Easy Build-A-Switch

Below is a complete listing of available options for E SERIES SEALED TOGGLE SWITCHES. Build-A-Switch allows you to mix and match options to create the switch you need—simply select desired option from each category. Switches with standard options are shown on page A-27; all available options are shown and described on pages A-28 thru A-37. When building a part number, some ordering format boxes may not be filled. Dashes, hyphens or spaces in the part number are not significant and are shown for clarity only. Complete HOW TO ORDER information is at the end of this section, page A-37. Hardware and accessories are available separately, see section K. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

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<th>TERMINATIONS</th>
<th>CONTACT MATERIAL</th>
<th>SEAL</th>
<th>ACTUATOR COLOR</th>
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<td>A</td>
<td>V61</td>
<td>B</td>
<td>E (NONE)</td>
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<tr>
<td>E103</td>
<td>M</td>
<td>D9</td>
<td>A3</td>
<td>V71</td>
<td>G</td>
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<td>E105</td>
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<td>F1</td>
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<td>Y</td>
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<td>V91</td>
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<td>AV4</td>
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<td>AV5</td>
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</table>
### SWITCHES WITH STANDARD OPTIONS

#### SPDT Model

Part No. Shown: E101SD1CBE

- Terminal Nos. (For Reference Only)

#### DPDT Model

Part No. Shown: E201SD1CBE

- Terminal Nos. (For Reference Only)

#### 3PDT Model

Part No. Shown: E301SD1CBE

- Terminal Nos. (For Reference Only)

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*Process sealed— withstands soldering and cleaning processes.*
### SWITCH FUNCTION

<table>
<thead>
<tr>
<th>NO. POLES</th>
<th>MODEL NO.</th>
<th>SWITCH FUNCTION</th>
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<td>E211**</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
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<td>E213**</td>
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<td>E215**</td>
<td>MOM.</td>
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</tbody>
</table>

MOM. = Momentary

All models with all options when ordered with G, L, M or Q contact material.

See AGENCY APPROVALS, page VIII.

** Wiring for 3-way switch, see page X.

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### ACTUATOR COLOR

#### S

- **1**: WHITE
- **2**: BLACK (Std.)
- **3**: RED

#### M

- **1**: WHITE
- **2**: BLACK (Std.)
- **3**: RED

#### L3 PLASTIC

- **1**: WHITE
- **2**: BLACK (Std.)
- **3**: RED

Other colors available, consult factory.

No color choice required for S & M actuators.

---

*Actuators shown with standard D1 bushing. Subtract .030 (0.76) for D9 bushing. Subtract .100 (2.54) for Y bushing.*
**BUSHING**

**D1** (STD.)

**F1** ESD RESISTANT CONDUCTIVE BUSHING

![Image of D1 bushing]

**D9**

**Y**

ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

E3XX models not available with D9 bushing.

Available only with C, Z, Z3, W-W5 terminations.

Hardware: One dress nut P/N 780701201, one hex nut and lockwasher supplied standard.

**TERMINATIONS**

**Z** (STD.)

SPDT thru 3PDT Models

![Image of Z termination]

**Z3** QUICK CONNECT

SPDT thru 3PDT Models

![Image of Z3 termination]

**W, W1, W3, W4, W5** WIRE WRAP

SPDT thru 3PDT Models

![Image of W termination]

**NOTE:** B contact material standard. Not available with F1 conductive bushing or K, L or M contact material.

**NOTE:** Internal o-ring actuator seal standard for all bushing options.

**NOTE:** B contact material standard. Not available with F1 conductive bushing or K, L or M contact material.

**NOTE:** B contact material standard. Not available with F1 conductive bushing or K, L or M contact material.

**NOTE:** B contact material standard. Not available with F1 conductive bushing or K, L or M contact material. Mating quick connector available; order P/N: 530100000.

**NOTE:** B contact material standard. Not available with F1 conductive bushing.

**NOTE:** B contact material standard. Not available with F1 conductive bushing.
Sealed* Toggle Switches

*Process sealed—withstands soldering and cleaning processes.

**TERMINATIONS**

**SPDT Model**

Part No. Shown: E101MD1ABE

**NOTE:** Terminal bend radii and lead-in manufacturing option. B contact material standard. Not available with Y bushing.

**A3 SNAP-IN**

**AW, AW1, AW3, AW4, AW5**

**EXTENDED**

<table>
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<th>DIM 'A'</th>
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<tbody>
<tr>
<td>AW</td>
<td>.50 (12.7)</td>
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<tr>
<td>AW1</td>
<td>.72 (18.3)</td>
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<tr>
<td>AW3</td>
<td>.20 (5.1)</td>
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<tr>
<td>AW4</td>
<td>.83 (21.1)</td>
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<tr>
<td>AW5</td>
<td>1.08 (27.4)</td>
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</tbody>
</table>

**PC MOUNTING**

**DPDT Model**

Part No. Shown: E201MD1ABE

**NOTE:** Terminal bend radii and lead-in manufacturing option. B contact material standard. Not available with Y bushing.

**A3 SNAP-IN**

**AW, AW1, AW4, AW5**

**EXTENDED**

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<th>OPTION CODE</th>
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<td>AW</td>
<td>.21 (5.3)</td>
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<td>.42 (10.7)</td>
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<td>AW4</td>
<td>.52 (13.2)</td>
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<td>AW5</td>
<td>.76 (19.3)</td>
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</table>

**PC MOUNTING**

COMPONENTS, INC.  57 Stanley Avenue, Watertown, MA 02172  Tel: (617) 926-6400  Fax: (617) 926-6846  Sales: (800) 635-5936
**TERMINATIONS**

### 3PDT Model

**Part No. Shown:** E101MD1RBE

**NOTE:** Contact makes on same side actuator thrown. Available with B contact material only. Not available with Y bushing.

### R2

**Part No. Shown:** E101MD1R2BE

**NOTE:** Contact makes on opposite side actuator thrown. Available with B contact material only. Not available with Y bushing.

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**AW4, AW5** EXTENDED

**Part No. Shown:** E301MD1ABE

**NOTE:** Terminal bend radii and lead-in manufacturing option. B contact material standard. Not available with D9 & Y bushings.

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**PC MOUNTING**

**NOTE:** Terminal Nos. For Reference Only

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Sealed* Toggle Switches

TERMINATIONS

AV2

NOTE: Terminal bend radii and lead-in manufacturing option.
B contact material standard. Not available with Y bushing.

SPDT Model

Part No. Shown: E101MD1AV2BE

AV3 SNAP-IN

AV1, AV4, AV5 EXTENDED

DPDT Model

Part No. Shown: E201MD1AV2BE

NOTE: Terminal bend radii and lead-in manufacturing option.
B contact material standard. Not available with Y bushing.

TERMINATIONS

AV2

Actuator Shown In Pos. 1

Av1, Av4, Av5

SECTION A-A

Terminals Nos. For Reference Only

NOTE: Terminal bend radii and lead-in manufacturing option.
B contact material standard. Not available with Y bushing.

Av3 Snap-in

Av1, Av4, Av5 Extended

PC Mounting

Option Code
DIM 'A'

AV1 .15 (3.8)
AV4 .25 (6.4)
AV5 .49 (12.4)

SECTION A-A

Terminals Nos. For Reference Only

NOTE: Terminal bend radii and lead-in manufacturing option.
B contact material standard. Not available with Y bushing.

Av2

Actuator Shown In Pos. 1

Av1, Av4, Av5

PC Mounting

Option Code
DIM 'A'

AV1 .15 (3.8)
AV4 .25 (6.4)
AV5 .49 (12.4)
Sealed* Toggle Switches

*Process sealed—withstands soldering and cleaning processes.

**TERMINATIONS**

AV2

3PDT Model

Note: Terminal bend radii and lead-in manufacturing option. B contact material standard. Not available with D9 & Y bushings.

AV3 SNAP-IN

AV1, AV4, AV5 EXTENDED

V2, V6, V7, V8 REPLACES V20, V60, V70, V80

V21, V61, V71, V81 SNAP-IN

**SECTION A-A**

Part No. Shown: E301MD1AV2BE

PC MOUNTING

**NOTE**

Actuator Shown In Pos. 1

Terminal Nos. For Reference Only

Component Shown In Pos. 1

Terminal Nos. For Reference Only

Part No. Shown: E101MD1__BE

PC MOUNTING

**NOTE**

B contact material standard. Not available with Y bushing.

**OPTION CODE**

**DIM ‘A’**

AV2

AV4

AV5

AV1

AV

AV

AV

**OPTION CODE**

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

AV

AV

AV

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

AV

AV

AV

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81

**DIM ‘A’**

V2, V21

V6, V61

V7, V71

V8, V81
Sealed* Toggle Switches

TERMINATIONS

V2, V6, V7, V8

Part No. Shown: E201MD1__BE

Actuator Shown In Pos. 1
Terminal Nos. For Reference Only

NOTE: B contact material standard.
Not available with Y bushing.

PC MOUNTING

V21, V61, V71, V81

SNAP-IN

DPDT Model

3PDT Model

V2, V7, V8

Part No. Shown: E301MD1__BE

Actuator Shown In Pos. 1
Terminal Nos. For Reference Only

NOTE: B contact material standard.
Not available with D9 & Y bushings.

OPTION CODE DIM 'A'

V2, V21 .555 (14, 10)
V6, V61 .460 (11, 68)
V7, V71 .630 (16, 00)
V8, V81 .953 (24, 21)

OPTION CODE DIM 'A'

V2, V21 .555 (14, 10)
V7, V71 .630 (16, 00)
V8, V81 .953 (24, 21)
**TERMINATIONS**

**V3, V4, V9**
- REPLACES V30, V40, V90
- Actuator Shown In Pos. 1
- Terminal Nos. For Reference Only
- Part No. Shown: E101MD1__BE

**V31, V41, V91**
- SNAP-IN
- Actuator Shown In Pos. 1
- Terminal Nos. For Reference Only
- Part No. Shown: E201MD1__BE

**NOTES:**
- B contact material standard.
- Not available with Y bushing.

**OPTION CODE**

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<td>.630 (16.00)</td>
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**OPTION CODE**

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<td>.630 (16.00)</td>
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<td>V9, V91</td>
<td>1.150 (29.21)</td>
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**PC MOUNTING**

**NOTE:**
- B contact material standard.
- Not available with Y bushing.

**SPDT Model**

**DPDT Model**
E Series
Sealed* Toggle Switches

TERMINATIONS

V4, V9 REPLACES V40, V90

PC MOUNTING

V41, V91 SNAP-IN

3PDT Model

CONTACT MATERIAL

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<th>CONTACT MATERIAL</th>
<th>TERMINAL PLATING</th>
<th>RATINGS</th>
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<tr>
<td>B</td>
<td>GOLD 1</td>
<td>GOLD 1</td>
<td>LOW LEVEL / DRY CIRCUIT</td>
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</table>
| K       | SILVER 4,5       | SILVER 5         | POWER | E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
|         |                   | TIN-LEAD 6       |        | E3XX MODELS: 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC. |
| M       | SILVER 2,3       | GOLD 3           | LOW LEVEL / DRY CIRCUIT OR POWER | E1XX AND E2XX MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 7.5 AMPS @ 125 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
| L       | GOLD OVER SILVER | TIN-LEAD 6       |        | E3XX MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC. |

CONTACT MATERIAL / APPLICATION RECOMMENDATIONS – SEE CHART, PAGE X.

1 CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
2 END CONTACTS: Coin silver, with gold plate over nickel plate.
3 CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
4 END CONTACTS: Coin silver, silver plated.
5 CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.
6 TERMINALS: Copper alloy, with tin-lead alloy over nickel plate.

All models with all options when ordered with G, L, M or Q contact material.
See AGENCY APPROVALS, page VIII.
B contact material standard with all terminations.
B contact material must be ordered with R & R2 terminations.
K, L & M contact materials not available with Z & Z3 terminations.

NOTE: B contact material standard. Not available with D9 & Y bushings.

COMPONENTS, INC. 57 Stanley Avenue, Watertown, MA 02172 Tel: (617) 926-6400 Fax: (617) 926-6846 Sales: (800) 635-5936
Sealed* Toggle Switches

*Process sealed—w withstands soldering and cleaning processes.

**E** (STD.)

**HOW TO ORDER**

All available E SERIES SEALED TOGGLE SWITCH options are listed on page A-26 and are described on pages A-28 thru A-37. Switches with standard options are shown on page A-27. When selecting options and building a part number, some ordering format boxes may not be filled. Dashes, hyphens or spaces in the part number are not significant, and are shown for clarity only. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods. Hardware and accessories are available separately, see section K.

**SPECIFICATIONS**

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max. (B contact material).

ELECTRICAL LIFE: E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 cycles.

CONTACT RESISTANCE: Below 10 milliohms typ. initial @ 2–4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10^9 ohms min.

ELECTROSTATIC DISCHARGE (ESD) RESISTANT OPTION: F1 conductive bushing only. Dissipates up to 20,000 V DC from actuator to ground.

DIELECTRIC STRENGTH: 1000 V RMS min. @ sea level.

OPERATING TEMPERATURE: –30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

**MATERIALS**

CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.

ACTUATOR: Brass, chrome plated with internal o-ring seal standard.

SWITCH SUPPORT: Brass or steel, tin plated.

SWITCH SUPPORT RETAINER: Stainless steel.

CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate (B contact material).

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & Locking ring: Brass, nickel plated.

Lockwasher: Steel, nickel plated.

**NOTE**: Specifications and materials listed above are general specifications for switches with standard options. For information on specific and custom switches, consult factory.