



Littelfuse Overview

Empowering a sustainable,
connected, and safer world

 **Littelfuse®**
Expertise Applied | Answers Delivered

Empowering a sustainable, connected, and safer world

Who We Are

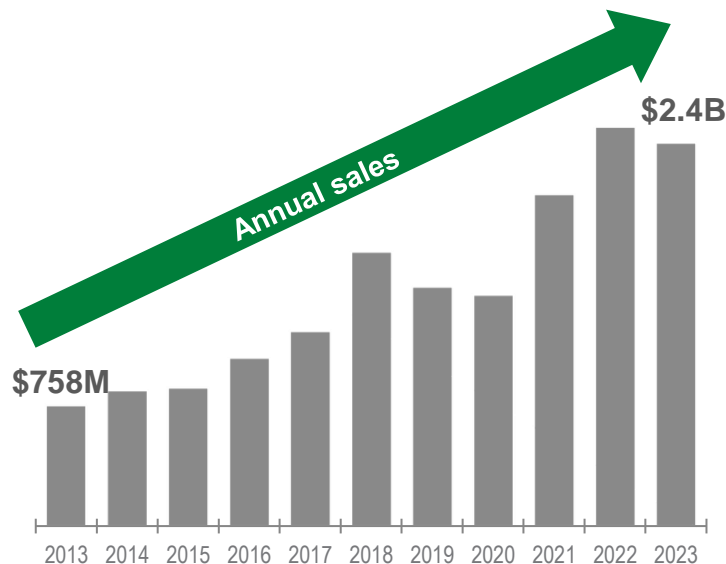
- **\$2.4B** industrial technology company
- **17,000** innovative employees across **20 countries** worldwide
- **Designer & manufacturer** of leading technologies that improve the safety, reliability, & performance of our customers' products

What We Do

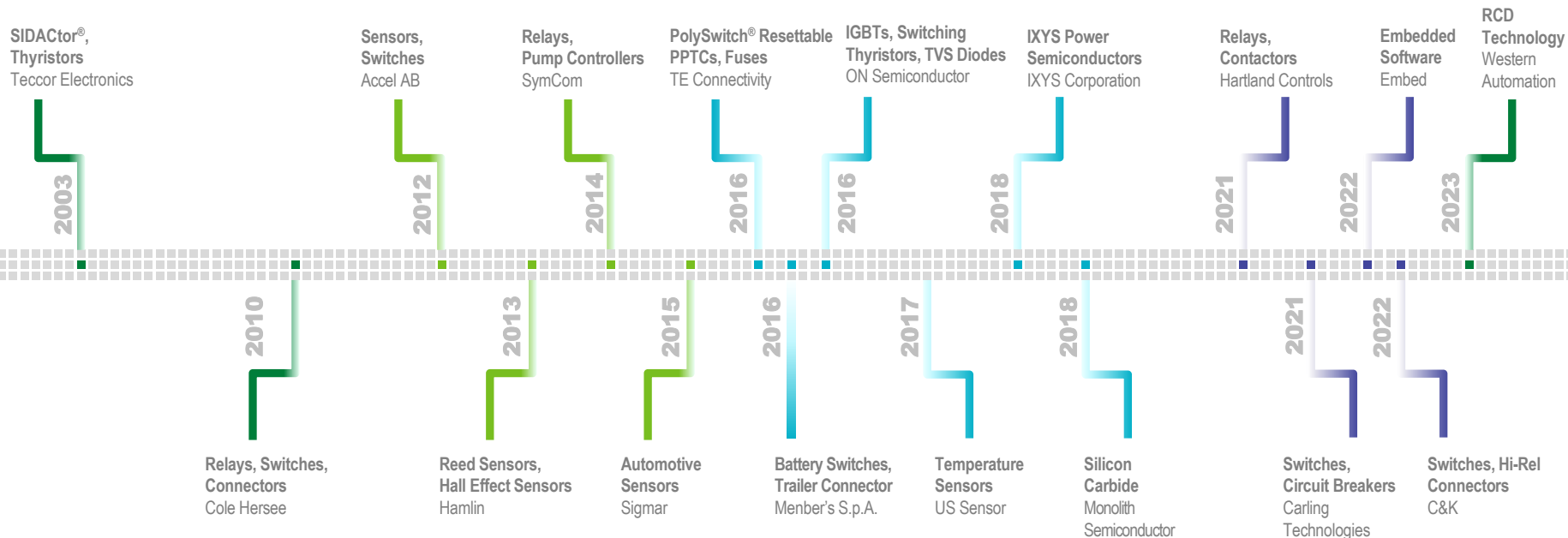
- We **partner with global customers** to design and deliver innovative, reliable solutions
- We collaborate to provide **technical & application expertise**

Who We Serve

- Serving over **100,000 end customers**; our products are found in a variety of industrial, transportation, and electronics end markets—everywhere, every day



Enhancing growth through strategic acquisitions



Littelfuse focused on providing applications solutions to help advance *electronification* and *electrification*

Electronics



- Data Center and Communication
- Building Solutions
- Appliances
- Mobile and Wearables
- Consumer Electronics

Transportation



- Passenger Vehicles
- Heavy Truck & Bus
- Material Handling Equipment
- Off-Highway Vehicles
- Railway Solutions
- Aerospace and Defense
- eMobility & EV Charging Infrastructure

Industrial



- Industrial Motor Drives
- Factory Automation & Safety Solutions
- Renewable Energy
- Energy Storage
- Heavy Industry
- HVAC
- Medical

Littelfuse → broad spectrum of product technologies

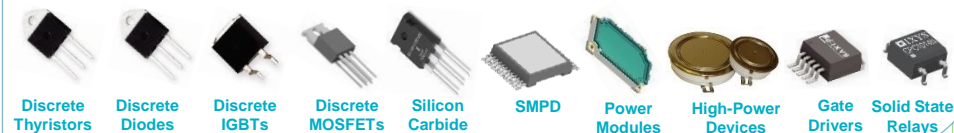
Circuit Protection Solutions



Sensing Solutions



Power Semiconductor Solutions



C&K Switches and Interconnects



Industrial Control Solutions

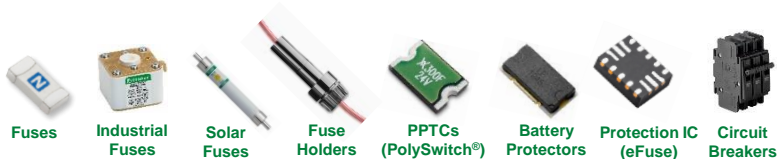


Transportation Solutions



Circuit protection solutions overview

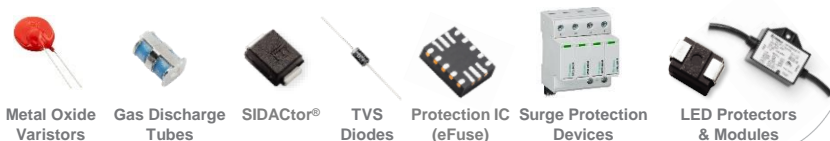
Overcurrent Protection



ESD Protection



Overvoltage Protection



- **Industry's broadest portfolio** with many industry-first solutions
- **New innovative technologies** such as battery protectors, load switches, protection ICs (eFuse), etc.
- **Industry standards expertise and application testing capabilities** for various standards including UL, IEC, ITU, AEC-Q, and others
- **Global network of application expertise** to help address customers' design challenges
- **Solutions for many applications** including eMobility, industrial, data centers, consumer, building solutions

Power semiconductor solutions overview

Discrete Devices, Gate Drivers & SSRs



Power Modules



High-Power Devices & Assemblies



- **Wide range of discrete devices and power modules** to address wide spectrum of power conversion needs
- **Industry's broadest lines of SSRs**, available in wide array of configurations, blocking voltages, & load currents
- **Extensive packaging capabilities including** industry standard packages, HV packages, and more
- **Standard and custom assemblies:** standard sub-assemblies for multi-megawatt power systems
- **Solutions for many applications** including industrial, EV charging, power supplies, and renewable energy

Industrial control solutions overview

Protection Relays and Controls



Industrial Controls



Other Solutions



- **Ground fault relays, GFCI and Arc flash relays** for protection of personnel and industrial equipment
- **Motor & pump protection relays & controls** designed to help protect from overloads, jams, phase loss, heat, etc.
- **Time delay relays** used for random start, anti-short cycling, sequencing, etc.
- **Contactors, AC Relays** for safety of industrial equipment, HVAC systems, etc. against abnormal current
- **New Residual Current detection(RCD) technology** for electrical fault detection used across EV charging, industrial and renewables.

Standard and customized sensing solutions overview

Magnetic Sensing



Reed Switches



Reed Sensors



Reed Relays



Hall Effect Sensors



TMRs

Temperature Sensing



Battery Mini-breakers



NTCs



RTDs



Temperature Probe & Assemblies



Temperature Indicators



Thermal Protectors

Other Sensing Solutions



PIR Motion Sensors

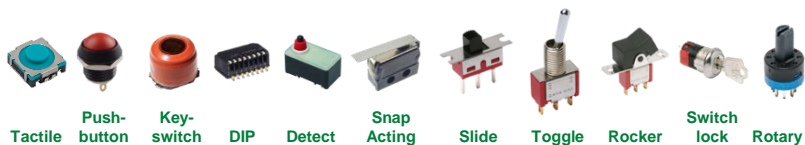


MCUs

- **Wide array of magnetic sensing products:** Reed, Hall Effect, and TMR
- **Broad range of temperature sensing** including thermistors and RTDs
- **Innovative solutions** such as PIR motion detectors & digital temp. indicators solutions for USB-C (setP™) and Lithium-Ion battery (TTape™) protection
- **Custom sensor design support** including custom packages, simulations and more
- **Solutions for many applications** including appliances, smart meters, battery management, automotive, EV, HVAC, and others

C&K products and solutions overview

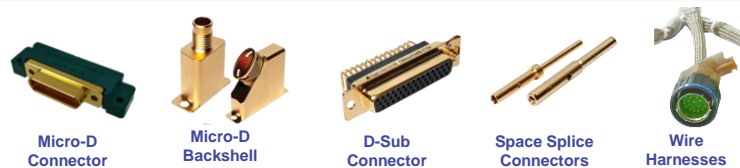
Switches



- **High-reliability, tactical, and miniaturized C&K switches**

With over 55,000 standard products and 8.5 million switch combinations available in a variety of formats and styles

Aerospace & Defense Solutions



- **Aerospace & Defense Solutions**

range of space-grade connectors, electrical wiring systems, solutions for in-cabin lighting and wastewater systems

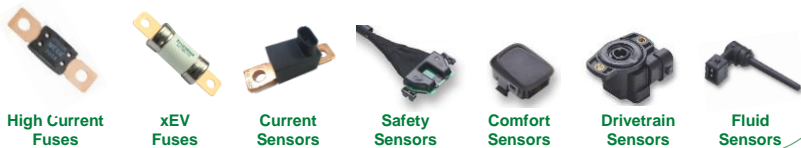
Smart Card Connectors



- **Smart card connectors** are EMV & PCI compliant and offer full-size card (up to 500K cycles lifetime) acceptance and SIM/SAM cards (up to 50K cycles)

Transportation* solutions overview

Protection & Sensing Solutions



Power Distribution Modules



Relays & Switches



- **Wide range of circuit protection solutions** with AEC-Q qualification and PPAP capability
- **Extensive portfolio of sensing solutions** to monitor passenger safety and comfort, emissions, and more
- **Standard & custom power distribution modules** housing a variety of fuses, relays, and other electrical components
- **Variety of DC solenoid relays** for remote switching of electrical currents from 20 A to 600 A
- **Multiple electric/electronic switches** for battery disconnection, ignition, windshield wipers, and more

TechPoint: technical resource library

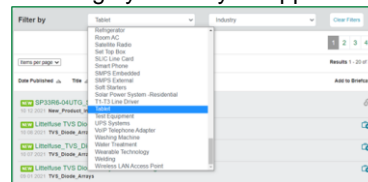
Check out this [overview video](#) and sign up to access Littelfuse content techpoint.littelfuse.com

Single destination for resources

- Open to Littelfuse, Partners and Customers
- Datasheets, images, and much more!
- Enhanced search capability
- Browsing by Industry or Application

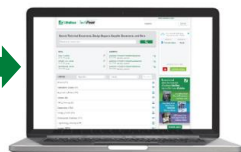
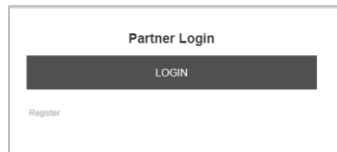
Search & Browse

- Search for content across the full library
- Browsing by Industry or Application



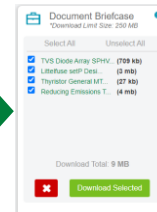
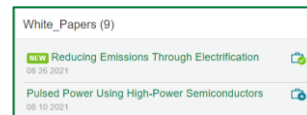
Easy sign in

- Registering a new account for first time sign-in
- Using SSO/Okta credentials for subsequent sign-ins



View & download

- Document briefcase: wish list & download



Dashboard

- Overview of the latest content: New & Updated

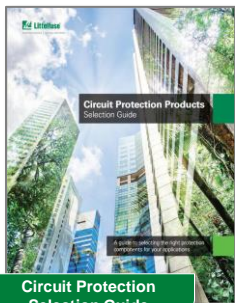
New	Updated
Littelfuse_Gate_Drivers_PL 10/19/2021 Loading_Page_Images	TVS Diode Array SPHV_C Datasheet 10/26/2021 TVS Diode Array
Littelfuse_High_Side_Low_Side_Image 10/19/2021 Power_Semiconductors	Littelfuse Discrete Thyristors K19472_4_0 Datasheet 10/19/2021 Discrete_Thyristors
Littelfuse_Half_Bridge_Image 10/19/2021 Power_Semiconductors	Littelfuse SiDACtor B61089BDR B61089QDR New P 10/19/2021 Product Introductions
	SiDACtor 10/19/2021 SiDACtor

Key folders

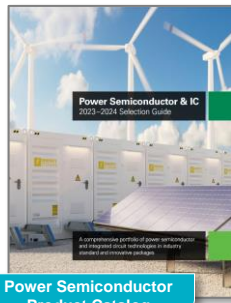
- Application spotlights
- Competitor cross reference
- Customer Success Stories
- New Product Introductions
- Datasheet, Videos, Design Guides, etc

Additional information can be found on Littelfuse.com

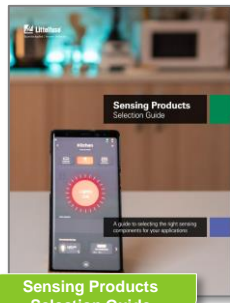
Explore the world of Littelfuse with the electronics eCatalogs (ecatalogs.littelfuse.com)



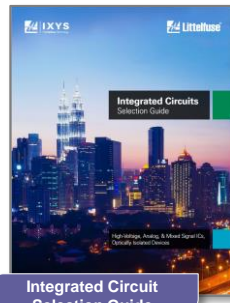
Circuit Protection
Selection Guide



Power Semiconductor
Product Catalog



Sensing Products
Selection Guide



Integrated Circuit
Selection Guide

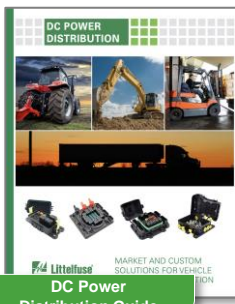


C&K Switches
Selection Guide



C&K Sensors
Selection Guide

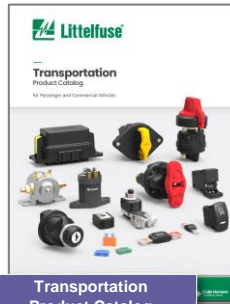
Click on images for more information



DC Power
Distribution Guide



Automotive Power Relays
Selection Guide



Transportation
Product Catalog



Industrial Fuse
Products Catalog



High-Speed Fuse
Selection Guide

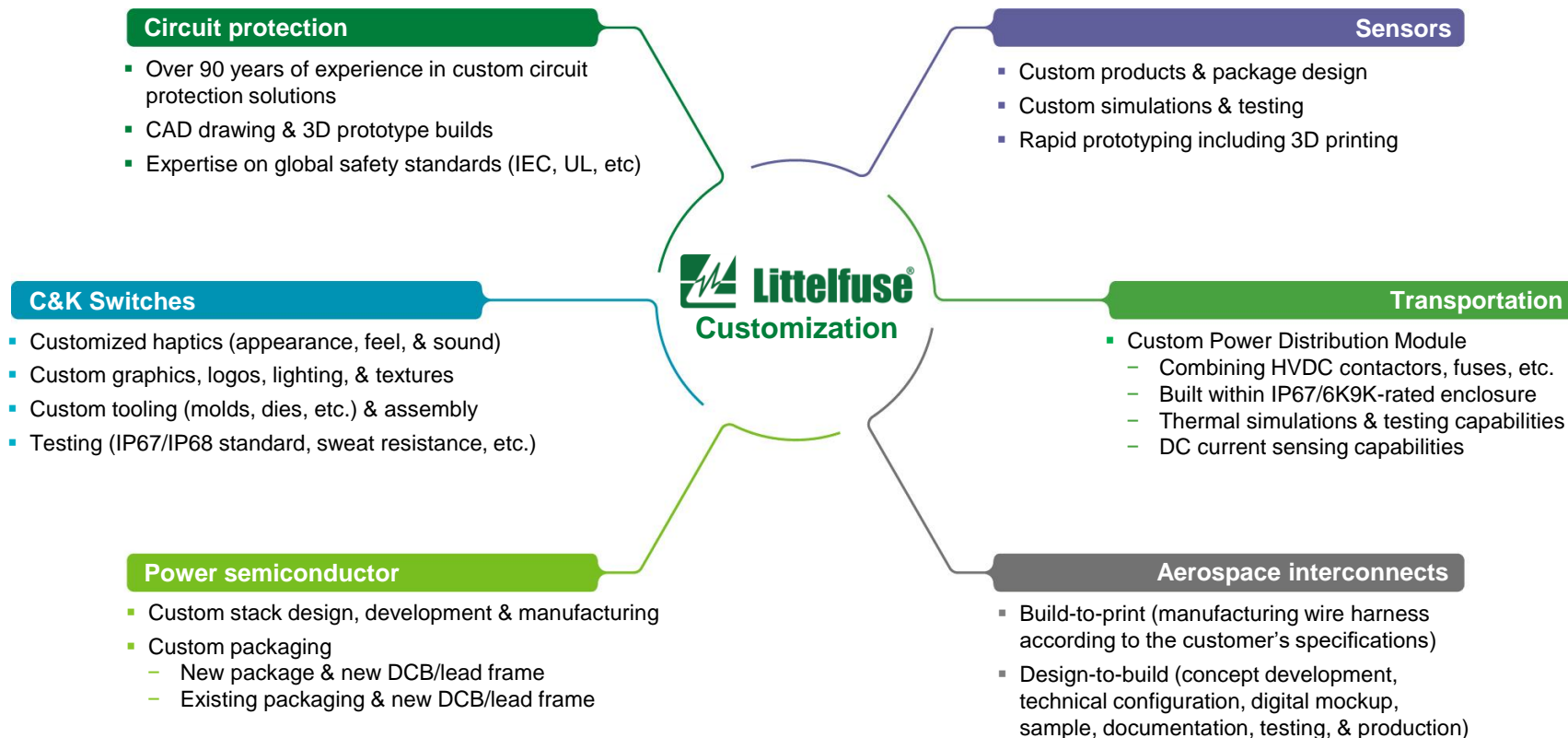


Protection Relays &
Controls Catalog



Expertise Applied | Answers Delivered

Littelfuse customization capabilities



Local resources supporting our global customers



Littelfuse global labs & manufacturing footprints

Location	Country	Manufacturing facility	Global labs & testing	Product technology	Lab details	Quality certifications				
						ISO 9001	ISO 14001	IATF 16949	AS/EN 9100	Miscellaneous
Beverly	United States	⊙	⊙	Gate Drivers & SSRs,		⊙	⊙	⊙		
Brownsville	United States	⊙		Carling Technologies		⊙	⊙	⊙		
Champaign	United States		⊙		High Power					
Long Beach	United States	⊙		High Power (Discrete, Module), Stack		⊙				
Milpitas	United States	⊙	⊙	MOSFETs & IGBT	Material/Application/Reliability	⊙				
Mount Prospect	United States		⊙		Semiconductor/Material/Application					
Matamoros	Mexico	⊙	⊙	Temperature sensors	Product Eval. & Reliability	⊙	⊙	⊙		
Matehuala	Mexico	⊙		Carling Technologies		⊙	⊙	⊙		
Muzquiz	Mexico	⊙		Commercial vehicle products			⊙	⊙		
Piedras Negras	Mexico	⊙	⊙	Fuses & Relays	Material/Application/Reliability	⊙	⊙	⊙		
Rockfalls	United States	⊙		Hartland Controls		⊙				
Round Rock	United States	⊙	⊙	SiC MOSFET/SiC Schottky Diode	Application/Reliability	⊙				
Bremerhaven	Germany	⊙		Wire harnesses (aerospace)		⊙	⊙		⊙	
Bremen	Germany		⊙		Product Eval./Reliability/Application					
Chippenham	United Kingdom	⊙		High Power (Discrete, Module), Stack		⊙	⊙			ISO 45001
Dole	France	⊙	⊙	C&K Switches & Interconnects			⊙		⊙	ISO 50001
Exeter	United Kingdom	⊙		Carling Technologies		⊙		⊙		
Lampertheim	Germany	⊙		Medium power (Diode, Thyristor, IGBT)		⊙	⊙	⊙		ISO 50001, OHSAS 18001
Legnago	Italy	⊙	⊙	CVP products	Product Eval./Reliability/Application	⊙	⊙	⊙		ISO 45001
Kaunas	Lithuania	⊙	⊙	Sensors	Product Eval./Reliability/Application	⊙	⊙	⊙		ISO 45001
Dongguan	China	⊙	⊙	Varistors	Product Eval./Reliability/Application	⊙	⊙	⊙		UL certified
Hong Kong	China	⊙		Carling Technologies		⊙		⊙		
Huizhou	China	⊙		C&K Switches		⊙	⊙	⊙		
Hanoi	Vietnam	⊙		C&K Switches		⊙	⊙			
Kanpur	India	⊙		Wire harnesses (Aerospace)		⊙	⊙		⊙	
Kunshan	China	⊙		PolySwitch®		⊙	⊙	⊙		
Lipa City	Philippines	⊙	⊙	Module (Bipolar IGBT/MOSFET)	Product Eval./Reliability/Application	⊙	⊙	⊙		UL/TUV certified
Shanghai	China	⊙	⊙	PolySwitch®, Hartland Controls	High-Power/Material/Reliability/Application	⊙	⊙	⊙		UL/TUV certified
Suzhou	China	⊙	⊙	Fuse & Sensor	Product Eval./Reliability/Material	⊙	⊙	⊙		
Tsukuba	Japan	⊙	⊙	Circuit protection	Product Eval./Reliability/ Material/Application	⊙	⊙	⊙		ISO 45001, UL/TUV certified
Wuxi	China	⊙	⊙	Diode, Thyristor, TVS Diode	Semiconductor/Material	⊙	⊙	⊙	EN 9001	ISO 45001, IECQ
Zhongshan	China	⊙		Carling Technologies		⊙	⊙	⊙		



Sustainability: Environmental, Social, and Governance

More information can be found in our 3rd [Littelfuse 2022 Sustainability Report](https://www.littelfuse.com) on www.littelfuse.com

Environmental

22%

decrease in Scope 2 GHG emissions intensity

138%

increase in renewable energy

12%

decrease in overall energy intensity

84%

manufacturing sites ISO 14001 certified

70%

of our generated waste is recycled

Cobalt & Mica

included in supply chain due diligence

Social



Respect



Customer Focus



Agility



Collaboration

Refined values to support long-term growth strategy

America's Best Midsize Employer Recognition from Forbes

~20%

Reduced total case incident rate

574

significant suppliers screened from ESG perspective



Initiated U.S. pay equity analysis

Governance

2.5 Hours per Employee

of Ethics & Compliance training

99%

Average completion



Expanded Enterprise Risk Management, formed climate-related risk & opportunities committee & implemented supplier assessments



Formal ESG Policy



Manufacturing site sustainability teams

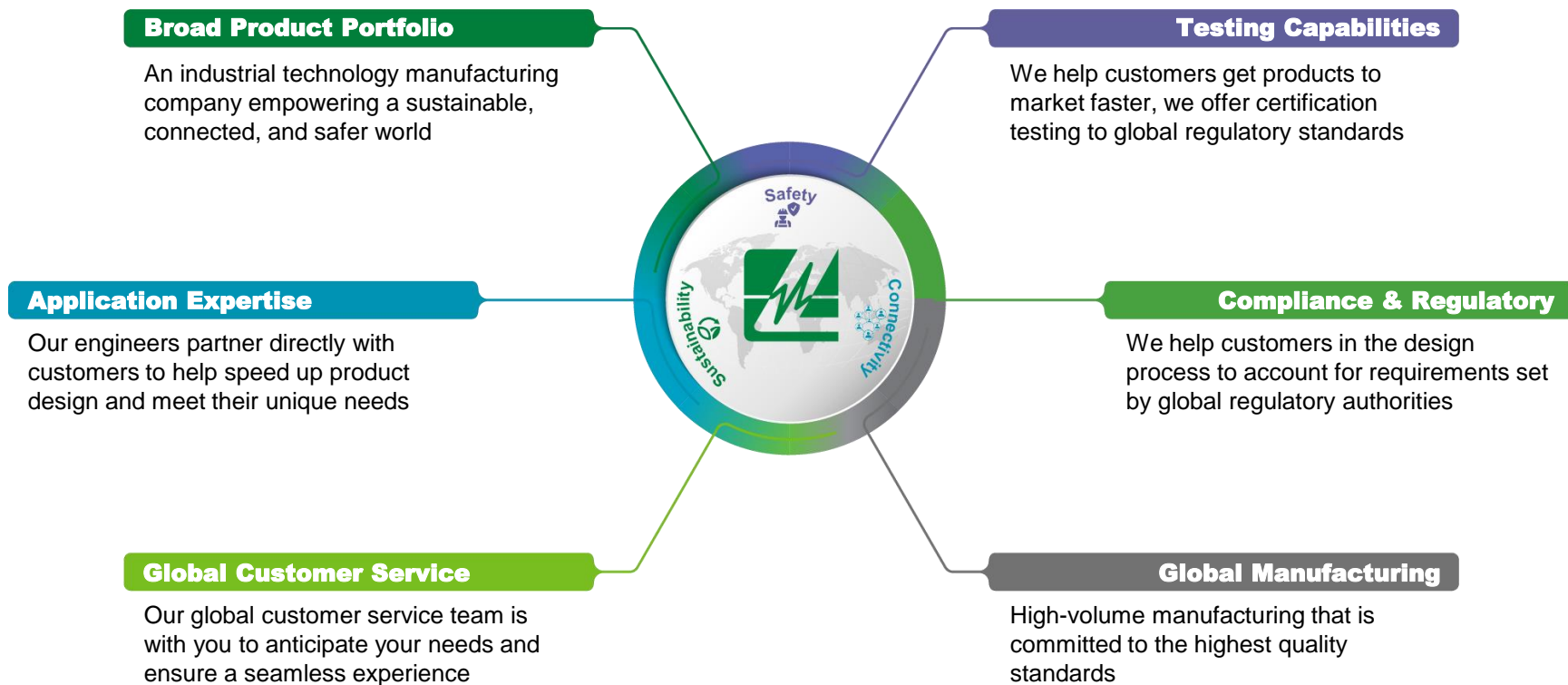


Central ESG software to manage & internally audit our ESG data

~5,000 Hours

of Cybersecurity & Data Privacy training globally

Partner for tomorrow's electronic systems





Expertise Applied | Answers Delivered

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