



# 3SB Series Simulator Circuit Breakers

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## Features

- **Low amperage / fast trip response**
- **High performance**
- **Packaged in Military Standard configuration**
- **Tactile feel equivalent to industry accepted aircraft circuit breakers**
- **Lower total system cost**



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## Overview

The 3SB Series Simulator Circuit Breaker has been developed by the Precision Products Group of Texas Instruments to meet the growing needs of the commercial and military simulator industry. With more and more training now being conducted on simulators due to the high operational costs of live training, the realism and complexity of tomorrow's simulators will require a circuit breaker that can provide the same "look and feel" of industry accepted circuit breakers, creating a superior training environment.

3SB electromechanical devices provide fast trip response with low current draw at 28 VDC, and are packaged in a standard

MS26574 style thermal circuit breaker configuration for adaptability to aircraft cockpit panel mounting. This fast trip/low current performance provides the opportunity for system level savings by enabling the designer to potentially down size the system power source. This eliminates expensive I/O boards or other electronics while also reducing the amount of cabling required.

Changes in training schemes normally entail system rewiring to reconfigure the simulator, which becomes labor intensive and costly. With the incorporation of the 3SB device, training changes can easily be achieved through system

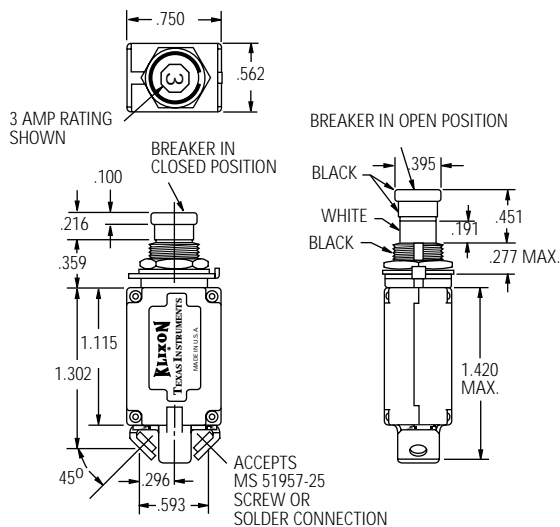
software, without the time and cost associated with rewiring. TI's simulator circuit breakers also provide the same tactile feel as standard MIL qualified breakers to achieve superior training realism.

Klixon circuit breakers offer the flexibility of ordering replaceable ampere rating inserts. They are attached to the top of the push button actuator, to match the current rating used in the actual aircraft. These inserts can be rotated within the push button to meet your cockpit configuration needs. An optional auxiliary switch for remote indications, along with a variety of connection alternatives, are also available.

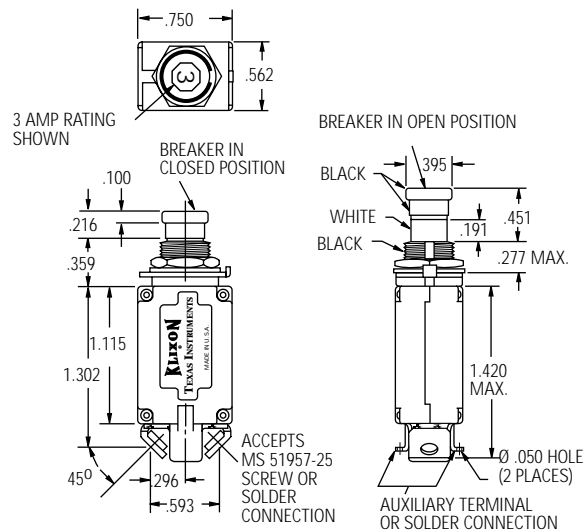
## Characteristics

3SB

### 3SB2



### 3SB4



|                          |  |
|--------------------------|--|
| Open and Reset Force ... | 5 lbs. max.  |
| Calibration @ 25°C ..... | 200 mA max. current draw @<br>28 VDC, 3 sec. max trip time                           |
| Endurance .....          | 5000 mechanical cycles, no load<br>1000 electrical trip cycles, minimum<br>at 28 VDC |
| Vibration.....           | 5 G's maximum 50-500 Hz  |
| Shock .....              | 5 G's maximum  |
| Acceleration .....       | 5 G's maximum  |
| Weight .....             | 30 grams maximum   |

### Dummy Circuit Breakers

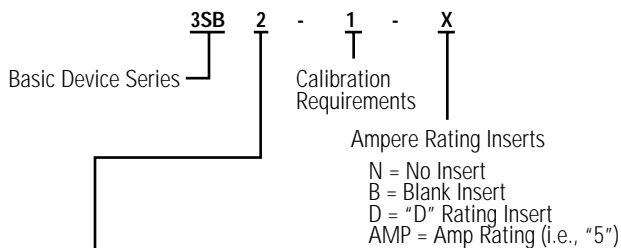
Texas Instruments has developed a derivative of our 7274 style circuit breaker expressly for applications in simulators, trainers and cockpit mock-ups.

**7274-63D:** Dummy breaker. Non-functional 7274-2 style

**7274-64PS:** Physical sample. 7274-2 style with operational push button. Can measure continuity across terminals.

**7274-65PS:** Physical sample. 7274-11 style with operational push button. Can measure continuity across terminals.

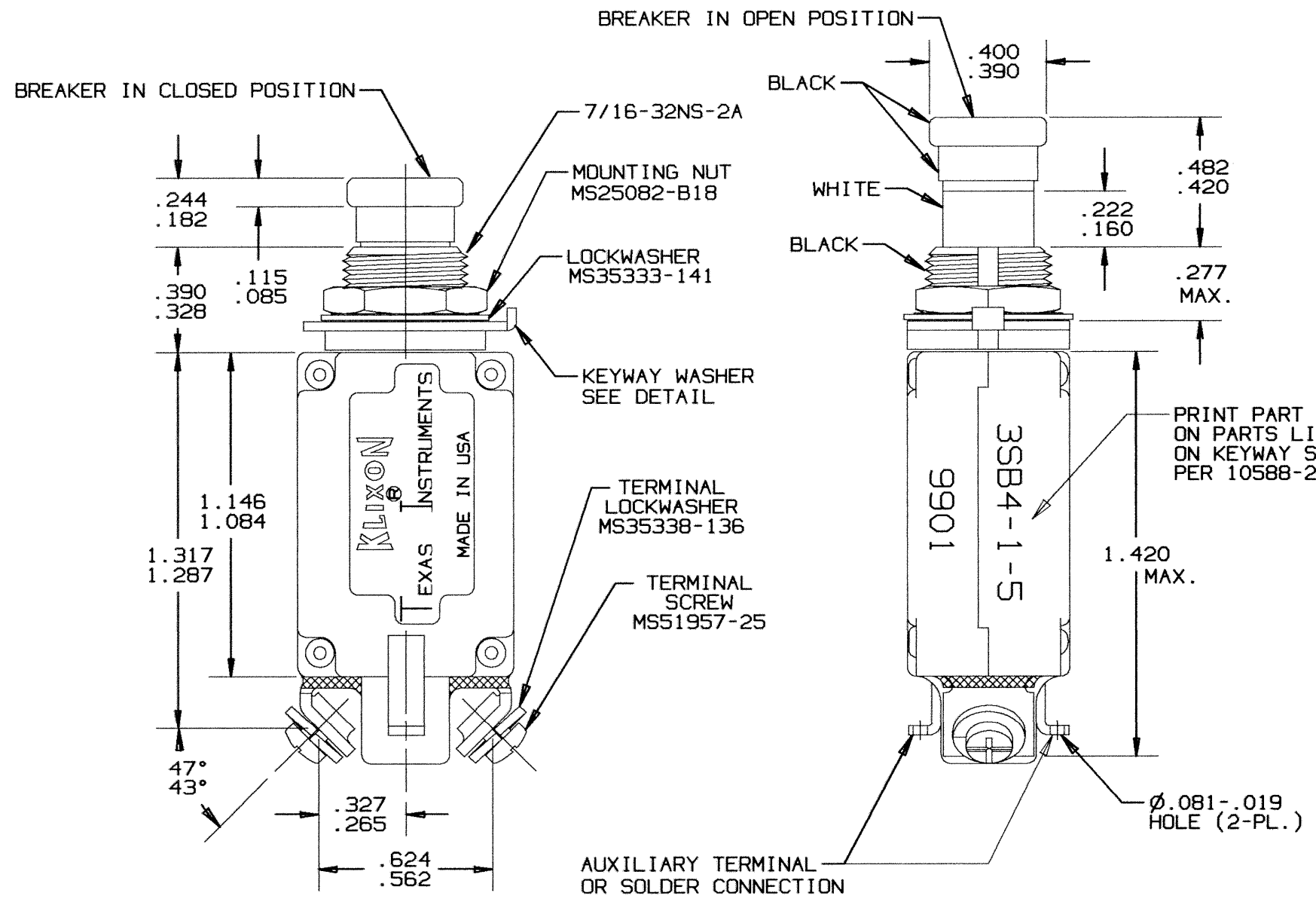
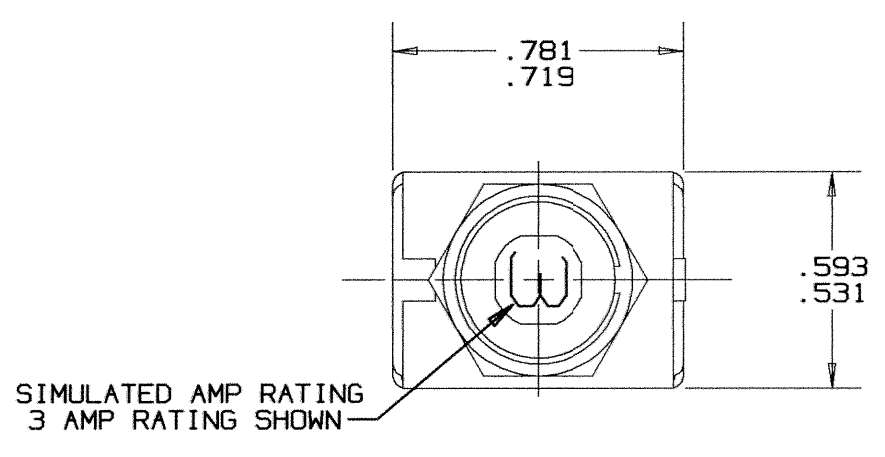
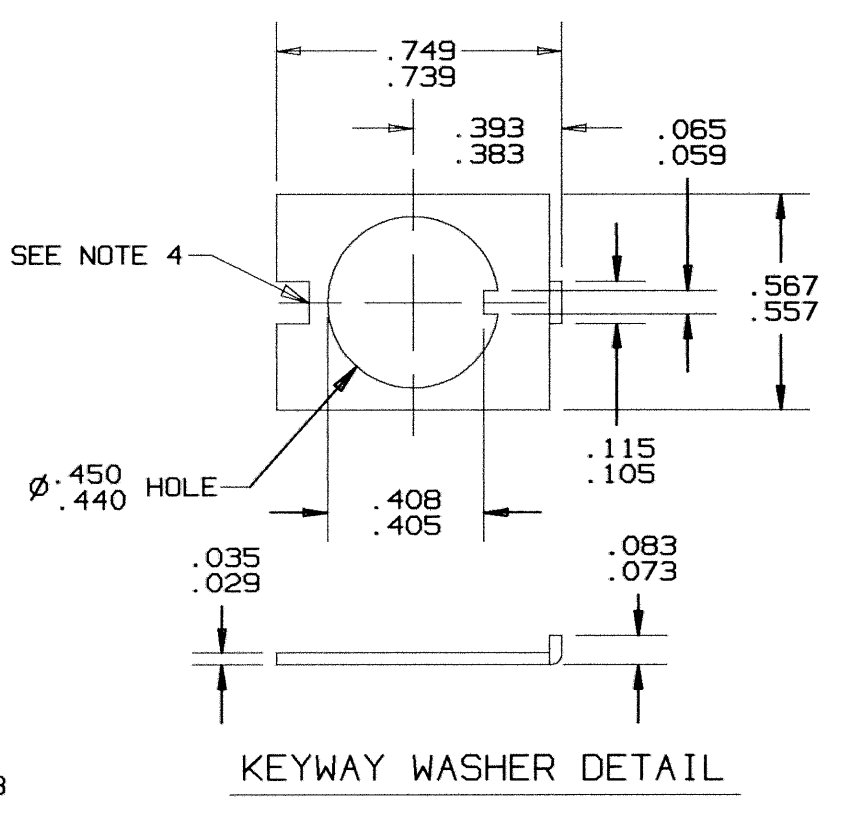
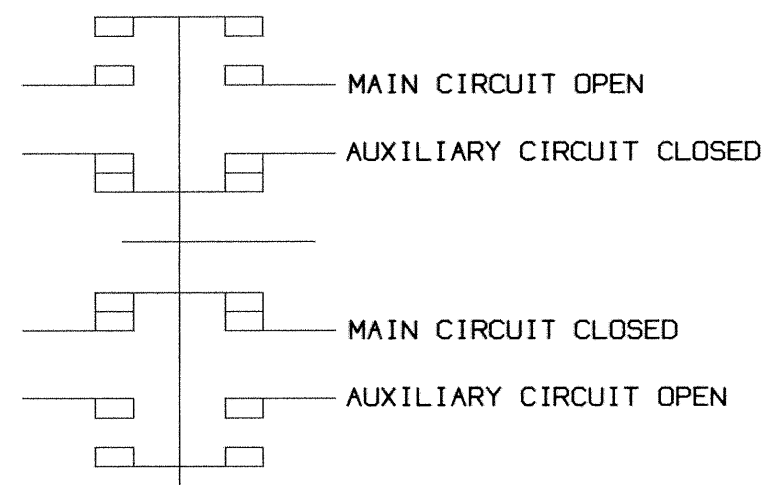
### Part Numbering Code



### Physical Characteristics

- 2 = Standard device
- 4 = Auxiliary switch
- 21 = Standard device w/cover
- 22 = Standard device w/green push button
- 24 = Auxiliary switch w/green push button
- 41 = Auxiliary switch w/cover

| REVISIONS |     |                            |               |         |          |
|-----------|-----|----------------------------|---------------|---------|----------|
| ZONE      | LTR | DESCRIPTION                | PROJ. 3457    | DATE    | APPROVED |
|           | L   | ADDED PART NO. & DATE CODE | CRM46193 D.S. | 5/20/99 | K.H.S.   |



PERFORMANCE CHARACTERISTICS

VIBRATION ----- 5 G'S MAXIMUM 50-500 HZ  
 SHOCK ----- 5 G'S MAXIMUM  
 ACCELERATION ----- 5 G'S MAXIMUM  
 ENDURANCE ----- 5000 MECHANICAL CYCLES, NO LOAD  
 ----- 5000 ELECTRICAL TRIP CYCLES AT 28 VDC  
 (POST ENDURANCE, MAXIMUM TRIP TIME IS 5 SECONDS)  
 OPERATING FORCES ----- 5LBS MAXIMUM, PULLOUT AND RESET  
 WEIGHT ----- 30 GRAMS MAXIMUM

AUXILIARY CIRCUIT ENDURANCE

|              |           |       |             |
|--------------|-----------|-------|-------------|
| 5 - 120 VAC. | INDUCTIVE | 2 AMP | 5000 CYCLES |
|              | RESISTIVE | 3 AMP | 5000 CYCLES |
| 5 - 30 VDC.  | INDUCTIVE | 3 AMP | 5000 CYCLES |
|              | RESISTIVE | 5 AMP | 5000 CYCLES |

CUSTOMER WILL SPECIFY THE AMP RATING THEY WOULD LIKE TO HAVE INDICATED ON THE PUSHBUTTON. EXAMPLE, 3SB4-1-5 SIGNIFIES A 5 AMP RATING ON THE PUSHBUTTON. A 3SB4-1-B SIGNIFIES A BLANK RATING INSERT. A 3SB4-1-N SIGNIFIES NO RATING INSERT.

CALIBRATION AT 25°C

|          |                             |                |  |
|----------|-----------------------------|----------------|--|
| 3SB4-1   | 200ma                       | 3 SECONDS      |  |
| PART NO. | MAX. CURRENT DRAW AT 28 VDC | MAX. TRIP TIME |  |

SUPERSEDES DWG. 3SB4 REV. "K", DATED 5-20-99

THIS IS A CAD DRAWING. THE GEOMETRY IN THE ASSOCIATED CAD COMPUTER FILE IS DIMENSIONALLY ACCURATE. WHEN DRAWING IS BEING REVISED, THE GEOMETRY MUST BE UPDATED IN ALL VIEWS AND ON ALL SHEETS.

NOTES:

1. ALL MOUNTING HARDWARE HAS A DULL BLACK FINISH.
2. CIRCUIT BREAKERS ARE SUITABLE FOR MOUNTING IN A 1/8" THICK PANEL OR LESS.
3. EPOXY SURFACES ARE NON-DIMENSIONED, ENVELOPE DIMENSIONS DO NOT APPLY TO THESE PROJECTED EPOXY SURFACES.
4. NON FUNCTIONAL NOTCH ON THE BACK OF THE KEYWAY WASHER IS OPTIONAL

| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES    |                | DATE    | Q13 P18  |                |
|--|----------------|---------|--|----------------|
| DRAWN  | CHAS. FLEURANT | 6-21-94 | TEXAS INSTRUMENTS<br>ATTLEBORO, MASSACHUSETTS 02703                  |                |
| ENGINEER   | K.B. GASSERS   | 6-21-94 | KLIXON<br>CONTROL PRODUCTS<br>DIVISION                               |                |
| TOLERANCE ON FRACTIONS DECIMALS ANGLES                 | APPROVED       |         | TITLE<br>3SB4 STYLE CIRCUIT BREAKER<br>PUSH-PULL<br>ENVELOPE DRAWING |                |
| MATERIAL   | APPROVED       |         | SIZE   | CODE IDENT NO. |
|  |                |         | C  | 82647          |
| SIGNATURES ON FILE. REFER TO ELECTRONIC CHANGE NOTICE. |                |         |  | 3SB4           |