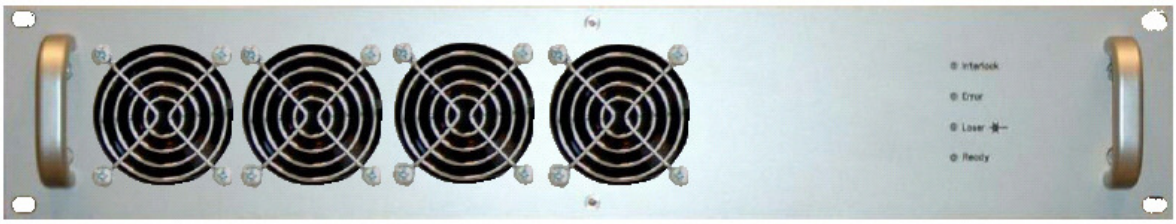
ATN
Automatisierungstechnik
Niemeier GmbH

Laser soldering system

LS-KE / LS-ES / LS-DS



- *laser(s) with 30 W / 60 W / 80 W*
- *wavelength 810-950 nm*
- *working distance 76 mm*
- *pilot laser*
- *optionally with solder feeder Mosquito A25*

Automated laser soldering

A multitude of applications require joints to be soldered individually: Cables, plugs, special construction components and modules with only a few solder joints.
A further application is the use of special elements, e.g. plugs and pin-through-hole on SMT boards. Often single point soldering is required because of assembly, e.g. if a completely equipped PCB is inserted into a housing and has to be connected with plugs or other components by soldering.
Automation of these single point soldering processes does not only allow a cost-efficient mass production, it is also demanded to obtain a constant high quality. Modern electronics manufacturing cannot do without automated single point soldering.
Laser soldering allows an accurate focusing and thus the soldering of smallest solder joints. The special advantages of this procedure are:

- contactless heat transfer
- accurate focusing
- high power density
- high quality soldering joints with high process reliability

Technical Data

Laser		Options and Accessories	
Emitter	Diode laser InGaAs	Laser protection glass	210x290 mm
Optical power	up to 30W cw	power sensor	50 W / 80 W
Focus	0,3 x 0,4 mm	Laser optics with integrated CCD camera	VGA colour
Focal distance	100 mm		
Wave length	810 nm ± 4nm		
Pilot laser	<1 mW / 670 nm	Laser Safety Glasses	
Interfaces:	24 V IO / RS-232 / analog		

Technical description

The source of the laser is a laser diode in the laser tool, where the laser beam is generated and modulated. With the optical system the laser beam is focused accurately on the solder joint. The required temperature at the solder joint is generated by absorption. The application of energy can be controlled precisely. This procedure is suitable both for reflow soldering with soldering paste and soldering with solder wire.
For selective reflow soldering the soldering paste is dispensed first. The solder process occurs in two steps. During the first step the soldering paste is warmed up slowly and the solder joint is preheated. In the second step the soldering paste is melted. A meniscus forms at the solder joint and the contacts are completely covered with solder.

The laser control unit includes the power supply for the laser tool and makes the communication with the laser tool and the cooling unit possible. The system is generally controlled and monitored by the serial interface RS-232 and the digital IOs. The front panel carries additional control elements.

Depending on the application and installation conditions, there are 3 variants
LS-KE: Compact system
(Diode integrated in the power supply)
LS-ES: Single System
(Diode arranged separately)
LS-DS: Double system with two laser diodes and one laser controller
Furthermore, 3 different lenses are available: 1:1 / 1:2 / 1:3.
Optical lenses with integrated CCD camera are available on request.

Compact system

Laser diode + controller

Single laser

Double laser

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Specifications are subject to change without notice.

Segelfliegerdamm 94-98
12487 Berlin
Tel.: (030) 565 9095-0
Fax: (030) 565 9095-60
web: www.atn-berlin.de

Automatisierungstechnik Niemeier GmbH