Optical Data-processing System
QM-Data200 and Vision Unit
Promotes Smart Factory by Collecting and Managing Measurement Data.

Collects data in the inspection process swiftly and accurately, and increases a company’s competitiveness based on detailed data analysis. **Optical data-processing system** is what supports such a system configuration. In addition, “MeasurLink” offers the “Quality Control IoT that Mitutoyo advocates.”

Achieve Smart Measurement

**2D Data Processing Unit**

**QM-Data200**

Faster, easier, and more accurate measurements with a projector and a microscope.

Vision System Retrofit for Microscopes

**Vision Unit**

Image processing, such as automatic edge detection, offers more efficient and accurate measurements, reducing the operator-dependent variation (reproducibility).
## Solutions to issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many errors in handwritten measurement data</td>
<td>Quality control based on data management system</td>
</tr>
<tr>
<td>Measurement variations depending on skill level</td>
<td>Easy operation for anyone reduces the variation</td>
</tr>
<tr>
<td>Labor shortage according to declining working population</td>
<td>Reduction of measurement time</td>
</tr>
</tbody>
</table>

### What is MeasurLink®?

MeasurLink is an IoT platform for quality management that realizes “Visualization of Quality” by enabling real-time data collection, centralized data management and implementing statistical process control from measuring instruments connected to the network. QM-Data200 and Vision Unit support you as an infrastructure system that undertakes the collection and management of measurement data from a projector and microscope.

- **Preventing defectives**
  Collects data from Digimatic gages on the network and performs statistical process control (SPC) to warn of possible generation of defectives.

- **Diagnosis by data analysis**
  Checking measurement results by accessing the database and performing various analyses helps investigate and resolve process performance concerns.

- **Simply start achieving IoT**
  Utilizing conventional data storage and measuring instruments connected to the network, you can move from a simple configuration to the IoT in stages.
Data Processing Unit with Easy Operation

Easy operation

A color LCD panel with high visibility is adopted for an interactive system that guides the operator according to screen instructions. This allows easy operation even for first-time users of the QM-Data200. This data processing unit is intended for production sites in various environments, adopting high durability sheet switches and proprietary electronic components.

Three screens selectable according to purpose

[Measurement procedure navigation screen], [Enlarged counter display], [Measurement result screen in the graphic display]. Selectable according to your purpose.
Experience measurement with the QM-Data200

The comprehensive key panels of the QM-Data200 make it easy for any operator to use. Simple operations help you concentrate on measurements.

Measurement example: Measure the distance between the centers of holes A and B.

1. Select the “circle-circle distance” measurement key from the pattern-measurement keys.
2. Determine each position (a1, a2, a3) on round hole A, following the measurement navigation procedure on the LCD.
3. Next, the measurement navigation procedure for round hole B will be displayed. Determine each position (b1, b2, b3) in the same manner as in step (2).
4. The measurement result is displayed.

USER MENU

In the User menu, the “Measurement command,” “User macro,” and “Part program” can be registered. (Up to 3 menus.)
You can register a “Part program” for each workpiece to measure, and customize an original system to best suit the operator’s needs.
The registered user menus can be saved on a USB storage device, enabling a backup or sharing on multiple QM-Data200 units.

Example of user menu registration

* A user macro is a measurement command created by the user, and is a combination of several standard QM-Data200 measurement commands.
Note: Up to three user menus, from [USER1] to [USER3], can be registered.
A maximum of nine icons can be registered for one menu.
Efficiency

The coordinate entry format function (NP measurement)

In a measurement using the coordinate entry format, the coordinates calculated from the measurement data (coordinates of the center of a circle, etc.) are applied to data entry as one measuring point. For example, measurement of the pitch of a rectangular hole can be executed simply by selecting the [PITCH MEASUREMENT] key and [RECTANGULAR HOLE CENTER] in the coordinate entry format. Without calling up and re-calculating measurement result, [COORDINATE ENTRY FORMAT] can use with pattern and basic measurements.

Measurement example:
Measurement of a pitch circle whose perimeter intersects the three hole centers

2. Press [COORDINATE ENTRY FORMAT].
3. Measure circle C1 (entry of four points). Likewise, measure circles C2 and C3.
4. Select the center of each circle (entry of four points).

The diameter of the pitch circle (C4) can now be found.

Types of coordinate entry formats

- Directly entered points
- Center of circle (three points)
- Center of ellipse
- Midpoint between the two
- Center of slotted hole (four points)
- Intersection of two straight lines

Current coordinate
Next measuring point

Navigation of measuring position

When using the Repeat function to execute a measurement procedure (part program) created with the teaching function*, the Repeat function guides the operator to the next measuring point. The number of repeat times for a part program can be specified.

Efficiency

- Teaching function: When measuring more than one workpiece of the same form, the series of key operations performed in the measurement of the first workpiece can be stored as a part program.
SYSTEM CONFIGURATION

Specifications

**Model** | QM-Data200
--- | ---
**Order No.** | Stand-mount type | Arm-mount type
264-155*1 | 264-156*1

| Display languages (selectable) | Japanese/English/German/French/Malay/Spanish/Portuguese/Chinese/Simplified Chinese/Traditional Chinese/Korean/Turkish/Swedish/Finnish/Dutch/Hungarian
--- | ---
| Measured value units | Length: mm/in, Angle: degree/degree minute second (selectable)
--- | ---
| Resolution | 0.1 µm
--- | ---
| Program functions | Part program creation, execution, editing
--- | ---
| Statistical processing | Number of data, maximum value, minimum value, mean value, standard deviation, range, histogram, statistics on a measuring function basis (by command)
--- | ---
| Display system | COLOR TFT LCD (with LED backlight)
--- | ---
| ABS (Absolute origin) | —
--- | ---
| CAP (Laser AR) | —
--- | ---
| Edge Sensor Position Compensation | Supported (Projector)
--- | ---

**Input/Output**

| X, Y, Z: Maximum of three Linear Scale Inputs | RS-232C 1: For connecting to external PC
--- | ---
| RS-232C 2: For connecting to counter of measuring instrument | RS-232C 2: For connecting to counter of measuring instrument
--- | ---
| OPTOEYE 200: For measuring instrument | OPTOEYE 200: For measuring instrument
--- | ---
| OPTOEYE: For connecting to OPTOEYE (OPTOEYE M2) | OPTOEYE: For connecting to OPTOEYE (OPTOEYE M2)
--- | ---
| USB Memory | USB Memory
--- | ---
| External Printer | External Printer
--- | ---

**Measurement result file output**

| RS-232C output (CSV format, MUX-10 format) | RS-232C output (CSV format, MUX-10 format)
--- | ---

**Power**

| AC100 - 240 V | AC100 - 240 V
--- | ---

**Maximum power consumption**

| 17 W (does not include optional accessoires) | 17 W (does not include optional accessoires)
--- | ---

**Dimensions (W×D×H)**

| Approximately 260×242×310 mm (including the stand) | Approximately 318×153×275 mm (when the arm is in the horizontal/vertical posture)
--- | ---

**Mass**

| Approximately 2.9 kg | Approximately 2.8 kg
--- | ---

**Applicable models**

| PJ-A3000 Series | PJ-A3000 Series
--- | ---
| PJ-H30 Series | PJ-H30 Series
--- | ---
| PH-3515 | PH-3515
--- | ---
| MF/MF-U Series | MF/MF-U Series
--- | ---
| PH-A14 | PH-A14
--- | ---
| PV-510 | PV-510
--- | ---

**Note:** Each machine must be the model equipped with a Linear Scale built-in stage.

**Dimensions**

- **Stand-mount type (Order No. 264-155A)**
- **Arm-mount type (Order No. 264-156A)**

---

*1 To denote your AC line voltage add the following suffixes (e.g. 264-155A) A for 120 V, C for 110 V, D for 220 V, E for 240 V. No suffix is required for 100 V.

*2 Mitutoyo does not guarantee the operation of all commercial USB memories except for the following:

Mitutoyo recommends those USB memories made by SanDisk Corporation and that meet the following requirements.

- Those that have no security function such as encryption and fingerprint authentication
- Those that are not compliant with USB3.0
Creating the coordinate system and measurement commands

Creating the coordinate system

Key menu

Coordinate system pattern 1
The line that passes through the measuring point is the X axis, and the line that passes through another measuring point and intersects the X axis making a 90-degree angle is the Y axis.

Coordinate system pattern 3
The line that passes through the measuring point is the X axis, and the intersection with another line is the origin.

Coordinate system pattern 2
The line that passes through the measuring point is the X axis, and its midpoint is the origin.

Coordinate system pattern 4
The measuring point is the origin, and the line that passes through another measuring point is the X axis.

Determining axis by point
Rotate the coordinate system in such a way that it becomes parallel to the measured line. (The origin is not transferred.)

Compensation of offset axis
Rotate the coordinate system until the measuring point comes to the specified position. (The origin is not transferred.)

Origin setting
Translate the coordinates horizontally until the measuring point is positioned as the origin. The displacement value can be entered directly.

Determining axis by line
Rotate the coordinate system in such a way that it becomes parallel to the measured line. (The origin is not transferred.)

Compensation of plane
Reduce the error caused by the inclination of workplace setting. (Effectively used by measuring machines with a Z axis.)

Coordinate system handling
Save, recall, and Reset the coordinate system

Compensation of plane
Reduce the error caused by the inclination of workplace setting. (Effectively used by measuring machines with a Z axis.)

Coordinate system saving
Save the current set coordinate system information in a coordinate system memory. (The number of memories is 10.)

Coordinate system recall
Recall a coordinate system data from a coordinate system memory, then set it in the measuring target coordinate system.

Coordinate system resetting
Clear the current coordinate system setting, then reset it to the initial status just after power-on.

Basic element measurement

Point
Coordinates (Multi-point processing for a maximum of 100 points)
Note: In multi-point processing, the mean value is used as the measured value.

Line
Center coordinates, length, width

Circle
Center coordinates, diameter, radius of slotted hole

Point-point distance
Distance, Coordinates difference, radial difference

Intersection point and intersecting angle
Intersection coordinates, intersecting angle, supplementary angle

Pattern measurement

Pitch
Point-point distance, difference between coordinates, angle, cumulative distance, cumulative angle

Line-circle intersection
Coordinates of intersection

Intersection of circles
Coordinates of intersection

Center line between line-circle
Angle with the X axis

Perpendicularity

Parallelism

Midpoint between points
Coordinates of midpoint

Midpoint between line and point
Coordinates of midpoint

Circle-circle distance
Center-center distance, longest distance, shortest distance, difference between coordinates, radial difference

Line-circle distance
Center-center distance, longest distance, shortest distance

Line-point distance
Perpendicular (shortest) distance

Key menu

Circle-point distance
Center-center distance, longest distance, shortest distance, difference between coordinates

Midpoint between circles
Coordinates of midpoint

Projected point
Coordinates of the point projected on a line

Point-circle tangent point
Coordinates of tangent point

Circle-circle tangent line
Angle with the X axis

Corner
Diameter, radius of corner circle, center coordinates

Weight
Distance between steps in the Z axis direction

Plane-plane distance
Distance between plane and line (point)

Distance between plane and line (point)

Distance between line and point
Coordinates of midpoint

Distance between line and point
Coordinates of midpoint

Distance between line and point
Coordinates of midpoint

Distance between plane and line (point)

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Greatly Improved Workability by Data Processing Plus Image Measurement

Improved measurement reproducibility and efficiency

The vision unit allows anyone to perform quicker and more repeatable detection of an edge with just one click, resulting in much better reproducibility of dimension measurement among a group of operators. Also, using the vision unit eliminates the need for burdensome workpiece orientating and measuring-point detection with cross-hairs, thus allowing quicker inspection of dimensions.

Actual measurement results and measuring times when measuring a dimension of about 20 mm by a group of three operators

<table>
<thead>
<tr>
<th>Unit: µm</th>
<th>Operator A</th>
<th>Operator B</th>
<th>Operator C</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 µm</td>
<td>10.0863</td>
<td>10.0849</td>
<td>10.0811</td>
</tr>
<tr>
<td>1 µm</td>
<td>10.0847</td>
<td>10.0853</td>
<td>10.085</td>
</tr>
</tbody>
</table>

About 90% improvement in reproducibility

<table>
<thead>
<tr>
<th>Unit: sec</th>
<th>Operator A</th>
<th>Operator B</th>
<th>Operator C</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>150</td>
<td>89</td>
<td>105</td>
</tr>
</tbody>
</table>

About 70% reduction in average measuring time

Group measurement with the measuring microscope only

<table>
<thead>
<tr>
<th>Maximum value (mm)</th>
<th>Minimum value (mm)</th>
<th>Reproducibility (mm)</th>
<th>Measurement time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.0863</td>
<td>20.0765</td>
<td>0.0098</td>
<td>76</td>
</tr>
<tr>
<td>20.0849</td>
<td>20.0802</td>
<td>0.0047</td>
<td>150</td>
</tr>
<tr>
<td>20.0811</td>
<td>20.0758</td>
<td>0.0053</td>
<td>89</td>
</tr>
</tbody>
</table>

Group measurement with the measuring microscope & vision unit

<table>
<thead>
<tr>
<th>Maximum value (mm)</th>
<th>Minimum value (mm)</th>
<th>Reproducibility (mm)</th>
<th>Measurement time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.0847</td>
<td>20.0846</td>
<td>0.0001</td>
<td>36</td>
</tr>
<tr>
<td>20.0853</td>
<td>20.0842</td>
<td>0.0011</td>
<td>23</td>
</tr>
<tr>
<td>20.085</td>
<td>20.0837</td>
<td>0.0013</td>
<td>25</td>
</tr>
<tr>
<td>20.0853</td>
<td>20.0837</td>
<td>0.0016</td>
<td>36</td>
</tr>
</tbody>
</table>

About 90% improvement in reproducibility

<table>
<thead>
<tr>
<th>Average measurement time (sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>105</td>
</tr>
</tbody>
</table>

**Wide-field measurement**

Upsizing of the image sensor has made the view approximately 40% wider than previously in both the X and Y directions, thus allowing concurrent observation of the whole extent of many more target areas than before.

![Image of wide-field measurement](image1.png)

Note: An actual image using objective lens ML1X plus LED ring light

**Digital zoom function**

A normal 0.4X display image can be magnified to a 1X or 2X image by merely clicking the corresponding menu icon. The image can be measured in fine detail using the digital zoom display.

![Images of zoom function](image2.png)

- 0.4X
- 1X
- 2X

**Auto-brightness control function (exclusive to MF/MF-U Series)**

The light intensity of transmitted/reflected illumination used on a microscope can now be controlled via software. There is no hassle adjusting the illumination during repeat measurements, since the level is reproduced according to the setting selected during creation of the part program. Even in the measurement of a workpiece that requires variations in illumination, consistently accurate edge detection is ensured. This enhances the efficiency of repeated measurements. This function can be used even when an external lighting system, such as a ring fiber or an LED ring (either one is optional), is connected.

Note: Only for Measuring Microscopes MF/MF-U Series
Software

QSPAK Supports A Wide Variety of Measurements.

QSPAK, which is software for the image unit, offers “Reliable image detection capability” and “Simple operability for anyone” to support a wide variety of measurements, from measurements of single workpieces in production of various kinds and small quantities to fast measurements of mass produced items.

QSPAK, which combines the two modes, offers strong backup to customers in various scenarios.

**EZ mode**
(Simple measurement mode)

**PRO mode**
(Universal measurement mode)

A Tool Enabling Quick and Simple Inspection of Measurement Results

Measurement results display function on a video window

Just looking at a measurement image lets you understand the measurement result intuitively. Immediate judgment for tolerance and identification of NG parts is possible by setting different display colors for results between OK and NG. Adding a measurement image to an inspection record leads to higher efficiency in document preparation work.

Freely set any display colors for OK/NG

Examples
- Tolerance OK: Green
- Tolerance NG: Red
Tools for Reducing Personal Errors and Improving the Accuracy of Repeat Measurements

One-click tools
Just single-clicking around the edge with a mouse sets the automatic discrimination from automatic tool setup to edge detection/calculation. If measurement is performed in a single window, measurement time can be drastically reduced since there is no need for stage travel.

One-click circle tool
One-click box tool

Auto Trace Tool
This is a tool to perform shape measurement by instantaneously detecting multiple points along the edge of an arbitrary form. The contour data in the window is acquired by autonomous profiling measurement.

If the acquired contour data are imported to the contour analysis software "FORMTRACEPAK-AP" (option), highly accurate contour analysis can be performed.

Note: For details of FORMTRACEPAK-AP, see page 16.

Useful Tools Supporting Measurement of Various Features

Multi-click plus arc tool
This tool allows for arbitrary setting of the entire tool size to be drawn, scanning direction, and position of the edge selector.
It is useful for measurements of a narrow-angle arc, or a contour that is hard to recognize due to having too many abnormal points.

Roundness tool
Roundness of circular features is calculated using the least-squares method by default but the maximum inscribed circle or minimum circumscribed circle methods are also available.

Template tools

Basic templates
The tool provides three types of templates corresponding to the reticles of a measuring microscope.

Cross-hairs
Grid
Concentric circles

Manual pattern matching
This tool creates a template that matches a workpiece feature exactly in the case of no match in basic/extended templates so that tolerance zone judgment can be performed visually. The displayed lines of the upper and lower limits entered with keys allow easy confirmation at a glance.

Extended templates
Four kinds of templates are available as the extended templates: cross-hairs, circular, rectangular, and angular. This tool allows free setting of values such as diameter, distance and angle through key entry on a profile projector.

CAD user pattern template function
This tool allows a creation of a template by using a drawing in a graphics window (CAD data).
Note: To use this function, QS-CAD I/F (optional software) is required.
Useful Functions for Easy Execution and Editing of Auto-Measurement Procedure Program

One-click easy execution function  Program launcher

It is now possible to register an auto-measurement procedure program created with pictures and comments in an icon, and easily recall a required program. A total of 10 icons are available, enabling the management of programs by each worker or workpiece.

Smart Editor enabling intuitive program editing

During display of the list of the part programs (auto-measurement procedure program), the target position of X/Y stage travel, lens magnification, and illumination condition are displayed independently as icons or on labels, to facilitate part program editing.

Navigation Functions for Faster Measurement

Stage navigation

When indicating a point to measure in the graphics window with the mouse, the cross-hairs navigation appears. This helps to minimize unnecessary travel of the X/Y stage, such as overrun or short-run. Combination of this function and CAD data* remarkably reduces the measurement program creation time. Furthermore, measurement results are displayed in the graphics window, allowing easy travel to the position you want to re-measure.

* To use CAD data, QS-CAD I/F (optional software) is required.
Quick Navigation

The navigation function is combined with the teaching and repeat functions, by which a series of measurement procedures is memorized and reproduced. This function guides the operator to the next measuring point, following the measurement procedure that has been memorized. Move the stage until the green cross-hairs, seen at the center of the monitor screen, are superimposed on the red cross-hairs, which indicate the next measuring point, and only the green cross-hairs remain. In this state the next measuring point will be displayed on the screen. As the digital counter approaches zero, the screen will display the next measuring point. This eliminates the need to constantly look at the workpiece in order to check the measuring point, thereby freeing the operator to concentrate on the screen displays.

1. The red cross-hairs indicate the next measuring point.
2. When the red cross-hairs and green cross-hairs are close to each other, the measuring position is close by.
3. When the cross-hairs overlap each other and a target appears, press the input button to complete the measurement.

Support from Inspection Table Generation to Measurement Control

Graphics window

The real-time graphic display of measurement result and element provides a visual image of the measuring point. Also, the graphic display of measuring elements facilitates the selection of a measuring element, making for a quicker measurement process. Inter-element calculations can be performed by using the graphics window.

Icon editor

Using the Icon Editor, the layout of icons such as the measurement item icon, tool icon, etc., can be freely arranged. The layout setting can be freely determined. For example, frequently used icons can be laid out on just one page.

Video image scale display

The scale display, which is proportionate to the real field of view, on the video window lets the operator quickly grasp the approximate size of a workpiece. The image can be saved along with the scale display for size reference.

Security function

The scope of use can be limited according to the work level, by setting a password when starting QSPAK.

Saving image files

The color image on the video window can be output as files in BMP-format and JPG-format. They can be easily attached to the workpiece image record or inspection table.

Measurement result output

Measurement results using the part program can be output as CSV-format files. This means the measurement result can be output to a commercial spreadsheet program such as MS-Excel®, so that an inspection table can be generated in the original format.
Form assessment/analysis software

FORMTRACEPAK-AP

FORMTRACEPAK-AP is software for form evaluation and analysis, that performs evaluation of geometrical tolerances, profiles and complex shapes, making use of point group data acquired with an auto trace tool, etc. Note: The auto trace tool is executed in the tool window.

Example of complex shape analysis

- Measurement of a complex shape displayed in the window is possible with a simple operation.

Example of gear contour matching and over-pin diameter analysis

- Contour tolerancing against the nominal value is also enabled.
- Allows the definition of a virtual circle with a given diameter.

Measurement support software

QS-CAD I/F

"CAD Import function" for importing CAD data, and "CAD Export function" for exporting CAD data are available. The CAD import function makes it possible to import CAD data to utilize it for stage travel or nominal value inputting. The CAD export function makes it possible to export the graphic data, nominal values, and measurement values acquired from a measurement unit, to an external CAD system.

Functions

- CAD data can be displayed in the graphics window.
- The nominal value of each measuring item is entered automatically.
- Travel to a desired position on CAD data can be displayed on the stage navigation window.
- Graphics data can be output in a specified CAD data format.
SYSTEM CONFIGURATION

Specifications

<table>
<thead>
<tr>
<th>Image detection camera</th>
<th>Image sensor</th>
<th>1/2-inch color CMOS with 3 megapixels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>External dimensions/Mass (camera only)</td>
<td>56 (W) × 54 (D) × 78 (H) mm/0.4 kg</td>
</tr>
<tr>
<td></td>
<td>Optical system magnification</td>
<td>0.5X (0.5X TV adapter supplied standard)</td>
</tr>
<tr>
<td>PC</td>
<td>OS</td>
<td>Windows 10 64 bit</td>
</tr>
<tr>
<td></td>
<td>Monitor</td>
<td>22 inch</td>
</tr>
<tr>
<td></td>
<td>Software</td>
<td>QSPAK Vision Unit Edition Ver 6.0</td>
</tr>
<tr>
<td></td>
<td>Maximum power consumption</td>
<td>Max. 273 W (including monitor)</td>
</tr>
<tr>
<td></td>
<td>Monitor magnification</td>
<td>Approximately 19X (3X objective lens is used: approx. 57X/imaging range: 4.49 × 3.36 mm)</td>
</tr>
<tr>
<td></td>
<td>Resolution</td>
<td>0.1 µm (0.01 µm if connecting to Hyper MF/MF-U)</td>
</tr>
<tr>
<td></td>
<td>Axial length measuring accuracy*2</td>
<td>Depends on the accuracy of the measuring microscope.</td>
</tr>
<tr>
<td></td>
<td>(Measuring condition: 20 °C)</td>
<td>Depends on the accuracy of the measuring microscope.</td>
</tr>
<tr>
<td></td>
<td>Repeatability*3 (Measuring condition: 20 °C)</td>
<td>Depends on the accuracy of the measuring microscope.</td>
</tr>
<tr>
<td></td>
<td>Reference: Repeatability on one screen (when Mitutoyo's standard test piece is used)</td>
<td>3X objective lens is used: 3 σ =±2.5 µm or less, 10X objective lens is used: 3 σ =±1.0 µm or less</td>
</tr>
</tbody>
</table>

*1 Focus pilot is dependent on the Focus Detection Unit. The unit can detect a focus position at high accuracy and with high repeatability.
*2 This measuring accuracy means a difference between an actual measurement value in vision measurement and a true value.
*3 Repeatability on one screen means the variation in measurement values when different positions within the same screen are measured repeatedly.
FEATURES

MeasurLink performs real-time statistical processing of measurement data from QM-Data200 and the image unit and displays the process capability and X-bar R control chart. The statistical report and measurement data processed by MeasurLink can be easily output as Excel files. MeasurLink allows the data integration and collective control of multiple measurement devices via expanded network system. If the administrative optional software is used together then the real-time data in production sites, such as quality control, production technology and design can be confirmed, making early detection of process irregularities possible.

Just Importing Data to MeasurLink Allows Immediate Confirmation of Each Statistical Report!

When incorporating the data processing device of the Vision Unit to import the calculation results via DDE communication

When importing the calculation results via RS-232C output of QM-Data200

When directly importing the X and Y values to MeasurLink Real-Time Standard via RS-232C output of counter

OK/NG judgment results are displayed in red/yellow/green for easy understanding by operators. Combined with the alarm message function, this prevents NGs from being overlooked. The “Parts data sheet” lets you grasp the evaluation of each workpiece at a glance even when measuring many evaluation items by filtering the total judgment, NG data, and important items.
Attribute and Position Measurements

Attribute inspection and data collection

In addition to variable measurement data collection, such as diameters, angles, and distances, Real-Time Standard and Real-Time Professional excel in attribute data collection and SPC, when defect counts and pass/fail visual inspections are required. Attribute charts available are C, NP, P, and U charts.

Turn visual inspections into meaningful data by calculating process capability and defect ratios.

True Position with or without bonus tolerance

Visualize position data to target and tolerance with Real-Time position charts. The graphical representation of true position will aid inspectors in understanding how far off center and in what direction the 2D position is. Real-Time supports position tolerancing both regardless of feature size and with MMC or LMC.

Design custom report templates for fast and easy reporting

Save time by using custom report templates

Create report templates for any occasion: managerial report, customer report, audit report, etc. by simply dragging and dropping text elements, charts, and pictures.
Whatever your challenges are, Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

Our products are classified as regulated items under Japanese Foreign Exchange and Foreign Trade Law. Please consult us in advance if you wish to export our products to any other country. If the purchased product is exported, even though it is not a regulated item (Catch-All controls item), the customer service available for that product may be affected. If you have any questions, please consult your local Mitutoyo sales office.