MID / LDS TECHNOLOGY › FROM MOLEX

Size and performance trends for next-generation electronics call for manufacturing technologies that maximize space and reduce weight while offering more capabilities. Molded interconnect devices (MIDs) and laser direct structuring (LDS) technologies work together to integrate functions within one 3-dimensional package, resulting in high-capability devices that are compact and lightweight.

WHAT IS MID? WHAT IS LDS?

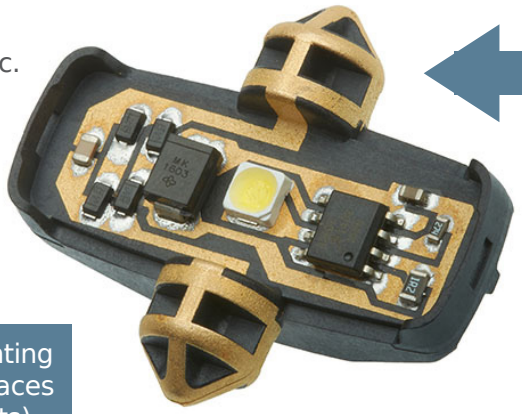
MID describes any 3-dimensional thermoplastic carrier with integrated conductive metal surfaces, creating a true mechatronic device. It has become increasingly common for MID solutions to include other electronics and components like antennas and sensor interfaces by introducing plated through-hole vias and soldering pads.

Molex offers a range of MID technologies, and LDS is one of the most common. It uses a 3-axis laser to create traces on the surface of MIDs that have been molded with special catalyzed resins. The 3-step LDS process includes:

1 Molding
Injection molding is critical for the manufacturing of MIDs, and LDS requires use of enhanced thermoplastic resins that are enriched with special additives. Available plastic grades include those capable of being soldered, plastic welded, insert molded, overmolded and wire bonded.

2 Lasering
The lasering process prepares the surfaces where metal deposition is needed. Lasers etch the plastic surface, exposing the LDS catalyst and creating a "coral-like" structure to provide a foundation for adhesion of metal to the plastic.

3 Plating
Both electroless and electrolytic plating can be used to deposit metal onto the lasered surface.



(Automotive: LED Lighting Assembly With LDS Traces and SMT Components)

Assembly Options

Surface-mount technology
Wire bonding
Plastic welding
Overmolding
Painting

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MOLEX MID/LDS capabilities

Highly production-scalable options to plate plastics

- These processes include but are not limited to LDS

Electrical circuit routing in, through and around a structural surface

Fine-pitch traces (as small as 0.15mm) with highly dense patterns (e.g., applications like electronic security shields)

Electrical feeds on microelectronics (e.g., power transfer)

APPLICATIONS

Molex MID/LDS capabilities support applications requiring miniaturization and weight reduction. This technology enables fast development cycles and promotes design freedom.

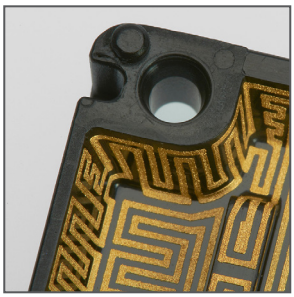
Typical applications include:

Automotive
- Sensor devices
- Antennas
- Lighting
- RFID Solutions

Medical
- Mobile, Wearable Devices
- Patient Monitoring
- Home Healthcare Telemetry
- Telehealth
- Catheter Interfaces
- Medical Devices
- RFID Solutions

Medical, Flow Meter Sensor:
MID Integrated With Sensor Components

Industrial Automation
- Sensors and Sensor Packaging
- - Pressure, Temperature, Level, etc.
- Antennas
- Lighting



Consumer, Security Shield:
POS Housing With LDS Traces

Consumer
- POS, Payment Readers
- Antennas
- RFID Solutions
- - Payment Systems, Loyalty and Tracking Medallions
- Earbuds, Camera Sockets

THE MOLEX ADVANTAGE ›

Molex has earned a global leadership position in MID/LDS design and manufacturing. Our engineering teams work with OEMs, ODMs and strategic suppliers to develop MID/LDS antennas and other solutions to meet each application's specific needs. Molex also has expertise with other MID technologies that offer highly scalable and innovative methods of plating on plastic and integration into complex systems.

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www.molex.com/capabilities/mid-lds.html

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