



# SMARTSCOPE FLASH

## Multisensor Metrology System

|           | Travel | mm  | in |
|-----------|--------|-----|----|
| Flash 302 | X axis | 300 | 12 |
|           | Y axis | 300 | 12 |
|           | Z axis | 250 | 10 |

A unique high capacity  
benchtop multisensor  
measurement system

SmartScope® Flash™ 302 is a large capacity video measuring system for dimensional verification of manufactured parts. It can be configured as a cost-effective multisensor system with optional through-the-lens (TTL) laser, touch probe, or micro-probe. Its 250 mm (10 in.) Z travel range can accommodate large parts, even when mounted on a rotary indexer for fourth-axis versatility.

- Flash 302 is mechanically innovative. Its unique patented “elevating bridge” design creates the most compact system of any machine with comparable travel. The entire system fits in a volume of 0.6 cubic meters.
- Accuracy is built-in. Axial straightness and perpendicularity are machined in, and its mechanical design makes it capable of meeting stringent volumetric specifications.
- Flash 302 has a high-quality 12:1 zoom lens that provides excellent optical performance over its entire range. This patented AccuCentric® lens maintains accuracy over time, automatically calibrating itself with each magnification change.
- The Flash patented profile illumination features a substage array of green LED lights that tracks the optical system as it moves in the X axis. Flash also is equipped with a white TTL coaxial illuminator and the patented LED SmartRing™ illuminator as standard equipment.
- Flash 302 can be configured with a number of options, including touch probe, TTL laser, deployable Feather Probe™, laser pointer, and a rotary indexer.
- Flash 302 includes the robust yet easy to use Measure-X® metrology software. Or choose optional MeasureMind® 3D MultiSensor for full 3D functionality.



## Technical Specifications

■ Standard ■ Optional

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
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| <ul style="list-style-type: none"> <li>■ <b>Stage travel (XYZ):</b> 300 x 300 x 250 mm (12 x 12 x 10")</li> <li>■ <b>Measuring unit dimensions (approx LWH):</b> 80 x 85 x 80 cm, 160 kg</li> <li>■ <b>XYZ scale resolution:</b> 0.5 μm</li> <li>■ 0.1 μm</li> <li>■ <b>Motor drives:</b> DC servo with 4-axis joystick control (X, Y, Z, zoom)</li> <li>■ <b>Interactive stage control:</b> 4-axis (X, Y, Z, zoom) with ergonomic, multifunction handheld controller (requires optional MeasureMind 3D software)</li> <li>■ <b>Worktable:</b> Hardcoat anodized with fixture holes and removable stage glass, 30 kg load capacity</li> <li>■ <b>Mechanical design:</b> Patented<sup>†</sup> "elevating bridge" design yields large XYZ travel with compact machine size</li> </ul>                                                                                                                                                                                                                                                                |  |
| <ul style="list-style-type: none"> <li>■ <b>Zoom lens:</b> Patented<sup>††</sup> 12:1 AccuCentric<sup>®</sup> auto-calibrating with up to 25 calibrated positions</li> <li>■ <b>Optical accessories:</b> 0.5x, 0.75x, 1.5x, and 2.0x lens attachments; 2.5x and 5.0x replacement lenses; LED grid projector, laser pointer (not available with TTL laser)</li> <li>■ <b>Camera:</b> ½" format high resolution color CCD with 768 x 494 pixel array</li> <li>■ <b>Illumination:</b> Patented<sup>†††</sup> green LED numeric aperture matching substage, white LED coaxial TTL surface, patented<sup>††††</sup> 8 sector/8 ring SmartRing<sup>™</sup> LED</li> <li>■ <b>Image processing:</b> 256 level grayscale processing with 10:1 sub-pixel resolution</li> <li>■ <b>Multisensor options:</b> Touch probe and change rack, Feather Probe<sup>™</sup>, on-axis TTL laser (contact OGP for possible combinations of sensors)</li> </ul>                                                                                                          |  |
| <ul style="list-style-type: none"> <li>■ <b>Power requirements:</b> 115/230 vac, 50/60 Hz, 1 φ, 600 W</li> <li>■ <b>Rated environment:</b> Temperature between 18 and 22° C, stable to ± 1° C; 30-80% humidity (non-condensing); vibration &lt;0.001g below 15 Hz</li> <li>■ <b>Operating environment:</b> 15-30° C</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| <ul style="list-style-type: none"> <li>■ <b>Metrology software:</b> Measure-X<sup>®</sup></li> <li>■ MeasureMind<sup>®</sup> 3D MultiSensor</li> <li>■ <b>Computer:</b> Minimum configuration Dual Core processor @ 1.8 GHz, 1 GB RAM, 80 GB hard drive, 1.44 MB floppy drive, DVD-RW drive, parallel, serial, and USB 2.0 ports, on board 10/100 LAN</li> <li>■ <b>Operating system:</b> Microsoft<sup>®</sup> Windows<sup>™</sup> XP Professional</li> <li>■ <b>Computer accessory package:</b> Single 22" or 24" flat panel LCD monitor, or dual 22" flat panel LCD monitors; keyboard, mouse (or user supplied)</li> <li>■ <b>Software:</b> For use with Measure-X or MeasureMind 3D; MeasureFit<sup>®</sup> Plus, SmartReport<sup>®</sup> powered by QC-Calc, SmartFeature<sup>®</sup>, QC-Calc<sup>™</sup>, TrueMap<sup>™</sup></li> <li>■ <b>Software:</b> For use with MeasureMind 3D only; SmartCAD<sup>®</sup> 3D, SmartFit<sup>®</sup> 3D, SmartProfile<sup>™</sup>, SmartScript<sup>®</sup>, I++ DME, SmartTree<sup>™</sup></li> </ul> |  |
| <p>Where L=measuring length in mm. Applies to thermally stable system in rated environment. All optical accuracy specifications at maximum zoom lens setting.</p> <ul style="list-style-type: none"> <li>■ <b>XYZ volumetric accuracy:</b> <math>E_3=(3.5 + 5L/1000) \mu m^{1,2,4}</math> (requires MeasureMind 3D)</li> <li>■ <b>XY area accuracy:</b> <math>E_2=(1.8 + 5L/1000) \mu m^{2,3}</math></li> <li>■ <b>Z linear accuracy:</b> <math>E_1=(2.5 + 5L/1000) \mu m^5</math></li> <li>■ <b>Z linear accuracy:</b> <math>E_1=(2.0 + 5L/1000) \mu m^5</math> (with optional 2.0x lens attachment and grid projector)</li> <li>■ <b>Z linear accuracy:</b> <math>E_1=(1.5 + 5L/1000) \mu m^5</math> (with optional TP-200 touch probe)</li> <li>■ <b>Z linear accuracy:</b> <math>E_1=(1.4 + 5L/1000) \mu m^5</math> (with optional TTL laser and 5.0x replacement lens)</li> </ul>                                                                                                                                                             |  |
| <ul style="list-style-type: none"> <li>■ <b>Warranty:</b> One year, on-site</li> <li>■ <b>Accessories:</b> Fixtures and calibration artifacts, service and support contracts, machine stand, computer workstation, rotary indexers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |

<sup>†</sup>Patent Number 6,518,996 <sup>††</sup>Patent Number 5,389,774 <sup>†††</sup>Patent Number 6,161,940 <sup>††††</sup>Patent Number 5,690,417

1) Maximum rate of temperature change: 1° C/hour.

2) With evenly distributed load up to 5 kg. Depending on load distribution, accuracy at maximum rated load may be less than standard accuracy.

3) XY axis artifact: QVI 25 intersection grid reticle in the standard measuring plane. The standard measuring plane is defined as a plane that is within 25 mm of the worktable surface.

4) XYZ volumetric artifact: QVI linear linescale. 5) Z axis artifact: QVI step gage or master gage blocks.



Multisensor Measurements for Manufacturing Professionals

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