Series DB
Light Touch Miniature Pushbuttons

General Specifications

Electrical Capacity (Resistive Load)
Logic Level: 0.4VA maximum @ 28V AC/DC maximum
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
Note: Find additional explanation of operating range in Supplement section.

Other Ratings
Contact Resistance: 50 milliohms maximum
Insulation Resistance: 1,000 megohms minimum @ 500V DC
Dielectric Strength: 1,000V AC minimum between contacts for 1 minute minimum;
1,500V AC minimum between contacts & case for 1 minute minimum
Mechanical Life: 200,000 operations minimum
Electrical Life: 100,000 operations minimum
Nominal Operating Force:
Single Pole: 1.96N
Double Pole: 2.94N
Travel: Pretravel .020” (0.5mm); Overtravel .020” (0.5mm); Total Travel .039” (1.0mm)

Materials & Finishes
Plunger: Brass with nickel plating
Bushing: Brass with nickel plating
Frame: Stainless steel
Case: Glass fiber reinforced polyamide
Movable Contacts: Copper with gold plating
Stationary Contacts: Phosphor bronze with gold plating
Terminals: Brass with gold plating

Environmental Data
Operating Temp Range: -10°C through +70°C (+14°F through +158°F)
Humidity: 90 ~ 95% humidity for 96 hours @ 40°C (104°F)
Vibration: 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours
Shock: 50G (490m/s²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

Installation
Mounting Torque: 1.47Nm (13.0 lb-in) for double nut; 0.68Nm (6.0 lb-in) for single nut
Cap Installation Force: 78.5N (17.65 lbf) maximum downward force on actuator

PCB Processing
Soldering: Wave Soldering Recommended. See Profile A in Supplement section.
Cleaning: These devices are not process sealed. Hand clean locally using alcohol based solution.

Standards & Certifications
The DB Series pushbuttons have not been tested for UL recognition or CSA certification.
These switches are designed for use in low-voltage, low-current, logic-level circuit.
When used as intended in a logic-level circuit, the results do not produce hazardous energy.

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Distinctive Characteristics

Both PCB and panel mounting options available.

Choice of cap sizes in .315” (8.0mm) and .394” (10.0mm) diameter cap design for simple, snap-on installation.

High torque bushing prevents rotation and separation from metal frame during installation.

Stainless steel frame resists corrosion.

Snap action contacts give smooth actuation, short stroke, light touch, and audible feedback. This mechanism also provides long mechanical life.

Molded-in terminals prevent entry of solder flux, dust, and other contaminants.

.100” x .100” (2.54mm x 2.54mm) terminal spacing conforms to standard PC board grid spacing. Round terminals for easier through-hole mounting on PC boards.
**Series DB**

**Light Touch Miniature Pushbuttons**

### Typical Switch Ordering Example

**DB25**

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Normal Plunger Position</th>
<th>Connected Terminals</th>
<th>Throw &amp; Switch Schematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>DB2511</td>
<td>ON (ON)</td>
<td>3-1 3-2</td>
<td>SPDT 1 2</td>
</tr>
<tr>
<td>DP</td>
<td>DB2521</td>
<td>ON (ON)</td>
<td>3-1 6-4 3-2 6-5</td>
<td>DPDT 1 2 3 (COM) 6 5</td>
</tr>
</tbody>
</table>

**Notes:**
- Terminal numbers are not actually on the switch.

### PC Terminals

- **Threaded Bushing**
  - P Straight
- **Smooth Bushing**
  - B Straight with Bracket
  - H Right Angle with Bracket
  - V Vertical with Bracket

**DESCRIPTION FOR TYPICAL ORDERING EXAMPLE**

DB2521B with AT443E Cap

Yellow .315" (8.0mm) Diameter Cap

DPDT ON-(ON) Circuit

Smooth Bushing & Straight PC Terminals with Bracket

**Poles & Circuits**

<table>
<thead>
<tr>
<th>Poles &amp; Circuits</th>
<th>PC Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 SPDT ON (ON)</td>
<td>P Straight</td>
</tr>
<tr>
<td>21 DPDT ON (ON)</td>
<td>B Straight with Bracket</td>
</tr>
</tbody>
</table>

( ) = Momentary
**Light Touch Miniature Pushbuttons**

**TYPICAL SWITCH DIMENSIONS**

**Series DB**

**Single Pole**

- **Straight PC**
  - DB2511P with AT443C

**Double Pole**

- **Straight PC**
  - DB2521P with AT442A
  - DB2521B with AT443E

**Single Pole**

- **Straight PC with Bracket**
  - DB2511B with AT442C

**Double Pole**

- **Straight PC with Bracket**
  - DB2521B with AT443E

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TYPICAL SWITCH DIMENSIONS

Right Angle PC with Bracket

Single Pole

DB2511H with AT442B

Right Angle PC with Bracket

Double Pole

DB2521H with AT442A

Vertical PC with Bracket

Single Pole

DB2511V with AT443C

Vertical PC with Bracket

Double Pole

DB2521V with AT443C
OPTIONAL CAPS & COLORS

AT443
.315" (8.0mm) Diameter Snap-on Cap

Cap Colors Available:

<table>
<thead>
<tr>
<th>Cap Color</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Black</td>
</tr>
<tr>
<td>B</td>
<td>White</td>
</tr>
<tr>
<td>C</td>
<td>Red</td>
</tr>
</tbody>
</table>

AT442
.394" (10.0mm) Diameter Snap-on Cap

Cap Colors Available:

<table>
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<tr>
<td>A</td>
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<td>White</td>
</tr>
<tr>
<td>C</td>
<td>Red</td>
</tr>
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</table>

Cap Material: Polycarbonate  Finish: Glossy

HARDWARE

Standard Hardware

AT513M
Metric Hexagon Nut

Material: Brass with Nickel Plating

AT509
Lockwasher

Material: Steel with Zinc/Chromate

Optional Hardware

AT507M
Metric Locking Ring

Material: Steel with Zinc/Chromate

AT501M
Metric Knurled Face Nut

Material: Brass with Chrome Plating

INSTALLATION/ASSEMBLY

2 AT513M Metric Hexagon Nuts
1 AT509 Internal Tooth Lockwasher

With Standard Hardware

Without Bottom Hex Nut

With Standard Hardware & Optional Locking Ring

Note: Cap must be snapped on after the switch is mounted into the panel.

PANEL CUTOUTS & THICKNESSES

Maximum Effective Panel Thickness:

With Standard Hardware & Optional Locking Ring: .087" (2.2mm)

Maximum Effective Panel Thickness:

Without Bottom Hex Nut: .185" (4.7mm)

Maximum Effective Panel Thickness:

With Standard Hardware: .118" (3.0mm)