MEASURE**X**

OGP®

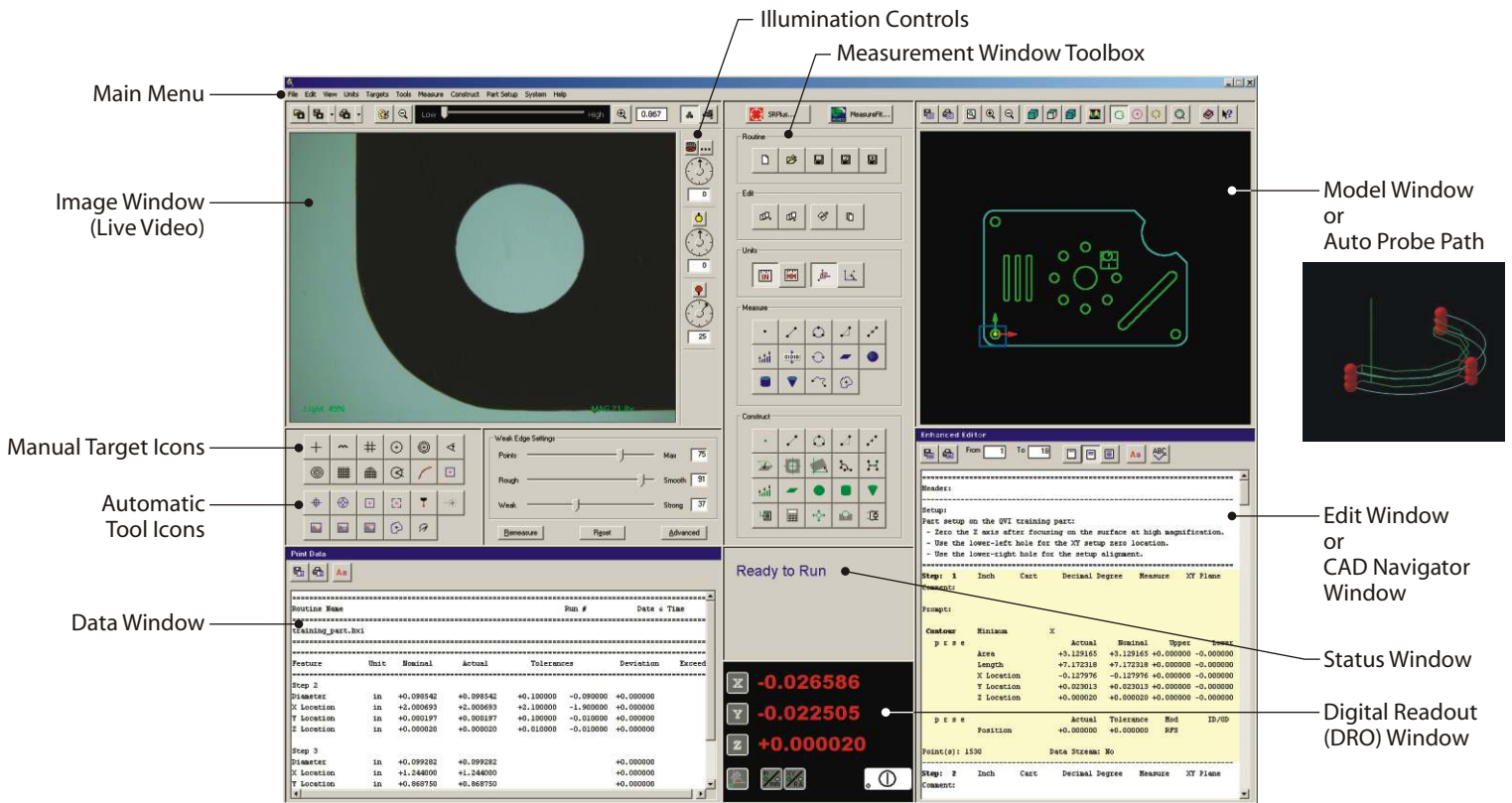## Metrology Software

Measure-X® metrology software strikes a balance between ease of use, power, and versatility for OGP® SmartScope® multisensor metrology systems. With Measure-X, you can easily create routines to automatically measure your most complex parts. Measure-X features:

- Full field-of-view (FOV) image processing and weak edge analysis

- Complete control of motorized stages, zoom lens, illumination, and optional sensors, including touch probes and lasers (if so equipped)

- New Full-Featured user interface for simultaneous viewing of Image, Model, Edit, and Data windows with no tabbing or pulldown menus

- Optional CAD import into a Measure-X routine, with automatic generation of measurement steps from the CAD file, measurement path optimization, and interactive stage and CAD model movement

- Configurations for single or dual monitor operation

- Logically designed icon toolboxes for direct access to measurement, construction, and analysis functions

- Image window with real-time video display and color coded Model window with a CAD-like image that shows tolerance deviations

- Extended functionality with optional OGP productivity software: MeasureFit® Plus for 2D fitting; SmartFit® 3D for 2D/3D fitting and analysis; SmartReport® powered by QC-Calc™ for custom report generation and data export; SmartProfile® for 3D fitting in a GD&T environment; QC-Calc for SPC analysis; and TrueMap™ for surface mapping and analysis

The easy way to high-powered measurements

O P T I C A L   G A G I N G   P R O D U C T S ,   I N C .

MEASURE-X

Main Menu

Illumination Controls

Measurement Window Toolbox

Image Window (Live Video)

Model Window or Auto Probe Path

Manual Target Icons

Automatic Tool Icons

Edit Window or CAD Navigator Window

Data Window

Status Window

Digital Readout (DRO) Window

Full-Featured user interface shows all important information at once, for complete control of the measurement process . . .

Use Measure-X to zoom in on a specific part feature. Position, focus and measure it in the video window, then go on to other features to incrementally build a virtual model of the entire part. Measure directly in the model window, set axis alignments and define datums, create constructions to gather more measurements and define relationships between discrete part features. Quickly access the Image, Model, Listing, and Print Data windows to find the information you need. Create measurement routines — then save them. When the routines are run, all steps are repeated exactly as they were created.

With optional CAD import, import a CAD file into a Measure-X routine. Measurement steps will automatically be generated from the CAD file, including the associated nominal values. Beginning with a CAD file speeds up routine creation and streamlines workflow. With Auto Probe Path, select as few as two points on a part feature, and the system automatically creates a touch probe path to measure an increased number of equally-spaced points — making your probing process faster, easier, and more accurate.

The Listing window updates dynamically as the part routine runs. The live video image is displayed and the Model window is continuously updated throughout the measurement sequence. And you always know what your SmartScope system is doing with the Status window that shows system operation status, with continuous updates.

The tools you need . . .

The Main Menu includes top level pulldown menus for File, Edit, View, Units, Targets, Tools, Measure, Construct, System and Help functions.

Illumination Controls let you set levels and on/off status for all illumination, including SmartRing.

The Measurement Window Toolbox includes functional groups of icons corresponding to File, Edit, Measure, and Construct in the Main Menu.

The Model Window displays a CAD-like sketch of measured and constructed features for the current measurement routine. System-generated **Auto Probe Path** may also be displayed here.

The Edit Window displays all of the steps in the current routine, and allows immediate editing of the routine. When importing a CAD file, the **CAD Navigator** is displayed here (if equipped).

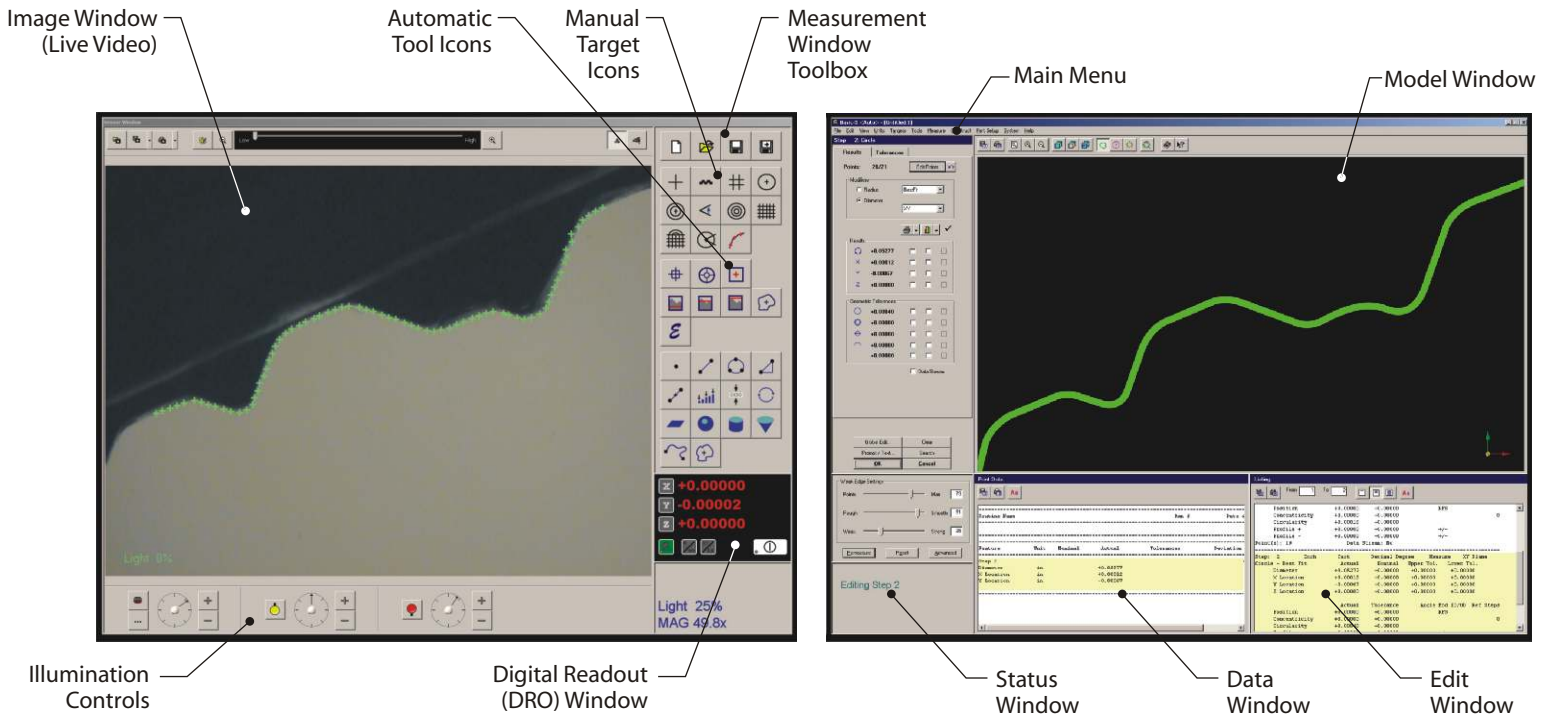**The Status Window** reports current system status.

The Digital Readout (DRO) Window shows the current XYZ stage location, axis alignment status, current units of measurement and coordinate system, and emergency stop status.

The Data Window displays the measurement results of a routine.

The Automatic Tool Icons invoke automatic measurement tools, including FeatureFinder™, Strong/Weak Edge, Basic and Advanced Autofocus, Edge Trace, Centroid, and Touch Probe/Laser (if equipped). **The Manual Target Icons** provide a choice of alignment targets to overlay the Image Window, including crosshair, microgage, box, circle, double circle, protractor, radius chart, grid chart, combination chart, multiple targets, and point entry.

The Image Window shows the live video image of the part.

Image Window
(Live Video)

Automatic
Tool Icons

Manual
Target
Icons

Measurement
Window
Toolbox

Main Menu

Model Window

Illumination
Controls

Digital Readout
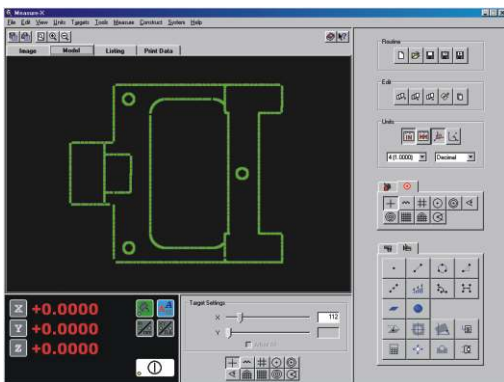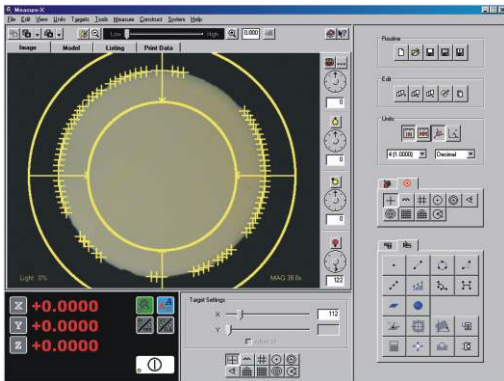(DRO) Window

Status
Window

Data
Window

Edit
Window

Dual Monitor user interface displays windows over the span of two monitors, and allows the cursor to move between the monitors

Choose the look you want . . .

You can order Measure-X configured with one of three user interfaces to suit your style and needs.

- **Full-Featured** user interface displays all the tools and windows at the same time on a single screen, with all important information ready at a glance in one place, making efficient use of the full 1600x1200 (or 1680x1050 widescreen) pixel space.

- **Dual Monitor** user interface separates the tools, controls, and windows onto two video monitors, each with a full 1600x1200 (or 1680x1050 widescreen) pixel resolution. This yields a live video window that is twice as high and twice as wide, effectively quadrupling the observed magnification and making it easier to see what you are measuring.

- **Classic** user interface is the popular Measure-X interface used on thousands of SmartScope systems. The Classic user interface has been upgraded with enhanced editing capabilities for Measure-X version 3.

Classic user interface offers the convenience of large Image and Model windows that are easily accessed by tabbing back and forth. Keep your current procedures and practices in place by using Measure-X in Classic user interface mode.

Available User Interfaces
- Full-Featured (1 monitor, 1600x1200 or 1680x1050)
- Dual Monitor (2 monitors, each 1600x1200 or 1680x1050)
- Classic (1 monitor, 1024 x 768)

Image Processing Tools
- FeatureFinder – Double click image to automatically measure lines, arcs, circles
- Weak edge – Measure features based on image conditions
- Strong edge – Highest contrast or directional scan
- Edge trace – Automatically measure irregular contours
- Centroid

Coordinate Systems
- Cartesian (XYZ) and Polar (RAZ)
- Decimal/degrees or deg/min/sec
- Direct conversion of English and metric units
- Selectable numeric resolution

Measurement Types
- Coordinate point
- Line
- Radius and diameter
- Included angle and intersection point
- Width
- Distance: XYZ, polar, 3D, point-line or plane
- Spherical radius and diameter
- Plane
- Intersection(s) between lines and circles
- Gage ball and gage diameter
- Edge trace
- Centroid
- Contour

Tolerances
- Size – ANSI (+/–) and ISO (+/+, –/–, +/–)
- Location – true position, concentricity, linear
- Form – circularity, straightness, flatness, coplanarity
- Orientation – angularity, parallelism, perpendicularity
- Profile – arc, line, or plane
- Modifiers – MMC and LMC

Graphics Model
- Real-time display of measured features
- Auto scaling graphics model
- Color coding
- Zoom in/out with mouse
- Build constructions by selecting features in model window
- Click and drag to select
- Quick stage and model navigation with CAD option

Data Reduction
- Calculate from processed image data or from previously measured features
- Best fit (Gaussian), minimum, or maximum
- Automatic dirt/defect removal
- XY, XZ, YZ planes

Autofocus Tools
- Edge and surface focus
- First, last, or highest contrast

Datum Operations
- Origin set and skew alignment
- Auto leveling
- Axis preset
- Translate origin and rotate axes
- Construct from basic dimensions

Multisensor Support
- Touch probes with Auto Probe Path generation
- DRS and TTL lasers

CNC Control
- XYZ positioning
- Zoom magnification
- Illumination sources
- Rotary indexing table (if equipped)
- Edge detection and image analysis
- Autofocus
- Mouse joystick
- Control external devices with digital I/O channels

Data Input
- CAD import to Measure-X routine (option)

Data Output
- Configurable hard copy report
- Default and custom report headers/comments
- Configurable data export to Excel or database
- Run time overrides
- Print graphics model
- Export to SmartFit® 3D, MeasureFit® Plus, SmartFeature®, and SmartReport® powered by QC-Calc™ software; third-party SPC software
- Geometric calculation
- Comparison to nominals and tolerances
- Digital I/O

Editing
- Undo last step
- Insert, delete, change, and copy step
- Interactive editing while measuring
- Standard, condensed, and expanded listings
- Advanced editor - edit steps in Edit Window
- Global edit

Languages
- User interface in English, Spanish, French, German, Portuguese, Italian, Swedish, Dutch, Japanese, Korean, Chinese

Computer Generated Targets
- Calibrated size
- Re-size by dragging with mouse
- Crosshair, box, circle, focus, grid, protractor, and multiple combinations

Calibration Utilities
- Zoom lens calibration
- Optical accessories calibration
- Non-linear XYZ stage calibration
- Touch probe calibration
- Laser calibration

System Configuration
- Power-up defaults
- Language
- RS-232 port configuration
- Default report and export templates
- Printer type and port
- Audible warnings and tones

Math/Logic Functions
- Copy and Step & Repeat: XYZ or RAZ offsets
- Math operations
- Branch on condition and If-Then-Else statements

Image Operations
- Save image during run (24 bit TGA, BMP, or TIF format)
- Print image (laser, inkjet, and video printers)
- Positive and negative masks
- Transparent or solid overlays

Online Help
- Full featured, user-friendly Help
- Hyperlinks, related topics, index and search

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