Machine Safety & Limit Switches

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Consult the Sensing Solutions Product Guide **PG08301004E** for complete information on these Machine Safety and Limit Switch Products.

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For the most current information on all Cutler-Hammer® Machine Safety and Limit Switches by Eaton Corporation, visit **www.eaton.com**

Machine Safety and Limit Switches

	Key Interlock Switches DIN Models	**Key Interlock Switches NEMA Standard Models**
Publication	**PG05F02TE**	**PG05F04TE**
Overview	Safety device that is designed to be used with movable guards or covers which must be closed for operational safety. This switch automatically stops the machine when the guard is removed.	Safety device that is designed to be used with movable guards or covers which must be closed for operational safety. This switch automatically stops the machine when the guard is removed.
Applications	Any machine with movable guards installed to protect machine operators from injury.	Any machine with movable guards installed to protect machine operators from injury.
Product Features	■ Meet UL, European and International requirements. ■ Actuating keys are designed to be difficult to defeat, reducing the possibility of tampering. ■ Removal of key positively breaks the N.C. contacts — unit is designed to fail to safe condition. ■ Cost-effective and durable plastic construction. ■ Head can be rotated in any of four positions. ■ Dual entry points for operation key — top or side. ■ Conduit entry.	■ Meet UL, CSA, European and International requirements. ■ Actuating keys are designed to be difficult to defeat, reducing the possibility of tampering. ■ Removal of key positively breaks the N.C. contacts — unit is designed to fail to safe condition. ■ Rugged cast aluminum body for use in harsh industrial environments. ■ Head can be rotated in any of four positions. ■ Conduit entry
Contact Ratings	NEMA A600 (UL/CSA Pilot Duty)	NEMA A600 (UL/CSA Pilot Duty)
Enclosure Ratings	NEMA 4, IP65	NEMA 3, 4, 4X, 6P, 13, IP67
Construction	Synthetic Resin	Aluminum Die Cast
Approvals	UL Listed TUV CE	UL Listed CSA Certified TUV CE

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	E47 Precision Switches	Compact Prewired Switches	Miniature DIN Switches
Publication	**PG05C03TE**	**PG05C10TE**	**PG05C01TE**
Overview	Specified when accurate repeatability, choice of operating forces and travel characteristics and tightly controlled action of cam or target in space restricted areas is of prime importance. Cost effective and compact	Designed to be a versatile, slim device for hard to fit applications where sealing integrity is required	Two DIN body styles available. Nonmetallic housing and modular construction suits light industrial watertight/oiltight OEM requirements
Applications	Overhead, folding and elevator doors, sliding gates, automated guided vehicles and commercial instrumentation	Machine tool, food processing and packaging	Packaging, material handling conveyors, end-of-travel and guarding operations, baler/compactor, industrial door lifts
Product Features	■ Self-contained switches or with an enclosed cast housing for increased durability and conduit connection (1/2" NPT) ■ High current capacity for power load switching and motor handling capability ■ Screw and solder terminations ■ Booted enclosed version shields actuators from debris ■ Mounting centers — 1.0 in (25.4 mm), #8 screw size ■ Operating Temperature: Basic Type: -25° to 80°C Enclosed Type: -15° to 80°C ■ Mechanical life — 3,000,000 operations minimum ■ Electrical life — 500,000 operations minimum	■ Rugged aluminum alloy die cast housing ■ Sealed construction with enclosure ratings of NEMA 4, 6 and 13 ■ Prewired with 3m of 18 AWG, AWM 2517, 300V cable ■ Stackable ridge for ganged operation ■ Mechanical life — 10,000,000 operations minimum ■ Electrical life — 200,000 operations 30 operation/minimum	■ Nonmetallic housing is ideal for corrosive environments ■ "Fingerproof" terminals and double insulated enclosures protect against accidental shock ■ Generous wiring space speeds installation ■ Electrically isolated contacts eliminate polarity restrictions for electrical loads ■ Positive opening N.C. contacts improve reliability by positively breaking the N.C. contacts during operation, eliminating light welding/sticking conditions ■ Mechanical life — 1,000,000 operations minimum
Contact Ratings	NEMA A600, R300, AC-15, DC-13 15A/20A, 125 or 250V AC	NEMA B300	NEMA A600, R300, AC-15, DC-13
Enclosure Ratings	Enclosed — NEMA 1	NEMA 4, 6 and 13 IP67	NEMA 4, 4X, 6, 6P, 13 IP65
Construction	Basic — Phenolic Enclosed — Aluminum Die Cast	Aluminum Alloy Die Cast	Self-extinguishing PA-6 (Glass-reinforced, Polyamide)
Approvals	UL Recognized CSA Certified CE	UL Listed	UL Listed CSA Certified Cenelec — EN50047 IEC 947-5-1 CE

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Product Selection

	E49 Compact Metal Switches	**E50 Heavy-Duty Plug-In Switches**	**E50 Heavy-Duty Factory Sealed 6P+ Switches**
Publication	**PG05C02TE**	**PG05C06TE**	**PG05C09TE**
Overview	Designed with high mechanical strength for robust environments. The rugged aluminum die cast construction provides reliable, oil-tight, waterproof and dustproof sealing for a variety of applications. Snap action 1N.O./ 1N.C. contacts provide flexibility in design.	Versatile in design. High reliability. Low maintenance costs with installation ease. BEST CHOICE for Heavy-Duty Limit Switch applications. Withstands physical and chemical abuse of harsh industrial environments	Designed specifically to withstand the penetrating properties of new cutting fluids (coolants), acid or caustic washes, salt spray, severe vibration, shock and temperature fluctuations, grit and debris
Applications	Packaging, material handling conveyors, end-of-travel and guarding operations, baler/compactor, industrial door lifts	Punch presses, waste water treatment, machine tool, automotive, retrieval systems, industrial truck, car wash lines	Automotive, pulp and paper, food processing, waste management, primary metals, machine tool (cutting, forming, bending)
Product Features	■ Rigid die cast switch housing ■ Set position indicator plate for easy maintenance ■ High mechanical strength ■ Oiltight, waterproof and dustproof construction ■ Mechanical life — 15,000,000 operations minimum ■ Electrical life — 500,000 operations minimum at full load	■ Modular operating heads, switch bodies and receptacles are interchangeable without field adjustment ■ Order as complete assemblies or components for stocking and manufacturing flexibility ■ 90 degree total travel, 5 degree pretravel characteristics are standard features ■ VITON gasket, boot, and seal material offers exceptional chemical resistance ■ Rotary head operating mode from CW, CCW or CW and CCW is easily changed without tools ■ Keyed, four directional head positioning ■ Mechanical life — 13,000,000 operations minimum ■ Electrical life — 1,000,000 operations minimum at full load (single pole)	■ Tamperproof, one-piece switch body assembly, epoxy filled ■ Factory sealed. 6P submersible. Pre-wired with cable, pigtail or pin connector options. All with ground connection ■ Utilizes E50 modular operating heads ■ Special V-seal on switch body/head connection provides hermetic barrier against fluid ingress ■ LED indicating light, 24V – 120V AC/DC. Neon version too ■ Peel off see-through painting mask over nameplate ■ Mechanical life — 35,000,000 operations minimum ■ Electrical life — 1,000,000 operations minimum at full load
Contact Ratings	NEMA A600, R300, AC-15, DC-13	NEMA A600, R300 Lighted Versions A150, R150 6A, 120V AC; 10A Continuous	NEMA A600, R300 Lighted Versions A150, R150 6A, 120V AC; 10A Continuous
Enclosure Ratings	NEMA 4, 4X, 6, 6P, 12, 13 IP65, IP67	NEMA 1, 3, 3S, 4, 4X, 6, 6P, 13 IP67	NEMA 1, 2, 3, 3S, 4, 4X, 6, 6P, 13 IP67
Construction	Aluminum Die Cast	Zinc Die Cast	Zinc Die Cast
Approvals	UL Listed IEC 529 Class IP67	UL Listed CSA Certified IEC 947-5-1 TUV CE (Some models)	UL Listed CSA Certified IEC 947-5-1 TUV CE (Some models)

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	Non Plug-In Switches	**Hazardous Location Switches**	**Special Purpose Switches**
Publication	**PG05C05TE**	**PG05C07TE**	**PG05C08TE**
Overview	The Industrial standard for Non Plug-In Heavy-Duty Limit Switches. Sold as complete assembled units only	Designed for severe environmental service in locations where there exists a danger of an internal or external explosion of flammable gases, vapors, metal alloy or grain dust	Variety of special function limit switch products
Applications	Serving MRO and USER replacement requirements with broad market coverage	Mining, metal cutting, grain storage, forest products, petrochemical, waste and sewage management, pharmaceutical	Serving MRO and USER replacement requirements with broad market coverage
Product Features	■ Side and top rotary, side and top push or wobble operation ■ CW, CCW or CW and CCW operating modes are field convertible ■ Double break-make snap action contacts, same polarity each pole ■ Captive saddle clamp terminals accept up to #12 wire ■ Head can be mounted in any of four discrete positions, intervals of 90 degrees ■ Mechanical life — 10,000,000 operations minimum ■ Electrical life — 500,000 operations at full load	■ Sealed and unsealed versions available ■ One-way gasket on sealed version keeps liquids out, yet allows a harmless release of gases in the event of an internal explosion ■ Silicon bronze housing provides excellent corrosion resistant properties in extreme NEMA 4X applications ■ Temperature build-up on limit switch surface is dissipated by housing design and materials used ■ Utilizes the operating heads and internal switch mechanisms of the 10316 Non Plug-In line ■ NEMA 7, Div. 1, Class I, BCD ■ NEMA 9, Div. 1, Class II, EFG	■ Special function switch lines include: ■ Cabinet door interlocks — when plunger is pulled out, red band indicator visually shows that interlock is defeated ■ Precision switches — 1N.O.-1N.C., 2N.O.-2N.C., or operator only. Variety of mounting brackets available ■ Pneumatic time delay — ON delay and OFF delay. Timing range — 0.05 to 60 seconds ■ Rotating cam shaft switches
Contact Ratings	NEMA A600, R300 6A, 120V AC; 10A Continuous	NEMA B600 3A, 120V AC; 5A Continuous	See product guide section
Enclosure Ratings	NEMA 1, 4, 13	LX — NEMA 7, 9 CX — NEMA 1, 4, 7, 9 CB — NEMA 1, 4, 4X, 13 CBX — NEMA 1, 4, 4X, 7, 9, 13	NEMA 1 or NEMA 4 Versions
Construction	Zinc Die Cast	LX, CX — Aluminum Die Cast CB, CBX — Silicon Bronze	Zinc Die Cast PS — Phenolic
Approvals	UL Listed CSA Certified	UL Listed	UL Listed CSA Certified (PS and J only)

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