THE POWER OF

**QUADRA CHEK®**

**Quadra-Chek® Digital Readouts**

# Know precisely

# You can't make a more accurate choice.

**Quadra-Chek® Digital Readouts** Quadra-Chek is the world's premiere developer of metrology software and digital readouts for measuring and inspecting 2D geometric components.

Quadra-Chek systems are the standard control interface on the precision measuring devices of many of the world's leading precision metrology instrument manufacturers.

Quadra-Chek digital readouts support industries that call for precise measurement and inspection of 2D parts in single-sensor and multi-sensor environments. The products feature an intuitive user interface and simple, meaningful visual displays. Their design reflects a deep understanding of user needs and a uniform work process model that supports operators at every stage in the measurement process. Quadra-Chek digital readouts lead the precision inspection industry with innovations that improve operator productivity, reduce errors and save time and money.

**Gage-Chek Metrology Displays**
The Gage-Chek is a versatile display allowing up to eight inputs. The Gage-Chek combines familiar digital readout functions with color graphics to provide fast and accurate measurement feedback. Channels can be mathematically combined for dimensions such as thickness, flatness and volume. Results can be displayed numerically or graphically or archived for process studies such as SPC.
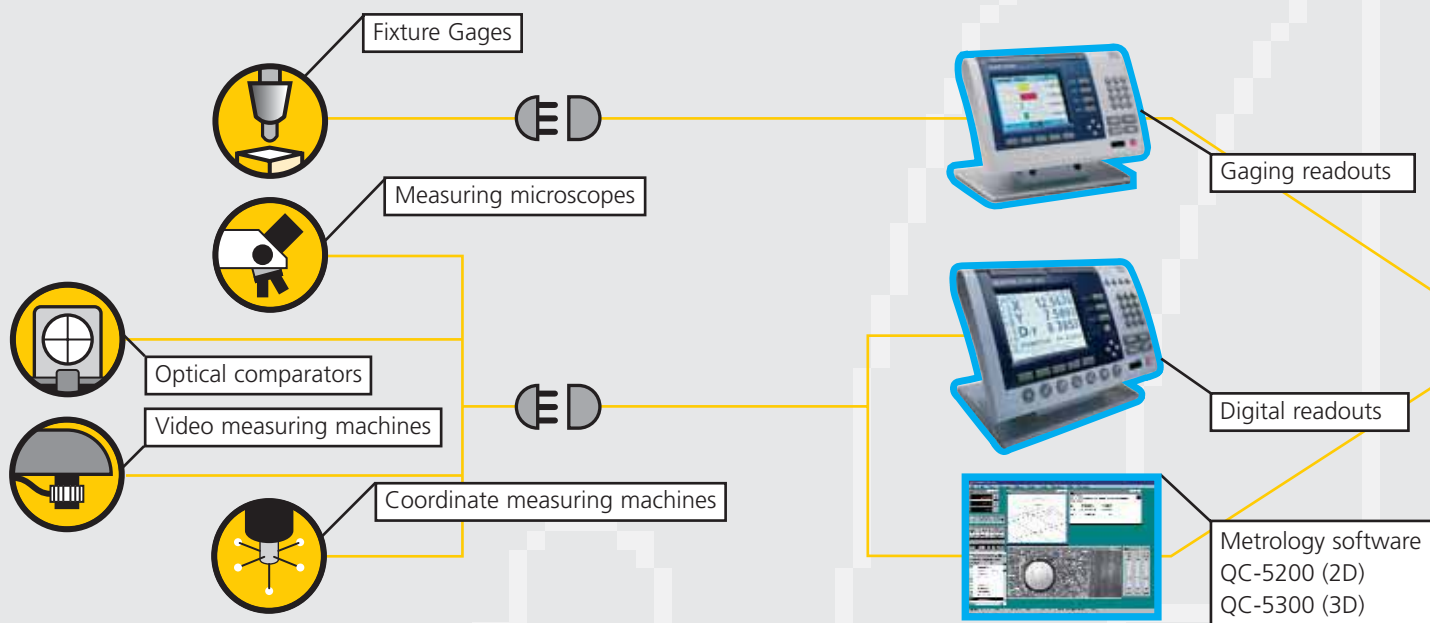
**Quadra-Chek 200 Series Geometric Readouts** A time-saving measurement tool with patented Measure Magic® technology. Ideal for measuring 2D features. Can be used with inspection tools such as optical comparators, measuring microscopes and coordinate measurement machines.

**Quadra-Chek 300 Series Geometric Readouts** An advanced digital readout with an enhanced, color touch-screen interface. Includes patented Measure Magic® technology. Ideal for measurement of 2D features. Can be used with inspection tools such as measuring microscopes, video systems and video edge detection.

# Integrate fully



Fixture Gages

Measuring microscopes

Optical comparators

Video measuring machines

Coordinate measuring machines

Gaging readouts

Digital readouts

Metrology software
QC-5200 (2D)
QC-5300 (3D)

## Versatile instrument support

If you already have a Quadra-Chek product on your shop floor—on any metrology instrument—you can easily integrate our newest products. If you are just developing a dimensional inspection capability, no other company provides as broad a product offering to help you grow as your needs change. Best of all, Quadra-Chek products share measuring protocols and interface conventions across the Metronics product line, which accelerates training, promotes cross-training and improves measurement accuracy.

## Comprehensive instrument interfaces

Since our founding in 1983, Metronics has led the industry in the development of measurement solutions for diverse measuring platforms and modern digital readouts. The company is recognized around the world as a comprehensive resource for encoder interfaces that support both the newest tools and the existing platforms of leading metrology instrument manufacturers. We provide encoder interfaces compatible with new and existing instruments from the world's leading manufacturers.

## Complete digital readout and software-based solutions

Quadra-Chek products solve 2D and 3D measurement problems across industries and manufacturing functions, from inexpensive single-axis systems to versatile multi-axis, multi-probe platforms that expand in functionality as your measurement needs grow. The Quadra-Chek line includes Windows®-based software solutions and geometric readouts, each with configuration options and complementary accessories that provide turnkey support for all of your precision measurement challenges.

Metronics develops world-class metrology software and geometric digital readouts. The Quadra-Chek product line provides unmatched support for single-axis and multi-axis dimensional measurement of 2D and 3D parts on both new and existing tool platforms. Quadra-Chek digital readouts and PC-based products integrate innovative user interface conventions, state-of-the-art ergonomics, powerful data import, export and analysis tools. All Metronics products are supported by an international team of field engineers.
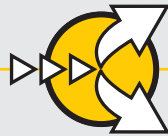
## Intuitive interface design

Quadra-Chek products incorporate insights gained from ongoing human factors research. They simplify repetitive tasks, visualize measurement data, and expand the possibilities of dimensional inspection processes. Intuitive work process models and operator interface innovations extend programming, automation and measurement capabilities across instruments; advance new standards for ease-of-use; and reduce operator training time.

› Windows® platform
› Graphic user interface
› Icon-based tools and toolbars
› Color coding
› Audio feedback
› Contextual help
› Intelligent, time-saving protocols

## Powerful data management tools

Integral communication tools enable operators to record, store and analyze measurement data. Operators can selectively or historically document measurements in dimensioned photographs and schematic drawings, as well as transfer measurement data efficiently among machines performing related tasks. Operators can also export data to online databases for offline analysis by managers and quality control specialists.

› CAD export
› SPC export
› CNC control
› Integrated databases
› Custom reporting

## Global support network

Metronics field engineers, based in offices located all over the world, can assist in the onsite review of dimensional inspection requirements. Complete contact details are available online at **www.metronics.com**.

› United States
› France
› Germany
› Italy
› United Kingdom
› Japan
› Korea
› Taiwan
› China

# Design innovation
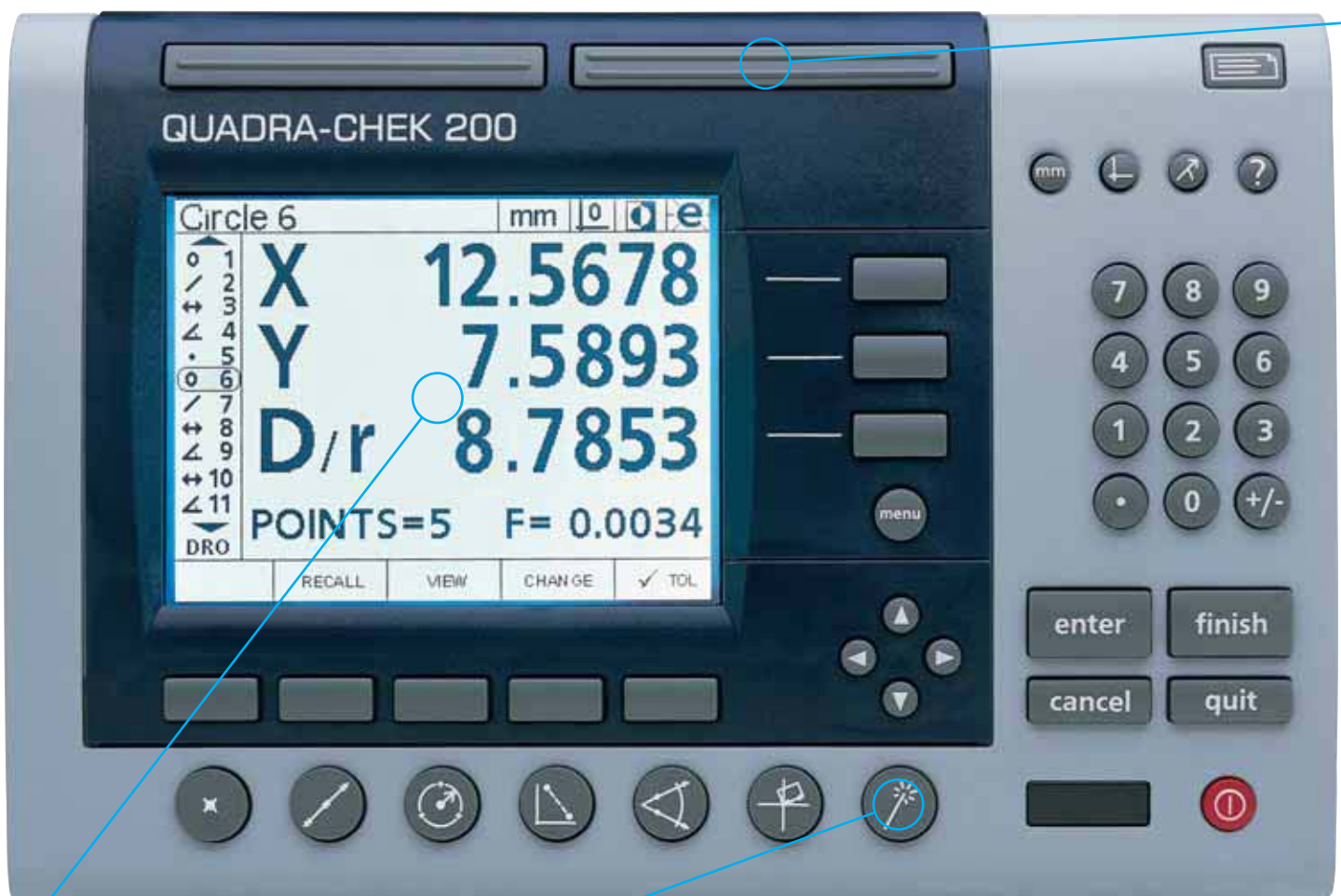


**High-visibility LCD display** A backlit LCD with .5" letter height is easy to read in diverse lighting situations and from indirect viewing angles.

**Familiar interface** Familiar, intuitive interface conventions were developed through ongoing operator research to simplify repetitive tasks and expedite the training process.

Redesigned Quadra-Chek digital readouts incorporate a range of ergonomic and display interface innovations that advance new standards for ease of use.

**HotKeys** Two large, easy-to-reach buttons at the top of the console can be programmed to trigger an operator's most frequent data entry steps, simplifying measurements when the operator's attention is diverted from the display.

**Versatile display console**
The slender monitor housing requires minimal space, whether on a desk or mounted directly to a measuring tool. Its sleek visual design complements contemporary metrology measuring instrument designs.

**Adjustable display angles**
The monitor tilts to face standing or seated operators, whether mounted above, beside or below an instrument.
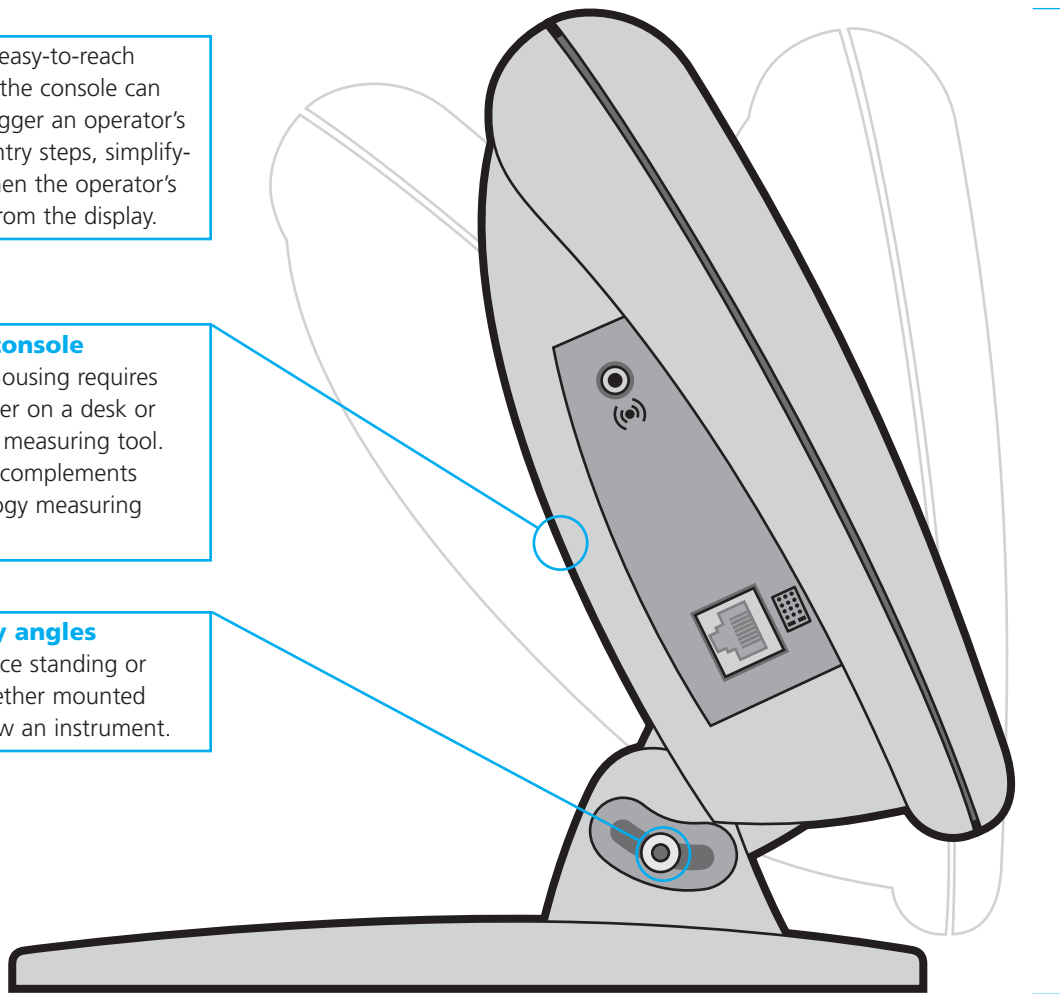
Maximum height: 7.5"

Base depth: 7.5"

# Understand completely

**Architecture** The Quadra-Chek unique interface seamlessly incorporates the best tools and annotation conventions of previous Quadra-Chek products, reducing operator training time. Fast, familiar tools improve productivity and enhance measurement consistency throughout the entire measurement process.

**Input** Reduce operator subjectivity and fatigue, and enhance productivity through the use of optical edge detection and automatic point entry.

**Measurement** Record desired feature and construction measurements quickly, easily and accurately with patented software features like Measure Magic.® Accelerate the measurement process with tools that automatically complete complex work steps.

**Programming** Simplify difficult and repetitive measurement sequences with robust, easy-to-use programming tools. Create step-by-step part programs using a simple self-teach mode to guide subsequent measurements.
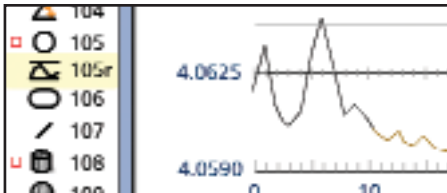
Modern metrology is a complex sequence of measuring, recording, analyzing and reporting dimensional data. The conceptual model underlying the Quadra-Chek digital readout design organizes the workflow to support operators at every stage of the measurement process.
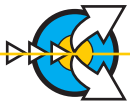




**Data Management** Manage measurement data in ways that reduce screen clutter, reveal meaningful information patterns and visualize the complex relationships among measured features.

**Output** Streamline communication among operators, management, dispersed departments and quality-control teams. Send measurement information to a variety of applications, printers or databases. Exchange formatted data easily with partners or colleagues throughout the company and around the world.
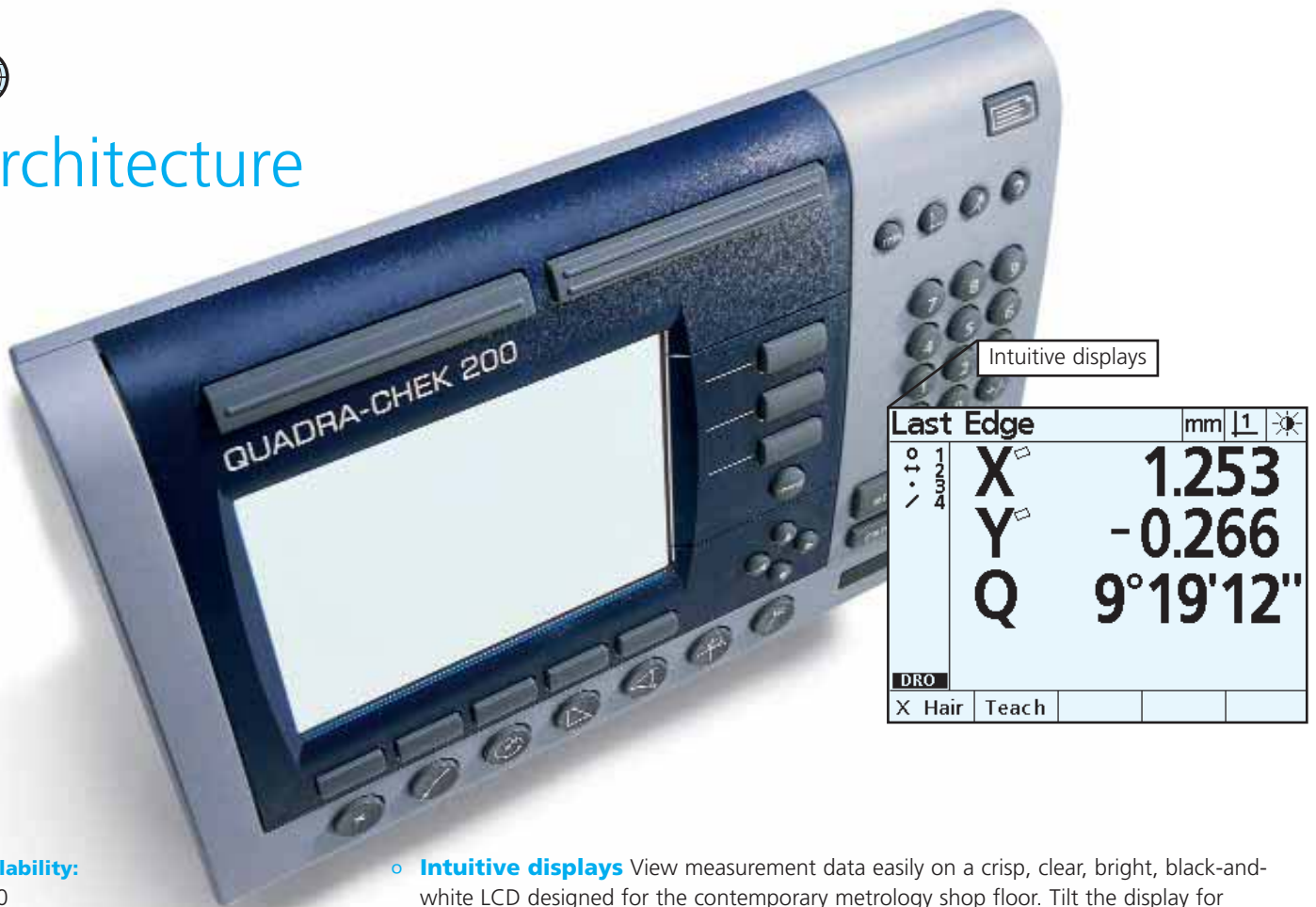
The powerful, familiar architecture of Quadra-Chek digital readouts empowers operators during every step of the measurement process.

# Architecture

Intuitive displays

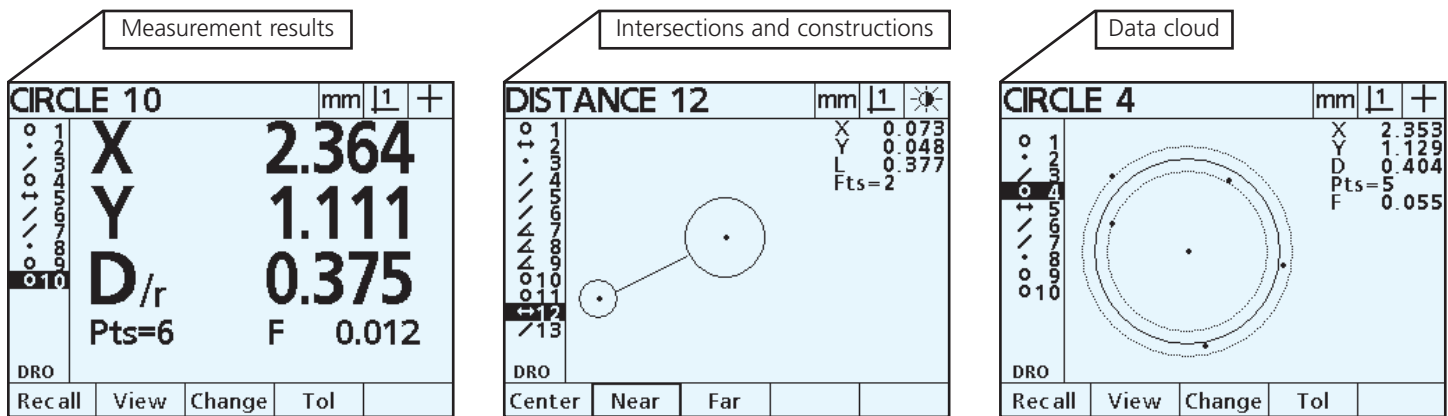| Last Edge | | mm | 1 | ☼ |
|---|---|---|---|---|
| X | 1.253 | | | |
| Y | -0.266 | | | |
| Q | 9°19'12" | | | |
| DRO | | | | |
| X Hair | Teach | | | |

**Availability:**
- 200
- 300
- 100, 200, 300

- **Intuitive displays** View measurement data easily on a crisp, clear, bright, black-and-white LCD designed for the contemporary metrology shop floor. Tilt the display for multiple viewing angles.

- **Consistent user interface** Experience a proven interface consistent with other Quadra-Chek products that ensures operator accuracy and reduces operator training time.

- **Options** Get the right tools for the job. Optional remote keypads, footswitches and printers help operators capture the precise measurement data more conveniently while streamlining the work process.

- **Sound feedback** Listen for helpful sound feedback from a powerful built-in speaker. Different sound cues prompt operator action without interrupting work flow, speeding data entry.

- **Auto repeat** Measure features and print the results on the fly. Improve productivity and recordkeeping, and share information throughout the company and around the world.

- **Foreign languages** The QC-200 software accommodates English, Spanish, Italian, German, Chinese, Japanese, French, Czech and Portuguese operators.

- **Context-sensitive help** Decrease training time and costs with graphics-rich, context-sensitive help that guides shop-floor personnel through Quadra-Chek interface conventions.

Patented features reduce repetitive measures and simplify complex work steps.

# Input and Measurement

| Measurement results | Intersections and constructions | Data cloud |

**CIRCLE 10**    mm ⊥1 +

X   2.364
Y   1.111
D/r   0.375
Pts=6    F   0.012

DRO

| Recall | View | Change | Tol | |

**DISTANCE 12**    mm ⊥1 ☀

X   0.073
Y   0.048
L   0.377
Fts=2

DRO

| Center | Near | Far | | |

**CIRCLE 4**    mm ⊥1 +

X   2.353
Y   1.129
D   0.404
Pts=5
F   0.055

DRO

| Recall | View | Change | Tol | |

- **Optical edge detection** Achieve higher throughput, more accurate measurements and more consistent data with optical comparators using optical edge detection. Automatic point entry reduces operator subjectivity and fatigue.

- **4-axis capability** Use Quadra-Chek to measure up to four axes per part. Quickly and accurately determine measures for X, Y, Z and Q (an integrated rotational axis for angular measurement).

- **Measure Magic®** To measure, simply probe points and click. Quadra-Chek metrology software detects, without operator intervention, the feature type being measured. With this patented feature, operators can inspect multiple features without taking their eyes off the part that speeds throughput, improves accuracy and reduces user fatigue.

- **Intersections and constructions** Obtain essential intersection and construction results by selecting from the list of previously measured features, complete with graphics.

- **Data cloud** Improves the presentation of measurement data with graphic displays of measured features that reinforce operator comprehension by visualizing complex data sets.

- **Geometric tolerancing** Use Quadra-Chek's unique graphic representations to instantly view pass/fail performance details for critical part dimensions.

- **Results** Display important measurement data in an uncluttered, comprehensive display.

- **Video edge detection** For improved throughput and repeatability.

Quadra-Chek digital readouts feature an easy-to-use programming interface that helps streamline difficult and repetitive measures.

# Programming

Measure guide

Probe Circle        mm  ⊥1  ☀  RUN

Pts Req

4

X    1.353
Y    1.129
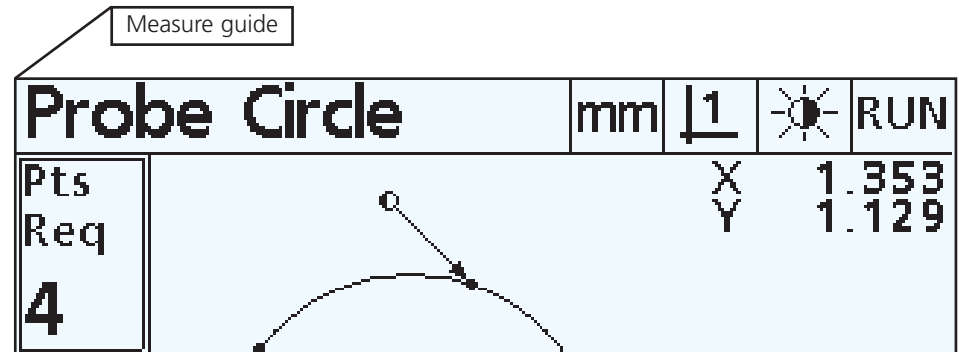
○ ○ **Part programming** Quickly and easily create, edit and run part programs. Program a measurement sequence once and run it back as often as you need. Measure the same number of points per feature, in the identical sequence, part after part.

**Availability:**
○ 200
○ 300
○ 100, 200, 300

○ ○ **Measure guide** Visual cues guide each feature measurement of a part, exactly and repeatedly, to assure complete and consistent data collection.

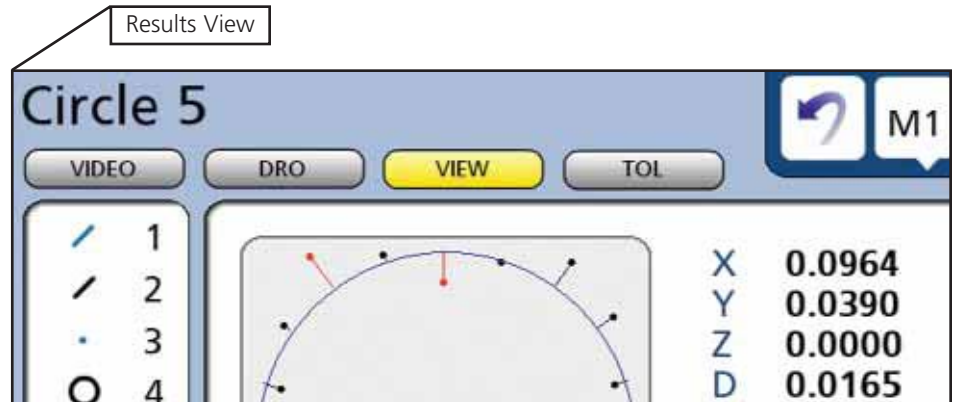○ **Light Control** Up to six channels of programmable light control.

Operators can easily format, analyze and communicate measurements throughout the company and around the world.

# Data Management and Output

Results View

Circle 5

| VIDEO | DRO | VIEW | TOL |

| | 1 | | X | 0.0964 |
| | 2 | | Y | 0.0390 |
| | 3 | | Z | 0.0000 |
| O | 4 | | D | 0.0165 |

M1

**Availability:**
- 200
- 300
- 100, 200, 300

**Data management** Quadra-Chek digital readouts allow operators to easily analyze and communicate measurements throughout the department and the entire organization.

**Integrated database** Store, retrieve and manage extensive amounts of measurement data on the shop floor. Check quality control at the instrument platform within a familiar and intuitive interface. Share information locally and globally. Export to Microsoft® Office® applications.

**Results view** Graphic representation of the data cloud with errors. Feature measurement results and fit type.

Print output

QC 200 Feature Print Out

**Print output** Print measurement results using a serial or parallel printer in an easy-to-read 40- or 80-column format.

**Data output** Parallel and serial ports make it easy to transfer data to PCs, networks and printers.

**USB** Save data and connect to peripherals with the USB port.

A flexible, compact and precise digital readout for 1- to 4-axis instruments. Ideal for measuring angular or linear dimensions. Can be used with inspection tools including optical comparators, measuring microscopes and coordinate measurement machines. *Shown with optional remote control.*

# Quadra-Chek 100 Series



## Inputs

Up to 4 axes
External connections:
  *Footswitch*
  *Remote keypad*
  *Touch probe*
  *RS-232C serial port*
  *Parallel port*

| Configurations | 110 | 120 | 121 | 130 | 131 |
|----------------|-----|-----|-----|-----|-----|
| X-axis | ■ | ■ | ■ | ■ | ■ |
| Y-axis | | ■ | ■ | ■ | ■ |
| Z-axis | | | | ■ | ■ |
| Q-axis | | | ■ | | ■ |

## Specifications

| | |
|---|---|
| LCD | 6" b&w |
| Display digit size | .5" |
| Resolution down to | .000004" or .0001mm |
| Operating temperature | 0°C–45°C |
| Enclosure (W x H x D) | 11.5" x 7.5" x 2.75" |
| Base (W x H x D) | 10" x 2" x 7.5" |
| Enclosure weight | 3.5 lbs |
| Base weight | 7 lbs |
| Input voltage range | 85 VAC–264 VAC |
| Input frequency | 43 Hz–63 Hz |

Our original digital readout with a fresh new interface and sleek design. A time-saving measurement tool with patented Measure Magic® technology. Ideal for measuring features of 2D features. Can be used with inspection tools such as optical comparators, measuring microscopes and video systems.

# Quadra-Chek 200 Series



## Inputs
Up to 4 axes
External connections:
  Footswitch
  Remote keypad
  Touch probe
  RS-232C serial port
  Parallel port

## Configurations

| Configurations | 220 | 220e | 221 | 221e | 230 | 230e | 231 | 231e |
|---|---|---|---|---|---|---|---|---|
| X-axis | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Y-axis | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Z-axis | | | | | ■ | ■ | ■ | ■ |
| Q-axis (Electronic protractor) | | | ■ | ■ | | | ■ | ■ |
| Optical edge detection | | ■ | | ■ | | ■ | | ■ |

## Specifications

| | |
|---|---|
| LCD | 6" b&w |
| Display digit size | .5" |
| Resolution down to | .000004" or .0001mm |
| Operating temperature | 0°C–45°C |
| Enclosure (W x H x D) | 11.5" x 7.5" x 2.75" |
| Base (W x H x D) | 10" x 2" x 7.5" |
| Enclosure weight | 3.5 lbs |
| Base weight | 7 lbs |
| Input voltage range | 85 VAC–264 VAC |
| Input frequency | 43 Hz–63 Hz |

The QC-300 features an enhanced touch-screen interface and patented Measure Magic® technology. It is ideal for the measurement of 2D microscopes, optical comparators and video systems. All QC-300 Series models include parallel, serial and USB ports for use with printers and on networks.

# Quadra-Chek 300 Series

## Inputs
Up to 4 axes
External connections:
  *Footswitch*
  *Remote keypad*
  *RS-232C serial port*
  *Parallel port*
  *USB*

## Specifications

| | |
|---|---|
| LCD | 8.4" color touch screen SVGA |
| Resolution down to | .000004" or .0001mm |
| Operating temperature | 0°C–45°C |
| Enclosure (W x H x D) | 11.5" x 7.5" x 2.75" |
| Base (W x H x D) | 10" x 2" x 7.5" |
| Enclosure weight | 3.5 lbs |
| Base weight | 7 lbs |
| Input voltage range | 85 VAC–264 VAC |
| Input frequency | 43 Hz–63 Hz |

Results view



Tolerance displays



Video Edge Detection
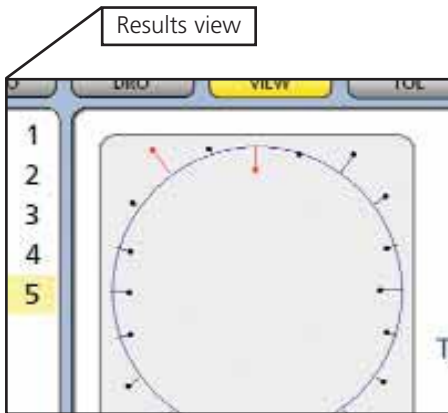
**Results view** Graphic representation of the data cloud with errors. Feature measurement results and fit type.
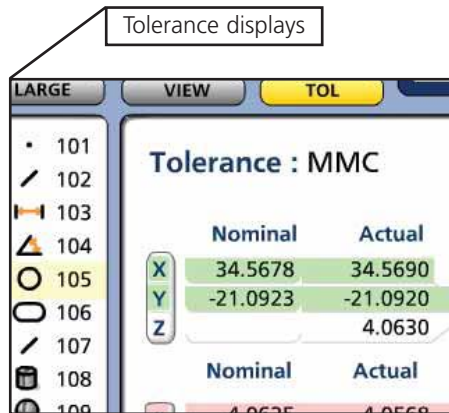
**Tolerance displays** Translates data-intensive reports into visual displays that are readable at a glance.
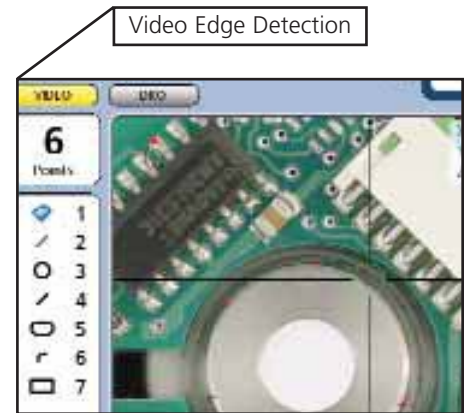
**Automatic Video Edge Detection** For improved throughput and accuracy.

| | QC-320 Series | | | |
|---|---|---|---|---|
| **Configurations** | **320** | **321** | **323** | **324** |
| 2D Measurement | ■ | ■ | ■ | ■ |
| X-axis | ■ | ■ | ■ | ■ |
| Y-axis | ■ | ■ | ■ | ■ |
| Z-axis | | | ■ | ■ |
| Q-axis (Electronic protractor) | | ■ | | ■ |

**Options**

| | | | | |
|---|---|---|---|---|
| Motion control system | | | | |
| Video edge detection (color or b/w) | ■ | ■ | ■ | ■ |

Please call (603) 622.0212 for options pricing.

The new Gage-Chek is a multi-axis metrology display that accepts up to eight discrete inputs. It features intuitive visual displays, helpful audio cues and user-defined formulas. It also reports dynamic Min/Max measurements, provides SPC analysis from an integrated database and includes connectivity to PCs and other peripherals.

# Gage-Chek

## Specifications

| | |
|---|---|
| LCD | 6" color |
| Display digit size | .45" |
| Resolution down to | .000004" or .0001 mm |
| Operating temperature | 0°C–45°C |
| Enclosure (W x H x D) | 11.5" x 7.5" x 2.75" |
| Base (W x H x D) | 10" x 2" x 7.5" |
| Enclosure weight | 3.5 lbs |
| Base weight | 7 lbs |
| Input voltage range | 85 VAC–264 VAC |
| Input frequency | 43 Hz–63 Hz |

## Inputs

1-, 4-, and 8-axis
input available

External connections:
  Footswitch
  Remote keypad
  Touch probe
  RS-232C serial port
  Parallel port

## Outputs

2 relay outputs
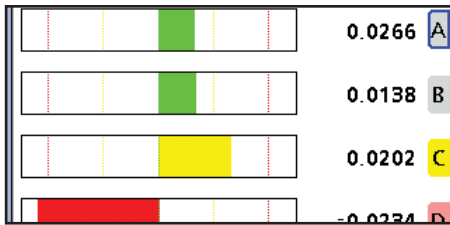
**Visual feedback** A highly visible, intuitive and familiar interface with standard color cues. Instantly informs operators of pass/fail performance details for critical part dimensions.
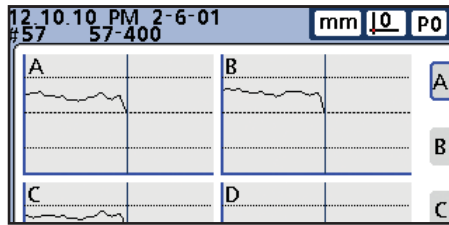
**Integrated SPC database** Store, retrieve and manage enormous amounts of measurement data on the shop floor. Check quality control of each gage. Share information locally and globally.
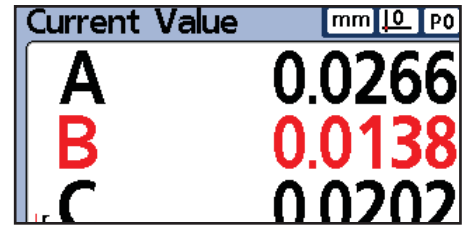
**Formulas** Up to 16 output channels apply mathematical formulas to measurement data for on-the-spot part analysis.

# Product comparison

## Architecture

| Architecture | GC-100 | QC-100 | QC-200 | QC-300 |
|---|---|---|---|---|
| Display | | | | |
|    Number of digits | 8 | 9 | 9 | 9 |
|    LCD color | color | b/w | b/w | color |
|    Digit size | 0.45″ | 0.45″ | 0.45″ | .045″ |
| Auto repeat | | | ● | ● |
| Context-sensitive help | ● | ● | ● | ● |
| Correction | | | | |
|    LEC | ● | ● | ● | ● |
|    SLEC | ● | ● | ● | ● |
|    NLEC (optional) | | | | ● |
|    Orthogonality | | ● | ● | ● |
| C-scale (AR, HH) | ● | ● | ● | ● |
| Footswitch input | ● | ● | ● | ● |
| Remote keypad input | ● | ● | ● | ● |
| Sound feedback | ● | ● | ● | ● |
| Speaker jack | ● | ● | ● | ● |
| Date/time stamp | ● | ● | ● | ● |
| Tilt adjustment | ● | ● | ● | ● |
| Foreign languages | | | | |
|    Portuguese | | ● | ● | ● |
|    Chinese, Japanese | | | ● | |
|    English, Spanish, Italian, German, and French | ● | ● | ● | ● |

## Measurement

| Measurement | GC-100 | QC-100 | QC-200 | QC-300 |
|---|---|---|---|---|
| Point | ● | | ● | ● |
| Line | | | ● | ● |
| Radius | | | ● | ● |
| Circle | | | ● | ● |
| Angle (vertex point) | | | ● | ● |
| Distance | | | ● | ● |
| Plane | | | | ● |
| Min./Max between features | ● | | ● | ● |
| Form information | | | ● | ● |
| Measure Magic® | | | ● | ● |
| Data cloud | | | | ● |
| Rotary axis | | ● | ● | ● |
| Incremental/absolute | ● | | ● | ● |
| Intersections | | | ● | ● |
| Constructions | | | ● | ● |
| Create | | | ● | ● |
| Preset | ● | ● | ● | ● |
| Forward/backward annotation | | | ● | ● |
| Feature stamp | | | ● | ● |
| Geometric tolerancing | ● | | ● | ● |

## Automation

| Automation | GC-100 | QC-100 | QC-200 | QC-300 |
|---|---|---|---|---|
| CNC | | | | |
| Light Control | | | | |
| Zoom Lens | | | | ● |

## Input

| Input | GC-100 | QC-100 | QC-200 | QC-300 |
|---|---|---|---|---|
| Optical edge detection (opt.) | | | | |
| Touch probe input | | | ● | |
| Video Edge | | ● | | ● |

## Programming

| Programming | GC-100 | QC-100 | QC-200 | QC-300 |
|---|---|---|---|---|
| Part programming | ● | ● | ● | ● |
| Measure Guide | | | ● | ● |

## Data Management and Output

| Data Management and Output | GC-100 | QC-100 | QC-200 | QC-300 |
|---|---|---|---|---|
| Output ports | ● | ● | ● | ● |
| Parallel | ● | ● | ● | ● |
| Serial | ● | ● | ● | ● |
| 40-column printout | ● | ● | ● | ● |
| 80-column printout | ● | ● | ● | |
| Auto print | ● | ● | ● | ● |
| SPC output | ● | ● | ● | ● |
| USB | | | | ● |

ryf ag

Ryf AG
Bettlachstrasse 2
2540 Grenchen
tel  032 654 21 00
fax 032 654 21 09

www.ryfag.ch

Metronics is the world's premiere developer of metrology software and digital readouts for measuring and inspecting 2D and 3D geometric parts. Metronics' Quadra-Chek® systems are the standard control interface of the world's leading precision metrology instrument manufacturers.

## Metrology software
**Quadra-Chek 5200 Series** 2- through 4-axis Microsoft Windows®-based measurement system for 2D applications.
**Quadra-Chek 5300 Series** 3- through 4-axis Microsoft Windows®-based measurement system for 3D applications.

## Digital readouts
**Gage-Chek 100 Series** 1, 4, 8 inputs metrology displays.
**Quadra-Chek 100 Series** 1- through 4-axis, 1D digital readouts.
**Quadra-Chek 200 Series** 2- through 4-axis, 2D geometric readouts.
**Quadra-Chek 300 Series** 3- and 4-axis, 2D geometric readouts.

## Automation kits
**Stage Retrofits** Bolt-on kits for microscope stages.
**Light Control** Programmable control of up to eight channels of light sources.
**Indexers** Stepper indexers to drive rotary stages and motorized zoom lenses.
**Stepper Amplifiers** Closed- or open-loop 2- and 3-axis stepper amplifier controllers with limit switches.
**Joystick** 2 or 3 axes joysticks with trackball.