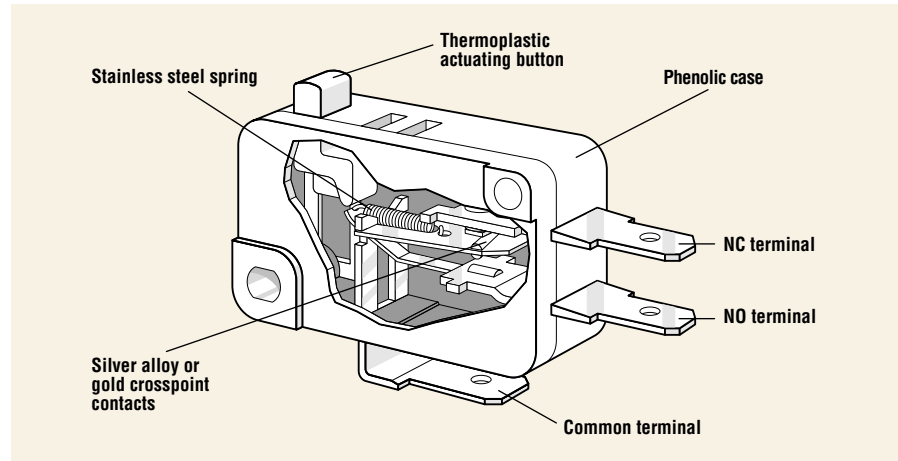


MINIATURE E Series

Features

- 8 current ratings AC
- 3 current ratings DC
- Choice of actuator styles
- Choice of terminals
- 3 contact arrangements
- Long-life coil spring mechanism
- Agency approved extended life versions
- High-temperature versions available



Electrical Ratings

| Switch Series | EN61058 Rating | UL1054 Rating | Electrical Life at Rated Load | |
|---------------|----------------|--|------------------------------------|-----------------------------------|
| | | | According to VDE (Min. Operations) | According to UL (Min. Operations) |
| E21 | N/A | 0.1A, 125VAC (0.25A, 30VDC optional) | N/A | 6,000** |
| E22 | N/A | 3A, 125/250VAC 1/10HP, 250VAC (0.1A, 125VDC optional) | N/A | 6,000 |
| E23 | N/A | 5A, 1/4HP, 125/250VAC | N/A | 6,000 |
| E31 | N/A | 1A, 125VAC | N/A | 6,000 |
| E33 | N/A | 10A, 1/2HP, 125/250VAC (6A, 30VDC optional) | N/A | 6,000** |
| E34 | N/A | 15A, 1/2HP, 125/250VAC | N/A | 6,000* |
| E35 | N/A | 20.1A, 1/2HP, 125/250VAC | N/A | 6,000 |
| E36 | N/A | 25A, 125/250VAC; 1HP, 125VAC 2HP, 250VAC | N/A | 6,000 |

*Indicates 100K life available for AC version only.

**Indicates 100K life available for AC and DC versions.

Specifications

Electrical

Temperature Rating: -40° to +85°C (130°C and 150°C optional, except E36)

Flammability Rating: UL94HB

Materials

Case: General Purpose Phenolic

Actuating Button: Thermoplastic Acetal

Common Terminals: Silver-Plated Brass (E21, E22, E23, E31, E33, E34, E35)
Silver-Plated Copper (E36)

NO & NC Terminals: Brass (E21, E22, E23, E31, E33, E34, E35)
Copper (E36)

Moving Blade: Brass (E21, E22, E23)
Silver-Plated Beryllium Copper (E31, E33, E34, E35, E36)

Spring: Stainless Steel

Auxiliary Actuator: Cold-Rolled Steel (Nickel-Plated)
(except E21 and E22 – Aluminum)

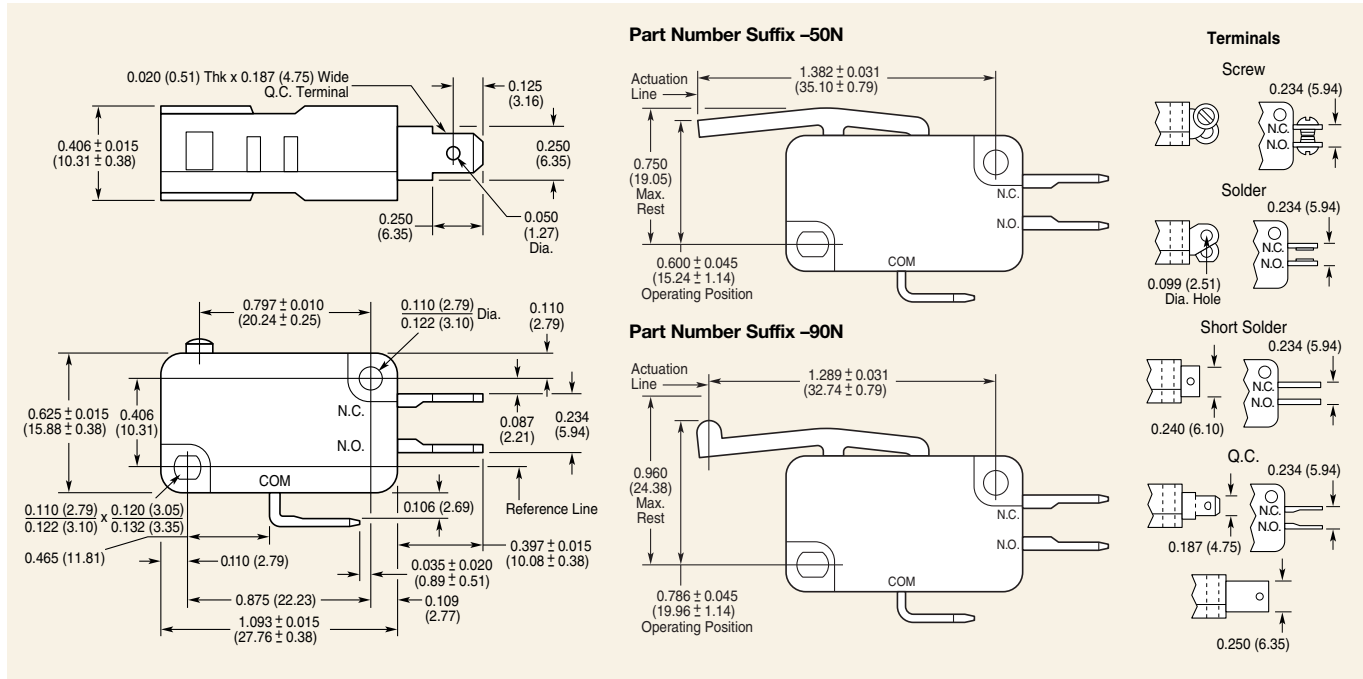
Roller: Sintered Stainless Steel

Contacts: Silver Alloy (except E21 and E31 – Gold Crosspoint)



US (E34 and E35 only)

Dimensions — Standard Force inches (mm)



Actuator Specifications — Standard Force

| Actuator Type | Switch Type | Max. Operating Force (gms.) | | | | | Maximum Pre-Travel inches (mm) | Operating Point* inches (mm) | Minimum Over-Travel inches (mm) | Max. Movement Differential inches (mm) | Actuation Length** inches (mm) |
|---------------|-------------|-----------------------------|----------|-----|-----|--------------|--------------------------------|------------------------------|---------------------------------|--|--------------------------------|
| | | E21, E22 | E23, E31 | E33 | E34 | | | | | | |
| -00A | | 75 | 170 | 285 | 400 | 0.047 (1.19) | 0.578±0.020 (14.68±0.51) | 0.050 (1.27) | 0.010 (0.25) | — | |
| -00H | | 75 | 170 | 285 | 400 | 0.062 (1.57) | 0.600±0.020 (15.24±0.51) | 0.050 (1.27) | 0.016 (0.41) | 0.865 (21.97) | |
| -50H | | 35 | 86 | 144 | 200 | 0.125 (3.18) | 0.600±0.045 (15.24±1.14) | 0.085 (2.16) | 0.030 (0.76) | 1.400 (35.56) | |
| -50HL | | 20 | 51 | 86 | 120 | 0.220 (5.59) | 0.600±0.075 (15.24±1.91) | 0.130 (3.30) | 0.040 (1.02) | 1.580 (40.13) | |
| -00K | | 75 | 170 | 285 | 400 | 0.047 (1.19) | 0.806±0.030 (20.47±0.76) | 0.040 (1.02) | 0.010 (0.25) | 0.810 (20.57) | |
| -50K | | 35 | 86 | 144 | 200 | 0.125 (3.18) | 0.806±0.045 (20.47±1.14) | 0.085 (2.16) | 0.030 (0.76) | 1.340 (34.04) | |
| -50KL | | 25 | 51 | 86 | 120 | 0.200 (5.08) | 0.806±0.075 (20.47±1.91) | 0.120 (3.05) | 0.040 (1.02) | 1.516 (38.51) | |
| -50P | | 35 | 86 | 144 | 200 | 0.125 (3.18) | 1.045±0.045 (26.54±1.14) | 0.085 (2.16) | 0.030 (0.76) | 1.340 (34.04) | |
| -50N† | | 35 | 86 | 144 | 200 | 0.175 (4.45) | 0.600±0.045 (15.24±1.14) | 0.065 (1.65) | 0.030 (0.76) | 1.382 (35.10) | |
| -90N† | | 35 | 86 | 144 | 200 | 0.125 (3.18) | 0.793±0.058 (20.14±1.47) | 0.085 (2.16) | 0.030 (0.76) | 1.289 (32.74) | |

*Measured above reference line. Refer to dimensional drawing above. **Actuator tolerance ± 0.031 inches (0.79mm).

†Only available with 85°C temperature rating.

Note: E35 and E36 not available in standard force. See Miniature E Series Light Force for ordering information. Suffix numbers shown represent switch with 0.187" (4.75mm) terminals.

Mounting — Standard Force

Recommended mounting screw size: #4-40 round head. Recommended torque on screw: 3 inch lbs. max.

Ordering Information

Select the current rating you need. Combine the corresponding Series/Prefix number with the appropriate suffix number for the switch type, circuitry and terminals you require.

Circuitry — Standard Force

Contact arrangement available in choice of single pole double throw or single pole single throw, either normally open or normally closed. In general normally open may be specified by changing suffix number from 00 to 01 and normally closed by changing suffix number to 02.

Terminals — Standard Force

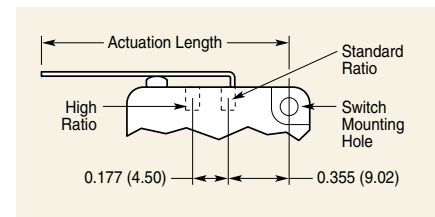
Choice of screw, solder or two quick connect terminals.

Note: 0.187" Quick Connect terminals are standard. Normally, to order screw terminals add 10 to suffix number. To order solder terminals add 20 to suffix number and to order 0.250" Q.C. terminals add 40 to suffix number.

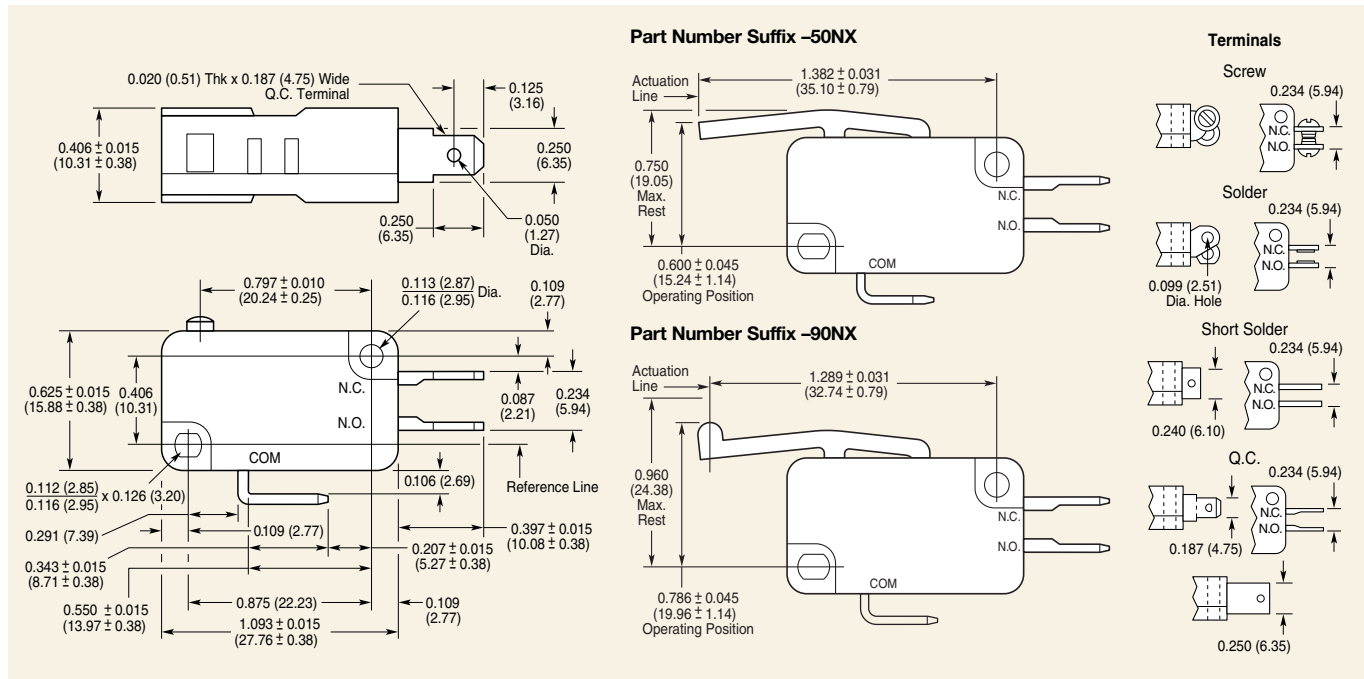
| Terminal | SPDT | SPST NO | SPST NC |
|--------------|------|---------|---------|
| QC 0.187" | -00A | -01A | -02A |
| Screw | -10A | -11A | -12A |
| Solder | -20A | -21A | -22A |
| Short Solder | -30A | -31A | -32A |
| QC 0.250" | -40A | -41A | -42A |

Actuators — Standard Force

Many special forms and lengths of actuators are available. Standard type integral hinged lever and roller actuators are available in choice of 2 mounting positions. Actuation lengths are dimensioned from centerline of switch mounting hole as shown.



Dimensions — Light Force inches (mm)



Actuator Specifications — Light Force

| Actuator Type | Switch Type | Max. Operating Force (gms.) | | | | | | Maximum Pre-Travel inches (mm) | Operating Point* inches (mm) | Minimum Over-Travel inches (mm) | Maximum Movement Differential inches (mm) | Actuation Length** inches (mm) |
|---------------|-------------|-----------------------------|----------|-----|-----|-----|-----|--------------------------------|------------------------------|---------------------------------|---|--------------------------------|
| | | E21, E22 | E23, E31 | E33 | E34 | E35 | E36 | | | | | |
| -00AX | | 15 | 45 | 75 | 100 | — | — | 0.047 (1.19) | 0.578±0.020 (14.68±0.51) | 0.050 (1.27) | 0.010 (0.25) | — |
| -00HX | | 15 | 45 | 75 | 100 | — | — | 0.062 (1.57) | 0.600±0.020 (15.24±0.51) | 0.050 (1.27) | 0.016 (0.41) | 0.865 (21.97) |
| -50HX | | 8 | 22 | 37 | 50 | — | — | 0.125 (3.18) | 0.600±0.045 (15.24±1.14) | 0.085 (2.16) | 0.030 (0.76) | 1.400 (35.56) |
| -75HX | | 5 | 14 | 22 | 30 | — | — | 0.220 (5.59) | 0.600±0.075 (15.24±1.91) | 0.130 (3.30) | 0.040 (1.02) | 1.580 (40.13) |
| -50KX | | 8 | 22 | 37 | 50 | — | — | 0.125 (3.18) | 0.806±0.045 (20.47±1.14) | 0.085 (2.16) | 0.030 (0.76) | 1.340 (34.04) |
| -75KX | | 5 | 14 | 22 | 30 | — | — | 0.200 (5.08) | 0.806±0.075 (20.47±1.91) | 0.120 (3.05) | 0.040 (1.02) | 1.516 (38.51) |
| -55HX | | 4 | 10 | 17 | 22 | — | — | 0.300 (7.62) | 0.600±0.100 (15.24±2.54) | 0.187 (4.75) | 0.065 (1.65) | 2.757 (70.03) |
| -85HX | | 2 | 6 | 10 | 13 | — | — | 0.500 (12.70) | 0.600±0.175 (15.24±4.45) | 0.312 (7.92) | 0.100 (2.54) | 2.932 (74.47) |
| -50NX* | | 8 | 22 | 37 | 50 | 65 | 112 | 0.175 (4.45) | 0.600±0.045 (15.24±1.14) | 0.065 (1.65) | 0.030 (0.76) | 1.382 (35.10) |
| -90NX* | | 8 | 22 | 37 | 50 | 65 | 112 | 0.125 (3.18) | 0.793±0.058 (20.14±1.47) | 0.085 (2.16) | 0.030 (0.76) | 1.289 (32.74) |
| -40AX | — | — | — | — | — | 120 | 220 | 0.070 (1.78) | 0.557±0.020 (14.15±0.51) | 0.035 (0.89) | 0.010 (0.25) | — |

*Measured above reference line. Refer to dimensional drawing above. **Actuator tolerance ±0.031 inches (0.79mm).
 †Only available with 85°C temperature rating.
 Note: Suffix numbers shown represent switch with 0.187" (4.75mm) terminals.

Mounting — Light Force

Recommended mounting screw size: #4-40 round head. Recommended torque on screw: 3 inch lbs. max.

Ordering Information

Select the current rating you need. Combine the corresponding Series/Prefix number with the appropriate suffix number for the switch type, circuitry and terminals you require.

Specifications subject to change without notice.

Circuitry — Light Force

Contact arrangement available in choice of single pole double throw or single pole single throw, either normally open or normally closed. In general normally open may be specified by changing suffix number from 00 to 01 and normally closed by changing suffix number to 02.

Terminals — Light Force

Choice of screw, solder or two quick connect terminals.

Note: 0.187" Quick Connect terminals are standard. Normally, to order screw terminals add 10 to suffix number. To order solder terminals add 20 to suffix number and to order 0.250" Q.C. terminals add 40 to suffix number.

Exception: When ordering -55HX, -75HX, -75KX or -85HX switches with screw, solder or 0.250" terminals, consult factory.

| Terminal | SPDT | SPST NO | SPST NC |
|--------------|-------|---------|---------|
| QC 0.187" | -00AX | -01AX | -02AX |
| Screw | -10AX | -11AX | -12AX |
| Solder | -20AX | -21AX | -22AX |
| Short Solder | -30AX | -31AX | -32AX |
| QC 0.250" | -40AX | -41AX | -42AX |

*E35 and E36 only available with 0.250" (6.35) terminals.

Actuators — Light Force

Many special forms and lengths of actuators are available. Standard type integral hinged lever and roller actuators are available in choice of 2 mounting positions. Actuation lengths are dimensioned from centerline of switch mounting hole as shown.

