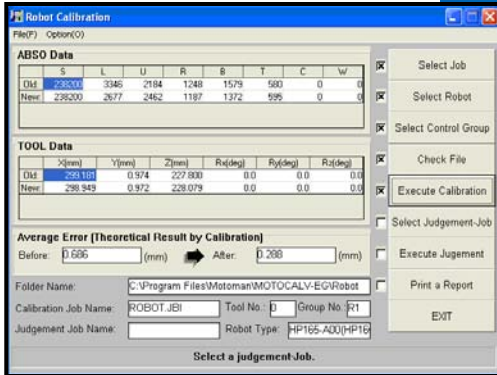


MotoCaIV EG

CALIBRATION UTILITIES



MotoCaIV EG is an economical software tool that provides five different calibration utilities that improve the absolute positioning accuracy, Tool Control Point (TCP), and tool posture of Motoman® robots.

MotoCaIV EG does not adjust robot programs by using an optional filter the way that MotoCal does. Therefore, some manual touch-up of robot program points maybe necessary after a mechanical failure.

HIGHLIGHTS

Positioning Accuracy

■ Absolute positioning accuracy is important for path accuracy in high-precision applications and is essential for off-line programming (OLP). Like any mechanical system, robots are built within manufacturing tolerances. These small differences affect the absolute positioning accuracy of the robot.

Types of Calibration

- MotoCaIV EG can be used to perform five different types of calibration. The robot programming pendant is used to teach the points required for all five types of calibration. All points must be taught carefully and with a high degree of accuracy to ensure optimal results.
- Robot Calibration – Adjusts absolute data values by teaching five different postures at five different points (a total of 25 points), using the robot teach pendant. This calibration improves the absolute value accuracy of the robot.
- Tool Calibration – Adjusts tool data values by teaching seven different postures at one point (a total of seven points), using the robot teach pendant. This calibration calculates the exact tool data (TCP). Some form of tool calibration must be completed before the robot can be calibrated.

- Tool Posture Calibration – An accurate Tool Control Point (TCP) is essential for performing certain motion types, such as linear and circular interpolation. Tool posture is essential to enable the robot to perform linear and circular motion. Tool posture is the angle data which shows the relationship between the flange coordinates and the tool coordinates.

Adjusts tool data by teaching one posture at one point (a total of one point) with the robot. This calibration calculates the exact tool positions (Rx, Ry, Rz).

- Work Piece Calibration (used with MotoSim EG) – Recognizes positional difference between each robot and work piece, by comparing the robot program created by MotoSim® EG and the program created using the robot teach pendant. MotoCaIV EG then converts the position data from MotoSim EG into position data for the actual robot by using the calculated positional difference obtained between the robot and the work piece.
- Layout Correction (used with MotoSim EG) – Layout correction is composed of “robot layout correction” and “travel axis tilt correction.” “Robot layout correction” corrects the robot layout in the cell constructed by MotoSim EG for the actual robot

layout by comparing the job created by MotoSim EG and the job created with the actual robot. “Travel axis tilt correction” corrects the robot layout in the cell constructed by MotoSim EG for the actual robot layout by calculating the positional difference between the travel axis and the robot positioned on the travel axis.

Calibration Process

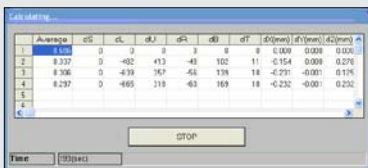
- MotoCaIV EG uses points taught by a programmer, and then correlates the actual taught points versus the theoretical points using a software algorithm (unlike the full-featured MotoCal package that uses an external encoder and measurement cable to correct the absolute values of the robot).

Tools Available

- A model-specific hardware tool used exclusively for robot calibration is available as an option. This tool provides an ideal TCP offset, which in turn delivers the best possible robot calibration results.

ARM YOURSELF...

...with MotoCaIV EG help you maintain robot and system accuracy to keep your robot investment producing quality parts.



TOOL CALIBRATION

TOP REASONS TO BUY!

- Economical calibration tool to improve robot accuracy
- Ability to manually calibrate robot with a laptop computer
- Improves off-line programming accuracy

SCREENS

Calculation finish

STEP	Distance	X	Y	Z	Tx	Ty	Tz
Mean		1768.548	134.908	757.120	28.754	-13.009	-14.040
C0000	0.412	1768.446	134.574	756.903	-154.310	-2.770	25.010
C0001	0.348	1768.667	134.764	756.826	-164.620	-2.630	84.540
C0002	0.226	1768.641	135.114	757.106	-158.230	10.020	-62.940
C0003	0.310	1768.375	135.103	757.289	178.110	-25.910	-76.580
C0004	0.237	1768.690	135.093	757.077	174.960	-17.490	-108.630
C0005	0.651	1768.623	134.463	757.589	161.230	-14.620	-29.820
C0006	0.379	1768.394	135.247	757.050	164.140	-37.660	70.140

CLOSE

JUDGEMENT JOB

Layout Correction

File(E)

Robot Layout Correction Travel Axis Correction

PC Job

Folder Name: C:\...\MotoAdminMG\MotoLobby1

Job Name: BOW.JBI

Controller Job

Folder Name: C:\...\MotoAdminMG\MotoLobby1

Job Name: HOME.JBI

Select PC Job

Select a controller Job

Select Cell

MotoSimEG cell information

Folder Name: C:\Program Files\...\Cells\MotoLobby1

Cell File Name: MotoLobby1.cel

Robot Name: HP20-A00

Correction Option

Output Cell Name: C:\Program Files\...\Cells\MotoLobby1\MotoLobby1.cel

Execute Calibration

Correct Robot Layout

MotoSimEG Inspection

Print a Report

Result

Layout Correction Amount

X	Y	Z	Rx	Ry	Rz

Execute calibration.

EXIT

LAYOUT CALIBRATION

MINIMUM SYSTEM REQUIREMENTS

- Windows XP
- 512 MB Ram
- 2 GHz processor speed
- 1 GB free hard drive space

COMPATIBILITY

- DX100 controller
- NX100 controller
- XRC controller
- MRC controller
- ERC controller