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This PDF catalog information was published in November 2000.



Sensing and Control  
**Interactive  
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### Sensing and Control

Honeywell Inc.

11 West Spring Street

Freeport, IL 61032

[www.honeywell.com/sensing](http://www.honeywell.com/sensing)

# Manual Switches

## Miniature Toggle Switches

TW Series



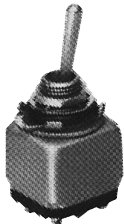
11TW Standard toggle lever  
15/32" bushing



1TW Standard unsealed toggle lever  
1/4" bushing



12TW Pull-to-unlock toggle lever  
15/32" bushing



2TW101 Standard sealed toggle lever  
1/4" bushing

- Qualified to MIL-S-83781
- Save space and weight
- SPDT and DPDT circuitry
- Choice of 1/4" or 15/32" bushings
- 15/32" bushing has lever seal
- Pull-to-unlock option on 15/32" bushing

- UL Recognized
- Temperature range: -85°F to +160°F (-65°C to +71°C)
- Sealed bushing versions

Molded-in terminals are plated for soldering. There is positive return on momentary versions. All switches come with a lockwasher, a keying washer, and two hexnuts. Special "on-on-on" circuitries, similar to those shown for TL, are also available for TW.

### ELECTRICAL RATING

| Volts       | Amperes          |           |      |
|-------------|------------------|-----------|------|
|             | Resistive        | Inductive | Lamp |
| 30 VDC      | 5                | 2         | 1    |
| 115 VAC     | 5                | 2         | 1    |
| UL Code 117 | 5 amps @ 125 VAC |           |      |

### TERMINAL CIRCUIT IDENTIFICATIONS

Terminal identifications are referred to in the Ordering Charts to indicate which circuits are made in each toggle position

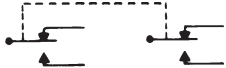
(i.e., "1-2" reference indicates circuit closure through terminals 1 and 2).

### CIRCUITRY

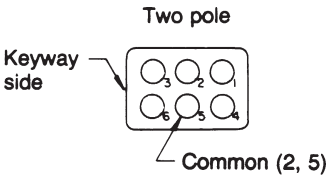
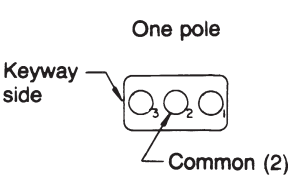
1<sup>1</sup> Single Pole Double Throw



2<sup>1</sup> Two Single Pole Double Throw Circuits



<sup>1</sup>Refer to order guides.



Manual Switches

Miniature Toggle Switches

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2-POSITION ORDER GUIDES

Switches with 15/32" Bushings

| No.<br>Poles | Circuits Made with Toggle at:        |                                              | Sealed Standard Toggle        |                                              | Sealed Pull-to-Unlock Toggle**       |                                              |
|--------------|--------------------------------------|----------------------------------------------|-------------------------------|----------------------------------------------|--------------------------------------|----------------------------------------------|
|              | Keyway<br>Position                   | Opposite<br>Keyway                           | Catalog<br>Listing            | Military<br>No.                              | Add Suffix (next<br>page) to Listing | Military<br>No.**                            |
| 1<br>1<br>1  | OFF<br>2-1 ON<br>2-1 ON*             | 2-3 ON<br>2-3 ON<br>2-3 ON                   | 11TW1-2<br>11TW1-3<br>11TW1-8 | MS27718-22-1<br>MS27718-23-1<br>MS27718-26-1 | D, F, G<br>D, F, G<br>F              | MS27720-22-1<br>MS27720-23-1<br>MS27720-26-1 |
| 2<br>2<br>2  | OFF<br>2-1 & 5-4 ON<br>2-1 & 5-4 ON* | 2-3 & 5-6 ON<br>2-3 & 5-6 ON<br>2-3 & 5-6 ON | 12TW1-2<br>12TW1-3<br>12TW1-8 | MS27719-22-1<br>MS27719-23-1<br>MS27719-26-1 | D, F, G<br>D, F, G<br>F              | MS27721-22-1<br>MS27721-23-1<br>MS27721-26-1 |

\* These positions are momentary. All others are maintained.  
\*\* Also add appropriate suffix letter to the Military Number.

Switches with 1/4" Bushings

| No.<br>Poles | Circuits Made with Toggle at:        |                                              | Unsealed Standard Toggle   |                                              | Sealed Standard Toggle           |
|--------------|--------------------------------------|----------------------------------------------|----------------------------|----------------------------------------------|----------------------------------|
|              | Keyway<br>Position                   | Opposite<br>Keyway                           | Catalog<br>Listing         | Military<br>No.                              | Catalog Listing                  |
| 1<br>1<br>1  | OFF<br>2-1 ON<br>2-1 ON*             | 2-3 ON<br>2-3 ON<br>2-3 ON                   | 1TW1-2<br>1TW1-3<br>1TW1-8 | MS27716-22-1<br>MS27716-23-1<br>MS27716-26-1 | 1TW101-2<br>1TW101-3<br>1TW101-8 |
| 2<br>2<br>2  | OFF<br>2-1 & 5-4 ON<br>2-1 & 5-4 ON* | 2-3 & 5-6 ON<br>2-3 & 5-6 ON<br>2-3 & 5-6 ON | 2TW1-2<br>2TW1-3<br>2TW1-8 | MS27717-22-1<br>MS27717-23-1<br>MS27717-26-1 | 2TW101-2<br>2TW101-3<br>2TW101-8 |

\* These positions are momentary. All others are maintained.

3-POSITION ORDER GUIDES

Switches with 15/32" Bushings

| No.<br>Poles | Circuits Made with Toggle at:                  |                    |                                               | Sealed Standard Toggle        |                                              | Sealed Pull-to-Unlock Toggle         |                                              |
|--------------|------------------------------------------------|--------------------|-----------------------------------------------|-------------------------------|----------------------------------------------|--------------------------------------|----------------------------------------------|
|              | Keyway<br>Position                             | Center<br>Position | Opposite<br>Keyway                            | Catalog<br>Listing            | Military<br>No.                              | Add Suffix (next<br>page) to Listing | Military<br>No.**                            |
| 1<br>1<br>1  | 2-1 ON<br>2-1 ON*<br>2-1 ON*                   | OFF<br>OFF<br>OFF  | 2-3 ON<br>2-3 ON<br>2-3 ON*                   | 11TW1-1<br>11TW1-5<br>11TW1-7 | MS27718-21-1<br>MS27718-31-1<br>MS27718-27-1 | ALL<br>E, F, K, L, M, N<br>E, L, N   | MS27720-21-1<br>MS27720-31-1<br>MS27720-27-1 |
| 2<br>2<br>2  | 2-1 & 5-4 ON<br>2-1 & 5-4 ON*<br>2-1 & 5-4 ON* | OFF<br>OFF<br>OFF  | 2-3 & 5-6 ON<br>2-3 & 5-6 ON<br>2-3 & 5-6 ON* | 12TW1-1<br>12TW1-5<br>12TW1-7 | MS27719-21-1<br>MS27719-31-1<br>MS27719-27-1 | ALL<br>E, F, K, L, M, N<br>E, L, N   | MS27721-21-1<br>MS27721-31-1<br>MS27721-27-1 |

\* These positions only are momentary. All others are maintained.  
\*\* Also add appropriate suffix letter to the Military Number.

Switches with 1/4" Bushings

| No.<br>Poles | Circuits Made with Toggle at:                  |                    |                                               | Unsealed Standard Toggle   |                                              | Sealed Standard Toggle           |
|--------------|------------------------------------------------|--------------------|-----------------------------------------------|----------------------------|----------------------------------------------|----------------------------------|
|              | Keyway<br>Position                             | Center<br>Position | Opposite<br>Keyway                            | Catalog                    | Military<br>No.                              | Catalog Listing                  |
| 1<br>1<br>1  | 2-1 ON<br>2-1 ON*<br>2-1 ON*                   | OFF<br>OFF<br>OFF  | 2-3 ON<br>2-3 ON<br>2-3 ON*                   | 1TW1-1<br>1TW1-5<br>1TW1-7 | MS27716-21-1<br>MS27716-31-1<br>MS27716-27-1 | 1TW101-1<br>1TW101-5<br>1TW101-7 |
| 2<br>2<br>2  | 2-1 & 5-4 ON<br>2-1 & 5-4 ON*<br>2-1 & 5-4 ON* | OFF<br>OFF<br>OFF  | 2-3 & 5-6 ON<br>2-3 & 5-6 ON<br>2-3 & 5-6 ON* | 2TW1-1<br>2TW1-5<br>2TW1-7 | MS27717-21-1<br>MS27717-31-1<br>MS27717-27-1 | 2TW101-1<br>2TW101-5<br>2TW101-7 |

\* These positions are momentary. All others are maintained.

Toggle/Rockers

# Manual Switches

## Miniature Toggle Switches

TW Series

### LOCKING CONFIGURATION SUFFIX

When ordering pull-to-unlock toggle listings, add the suffix letter shown in this chart to the standard toggle catalog listing and the Military Approval number.

|                                                                                                                                                                      |                                                                                                                                                                   |                                                                                                                                                     |                                                                                                                                                                     |                                                                                                                                                          |                                                                                                                                                                   |                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A</b><br><br>Locked In<br>Three Positions                                         | <b>B</b><br><br>Locked In<br>Center and<br>Extreme Position<br>(Keyway Side)     | <b>D</b><br><br>Locked Out<br>Of Center<br>Position                | <b>E</b><br><br>Locked In<br>Center Position                                       | <b>F</b><br><br>Locked In<br>Extreme Position<br>(Opposite Keyway)      | <b>G</b><br><br>Locked In<br>Extreme Position<br>(Keyway Side)                 | <b>H</b><br><br>Locked Out Of<br>Center And<br>Extreme Position<br>(Keyway Side) |
| <b>J</b><br><br>Locked Out Of<br>Center And<br>Extreme Position<br>(Opposite Keyway) | <b>K</b><br><br>Locked In<br>Center And<br>Extreme Position<br>(Opposite Keyway) | <b>L</b><br><br>Locked Out Of<br>Extreme Position<br>(Keyway Side) | <b>M</b><br><br>Locked Out Of<br>And Into<br>Extreme Position<br>(Opposite Keyway) | <b>N</b><br><br>Locked Out Of<br>Extreme Position<br>(Opposite Keyway) | <b>P</b><br><br>Locked Out Of<br>And Into<br>Extreme Position<br>(Keyway Side) |                                                                                                                                                                     |



- WITH IWTS TERMINATION**
- $\frac{15}{32}$ " bushing has lever seal
  - One or two pole circuitry
  - Accepts #20 wire using M39029/1-101 contact pins
  - Connections resist shock, vibration, and high pulling force

### 2 - POSITION ORDER GUIDE — IWTS TERMINATION

| No.<br>Poles | Circuits Made with Toggle at: |                              | Standard Toggle      | Pull-to-Unlock Toggle             |
|--------------|-------------------------------|------------------------------|----------------------|-----------------------------------|
|              | Keyway Position               | Opposite Keyway              | Catalog Listing      | Add Suffix to<br>Standard Listing |
| 1<br>1       | 2-1 ON<br>2-1 ON*             | 2-3 On<br>2-3 ON             | 111TW1-3<br>111TW1-8 | D, F, G<br>F                      |
| 2<br>2       | 2-1 & 5-4 ON<br>2-1 & 5-4 ON* | 2-3 & 5-6 ON<br>2-3 & 5-6 ON | 112TW1-3<br>112TW1-8 | D, F, G<br>F                      |

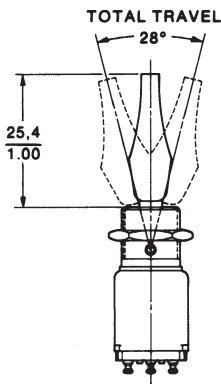
### 3 - POSITION ORDER GUIDE — IWTS TERMINATION

| No.<br>Poles | Circuits Made with Toggle at:                  |                   |                                               | Standard Toggle                  | Pull-to-Unlock Toggle              |
|--------------|------------------------------------------------|-------------------|-----------------------------------------------|----------------------------------|------------------------------------|
|              | Keyway Position                                | Center Position   | Opposite Keyway                               | Catalog Listing                  | Add Suffix to<br>Standard Listing  |
| 1<br>1<br>1  | 2-1 ON<br>2-1 ON*<br>2-1 ON*                   | OFF<br>OFF<br>OFF | 2-3 ON<br>2-3 ON<br>2-3 ON*                   | 111TW1-1<br>111TW1-5<br>111TW1-7 | ALL<br>E, F, K, L, M, N<br>E, L, N |
| 2<br>2<br>2  | 2-1 & 5-4 ON<br>2-1 & 5-4 ON*<br>2-1 & 5-4 ON* | OFF<br>OFF<br>OFF | 2-3 & 5-6 ON<br>2-3 & 5-6 ON<br>2-3 & 5-6 ON* | 112TW1-1<br>112TW1-5<br>112TW1-7 | ALL<br>E, F, K, L, M, N<br>E, L, N |

\* These positions only are momentary. All others are maintained.

Manual Switches
Miniature Toggle Switches

TW Series



- WITH COLORED TAB LEVERS
- Available in seven colors
  - Affords attractive front-of-panel appearance for graphic display and functional identify
  - Levers made to withstand temperatures up to 160°F (71°C)
  - Switches furnished with decorative knurled nut, a lockwasher, a keying washer, and a hex nut
  - 15/32" bushing has lever seal
  - Solder terminals (available with IWTS termination)

ORDER GUIDE

To order, combine the basic (function) listing from Table 1 with the desired lever color color suffix from Table 2.

TABLE 1 — TOGGLE POSITION AND CONTACT ARRANGEMENT

| Positions | No. Poles | Circuits Made with Toggle at: |                 |                 | Basic Listing<br>Add color suffix<br>from Table 2. |
|-----------|-----------|-------------------------------|-----------------|-----------------|----------------------------------------------------|
|           |           | Keyway Position               | Center Position | Opposite Keyway |                                                    |
| 2         | 1         | OFF                           | NONE            | 2-3 ON          | 11TW19-2 –                                         |
| 2         | 1         | 2-1 ON                        | NONE            | 2-3 ON          | 11TW19-3 –                                         |
| 2         | 1         | 2-1 ON*                       | NONE            | 2-3 ON          | 11TW19-8 –                                         |
| 2         | 2         | OFF                           | NONE            | 2-3 & 5-6 ON    | 12TW19-2 –                                         |
| 2         | 2         | 2-1 & 5-4                     | NONE            | 2-3 & 5-6 ON    | 12TW19-3 –                                         |
| 2         | 2         | 2-1 & 5-4*                    | NONE            | 2-3 & 5-6 ON    | 12TW19-8 –                                         |
| 3         | 1         | 2-1 ON                        | OFF             | 2-3 ON          | 11TW19-1 –                                         |
| 3         | 1         | 2-1 ON*                       | OFF             | 2-3 ON          | 11TW19-5 –                                         |
| 3         | 1         | 2-1 ON*                       | OFF             | 2-3 ON*         | 11TW19-7 –                                         |
| 3         | 2         | 2-1 & 5-4 ON                  | OFF             | 2-3 & 5-6 ON    | 12TW19-1 –                                         |
| 3         | 2         | 2-1 & 5-4 ON*                 | OFF             | 2-3 & 5-6 ON    | 12TW19-5 –                                         |
| 3         | 2         | 2-1 & 5-4 ON*                 | OFF             | 2-3 & 5-6 ON*   | 12TW19-7 –                                         |

\* These positions only are momentary. All others are maintained.

TABLE 2 — TAB LEVER COLORS

| Tab Lever Color | White | Black | Blue | Red  | Green | Orange | Light Gray |
|-----------------|-------|-------|------|------|-------|--------|------------|
| Color suffix    | A001  | A002  | A003 | A004 | A005  | A006   | A007       |

TW SWITCHES WITH SPECIAL CIRCUITRIES

All 2-pole 3-position TW switches are available with special “on-on-on” –10, –50, –70 circuitry options as shown below.

| 2-Pole 3-Position Switches    |                 |                 | Sealed Standard Toggle |                 | Unsealed Std. Toggle | Sealed Tab Lever                                 |
|-------------------------------|-----------------|-----------------|------------------------|-----------------|----------------------|--------------------------------------------------|
| Circuits Made With Toggle At: |                 |                 | 15/32" bushing         | 1/4" bushing    | 1/4" bushing         | 15/32" bushing                                   |
| Keyway Position               | Center Position | Opposite Keyway | Catalog Listing        | Catalog Listing | Catalog Listing      | Catalog Listing<br>Add color suffix from Table 2 |
| 2-1 & 5-4 ON                  | 2-1 & 5-6 ON    | 2-3 & 5-6 ON    | 12TW1-10               | 2TW101-10       | 2TW1-10              | 12TW19-10 –                                      |
| 2-1 & 5-4 ON*                 | 2-1 & 5-6 ON    | 2-3 & 5-6 ON    | 12TW1-50               | 2TW101-50       | 2TW1-50              | 12TW19-50 –                                      |
| 2-1 & 5-4 ON*                 | 2-1 & 5-6 ON    | 2-3 & 5-6 ON*   | 12TW1-70               | 2TW101-70       | 2TW1-70              | 12TW19-70 –                                      |

\* These positions are momentary. All others are maintained.

Toggle/Rockers

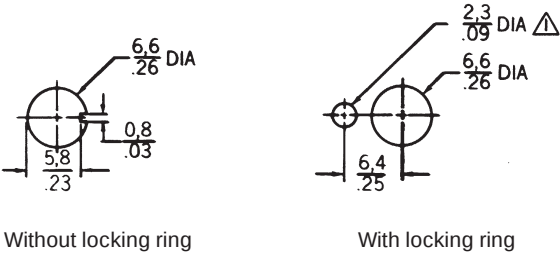
# Manual Switches

## Miniature Toggle Switches

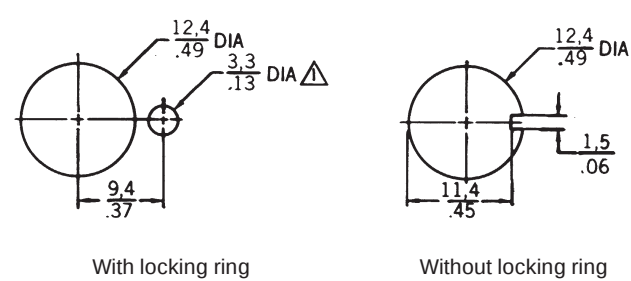
TW Series

### MOUNTING DIMENSIONS (For reference only)

#### Mounting detail for 1/4" bushing switches

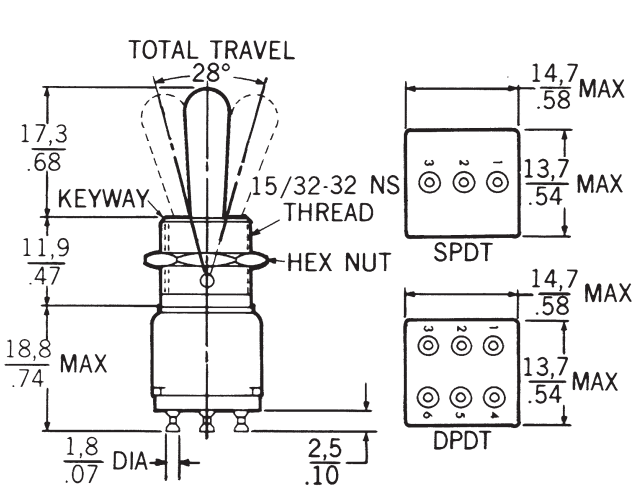


#### Mounting detail for 15/32" bushing switches

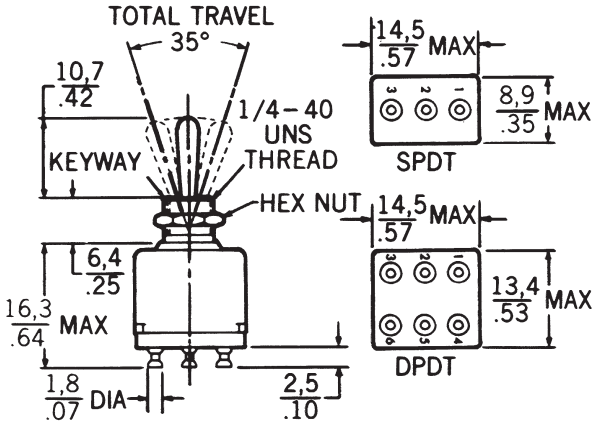


#### Dimensions for 15/32" switches

##### Standard toggle lever



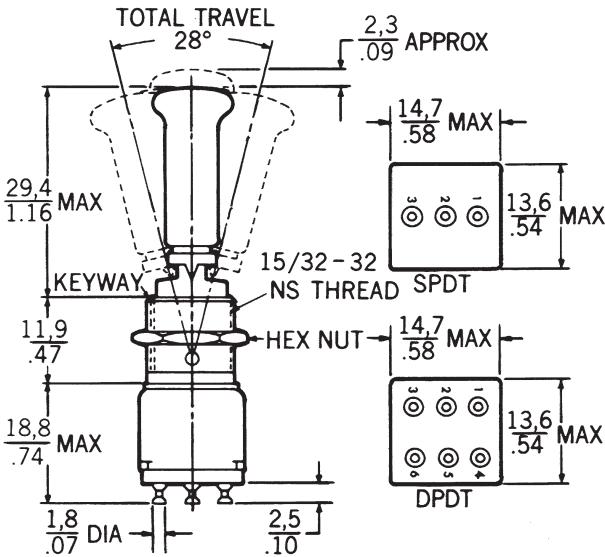
#### Dimensions for 1/4" bushing switches



Note:  $\Delta$  1.1/.05 MIN. DEEP TO ACCOMMODATE LOCKING RING.  
FOR SWITCHES USING PANEL SEAL, DO NOT ALLOW THRU HOLE MOUNTING.

Key: 0.0 = mm  
0.00 = inches

##### Pull-to-unlock toggle lever



Bushing mounting torque is 10–15 in./lbs.