

CAPABILITIES OVERVIEW





LITTELFUSE AT A GLANCE

Our purpose is to improve the safety, reliability, and performance of our customers' products that use electrical energy.

11K+
ASSOCIATES



50+
GLOBAL
LOCATIONS



15+
GLOBAL LABS



100K+
END
CUSTOMERS



\$1.5B
2019 SALES



Visit [Littelfuse.com/About](https://www.littelfuse.com/About) for the most up-to-date company information.

OUR HISTORY

Chicago, IL, US. 1927.

Sensitive test meters for lamps were burning out. Our 27-year-old founder Edward V. Sundt was determined to solve the problem. His persistence led to the first small, fast-acting protective fuse.

Ever since, customer challenges have driven the bright minds of our product development and laboratory testing experts to innovate. Now we do this for customers worldwide—wherever electrical energy is used.



LOOKING FORWARD

Your most complex challenges are our future. Bring us the ones that keep you up at night. We'll work with you to design, manufacture, and deliver innovative solutions for automotive and commercial vehicles, industrial applications, data and telecommunications, medical devices, consumer electronics, and appliances.

Everywhere, every day, our work focuses on safety and connection. We're passionate about working with you to sustainably create products that protect, control, and sense for a safer, greener, and more connected world.



Safety



Resource
Efficiency



Connectivity

THE LITTELFUSE DIFFERENCE



When you choose Littelfuse, you're not just choosing a broad and deep product portfolio, unparalleled engineering expertise, and excellent customer service. You're also choosing a partner that lives our values, gives back, and continuously improves.

HOW WE WORK

Our Core Values

Customer Focus: We partner with customers to solve complex problems wherever electrical power and energy are used.

Innovation: We anticipate our customers' needs and deliver innovative solutions that add value and grow our business.

Integrity: We provide an ethical work environment for associates and hold each other accountable.

Teamwork: We want all associates to feel included, valued, and empowered to do energizing work.

Results Driven: Through technology and innovation, we deliver results for all customers, colleagues, and stakeholders.

Sustainability & Corporate Social Responsibility



We are committed to conducting our worldwide operations in

a responsible manner that protects the environment and ensures the safety and welfare of our associates, customers, and neighbors.

Beyond the business day, we're dedicated to our global community.

We volunteer time and resources to organizations that support STEM education, community improvement, and environmental stewardship.

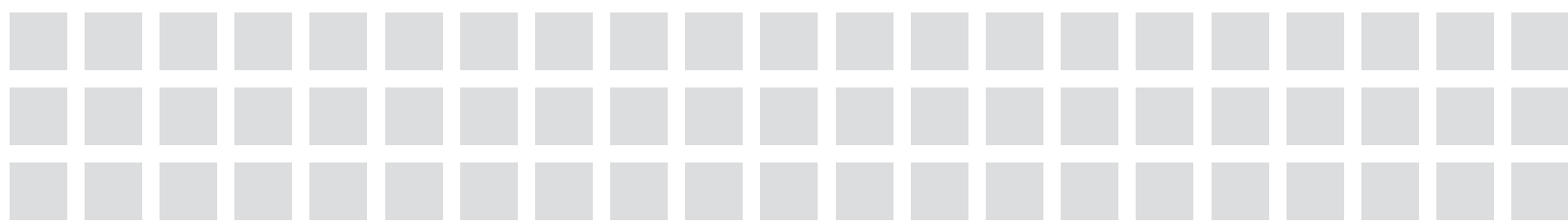
Enterprise Lean Six Sigma



In all areas of our business, we embrace Enterprise Lean Six Sigma

and offer related training and development to all associates.

Our award-winning continuous improvement initiatives optimize organizational efficiency and product performance to deliver better outcomes for our customers.



WHAT WE OFFER

Customer Service



From placing your order to receiving your shipment, our responsive

customer service team is right there with you to anticipate your needs and ensure a seamless experience.

We quickly provide competitive pricing and accurate lead times to make it easy for you to choose Littelfuse every time.

Our excellent service and best-in-class products set us apart, winning awards year after year.

Engineering Expertise



Working directly with you, our applications and R&D engineers identify

opportunities to develop or customize products for your unique needs.

We provide personalized product education to help you ensure personnel safety and equipment longevity. You can trust that Littelfuse solutions always will be tailored to your exact requirements, saving you valuable time and expense.

Plus, our labs offer testing to specific standards and expert consultation about the results in complete confidentiality.

Broad & Deep Product Portfolio



You can be confident that the breadth and depth of our product portfolio includes

the ideal solution not only for your individual applications but also for your entire systems.

As a global manufacturer of leading technologies in circuit protection, power control, and sensing, we're uniquely positioned to be your single-source provider.



PROTECT



To help keep people safe while using the latest technology, we're constantly developing new circuit protection solutions that handle more power in ever smaller packages.

Our products offer protection against electrostatic discharge, power surges, short circuits, voltage spikes, arc flash, and other harmful occurrences.

APPLICATIONS

- Automatic Seat Motor Protection
- Consumer Electronics
- Data Center & Cloud Infrastructure
- Electric Vehicle & Hybrid Electric Vehicle Battery Systems
- Factory Automation & Processing Equipment
- Heavy Industry: Mining and Oil & Gas
- Home Appliances
- HVAC Systems
- LED Lighting
- Medical Equipment
- PowerFET Thermal Protection
- Renewable Energy
- Security Cameras & Surveillance Systems
- Small Automotive BLDC Motors
- Smart Metering
- Smartphones
- Tablets / Notebooks / Desktops
- Telecom / Networking Equipment
- Vehicle Electronics & Electrical Systems
- Wearable Devices

FEATURED APPLICATIONS



Consumer Electronics



Data Center & Cloud Infrastructure



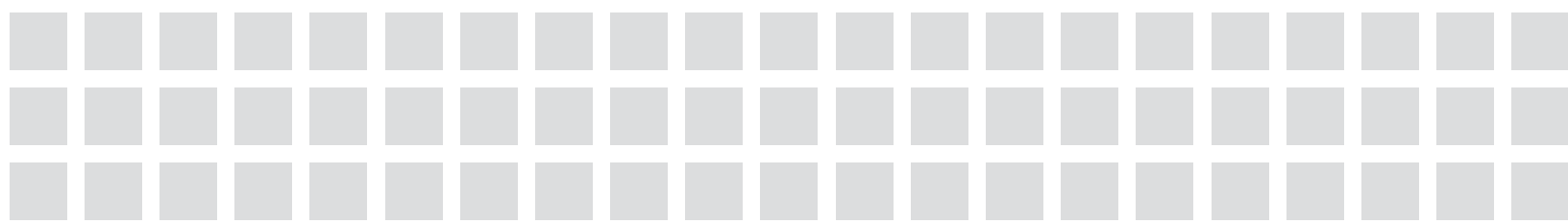
Electric Vehicles



Heavy Industry



Renewable Energy



CUSTOMER **SUCCESS** STORY

When a solar industry leader was designing their next-generation panels, they came to us because of our history of innovation.

They required a solution that works seamlessly within a wire harness. With over 25 million devices installed in photovoltaic power systems worldwide, we were positioned to provide exactly the right patented fuse technology solution.

PRODUCTS

- Arc-Flash Relays
- Automotive Fuses
- Circuit Breakers
- Electric Vehicle Fuses
- Fuse Holders
- Gas Discharge Tubes (GDTs)
- Ground-Fault Relays
- High-Speed Fuses
- Industrial Shock-Block™
- LED Protectors
- Polymer ESD Suppressors
- PolySwitch® Resettable PTCs
- Power Fuses
- Reflowable Thermal Protection Devices
- SIDACTor® Protection Thyristors
- Solar Fuses
- Surge Protection Devices
- Surge Protection Modules
- Through-Hole & Surface Mount Fuses
- TVS Diode Arrays (SPA® Diodes)
- TVS Diodes
- Varistors

FEATURED PRODUCTS



TVS Diode Arrays (SPA® Diodes)



Surface Mount Fuses



Electric Vehicle Fuses



Ground-Fault Relays



Solar Fuses



CONTROL



Fault damage, miscalibration, and compliance citation expenses add up quickly, and personnel safety is priceless.

To control power, we offer dependable products that mitigate equipment damage, minimize electrical hazards, improve productivity, consolidate inventory, and reduce footprint.

APPLICATIONS

- AC / DC Drives
- Agriculture Equipment
- Appliances
- Automotive Electronics
- Blow-By Heaters
- Construction Machinery
- Data Centers
- DC Power Distribution
- Electric Vehicles
- Fluid Heaters
- Heavy Industry: Mining and Oil & Gas
- Heavy Transportation
- High Current Switching
- Home / Building Automation
- HVAC Systems
- Manufacturing Controls
- Motor Drives
- Motors & Pumps
- Power Supplies
- Pulp & Paper
- Shore-to-Ship Power
- Telecom / Networking Equipment
- Traction
- Water & Wastewater

FEATURED APPLICATIONS



Building Automation



Appliances



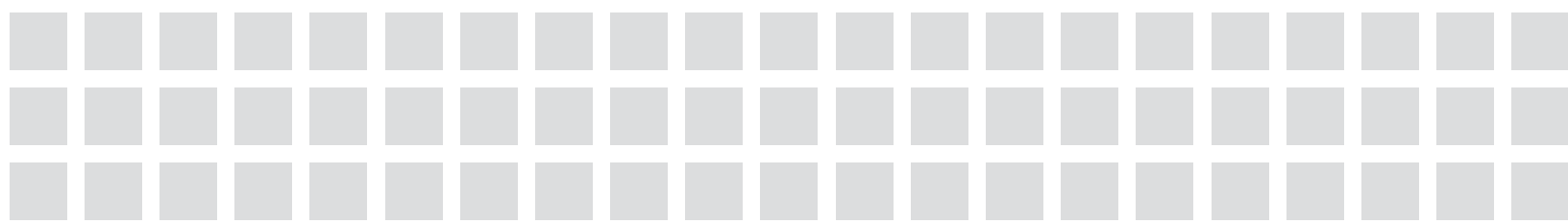
Motor Drives



Power Supplies



Heavy Transportation



CUSTOMER **SUCCESS** STORY

Knowing our commitment to solving sustainability problems, an HVAC industry leader reached out to us seeking ways to maximize energy efficiency.

We created a custom adaptive fan control solution that maximizes heating and cooling by pulling as much conditioned air from the duct work as possible, reducing energy costs.

IXYS: A LITTELFUSE TECHNOLOGY

Ensuring that you receive unbiased guidance toward the best products for your application, we offer a broad portfolio of advanced power semiconductor technologies, including silicon, silicon carbide, and wide band gap solutions in discrete and module packages.

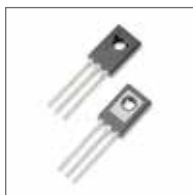
PRODUCTS

- Alarm Panels / Coordination Panels
- Bipolar Discretes & Modules
- Custom Power Assembly Systems
- DC Power Distribution Modules
- DC Solenoids & Relays
- Diode and Thyristor Isolated Base Modules
- Discrete Diodes
- Discrete IGBTs
- Discrete MOSFETs
- Discrete Thyristors
- Electronic Controls
- Gate Drivers
- High-Speed Digital Optical Isolators
- IGBT Modules
- Ignition IGBTs
- Power Distribution Blocks
- Power Distribution Centers
- Power Semiconductor Assemblies
- Press Pack IGBTs
- PTC Heaters
- Schottky & SiC Schottky Diodes
- SiC MOSFETs
- Solid State Relays
- Switches
- Thyristors
- Ultrafast Recovery Rectifiers
- Voltage / Phase Monitors

FEATURED PRODUCTS



Voltage / Phase Monitors



TRIAC Thyristors



IGBT Modules



Bipolar Discretes & Modules



Custom Power Assembly Systems



SENSE



Comfort, convenience, and safety drive your customers' purchasing decisions. We make it easy to build those features into compelling designs.

Our broad platform of technologies that sense proximity, flow, speed, temperature, and fluid level provides ideal solutions for complex electronic systems.

APPLICATIONS

- Access Control Systems
- Appliances
- Automatic Headlamps & HVAC Controls
- Automatic Seat Track Position
- Automotive Fluid Level
- Battery Management
- Coffee Makers
- Dishwashers
- EV Battery Packs
- Fire & Safety Systems
- Garage Doors
- Hot Tubs
- HVAC Systems
- IoT Systems
- Motor Control
- Refrigerator Compartment Doors
- Safety Restraint Systems
- Smart Meters
- Smart Thermostats
- Transmission Systems
- USB-C Connectors
- Vacuum Cleaners
- Vending Machines
- Washing Machines
- Water Heaters
- Water in Fuel (Diesel Filters & Fuel Tank Systems)

FEATURED APPLICATIONS



Appliances



Battery Management



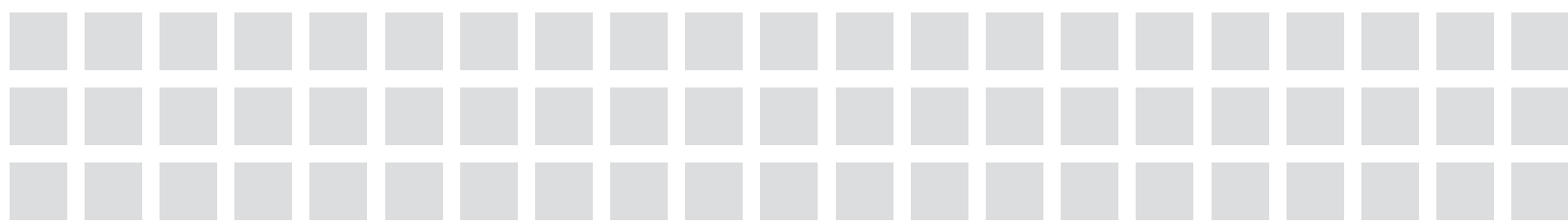
HVAC Systems



Fire & Safety Systems



Safety Restraint Systems



CUSTOMER **SUCCESS** STORY

Manufacturers of cutting-edge products know they can rely on our broad portfolio of sensing solutions for forward-thinking applications.

In robotic lawn mowers, our reed switches and magnetic actuators shut off power when compartments are open, protecting users from electrical shocks and other physical harm.

PRODUCTS

- Arc Detecting Point Sensors
- Current Sensors
- Custom Sensors
- Digital Temperature Indicators
- Fluid Level Sensors
- Glass Encapsulated Thermistors
- Hall Effect Sensors
- Inductive Sensors
- Led RTDs
- Led Thermistors
- Magnetic Actuators
- Mechanically Operated Position Sensors
- Power Thermistors
- Pulsed WaveGuide™ (PWG™) Position Sensors
- Reed Switches, Sensors & Relays
- Resistance Temperature Detectors
- Resistive Sensors
- RTD Probes & Assemblies
- Solar & Ambient Light Sensors
- Speed & Position Sensors
- Surface Mount Thermistors
- Surface Temperature Sensors
- Temperature Probes & Assemblies
- Thermistor Probes

FEATURED PRODUCTS



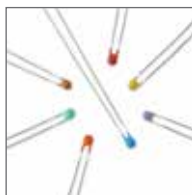
Reed Sensors



Current Sensors



Temperature Probes & Assemblies



Thermistor Probes



Hall Effect Sensors

GLOBAL LAB CAPABILITIES



You need to be certain that your products live up to the highest standards for performance, reliability, safety, and regulatory compliance.

Working with us, you have access to dedicated applications engineers who provide expert design consultation, perform comprehensive tests simulating the harshest environments, and confidentially evaluate the results in consultation with you.

TESTING AND ANALYTICAL CAPABILITIES

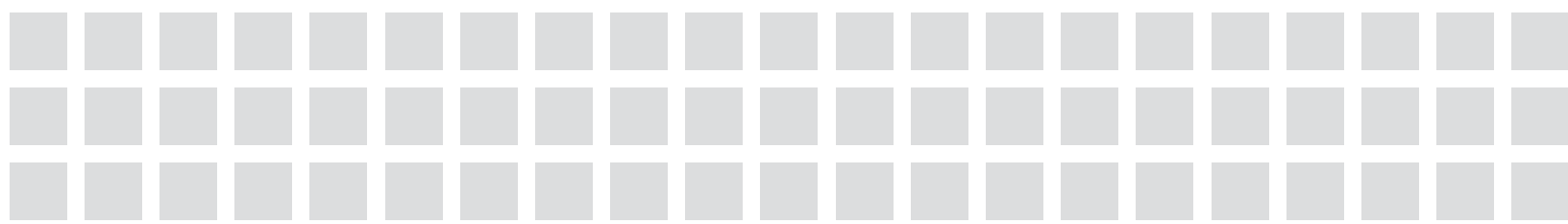
Our robust lab capabilities help you deliver next-generation products at the pace of innovation.

Environmental

- Autoclave
- Dust
- H3TRB
- HAST
- High & Low Temperature Storage
- High Temperature Loading
- HTGB
- HTRB
- Ingress Protection (IP)
- Temperature & Humidity
- Temperature Cycling
- Thermal Shock
- Salt Fog

Electrical

- BCI
- Capacitance
- EFT
- ESD
- Impedance
- Insulation Resistance
- I-V
- Life
- Lightning Surge
- Overload
- Parametric Tests
- Power-Cross
- Power Cycling
- Ring Wave
- R-T
- Short Circuit
- S-Parameter Measurements (Insertion Loss, Isolation, Reflection)
- Step Current
- Surface Resistivity
- Surge
- TDR (Eye Diagram)
- Telecom
- Thermal Cut-Off
- Time-to-Trip
- TLP
- Transient
- Trip Cycle
- Trip Endurance
- Voltage Drop



CUSTOMER **SUCCESS** STORY

Getting to the root cause of an issue requires transparent collaboration. Our engineering, manufacturing, and lab teams partnered with a leading manufacturer of smart phones and tablets to determine why some circuit protection devices they had designed weren't performing as expected. Our robust testing and analysis led to a successful design solution. Now we're their first choice for circuit protection.

Physical-Mechanical Characteristics

- Acceleration
- Die Shear
- Leak Detection
- Mechanical Shock
- Resistance to Soldering Heat (Dip, Reflow, Wave)
- Resistance to Solvents
- Solderability
- Terminal Strength (Push, Pull, Bend)
- Vibration
- Wetting Balance
- Wire Pull

Analytical

- Cross-Sectioning
- Decapsulation
- Dilatometer
- Dimensional Analysis
- DSC
- EDS
- Hot-Spot Detection
- ICP
- IR Imaging
- Light Optical Microscopy
- Micro-FTIR
- Microhardness Tester
- Particle Size Distribution
- Plasma Etch
- SEM
- TGA
- Viscometer
- X-Ray with CT Capability

ADDITIONAL CAPABILITIES

CUSTOMER SUCCESS STORY

An automotive sensing customer had a gearset design change that required a fast Littelfuse product design change. Using 3-D printing technology, we quickly provided what they needed for their end-of-line functionality testing. As a result, they were able to begin production tooling within a single iteration and stay on schedule with no added cost.

Rapid 3-D Prototyping

Reduce iteration time and tooling costs when you leverage our 3-D prototyping expertise.

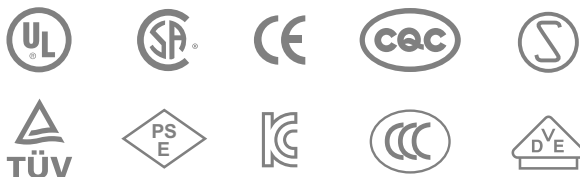
At more than eight global locations, we offer a variety of services, including PolyJet, FDM, and SLA, to accommodate specific requirements for intricacy, durability, surface finish, and size.

With a faster parts development timeline, your competitive advantage will increase dramatically.

Testing to Regulatory Standards

To help you get products to market faster, we participate in testing programs that allow us to use our labs to test to global regulatory standards.

Our testing facilities are reassessed annually by the certifying bodies to ensure compliance. When you choose Littelfuse components, you'll achieve regulatory compliance for your products faster, with less expense.



Fabrication

Our unparalleled expertise in silicon allows us to offer highly customized design and delivery options for the most demanding applications so you can maximize your device performance and yield.

Capabilities

- Epitaxial Deposition Services
- Epitaxial Wafer Manufacturing
- High-Voltage Integrated Circuits
- Photovoltaic Optical Isolation
- Trench Isolated BCD MOS Device Manufacturing

Applications

- Power Devices
- Renewable Energy
- Sensors



LOCATIONS

Americas

Allen, Texas, US ■■■
 Beverly, Massachusetts, US ■■■■
 Champaign, Illinois, US ■■■
 Chicago, Illinois, US ■■■
 Fremont, California, US ■■■
 Lake Mills, Wisconsin, US ■■■■
 Long Beach, California, US ■■■
 Meridian, Idaho, US ■■■
 Milpitas, California, US ■■■■
 Mount Prospect, Illinois, US ■■■
 Orange, California, US ■■■
 Rapid City, South Dakota, US ■■■
 Round Rock, Texas, US ■■■■
 Santa Clara, California, US ■■■
 Troy, Michigan, US ■■■
 Manaus, Brazil ■■■
 São Paulo, Brazil ■■■
 Saskatoon, Canada ■■■
 Hermosillo, Mexico ■■■
 Matamoros, Mexico ■■■
 Muzquiz, Mexico ■■■
 Piedras Negras, Mexico ■■■■

Europe

Bremen, Germany ■■■
 Essen, Germany ■■■
 Lampertheim, Germany ■■■■
 Lauf, Germany ■■■
 Legnago, Italy ■■■
 Kaunas, Lithuania ■■■■
 Amsterdam, Netherlands ■■■
 Deventer, Netherlands ■■■
 Leiden, Netherlands ■■■
 Charneca de Caparica, Portugal ■■■
 San Sebastian, Spain ■■■
 Chippenham, UK ■■■■

Asia

Beijing, China ■■■
 Chu-Pei, Taiwan, China ■■■
 Dongguan, China ■■■■
 Hong Kong, China ■■■
 Kunshan, China ■■■
 Shanghai, China ■■■■
 Shenzhen, China ■■■
 Suzhou, China ■■■■
 Taipei, Taiwan, China ■■■
 Wuxi, China ■■■
 Noida, Uttar Pradesh, India ■■■
 Tokyo, Japan ■■■
 Tsukuba, Japan ■■■■
 Seongnam, Korea ■■■
 Seoul, Korea ■■■
 Lipa City, Philippines ■■■■
 Manila, Philippines ■■■
 Taguig City, Philippines ■■■
 Singapore ■■■

■ Sales / Marketing
 ■ Research & Development
 ■ Manufacturing
 ■ Labs

For general inquiries and information:

Littelfuse, Inc.
8755 West Higgins Road, Suite 500
Chicago, IL 60631, USA
+1 773 628 1000
Littelfuse.com

For product purchase and support:

Littelfuse.com/ContactUs

For lab services:

Littelfuse.com/Services

For product information:

Littelfuse.com/Products

For the latest Littelfuse news:



Regional Sales Office:



To learn more about
Littelfuse capabilities
visit Littelfuse.com

