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Sensing and Control  
**Interactive  
Catalog...**

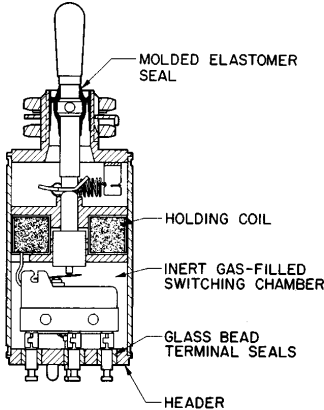
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**Sensing and Control**  
Honeywell Inc.  
11 West Spring Street  
Freeport, IL 61032



# Manual Switches

## Magnetically Held Toggle Switches



**FEATURES**

- Most listings qualified to MIL-S-5594
- Environment-proof sealing
- 2 and 3 position magnetically maintained toggle action
- Standard, tab, and pull-to-unlock levers
- Turret, leadwire, and screw terminals
- Temperature range: -85°F to +160°F (-65°C to +71°C)

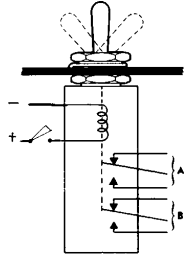
**PRINCIPLE OF OPERATION**

A holding coil in ET toggle switches replaces mechanical holding mechanisms to maintain the toggle in an operate position. The toggle is released by breaking the coil circuit.

er will be held (maintained) in the operate position. De-energizing the coil causes the lever to snap back to the unoperated position. The lever can also be released manually (overridden).

When the hold in coil circuit is open, the ET functions as a momentary contact switch. When the coil is energized (through remote contacts), the toggle lev-

Note: The solenoid has a hold in capacity only. It will not pull the toggle lever into an operating position from an unoperated position.



**Two position.** The illustration above shows the operating sequence for an ET with one SPDT circuit. (1) circuit closed manually; (2) energized solenoid holds switch circuit closed; and (3) remote con-

trol breaks solenoid circuit, releases the toggle, and opens the switch circuit. (In ETs with two SPDT circuits, both circuits transfer when the lever is operated.)

**Three position.** ETs with two SPDT circuits have a magnetic hold in capability in both directions from center. When the lever is in the center position, the circuitry is as shown in the illustration above. When the lever is moved to one extreme position, switch (A) circuit is transferred and switch (B) circuit is unchanged. In the other extreme position, switch (B) circuit is transferred while switch (A) circuit is unchanged.

**ELECTRICAL RATINGS**

Rating Code	Voltage	Amperage					
		Sea Level (Sealed)			65,000 ft		
		Res.	Ind.	Motor	Res.	Ind.	Motor
A	28 DC	4	2.5	4	4	2	4
B	28 DC	4	3	4	4	2.5	4
C	28 DC	7	2	—	5	1.5	—

# Manual Switches

## Magnetically Held Toggle Switches

### Toggles



Standard



Pull-to-unlock



Push-to-unlock



Tab

### TOGGLE TYPES

Standard — Tapered matte finish stainless steel.

Pull-to-unlock — Prevents accidental actuation; must be pulled out to change positions.

Push-to-unlock — Guards against accidental operation. The toggle must be depressed approximately .100 inch before it can be moved to either extreme position. Energizing the coil causes the extreme positions to be electrically maintained until the coil circuit is broken.

Tab — Paddle-shaped clear anodized aluminum tab.

### Terminals



Turret



Leadwire



Screw

### TERMINAL TYPES

Turret — Plated for easy solder connection of up to #14 wire.

Leadwire — No. 20 wire per MIL-W-5086, marked per MIL-W-5088. Standard length of six feet. Leadwire ends are stripped. Other material and lengths can be furnished. Contact your nearest MICRO SWITCH Sales Office for further information.

Screw—Four 48UNF x .188 (ref.) long round head screws with lockwashers. Separated by molded phenolic barriers.

### CIRCUIT OPERATION

Circuitry	Two-Position Toggle Circuit Made With Toggle At:		Turret Terminals Three-Position Toggle Circuit Made With Toggle At:			Leaded Terminals Three-Position Toggle Circuit Made With Toggle At:		
	Keyway* Position	Opposite Keyway	Keyway* Position	Center Position	Opposite Keyway*	Keyway* Position	Center Position	Opposite Keyway*
SPDT	1-3	1-2	—	—	—	—	—	—
DPDT	1-3, 4-6	1-2, 4-5	1-3, 4-5	1-2, 4-5	1-2, 4-6	1-2, 4-5	1-3, 4-5	1-3, 4-6

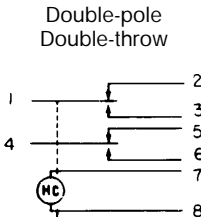
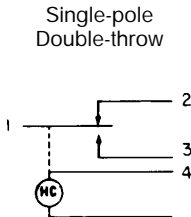
\* These positions are magnetically held when coil is energized, and momentary when coil is not energized.

### CIRCUIT OPERATION

Screw Terminals Three-Position Toggle Circuit Made With Toggle At:		
Keyway* Position	Center Position	Opposite Keyway*
1-2 MADE 3-4 OPEN	1-2 OPEN 3-4 OPEN	1-2 OPEN 3-4 MADE

\* These positions are magnetically held when coil is energized, and momentary when coil is not energized.

### CIRCUITRY



# Manual Switches

ET Series

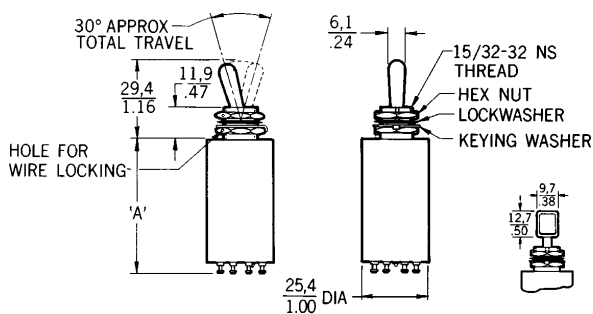
## Magnetically Held Toggle Switches

### ET ORDER GUIDE

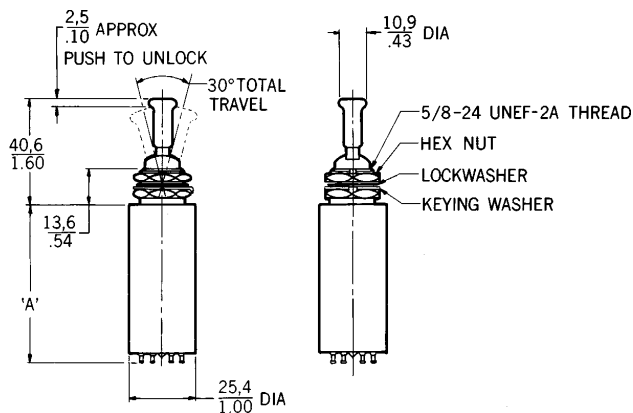
Circuitry	No. of Toggle Positions	Lever Type	Terminals	Elec. Rating Code Page 72	Max. Weight		Max. Dimension A		Catalog Listing
					grams	ounces	mm	inches	
SPDT	2	Standard	Leadwire (90° from Keyway)	B	241	8.5	51,6	2.03	25ET61-6 (M5594/1-1)
	2	Standard	Solder Turret	B	113	4.0	47,5	1.87	25ET61-T (M5594/1-2)
	2	Standard	Screw	B	113	4.0	61,2	2.41	25ET61-S (M5594/1-3)
	2	Tab Lever	Leadwire in line with Keyway	B	241	8.5	51,6	2.03	25ET62-6 (M5594/1-4)
SPDT	2	Standard	Leadwire (180° from Keyway)	B	241	8.5	51,6	2.03	25ET63-6 (M5594/1-5)
	2	Standard	Leadwire (90° from Keyway)	B	241	8.5	51,6	2.03	25ET64-6 (M5594/1-6)
DPDT	2	Standard	Solder Turret	A	113	4.0	47,5	1.87	26ET61-T (M5594/2-1)
	2	Standard	Solder Turret	A	113	4.0	47,5	1.87	26ET65-T (M5594/2-2)
	3	Standard	Solder Turret	C	113	4.0	58,7	2.28	27ET61-T (M5594/3-1)
	3	Pull-to-unlock	Solder Turret	C	113	4.0	58,7	2.28	27ET61-T-E (M5594/6-1E)
	3	Push-to-unlock	Solder Turret	C	113	4.0	58,7	2.28	27ET51-T
	3	Pull-to-unlock	Solder Turret	C	113	4.0	58,7	2.28	27ET61-T-M (M5594/6-1M)

### MOUNTING DIMENSIONS (For reference only)

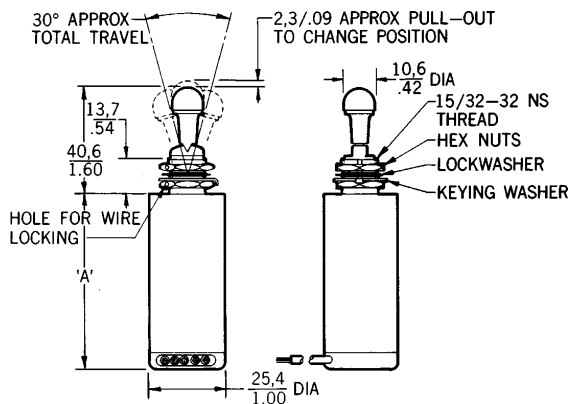
#### Standard and tab toggle levers



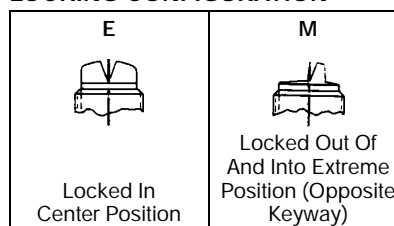
#### Push-to-unlock toggle lever



#### Pull-to-unlock toggle lever



### LOCKING CONFIGURATION



# Manual Switches

## Toggle Accessories

### TOGGLE LEVER SLEEVES

Colored plastic lever sleeves are ordered by adding suffix letters which denote the desired color to the basic catalog listing.



### ORDER GUIDE

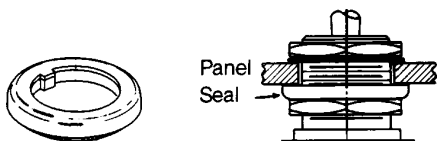
Toggle Switch Type		Basic Catalog Listing	Color Suffix					
			Blue	Black	White	Green	Yellow	Red
AT with 1/4" bushing	Short lever	15PA90-1	BL	BK	W	G	Y	R
	Long lever	15PA90-3			W			R
AT, TL, TK, TS, TW, ET with 15/32" bushing and standard lever		15PA90-4	BL	BK	W	G	Y	R

Example: 15PA90-1R  
Red sleeve fits 1/4 in. bushing AT's with short levers.

### DECORATIVE MOUNTING NUT ORDER GUIDE

Style	Description	Bushing Size	Catalog Listing
 A	Knurled Nut (Bright Nickel)	1/4"	19PA5-1
		15/32"	19PA6-1
	(Black Finish)	15/32"	19PA6-4
 B	Knurled Capnut (Bright Nickel)	15/32"	19PA6-2
 C	Hex Nut (Black Finish)	1/4"	19PA5-3
		15/32"	19PA6-3
 D	Tapered Nut (Chrome Finish)	15/32"	19PA6-5
 E	Hex Nut (Chrome Finish)	1/4"	19PA104-TW

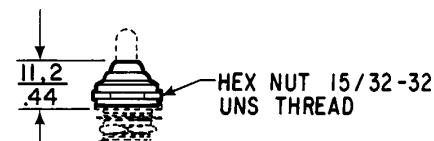
### PANEL SEAL



For use with 15/32 in. bushing toggle switches, this corrosion resistant steel cup washer has a silicone elastomer lining and keying tab for sealing the bushing keying slot. Use in panels up to .125 in./31,8 mm thick.

Catalog Listing	Military No.
15PA87	—
15PA195-TL	M5423/16-01
15PA258	M5423/16-01

### LEVER/PANEL SEAL



For use with standard lever toggle switches with 15/32 in. bushings. Consists of a silicone elastomer seal boot and panel seal bonded to a hex nut.

Catalog Listing	10PA4
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Manuals