

Ergonomic

Integrated dispenser unit

X/Y/Z locking device

Software support

Flexibility of the component feeder



LM 90I Light Manipulator

The LM-90I series represents the basis of the FRITSCH manual mounting systems. The patented FRITSCH pick & place head enables the easy handling SMDs.

Ergonomic

The unrivalled smooth-running guide of the mounting head helps to place the SMDs accurately. When the pipette comes into contact with the components, the vacuum automatically switches itself on and when placing them, it switches off. The adjustable vacuum reactivation alleviates and accelerates the extraction of components, especially from bulk goods containers and when mounting Melfs.

Integrated dispenser unit

There are two different dispenser systems available for all manipulators.

A simple time-pressure dispenser system and a microprocessor-controlled dispenser system, which records the influencing factors such as temperature, the fill level of the syringe and the viscosity of the medium. By recording the additional factors, reproducible results are achieved even in the case of small output quantities. Besides soldering paste and adhesive, other media can also be dispensed.

Both dispenser systems automatically switch on the dispensing process as soon as the slightly slanted dispenser needle comes into contact with the PCB. The vertical syringe ensures that the dispenser needle does not slip sideways when touching the PCB. There are three different times for dispensing available for dispensing on different sizes of pads, which can be selected directly in the dispenser menu. The individual times can be preset as required.



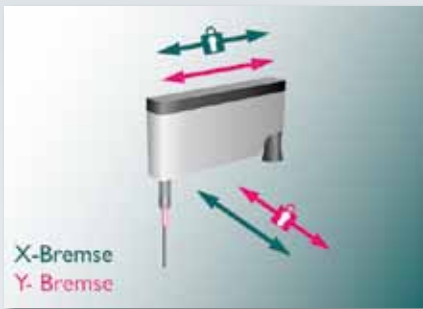
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In addition, the operator can apply in a simple way lines for the adhesion of mechanical components or underfill with the line dispenser module. The line dispenser is controlled by a foot switch. Also, the processor-controlled 930.001 dispenser unit can be integrated.



Double dispenser head

This option enables the simultaneous dispensing of two different media such as soldering paste and adhesive, for example. The control also makes three adjustable dispensing times available for the second medium in order to be able to dispense onto different sizes of pads both fast and easily.



X/Y locking

The X/Y locking device (fig.) ensures precision mounting. Individual movement axes can be locked. An automatic function independently locks the X and Y axes when the components are lowered or when placing a dispenser dot. This makes it particularly easy to place Melfs.

Z locking device

The Z magnetic brake makes it possible to suspend the components close to and above the PCB. This enables fine pitch components and special makes to be easily mounted because the PCB and the component can be aligned exactly.



Head lightening

The dual LED-light of the pick and place area can be integrated optional. The LEDs are placed on both sides of the nozzle and enable the constant and permanent lightening under the assembling head. The integration into the control mode of the Manipulator allows the menu routed activating - depending on application.

Camera fixture

By means of a camera attached directly to the assembly head, you can view the entire pick & place process – enlarged on a monitor.



PCB holders

All manipulators have a universal circuit board holder by standard for single- or double-sided PCBs. Elastic holding fingers are adjustable and hold the board in place. Large PCBs can be handled on demand. Customer-specific holders can be adapted or realised directly at our plant.



Flexibility of the component feeders

All LM90 I Light Manipulators are equipped with the FRITSCH rail system. Various feeders can be installed and exchanged fast – even as complete sets. This means the whole range of SMD shapes can be processed:

Chips, Melfs, SO-, PLCC- and QFP components etc.



Software support

Software is available for all LM90 I Light Manipulators which displays on the monitor the circuit board to be assembled at present.

After starting the programme, a green feeder (see photo) shows where a component is to be taken from. An image of the component to be assembled is shown on the PCB on the monitor. This means that the virtual progress of assembly can be monitored at all times.

The performance of the prescribed steps relieves the operator significantly and at the same time, increases the precision of assembly because there is no need to read the assembly plan. In addition to the information about the position of picking and placing, the polarity of the components, the angle of rotation and the mounting form are displayed.

All necessary data can be entered manually or imported from existing CAD data.

In the case of upgrading to a semiautomatic or fully automatic assembly system, all programmes created can be used directly.

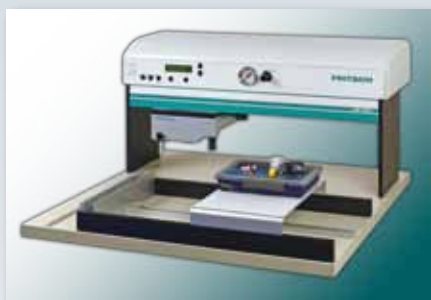
It is not necessary to re-enter the assembly data and this helps to save costs and protect the investment.



LM 901.110

Manipulator for mere assembly work.

Scope of delivery:	Order no.:
1 manipulator	
1 Hand rest	LM.0004.00
2 assembly nozzles	910.301
1 assembly nozzle with suction pad	910.311
3 replacement filter	80.0993.00
1 mains cable	60.0019.00
Operating instructions	
assembly tools	



LM 901.111

Manipulator for dispensing and assembly work.

Scope of delivery: Like LM 901.110 , but	
1 dispenser unit	930.000
1 syringe adapter 5cm ³	931.010
1 syringe of solder paste	932.108
2 dispenser nozzles, yellow	931.009
1 replacement knurled screw	80.0071.00

LM 901.112

Manipulator with X/Y locking device for dispensing and assembly work.

Scope of delivery: Like LM 901.111 , but	
1 X/Y locking device	904.904



LM 901.140

Manipulator for dispensing work, without assembly head.

Scope of delivery:	
1 dispenser unit	930.000
1 syringe adapter 5cm ³	931.010
1 syringe of solder paste	932.108
1 dispensing nozzle set	931.015
2 replacement knurled screws	80.0071.00
Operating instructions	
assembly tools	

Technical data:

According to experience, the assembly capacity is 300-600 SMDs/hour.

Dimensions:	600 mm x 600 mm
Max. size of PCB:	245 mm x 440 mm
Max. assembly area:	245 mm x 350 mm
Recommended guide rails:	left: 940.255 back: 940.470
	Max. Z range: 17 mm

Software

- 949.031** Software extension for LM series. Virtual representation of the PCB and given steps will relieve the user. Improved Integration in the control unit offers optimized work flow. Automatic switch to next placeposition in placementlist.
- 949.030** Software expansion for LM series. Virtual display of the PCB and pre-determined steps relieve the user.



For the use of a dispenser

- 930.001** MARTIN dispenser, processor-controlled for highest precision
- 930.002** MARTIN dispenser, process-controlled for highest precision with suck-back for thin media.
- 930.003** Retrofit kit for standard dispenser in manipulator incl. 5ccm cartridge adapter and new front panel (retrofitting on site on request).
- 930.005** Double dispenser for LM



LM90 I-Systeme

930.006 Line dispenser module for time-pressure dispenser with foot switch



927.001 Vision system for the visual control and alleviation of assembly (also see separate vision systems brochure)



Options

904.710 Fine pitch option
X/Y/Z locking device and X/Y fine adjustment table for the assembly of high polarity components.
The component is displayed exactly and enlarged via the camera and monitor and supports the user in assembly fine pitch components.

904.904 X/Y locking device with automatic function



904.902 Z-locking for LM 901

904.907 Z locking device controlled via a foot switch (no image)



CO.0139.00 Larger assembly head for 26mm Z range by means of integrating the SM902 assembly head.

LM.0046.00 Special head with a Z range of 40 mm, but only for simple pick & place.



LM.0044.00 Extra large manipulator
Expansion of the assembly area of the manipulator in X and Y axes to 310 x 450mm
(other sizes on request)



Accessories

910.020 Compressor suction capacity: 17 l/min

910.030 Compressor suction capacity: 50 l/min



913.001 Working place light fixture for manipulator



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