

Electronics

Laser Marking in the Electrical Goods and Electronics Industry



Terminal strip. Material effect: color change. This part was laser marked with a pulsed fiber laser marker.



Left: Automotive switches. Material effect: color change. Laser marked with a fiber laser system.

Right: Temperature sensor. Material effect: color change/ engraving. Laser marked with a CO2 laser marker.

No other market is as complex as the Electronics industry: There is much more to it than the chip production in Asia. A wide range of products manufactured in Europe and America also belong to this sector, e.g. plugs/ connectors, housings, sensors, transistors, switches resistors, capacitors and many more. While especially chip manufacturers produce in Asia, the European and American markets are characterized by small and medium sized enterprises specializing in the manufacture of components or plant and equipment machinery.

Challenges

All electric and electronic products, components and parts have to be marked, identified or coded one way or another. The marking contents range from simple alphanumeric codes to complex 2D codes, logos or individual data. Often, the data that has to be applied is very tiny as many substrates are extremely small. The range of substrates that have to be marked is wide and integration into machines, lines and clean rooms is an issue, too. Ergo: Laser markers have to be flexible and compact to be suitable for the electronics industries.

Solution

Laser marking is highly cost-effective for the electronics industries and offers the best quality with easily traceable marks. Alltec develops the latest and most effective systems suitable for the electrical goods, electronics and semiconductor industries.

The Industry

The Electrics and Electronics industry is much more than just chips and ICs!

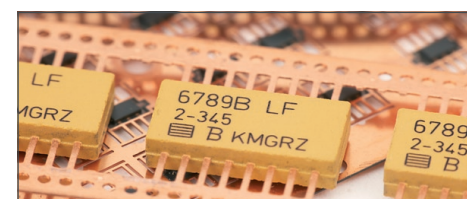
Companies within the Electronics sectors ...

- manufacture machinery for the industry (e.g. handling/ inspection/ assembly/ packaging equipment and machines).
- manufacture components and parts (e.g. passive/ active components; housings; wire, cable; electromechanic parts such as switches, connectors; others - e.g. sensors, fuses, alloyed materials).

Laser marking systems

... are usually integrated into handling/ testing/ packaging machines.

... mark nearly all electric/ electronic parts and components with the data companies need to apply - e.g. (bar)codes, logos/ symbols, (serial) numbers and letters.



Lead frame and IC. Material effect: color change. This part was laser marked with a cw fiber laser marker. Line width 100 µm, character height 1,190 µm.

Smallest and Finest Codes in the Shortest of Time

Alltec's proprietary scan technology which is incorporated in all systems delivers optimum marking quality at highest marking speeds. Our continuous wave fiber laser markers have been primarily designed to mark molded housings of discrete and integrated components as well as circuit boards, precisely, with high quality and in the shortest of time. With these systems line widths well below 30 µm can be achieved, enabling character heights of 150 µm and less.

Materials

The materials that are processed most commonly range from various plastics to ceramics, metals and various alloys. All these substrates can be laser marked. Depending on the respective material Alltec can offer the optimal laser marker.

Integration

Due to their generally small sizes, their compact mechanical design and flexibility and the many available options (e.g. with/ without beam turn) our systems can be perfectly integrated into new and existing production lines and industrial electronic handling/ automation systems (e.g. assembly, packaging or handling machines). The smallest of them are the most cost-effective solutions for clean room environments.

Additional Advantages

Long Experience in the Laser Marking Business

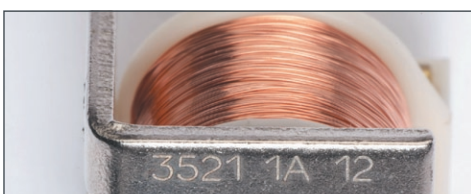
Our systems are well established in Asia and number among the preferred solutions for laser marking in the electronics and semiconductor industries. More than 2,000 Alltec laser markers have been delivered to Asian electronics customers and are integrated in many different handling and inspection machines.

Powerful Software

Due to the tremendous amount of successful installations, our laser marking software SmartGraph already offers many required extra functionalities as a standard.

Superior Service

Time and again the service and support within our global sales and service organizations is emphasized by our customers.



Modular relay. Material effect: engraving.
This part was laser marked with a Nd:YAG system, but can also be marked with a fiber laser marker.

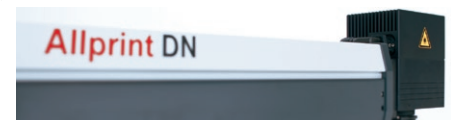
Laser Markers and Engravers Especially Suited for Electronics

Our laser marker portfolio spans fiber systems for high resolution and micro marking applications that require footprint, Nd:YAG systems for high speed applications and CO2 laser coders for less demanding/ lower resolution applications.

Fiber Laser Markers (5/10 W cw, 10/20 W pulsed)



Nd:YAG Laser Markers (50/100 W)



CO2 Laser Markers (10/30/50 W)



Electronics References

Asia: Laser marking of key pads/ boards, capacitors, SiO ceramics, ICs, transistors, and many more.

Europe: Laser marking of active components/ semiconductors, metal parts of crane magnets, connectors, plastic plugs, resistors (resistor alloys), electronic components (metal alloys), and many more.

North America: Laser marking of headlamp covers, measurement probes, key fobs for car alarms, and many more.

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