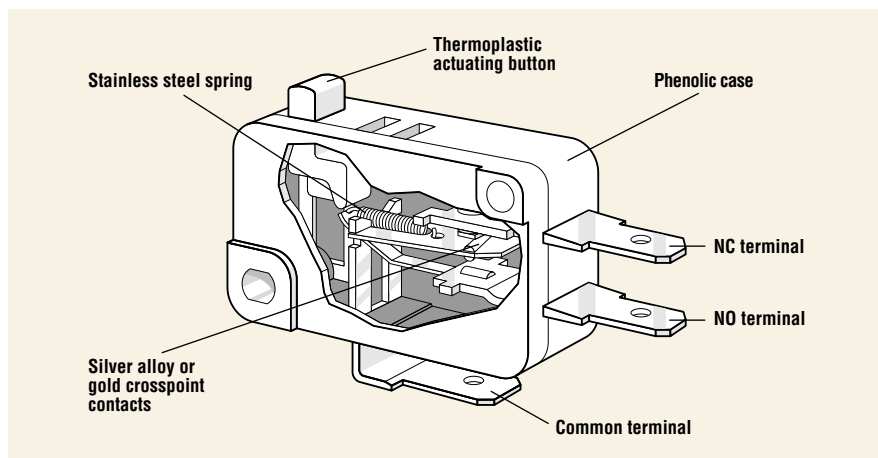


# MINIATURE E Series

## 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

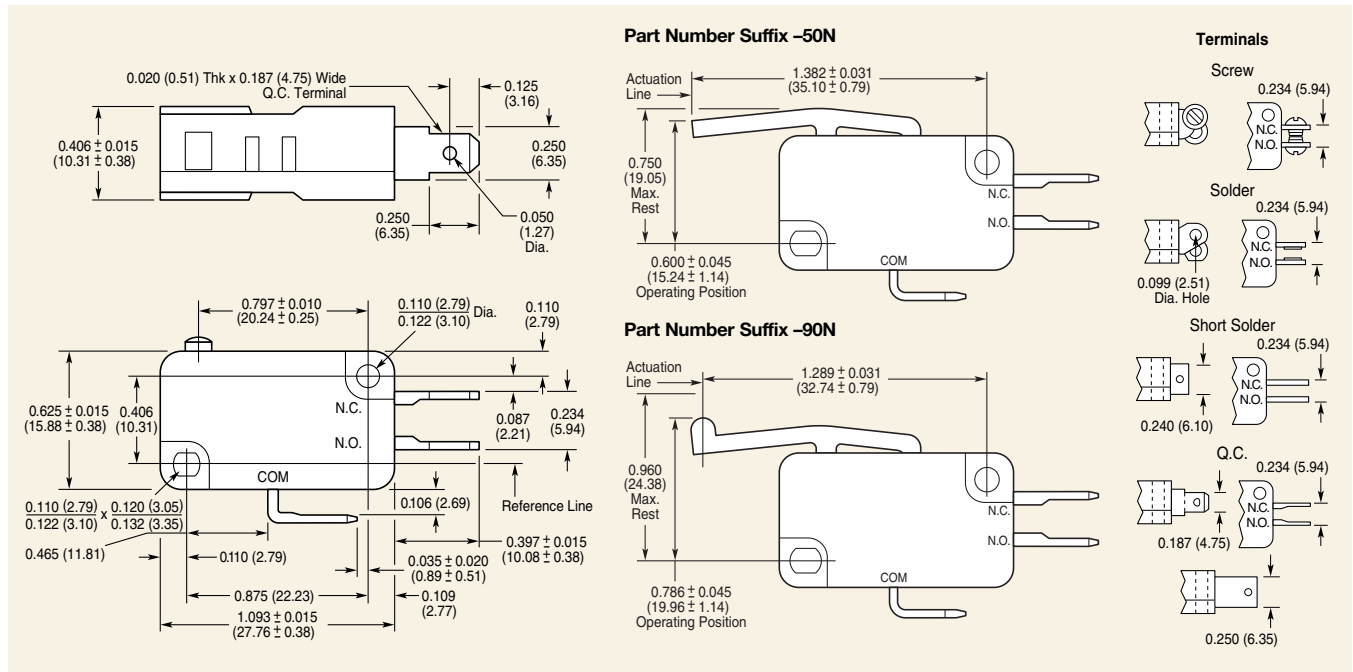
### Materials

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

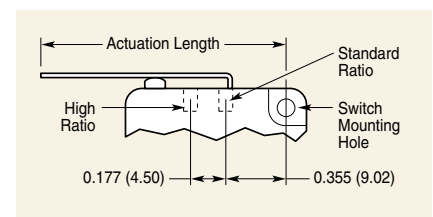
Choice of screw, solder or two quick connect terminals.

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.

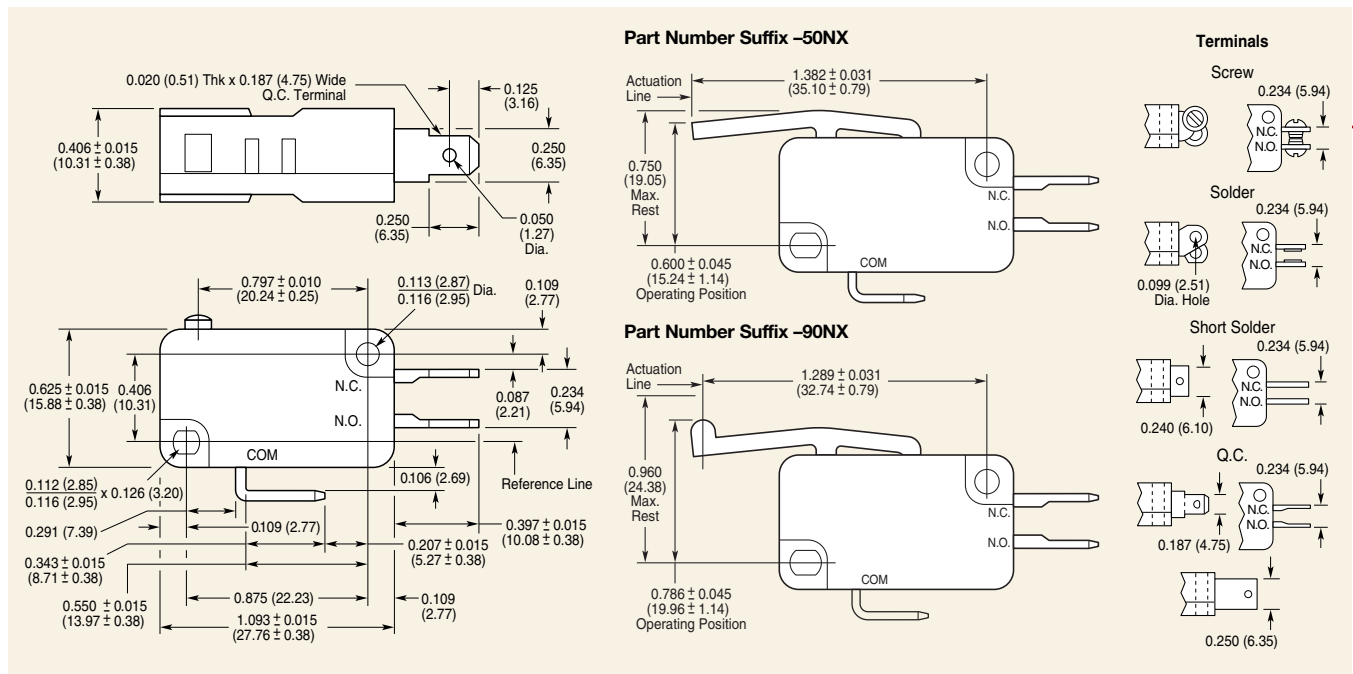
Terminal	SPDT	SPST NO	SPST NC
QC 0.187"	-00A	-01A	-02A
Screw	-10A	-11A	-12A
Solder	-20A	-21A	-22A
Short Solder	-30A	-31A	-32A
QC 0.250"	-40A	-41A	-42A

## 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±1.91)	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.

## 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.

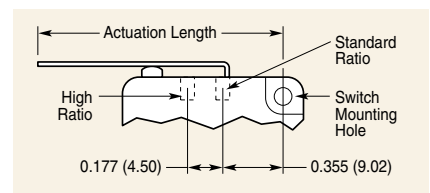
Exception: When ordering -55HX, -75HX, -75KX or -85HX switches with screw, solder or 0.250" terminals, consult factory.

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.



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