‹ MetLogix ›

M³

Quick Start Guide

The M3 Quick Start Guide

Welcome!

The following pages will describe the operation of the M3 video measuring software for both manual and CNC enabled measuring machines.

User Interface:
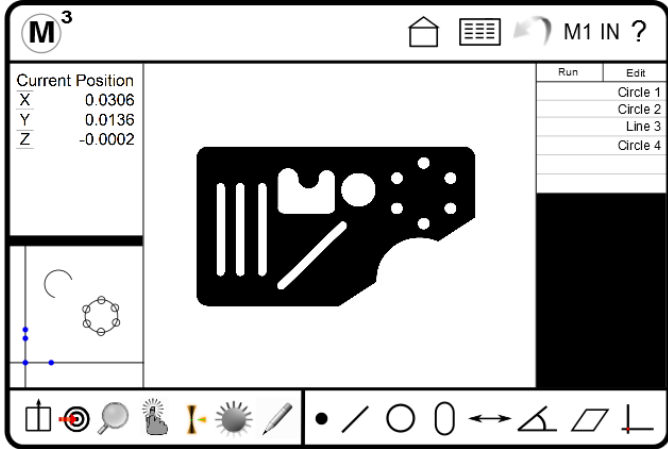
Navigating with the M3 "Viewports"

The M3 software contains three(3) main viewports, one (1) large viewport, seen above displaying the sample part, and two (2) small viewports, along the left side of the screen, that default to Current Position/Feature detail and Part View. Both the Part View and the Feature Detail screens can be switched to occupy the large viewport by simply clicking or pressing within the viewport.

The M3 System Menu

The Measure Toolbar
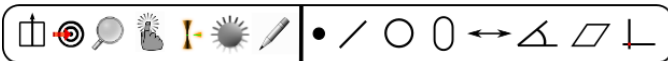
Order below is according to the "toolbar" image above (left to right).

Preferences Menu: Provides access to configured preference selection items, including unit type, reference frame selector, and the on-screen keyboard launcher. *(These items are configured in "Settings"-"Desktop")*.

Goto Mode: Enables goto mode for CNC enabled systems.

Zoom Menu: Provides access to Live Video or Part View Zoom control buttons.

Probe Menu: Provides access to the Video Probe buttons.

Auto Focus Mode: Enables auto focus mode, or auto focus lock, for the currently selected crosshair or VED probe.

Light Control Menu: Provides access to the Machine Illumination slider controls.

Markup/Annotation Menu: Provides access to the Live Video and Part View markup tools.

Measure Point Menu/Button: Measures Point feature and provides access to the Point Menu.

Measure Line Menu/Button: Measures Line feature and provides access to the Line Menu.

Measure Circle Menu/Button: Measures Circle feature and provides access to the Circle Menu.

Measure Slot Menu/Button: Measures Slot feature and provides access to the Slot Menu.

Measure Distance Menu/Button: Measures Distance feature and provides access to the Distance Menu.

Measure Angle Menu/Button: Measures Angle feature and provides access to the Angle Menu.

Measure Plane Menu/Button: Measures Plane feature and provides access to the Plane Menu.

Measure Datum Menu/Button: Measures Datum feature and provides access to the Datum Menu.

The M3 Toolbar

M3 System Menu: Provides access to the M3 system menu items.

"Home" Button: Resets the large viewport to the currently defined "home" view.

Data/Report View Button: Displays the data/report view in the large viewport.

Undo Button: Executes an "Undo" on the last performed software command.

Magnification Menu: Provides access to the magnification selection menu.

IN/MM: Toggles the currently selected unit type between inch and millimeter.

Help Button: Launches a PDF viewer, displaying the M3 User's Manual.
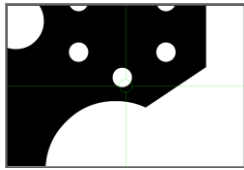
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The Video Probes:

"Active Crosshair" Example

The M3 Software supports measuring features with an "Active Crosshair" using the following procedure:

■ Select the "Active Crosshair" video probe from the probe menu. Press any "measure feature" button from the toolbar.

■ Position the center region of the "Active Crosshair" probe on an edge within the live video window.

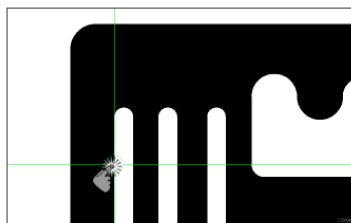■ Press "Enter" to fire the video probe. Press "Done" to complete the measurement.

"Using the Vtouch Probe" Example

The M3 software supports measuring features with the VTouch probe using the following procedure:

■ Select the "Active Crosshair" video probe from the probe menu. Press any Measure Feature button from the toolbar
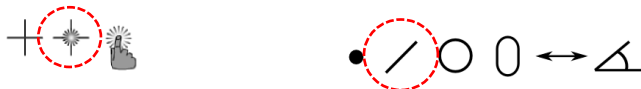
■ Press or click on the edge of the feature to be measured. As you click on an edge within the Live Video window, the active crosshair tool will momentarily move to the probed point position. Continue probing in the fashion until the desired number of probed points is reached.

■ Press "Done" to complete the feature measurement.

"Using the MeasureLogic Probe" Example

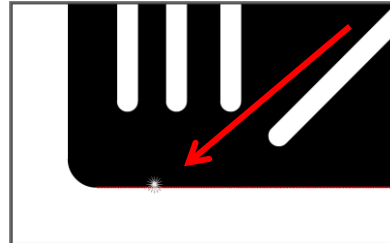The M3 Software supports measuring with the MeasureLogic probe using the following procedure:

■ Select the MeasureLogic video probe from the probe menu. Press any Measure Feature button from the toolbar.

■ Click or press on the edge of the feature to be measured. The points will be taken automatically.

■ Press "Done" to complete the measurement.

■ This probe can also be used **without** requesting the feature type first. The M3 software will detect the feature type automatically, and complete the measurement.


"Using the EyeMeasure Probe" Example

The M3 software supports measuring with the EyeMeasure probe using the following procedure:

Note: The EyeMeasure probe is designed to be a custom-created video tool for measuring complex or partially obscured edges. The buffer probe is not selected, as the other video probes are. It is drawn on the screen over the desired edge by the user.

■ Locate the desired edge within the Live Video window. Press and drag your finger or the mouse pointer, along the edge until the desired tool length and orientation is achieved.

■ Lift your finger, or release click, and the buffer tool will remain visible on the edge. The tool can now be used to collect probed points within the region of the buffer tool.

■ With the EyeMeasure tool drawn on the screen you can execute either an explicit feature measurement or you can allow the system to determine the intended feature by simply pressing or clicking within the buffer tool region of the EyeMeasure probe.
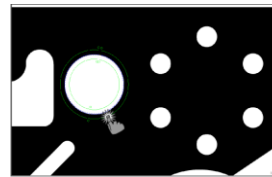
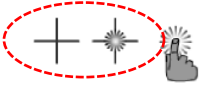## Measure Feature:

"Measure Circle" Example

The M3 Software supports measuring **Circle** features and can be accomplished using the following procedure:

■ Select the Measure Circle button from the Measure Toolbar.

■ Using the "Enter" button, probe at least 3 points on the feature's edge using a Crosshair Video probe.

■ Press "Done" to complete the Circle Measurement. The Circle is added to the Feature List and Part View.

All supported feature types can be measured explicitly using the same procedure described above.

-Feature measurement can be performed using automatic feature determination when using either the MeasureLogic or EyeMeasure video probes. When these probes are used it is not necessary to specify the desired feature type prior to probing, these probes calculate feature type automatically.

Points requirements for probed and constructed features:

■ **Point Features** require one (1) or more points. When more than one (1) point is probed or used in a construction, the average point is the result.

■ **Line Features** require two (2) or more points. When more than two (2) points are probed, a data fit type is applied to the feature's data cloud.

■ **Circle and Arc Features** require three (3) or more points. When more than three (3) points are probed, a data fit type is applied to the feature's data cloud.

■ **Round and Square Slot Features** require five (5) or more points. When more than five (5) points are probed, a data fit type is applied to the feature's data cloud. For round and square ended slots, the first two points probed must be on the same slot or square side of the feature.

■ **Angle Features** require four (4) or more points. The first (2) points must be probed on one leg of the angle, followed by two (2) additional points on the second leg. More points can be added after the initial (4) in any location of the angle's legs.

■ **Plane Features** require three (3) or more points. When more than three (3) points are probed, a data fit type is applied to the feature's data cloud. Probed points on a plane feature should be spread across the plane surface to improve the plane feature result. Planes of greater than 15 degrees theta are not permitted.

Construct Feature:

"Construct Line" Example

The M3 Software supports <u>Tangent Line</u> Constructions and can be performed using the following procedure:

■ Select the measure line button from the measure toolbar.

■ Select the two circles from the feature list or part view that are to be parents of the tangent line construction.

■ Press "Done" to complete the Tangent Line construction. The feature will be added to the feature list and part view.

All supported feature constructions can be performed using this same procedural method.

"Measure Repeat" Example

The M3 software supports measuring features in "Repeat Mode" using the following procedure:

■ When measuring in "Repeat Mode", the Measure Feature button does not need to be pressed between each feature measurement. The system prepares the next feature measurement automatically at the completion of the previous feature. This mode is designed for measuring a large quantity of "like features" sequentially. "Repeat Mode" is available for all feature types using the same procedure.

■ Press the measure feature button for the desired feature type, next select the repeat button for that feature.
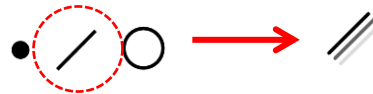
■ You can now select any video probe you would like and begin probing the first feature. When finished press "Done".

■ You will notice that the system is now ready for another line measurement. This will continue until "Repeat mode" is exited. Press the "Done" button to exit "Repeat Mode".

Apply a Tolerance:

"X/Y Position Tolerance" Example

The M3 software supports applying an XY positional tolerance to a circle feature and can be accomplished by using the following procedure:

■ Select the circle feature in the feature list you intend to apply the tolerance to.

■ Access the feature detail screen for the circle by pressing in the feature detail viewport.

■ Toggle the feature detail screen from "Actuals" view to "Nominals" view using the screen selection button located above the feature coefficients.
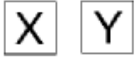

■ Set the nominal position values in X and Y for your circle feature.

■ Select the X or Y positional tolerance button from the toolbar and then enter the desired tolerance values in the appropriate fields.

| X | Y |

■ Switch the detail view screen from "Tolerance" to "Deviation" using the view selector button to observe the results of the applied tolerance.

All supported tolerance types can be applied to features using the same fundamental procedure described above.

Group Tolerancing

The feature detail screen can also be used to apply tolerance values to a group of selected features. The available tolerances will be determined by the feature types currently selected within the group.

To use Group Tolerancing:

■ Select the group of features that you would like to apply the tolerance to.

■ Access the feature detail view for that group selection.

■ Toggle the detail view to either the nominal or tolerance detail screen.

■ Select the desired tolerance type from the available tolerance buttons in the bottom toolbar.

■ The chosen tolerance will be added for each applicable feature within the currently selected feature group.

Supported Tolerances by Feature Type

■ **Point Features**: True Position(RFS), X/Y/Z Positional

■ **Line Features**: X/Y Positional, Angle(Theta), Parallelism, Angularity, Perpendicularity, Straightness, Symmetry

■ **Circle Features**: True Position(RFS/MMC/LMC), X/Y Positional, Diameter, Concentricity, Runout, Roundness

■ **Distance**: X/Y/Z Positional, Length

■ **Arc Features**: True Position(RFS), X/Y Positional, Diameter/Radius

■ **Plane Features**: Z Positional, Flatness, Parallelism

■ **Slot(Round and Square)**: True Position(RFS), X/Y Positional, Angle(Theta), Length, Width

■ **Angle**: Angle(Theta)

Tolerance Symbols:

| X | Y | Z |

X/Y/Z Positional Tolerance

| D | R | L | W |

Diameter/Radius/Length/Width Size Tolerance

| θ |

Theta(Angle) Tolerance

| f |

Form Tolerance

| // |

Parallelism Orientation Tolerance

| ∠ |

Angularity Tolerance

| ⊕ |

True Position Tolerance

| — |

Straightness Tolerance

| // |

Parallelism Tolerance

| ⊥ |

Perpendicularity Tolerance

| ○ |

Roundness Tolerance

| ◎ |

Concentricity Tolerance

| ↗ |

Runout Tolerance

| ≡ |

Symmetry Tolerance

Datum Features:

Datuming in the M3 software is accomplished using any of a variety of alignment operations. These operations may be used individually or in combination, and will be based upon the capability of the measuring machine, as well as the particular alignment requirements of the application.

"Part Level" Example

The M3 software supports "Leveling" for part alignment. A primary datum plane can be explicitly measured using the following procedure:

■ Select a Video Probe from the probe menu.

■ Press the "Datum" toolbar button to access the datum submenu.
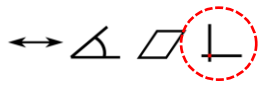
■ Press the "Level Plane" button to measure the datum plane feature.
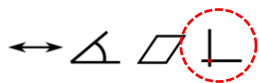

■ Probe at least (3) points on the part plane you would like to level.

■ Press "Done" to complete the level plane measurement.

Note: Previously measured or constructed plane features can also be "leveled" by manually zeroing the theta angle coefficient and z position coefficient. Pressing the label buttons to the left of these coefficients, in either the feature detail screen or the mini-DRO viewport, sets the corresponding value to zero.

"Part Skew" Example

The M3 software supports skew or secondary alignment and can be explicitly measured using the following procedure:

■ Select a Video Probe from the probe menu.

■ Press the "Datum" toolbar button to access the datum submenu.

■ Press the "Measure Skew" button to initiate the explicit skew measurement or skew construction.

■ Probe at least (2) points on the line to apply skew to, or select the features from the feature list or part view that you would like to construct the skew line from.

■ Press "Done" to complete the skew measurement.

Note: Previously measured or constructed features can also be used to apply skew by manually zeroing the theta angle coefficient and X or Y axis coefficient. Pressing the label buttons to the left of these

coefficients, in either the feature detail screen or the mini-DRO view port, sets the corresponding value to zero.

"Part Datum" Example

The M3 software supports setting a Datum(Origin) point and can be performed using the following procedure:

Note: Setting a datum position is typically performed on a previously constructed or measured feature. Datum points can be explicitly measured as well using the "Measure Datum" button.

"Datum Construction" Method

■ Press the "Datum" toolbar button to initiate the datum procedure. The system is now prepared to set an existing feature to the datum or to explicitly measure a datum position.

■ Select the feature that you would like to set as the Datum Zero position.

■ Press "Done" to apply the datum to the selected feature.

Note: Previously measured or constructed features can also be used to apply a datum by manually zeroing the X and Y coefficients of the feature. Pressing the label buttons to the left of these coefficients, in either the feature detail screen or the mini-DRO view port, sets the corresponding value to zero.
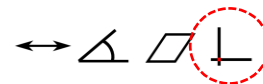
Feature Annotation and Markup:

Feature Annotation and Markup tools can be used to add annotation boxes, containing valuable feature data, to features within the Part View. Other drawing tools, such as Draw Box and Draw Text Markup are also available for marking up the Part View and the live video and a performed using the same fundamental procedure below.

"Annotate Feature" Example

■ Select a circle from the feature list or from the part view. The selected circle will now be highlighted, and displayed as an animated dashed line in the part view.

■ Select the Pencil icon toolbar button from the lower left-hand corner of the M3 screen.

■ A menu of items will appear on the right-hand side of the Part View starting with Auto. Select the coefficients that you want displayed within the Annotation Box.

■ Touch the selected circle in the Part View near where you would like to place the Annotation Box, and drag away from the circle feature.

■ An Annotation Box will appear with an arrow line attached to the circle. Move the annotation box to the desired location and release. "Auto" will draw a single representative coefficient for the selected

feature, "Name" will include the feature name in the Annotation Box. "Nominal" and "Deviation" will include tolerance information for a feature if it has been toleranced.

Printing/Exporting Measurement Data:

Any of (5) standard report formats can be viewed within the Report View screen. By default, all features within the Feature List will be populated within each of these (5) report formats.

Reports can be printed as hard copies to standard Windows compatible printers, or exported as data files in ".txt", ".csv", or "tsv" format. ".Dxf" format can also be exported in CNC and Digital Comparator enabled systems.

"Select Report Template" Example

The M3 software supports (5) report format templates. These templates can be toggled using the following procedure.

■ Populate your Feature List with measured, constructed, or created features.

■ Access the report view screen using the "Report View" button found in the top right toolbar.

■ Select from the available report templates using the "Report Type" menu button found in the bottom toolbar.

■ The name of the currently selected report template will be shown at the top left of the report screen.

"Print Report" Example

The M3 software supports printing the selected report view to a Windows compatible printer using the following procedure:

■ Display the desired report template in Report View and configure the report to look like the desired printed report.

■ While in Report View, press the "Print Report" button found in the M3 System Menu and confirm print settings from the displayed Windows Print dialog box.

"Export Data File" Example

■ Display the desired report template in report view and configure the report formatting according to the file export style desired.

■ Press the "Export Data" toolbar button, found in the bottom toolbar, and choose the desired export format.

■ The exported data file will be written to the designated target location, and a message will appear indicating successful export of the data file.

"Printout" settings items:

The options listed below can be configured either globally from within the "Printouts" setup screen, or at the point of each print execution.

Note: To configure the software to prompt for "Printout" settings at each Print command, configure the "Printout" settings item called "Prompt for Print Settings" to "Yes".

■ **Print Report Header** Set this field to "Yes" to include the report header in your report printout. Additional items, listed below, will affect what items are included in the report header. Set this item to "No" to omit the report header from printed reports.

■ **Print Column Header** Set this field to "Yes" to include column headers in report printouts. The column header labels the contents of a report column by category. Some examples are X, Y, Deviation, etc…Set this field to "No" to omit the column header from printed reports.

■ **Print Grid Lines** Set this field to "Yes" to include grid lines on printed reports. Set this field to "No" to have the grid lines removed from printed reports.

■ **Print "HeaderLogo.bmp"** *in Header*. Set this field to "Left", "Center", or "Right" to include a custom bitmap image in the desired location of the report header. Set this field to "No" to omit the custom bitmap from the report header. Place the desired custom bitmap image, with the file name "HeaderLogo.bmp", into the root location of your M2 software. This file can also be added to the "LogosAndBitmaps" folder in the Metlogix Folder.

■ **Print User Name in Header** Set this field to "Left", "Center", or "Right" to include the currently "logged-in" user name in the desired location of the report header. Set this field to "No" to omit the username from the report header.

■ **Print Date/Time in Header** Set this field to "Left", "Center", or "Right" to include the system date and time in the desired location of the report header. Set this field to "No" to omit the date and time from the report header.

■ **Print Part View with Data** Set this field to "Top", "Bottom", or "Watermark" to include an image of the current part view in the desired location of the printed report. Setting the field to "Watermark" will print an alpha blended part view image underneath the report data. Set this field to "No" to omit the part view image from printed reports.

■ **Print Page Number in Footer** Set this item to "Yes" to include a page number in the report footer. Set this item to "No" to omit page numbers from report printouts.

■ **Printed Part View Height** Set this item to the desired size of the part view to be included with the printed report. This item can be set to 25%, 50%, 75%, or 100% of the native size of the part view image.

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■ **Print Custom Text in Header** Enter custom alpha-numeric information into these fields to be displayed in the report header. Custom text entered into these fields will always be aligned left and bottom in the report header. Leaving these fields blank will omit custom text from the printed report.

■ **Prompt for Custom Text** Set this field to yes to configure the software to prompt for custom text entry at each instance of report printing. This prompting will allow the user to enter the desired text for each of the 4 custom text fields to be used in the report printout. This prompting occurs for both interactive printouts, and for printouts performed in program playback.

The Goto command tool:

The M3 CNC software provides the ability to perform a goto position, goto feature, or goto part view location, using only the Goto control button found in the bottom toolbar, and seen below.

When pressed, the goto command button will display a green control border around the interface area where goto commands can be executed.

Goto Position(Absolute/Relative):

■ When the live video image is displayed in the large viewport, press the goto button.

■ Press within the small DRO window, highlighted in green, to display the goto position dialog window.

■ Select the goto type, absolute or relative, and enter the desired values for the X, Y, and Z axes.

■ Press Done to execute the goto.

Note: Goto absolute position executions are always recorded, and will be played back during program execution. These steps can be edited or deleted after the fact, using the edit and delete program step functions from within program edit mode.

Goto Feature:

■ Press the goto button. The green goto border will be displayed around the feature list.

■ Select the feature from the feature list you would like to go to.

■ The system will executes a goto move to the selected feature.

Goto "Click"(part-view position):

■ When the Part View is displayed in the large viewport, press the goto button. The green goto border will be displayed around the part view space.

■ Press or click within the Part View space in the desired location for the goto click execution.

■ The stage move will immediately be executed, positioning the stage at the specified location.

Program Playback:

Playback in Manual Systems: Onscreen navigation graphics are used to aid in the correct playback of created part programs. These navigation graphics only appear once the program has been successfully registered, or when it is played back in Temporary Fixture mode(see below). The standard requirements for program registration are; (2) positional features (circle, arc, datum point, or slot), (1) line feature and (1) positional feature, or (2) line features.

Playback in CNC Systems: Automated CNC program playback is initiated once a program has been successfully registered, or when it is played back in either Temporary or Permanent Fixture mode(see below). The standard requirements for program registration are; (2) positional features (circle, arc, datum point, or slot), (1) line feature and (1) positional feature, or (2) line features.

Note: Datum features do not change the rules stated above. Example: (1) skew line, and (1) datum circle constitute valid registration for a part program.

Fixture Modes:

Temporary Fixture mode: In both CNC and Manual measuring systems, Temporary Fixture mode can be used to automate, or guide, playback of the registration features of a part program, once the initial registration has been established. After a part program has been registered once, subsequent runs of that program will call the temporary fixture dialog(see image below). When responding "Yes" at the dialog, the part program will playback in temporary fixture mode, where the registration features will either be played back under CNC control, or under graphical guidance mode, for manual systems. This temporary fixture reference is maintained until the part program is closed, or the software is restarted.

Permanent Fixture mode: For CNC enabled measuring systems a part program can be configured for use in permanent fixture mode. Programs in permanent fixture mode will automatically register the part program against the "recorded" machine coordinate system, thus requiring no operator intervention to register the part in subsequent part runs. Permanent fixture mode requires that a valid machine zero position was established both at the time the part program was created, as well as each time it is played back.

Setting a program to Permanent Fixture Mode:

■ Open and access edit mode for the part program you wish to configure for permanent fixture mode.

■ Select the program properties step at the top of the program edit list.

■ Press the palletize button to access the palletize dialog.

■ Enter the number "1" in the "Number of columns" field and the "Number of rows" fields.

■ Press "Done" to close the program properties dialog. The program is now set to permanent fixture mode. The program should now immediately prompt for CNC mode upon playback.

Program Playback/Edit Example:

In the M3 software, groups of measured, constructed, and created features can be saved to a part program file. Part program files, when loaded, will prepare the M3 software to repeat a sequence of feature measurement steps. Other software functions such as printing, and exporting data can also be "played back" as part of a program.

"Using Program Playback Mode" Example

The M3 Software supports playing back part programs using the following procedure:

■ After the desired sequence of feature measurements are in the feature list, press the play button in the M3 System Menu to execute program playback.


In the event the program is newly created (not from a previously saved file) a default program file name will automatically be assigned and the program file saved.

■ Probe the first feature in the playback sequence according to the screen instruction and Blue Pin Position in the "run" list. After registration is complete, the program playback guidance will begin or the system will prompt that CNC playback is about to begin. For details on registration see the "Program Playback" section above.

■ For manual systems, move the measuring stage, following the play back arrow direction, toward the playback target circle as seen below.
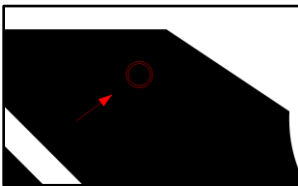
■ Once inside the target circle, the circle will turn green permitting playback step execution.

■ Press within the Live Video window, or press "Enter" to advance playback.
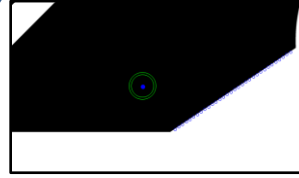
■ For playback stage positions containing more than one measured feature within the field of view, each feature will be automatically measured in the sequence they were originally measured.

■ When the program playback is complete, the status indicator at the bottom of the Feature List will display "Finished" and the program options screen will appear. The part program can then; be Replayed, cleared for new part creation, display measurement results, or edited(with adequate privileges).

■ For features with tolerances applied, the feature name in the "run" list, the part view graphic, and the corresponding detail view field, will display in either red (fail) or white(pass).

"Using Program Edit Mode" Example

The M3 software supports editing of current, or previously saved part programs using the following procedure:

■ To edit existing program files, open the program file prior to proceeding.

 .mlxpart

■ Press the "program play" button from the M3 menu.

■ Press the "Edit" tab found at the top of the feature/program list.

Run	Edit

■ The program steps will be listed within the "Edit" view. Select a program step to make changes to recorded feature detail, tolerance values, light levels, and data export and printing commands.

■ Use the feature detail screens to make changes to tolerance and feature data for a selected program step. Use the "on-screen" controls to make changes to light level steps, data export and print steps, and magnification steps.

■ If desired, save the program file using the "Save" button from the M3 System Menu .

"Appending Program Steps" Example

The M3 software supports appending, or "recording-in", program steps and can be accomplished using the following procedure:

■ Select the program edit view.

Run	Edit

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■ Select the program step where you would like your newly created program operations to be added. These newly added program operations will be inserted after the selected program step.

■ Press the "Record Into" button from the bottom toolbar.

■ A blue "Edit Pin" will be positioned between the currently selected program step and the following step, indicating the current "record into" position.

Note: When editing a program that has already been "played back", the context generation will occur automatically, filling in context dependent program steps automatically from the previously acquired program data. For programs that have not yet been "played back" the software will prompt the operator to manually measure all context dependent features prior to completing the context generation.

■ Once the "record into" edit command has been initiated, the operator may measure or construct new features or insert data output or print command steps according to the standard software procedures for these functions.

■ These newly added program steps will be added to the current program edit list.

■ To save the newly added program steps to the currently loaded part program, press the "save" button found in the M3 System Menu.

"Deleting Program Steps" Example

The M3 software supports deleting program steps and can be accomplished using the following procedure:

■ Select the program edit view.

Run	Edit
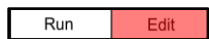
■ Select the program step that you would like to delete.

■ Press the "delete program step" edit command found in the bottom toolbar.

■ The selected program step will be deleted.

■ Newly deleted program steps will be deleted for current part playback session. Save the program using the "save" button found in the M3 System Menu to permanently apply these "delete" changes to the part program.

"Adding a User Message" Example

The M3 software supports adding and editing custom "user messages" for program playback, and can be accomplished using the following procedure:

-Note: "User messages" are added and edited in program edit mode. Part program edit mode can only be accessed after the play program button has been pressed.

■ Select the program edit view.

Run	Edit

■ Select the program step where you would like the user message displayed in program playback. The message will be displayed after this selected step.

■ Press the "User Message" edit command found in the bottom toolbar.

■ The "user message" window will appear. Enter the desired user message text into the space provided.

■ Press the "Done" button to complete the user message. The user message will be displayed as part of the program playback sequence.

DXF Import and Auto Programming:

Convert DXF format drawing files into M3 part programs using the DXF import and Auto Program module. The following procedure describes a typical Auto Program scenario and can be used as a procedural model:

■ Launch M3, and open a DXF file using the "Open Part" Button from the M3 menu. Choose .dxf file type from the Win7 file type menu.

 .DXF

■ The import DXF Dialog will be displayed. Choose the desired layers for import, the unit type for import, and specify the desired scale factor to be used for import and press "Done" to continue.
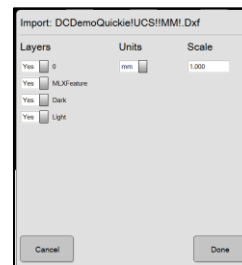
■ The DXF features will be added to the feature list and will be indicated as such with the "Dxf" tag, in the feature list. Trim(delete) features from the imported DXF that you do not want to be part of the resulting "Auto-Program".

■ Specify registration(datum) features to be used for auto program registration, by performing datum operations directly on the Dxf features just loaded, using the datum feature operations described earlier in this Quick Start. These specified registration/datum features will be reordered to the top of the feature list.

■ Press the Play Button from the M3 menu to initiate the Auto Program sequence.

M^3

■ Specify the desired number of points per feature to be programmed, the desired FOV size to be used at each stage location, and the indent margin to be used for positioning point clouds, from the dxf element feature ends, for each programmed feature. Press "Done" to continue.

Auto Program

Reduce effective FOV size by (%)	10
Indent from feature ends (%)	5
Max points per feature	360

Cancel   Done
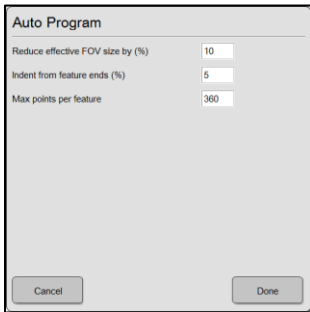
"and program playback will be initiated. Probe the registration features specified on the DXF, directly on the part to be measured. Program playback will proceed once registration is complete.

Part View

15%
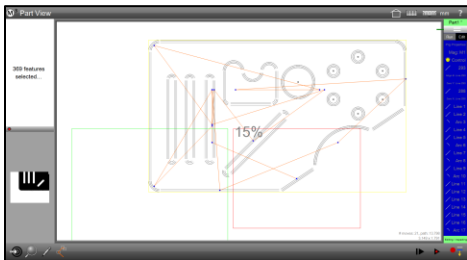
■ Use the Single Step mode button, from the program edit button list, to initiate single step playback. In single step mode, use the left and right step buttons, or keyboard arrow buttons to advance or rewind the program, one step at a time.

■ Perform program edit commands as needed to complete the playback of the Auto Programmed part. Save changes when complete to store and changes made to the program.
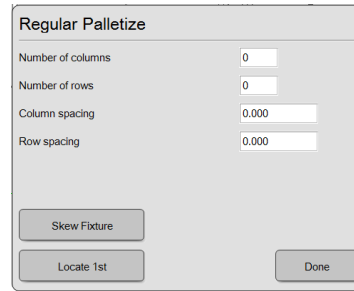
Pallet Program Creation:

Quickly duplicate part programs for CNC playback within a palletized fixture. Specify the desired number of pallet rows and columns and their spacing, then create your pallet program in one click.

The following procedure describes a typical Auto Program scenario and can be used as a procedural model:

■ Generate the part program to be used for pallet program duplication.

■ From program edit mode, select program properties step, and choose the Palletize button to access the pallet program parameters screen.

Regular Palletize

Number of columns	0
Number of rows	0
Column spacing	0.000
Row spacing	0.000

Skew Fixture

Locate 1st   Done

■ Specify the number of pallet columns and rows, and their spacing(in the currently selected unit), to be used for the created pallet.

■ Next, use the Skew Fixture button to assign a skew adjustment for the pallet fixture being use. This Fixture Skew will be associated with this pallet program, until it is updated via a new "Skew Fixture" execution.

NOTE: The Skew Fixture operation initiates an interactive feature measurement session. Probe all features necessary to generate the skew for the fixture, or explicitly probe a skew feature. Press the "Pallet Done" button from the bottom toolbar once the skew has been generated.

■ After generating a Skew for your pallet program, press the "Locate 1st" button .When pressed the system will prompt the operator to probe the registration features of the first part to be used for the pallet program. This sets the origin part program for the pallet program.

IMPORTANT: Skew and Locate First for pallet programs must always be performed as a pair, and in that order. The skew and origin part for a pallet program can be updated by re-executing the above to steps, skew first, then locate first.

■ After establishing skew and origin part for the pallet, press play to begin pallet playback. The pallet pocket selection dialog will be displayed as seen below. Toggle the pocket locations to specify as active or inactive for the subsequent program playback. Enabled pockets will be measured, disabled pockets will be skipped. Press "Done" to accept the selections.

Choose active/inactive pockets:

1,3	2,3	3,3
1,2	2,2	3,2
1,1	2,1	3,1

Done
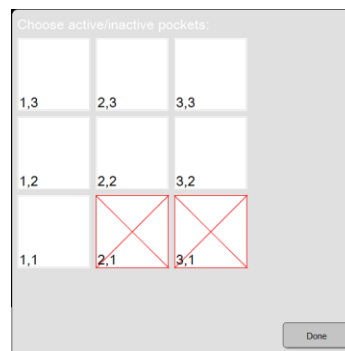
■ The program will playback the part program at each enabled pallet location. At the end of playback the pocket selection dialog will be displayed again indicating pockets that contain features with failed tolerances.

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