

Modulo - Pick and Place machine

Modulo MP-100

The Modulo offers important features like precision, flexibility and usability and is designed modular, so you can create your ideal configuration. If necessary you can always change the specification of your machine by adding or changing specific modules. You only invest in what you need when you need it.

By ordering the MP-100 you can almost start assembling circuit boards. For a working configuration you also need a PCB holder (in-line or stand-alone) and feeders. The basic machine is equipped with one feeder bank for 30 feeders, a single placement head, one fiducial alignment camera and one component alignment camera. If necessary you can add more feeder banks to expand the 30 feeders there is the option to add more feeder banks, if you want to process smaller components you can add a camera and if you want to increase speed there is a possibility to add a camera and upgrade to a dual placement head. The machine can be upgraded in the field.

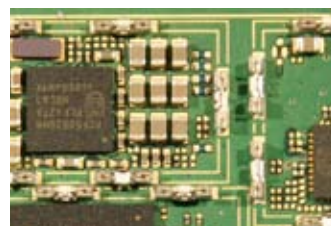


Main Features

- Modular built for growth
- 120 8 or 12mm feeder positions in-line or 180 off-line
- Standard with full vision alignment (no laser alignment)
- No feeder reduction for 12 mm feeder
- Dual placement (option)
- 3000 CPH (IPC rated) with single placement head
- 4800 CPH (IPC rated) with dual placement head
- Intelligent feeders
- Dimasoft® one key operation software
- Linear encoders with 0.001 mm resolution
- Easy width adjust pass-through conveyor
- Off-line programming and optimization
- In-line or off-line available



Applications



Detailed information



Ergonomics prevail

The Modulo is extremely easy to access. No heavy sliding doors or doors that make you step back when opening the machine. The modulo is equipped with vertically rising doors making the entire front or back free for easy access.

PCB Transport Unit

The in-line machine fully complies with the SMEMA standard. Dual direction of transport is available enabling integration with global peripheral equipment. Stand-alone units have the added facility for IN/OUT at the same side if required.



Belt conveyor MP-1200



Single placement head for 1 nozzle

Single or Dual Placement Head

Placement head with 1 or 2 individual Z-axis controlled and programmable nozzles for single or dual use, with full vision alignment for all components. A large CCD camera for placement of fine pitch components up to 50x50 mm components is part of the standard features (LCC). A small camera (12 x 12 mm) for chip components down to 0201 is optional available (SCC). The vision system checks all components on dimensions, number of leads, tolerance of leadspace and coplanarity.



Dual placement head for 2 nozzles

High Speed Fiducial Camera

Dedicated to fiducial marks and teach in only. Not only an extremely fast reaction time, but also the ability to read practically any mark offered for correction are the key features of the fiducial alignment camera.



LCC and optional SCC MP-1510

Real Intelligent Feeders

DIMA is now offering her fourth generation tape feeders. The feeders contain a fully programmable micro processor offering a high level of management information, component counting, part number information, component name, component value, pitch requirements, operator warning for component depletion. Unlike other systems this information is stored into the feeder so that the machine database is not required to determine what product is in the feeder. The DIMA feeders are equipped with the unique quick loading mechanism allowing you to change tapes within 40 seconds.



MP-100 Real intelligent feeders

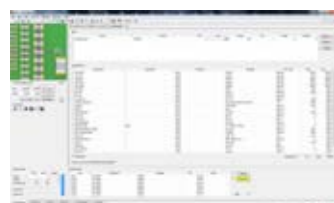
DIMAsoft® Windows®

Be flexible is the keyword for DIMA software making DIMASoft one of the most advanced easy to use interfaces available in the market today. Its unique capabilities offer quick, informative one key operations, drastically reducing programming time. Material planning, management information, Remote diagnostics, output analysis and optimization are together with loads of other features standard available in the software. Software for CAD conversion, stock control and batch traceability are also available from DIMA. For off-line programming or diagnosis of management information you can install the pick & place software free of charge on a desktop PC.

Vision



Material planning



Production



Cad4dima



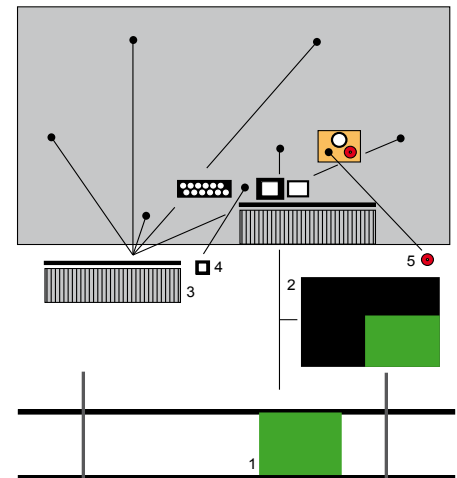
Detailed information

Machine configuration

Starting with the MP-100 you get a basic machine including: a single placement head, 1 fiducial camera, 1 component alignment camera, 1 tool changer, 1 set of tools (see list below), 1 trash bin, 1 feeder bank (for 30 feeders) and all software with controls necessary to run the machine. You need to add: A PCB fixture (1 or 2, see picture, for in-line or off-line) and feeders. You are now ready to start. Want more feeders, than you add feeder banks (3 in the picture). If you want more speed, upgrade the MP-100 to a Dual placement head (MP-1400) (5) You can also add the extra small component camera (4).

Overview standard tools/nozzles in Modulo MP-100

| Article number | Description | Pieces |
|----------------|-------------------------|--------------|
| HP-2700 | Height Calibration tool | 1 |
| CS-2705-SS-01 | Nozzle 0.5 mm | 1 (+1, dual) |
| CS-2710-SS-01 | Nozzle 1.0 mm | 1 (+1, dual) |
| CS-2715-SS-01 | Nozzle 1.5 mm | 1 |
| CS-2720-SS-01 | Nozzle 2.0 mm | 1 (+1, dual) |
| HP-2730-SS-01 | Nozzle 3.0 mm | 1 (+1, dual) |
| HP-2750-SS-01 | Nozzle 5.0 mm | 1 |



Configurations drawing



Tape strip feeder SMCS-400x



Vibration/stick and tape feeders

Tape strip feeder

For small strips of SMD tape DIMA offers a tape strip feeder that can be adjusted to any width of tape. The feet of the tape strip feeder are magnetic for easy placement within the machine.

Vibration/Stick feeders

For plastic sticks up 50 mm wide. Max. 6 (small) lanes of components in one feeder.

Life time warranty

The contacts on the feeder interface PCB are of outstanding quality, so that DIMA gives lifetime warranty on these contacts.



Tray Sequencer
HP-2200

Tray Sequencer

DIMA Group also offers a broad selection of feeders for tray components. A tray sequencer for up to 6 tray's can be mounted on the machine, with loss of only 15 feeder positions. Including tray detection. Optional an extra tray for fast changeover can be ordered.



Light tower
HP-3050



Large reel holder
MP-3250

| Modulo MP-100 | |
|--------------------------------|---|
| Type | Pick and Place machine |
| Dimension off-line (L x W x H) | 2150 x 1700 x 1500 mm (+500 mm for signal light) |
| Dimension in-line (L x W x H) | 1750 x 1300 x 1500 mm (+500 mm for signal light) |
| Board thickness | min. 0.5 mm - max. 4.5 mm thick |
| Board size | min. 30 x 30 mm - max. 380 x 500 mm (off-line) max. 310 x 510 mm (in-line) Optional extension up to: 550 x 1000 mm. |
| Maximum Warpage | 0.5 mm up - 1 mm down |
| Component Height | Top max. 16 mm - bottom max. 30 mm |
| Placement Accuracy | 16.7 μm @ 1 σ 50 μm @ 3 σ , using 1 μm encoders |
| Placement Rate | 3000 cph (IPC rated) - Single placement head 4800 cph (IPC rated) - Dual placement head 6000 cph (based on tact time) - Dual placement head |
| Components | Chip, MELF, SOT, SOIC, TSOP, PLCC, QFP, BGA, LCC, μBGA , etc. smallest pitch 0.4 mm (with second camera) |
| Component size | 0402 up to QFP208, field of view 42 x 42 mm. Upgradeable to 0201 with second component alignment camera. |
| Motion | X and Y, AC/DC servo motors with linear encoder and digital motion controller. |
| Increment Axis | X: 0.001 mm, Y: 0.001 mm, Z 0.02 mm, Theta: 0.045 degr. |
| Control | Integrated microprocessor controller with CAN interface combined with PC running on Windows® 7 |
| Interface | Fully SMEMA compatible as option: MP-1290, Conveyer height 865 to 970 mm. |
| Feeder Characteristics | Intelligent feeders, in-line 30 expandable to 120 8 or 12 mm tape feeders off-line 30 expandable to 180 8 or 12 mm tape feeders Number of trays depending on PCB size, tape feeders from 8 to 44 mm, plastic stick up to 50 mm wide, tray 335 x 185 mm for tape sequencer |
| Vision System | ESI Correctplace®, Automatic board alignment - full vision component alignment and analysis by vision system. Test on lead pitch, sqew angle, BGA bal size and number of balls. |
| Cameras | 1 Fiducial and 1 component align camera with CCD chip Second component alignment camera is optional |
| Power Requirement | 220 Vac / 50 - 60Hz / 2500 Watt |
| Air Requirement | 6 Bar / 85 PSI / 80 L/Min. |
| Operating Temperature | 18 - 30° Celsius |
| Noise Level | Noise emission during operation < 70 dB(A) |
| Weight | 700 kg without feeders, 950 kg with feeders |

For more detailed information, please contact our Sales Representatives. We are very willing to explain you the product application opportunities, all the available system configurations as well as our customized turn-key automation facilities. We are pleased to serve you with the best process technologies and going for the best system fit into your manufacturing processes. Your success is ours too!

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