ABB ROBOTICS

Path Tuning Master

3D vision-guided robot dispensing path tuning software for the digital factory of the future

The Path Tuning Master software features 3D vision technology, which increases productivity by dramatically shortening commissioning times from days to hours and changeover times from hours to minutes while maximizing overall line efficiency.

Path Tuning Master is the market-leading robotic software for vision-guided robot dispensing applications. When using 3D vision technology, the robot and 3D vision camera station can be semi-automatically calibrated. This improves the dispensing quality and efficiency. The user friendly interface enables easy and simple design, set up and commissioning of the robot dispensing system with 3D vision.

The software package enables tuning of the robot dispensing path and helps maximize the output and increases the overall equipment effectiveness (OEE).

The software features a powerful 3D vision system that can support up to four 3D cameras for accurate robot-camera and camera-camera coordinate calibration. The modular design concept allows interfaces with additional camera types in the future.

Key Benefits

- Productivity: Reduces commissioning and changeover times and improves operational efficiency
- Flexibility: Supports all ABB robots, linear and circular conveyor configurations, and virtual and physical machines
- Simplicity: Streamlines hardware/software setup and configuration and comes with an easy to use operator interface
- Cost: Reduces total integration costs
- Quality: path accuracy improved with 3D vision

Feature

Multi-Camera calibration
Suitable for camera with point cloud (.om3) output
Standard calibration board can be ordered
Generate and preview calibration model
Up to 4 cameras calibration supported
3D region of interest setting
Differentiated color display of calibration result
Calibration results exported to .csv file

Robot-Camera Calibration
Suitable for camera with point cloud (.om3) output
Unified camera driver interface
PC SDK supported
Supported calibration tools: Customized calibration board and calibration ball
Generate and preview calibration model
Supported calibration types: Eye in Hand and Eye to Hand
Robot-camera calibration by both manual and auto mode
Calibration results exported to .csv file
Calibration results exported as Euler angle, quaternions and matrices
Calibration process guided with real time display

3D-Locate
Suitable for camera with point cloud (.om3) output
PC SDK supported
Flexible 3D region of interest setting
Surface-based 3D matching algorithm
Automatically locate robot gluing path from golden part or CAD model to production workpiece

Golden Path Adjustment
Suitable for camera with point cloud (.om3) output
PC SDK supported
Flexible 3D region of interest setting
Generate and fine tune golden path for golden part

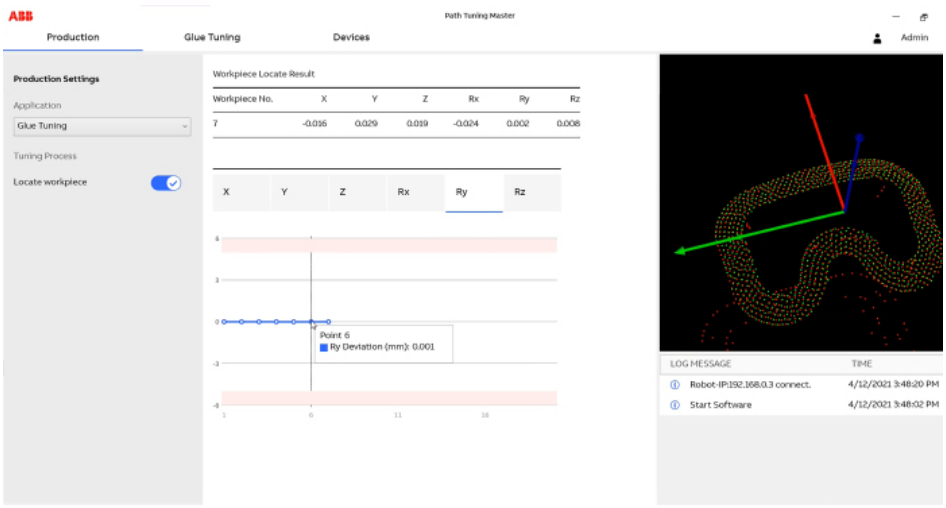
Technical data

Product content
Path Tuning Master
USB dongle and corresponding license file

Required Equipment
Robot controller with RobotWare 6 with PC interface or RobotWare 7
Windows 10 (64 bit) IPC, 2GHz or faster processor, multiple cores recommended
8GB at minimum, 16GB or larger memory recommended, if working with large-size CAD models
Windows user account with administrator's privileges

System Accuracy (Typical)	
Multiple Camera Calibration:	Calibration accuracy < 2 pixels distance*
Robot-Camera calibration:	
Position accuracy	< 0.15mm*
Rotation accuracy	< 0.5 deg*
System error of 3D-Locate:	<0.1mm
System error of Golden Path Adjustment:	<0.15mm

*Above Accuracy verification with IRB 1200 with absolute accuracy, industrial 3D point cloud camera and customized calibration board/test part



02 Production View of Path Tuning Master

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