

EXPERT Pick + Place

Manual and semiautomatic SMD assembly systems



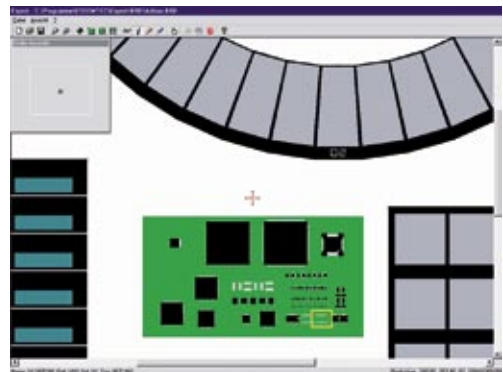
SMD placement systems for prototyping and low volumes

- Manual and semiautomatic models
- Smooth gliding arm system
- Air suspended pick-and-place head
- Integrated placement illumination
- x/y/t fine-adjustment
- Automatic component lowering to PCB
- Microprocessor control with LCD
- Glue and solder paste dispensing system
- Place system for BGA, CSP and Flip Chip

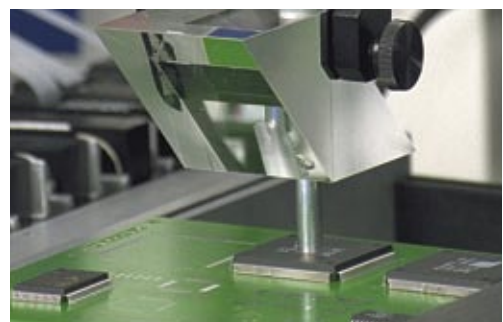
Production of today's SMT boards for prototyping or small batches requires tools to ensure the highest quality standards. The EXPERT-LINE system provides you with a complete family of pick and place machines. Over 2000 systems are in daily use worldwide.



The EXPERT-M manual pick-and-place systems are widely used in prototyping laboratories all over the world. Single and multiple boards with delicate components can be assembled quickly and accurately.



The EXPERT-SA semiautomatic placement systems are ideal for complex prototypes as well as for efficient production of small batches. The software control and linear scales guarantees placements of the correct component on the correct pads and a higher working speed.



With the EXPERT System all kinds of components can be placed, simple resistor chips as well as QFP with fine pitch leads or BGA.

Modular

The EXPERT system can be equipped according to the actual requirements. Later upgrade of additional modules or feeders is possible at any time.

Flexible

All EXPERT models come with a fast clamping holder for double sided PCB which can be resized quick and easy.

Fatigue free operation

The lightweight pantograph arm and the air suspended placement head allow a fast and precise operation with almost no force.

Manual EXPERT-M placer with dispenser, extended with soldering system on separate pantograph arm.



Fully equipped semiautomatic system with dispenser and fine pitch camera. Extended with Microplacer UP3100 for BGA and special fine-pitch components such as ultra fine pitch or small package dimensions.



Easy prototyping



Air suspended pick&place head.

All EXPERT systems are equipped with the patented pick-and-place head with air suspension. By being able to adjust the placement force and avoid operator fatigue, this unique feature allows precise placements even after long working periods. Weights of solder paste cartridges can additionally be balanced.

On EXPERT-FP systems, an automatic lowering function is integrated, using the air suspension to carefully lower the component. An adjustable down stop mechanism prevents unintentional contact of the component with the solder paste before alignment. After fine-alignment the component is lowered automatically onto the board without the danger of misalignment by the operator due to touching the pick&place head again.

Systems with the optional motorized turntable includes directly forward/backward control buttons within the head, providing direct and fast control.

On all systems, an integrated microprocessor controls all operations. Due to the modularity of the system, all functions are included within the electronics, making future upgrades possible. An LCD provides clear status about the operating mode of the system.



Microprocessor control.



Dispenser for glue or paste.



Optional hot air rework tool on second pantograph arm.

Semiautoamtic placement

The EXPERT-SA system includes a semiautomatic enhancement in which the placement process is fully controlled and higher placement speeds can be achieved.

High resolution linear glass scales with optical encoders on the x/y-axis guarantee a closed loop system where all positions on the machine can be controlled. The software guides the operator to the correct pick-up and placement location. Placement rotation is clearly displayed by a virtual component on the screen, indicating even graphically pin1 or polarity.

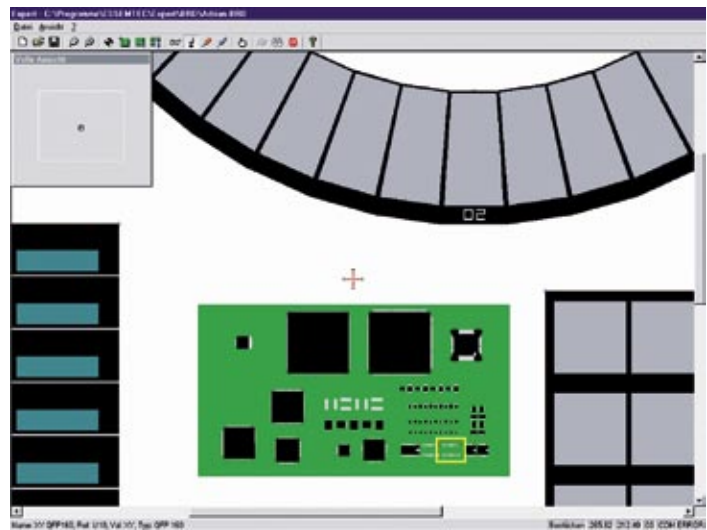
Placement plans are not needed since the system indicates the process steps clearly. Higher placement speeds can be achieved while assuring that the correct components are placed onto the correct locations. Unlike light point systems, the process is fully controlled, eliminating the possibility to pick from the wrong feeder and place in the wrong location.

Boards can be taught in and are shown in a virtual display on the screen to make the recognition and orientation easy.

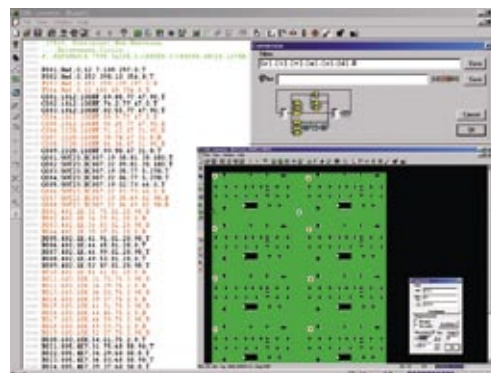
An optional CAD conversion software can read coordinate files from any CAD software (ASCII). Using a universal converter with an open architecture makes it possible to work with different CAD sources, which is especially useful for contract manufacturers. Integrated mirroring and origin settings, as well as recalculation possibility makes this package the ideal choice for fast programming.

Data set transfer or backups can be handled by a standard network or via the regular disk drive. There are no limitations given regarding the number of stored program sets.

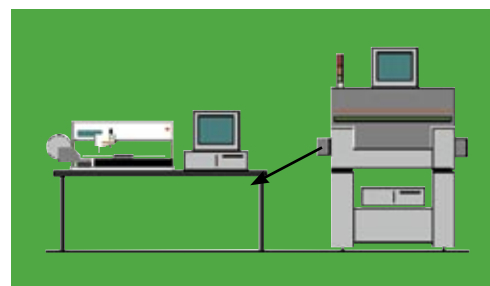
Customers using a fully automatic pick-and-place systems from Essemtec can directly download placement files to the EXPERT-SA system for prototyping. This makes it possible to produce prototype boards directly according to serial production data without the need for reprogramming.



Virtual component view.



Universal CAD data converter.



EXPERT ProgramsProgramme sind kompatibel mit Programmen von automatischen Bestückungsmaschinen von Essemtec.

Optical centering systems



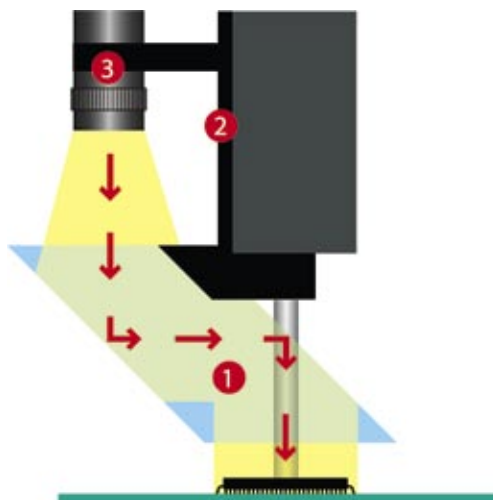
Fine pitch components are locked in a hovering position, exactly aligned and then automatically lowered to the PCB.

Placing fine-pitch components with side mounted camera systems or a microscope is nearly impossible due to the parallax error effect. The glass prism option on the EXPERT eliminates this effect completely. All four sides of the component can be viewed directly from above. The prism combined with the axial locking feature, the fine alignment system and the integrated automatic component lowering function provides the operator with the means to place fine pitch devices.

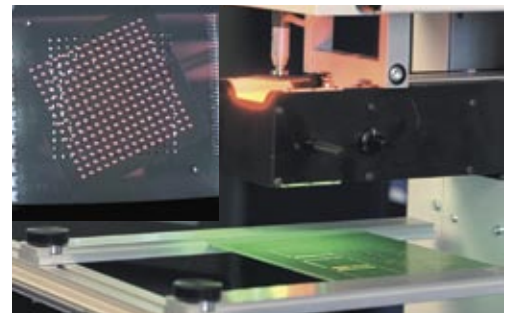
The prism is available as an optical aid with no magnification or in combination with a black/white or color camera system. With the camera system, the component is displayed on a monitor with up to 10x to 20x magnification.

The same camera system can also be used for placing small components or for optical inspection.

Placing BGA's, CSP or Flip Chip components for prototyping and small scale production also requires precise optical alignment. An integrated UP3100 microplacer system makes the EXPERT to a complete prototyping station for all type of components. The integrated up/down vision system with an optional split vision for smaller components allows the operator to precisely align the component by overlaying the image from the board with the actual component bottom before placing it onto the board.

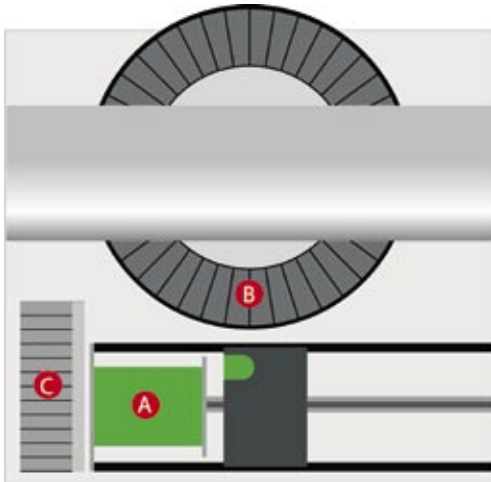


The prism corrects parallax errors.

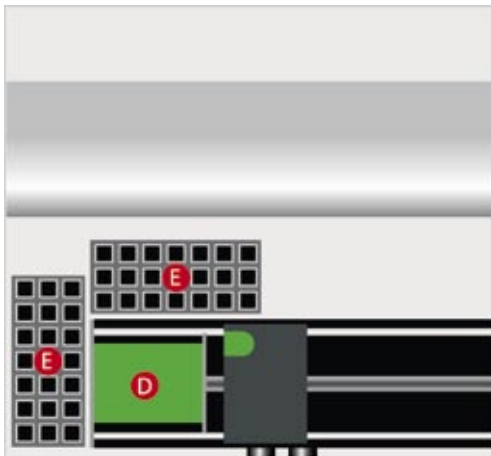


UP3100 Microplacer with split optic for BGA, CSP, Flip-Chip and ultra fine pitch.

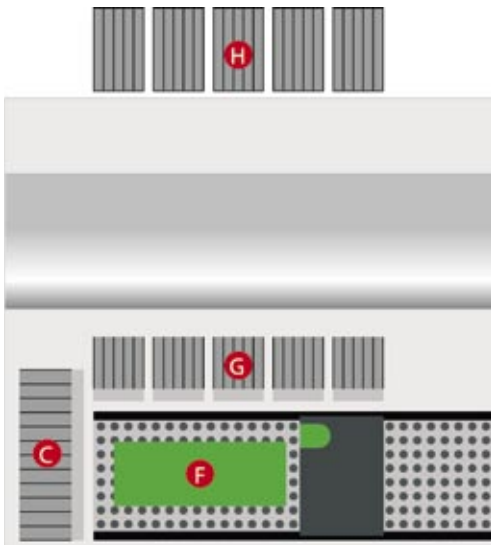
Flexible feeding systems



M/SA model with standard print fixation (A), turntable (B) and feeder groundplate on the left side (C).



FP/FPSA model with x/y-table print fixation (D), with two component traytables (E).



Model with optional vacuum table (F), with 12 feeders on the left side (C) and 25 narrow 8 mm tapefeeders (G) and reelholders (H) behind the machine.



The following feeding possibilities are available:

Tapes

- tape feeders for 8, 12, 16 mm tapes (7")
- narrow-style 8mm tape feeders for up to 40 tapes mounted at the same time on the machine

Sticks

Universal stickfeeders (one stickfeeder can hold a variety of components)

- SO8 - SO28
- PLCC20 - 44
- PLCC52 - 84

Loose piece

Turntables with 45 or 90 bins or 22 minipalette bins

- motorized for fast access
- easy interchangeable
- motorized for semiautomatic mode with random access (random access automatically optimized)
- manual operated
- turning station integrated in handrest for flipped components

Waffle trays

Tray holder for JEDEC trays

Tape strips

Holder with 8, 12 and 16 mm lanes

Bare dies

Turntable bins for holding minipalettes

Flexibility made in Switzerland



Essemtec AG in Aesch, Switzerland, is developing, building and distributing flexible production systems. Found in 1991, the enterprise has become a world leading manufacturer of machines for electronics production.

Customer's investment is always protected: the compatibility of the products allows and expansion of an existing line capacity or performance at any time.

The machine's software and hardware are developments of Essemtec. Therefore, customer specific solutions can be realized in short time.

Product range

- Dispenser
- Printer
- Pick+Place
- Reflow oven
- Wave soldering system
- Component storage system and software
- Handling system
- Turnkey lines
- Customer specific solutions
- SMT production planning software



Essemtec delivers SMD turnkey lines complete with the process know how.



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