

# RS-1 Series Training Courses



JUKISmart Solutions



## Programming and Operations Course

### Who Should Attend:

Personnel responsible for the daily setup, operations, and programming of the machines. New operators and operators who need a little extra training are the main intended audience.

**NOTE:** This course will be taught at the “Manager” user level. Features not available to a user at this level will NOT be covered in this course. The service and calibration class is offered for the higher level users.

### Length:

4 days

### Prerequisites:

Knowledge of basic SMT concepts and components. Familiarity with Microsoft® Windows.

### Course Description:

This course is designed to provide operators with operation, routine maintenance, and basic troubleshooting skills. It includes classroom lecture and hands on training on the machines. The content is basically identical to the training provided on site when a machine is first installed.

### Course Agenda:

1. Introduction to JUKI Automation Systems Service Network
  - 1.1. Help Numbers
  - 1.2. Ordering Parts
2. Machine Documentation
  - 2.1. Instruction Manual
  - 2.2. Technical Bulletins
3. Machine Overview
  - 3.1. Safety features (key locks, covers, etc.)
  - 3.2. X,Y,Z and ZA (Axis)
  - 3.3. Assembly Heads
    - 3.3.1. LNC120-8
  - 3.4. Conveyor System
  - 3.5. Feeders
    - 3.5.1. Loading/unloading
    - 3.5.2. Different styles available
  - 3.6. Laser Align Basics – How It Works
    - 3.6.1. LNC120-8
  - 3.7. ATC

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- 3.7.1. Manual nozzle removal
- 3.8. Cal Blocks
- 4. Software Overview
  - 4.1. Windows 7 basics
  - 4.2. User groups
- 5. Setup Data
  - 5.1. Machine Setup
    - 5.1.1. Nozzle Allocation
    - 5.1.2. Head Vacuum with No Nozzle
    - 5.1.3. Device Enable
    - 5.1.4. Conveyor
    - 5.1.5. Others
  - 5.2. I/O Manual Control
    - 5.2.1. Head
      - 5.2.1.1. Laser control
    - 5.2.2. Conveyor
    - 5.2.3. Vision
    - 5.2.4. Others
  - 5.3. Warm Up
- 6. Programming In-depth
  - 6.1. PWB Data (Layout Offsets, Matrix Type PWBs, BOC Mark Teaching)
    - 6.1.1. Back height
    - 6.1.2. Thickness vs. height
    - 6.1.3. BOC Mark database
  - 6.2. Placement Data (Rotation, Local BOC Marks, Optimized Order View)
    - 6.2.1. Place tracking
    - 6.2.2. Layers
  - 6.3. Component Data (Nozzle Selection, Laser Height, Laser Algorithm, Expansion Information)
    - 6.3.1. Auto measuring components
  - 6.4. Pick Data (Alternate Feeders, Z Height, List View)
    - 6.4.1. Pick tracking
  - 6.5. Vision Data for optional camera Only (BGA Programming, Vision Control Data, Light Control Data, Vision Inspection Tool Optimization)
  - 6.6. Tips for obtaining the best times
  - 6.7. Feeder Layout
  - 6.8. Nozzle layout

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7. Database
  - 7.1. Using the component database
  - 7.2. Component Types
8. Production In-depth
  - 8.1. Single Cycle
  - 8.2. Dry Run
  - 8.3. Trial Run
  - 8.4. Parts Information
  - 8.5. Management information
9. Practical Exercise
  - 9.1. Create a program from scratch and run it on the machines.
10. Routine Maintenance
  - 10.1. Lower Shaft Cleaning and Lubrication
  - 10.2. Filter inspection/replacement
  - 10.3. Nozzle Cleaning
  - 10.4. Cleaning the Lasers
    - 10.4.1. Checking the Lasers Using Laser Diagnostics
  - 10.5. Air Path
  - 10.6. Watching for Water Build Up
    - 10.6.1. Removing Water Build Up
  - 10.7. Other Lubrications (Linear Guides)
11. Troubleshooting
12. Question and Answer Session

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