Process Path

Color Code For Display

- Frame of Reference of Path
- Starting Node Point
- Ending Node Point
- Precision Point Node
- Intermediate Nodes
- Dot Point
- Path Segment with Gun Off
- Path Segment with Gun On

- Compensated Path
- Display Compensated Path

Double Click on Path Node
Point to Edit Segment Data

Exit

AIM PathWare

Product Description

The AIM PathWare is a fully integrated software package designed for use with Adept robots and motion control products in automated material dispensing applications. AIM PathWare simplifies the process of programming a robot in an application where I/O timing, tracking accuracy, and speed control are critical.

Developed around Adept's AIM software system, PathWare provides a set of utilities that makes the training of path patterns quick and easy, and motion control routines that ensure accurate path tracking. Because PathWare uses AIM, the package provides a menu based operator interface, a task-level language, status and control display screens, and interactive training and error recovery strategies - all of which facilitate the successful implementation of a dispensing work cell.

PathWare provides a user interface to easily edit path points. This menu option called path editing, allows the user to graphically view the taught path and move between these point with a click of a button.

Also available is the Advanced Pathware software package that provides additional vision tools to defined paths and CAD data translation.

Features	Benefits
Path Planning	PathWare calculates many robot positions based on a specified time segment to provide constant velocity and precision motion.
Task-level programming	Programming is a simple process of teaching dispense paths and locations and executing an AIM statement.
Robot Tracking, I/O control	Higher quality bead application. Better product yields. Shorter cycle times.
Linear and circular interpolation	Few locations are needed to program very complex dispense patterns.
High End Features	Handles high end features such as vision guidance, conveyor tracking, path checking, servo pump control, analog device control and multiple robot device control out of one controller.
Vision Path Editing	This feature allows editing of path points as seen through the vision window. Requires a robot-mounted camera.

AIM PathWare Module

Product Specifications

Task Statements

DISPENSE - commands the robot to move and dispense material along a user defined path. The statement interpolates data between taught locations along straight lines and arcs, minimiz-ing the teaching requirements of the operator. A procedural motion strategy ensures precise tracking and dispensing gun I/O control

APPLY_DOT - moves the robot to locations and deposits dots of material.

CHG_DISP_SPEED - Allows the user to modify the path speed from sequence control

AIM Utility Statements – 20+ Additional statements to allow easy integration of AIM.

Databases

Dispense Path - Stores process information for a single dispense path. Database record fields include:
• speed - desired robot speed specified in mm/second
• acceleration specifications to allow other robot devices to run procedural path motion.
• conveyor tracking selection
• Path checking selection that checks maximum joints speeds to assure no errors occur during path motion.
• bead field - for systems using a n analog flow gun or servo pump control, this parameter defines the dispensed bead size.

Databases (cont.)

Path - Defines general safe path locations for approach or depart paths.

Tool - Defines tool offset transformations.

Location - Defines positions used for the Apply_dot and Change_hand task instructions.

Frame - Reference frame transformations used to define relative locations and motions. This can be used in conjunction with vision guidance and the Conveyor database.

Dispense Signal - Defines the gun signal number, gun compensation values and analog and servo pump parameters. New in this revision is support of reciprocating servo devices.

User Interface

Standard AIM menu system

Integral pendant teach routines simplify teaching a series of dispensing path points.

Pendant teaching utility to measure tool offset transformations. Precise tool offsets are important in dispensing since control of the dispensing gun tip is critical during path tracking.

Path graphic display that shows actual path positions as well as gun states along path. Allows easy editing of path points.

Global Path editing of many Parameters.

Configuration

System Requirements

Software
- V$^+$ version 11.3 or higher
- AIM MotionWare package
- AIM Software License
- AIM Applications License

Hardware
- Adept MV controller
- Adept A-series or AdeptWindows option
- 8Mb 68030 / 68040 option

Special Hardware
- Hose hangers and tool balancing equipment
- quick-change tooling

Hose hangers and tool balancers are recommended to minimize the load applied to the robot. Since the robot is integrated with a dispensing machine and hoses are attached to the end of the robot arm, robot performance can only be maintained if the hoses are properly balanced.

Quick-change tooling is recommended for system start-up and calibration.

Compatibility

Compatible with all Adept robots and any Adept robot controller.

May be added to an existing system.

Servo Pump control or Analog device control requires additional VME boards to be added to the Adept system.