SmartScope® Multisensor Metrology Systems

Multisensor Measurements for Manufacturing Professionals
Welcome to OGP

OGP® SmartScope® systems are used by manufacturers around the world to qualify and maintain production processes for components ranging from micro-circuits to steam turbines. Our dimensional measurement systems provide solutions in the automotive, aerospace, medical, ceramics, electronics, power generation, precision tooling, telecommunications, semiconductor, plastics and metalworking industries. Our 70-plus-year history of innovation has made OGP the global leader in multisensor dimensional metrology systems.

OGP Delivers QVI® Technology.
As the founding member of the QVI family of brands, we know the requirements of coordinate metrology. We design, manufacture and integrate the mechanics, electronics, optics and software used in our measurement systems to achieve state of the art performance. Our heritage in optics and projection gaging is the foundation on which all QVI measurement technology is built. Every OGP system is built on the principles of stable materials, proven mechanical design, and sound integration of components to form a reliable, repeatable and accurate measurement system.

Local Support, Worldwide.
Our global network of over 50 Technical Centers and Certified Channel Partners provide unsurpassed support to our customers anywhere in the world. From finding the right system to measure a part, through installation, training and qualification, our team will be there to support you every step of the way — with personnel based in your area and speaking your language, knowing your industry, familiar with your environment.

A History of Innovation.
For over 70 years, OGP has been at the forefront of dimensional measurement technology. As pioneers in projection gaging, automation, vision and multisensor integration, OGP has consistently offered measurement systems that solve real problems in manufacturing settings on a day to day basis. With an installed base of over 30,000 systems in more than 75 countries around the world, you can rely on OGP to offer a solution to your measurement needs.
Video measurement, OGP’s core technology, is ideal whenever it can be used. Non-contact, fast, and accurate, video measurement provides high accuracy and repeatability for dimensions defined by edges, and offers a wide variety of image analysis tools for feature detection and part orientation.

Laser sensors excel at fast, accurate Z-axis point acquisition. Use a laser for height, depth and planar measurements, or for surface profiling on complex curves and surfaces.

Tactile Probes
Touch probes provide access to areas that cannot be seen by optics, such as the inside wall of a cylinder or the outside of a sphere. Scanning probes offer high speed data gathering, even on unknown surfaces.

Micro-probes
Micro-probes offer high accuracy for situations where the part is too fragile or flexible to withstand normal probing force, or when part features are extremely small. OGP’s Feather Probe™ can probe accurately with less than a milligram of force, and can precisely measure the tiniest features.

Multisensor metrology systems offer significant advantages in measurement speed and accuracy. By using the best type of sensor for individual dimensions, multisensor systems measure faster, more thoroughly, and more accurately than single sensor systems.

OGP pioneered multisensor measurement, introducing the IQ-2000 multisensor system with vision, touch probe and laser sensors in 1987. Since then, OGP has consistently led the industry with a succession of innovative systems and sensors to tackle the most difficult measurement challenges.

OGP SmartScope multisensor systems are designed as systems from the ground up. All sensors are integrated seamlessly with the system mechanics and software, simultaneously calibrated and available for use at any step in the measurement routine.
SmartScope Flash Benchtop Systems

SmartScope Flash benchtop systems are compact and capable. The patented “elevating bridge” design makes efficient use of space and enhances accuracy through designed-in mechanical integrity.

SmartScope Flash Floor Models

SmartScope Flash floor models provide extended measurement ranges to measure large parts, or batches of parts in a multi-station fixture. Bridge designs and granite platforms provide the structural stability required to measure with high accuracy.
SmartScope® Flash

SmartScope Flash systems are versatile “all-in-one” multisensor measuring systems built to handle a wide variety of measurement tasks. The Flash product line offers the largest range of XYZ measurement volumes, from 200x200x150 mm to 650x1200x400 mm, as well as models with expansive XY travels up to 1500x2000 mm, to easily accommodate very large parts.

A 12:1 zoom metrology lens features patented AccuCentric® autocalibration, that calibrates itself automatically after every magnification change. Flash also offers a range of innovative illumination sources, including the SmartRing™ white LED oblique illuminator, standard on all SmartScope Flash systems.

SmartScope Flash can be configured as an economical yet capable multisensor metrology system, with numerous combinations of touch probes, scanning probes, micro-probes, and lasers. SmartScope Flash systems are extremely popular, with thousands in service worldwide.

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<th>Model</th>
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<th>Measurement Range</th>
<th>Available Accessories</th>
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<tr>
<td>SmartScope Flash 200</td>
<td>Benchtop, Elevating Bridge</td>
<td>200x200x150 mm</td>
<td>Touch probe, scanning probe, TTL laser, Feather Probe™</td>
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<td>SmartScope Flash 250</td>
<td>Benchtop, Compound Stage</td>
<td>300x150x200 mm</td>
<td>Touch probe, scanning probe, TTL or DRS™ laser, Feather Probe, Rainbow Probe™</td>
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<tr>
<td>SmartScope Flash 302</td>
<td>Benchtop, Elevating Bridge</td>
<td>300x300x250 mm</td>
<td>Touch probe, scanning probe, TTL laser, Feather Probe</td>
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<tr>
<td>SmartScope Flash 500</td>
<td>Floor Model, Fixed Bridge</td>
<td>500x450x200 mm, Ext Y 610 mm (opt), Ext Z 300 or 400 mm (opt)</td>
<td>Touch probe, scanning probe, TTL or DRS laser, Feather Probe, Rainbow Probe</td>
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<td>SmartScope Flash 635</td>
<td>Floor Model, High Velocity Moving Bridge</td>
<td>635x635x200 mm</td>
<td>Touch probe, TTL or DRS laser, Feather Probe, Rainbow Probe</td>
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<tr>
<td>SmartScope Flash 670</td>
<td>Floor Model, Moving Bridge</td>
<td>650x670x200 mm, Ext Y 1200 mm (opt), Ext Z 300 or 400 mm (opt)</td>
<td>Touch probe, scanning probe, TTL or DRS laser, Feather Probe, Rainbow Probe</td>
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<tr>
<td>SmartScope Flash 800</td>
<td>Floor Model, Fixed Bridge</td>
<td>800x820x200 mm</td>
<td>Touch probe, scanning probe, TTL or DRS laser, Feather Probe, Rainbow Probe</td>
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<tr>
<td>SmartScope Flash 1500</td>
<td>Floor Model, Moving Bridge</td>
<td>900x1500x200 mm (1500 Model), 1240x1500/1800/2000x200 mm (1550 Model), 1500x1500/1800/2000x200 mm (1552 Model)</td>
<td>Touch probe, TTL or DRS laser, Rainbow Probe</td>
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SmartScope® ZIP

SmartScope ZIP systems offer superior optical performance and a range of measurement volumes to deliver reliable performance. Available in three models, SmartScope ZIP features the proven performance of AccuCentric® auto-calibrating 7:1 zoom optics.

SmartScope ZIP systems are available in a range of XYZ measurement volumes, from 300x150x200 mm to 450x610x300 mm. Multiple illumination sources — including monochromatic substage LED profile, white LED TTL surface, SmartRing™ white LED ring light, and optional VuLight™ oblique illuminator — are available to illuminate your toughest measurement challenges.

Add multisensor versatility to SmartScope ZIP with available touch trigger or scanning probes, micro-probes, off-axis DRS™ laser, or on-axis TTL laser.

SmartScope ZIP and ZIP Advance Systems

SmartScope ZIP systems provide large XYZ measurement ranges from 300x150x200 mm to 800x820x200 mm, and offer a variety of optical configurations. ZIP Advance systems feature 0.05 µm scales for extremely high-resolution, fast XYZ positioning, with features such as linear motors and high-helix drives.

SmartScope ZIP Lite Systems

SmartScope ZIP Lite systems offer automatic video-based inspection and measurement in a cost-effective benchtop package. ZIP Lite systems offer a high-resolution color video camera, and precision mechanical bearing stages with XY-axis stepper motor drives, and Z-axis servo drive.
SmartScope ZIP Lite 250/300
Benchtop, Compound Stage
250x150x150 mm (250 Model), Ext X 300 mm (opt - 250 Model),
300x300x150 mm (300 Model)
Available touch probe, DRS™ laser

SmartScope ZIP 250
Benchtop, Compound Stage
300x150x200 mm
Available touch probe, scanning probe, TTL or DRS laser, Feather Probe™, Rainbow Probe™

SmartScope ZIP 300
Floor Model, Compound Stage
300x300x200 mm, Ext Z 300 mm (opt)
Available touch probe, scanning probe, TTL or DRS laser, Feather Probe, Rainbow Probe

SmartScope ZIP 450
Floor Model, Fixed Bridge
450x450x200 mm, Ext Y 600 mm (opt), Ext Z 300 mm (opt)
Available touch probe, scanning probe, TTL or DRS laser, Feather Probe, Rainbow Probe

SmartScope ZIP 635
Floor Model, High Velocity Moving Bridge
635x635x200 mm
Available touch probe, TTL or DRS laser, Feather Probe, Rainbow Probe

SmartScope ZIP 800
Floor Model, Fixed Bridge
800x620x200 mm, Ext Y 1200 mm (opt), Ext Z 300 mm (opt)
Available touch probe, scanning probe, TTL or DRS laser, Feather Probe, Rainbow Probe

SmartScope ZIP Advance 250
Benchtop, Compound Stage
300x150x200 mm
Available touch probe, scanning probe, TTL or DRS laser, Feather Probe, Rainbow Probe

SmartScope ZIP Advance 450
Floor Model, Fixed Bridge
450x450x200 mm, Ext Y 600 mm (opt)
Available touch probe, scanning probe, TTL or DRS laser, Feather Probe, Rainbow Probe
SmartScope® Quest
The Ultimate in Multisensor Performance

SmartScope Quest systems are designed to provide the best performance and the highest accuracy in three-dimensional multisensor measurement. Its patented TeleStar® 10:1 zoom lens is completely telecentric and automatically calibrated throughout its zoom range, for distortion-free, high fidelity images. Generous working distances make it easy to measure large parts. Multiple illumination sources, including the innovative SmartRing™ oblique surface illuminator, are available.

Quest XYZ measurement volumes range from 300x150x200 mm for compact benchtop models, up to 790x815x400 mm for the large-capacity floor model systems. These systems were built for multisensor versatility, with available touch trigger probe, off-axis DRS™ laser, the patented on-axis TTL TeleStar interferometric laser, continuous contact scanning probe and articulating probe head, and single or dual rotary indexers for 4th and 5th axis measurement.

The combination of sensor tools offered by SmartScope Quest allows complete measurement of complex parts in a single setup to handle the toughest measurement challenges.
SmartScope Quest Benchtop Systems

Benchtop SmartScope Quest systems provide high accuracy and superb imaging in a compact, capable package. A full range of multisensor options complements the fully telecentric TeleStar® Zoom optics.

SmartScope Quest 250
Benchtop, Compound Stage
300x150x200 mm
Available touch probe, TeleStar® TTL or DRS™ laser, Feather Probe™, Rainbow Probe™

SmartScope Quest 300
Benchtop, Elevating Bridge
300x300x250 mm
Available touch probe, scanning probe, TeleStar TTL or DRS laser, Feather Probe™

SmartScope Quest 450
Floor Model, Fixed Bridge
450x450x250 mm, Ext Y 610 mm (opt), Ext Z 300 or 400 mm (opt)
Available touch probe, scanning probe, articulating probe head, TeleStar TTL or DRS laser, Feather Probe, Rainbow Probe

SmartScope Quest 650
Floor Model, Fixed Bridge
610x660x400 mm
Available touch probe, scanning probe, articulating probe head, TeleStar TTL or DRS laser, Feather Probe, Rainbow Probe

SmartScope Quest 800
Floor Model, Fixed Bridge
790x815x250 mm, Ext Z 300 or 400 mm (opt)
Available touch probe, scanning probe, articulating probe head, TeleStar TTL or DRS laser, Feather Probe, Rainbow Probe

SmartScope Quest Floor Model Systems

The larger Quest models are designed to accommodate larger, heavier parts or fixture tooling, including single or dual rotary indexers. Quest floor models offer linear motors for extremely fast stage transport. XYZ measurement volumes range from 450x450x250 mm to 790x815x250 mm, with optional extended X, Y and/or Z axes to expand the measuring range further.
The Right Measurement Capability for Any Manufacturing Setting

OGP SmartScope multisensor systems are versatile enough to serve a wide variety of manufacturing settings and processes — from castings to molded plastics, machining to 3D printing. Whatever the process, there is a SmartScope configuration well suited to the dimensional control requirements.

Aerospace
From turbine blades and vanes in jet engines to cockpit electronics to the plastic latch on a tray table, OGP SmartScope systems offer the precision and reliability aerospace component manufacturers need for critical components. CAD based designs and advanced reporting requirements typical of aerospace manufacturing are routine for OGP SmartScope systems and software. Currently installed SmartScope systems are solving complex measurement challenges involving commercial aviation, UAVs, and public and government-sponsored space programs.

Medical
Orthopedic implants are designed to mimic the human form, with organic curves controlled by multiple simultaneous profile tolerances. OGP SmartScope systems provide the tools to measure these complex parts quickly and accurately. Systems and software comply with FDA requirements and OGP offers optional regulatory compliance products and services to accelerate the installation and operational qualification phases of metrology system validation.

Automotive
Reliability, fuel economy and cost reduction continually drive automotive component manufacturers to innovate in design, materials and manufacturing processes. OGP SmartScope systems offer the CAD integration, throughput and shop floor reliability to enable rapid innovation year after year.

Plastics
High production injection molded plastic parts require precision measurement for initial mold qualification and production process control. OGP SmartScope systems offer the sophistication and speed to measure and report quickly on typical molding process variables.

Electronics
OGP SmartScope systems can be configured to measure a wide variety of electronic parts and assemblies, including PCBs, LEDs, LCDs, and printed electronics.
ZONE3® epitomizes the state-of-the-art in metrology software for multisensor measurement. ZONE3 is 3D CAD-based, and provides a full range of geometric measurement capabilities, as well as 3D kinematic models, integral ASME Y14.5 and ISO 1101 GD&T evaluation, custom report formatting, and part family programming.

Measure-X® metrology software is easy to use, and features a full set of image processing tools and geometric functions. Measure-X is multisensor capable.

MeasureMind® 3D metrology software features true 3D functionality and takes full advantage of a multisensor environment. All measured data points are maintained in 3D space.

SmartFit® 3D and SmartProfile® point cloud analysis and engineering evaluation applications are usable on any measurement system or in any engineering environment. SmartFit 3D provides full 3D fitting capability and clearly identifies non-conformance. SmartProfile features ASME Y14.5 and ISO 1101 GD&T compliance, and allows optimization and evaluation of shape, form, and dimensional requirements for rigid bodies and assemblies.
QVI metrology and productivity software lets the user take full advantage of the OGP multisensor experience. QVI software tackles every aspect of a project, from precision measurement in 2D or 3D space, to data analysis, SPC, best-fitting, GD&T analysis, troubleshooting, data export and custom reports. CAD integration offers efficient programming and run-time optimization. At the heart of the system, the QVI Portal provides a convenient desktop interface to call up whichever application is necessary, and the Portal’s wizard-based Independent Calibration Engine (ICE) calibrates all sensors and motion axes, ensuring the ultimate in metrology performance. A complete suite of video image processing tools such as FeatureFinder®, Strong/Weak Edge, Autofocus, Centroid, Edge Trace, and more allows accurate, repeatable measurement of virtually any image. QVI software integrates the most sophisticated sensor technologies, including advanced imagers, tactile probes, laser and white light, and specialized micro-probes into the measuring platform. The resulting powerful, versatile software allows the full measurement potential of OGP metrology systems to be realized.
QUALITY VISION INTERNATIONAL –
Precision for People®

Quality Vision International (QVI®) is the world’s largest vision metrology company. Founded in 1945, QVI is the world leader in optical, electronic and software technologies for vision and multisensor measuring systems.

Precision for People is more than just our slogan. It's our commitment to delivering our worldwide customers precision metrology systems designed with the people who use them in mind. Precision for People - it's what we stand for.