

## Series 4310

## Ambient Temperature-Compensated Sub-Miniature Circuit Breaker



Standard

### Sub-Miniature Size — High Performance

#### Qualified

To MS3320 of Mil-C-5809. Meets performance specification of MS14105 of MIL-C-5809

#### High Interrupting Capacity

Interrupts 6,000A fault at 28V, DC; up to 3,500A fault at 120V, 400 Hz., AC (ampere rating dependent).

#### Vibration Resistance

Vibration resistance and mechanical life exceed MIL Specs — including random vibration.

#### Temperature-Compensated

Ambient-temperature-compensated from -55°C to +121°C.

#### Performance Rated Circuit Breaker

The lightweight, single-phase circuit breaker, Series 4310, allows high density packaging for all aircraft and aerospace needs.

The 4310 series reflects the latest advancements in circuit breaker design — plus other proven features (e.g., self-wiping contacts).

Tight tolerances in design and stringent manufacturing standards are key factors in the reliable operation of the 4310 under severe environmental conditions of high temperature, high humidity, extreme vibration, and shock. It is also fungus- and corrosion-proof.

Calibration integrity is maintained through wide variations in ambient temperature and altitude, making this circuit breaker ideal for applications where temperature is not controlled.

#### Multiple Options

This series is available in many optional configurations.

*It is presently being manufactured with 7/16, 15/32 and metric mounting sleeves. Many versions of different terminals, barriers, and hardware are current production items. Several different actuator options provide our customers with additional flexibility.*

### PERFORMANCE DATA

<b>Interrupting Capacity*</b>	1 to 25A: 6,000A at 28V, DC. 1A: 3,500A at 120V, 400 Hz., AC 1 1/2 to 2 1/2A: 2,800A at 120V, 400 Hz., AC; 3 TO 15: 2,500A AT 120V, 400 Hz., AC; 20 to 25A: 2,000A at 120V, 400 Hz., AC
<b>Endurance*</b>	At 120V, 400 Hz., AC or at 28V, DC: inductive load — 2,500 cycles; resistive load — 5,000 cycles; mechanical cycling, no load — 10,000 cycles
<b>Overload Cycling</b>	Minimum of 100 cycles at 200% rated current
<b>Dielectric Strength</b>	At sea level, 25°C 1,500V, AC. At 70,000 ft. 121°C 500V, AC
<b>Insulation Resistance</b>	Not less than 100 megohms at 500V, DC
<b>Voltage Drop</b>	Varies with rating (see "Ordering Information")
<b>Vibration*</b>	Meets specification MIL-STD-202, Method 204, Condition A-10G, 10-500 Hz. MS "V" type,(4310-019) meets Condition B, 15G, 10-2,000 Hz. and Condition C 10G, 10-2,000 Hz.
<b>Shock*</b>	Exceeds 50G's, 11 Milli-sec (half-sine pulse) MIL-STD-202, Method 213 Test A
<b>Acceleration</b>	Exceeds 10G's
<b>Weight</b>	25 grams (.055 lbs.)

\* Variations of these circuit breakers are capable of exceeding the standard Mil specification for endurance vibration, shock, and interrupting capacity. Consult the Business Unit for more information.

### OVERLOAD CALIBRATION DATA

Specification Table	@ 25°C		@ +121°C		@ -55°C		Test Time Parameters
	MIN	MAX	MIN	MAX	MIN	MAX	
Must Hold	115	—	100	—	115	—	% For 1 Hour
Must Trip	—	138	—	138	—	160	% Within 1 Hour
200% Overload	5.00	20.00	1.500	13.00	7.00	40.00	Seconds
500% Overload	0.50	2.00	0.150	1.10	0.50	3.00	Seconds
1000% Overload	0.12	0.53	0.035	0.30	0.16	0.80	Seconds

Trip curves available.

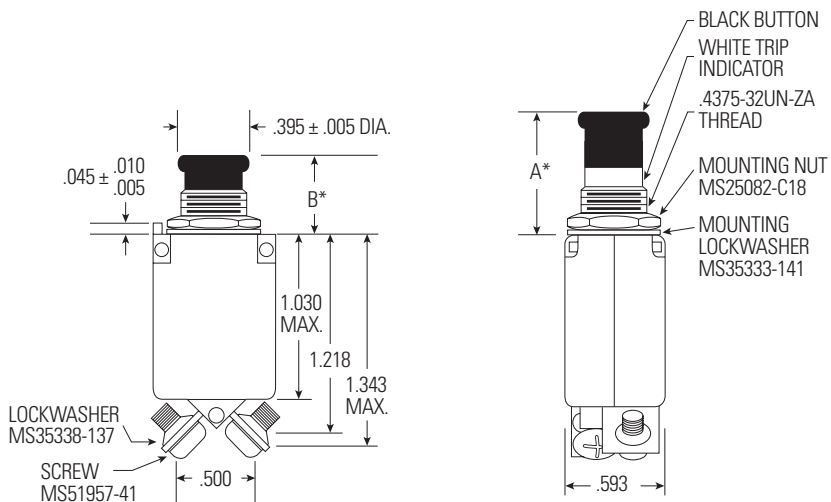
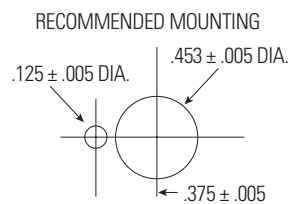
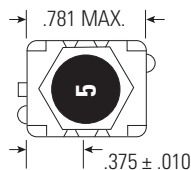
### ORDERING INFORMATION

MS Approval Status	AMPERE RATING	VOLTAGE DROP MAX.*	STANDARD		LONG BUTTON		HIGH VIBRATION		LONG BUTTON VIBRATION	
			MS P/N	EATON MP P/N	MS P/N	EATON MP P/N	MS P/N	EATON MP P/N	MS P/N	EATON MP P/N
MS Approved	1	1.10	MS3320-1	4310-001-1	MS3320-1L	4310-005-1	MS3320-1V	4310-019-1	MS3320-1VL	4310-024-1
Non MS Approved	1 1/2	0.80		4310-001-105		4310-005-105		4310-019-105		4310-024-105
MS Approved	2	0.75	MS3320-2	4310-001-2	MS3320-2L	4310-005-2	MS3320-2V	4310-019-2	MS3320-2VL	4310-024-2
MS Approved	2 1/2	0.70	MS3320-2-1/2	4310-001-205	MS3320-2 1/2L	4310-005-205	MS3320-2 1/2V	4310-019-205	MS3320-2 1/2VL	4310-024-205
MS Approved	3	0.55	MS3320-3	4310-001-3	MS3320-3L	4310-005-3	MS3320-3V	4310-019-3	MS3320-3VL	4310-024-3
MS Approved	4	0.45	MS3320-4	4310-001-4	MS3320-4L	4310-005-4	MS3320-4V	4310-019-4	MS3320-4VL	4310-024-4
MS Approved	5	0.35	MS3320-5	4310-001-5	MS3320-5L	4310-005-5	MS3320-5V	4310-019-5	MS3320-5VL	4310-024-5
MS Approved	7 1/2	0.30	MS3320-7-1/2	4310-001-705	MS3320-7 1/2L	4310-005-705	MS3320-7 1/2V	4310-019-705	MS3320-7 1/2VL	4310-024-705
MS Approved	10	0.28	MS3320-10	4310-001-10	MS3320-10L	4310-005-10	MS3320-10V	4310-019-10	MS3320-10VL	4310-024-10
MS Approved	15	0.25	MS3320-15	4310-001-15	MS3320-15L	4310-005-15	MS3320-15V	4310-019-15	MS3320-15VL	4310-024-15
MS Approved	20	0.25	MS3320-20	4310-001-20	MS3320-20L	4310-005-20	MS3320-20V	4310-019-20	MS3320-20VL	4310-024-20
Non MS Approved	25	0.20		4310-001-25		4310-005-25		4310-019-25		4310-024-25

**DIMENSIONS**

MIL Spec	Part No.	A*Max.	B*Min.
MS3320	4310-001	0.750	0.470
MS3320L	4310-005	1.125	0.845
MS3320V	4310-019	0.750	0.470
MS3320VL	4310-024	1.125	0.845

Min. Panel Thickness .025  
Max. Panel Thickness .100



**TRIP CURVE**

