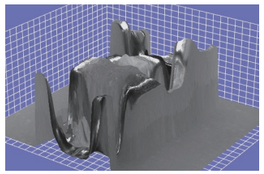
Measurement Data

ID	Symbol	Length	Length2	Angle
1	Horizontal ...	1.3787	2.9910	
2	Vertical Ru...	0.9539		
3	Angle Ruler			82°33'37"

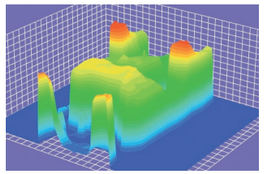
3D display of EDF images and height data

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



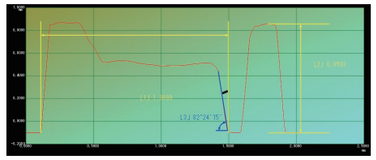
Color heightmap

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

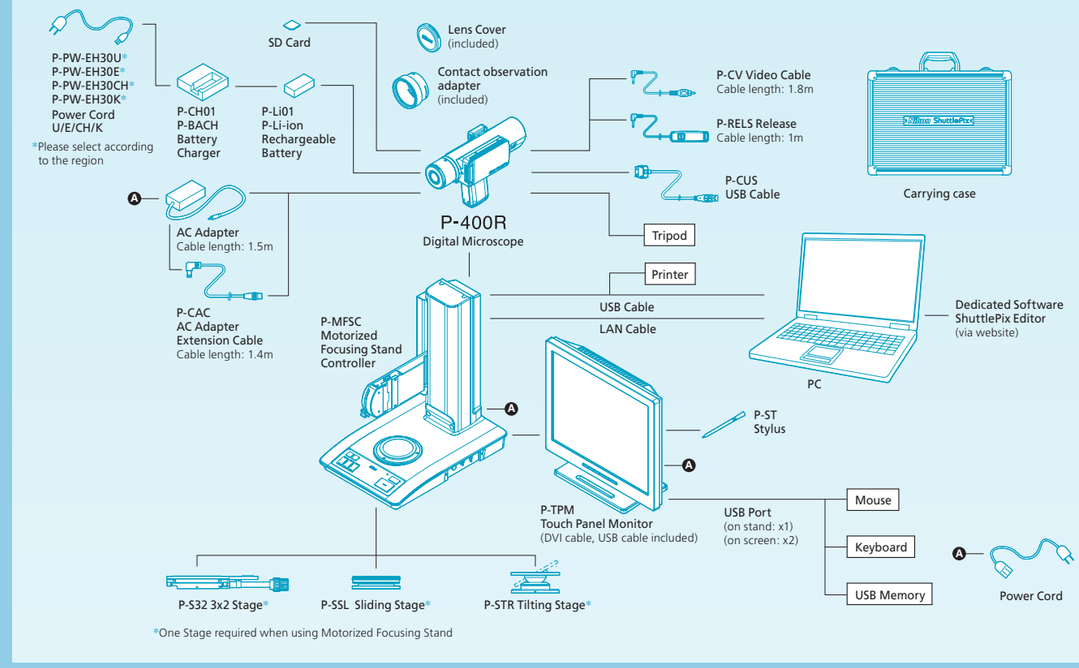


Cross section graph

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

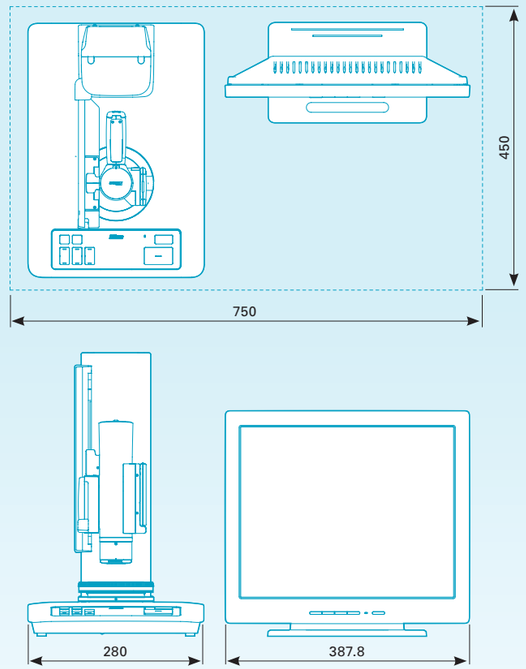
***Download of ShuttlePix Editor is limited to registered users of the product.**

System Diagram

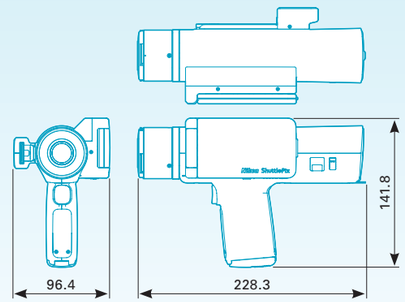


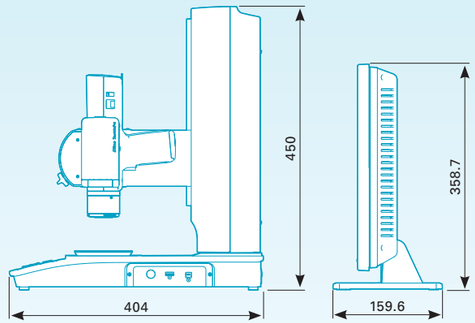
Dimensions

Motorized Focusing Stand + Touch Panel Monitor



Zoom Camera Head





Specifications

Zoom Camera Head (P-400R)

Effective pixels	Approx. 1.98 megapixels
CCD	**CCD:** 1/1.8" color CCD, total pixels approx. 2.11 megapixels
	Frame rate: 28fps (selectable 28fps (800x600) or 15fps (1600x1200) when connected to Motorized Focusing Stand)
Optics	**Magnification:** 3x to 60x (magnification on built-in 2.7" monitor), 20x to 400x (magnification on dedicated 17" monitor), optical zoom ratio = 20:1
Working distance	29mm
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: ø20mm, 4-segment ring LED (top/bottom/left/right)
Recording	**Storage media:** SD memory card, SDHC memory card (max. 16GB) (selectable USB memory or FTP when connected to Motorized Focusing Stand)
	File format: TIFF (non-compressed), JPEG (3 compression levels)
	Recording pixels: 2M (1600x1200), 0.5M (800x600)
Shooting mode	Scene mode (Standard, Wafer/ IC chip, Metal Ceramic, Circuit Board, FPD), BSS (Best Shot Select), timer (2 seconds fixed), interval, 4 custom setting, with focus indicator
Exposure	**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
Aperture	Resolution preferred mode/Depth-of-focus preferred mode
Image compensation	**Image quality adjustment:** Saturation/hue/contrast/sharpness/color effect
	Shading correction: Factory setting (switchable On/Off can be switched)
White balance	Manual setting (adjustable red/blue gain can be adjusted)
LCD Monitor	2.7" TFT color LCD, turned off automatically when connected to Motorized Focusing Stand
Image playback	Full-frame view, thumbnail view (9 frames), zoom view (scrollable)
Image deletion	Quick delete, select image delete, folder delete, card format
Video output	NTSC/PAL
Connector	Video output, capture input (ø3.5mm stereo mini jack), dedicated connector for stand
Language	Japanese/English
Power supply	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.
Power consumption	24VA
Battery operating time	Approx. 90 minutes (battery life at maximum power consumption by maximum LED brightness)
Charging time	Approx. 4 hours (when no charge remains)
Tripod socket hole	1/4-inch (ISO 1222)
Dimensions	Approx. 96(W)x142(H)x228(D)mm
Weight	Approx. 900g (excluding battery and SD card)
Usage environment	**Temperature:** 0 to +40°C
	Humidity: 60% RH max. (no condensation)

Motorized Focusing Stand (P-MFSC)

Stroke	**Z axis stroke:** 150mm (upward 148mm, downward 2mm), upper and lower limit can be adjusted
Stage	3x2 Stage/Sliding Stage/Tilting Stage
Image Edit	**EDF:** Still image display, 3D image display (with ShuttlePix Editor)
	Halation prevention: Live display (max. 5fps, 1280x960, 800x600)
	High dynamic range: Still image display (1280x960/800x600)
	Calibration: Zoom magnification conversion/user-registerd 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
Direct Printing	**Supported printer:** PictBridge printer
Connector	**Camera head IF:** for connection to P-400R
	Video output: DVI-I
	LAN: 10Base-T/100Base–TX
	USB host: USB2.0 A connector x2 (for connection to USB mouse/ USB memory/ dedicated monitor)
	USB device: USB2.0 B connector x1 (for connection to PC)
Language	Japanese/English
Power supply	Built-in, AC100-240V 50/60Hz
	Auto power save: OFF/1 to 99min.
Power consumption	140VA
Dimensions	Approx. 280(W)x450(H)x404(D)mm
Weight	Approx. 9kg
Usage environment	**Temperature:** 0 to +40°C
	Humidity: 60% RH max. (no condensation)

Touch Panel Monitor (P-TPM)

Display size	17.0" (display area 333.9mm x 270.3mm)
Resolution	SXGA (1280x1024)
Connector	**Image input:** Digital input: DVI-D SXGA, video input: NTSC composite
	USB host: USB2.0 A connector x3
	USB device: USB2.0 B connector x1
Power supply	AC100-240V 50/60Hz
Power consumption	140VA
Dimensions	Approx. 390(W)x371(H)x180(D)mm
Weight	Approx. 7kg
Usage environment	**Temperature:** 0 to +40°C
	Humidity: 60% RH max. (no condensation)

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.**

N.B. Export of the products* in this catarog 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)

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

NIKON CORPORATION
Shin-Yurakucho Bldg., 12-1, Yurakucho 1-chome
Chiyoda-ku, Tokyo 100-8331 Japan
phone: +81-3-3216-2384 fax: +81-3-3216-2388
http://www.nikon.com/instruments/

ISO 9001 Certified for NIKON CORPORATION Instruments Company

ISO 14001 Certified for NIKON CORPORATION Yokohama Plant

NIKON METROLOGY, INC.
12701 Grand River Avenue, Brighton, MI 48116 U.S.A.
phone: +1-810-220-4360 fax: +1-810-220-4300
E-mail: sales_us@nikonmetrology.com
http://us.nikonmetrology.com/
http://www.nikoninstruments.com/

NIKON METROLOGY EUROPE NV
Geldenaaksebaan 329, 3001 Leuven, Belgium
phone: +32-16-74-01-00 fax: +32-16-74-01-03
Email: sales_europe@nikonmetrology.com
http://www.nikonmetrology.com/

NIKON INSTRUMENTS (SHANGHAI) CO., LTD.
CHINA phone: +86-21-6841-2050 fax: +86-21-6841-2060
(Beijing branch) phone: +86-10-5831-2028 fax: +86-10-5831-2026
(Guangzhou branch) phone: +86-20-3882-0550 fax: +86-20-3882-0580

NIKON SINGAPORE PTE LTD.
SINGAPORE phone: +65-6559-3618 fax: +65-6559-3668

NIKON MALAYSIA SDN. BHD.
MALAYSIA phone: +60-3-7809-3688 fax: +60-3-7809-3633

NIKON INSTRUMENTS KOREA CO., LTD.
KOREA phone: +82-2-2186-8400 fax: +82-2-555-4415

NIKON INDIA PRIVATE LIMITED
INDIA phone: +91-124-4688500 fax: +91-124-4688527

NIKON CANADA INC.
CANADA phone: +1-905-602-9676 fax: +1-905-602-9953

NIKON INSTRUMENTS S.p.A.
ITALY phone: +39-055-300-96-01 fax: +39-055-30-09-93

NIKON AG
SWITZERLAND phone: +41-43-277-28-67 fax: +41-43-277-28-61

NIKON GMBH AUSTRIA
AUSTRIA phone: +43-1-972-6111-00 fax: +43-1-972-6111-40

NIKON BELUX
BELGIUM phone: +32-2-705-56-65 fax: +32-2-726-66-45

NIKON METROLOGY UK LTD.
UNITED KINGDOM phone: +44-1332-811-349 fax: +44-1332-639-881
E-mail: sales_uk@nikonmetrology.com

NIKON METROLOGY SARL
FRANCE phone: +33-1-60-86-09-76 fax: +33-1-60-86-57-35
E-mail: sales_france@nikonmetrology.com

NIKON METROLOGY GMBH
GERMANY phone: +49-6023-91733-0 fax: +49-6023-91733-19
E-mail: sales_germany@nikonmetrology.com

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