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

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Online Publications
For the most current information on all Safety and Limit Switches from Eaton’s electrical sector, visit www.eaton.com
51.1 Safety Products and Limit Switches

Safety Products

LS-Titan Safety Interlock Switches

Publication: CA05208002E

Overview

Specifically designed for monitoring the position of protective guards, such as doors, flaps, hoods and grilles. All switches in this family are safety-rated, include positively opening NC contacts, and cannot be defeated using simple tools, such as pliers, screwdrivers and nails.

Applications

Protective guards, doors, flaps, hoods, grilles, hinges and covers.

Product Features

- Broad family to industry-standard enclosure sizes: Miniature DIN; full-size DIN; and larger, solenoid key interlocks
- Large selection of actuators (keys), including those for sliding, swing and sloppy doors
- Miniature DIN models feature five-way adjustable heads; full-size DIN models feature four-way adjustable heads
- Specialized door-flap and door-hinge switches provide a unique solution when actuators (keys) cannot be used
- IP65 degree of protection

Technical Data and Specifications

- Mechanical life—10,000,000 operations (except solenoid models, rated for 1,000,000 operations)
- Contact ratings—AC-15: 6A at 24V, 6A at 230/240V, 4A at 400V/415V
- Enclosure rating—IP65
- Construction—Insulated material (plastic)

Approvals

- UL Listed
- CSA Approved
- CCC
- Positive opening NC contacts per EN 60947-5-1

Consult the Sensing Solutions Product Guide, PG08301004E, for complete information on sensors, limit switches and machine safety products.
### E47 Precision Switches

**Publication:** PG05C03TE

**Overview**
Specified when accurate repeatability, choice of operating forces and travel characteristics and tightly controlled action of cam or target in space restricted areas are of prime importance. Cost effective and compact.

**Product Features**
Self-contained switches or with an enclosed cast housing for increased durability and conduit connection (1/2 in 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

**technical Data and Specifications**
- Mechanical life: 3,000,000 operations min.
- Electrical life: 500,000 operations min.
- Contact ratings—NEMA A600, R300, AC-15, DC-13
- 15A/20A, 125 or 250 Vac
- Enclosure ratings—Enclosed: NEMA 1
- Construction—Basic: Phenolic
- Enclosed: Aluminum die cast

**Approvals**
- UL Recognized
- CSA Certified
- CE

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### Compact Prewired Switches

**Publication:** PG05C10TE

**Overview**
Designed to be a versatile, slim device for hard to fit applications where sealing integrity is required.

**Product Features**
Rugged aluminum alloy die cast housing

- Sealed construction with enclosure ratings of NEMA 4, 6 and 13
- Prewired with 3m of 18 AWG, AWWM 2517, 300V cable
- Stackable ridge for ganged operation

**Technical Data and Specifications**
- Mechanical life: 10,000,000 operations min.
- Electrical life: 200,000 operations min.
- Contact ratings—NEMA B300
- Enclosure ratings—NEMA 4, 6 and 13; IP67, IP69K
- Construction—Aluminum alloy die cast

**Approvals**
- cULus

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### LS-Titan Miniature DIN Switches

**Publication:** CA05208001E

**Overview**
Safety position switches with insulated plastic or rugged metal enclosures. Approved for worldwide safety application.

**Product Features**
Modular plug-in head and body components

- Positive opening NC contacts for safety applications
- Operating heads can be rotated 90 degrees to suit specific direction of operation

**Technical Data and Specifications**
- Mechanical life: 8,000,000 operations
- Contact ratings—AC-15, 6A at 24V, 6A at 230/240V, 4A at 400/415V, DC-13, 3A at 24V, 800 mA at 110V, 300 mA at 220V
- Enclosure ratings—IP66, IP67 (by model)
- Construction—Plastic or metal (by model)

**Approvals**
- Safety function, IEC/EN 60947-5-1
- TÜV-Rheinland certified (LSE models)
- CSA certified
- UL listed
- CE
- CCC

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### E49 Mini Metal Switches

**Publication:** CA05215001E

**Overview**
Suitable for OEMs who require a small, cost-effective solution but cannot sacrifice durability and mechanical life as they would if they chose a plastic IEC style switch.

**Product Features**
Pre-wired units with custom cable lengths available for high volume customers

- “Fingerproof” terminals protect against accidental shock
- Double-spring mechanism for contact reliability
- Grounding terminal included
- Captive screws on enclosure cover make wiring hassle-free
- SPDT double break

**Technical Data and Specifications**
- Contact ratings—5A @ 250 Vac
- 5A @ 30 Vdc
- Enclosure ratings—IP65
- Construction—Zinc alloy

**Approvals**
- UL Recognized
- CE

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Consult the Sensing Solutions Product Guide, PG08301004E, for complete information on sensors, limit switches and machine safety products.
51.2 Safety Products and Limit Switches

Limit Switches

### E49 Compact Metal Switches

**Publication:** PG05C02TE

**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 NO-NC contacts provide flexibility in design.

**Applications**

Packaging, material handling, conveyors, end-of-travel and guarding operations, baler/compactor, industrial door lifts

**Product Features**

- Rigid die cast switch housing
- Set position indicator plate for easy maintenance
- High mechanical strength
- Oil-tight, waterproof and dustproof construction

**Technical Data and Specifications**

- Mechanical life: 15,000,000 operations min.
- Electrical life: 500,000 operations min. at full load
- Contact ratings—NEMA A600, R300, AC-15, DC-13
- Enclosure ratings—NEMA 4, 4X, 6, 6P, 12, 13; IP65, IP67
- Construction—Aluminum die cast

**Approvals**

- UL Listed
- cULus
- CSA Certified
- IP67

Consult the Sensing Solutions Product Guide, PG08301004E, for complete information on sensors, limit switches and machine safety products.

### E50 Heavy-Duty Plug-In Switches

**Publication:** PG05C06TE

**Overview**

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.

**Applications**

- Punch presses, waste water treatment, machine tool, automotive, retrieval systems, industrial truck, car wash lines

**Product Features**

- 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 pre-travel 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

**Technical Data and Specifications**

- Mechanical life: 13,000,000 operations min.
- Electrical life: 1,000,000 operations min. at full load (single-pole)
- Contact ratings—NEMA A600, R300
- Lighted versions A150, R150
- 6A, 120 Vac; 10A continuous
- Enclosure ratings—NEMA 1, 3, 3S, 4, 4X, 6, 6P, 13; IP67, IP69K
- Construction—Zinc die cast

**Approvals**

- UL Listed
- cULus
- CSA Certified
- E47
- IP67
- TUV
- CE (some models)

### E50 Heavy-Duty Factory Sealed 6P+ Switches

**Publication:** PG05C09TE

**Overview**

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**

- Automotive, pulp and paper, food processing, waste management, primary metals, machine tool (cutting, forming, bending)

**Product Features**

- 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–120 Vac/Vdc neon version too
- Peel off see-through painting mask over nameplate

**Technical Data and Specifications**

- Mechanical life: 35,000,000 operations min.
- Electrical life: 1,000,000 operations min. at full load
- Contact ratings—NEMA A600, R300
- Lighted versions A150, R150
- 6A, 120 Vac; 10A continuous
- Enclosure ratings—NEMA 1, 2, 3S, 4, 4X, 6, 6P, 12, 13; IP67, IP69K
- Construction—Zinc die cast

**Approvals**

- UL Listed
- cULus
- CSA Certified
- E47
- IP67
- TUV
- CE (some models)

### Operators

**Publication:** PG05C04TE

**Overview**

Wide variety of contactor types for rotary and wobble style limit switches.

**Applications**

Used with E50, E50 6P+ and 10316 limit switches

**Product Features**

- Rollers and rods available in metal and nonmetal contact surfaces

**Technical Data and Specifications**

- Varies by model

**Approvals**

- Varies by model
Consult the Sensing Solutions Product Guide, PG08301004E, for complete information on sensors, limit switches and machine safety products.
Consult the Sensing Solutions Product Guide, PG08301004E, for complete information on sensors, limit switches and machine safety products.