Mitutoyo

# MEASURLINK 8

## MEASURLINK IS AN EASY-TO-USE, DATA COLLECTION AND REAL-TIME STATISTICAL PROCESS CONTROL SUITE.

SMALL TOOL INSTRUMENTS AND DATA MANAGEMENT

# MeasurLink8

## Data Collection and Real-Time Statistical Process Control

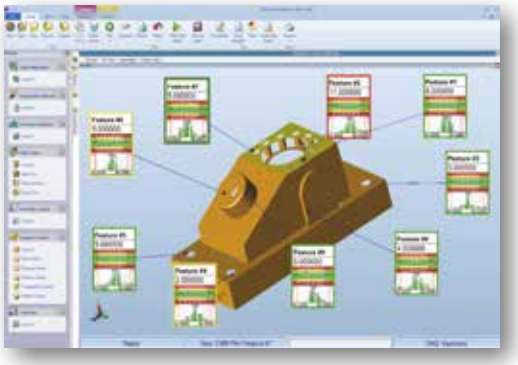
MeasurLink is designed to collect and unite all measurement data in one central data base. Measurement results acquired via CMMs are automatically transferred into a SQL database and directly available for monitoring, analysis or reporting in real-time.

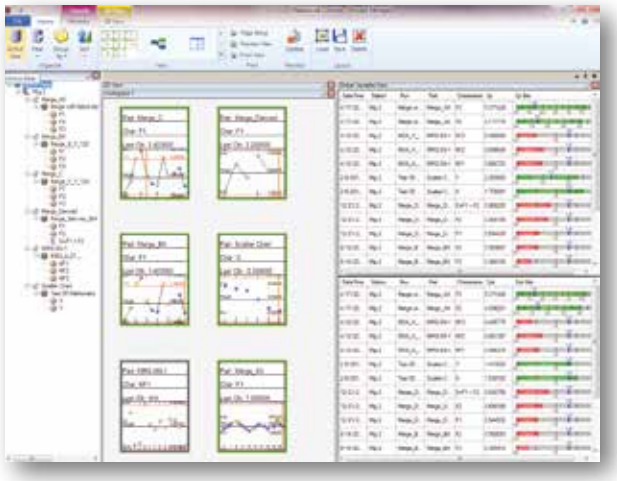
MeasurLink gives you the performance you need through distributed processing. It delivers a safe and organised data warehousing system making quality data available for viewing and analysis by any member of the production, engineering, and managerial staff throughout your company.

Inspection in the factory produces data for analysis, corrective action, and various reporting needs. As the backbone of your quality efforts, MeasurLink is guaranteed to reduce your production costs and increase profits.

### DATA COLLECTION

MeasurLink enables you to connect and acquire data from virtually any measuring device. It supports the full range of metrology technology, including calipers, micrometers, indicators, CMMs, vision systems and more. Select the edition to fit the device and your needs.





### DATA ANALYSIS

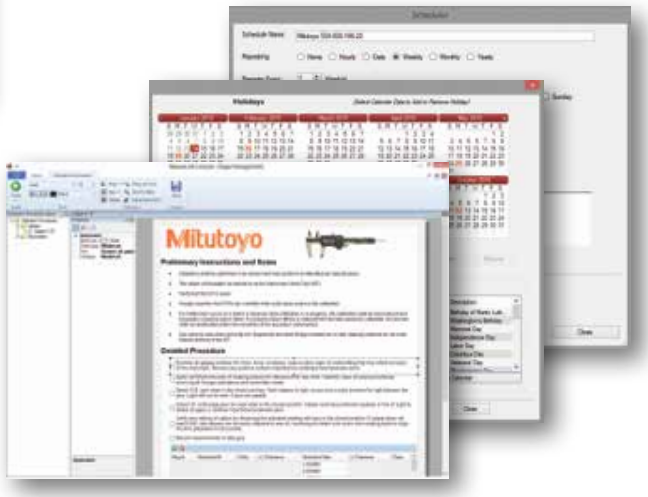
MeasurLink gives you the flexibility to analyse your processes, identify problem areas and take corrective action to improve your product's quality. Inspection runs can be sorted by Inspection Station, Routine or Part, and are displayed with the look and feel of Windows Explorer. Inspection data can be merged, filtered, grouped, charted and printed in the way you want.

## MONOTORING

Real-time monitoring of data as it is collected. Provides the QC/Production Manager with the perfect tool to organise and maintain a shopwide quality program at a glance.

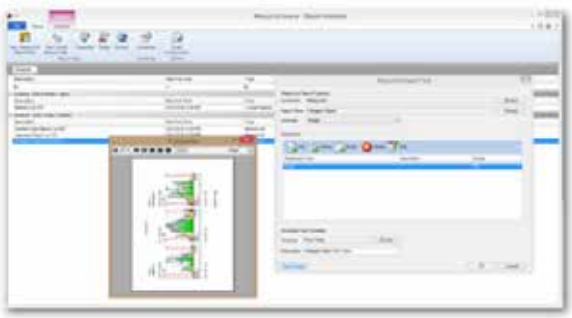
## MEASUREMENT SYSTEM ANALYSIS

Determines the repeatability and reproducibility, linearity, bias and stability of inspection systems, allowing you to isolate gauging problems.




## GAUGE INVENTORY AND CALIBRATION CONTROL

Gauge management is essential for monitoring the calibration history of a gauge. Periodic adjustments may be required to bring a gauge into specification.



## REPORT SCHEDULER

Is a tool that provides automated report distribution from a Windows service environment. Create reporting tasks that will run on a given schedule.

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# MeasurLink Real-Time

## Real-Time Data Collection Module

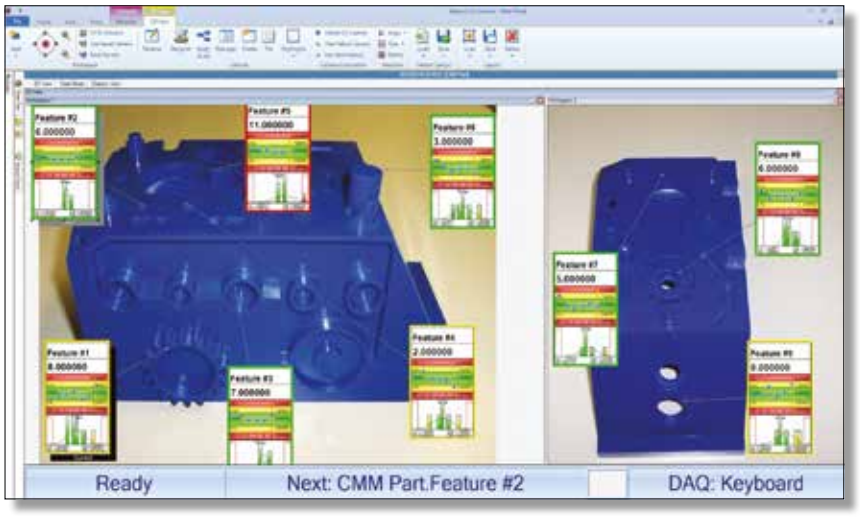
### FEATURES

MeasurLink Real-Time enables you to connect and acquire data from virtually any measuring device. It supports the full range of metrology technology, including calipers, micrometers, indicators, CMMs, vision systems and more. Select the edition to fit the device and your needs.

### Real-Time Professional Edition

Enables customers to connect and acquire data from Mitutoyo Coordinate Measuring Machines, Vision and Form Measuring Systems via native integration (DDE). ASCII and QMD (xml-based) file import are also supported. In addition to the features above, this application also includes data filters and a full reporting tool complete with sample templates.

Supported data sources: keyboard, RS-232C and USB devices, native Mitutoyo integration (DDE), ASCII and QMD (xml-based) file import.




### SPECIFICATIONS

| Order No. | Description |
|---|---|
| **64AAB471R** | MeasurLink 8 Real-Time Professional Edition |

Note: Upgrade packages are also available. Please contact our sales department for details.

### Import templates

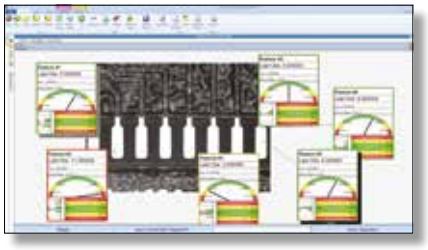
Easily create an import template that maps data in a text file to MeasurLink. Templates are saved to the database for everyone to use and can be added as data sources to data collection stations. An import template can be verified against the source file without adding data to the system.

### Direct data transfer

Collect data into MeasurLink from Mitutoyo measuring systems running Mitutoyo software that is MeasurLink enabled. This provides a tighter and more robust interface than importing data from files.

### Filter data

All data collected within a Real-Time run is related. Often, especially for runs containing a large volume of subgroups, requests are made for subsets of data that are further related to the entire run's population. MeasurLink provides robust filtering capabilities to comply with these requests.



### Import data

When set up as a data source, import templates are readily available to the operator; or periodic imports can be executed.

## Real-Time Professional 3D Edition

Designed for customers who wish to collect data using Hoops 3D graphics view, in addition to all features offered by MeasurLink 8 Real-Time Professional Edition. Hoops 3D files can be exported from most CAD systems and provides the operator with a real view of the part. Camera angle and position can be saved for each characteristic, which provides for an intuitive, prompt guided sequence for an inspector to follow.

Supported data sources: keyboard, RS-232C and USB devices, native Mitutoyo integration (DDE), ASCII and QMD (xml-based) file import.

## SPECIFICATIONS

| Order No. | Description |
|---|---|
| **64AAB472R** | MeasurLink 8 Real-Time Professional 3D Edition |

Note: Upgrade packages are also available. Please contact our sales department for details.

### 3D view

True three-dimensional model support with Hoops streaming files (.HSF). Export your part's model from Catia, Solidworks or other CAD software and place callouts in 3D space.

### Flexible callout design

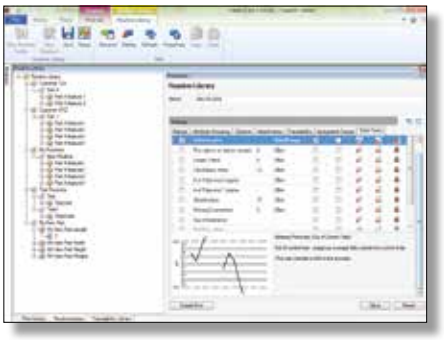
Callouts provide part acceptability at a glance. You can design them the same way as for the two-dimensional view to include charts or statistical information with the ability to size any element inside the callout.

### Guided sequencing

The display can automatically change during data collection to show the next or last observation point, providing simple, guided sequencing for the inspection procedure. By saving a different view for each characteristic to be inspected, you can have the model rotate, pan or zoom to show the operator details of the part.

## EDITION DEFINITIONS

| Function | Real-Time Professional Edition | Real-Time Professional 3D Edition | Process Analyzer Professional Edition |
|---|---|---|---|
| Classic SPC views | ✓ | ✓ | ✓ |
| Datasheet | ✓ | ✓ | ✓ |
| 2D View | ✓ | ✓ | ✓ |
| Manager Views | ✓ | ✓ | — |
| Hoops 3D View | — | ✓ | — |
| Filter | ✓ | ✓ | ✓ |
| CMM/Vision/Form connectivity | ✓ | ✓ | — |
| Import (ASCII) | ✓ | ✓ | — |
| Audit Trails | ✓ | ✓ | ✓ |
| Merge, Copy and Edit Data | — | — | ✓ |
| Scatter Chart | — | — | ✓ |
| Archive Data | — | — | ✓ |
| Electronic Signatures | — | — | ✓ |



MeasurLink is designed to detect and display patterns and provide additional statistical information. Many patterns can be seen appearing on SPC charts, including:

- Cycles
- Trends
- Freaks
- Mixtures
- Grouping or 'bunching' of measurements
- Gradual change in level
- Sudden shift in level
- Instability (abnormally large fluctuations)
- Stratification (abnormally small fluctuations)
- Interactions (two or more variables acting together)
- Systematic variation
- Tendency of one chart to follow another

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# MeasurLink Process Analyzer
# Data Analysis Module

## FEATURES

Process Analyzer is an invaluable tool for your quality team. It gives you the flexibility to analyse your processes, identify problem areas and take corrective action to improve your product's quality. Inspection runs can be sorted by Inspection Station, Routine or Part, and are displayed with the look and feel of Windows Explorer. Inspection data can be merged, filtered, grouped, charted and printed in the way you want.

### Process Analyzer Professional Edition

Designed for robust manipulation of Real-Time data in a networked environment using advanced features. It enables quality engineers to manipulate the data in meaningful ways that contribute to quality control initiatives. For larger installations that use different databases, the ability to switch the connection allows an engineer to analyse data from all sources. Full reporting template functionality is also provided.

### Review inspection data

Analyse inspection data, view notes and traceability. Open data from different runs to compare the data and process behaviour.

### Switch between databases

For larger installations that use different databases, the ability to switch the connection allows an engineer to analyse data from all sources.

### Tree control navigation

Self-organised inspection data provided in an easy to use navigation tree. Sort data by station or Inspection routine, part, year, month or day.

### Reporting

Reporting is made easy through the use of a "what you see is what you get" style of template creation, which allows you to pick chart and data through drag and drop with resizing. Several standard report templates are provided.

## SPECIFICATIONS

| Order No. | Description |
|---|---|
| 64AAB475R | MeasurLink 8 Process Analyzer Professional Edition |

Note: Upgrade packages are also available. Please contact our sales department for details.

### Group, search and sort data

View data by part, routine, station, year, month, day. Apply saved filters to data and search for specific traceability or serial number criteria.

### Scatter plots

Perform correlation studies to identify process interactions.

### Electronic signatures

When combined with Audit Trails available in Real-Time, and security is implemented, then MeasurLink provides support for FDA requirements for medical and pharmaceutical manufacturers.

### Merge data

Combine 'lot based' or 'just in time' collected data to get a bigger picture of process variation and production quality.

### Filter data

Robust filtering capabilities are provided. Often, for runs containing a large volume of data, requests are made for subsets of data.

### Compare capability to traceability

Easily view charts showing the capability of a characteristic based on the traceability, subgroup or time. Compare the capability of machines, for example. The $C_{pk}$ shows green for exceeding requirements and red for failing.

# MeasurLink Process Manager

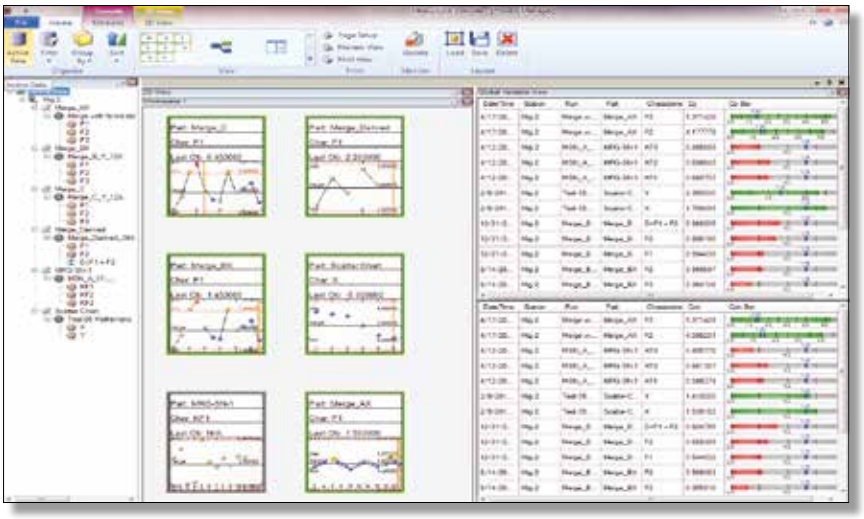
## Network Monitoring Dashboard Module

### FEATURES

Real-time monitoring of data as it is collected. Provides the QC/Production Manager with the perfect tool to organise and maintain a shopwide quality program at a glance.

### Process Manager Standard Edition

Process Manager provides a method for auditing the entire shop floor inspection activity from a single PC. Easily see process information without walking from one inspection area to another by viewing current production across all machines. Show clients your quality operation for the entire facility.



### Log view

Designed to display information from multiple stations in a tabular view format. The user can select the type of events to be monitored.

### Group, search and sort data

View data by part, routine or station. Apply saved filters to data so you monitor only the data that you are responsible for.

### Manager view

Display a snapshot window of characteristics that are currently being collected in MeasurLink Real-Time. The data can be sorted by station, capability or time stamp.

### Global variable view

Display process capability across all operations in your plant.

### Remote viewing

See what the operators see and what your customers will see before product is delivered. Drill down through data to see detailed information. View Traceability, Assignable Causes, Corrective Action, Notes and raw data for current production across all machines.

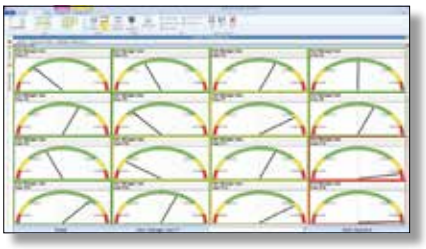
### SPECIFICATIONS

| Order No. | Description |
|---|---|
| 64AAB476R | MeasurLink 8 Process Manager |

Note: Upgrade packages are also available. Please contact our sales department for details.

### Plant view

Allows users the highest level view of their shopfloor processes. Callouts have a meaningful border colour related to tests for capability that have been enabled in each routine's properties.



**MeasurLink Process Manager** displays snapshot windows of characteristics that are currently being collected in MeasurLink Real-Time. The data can be sorted by Station, Process, Capability or Timestamp.

# MeasurLink Gage R&R
# Measurement Systems Analysis Module

## FEATURES

Determines the repeatability and reproducibility, linearity, bias and stability of inspection systems, allowing you to isolate gauging problems.

### Gage R&R Standard Edition

These techniques provide information about a measurement system's reproducibility, repeatability, location or stability. Graphical tools allow for isolation of gauging problems including inconsistencies in technique between operators or inspectors.

### Study wizard

User-guided study setup defines the study that needs to be performed in order to determine the measurement system's capabilities. All elements required for the selected study to be completed are captured before the study is created, and the user is prompted to provide any missing information before beginning the study.

### Data input

Data for the study can be collected directly from a gauge connected to the system or transferred from Mitutoyo Coordinate Measuring Machines or Vision and Form Measuring Systems via native integration (DDE). Users can also key in their data.

### Group studies

All studies in the database are visible and can be organised using various criteria.

### Randomised collection sequence

As recommended by the academic community, the collection sequence can be automatically randomised.

## SPECIFICATIONS

| Order No. | Description |
|---|---|
| 64AAB477R | MeasurLink 8 Gage R&R |

Note: Upgrade packages are also available. Please contact our sales department for details.

### Study types

MeasurLink Gage R&R uses calculation methods based on AIAG's Measurement Systems Analysis, Fourth Edition (commonly known as MSA 4). The following study types are supported:

Location
- Bias
- Linearity

Reproducibility
- Type I
- Variable Range Method

Repeatability & Reproducibility
- Crossed ANOVA
- Crossed Average & Range
- Nested ANOVA
- Nested Average & Range

Stability
- Stability

In addition to standard calculations, the software provides graphical tools for analysis of the measurement system. The Xbar and R chart can show whether there is adequate gauge discrimination to record part-to-part variation in production and if operators are consistent.

The Part-by-Appraiser plot can show if there is a lack of consistency between operator inspection techniques.

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# MeasurLink Gage Management

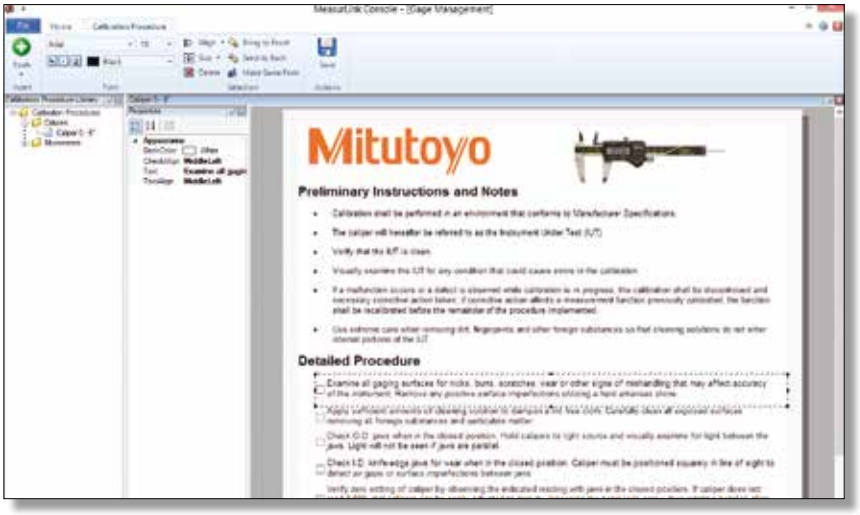
## Gauge Inventory and Calibration Control Module

### FEATURES

Gauge management is essential for monitoring the calibration history of a gauge. Periodic adjustments may be required to bring a gauge into specification.

### Gage Management Edition

A Microsoft Windows-based gauge calibration tracking software that is networkable and shares the same database used by the rest of the MeasurLink software family. This assists users in developing, maintaining, organising and managing information about their gauges. Information such as gauge inservice dates, calibration recall dates, gauge R&R dates and general gauge event history is provided by an intuitive interface with complete reporting abilities. MeasurLink Gage Management also supports the creation of vendor contact and user lists, and comes equipped with a 'smart' calendar that allows you to define working days.




### SPECIFICATIONS

| Order No. | Description |
|---|---|
| 64AAB478R | MeasurLink 8 Gage Management |

Note: Upgrade packages are also available. Please contact our sales department for details.

- Gauge inventory management
- Gauge calibration recall system
- Gauge calibration procedure
- Assessment and reporting
- Gauge vendor management
- Gauge location management
- Gauge R&R history

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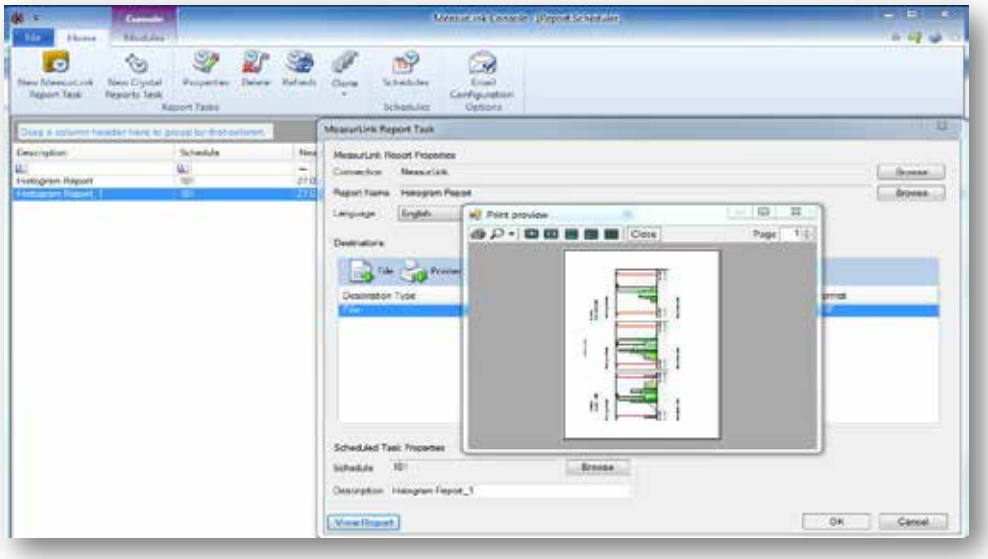
# Report Scheduler

## Report Scheduler Standard Edition

### FEATURES

Report Scheduler is a tool that provides automated report distribution from a Windows service environment. Create reporting tasks that will run on a given schedule.



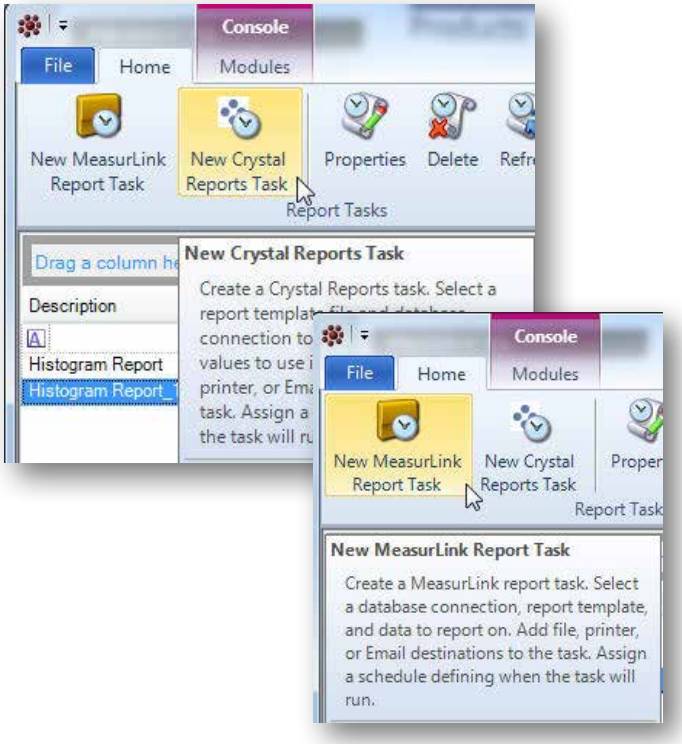
### REPORTING TASK TYPE

**Crystal Reports**

Select a Crystal Reports template file and database connection to report on. Set values for parameters defined in template.

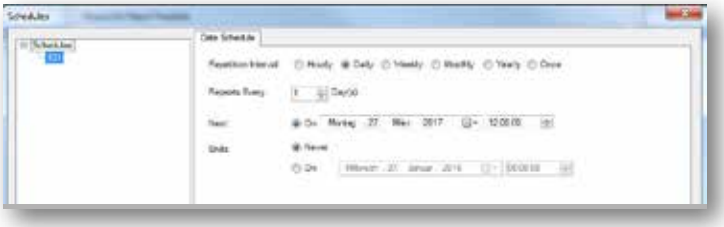
**MeasurLink Reports**

Select a database connection, MeasurLink report template, run or feature run data to report on, and optionally select a filter to be applied to the data.



## DESTINATIONS

The reports can be printed, emailed, and exported in formats such as PDF. Multiple destinations can be assigned to a reporting task.

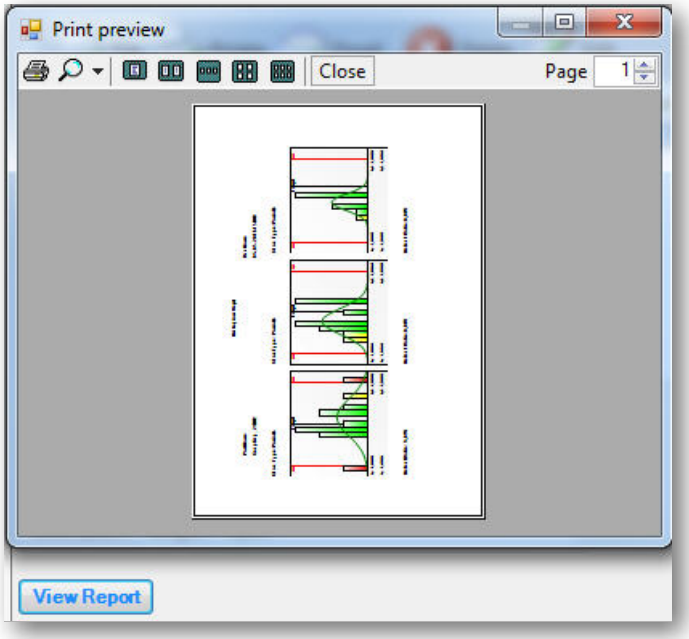


## ASSIGN SCHEDULE

Schedules can be defined on hourly, daily, weekly, monthly, and yearly intervals. Define a schedule and assign it to a report task.

## VIEW REPORTS

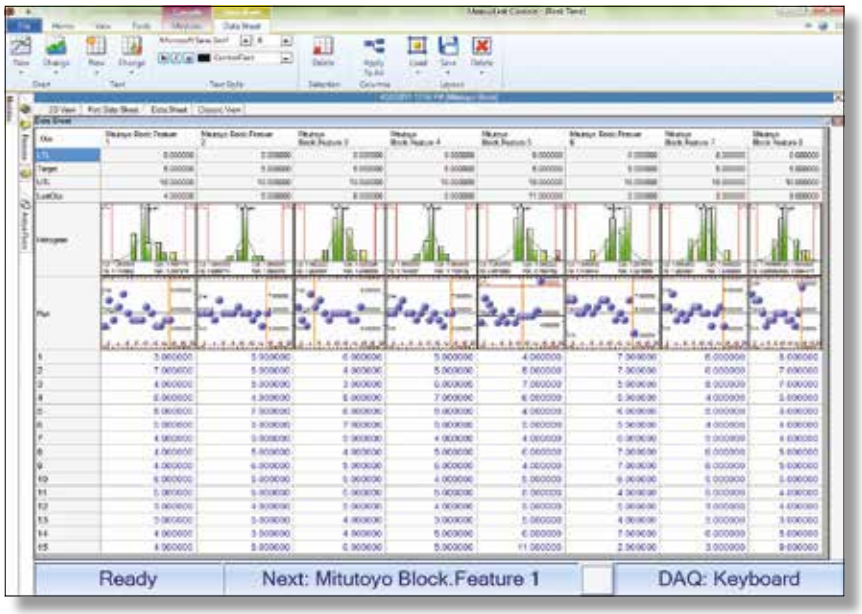
Previewing the report allows validation of the output before scheduling the report task.



# Main Features

**User-friendly**
Click a gauge button and watch the charts update in real-time. This helps the operator stay in control of the process. Begin collecting data in minutes with the newly designed Inspection Wizard.

**Data acquisition**
Collects data from digital micrometers, calipers, indicators, bore gauges, etc. Keyboard entry is quick and easy. Collect data for one or a million parts.




**Comprehensive SPC**
Easy to use Control Charts, Histograms, Capability, Detailed statistics, Assignable Causes, Corrective Actions and Traceability all make this software 'best in class'.

**Variable data**
Collect dimensional data (length, width, height, outside diameter, inside diameter, weight, etc.). Supports derived features (calculations for runout, volume, true position, etc.)

**Attribute data**
Collect data from visual inspections (burrs, cracks, dents, missing holes, etc.) to determine the fitness of a part. Track failures using a go/no-go style or count the defects on a characteristic to determine if a part is defective. There is complete flexibility to study characteristics individually or in groups.

**Engineering specifications**
Attach drawings to parts, routines or individual characteristics for viewing. Most file formats are supported as an attachment (e.g. Word, PDF, CAD).

**Multimedia aids**
Attach movies (AVI, MOV, MPG), sound (WAV) and images (BMP, JPG, TIF) to parts, routines or individual characteristics as instructional aides for an operator.

**Revision history**
Track specification adjustments and preserve historical data.

**Mathematically derived features**
Fully functioning real-time calculator with standard math functions including square root, exponential, trigonometric, sum, average, max and min.

**Part pictures**
View scanned blueprints and digital photographs at a glance. On-screen guided sequencing keeps the operator moving to the right feature.

**Data tests**
Full support of Western Electric and Nelson Tests for pattern recognition in control charts (e.g. extreme point, trend, stratification, oscillation, etc.) along with various alerts for each failed test.

**Forced assignable cause**
Force prompts for assignable causes on Inspectors during data collection if the process is out of control. Empower operator to build on an existing pick list.

**Corrective action plans**
Operators choose corrective action as applied to the part or process. Multiple corrective actions can be applied to any subgroup. Empower operator to build on existing Corrective Action list.

**Sequenced and random gauge input**
Flexible data input. Collect data by feature, by part or randomly. Guided sequencing minimises inspection errors.

**Time stamped data**
All observation data is marked with the date and time from the computer clock.

**Flexible reporting**
Build report templates with company logos and free-form text. Select and position chart types to customer specification.

**Mixed variable/attribute data**
Mix your dimensions and non-conformances in the same Inspection Routine. Track defects along with your dimensional data.

**Crystal Reports**
Create your own customised Crystal Reports for use with Part or Run data.

**FDA 21CFR Part11 support**
Provides support for medical and pharmaceutical manufacturers' electronic records, including audit trails, e-signatures (Process Analyzer Professional only) and advanced security.

**Inspection wizard**
Begin collecting data in minutes by defining features, tolerances and input method.

**Easy-to-use**
MeasurLink provides the most intuitive interface with complete SPC functionality to help you monitor and manage your manufacturing processes. With MeasurLink, you can easily manage the quality levels of parts, identify problem areas and apply corrective action to areas in need of attention.

## MeasurLink 8 System Requirements

### Database Management System (DBMS) Requirements

MeasurLink 8 ships with a copy of Microsoft SQL Server Express Edition 2014 SP1, for a standalone or a workgroup installation. MeasurLink 8 also supports:

- Microsoft SQL Server 2014 Standard Edition
- Microsoft SQL Server 2014 Business Intelligence Edition
- Microsoft SQL Server 2014 Enterprise Edition
- Microsoft SQL Server 2012 Standard Edition
- Microsoft SQL Server 2012 Business Intelligence Edition
- Microsoft SQL Server 2012 Enterprise Edition
- Microsoft SQL Server 2008 Standard Edition
- Microsoft SQL Server 2008 Enterprise Edition
- Microsoft SQL Server 2005 Workgroup Edition
- Microsoft SQL Server 2005 Standard Edition

### Operating System Requirements

All MeasurLink 8 products are supported on the following Microsoft Windows Operating System versions:

- Windows7 (32bit/64bit)
- Windows8.1 (32bit/64bit)
- (Microsoft Windows 8.1RT edition is not supported)
- Windows 10 (32bit/64bit)
- (Windows 10 Mobile and IoT is not supported)

Microsoft Partner

## MeasurLink Suite of Software

MeasurLink is an easy-to-use, Windows-based family of quality data management software applications. MeasurLink combines real-time data acquisition, on-line statistical analysis, integrated networking, and quality information sharing into a comprehensive data management solution.

- **Real-Time**
  On-line real-time data collection
- **Process Analyzer**
  Analysis of all data
- **Process Manager**
  Network monitoring
- **Gage R&R**
  Gauge repeatability and reproducibility
- **Gage Management**
  Gauge inventory and calibration control
- **Report Scheduler**
  Provides automated Report

Note: Upgrade packages are also available. Please contact our sales department for details.

**www.measurlink.com**

# Workgroup License

## MeasurLink Workgroup License

**FEATURES**

Is a bundle package that provides the customer with the ability to install up to and including 15 copies (mixed and matched; packages of 5 and 10 licenses are also available) of any applications in the MeasurLink suite *. This package is designed for small to medium sized businesses with a need for multiple Real-Time data collection stations and offline Process Analyzer reporting stations. These clients are connected to a central Microsoft SQL Database Server. The MeasurLink Installation DVD contains a Microsoft SQL Server 2014 SP1 Express Edition that can be used for the Site installation. Additional licenses can be purchased separately.

**Example installation (Workgroup 15 licenses):**

- 12 x Real-Time Professional Edition installations
- 3 x Process Analyzer Professional Edition installations

**Possible Licenses:**

- **64AAB479R** MeasurLink Site license, 30 licenses
- **64AAB480R** MeasurLink Workgroup license, 15 licenses
- **64AAB482R** MeasurLink Workgroup license, 10 licenses
- **64AAB483R** MeasurLink Workgroup license, 5 licenses
- **64AAB484R** MeasurLink Academic license, 20 licenses

# Floating License

## MeasurLink Floating License

**FEATURES**

Users who want to use MeasurLink in a terminal server environment or want to have a number of concurrent users should consider the MeasurLink Floating License add-on for their Workgroup or Site License. This upgrade is available in packs of 5, 10, 15 and 30. This upgrade includes a licensing server application that manages the number of seats available.

This type of installation is common in modern IT infrastructure. Thin-Client hardware or traditional PCs can utilize this option. A user could choose to upgrade a portion of or their entire number of seats to the Floating License upgrade option.

**Benefits include:**

- Easier maintenance of installations
- Most flexible use of modules
- Cost effective way to include more users without purchasing additional seats.
- Can be added to an existing installation or integrated during the initial installation.

**Posssible Licenses (add on for workgroups!):**

- **64AAB479FR** Floating License, 30 License
- **64AAB480FR** Floating License, 15 License
- **64AAB482FR** Floating License, 10 Licenses
- **64AAB483FR** Floating License, 5 Licenses

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Coordinate Measuring Machines

Vision Measuring Systems

Form Measurement

Optical Measuring

Sensor Systems

Test Equipment and Seismometers

Digital Scale and DRO Systems

Small Tool Instruments and Data Management

**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.

## Find additional product literature and our product catalogue

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