Basic Measurement Group

MLB commands in the Basic Measurement Group collect, create, and move single point data. They can also set system constants for:

- probe tip diameter,
- surface compensation,
- measurement units,
- part and machine scales, and
- temperature compensation.

The Basic Measurement Group includes the following MLB commands.

✓	CM	Probe Compensation specifies the probe compensation for round features.
×	CP	Determine Probe Compensation corrects the computed feature results for probe radius after the feature is measured.
×	IC	Immediate Read of MEA Correction returns the current position based on the MEA correction data.
×	II	Read CMM Axis Positions
✓	IM	Read Probe Position
	IN	Inch sets measurement units to inches.
❶	IT	Initiate Temperature Compensation causes all measurements to be corrected to appear as though both the machine and the part were at 20 degrees Celsius (68° F).
	ME	Metric sets measurement units to millimeters.
×	PB	Probe Type identifies a probe's type (hard or touch) and status (deflected or not deflected since installation).
❶	PR	Probe Diameter sets or returns a probe's diameter.
❶	QP	Query CMM Probe Position
✓	QT	Query Temperature returns the current temperature reading for a Temperature Compensation temperature sensor.
❶	QU	Measure Point prompts the operator to record a single point on a part's surface.
×	QV	Query Touch Point Surface Vector
×	R3	Get Averaged Position Reading
×	RE	Read Point
×	RX	Reverse Axis for Mirror Imaging Part
×	SM	Scale Machine scales machine coordinates for the X, Y and Z axes.
×	SP	Scale Part scales part coordinates for the X, Y and Z axes.
❶	ST	Set Point / Feature
✓	WT	Define Thermistors for TempComp

Part Reference Frame Group

MLB commands in the Part Reference Frame Group provide an exact reference from which the location, orientation, and geometric relationships of part features can be derived.

The Part Reference Frame Group includes the following MLB commands.

✓	DR	Delete Reference Frame
❶	EO	Establish Offset Angle establishes the offset angle based on a feature.
❶	EP	Establish Datum Plane establishes the primary datum plane or working plane based upon the feature in the Feature Register.
✓	ES	Establish Reference establishes the XYZ datum.
✓	EX	Establish X Reference establishes the X datum.
✓	EY	Establish Y Reference establishes the Y datum.
✓	EZ	Establish Z Reference establishes the Z datum.
✓	LV	Level orients the working plane.
✓	MO	Move Offset Angle modifies the offset angle for the current reference frame.
❶	MR	Move Reference moves a datum along one or more of the axes.
✓	MX	Move X Reference moves a datum along the X-axis.
✓	MY	Move Y Reference moves a datum along the Y-axis.
✓	MZ	Move Z Reference moves a datum along the Z-axis.
✓	NO	Cancel Level cancels leveling and aligns the part reference frame with the machine reference frame.
×	PS	Preset Datum establishes the XYZ datum relative to the position of the probe.
×	PX	Preset X Datum establishes a datum along the X axis relative to the position of the probe.
×	PY	Preset Y Datum establishes a datum along the Y axis relative to the position of the probe.
×	PZ	Preset Z Datum establishes a datum along the Z axis relative to the position of the probe.
×	RC	Reference Frame Temporary Change
✓	RO	Read Offset Angle retrieves the offset angle of the current reference frame.
✓	RR	Recall Reference Frame recalls a previously-saved reference frame.
×	RT	Stored Reference Frame Status determines the status of reference frame storage locations.
×	SL	Set Level specifies autolevel direction cosines for the working plane.
×	SO	Set Offset Angle specifies offset angle.
✓	SR	Save Reference Frame saves the current reference frame.
×	XI	LOM Inch Increment / Decrement updates the MP30 transformations when the layout machine (LOM) is relocated along the machine base.
×	XM	LOM Metric Increment / Decrement updates the MP30 transformations when the layout machine (LOM) is relocated along the machine base.
✓	XY	XY Plane selects the XY plane as the working plane.
✓	YZ	YZ Plane selects the YZ plane as the working plane.
✓	ZX	ZX Plane selects the ZX plane as the working plane.

Probe Calibration Group

MLB commands in the Probe Calibration Group let you establish a probe tip's center. A probe tip's center is relative to the coordinate measuring machine and to other probes. A probe tip's center also varies according to the probe shaft's length and the tip's diameter and attitude. If you change probe tips or alter a probe tip's attitude, recalibrate the probe tip. If the system loses power, you do not need to recalibrate probe tips.

The Measurement Library provides three calibration commands for Direct Computer-Controlled (DCC) machines. They are DCC Calibration Tip 0, DCC Calibrate Tip and DCC Locate Calibration Sphere. These commands include automatic and semi-automatic sequences for DCC measurement of the calibration sphere.

The number of tips that can be calibrated is unlimited. This allows you to calibrate all the tips you will use in a measurement task before you begin the task. A part program can use any calibrated probe tip without interrupting measurement tasks. Each time a tip is calibrated, the form of the sphere is stored in the S7 variable.

To calibrate a probe tip, you define a calibration fixture. If the calibration fixture is a sphere, and if the part defined the sphere's diameter, then the system automatically determines and stores the diameter of each probe tip you calibrate. The system uses this data when it measures a feature that requires compensation for probe diameter.

The Probe Calibration Group includes the following MLB commands.

×	AH	DCC Calibrate Tip 0 directs the automatic or semi-automatic calibration of Tip 0.
×	AP	Auto-sphere Measurement Point
×	AT	DCC Calibrate Additional Tips directs the automatic or semi-automatic measurement of a calibration sphere with a tip other than Tip 0.
×	C6	Calibrate Changer calibrates a PH6A or PH9A probe head adapter using a probe changer sphere on the autochanger rack.
×	CA	Calibrate Using Best-fit Data calibrates probe tips from data in a summation array.
×	CE	Calibrate Extension calibrates a probe extension.
×	CF	Calibrate Fixture defines the type, location and size of a calibration fixture.
×	CH	Calibrate Tip 0 lets you calibrate Tip 0 manually.
×	CT	Calibrate Additional Tips calibrates multiple probe tips and identifies tip positions by measuring a calibration fixture.
×	D0	Define Tip 0 Offset Vector specifies tip 0's offset from end of probe shaft.
×	D9	Define PH9 Safe Position establishes a position where the PH9 can safely change probe tip attitudes prior to loading or unloading a station.
×	LA	DCC Locate Calibration Sphere directs the automatic or semi-automatic measurement of a moved calibration sphere after an initial calibration at the sphere's MEA location.
×	LC	Locate Calibration Sphere locates hte calibration sphere on the worktable for a manual measurement after an initial calibration at the sphere's MEA location.
✓	M9	Mover PH9 rotates the PH9 probe in A or B axis or both.
×	RI	Read Probe Data tells you a probe's offset and radius.
×	SI	Station Information tells you if a station is loaded or unloaded. A station is loaded if the probe or probe extension from that station is currently mounted on the CMM probe shaft. Station Information also tells you whether or not a station is calibrated.
×	SQ	Calibration Setup tells the measurement processor to use the measurements recorded on the calibration sphere to calibrate a probe tip.
✓	TI	Tip Status tells you if a probe tip is calibrated.

Tip Selection Group

MLB commands in the Tip Selection Group support feature measurement with probes that have more than one tip or more than one tip position. These probes include the 5-tip star probe and the PH9/PH10. Identify and calibrate probe tips before you select them. Selecting an uncalibrated probe tip results in an error.

The Tip Selection Group includes the following MLB commands.

×	FP	Define the Active Probe Tip Data Set
❶	GS	Get Station loads the specified probe changer stations onto the probe adapter.
❶	GT	Select Tip selects the probe tips.
×	NT	Delete Tip deletes the calibration vectors for all probe tips except Tip 0.
×	RZ	Remove Station deletes all calibrated tips associated with a specified station.

Feature Stack Group

MLB commands in the Feature Stack Group let you move data within the Feature Register and the Feature Stack. When the system measures or computes a feature, it stores the resulting data in the Feature Register. This data includes:

- feature position
- orientation data relative to the part reference frame
- feature size of circles, spheres, cylinders, ellipses, and cones
- feature number
- feature type

When new data enters the Feature Register, the former contents of the Feature Register move into the Feature Stack. At the same time, the data in each Feature Stack position moves down to the next position.

The Feature Stack holds up to 8 features. If the Feature Stack if full when the system records new feature data, the data in the last position drops from the Feature Stack and the data is lost.

The Feature Stack Group includes the following MLB commands.

✓	PO	Pop Stack moves the features in the Feature Stack up one position. It puts the data from the first position of the Feature Stack into the Feature Register.
✓	PU	Push Stack moves the features in the Feature stack down one position.
×	US	Unstack moves the features in the Feature Stack up one position. It does not affect the Feature Register.
×	XC	Exchange Feature exchanges the features in the Feature Register with the one in the first position of the Feature Stack.

Feature Storage Group

MLB commands in the Feature Storage Group let you store and retrieve features by name. You can store features for future use. For example, you can use stored features to construct part reference frames or compute feature relationships.

Feature Storage holds an unlimited number of features. Users assign the feature names. The names consist of up to 64 alphanumeric characters. Do not use punctuation or spaces in feature names, however you may use underscore characters. If you use lowercase letters in a name, the system converts them to uppercase.

The Feature Storage Group includes the following MLB commands.

✓	DF	Delete Feature deletes a feature from Feature Storage and frees that storage location.
✓	RF	Recall Feature moves the Feature Stack down and puts the data from the specified feature storage area into the Feature Register.
✓	SF	Save Feature copies data from the Feature Register into Feature Storage.

Feature Measurement Group

MLB commands in the Feature Measurement Group measure features manually.
The Feature Measurement Group includes the following MLB commands.

✓	M2	Manual Measure 2D Line constructs a line by recording points and computing a best-fit line. It projects the line onto a plane parallel to the work plane.
✓	M3	Manual Measure 3D Line constructs a best-fit line defined by a set of recorded points.
✓	MB	Manual Measure Slot/Web lets you measure a slot or web.
✓	MC	Manual Measure Circle constructs a circle by recording points and computing a best-fit to a circle.
✓	MD	Manual Measure Ellipse constructs an ellipse by recording points and computing the best-fit of an ellipse to those points.
×	MF	Manual Measure Offset Plane lets you measure an offset plane.
✓	MI	Manual Measure Cylinder constructs a cylinder by recording points and computing the best-fit of a cylinder to those points.
×	MJ	Manual Measure Step Cylinder lets you measure a step cylinder.
✓	MP	Manual Measure Plane computes the best-fit of a plane to the measured points.
✓	MQ	Manual Measure Cone constructs a cone by recording points and computing the best-fit of a cone to those points.
✓	MS	Manual Measure Sphere constructs a sphere by recording points and computing the best-fit of a sphere to those points.
×	QZ	Manual Single Point Measurement lets you select prompting at the RCU or the host computer.

Feature Reduction Group

MLB commands in the Feature Reduction Group provide the computational algorithms used to construct geometric features.

The Feature Reduction Group includes the following MLB commands.

✓	CN	Cone computes the location, orientation and included angle of a cone from five points in the stack.
✓	CR	Circle computes a circle that is parallel to the measurement plane. The command uses three points in the stack.
✓	CY	Cylinder computes a cylinder from five points in the stack.
✓	EL	Ellipse computes the location, orientation, and maximum and minimum radii of an ellipse parallel to the working plane from five points in the stack.
✓	L2	2D Line computes the position and attitude of a line parallel to the working plane from two points in the stack.
✓	L3	3D Line computes the position and attitude of a line in three-dimensional space from two points in the stack.
✓	OP	Offset Plane computes the parameters from a plane described by three points. The points can exists in the stack or one of the summation arrays.
✓	PN	Plane computes the centroid and orientation of a plane from three points in the stack.
×	SC	Step Cylinder computes the location, orientation and radii of the step cylinder from six points. The six points can be in the stack or one of the summation arrays.
×	SH	Sphere computes a sphere from four points in the stack.

Best-fit Reduction Group

MLB commands in the Best-fit Reduction Group provide the computational algorithms used to construct best-fit geometric features.

The Best-fit Reduction Group includes the following MLB commands.

❶	B2	Best-fit 2D Line computes the best-fit position and attitude of a line from points in the selected summation array. The line computation projects the line on a plane parallel t the work plane.
✓	B3	Best-fit 3D Line computes the best-fit position and attitude of a line from points in the selected summation array. The line is computed in three-dimensional space.
✓	BC	Best-fit Circle computes the best-fit to a circle from points in the specified summation array.
✓	BD	Best-fit Ellipse computes the best-fit location, orientation, and maximum and minimum radii for an ellipse. It uses points from the specified summation array to perform the calculations.
✓	BI	Best-fit Cylinder computes the best-fit to a cylinder from points in the selected summation array.
✓	BK	Best-fit Cone computes the best-fit location, orientation, and included angle for a cone. It uses points from the specified summation array to perform the calculations.
❶	BM	Best-fit Summation sums the position of the specified feature into the specified summation array.
❶	BP	Best-fit Plane computes the best-fit to a plane from points in a specified summation array.
✓	BS	Best-fit Sphere computes the center point, diameter, and best-fit to a sphere from points in the specified summation array.
×	BT	Compute Best-fit Point
✓	BW	Compute Best-fit Slot / Web
×	BX	Compute Best-fit Cparln Feature computes the best-fit Cparlnf (Closed parallel lines - flat end) or Cparlnr (Closed parallel lines - round end) in the working plane to a previously accumulated set of points.
❶	CB	Clear Summation Array clears and initializes the summation array.
×	FF	Fetch Form Feature Data
×	HL	High/Low Point Retrieval retrieves the high and low points determined when best-fit feature form is computed.
×	QB	Query Best-fit Summation Status
❶	RB	Recall Best-fit Point loads the Feature Register with the specified point data from one of the summation arrays.
×	UM	Delete Point from Summation Array removes and unsums the point from the array.

Feature Construction Group

MLB commands in the Feature Construction Group construct a feature from other features. The Feature Construction Group includes the following MLB commands.

×	CC	Compute Circle Tangent to Two Lines
✓	FI	Feature Intersection computes the point of intersection of two circles, a circle and a line, or a cylinder and a line.
➊	KK	Cone Cross-section computes the circular cross-section of a cone.
➊	MV	Move Point moves a feature in the Feature Register a specific point.
✓	NL	Normal Line constructs a line using features in its function command string.
✓	NP	Normal Plane constructs a plane using features in its function command string.
✓	OL	Offset Line
✓	PL	Parallel Line constructs a line using features in its function command string.
✓	PP	Parallel Plane constructs a plane using features in its function command string.
➊	PT	Point constructs a point using features in its function command string.
×	WB	Construct Slot / Web computes the parameters of a slot or web in the active working plane.

Geometric Evaluations Group
MLB commands in the Geometric Evaluations Group calculates angular and distance relationships between features.
The Geometric Evaluations Group includes the following MLB commands.

✓	A1	ANSI Angularity computes the ANSI angularity between a best-fit feature and a specified datum axis or plane.
✓	A2	ANSI Parallelism computes the ANSI parallelism between a best-fit feature and a specified datum axis or plane.
✓	A3	ANSI Perpendicularity computes the ANSI perpendicularity between a best-fit feature and a specified datum axis or plane.
✓	A4	ANSI Runout computes the ANSI total runout between a best-fit feature and a specified datum axis.
❶	A5	ANSI / ISO / DIN Positional Deviation uses the best-fit points to compute positional deviation of a point, circle, ellipse, sphere, line, cylinder and cone.
✓	A6	ANSI / ISO / DIN Concentricity / Coaxiality uses best-fit points to computer concentricity or coaxiality deviation of a point, circle, ellipse, sphere, cylinder, or cone
✓	A7	ANSI / ISO / DIN Circular Runout uses best-fit points to compute runout deviation for circles, ellipses, cylinders, planes, and cones.
✓	A8	ANSI / ISO / DIN Symmetry Deviation computes symmetry deviation for the feature in the Feature Register.
✓	AI	Included Angle computes the obtuse or acute angle between two features, including cones, cylinders, slots and webs.
✓	AN	Angularity computes the angle between lines and planes.
✓	CV	Changing Sign or Orientation Vector
✓	DA	Axial Distance computes the three-dimensional distance between two points, two lines, two planes, a line and a plane, a point and a line, or a point and a plane. It also derives the axial components of the computed distance and pushes these as a 'distance' feature onto the feature stack.
✓	DS	Distance computes the three-dimensional distance between two features.
×	FC	Form Calculation Method
×	I0	ANSI / ISO / DIN Form Reporting identifies and reports the form of the feature in the Feature Register.
✓	I1	ANSI / ISO / DIN Angularity Reporting computes angularity deviation as a width of a zone containing the feature in the Feature Register and prints a report showing this result.
✓	I2	ANSI / ISO / DIN Parallelism Reporting computes parallelism deviation as a width of a zone containing the feature in the Feature Register and prints a report showing this result.
✓	I3	ANSI / ISO / DIN Perpendicularity Reporting computes perpendicularity as a width of a zone containing the feature in the Feature Register and prints a report showing this result.
✓	I4	ANSI / ISO / DIN Total Runout Deviation Reporting computes total runout deviation between the best-fit feature in the Feature Register and a datum axis and prints a report showing the result.
❶	I5	ANSI / ISO / DIN Position Deviation Reporting computes and reports position deviation for the feature in the Feature Register.
✓	I6	ANSI / ISO / DIN Concentricity / Coaxiality Reporting computes and reports concentricity or coaxiality deviation for a feature.
✓	I7	ANSI / ISO / DIN Circular Runout Deviation Reporting computes and reports circular runout deviation for the feature in the Feature Register.
✓	I8	ANSI / ISO / DIN Symmetry Deviation Reporting computes and reports symmetry deviation for the feature in the Feature Register.
❶	JA	Projected Angularity projects two lines onto a selected plane and computes the angle between them.
✓	JD	Projected Distance projects two features onto a plane and computes the distance between them.

➊	JI	Projected Included Angle projects two features onto the selected plane and computes the included angle between them.
➊	JL	Projected Parallelism projects two lines onto the selected plane and computes the deviation from parallelism between them.
×	JP	Projected Perpendicularity projects two lines onto the selected plane and computes the deviation from perpendicularity between them.
✓	JX	Projected Axial Distance projects two features onto the selected plane before computing the distance between them. It also derives the axial components of the computed distance.
×	PA	Parallelism computes the deviation from parallelism between two features.
×	PE	Perpendicularity computes the deviation from perpendicularity between two features.

Deviation Out-of-Tolerance Group

MLB commands in the Deviation Out-of-Tolerance Group provide a way of computing deviation and out-of-tolerance values within the Dimensional Array. You specify the tolerancing mode before you call for evaluations.

The Deviation Out-of-Tolerance Group includes the following MLB commands.

✓	BL	Bilateral Tolerancing specifies that the system uses bilateral tolerancing for evaluations.
❶	DT	Deviation/Tolerances computes the deviation and out-of-tolerances for a particular row in the Dimensional Array. It does not produce a printed report.
❶	DV	Set a Dimensional Array Value
✓	LM	Limit Tolerancing specifies that the system uses limit tolerancing for evaluations.
✓	MM	Maximum Material Condition specifies that the system uses the principles of maximum material condition when computing true position.
×	PD	Position Deviation computes the deviations and out-of-tolerances for the rectangular and polar coordinates of the part position. It does not produce a printed report.
✓	RS	Regardless of Feature Size
×	SZ	Size Deviation/Tolerancing sets the mode of the size deviation calculation. This setting affects how the deviation calculation is performed when bilateral tolerancing is active.
✓	TP	True Position computes the deviations and out-of-tolerances for the rectangular and polar coordinates of the part position. it does not produce a printed report.

Inspection Report Group

MLB commands in the Inspection Report Group let you format and print inspection reports.
The Inspection Report Group includes the following MLB commands.

✓	FM	Define Format defines and stores an Inspection Report format.
×	HF	Turn Standard Report Header Off
➊	ID	Identification Data outputs a literal string to the Inspection Report and/or Log.
×	NEWRPT	New Report is used to close and print a report file.
×	OT	Off TempComp suppresses the reporting of TempComp messages.
✓	RP	Report computes deviation and out-of-tolerance values in the Dimensional Array and prints a formatted report of the requested data.

DCC Motion Group

MLB commands in the DCC (Direct Computer Control) Motion Group enable the part program to control the motion of the Coordinate Measuring Machine.

The DCC Motion Group includes the following MLB commands.

✓	AC	DCC Centerfind directs the CMM to automatically measure a circular feature.
✓	AM	DCC Probe Move allows probe motion along the X, Y and Z axes.
×	HO	Move To Home provides the capability to perform a DCC move to the home position of the probe.
×	PK	DCC Park moves the probe to the end of travel of the X, Y and/or Z axes.
✓	SK	DCC Seek Move moves the probe toward the target at the slower touch speed.
✓	SU	DCC Summation Touch moves the probe at the slower touch speed and sums the point into a summation array.
×	SX	Save Home Position defines a safe position for a DCC CMM to move to allow unobstructed part loading and unloading.
✓	TC	DCC Touch Move moves the probe from its current position at the slower touch speed toward the specified target.
➊	VM	Vector Move Using Surface Vector
×	VS	DCC Vector Seek performs a seek from the current probe position toward a clearance point.
✓	VT	DCC Vector Touch performs a DCC touch along a specified vector.
➊	WM	DCC Wait Move allows probe motion along the X, Y and Z axes. It is similar to the AM function except the system completes the move before processing the next command.
✓	WO	DCC Probe/PH9 Move provides the capability to perform a DCC move and select a new PH9 tip as the shaft moves. The probe tip can be swiveling to a new orientation as the arm moves.
➊	ZM	DCC Zero Switch Move commands a DCC machine to move to a location defined relative to the MEA zero switches. All three axes move immediately to the zero switches.
✓	ZZ	DCC Zero Switch Locate causes the DCC machine to perform a series of moves to locate the MEA zero switches. The axes move one after the other to avoid any contact in the measurement area.

DCC Control Group

MLB commands in the DCC Control Group let you change speeds and other direct computer controlled (DCC) variables controlling automatic feature measurement. Automatic feature measurement is controlled by the DCC Motion group. Refer to the DCC Motion group for relative MLB commands.

The DCC Control Group includes the following MLB commands.

✓	AL	Altitude specifies the probe tip height from a nominal center just before a DCC Centerfind measurement.
×	AU	Auto Status determines the Auto or Manual status of the system as shown by the RCU.
✓	AW	Auto Mode Wait executes a programmed wait until the system is placed in the Auto mode.
×	B0	Disable Beep after DCC Touch turns off the normal MP-30 beeper response to a DCC touch probe deflection.
×	B1	Enable Beep after Touch turns on the normal MP-30 beeper response to a DCC touch probe deflection.
✓	BO	Backoff Distance specifies the distance that the probe moves away after it contacts a surface.
✓	CL	Clearance specifies a distance from the nominal surface or circumference of a circle that the probe tip keeps to avoid contact before touches.
×	DW	DCC Wait prevents execution of any further FLB commands in a part program until all previous commands are completed.
×	MA	Auto Mode turns the Auto mode on. This is only supported on machines with special hardware.
✓	MN	Manual Mode switches the CMM into Manual mode.
✓	OD	Overdrive Distance sets the distance the probe can move without making contact with the target after reaching the nominal position of the target.
×	OS	Servo Off turns the servo power off.
❶	SA	Starting Angle defines the starting angle and angular increment for a DCC measurement of a bore or boss. Used with the AC command.
✓	SD	Probe Speed specifies the maximum probe velocity.
×	SV	Servo Status determines whether the servo power is on or off.
×	SW	Table Speed specifies the maximum speed for table rotation.
×	TA	Touch Status determines whether the touch mode is on or off, indicated by the PH9/PH10 red light.
✓	TD	Touch Speed specifies the maximum speed for all programmed touches.
×	TF	Touch Mode Off prevents the system from sensing a deflected probe, whether the deflection is caused by a touch or vibration.
×	TN	Touch Mode On allows the system to sense a deflected probe.
✓	TT	Target Tolerances sets the distance for the probe to begin its next DCC move before it completes its current move. Works in conjunction with high-speed commands such as AM.
✓	TU	Set Move Target Tolerance specifies the X, Y and Z target tolerances used to begin the next high-speed DCC move, and to determine when that move is complete.
✓	TV	Set Touch Target Tolerance specifies X, Y and Z target tolerances used to begin a DCC touch command, and to determine when that command is complete if no contact occurs. Works in conjunction with SK and TC commands.
×	TW	Set Minimum Time sets a minimum time interval that is to elapse between the end of a high-speed move and a subsequent surface touch.

Miscellaneous Group

MLB commands in the Miscellaneous Group contain utility and miscellaneous commands. The Miscellaneous Group includes the following MLB commands.

×	AF	Change Feature Number allows the feature number to change within a part program.
×	BB	Begin Block marks the beginning of a code block.
×	BQ	Begin Skip marks the beginning of the coded block for a skip sequence.
×	E0	Lower APC Rack on ProGage CMM
×	E1	Raise APC Rack on ProGage CMM
×	EI	Electronic Level Interface Reading for the ATLAS electronic levels.
×	EQ	End Skip ends a block skip sequence.
×	IL	Initialize Library initializes the Measurement Library.
×	IO	IOSTAT allows you to sample the status of one of the input lines or change the status of one of the output lines.
×	IS	Initialize System initializes the complete CMM system.
×	PI	Pallet ID reads the Pentrax pallet ID.
×	R0	Remeasure Off turns the remeasure mode off.
×	R1	Remeasure On turns the remeasure mode on for non-DCC operations.
×	RV	Firmware Version and MP Type
×	TL	Tolerance Lights allows you to set a part status variable so the system can turn on a specified tolerance light.
×	UA	Label User Array Rows allows a part program to label rows of the user array, and to define the type of processing to be performed on a row.
×	UL	Shuttle allows you to start the shuttle sequence on Pentrax systems.
×	VP	Rectangular Conversion converts nominal polar radius and angle to their equivalent nominal rectangular coordinates.
×	VR	Polar Conversion converts nominal rectangular coordinates to their equivalent nominal polar radius and angle.

Special Measurement Group

MLB commands in the Special Measurement Group measure bolt circle patterns and rectangular patterns.

The Special Measurement Group includes the following MLB commands.

✓	BA	DCC Bolt Circle measures and reports a bolt circle pattern under DCC control.
×	BN	Manual Bolt Circle measures and reports a bolt circle pattern under manual control.
×	RA	DCC Rectangular Pattern measures and reports a grid of circular features under DCC control.
×	RM	Manual Rectangular Pattern measures and reports a grid of circular features under manual control.

Segment Measurement Group

MLB commands in the Segment Measurement Group let you measure a portion of a feature, change the probe, and then measure another portion of the same feature. You can measure an unlimited number of these portions, or segments. As you measure a segment, the internal summation array stores data for that segment. After you have measured all the segments, the Measurement Library computes the feature data and stores the computations in the Feature Register.

Segmented measurement uses the internal summation array to accumulate the recorded point positions. You cannot, therefore, use functions that use the summation array while you are measuring segments. Do not change probe compensation or change the current part reference frame during segmented measurement.

The Segment Measurement Group includes the following MLB commands.

×	NS	Next Segment processes measurements for multiple segments of a feature.
×	SG	Segment sets internal flags for the measurement of segments of a feature.

Sweep Measurement Group

MLB commands in the Sweep Measurement Group records hard probe measurement of:

- circles
- 2-dimensional lines
- 3-dimensional lines
- planes
- spheres
- cylinders

The system records measurements as you sweep a hard probe in a continuous motion over the surface of a feature. If you try to use Sweep Measurement commands without a touch probe, you get an error message.

During a sweep feature measurement, the Prompt and XYZ Display monitors display messages to assist you. If measured points do not define a given feature, a message instructs you to sweep the feature again.

Sweep measurements store 200 points in the Internal Summation Array. These points are recallable. The system replaces some of the points saved in the summation array if more points are taken than can be saved. The points available after the feature measurement is complete are a relatively uniform sampling of all the points measured. All other points taken during the sweep feature measurement are stored for use by the system, but are not recallable by the user.

The Sweep Measurement Group includes the following MLB commands.

×	W2	Sweep 2D Line records a sweep measurement of a line as projected into the working plane. It computes the best-fit position and attitude of the line.
×	W3	Sweep 3D Line records a sweep measurement of a line. It computes the best-fit position and attitude of the line in three-dimensional space.
×	WC	Sweep Circle records a sweep measurement of a circle. It computes the best-fit of a circle.
×	WI	Sweep Cylinder records a sweep measurement of a cylinder. It computes the best-fit to a cylinder.
×	WN	Define Minimum Sweep Point
×	WP	Sweep Plane records a sweep measurement of a plane. It computes the best-fit to a plane.
×	WS	Sweep Sphere records a sweep measurement of a sphere. It computes the best-fit to a sphere.

Logging Control Group

MLB commands in the Logging Control Group enable you to:

- set the logging status to on or off,
- select full, partial or log-only modes,
- turn the printer temporarily on or off.

The Logging Control Group includes the following MLB commands.

×	CO	CSV File Off disables logging to the CSV file.
×	C1	CSV File On enables logging to the CSV file.
×	L0	Logging Off prevents logging to the Inspection Log during the RP command.
×	L1	Logging On enables logging to the Inspection Log during the RP command.
×	LF	Logging Full sets the logging status to Full.
×	LP	Logging Partial sets the logging status to Partial.
×	ML	Log Only directly logs inspection data according to the selected report format. This function does not generate a printed report, regardless of printer status.
×	NEWCSV	New CSV closes and conditionally stores a CSV inspection record and then begins a new record with a new date and time stamp.
×	NEWLOG	New Log closes an open Inspection Log file, stores or deletes it (based on the input parameter) and then opens a new log file.
✓	P0	Printer Off sets the printer status to Off.
✓	P1	Printer On sets the printer status to On.
✓	SS	Set Part Serial Number assigns a part serial number to identify the part being inspected.
×	UK	Specify User Keys sets values to mark specific inspections in a Inspection Log for later retrieval and analysis.

Rotary Table Group
MLB commands in the Rotary Table Group control, calibrate and compensate for the rotary table.
If the machine you are using has a rotary table, calibrate the rotary table before you perform any other measurement commands.
After you calibrate a rotary table, the system automatically compensates subsequent measurements for the rotation.
The Rotary Table Group includes the following MLB commands.

×	MW	Move W Reference moves the 0-degree angular reference of the rotary table.
×	PW	Preset W-Axis establishes the 0-degree angular reference for the rotary table.
×	RL	Read Table determines the status of table calibration.
×	RW	Read W-Axis reads the current position of the rotary table.
×	SE	Set Rotary Table Center Vector
×	TB	Table sets angular compensation for manually controlled rotary tables.
×	TS	Set Table determines the center of rotation of the rotary table.
×	TZ	MEA Table Centerfind establishes the MEA table center of rotation and Tip 0 offset.

Error Handling Group

The MLB command in the Error Handling Group enables you to select a method of handling errors that occur during a part program run.

The Error Handling Group includes the following MLB commands.

×	ER	Error Handling selects a method of handling part program errors.

Scan Measurement Group

MLB commands in the Scan Group enable the part program to scan a surface to collect many data points.

The Scan Group includes the following MLB commands.

×	AD	Disable Automatic Tracking
×	AK	Automatic Tracking lets you use tracking for part program-controlled operations.
×	AS	Automatic Scanning scans a surface from one point to the next with DCC control of probe movement.
×	BF	Soft Probe Off deactivates the soft probe.
×	BR	Soft Probe On activates the soft probe.
×	CD	Copy Scan Data to Best-fit Array
×	CQ	Circular Move
×	CU	Clear Scan Buffer
×	CW	Circular Wait Move
×	DX	Define Soft Probe
×	F2	Disable Independent Axis Data
×	F3	Third Axis Scan Off deactivates data accumulation for the third axis.
×	KA	Tracking Active Status
×	KD	Set Nominal Soft Probe Deflection.
×	KS	Set Tracking Speed
×	KT	Set Tracking Move Target Zone
×	LK	Maintain a Part Axis Position
×	MK	Manual Tracking controls probe movement with the RCU.
×	N2	Enable Independent Axis Data
×	N3	Third Axis Scan On activates data accumulation for the third axis.
×	NW	General Surface Sweep collects point data while sweeping a hard probe over a surface.
×	QS	Query Scan Buffer
×	RN	Return Scan Data
×	S2	Independent Axis Scan Buffer Control
×	S3	Buffer Control 3 lets you designate a storage location for third axis data.
×	S6	DCC Calibration of SP600
×	SB	Scan Target transmits the targets in the scan buffer to the MP.
×	SN	Scan scans a surface from one point to the next.
×	TM	Tracking Move
×	ZP	Set Soft Probe Zero Position

User Interface Group
MLB commands in the User Interface Group provide interfaces between the user and the Coordinate Measuring System.
The User Interface Group includes the following MLB commands.

×	BZ	Beeper controls the beepers in the RCU and MP.
×	DM	Display Mode returns the current status of the display update to variable S7.
×	DN	Display On turns the display update on.
×	DO	Display Off turns the display update off.
×	DP	MP Display displays alphanumeric information on the MP.
×	FD	Display Format specifies the display format used on the MP.
×	FT	Fetch returns the value of a parametric variable to a variable for examination.
×	G$	Get Key allows the user to set up RCU-I keys as acceptable responses to a prompt.
×	GN	Get Number asks the user to enter a number on the RCU-I keypad.
×	MT	Monitor MP monitors the system variables displayed on the MP.
✓	OW	Operator Wait prompts the user to press the footswitch or the appropriate key on the RCU.
×	P$	Panel gives the part program access to the MP-30/35 front panel buttons.
×	PF	Polar Coordinates causes the MP to display polar part coordinates.
×	PM	Prompt displays a line of alphanumeric information on the CRT and/or RCU.
×	RD	Rectangular Coordinates causes the MP to display rectangular part coordinates.

❶ - Partial support, not all command options are supported
× - Not supported
✓ - Supported

Dimensional Array

The Dimensional Array stores the current feature for the Inspection Report. When a feature is measured or constructed, or a relation is calculated, the data is temporarily placed in the Dimensional Array.

The array contains six columns that are referenced by the columns in the Inspection Report. The columns are for actual, nominal, plus tolerance, minus tolerance, deviation, and out-of-tolerance data.

There are eighteen rows in the array, one for each data type or characteristic. They are polar radius, polar angle, X coordinate, Y coordinate, Z coordinate, feature diameter, feature radius, angularity, distance, true position, perpendicularity, parallelism, total runout, form, I direction cosine, J direction cosine, K direction cosine, and major radius.

This is a 2-dimensional real array (0 to 17, 0 to 5) that can be accessed by a part program as *objData.S(n1,n2)*. Data is entered into the array by MLB commands and assignment statements in the part program.

Addresses to the individual cells of the array are listed below.

	0 Actual	**1 Nominal**	**2 Plus Tol**	**3 Minus Tol**	**4 Dev**	**5 Out-of-Tol**
0 Polar Radius	S(0,0)	S(0,1)	S(0,2)	S(0,3)	S(0,4)	S(0,5)
1 Polar Angle	S(1,0)	S(1,1)	S(1,2)	S(1,3)	S(1,4)	S(1,5)
2 X	S(2,0)	S(2,1)	S(2,2)	S(2,3)	S(2,4)	S(2,5)
3 Y	S(3,0)	S(3,1)	S(3,2)	S(3,3)	S(3,4)	S(3,5)
4 Z	S(4,0)	S(4,1)	S(4,2)	S(4,3)	S(4,4)	S(4,5)
5 Diameter	S(5,0)	S(5,1)	S(5,2)	S(5,3)	S(5,4)	S(5,5)
6 Feature Radius	S(6,0)	S(6,1)	S(6,2)	S(6,3)	S(6,4)	S(6,5)
7 Angularity	S(7,0)	S(7,1)	S(7,2)	S(7,3)	S(7,4)	S(7,5)
8 Distance	S(8,0)	S(8,1)	S(8,2)	S(8,3)	S(8,4)	S(8,5)
9 True Position			S(9,2)		S(9,4)	S(9,5)
10 Perpendicularity			S(10,2)		S(10,4)	S(10,5)
11 Parallelism			S(11,2)		S(11,4)	S(11,5)
12 Total Runout			S(12,2)		S(12,4)	S(12,5)
13 Form			S(13,2)		S(13,4)	S(13,5)
14 I dir. cosine	S(14,0)	S(14,1)	S(14,2)	S(14,3)	S(14,4)	S(14,5)
15 J dir. cosine	S(15,0)	S(15,1)	S(15,2)	S(15,3)	S(15,4)	S(15,5)
16 K dir. cosine	S(16,0)	S(16,1)	S(16,2)	S(16,3)	S(16,4)	S(16,5)
17 Major Radius	S(17,0)	S(17,1)	S(17,2)	S(17,3)	S(17,4)	S(17,5)

Descriptions for the Dimension Array:

Actuals Column — Actual is the measured dimension of a feature. It always contains related values that correspond to the current contents of the Feature Register.

Nominals Column — Nominal is the desired (blue-print) dimension of a feature. Nominal data is specified by either assignment statements in the part program or the operator when a part is being inspected.

Tolerance Columns — Tolerances establish the acceptable range for deviation. Deviation is the amount that an actual dimension or relation can vary from its nominal. For bilateral tolerancing, column 2 is the plus tolerance and column 3 is the minus tolerance. For limit tolerancing, column 2 is the maximum limit and column 3 is the minimum limit.

Deviation Column — Deviation is the amount by which the actual value of a dimension or relation differs from the nominal value. Deviation can be either a positive or negative value. Limit tolerancing does not use deviation or nominal data.

Out-of-Tolerance Column — Out-of-tolerance is the amount by which the deviation exceeds the tolerance range, or the amount by which a measurement is off from the allowable deviation.

Polar Radius, Polar Angle, X, Y and Z Rows — When a point is measured, the system enters the actual coordinates of that point into the Polar Radius, Polar Angle, X, Y and Z rows. There are two ways to locate a point in three-dimensional space:

- Cartesian (rectangular) coordinates where the point is defined with X, Y and Z values.
- Polar coordinates where a point is defined with a polar radius and angle, and the tertiary axis.

Feature Diameter and Feature Radius Rows — When a circular feature, cylinder, sphere or ellipse is measured, the system enters the feature diameter and radius. The major radius is also stored when an elliptical feature is measured.

Angularity and Distance Rows — Angularity and distance values are entered only if the system calculates them when computing the geometric relationship between two or more features.

True Position Row — Calculation of true position is based upon the selection of RFS or MMC tolerancing.

Perpendicularity, Parallelism and Runout Rows — Calculation of these values is determined by the selected geometric relation. Perpendicularity and parallelism are calculated as units/unit or ANSI Y14.5 tolerancing.

Form Row — Features are constructed using a number of points. A best-fit feature is the one feature constructed through the points that most closely resembles a perfect feature. Form is a value that depicts how much a particular feature deviates from perfect. If a feature is perfect, its form equals zero. The higher the number in the form row, the more the feature deviates from perfect.

Form is evaluated for the following features:

Feature	**Form Evaluation**
2-D line	Planar straightness
3-D line	Spatial straightness
Circle	Roundness
Ellipse	Ellipticity
Plane	Flatness
Sphere	Sphericity

Cylinder	Cylindricity
Cone	Conicity

Measuring the minimum number of points for any feature sets the form value equal to zero. Form always equals zero for points, step cylinders and offset planes.

I,J and K Direction Cosine Rows — Direction cosines define an orientation in space. The value is the cosine of the angle enclosed between the directional vector and the related axis. The sum of the square of the I, J and K cosines equals one. Direction cosines specify orientation only, they do not provide information about the position of a vector in reference to a datum point.

Direction cosines are calculated for the following features:

Feature	**Direction Cosines**
Point	Always zero. No true orientation or direction.
Plane	Orientation of vector perpendicular to the plane.
Line	Orientation of computed line.
Circle	Orientation of vector perpendicular to the best-fit plane for the circle.
Sphere	Always zero. No true orientation because a sphere has many axes.
Cylinder	Orientation of computed cylinder axis.
Cone	Orientation of computed cone axis.
Ellipse	Orientation of vector perpendicular to best-fit plane for the ellipse.

Major Radius Row — An ellipse is the only feature that has two radii of different sizes. The Major Radius row contains the larger radius and the Feature Radius row contains the smaller radius.

Feature Storage

As a feature is measured or constructed, it is automatically stored in the Feature Register as the current feature. When a new measurement is taken or constructed, data in the Feature Register moves to the Feature Stack. The Feature Stack can store up to eight features. Each feature in the stack moves down one position when a new feature is stored in the Feature Register; whereby, the oldest feature is moved out of the stack. The Feature Register and positions in the Feature Stack are sometimes referred to as FR and F1 through F8 respectively.

Typically, when a feature is created, it is immediately printed in the Inspection Report and there is no further need for it. However, there are also cases where one or more features will need to be recalled later in the inspection for further reference and analysis. To meet this requirement, any feature in the Feature Register may be saved in the feature storage; likewise, any feature in feature storage may be recalled to the Feature Register.

MeasureMax+ supports unlimited feature storage and allows the feature names to be assigned any combination of alphanumeric and underscore characters with the following exceptions:

- Maximum of 64 characters
- First character cannot be an underscore
- Reserved words cannot be used

Parametric Variables

Parametric variables provide an alternate method for referencing probe data, components of the reference frame, and data in the Feature Register and Feature Stack. They can only be used in MLB commands that allow parametric variables to be used as command parameters.

Parametric variables for probe data:

Variable	Reference
PR	Probe Radius
NPR	Negative Probe Radius

Parametric variables for components of the reference frame:

Variable	Reference
DP	Datum Point
XA	X-Axis
YA	Y-Axis
ZA	Z-Axis
XY	XY plane
YZ	YZ plane
ZX	ZX plane

Parametric variables for Feature Register:

Variable	Reference
FR	Feature Register
X and NX	X-axis and Negative X-axis
Y and NY	Y-axis and Negative Y-axis
Z and NZ	Z-axis and Negative Z-axis
A1 and NA1	first Axis and Negative first Axis
A2 and NA2	second Axis and Negative second Axis
A3 and NA3	third Axis and Negative third Axis

Parametric variables for Feature Stack.
Note that the following table only shows the parametric variables for positions 1 and 8 of the stack. You can access any of the eight positions be substituting the bolded number with the appropriate position number.

Variable	Reference
F**1** through F**8**	Feature Stack **positions 1 through 8**
X**1** and NX**1**	X-axis and Negative X-axis of stack **position 1**
Y**1** and NY**1**	Y-axis and Negative Y-axis of stack **position 1**
Z**1** and NZ**1**	Z-axis and Negative Z-axis of stack **position 1**

A1**1** and NA1**1**	first Axis and Negative first Axis of stack **position 1**
A2**1** and NA2**1**	second Axis and Negative second Axis of stack **position 1**
A3**1** and NA3**1**	third Axis and Negative third Axis of stack **position 1**
X**8** and NX**8**	X-axis and Negative X-axis of stack **position 8**
Y**8** and NY**8**	Y-axis and Negative Y-axis of stack **position 8**
Z**8** and NZ**8**	Z-axis and Negative Z-axis of stack **position 8**
A1**8** and NA1**8**	first Axis and Negative first Axis of stack **position 8**
A2**8** and NA2**8**	second Axis and Negative second Axis of stack **position 8**
A3**8** and NA3**8**	third Axis and Negative third Axis of stack **position 8**

Summation Arrays

There are two summation arrays used for storing and calculating data involved in best-fit feature calculations and some construction functions. They are the User and Internal Summation Arrays..

User Summation Array

The User Summation Array is completely controlled by the part program. MLB commands are used to:

- Clear the array,
- Enter data into the array, and
- Retrieve data for feature construction from the array.

Internal Summation Array

The Internal Summation Array is reserved for internal use by MLB. Some of the MLB commands allow you to specify the User or Internal Summation Array; however, you must be aware of possible conflicts should you select the internal array.

Caution for the following systems

- MP-30/35/30-II, firmware versions less than 19
- SMP-3xx, firmware versions less than 19
- SMP-400, firmware versions less than 104

Changing reference frames causes the information in the summation arrays to become invalid. The information in the summation array remains intact, but it does not relate to the new reference frame. Be sure to clear the buffer before accessing the summation array if you have changed reference frames.

Tolerancing Modes

Two modes of tolerancing are available for determining feature tolerances: bilateral and limit.

Bilateral Tolerancing

Bilateral tolerancing is the system default. It calculates the variation between the nominal value and the actual value in the plus or minus direction. The following definitions apply to bilateral tolerancing:

- Plus Tolerance is the amount that the actual value can exceed the nominal value. The operator or part program must specify nominal and tolerance values in the Dimensional Array.
- Minus Tolerance is the amount that the actual value can be less than the nominal value.
- Deviation is the difference between the actual dimension and the nominal dimension. Measurement functions calculate deviation values and store them in the Dimensional Array. Deviation is positive if the actual dimension is larger than the nominal, and it is negative if the actual dimension is smaller than the nominal.
- Out-of-Tolerance is the amount an actual dimension falls outside of the acceptable tolerance range. If the deviation is at or within the tolerance range, the out-of-tolerance value equals zero.

For true position, perpendicularity, parallelism, runout and form, the deviation is always positive. The difference between the tolerance range limit and the deviation is used to calculate the out-of-tolerance value.

Limit Tolerancing

Limit tolerancing specifies maximum and minimum sizes for feature dimensions. Since the maximum and minimum limits apply to the actual value, nominal values are not applicable. This mode defines column 2 of the Dimensional Array as the maximum limit and column 3 as the minimum limit. Any amount an actual dimension falls outside of the acceptable tolerance range is stored in the out-of-tolerance column.

The following rules apply to out-of-tolerance calculations for limit tolerancing:

- If the actual value is within the tolerance range (that is, less than or equal to the upper limit, and greater than or equal to the lower limit), then the out-of-tolerance value equals zero.
- If the actual value is less than the minimum limit, then the out-of-tolerance value is negative and is equal to the difference between the actual value and the minimum limit.
- If the actual value is greater than the maximum limit, the out-of-tolerance value is positive and is equal to the difference between the actual value and the maximum limit.

For perpendicularity, parallelism, runout and form, the out-of-tolerance value is always positive. True position cannot be calculated with limit tolerancing.

True Position Tolerancing

Two forms of geometric tolerancing are available for calculating true position: Regardless of Feature Size (RFS) or Maximum Material Condition (MMC).

Out-of-tolerance values are calculated in the same manner for MMC and RFS where a positive deviation is compared with the plus tolerance and a negative deviation is compared with the minus tolerance. However, the tolerance may have a different value for MMC than it does for RFS. MMC uses a derived tolerance that can be affected by the previous measurement of a mating part. RFS uses the value for the plus tolerance (or minus tolerance) that is located in column 2 (or column 3) of the Dimensional Array.

Regardless of Feature Size

Regardless of Feature Size (RFS) is the system default for true position tolerancing. When RFS is in effect, the system does not adjust position tolerancing based on the measured size of a related part. RFS is used when the location of that centerpoint is critical.

Maximum Material Condition

Maximum Material Condition (MMC) is applied to mating parts. An example of mating parts is if you have one part with two holes, another part with two pins, and the parts must fit together. The principal of MMC allows the measured variance on one part to change the tolerance on the other.

When a hole is at its smallest, the part contains the maximum acceptable material (i.e., an ID meets MMC at its lower limit). The opposite is true of a pin. When a pin is at its largest, the part contains the maximum acceptable material (i.e., an OD meets MMC at its upper limit). Both parts are at MMC when the largest pin is in the smallest hole and the least clearance is between the parts.

When both mating parts are at MMC, it is the least favorable condition. It is unrealistic to only accept parts that are manufactured with a perfect fit. The MMC principal makes manufacturing easier because the variation that is measured on one part affects the tolerance for the mating part.

When the holes are at their largest instead of MMC, the pins that fit into these holes can now measure anywhere between their upper and lower limit. When the hole is at its largest, it is giving all of the total tolerance to the mating part. When the hole is not at MMC, a greater positional tolerance is acceptable on the pin spacing.

The previous case also allows the spacing of the pins to vary. In the case where both parts are at MMC, the holes and pins must be spaced exactly the same or they will not fit together. With the larger hole, the pins can be closer together or farther apart and still fit into the holes.

MMC controls true position tolerancing for circular features. It requires the feature nominals, tolerances and coordinates. The system alters positional and size tolerances for mating parts. The positional and/or size tolerance on the second measured part is increased by the amount the first measured feature differs from the MMC.

With MMC, the system uses true position tolerance without any adjustment in the following cases:

- The feature has no size. Examples of these features are points, lines and planes.
- The probe compensation flag is off during feature measurement or construction.
- The feature is an internal surface (e.g., ID) and its diameter is equal to or smaller than the minimum allowable diameter.

- The feature is an external surface (e.g., OD) and its diameter is equal to or larger than the maximum allowable diameter.

MLB Variables

This is a list of the MLB variables. click the variable name for more information.

Variable	Description
objData.Altitude	Altitude is distance from clearance zone.
objData.Clearance	Clearance is distance from part for touch speed.
objData.Inches	Measurement unit.
objData.LimitTolerancing	Tolerance mode.
objData.MmcBonus	Bonus value for MMC tolerancing.
objData.MMCTolerancing	Calculation for true position.
objData.MpOnLine	Machine status.
objData.NoIL	Suppress initialization.
objData.PolarDisplay	Format of display coordinates.
objData.S(n1,n2)	Dimensional Array.
objData.S0	MLB error number.
objData.S0D	MLB error message or miscellaneous string.
objData.S1D	Feature name.
objData.S1	First-named axis.
objData.S2	Second-named axis.
objData.S3	Third-named axis.
objData.S4	Feature type.
objData.S5	Feature number.
objData.S6A(0)	Sequence number.
objData.S6A(1)	Linear resolution.
objData.S6A(2)	Angular resolution.
objData.S7	Temporary data.
objData.S8	Temporary data.
objData.S9(n1,n2)	Scan array.
objData.S10	Temporary data.
objData.S11	Temporary data.
objData.S12	Temporary data.
objData.S13	Temporary data.
objData.S14	Temporary data.
objData.S15	Temporary data.
objData.S16	Temporary data.
objData.S17	Temporary data.
objData.ScanDeflectStatus	Soft probe deflection status
objData.SFTROTF	Feature tolerance status.
objData.SIQMISC	Miscellaneous data.
objData.SOTF	Part tolerance status.
objData.SU(n1,n2)	User dimensional array.
objData.SULABEL(n)	Labels for user dimensional array.

objData.SUPROCr(n)	Processing type for user dimensional array.
objData.TrapScanDeflectStatus	Trap scan errors.
ObjCtx.Name	Name of machine.