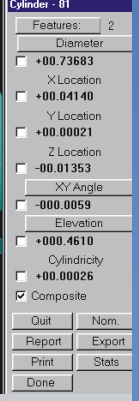




# SMARTSCOPE QUEST

## High Accuracy Multisensor Metrology System

| | Travel | mm | in |
|---|---|---|---|
| **Quest 650** | X axis | 610 | 24 |
| | Y axis | 660 | 26 |
| | Z axis | 400 | 16 |

## The Ultimate Multisensor Metrology Solution

Extremely accurate measurements within a large volume with your choice of sensor - that's SmartScope® Quest™ 650. Use video, and a combination of laser, touch, and/or micro-probes to get the measurements you need on your most complex parts. Mount your part to the optional heavy duty compound rotary for measurements in up to five axes.

SmartScope Quest 650 uses the latest technologies. Innovative OGP® fully telecentric TeleStar® optics, specially designed for metrology. High speed linear-motor-driven stages. LED ring lights for true-image illumination. Precision linear scales and a proven bridge platform for the stability to achieve a volumetric accuracy of 1.8 + 6L/1000 µm.

SmartScope Quest 650 is designed from the ground up as a multisensor measurement system. MeasureMind® 3D MultiSensor metrology software controls the measurement process and seamlessly integrates all sensor data to a common reference. Count on Quest to do the whole job — accurately.

Quest 650 is available with the latest sensor technologies. The Feather Probe™ measures fragile surfaces with less than one milligram of force. The SP25M scanning probe, which can also be mounted on a PH-10 motorized probe head, offers continuous contact scanning in any plane. The Rainbow Probe™ scanning white light sensor characterizes Z-axis topography to the nanometer level. Unique interferometric TeleStar TTL (through-the-lens) and DRS™ lasers provide non-contact surface contour scanning. Sensors operate under program control so they can be used at any point in a measurement routine.

# Technical Specifications

■ Standard □ Optional

| | |
|---|---|
| ■ | **Stage travel (XYZ):** 610 x 660 x 400 mm (24 x 26 x 16") |
| ■ | **Measuring unit dimensions (approx LWH):** 250 x 133 x 235 cm, 4730 kg |
| □ | **Computer workstation dimensions (approx LWH):** 91 x 61 x 80 cm, 36 kg |
| ■ | **XYZ scale resolution:** 0.1 µm |
| □ | 0.05 µm, 0.01 µm |
| ■ | **Interactive stage control:** 4 axis (X,Y,Z,zoom) with ergonomic, multifunction hand controller |
| ■ | **Motor drives:** Liquid-cooled linear (X,Y), DC servo (Z, zoom) |
| ■ | **Maximum stage speed:** 350 mm/sec (X,Y axis), 200 mm/sec (Z axis) |
| ■ | **Maximum stage acceleration:** 1500 mm/sec$^2$ (X,Y axis) |
| ■ | **Worktable:** Hardcoat anodized with fixture holes and removable stage glass, 100 kg load capacity |
| ■ | **Zoom lens:** Patented† 10:1 AccuCentric® TeleStar® auto-calibrating, telecentric, motorized, mag range 0.8x - 8x, 10 position |
| ■ | **Replacement lens, optical:** 1.0x |
| □ | **Replacement lenses, optical:** 0.5x/120 mm WD, 2.0x/32 mm WD, 4.0x/20 mm WD (grayscale camera only) |
| □ | **Replacement lenses, optical/laser:** 0.45x/200 mm WD (grayscale camera only), 0.5x/120 mm WD, 2.0x, 4.0x (grayscale camera only) |
| ■ | **Camera/Illumination:** *Camera/* high resolution grayscale with 752 x 582 pixel array<br>*Illumination/* LED substage backlight (collimated, green), LED coaxial TTL surface (green), patented†† 8 sector/6 ring SmartRing™ LED (green) |
| □ | **Camera/Illumination:** *Camera/* high resolution color CCD with 768 x 494 pixel array<br>*Illumination/* substage backlight (collimated, green), coaxial TTL fiber optic surface, 8 sector/6 ring SmartRing LED (white) |
| ■ | **Image processing:** 256 level grayscale processing with 50:1 sub-pixel resolution |
| □ | **Optical accessories:** LED grid projector, laser pointer (not available with TTL laser) |
| □ | **Multisensor options:** Touch probe and change rack, SP25 scanning probe, TeleStar TTL laser, Feather Probe™, Rainbow Probe™ scanning white light sensor, off-axis DRS™ laser, PH10 motorized probe head (contact OGP for possible combinations of sensors) |
| ■ | **Utility requirements:** 200-240 vac, ± 5%, 50/60 Hz, 1 ϕ, 1550 W; Air - clean, dry air at 80 PSI min, 15 liters/minute flowrate |
| ■ | **Rated environment:** Temperature between 18 and 22° C, stable to ± 1° C; 30-80% humidity (non-condensing); vibration <0.001g below 15 Hz |
| ■ | **Operating environment:** 15-30° C |
| ■ | **Metrology software:** OGP MeasureMind® 3D MultiSensor |
| ■ | **Computer:** Minimum configuration Dual Core processor @ 1.8 GHz, 1.0 GB RAM, 80 GB hard drive, 1.44 MB floppy, DVD-RW drive, parallel, serial, and USB 2.0 ports, on board 10/100 LAN, 22" flat panel LCD monitor, keyboard, mouse |
| □ | **Monitor options:** 24" flat panel LCD monitor (in lieu of standard 22"), or additional 22" flat panel LCD monitor for dual monitor display |
| □ | **Operating system:** Microsoft® Windows™ XP Professional |
| □ | **Software:** MeasureFit® Plus, SmartReport® powered by QC-Calc, SmartFeature®, QC-Calc™, TrueMap™, SmartCAD® 3D, SmartFit® 3D, SmartProfile™, SmartScript®, I++ DME, SmartTree™ |
| | Where L=measuring length in mm. Applies to thermally stable system in rated environment. All optical accuracy specifications at maximum zoom lens setting. |
| ■ | **XYZ volumetric accuracy:** $E_3=(1.8 + 6L/1000)$ µm[1,2,3,5] |
| ■ | **XY area accuracy:** $E_2=(1.5 + 4L/1000)$ µm[3,4] |
| ■ | **Z linear accuracy:** $E_1=(2.5 + 5L/1000)$ µm[6] |
| □ | **Z linear accuracy:** $E_1=(1.8 + 6L/1000)$ µm[6] (with optional 2x or 4x replacement lens and grid projector) |
| □ | **Z linear accuracy:** $E_1=(1.5 + 5L/1000)$ µm[6] (with optional DRS-300 or -500 laser; TeleStar TTL or DRS-2000 laser; or TP-20 or -200 touch probe) |
| ■ | **Warranty:** One year, on-site |
| □ | **Accessories:** Fixtures and calibration artifacts, service and support contracts, computer workstation, single and composite rotaries |

†Patent Numbers: 5,389,774 (AccuCentric); 6,292,306 (TeleStar) ††Patent Number 5,690,417

1) Maximum rate of temperature change: 1° C/hour. 2) Maximum vertical gradient: 1° C/meter.
3) With evenly distributed load up to 5 kg. Depending on load distribution, accuracy at maximum rated load may be less than standard accuracy.
4) 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.
5) XYZ volumetric artifact: QVI linear linescale. 6) Z axis artifact: QVI step gage or master gage blocks.

Multisensor Measurements for Manufacturing Professionals

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