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Expertise Applied | Answers Delivered

Programmable Logic Controller (PLC)

General Industrial & Electrical Equipment

REV0325

Programmable Logic Controller (PLC) market overview

Market Trends

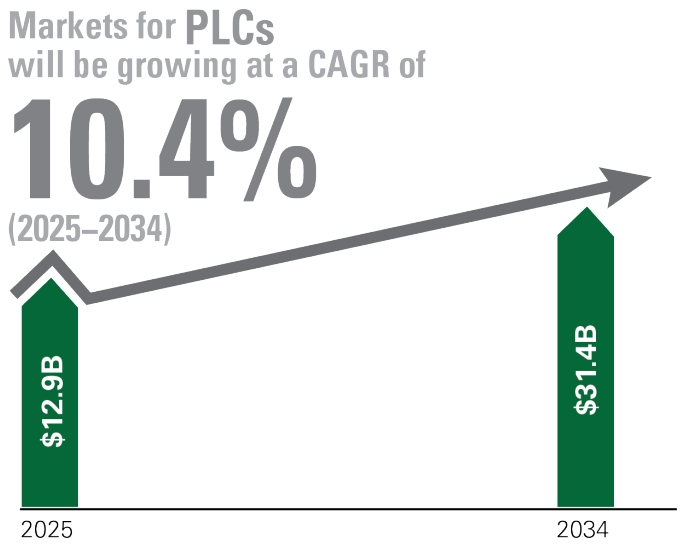
- Growth drivers include the implementation of digital twin projects and Industry 4.0, including the following:
  - Increasing the industry-wide desire for automation
  - Growing interest in industrial robotics
  - Modernization of outdated infrastructure
  - The growth of the electric vehicle (EV) manufacturing sector

- One of the most important trends in the market is the use of AI and ML. The PLC market is growing because of these sophisticated PLC systems, which give firms better decision-making and scalability benefits while decreasing downtime.

- PLC players should see new opportunities because of this AI and ML integration since they can concentrate on developing intelligent PLC systems that help to improve operational efficiency.

- One of the main trends in the PLC industry is the quick growth of renewable energy sources, including solar, wind, and hydroelectric power. These energy systems require sophisticated PLC systems for automation, power distribution, and real-time data monitoring.

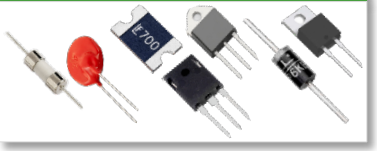
PLC market will be growing at a CAGR of 10.4% (2025–2034)



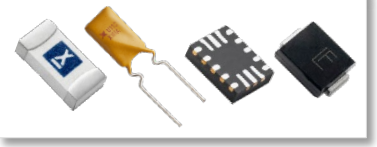
Source: *Littelfuse estimates, Global Market Insights*

Littelfuse solutions for Programmable Logic Controller (PLC)

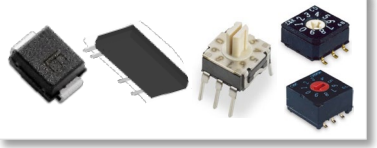
Power Supply
Fuse, MOV, PPTC, SIDACtor®, TVS Diode, Si Diode, Schottky Diode

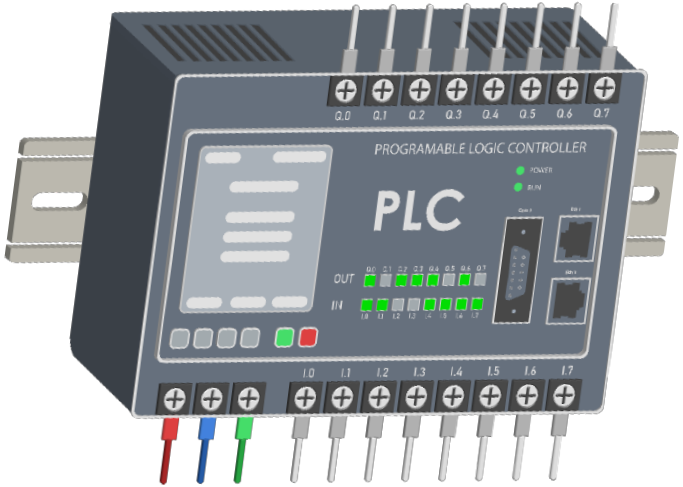


DC–DC Converter
Fuse, PPTC, eFuse, TVS Diode



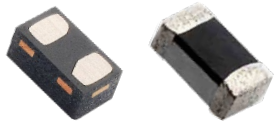
Input/Output Module
TVS Diode, Solid State Relay, Rotary DIP Switch





Display/User Interface
TVS Diode Array

Communication
TVS Diode Array, Polymer ESD



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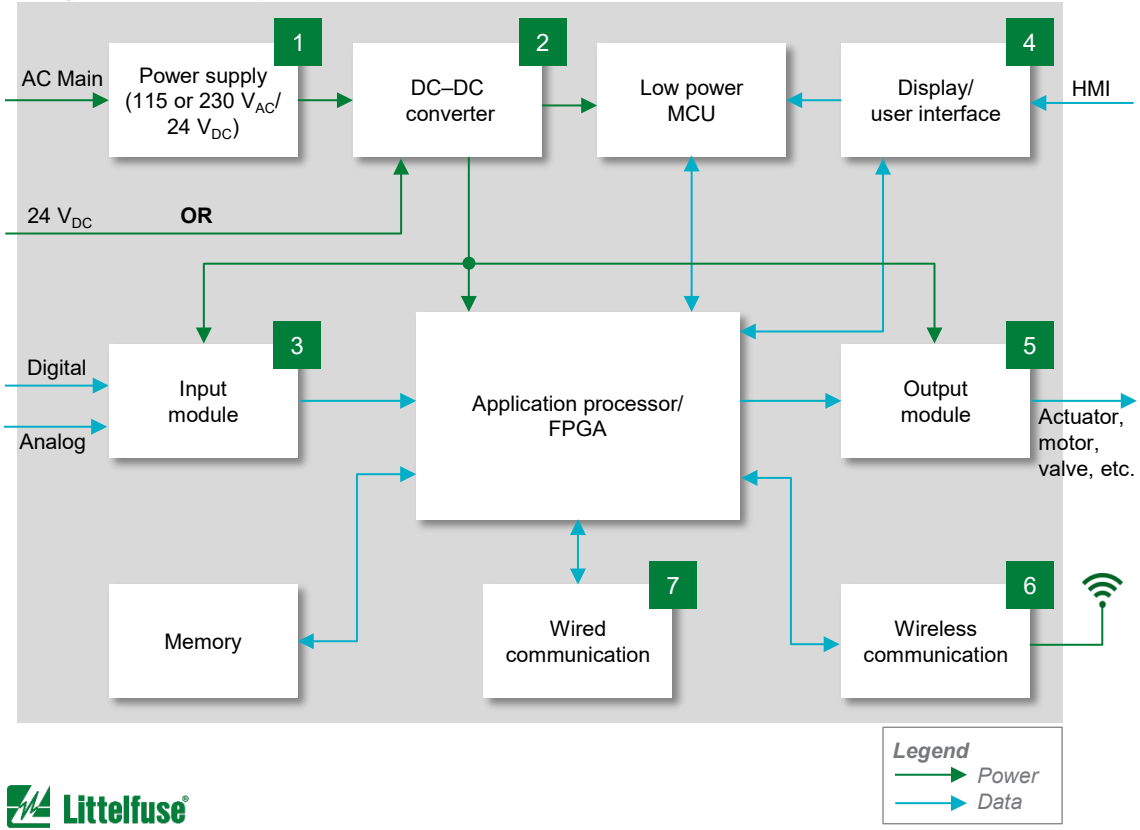
Functional block diagram of Programmable Logic Controller (PLC)

Click on the product series in the table below for more info



	Technology	Product series
1	Fuse	875, 807, 373
	MOV	C-III, TMOV
	SIDACtor® + MOV	Pxxx0ME + V10E300P
	TVS Diode	P6KE, P6SMB, 8.0SMDJ, 1.5SMB
	Si Diode	DSEI, DSEP, DPG
	Schottky Diode	MBR, DST
	PolySwitch® Device	Low Rho, RUEF, LVR
2	Fuse	477, 505
	TVS Diode	SMDJ, SMF
	eFuse	LS2405, LS2406
	PolySwitch® Device	RUEF, RGEF
3	TVS Diode	SMBJ, SMCJ, SMDJ
	C&K® Switches	RTE, CD, CRD
4	TVS Diode Array	SP7538PUTG, SP8008-08UTG
5	Solid State Relay	CPC19xx
	C&K® Switches	RTE, CD, CRD
6	PolySwitch® Device	RUEF, RGEF
7	TVS Diode Array	SP3213, SP3400, SM15/SP712, SP0201B, SP2525NUTG, SP3025-04HTG
	Polymer ESD	PESD

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Benefits of Littelfuse components in Programmable Logic Controller (PLC)

Click on the product series in the table below for more info

	Technology	Function in application	Product series	Benefits	Features
1	Fuse	Protects the power stage from overcurrent events	875, 807, 373	Reduces customer qualification time by complying with third-party safety standards, such as UL/IEC	Compliance with third-party safety standards, such as UL/IEC; low internal resistance; shock safe
	MOV	Protects the power supply unit from voltage transients and lightning	C-III, TMOV	Reduces customer qualification time by complying with third-party safety standards, such as UL/IEC	High energy absorption capability: 40–530 J (2 ms); integrated thermal protection
	SIDACtor® + MOV	Low clamp protection for AC power	Pxxx0ME + V10E300P	Lower clamping provides robust protection to downstream components	Lower clamping voltage; lower leakage current
	TVS Diode	Protects the power supply unit from voltage transients	P6KE, P6SMB, 8.0SMDJ, 1.5SMB	Improves system's reliability by protecting downstream components from transients	600 W peak pulse capability; glass-passivated chip junction
	Si Diode	Rectification and blocking in power supply units	DSEI, DSEP, DPG	Excellent surge capability; extremely fast; temperature-independent switching behavior	Low leakage current; very short recovery time; low I_{rm} values
	Schottky Diode		MBR, DST	Enables the design of high-efficiency power supplies	Ultra-low forward voltage drop; high-frequency operation
	PolySwitch® Device	Provides overcurrent protection	Low Rho, RUEF, LVR	Less power dissipation; compact design; auto resettable	Ultra-low internal resistance; very thin profile; resettable
2	Fuse	Protects from overcurrent	477, 505	Reduces damage to equipment; compact design	Small footprint with high breaking capacity
	TVS Diode	Protects against voltage transients	SMDJ, SMF	Improves system's reliability by protecting downstream components from transients	Excellent clamping capability
	eFuse	Protects from overcurrent and overvoltage	LS2405, LS2406	Integrated solution for overload, short circuit, input voltage surge, excessive inrush current, over-temperature, and reverse current protections	28 V, 6 A-rated current limit switch; integrate 24 mΩ ultra-low on protection switch; external adjustable current limit; input overvoltage protection threshold; soft-start time
	PolySwitch® Device	Protects from overcurrent and over-temperature	RUEF, RGEF	Less power dissipation; compact design; auto resettable	Resettable; single-use overcurrent device; compatible with high-volume electronics assembly

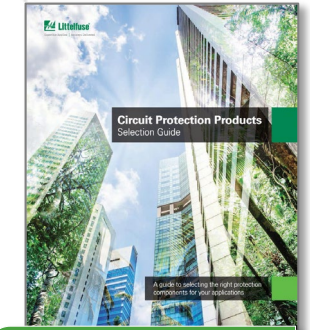
Benefits of Littelfuse components in Programmable Logic Controller (PLC)

Click on the product series in the table below for more info

	Technology	Function in application	Product series	Benefits	Features
3	TVS Diode	Voltage transient protection	SMBJ, SMCJ, SMDJ	Helps protect the most sensitive parts of the design from surge events	Multiple sizes and surge capabilities
	C&K® Switches	Module addressing on data bus	RTE, CD, CRD	Easy external module addressing on data bus	Flexible options selection; external access; small dimensions
4	TVS Diode Array	Protects touchscreen ICs from user-induced ESD events	SP7538PUTG, SP8008-08UTG	Absorbs repetitive ESD	Low capacitance of 1.0 pF per I/O
5	Solid State Relay	Switches output loads, such as valve, motor, etc.	CPC19xx	Precise switching AC loads; low EMI and RFI generation; high noise immunity	Load currents up to 3 A; blocking voltage up to 800 V; zero cross/rapid turn-on
	C&K® Switches	Module addressing on data bus	RTE, CD, CRD	Easy external module addressing on data bus	Flexible options selection, external access; small dimensions
6	PolySwitch® Device	Provides overcurrent/over-temperature protection	RUEF, RGEF	Less power dissipation; compact design; auto resettable	Resettable; single-use overcurrent device; compatible with high-volume electronics assembly
7	Polymer ESD	Protects ICs from ESD	PESD	Supports passing agency requirements	Low leakage current
	TVS Diode Array	Protects ICs from ESD	SP3213	Absorbs repetitive ESD	Low capacitance of 1.0 pF per I/O
		USB2.0/3.0	SP3400, SP0201B	High ESD performance in small packages	Low capacitance of 1 to 0.2 pF (TYP) per I/O
		Ethernet/PROFINET	SP2525NUTG, SP3025-04HTG	Low capacitance and low clamping voltage makes it ideal for high-speed data interfaces	Lightning, IEC 61000-4-5 2nd edition, 30 A
		RS232/RS485	SM15/SP712	Can absorb repetitive ESD strikes above the maximum level	Low clamping voltage; low leakage current

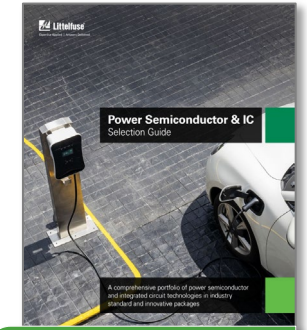
Additional information can be found on Littelfuse.com

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

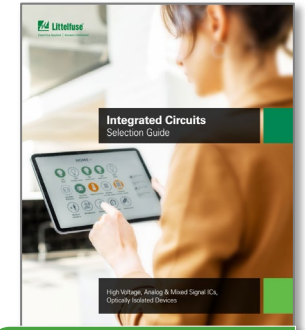


Circuit Protection Selection Guide

C&K® Switch Product Selection Guide



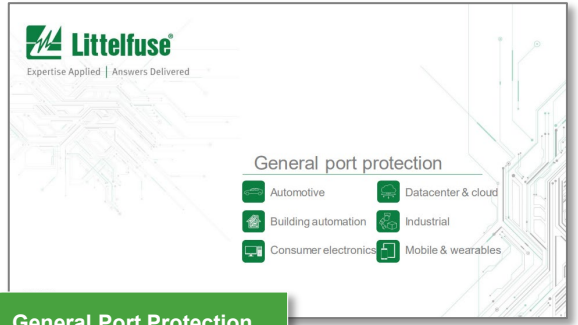
Power Semiconductor Catalog



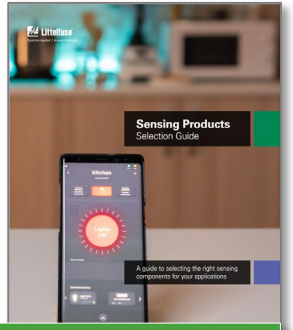
Integrated Circuit Selection Guide

Industrial Fuses Catalog

Click on images for more information



General Port Protection



Sensing Products Selection Guide

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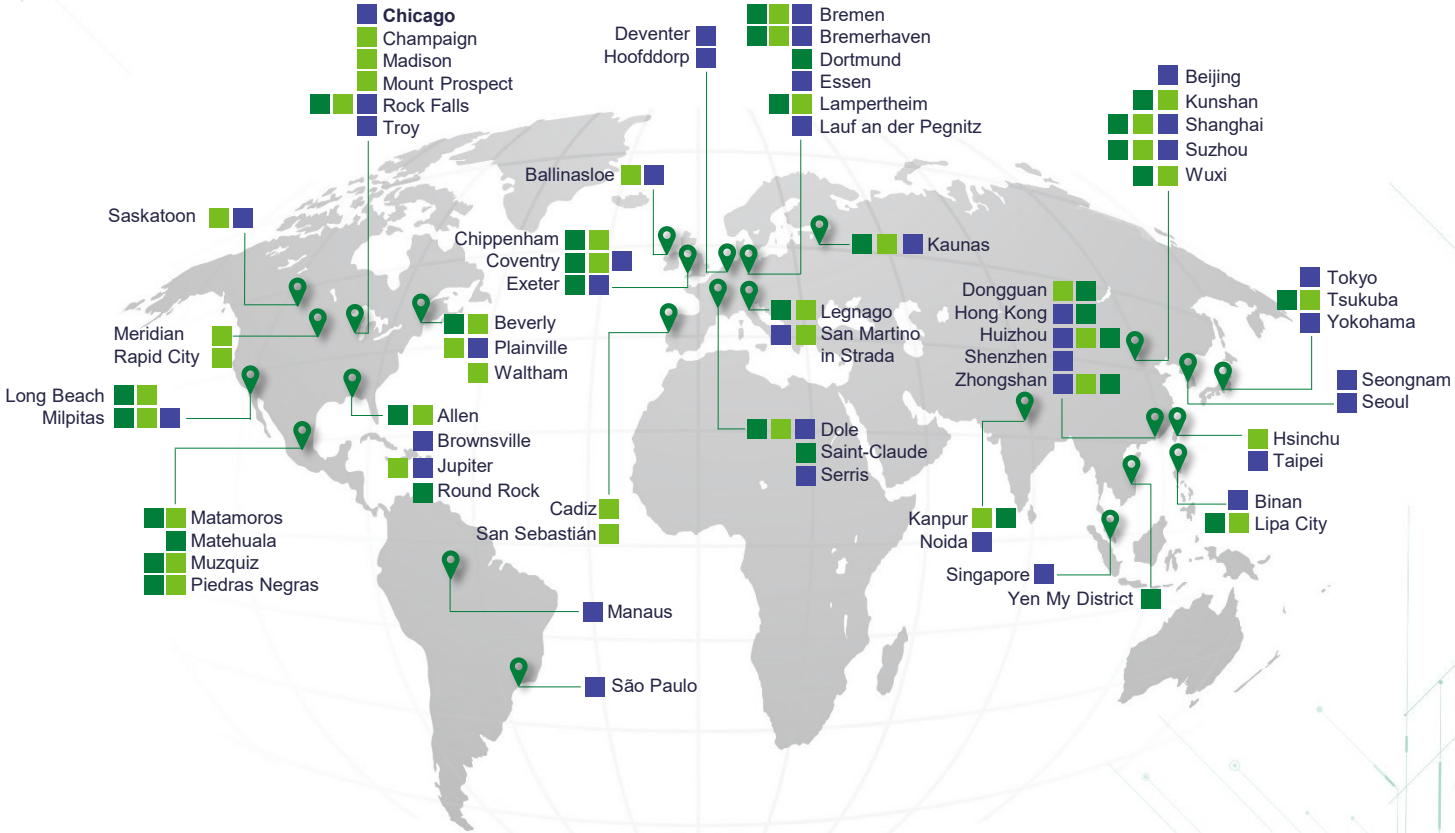
Local resources supporting our global customers



Legend

- ***Sales***
- ***R&D***
- ***Manufacturing***

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Broad Product Portfolio

An industrial technology manufacturing company empowering a sustainable, connected, and safer world

Testing Capabilities

We help customers get products to market faster and we offer certification testing to global regulatory standards

Application Expertise

Our engineers partner directly with customers to help speed up product design and meet their unique needs

Compliance & Regulatory

We help customers in the design process to account for requirements set by global regulatory authorities

Global Customer Service

Our global customer service team is with you to anticipate your needs and ensure a seamless experience

Global Manufacturing

High-volume manufacturing that is committed to the highest quality standards

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