

# COMMERCIAL & MIL TOGGLE SWITCHES

## ENVIRONMENTALLY SEALED TOGGLE

The T9 Toggle Switch is an ideal switch for demanding applications. Qualified to MIL-PRF-3950, this high performance switch is a logical choice for use in environments where sealing and resistance to shock and vibration are required. The T9 is particularly suitable for applications in military, off-highway, aviation, commercial and industrial equipment. This compact, environmentally sealed switch is available in single and double pole configurations with a lever lockout option. Circuitry configurations include two or three positions with many combinations of OFF-ON in momentary and maintained action including ON-ON-ON.

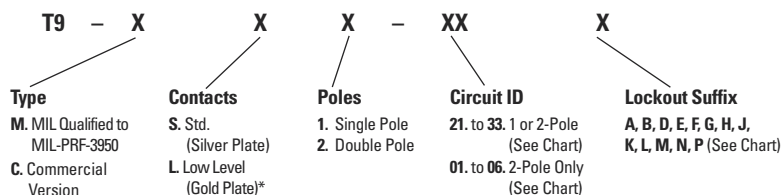
### Features:

- Qualified to MIL-PRF-3950
- Sealed per IP68S
- Lever lockout option available
- UL, CSA & CE approvals (pending)
- Maintained & momentary toggle action
- Optional panel seal
- RoHS & WEEE compliant

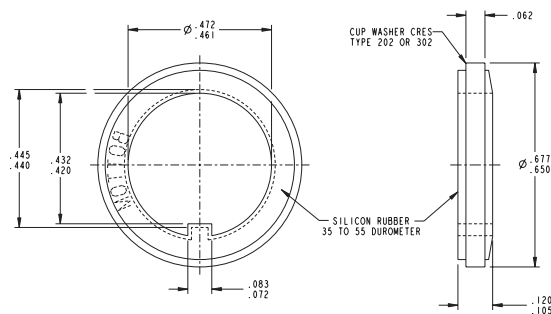


| Standard Characteristics/Ratings: |  |
|-----------------------------------|--|
| <b>ELECTRICAL RATINGS:</b>        | See Product Family Table   |
| <b>Electrical Life:</b>           | 20,000 cycles  |
| <b>Mechanical Life:</b>           | 40,000 cycles  |
| <b>Seal:</b>                      | IP68S  |
| <b>Operating Temp Range:</b>      | -65°C to +71°C   |
| <b>MATERIALS:</b>                 |  |
| <b>Toggle:</b>                    | Stainless steel, passivated  |
| <b>Bushing &amp; Cover:</b>       | Aluminum, clear anodized or zinc alloy                                     |
| <b>Case:</b>                      | Thermoset plastic  |
| <b>Terminal Hardware:</b>         | None required  |
| <b>Mounting Hardware:</b>         | Hex nuts, lockwasher, keyway washer, 0.138-32 UNC-2A screw with lockwasher |

### T9 PART NUMBER CODE



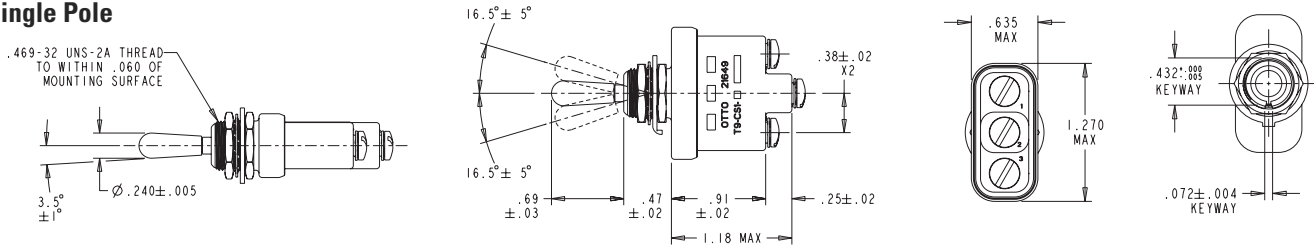
\* Available in commercial only.



Optional Panel Seal P/N 710196

## PRODUCT FAMILY TABLE

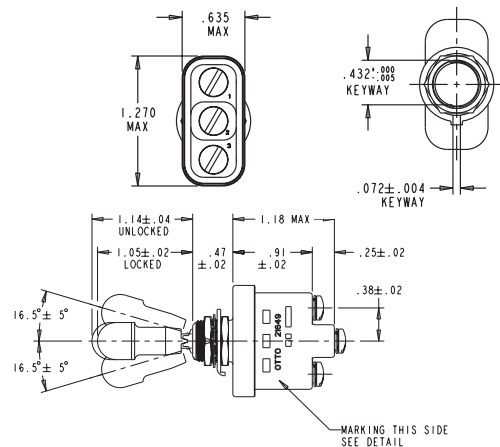
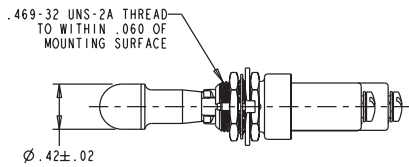
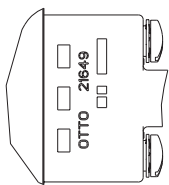
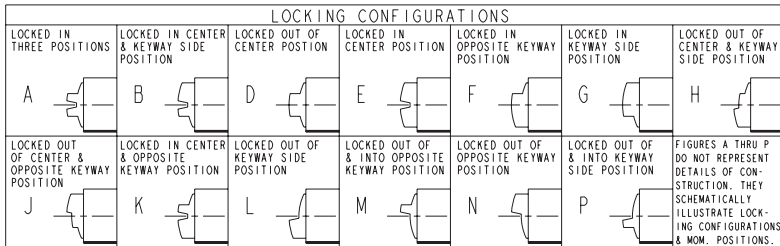
### Single Pole



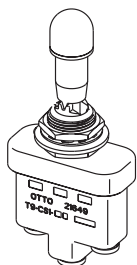
Low level 10mA @ 30mV (commercial version only)

| OTTO PART NO. | MILITARY NO. | DASH NO. | CIRCUIT BY TOGGLE LEVER POSITION |               |                    | ELECTRICAL RATINGS - SEA LEVEL & 65,000 FT |           |           |         |           |           |
|---------------|--------------|----------|----------------------------------|---------------|--------------------|--|-----------|-----------|---------|-----------|-----------|
|               |              |          | KEYWAY<br>1-2                    | CENTER        | OPP. KEYWAY<br>2-3 | 28 VDC                                     |           |           | 115 VAC |           |           |
|               |              |          |                                  |               |                    | LAMP                                       | RESISTIVE | INDUCTIVE | LAMP    | RESISTIVE | INDUCTIVE |
| T9-MS1-       | MS24523-     | 21       | ON                               | OFF           | ON                 | 5  | 20        | 15        | 3       | 15        | 10        |
|               |              | 22       | OFF                              | NONE          | ON                 |  |           |           |         |           |           |
|               |              | 23       | ON                               | NONE          | ON                 |  |           |           |         |           |           |
|               |              | 24       | NONE                             | OFF           | ON                 |  |           |           |         |           |           |
|               |              | 25       | NONE                             | MOM OFF       | ON                 |  |           |           |         |           |           |
|               |              | 26       | MOM ON                           | NONE          | ON                 |  |           |           |         |           |           |
|               |              | 27       | MOM ON                           | OFF           | MOM ON             |  |           |           |         |           |           |
|               |              | 28       | MOM ON                           | OFF           | NONE               |  |           |           |         |           |           |
|               |              | 29       | MOM OFF                          | NONE          | ON                 |  |           |           |         |           |           |
|               |              | 30       | MOM ON                           | NONE          | OFF                |  |           |           |         |           |           |
| 31            | MOM ON       | OFF      | ON                               |               |                    |  |           |           |         |           |           |
| OTTO PART NO. | MILITARY NO. | DASH NO. | KEYWAY                           | CENTER<br>1-2 | OPP. KEYWAY<br>2-3 | 28 VDC                                     |           |           | 115 VAC |           |           |
| T9-MS1-       | MS24523-     | 32       | NONE                             | ON            | MOM ON             | 4  | 15        | 10        | 2       | 15        | 7         |
|               |              | 33       | NONE                             | ON            | ON                 | 5  | 20        | 15        | 3       | 15        | 10        |

### Lever/Lock Single Pole

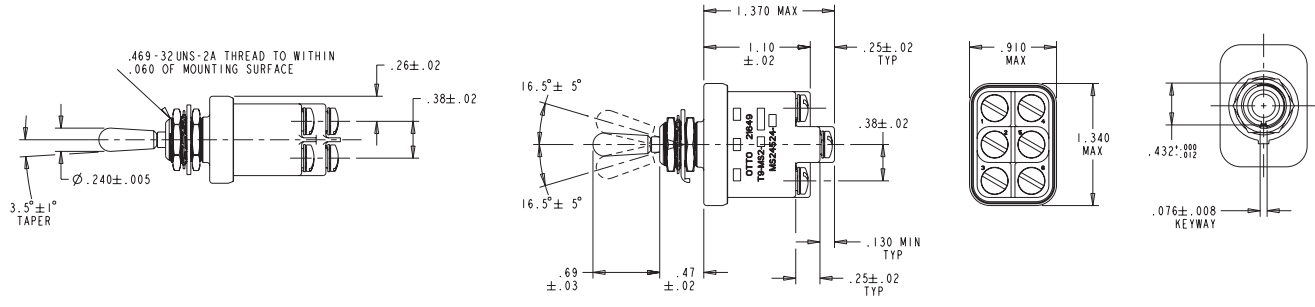


| OTTO BASE PART NO. | MILITARY NO. | DASH NO.      | AVAILABLE LOCKOUTS (SEE CHART) | CIRCUIT BY TOGGLE LEVER POSITION |                   |                    | ELECTRICAL RATINGS - SEA LEVEL & 65,000 FT |           |           |         |           |           |
|--------------------|--------------|---------------|--------------------------------|----------------------------------|-------------------|--------------------|--|-----------|-----------|---------|-----------|-----------|
|                    |              |               |                                | KEYWAY<br>1-2                    | CENTER            | OPP. KEYWAY<br>2-3 | 28 VDC                                     |           |           | 115 VAC |           |           |
|                    |              |               |                                |                                  |                   |                    | LAMP                                       | RESISTIVE | INDUCTIVE | LAMP    | RESISTIVE | INDUCTIVE |
| T9-MS1-            | MS24658-     | 21            | ALL                            | ON                               | OFF               | ON                 | 5  | 20        | 15        | 3       | 15        | 10        |
|                    |              | 22            | D F G                          | OFF                              | NONE              | ON                 |  |           |           |         |           |           |
|                    |              | 23            | D F G                          | ON                               | NONE              | ON                 |  |           |           |         |           |           |
|                    |              | 24            | E F K M                        | NONE                             | OFF               | ON                 |  |           |           |         |           |           |
|                    |              | 25            | F                              | NONE                             | OFF (M)           | ON                 |  |           |           |         |           |           |
|                    |              | 26            | F                              | MOM ON                           | NONE              | ON                 |  |           |           |         |           |           |
|                    |              | 27            | E L N                          | MOM ON                           | OFF               | MOM ON             |  |           |           |         |           |           |
|                    |              | 28            | E                              | MOM ON                           | OFF               | NONE               |  |           |           |         |           |           |
|                    |              | 29            | F                              | MOM OFF                          | NONE              | ON                 |  |           |           |         |           |           |
|                    |              | 30            | F                              | MOM ON                           | NONE              | OFF                |  |           |           |         |           |           |
|                    |              | 31            | E F K L M N                    | MOM ON                           | OFF               | ON                 |  |           |           |         |           |           |
|                    |              | OTTO BASE NO. | MILITARY NO.                   | DASH NO.                         | AVAILABLE LOCKOUT | KEYWAY             |  |           |           |         |           |           |
| T9-MS1-            | MS24658-     | 32            | E                              | NONE                             | ON                | MOM ON             | 4  | 15        | 10        | 2       | 15        | 7         |
|                    |              | 33            | E F K M                        | NONE                             | ON                | ON                 | 5  | 20        | 15        | 3       | 15        | 10        |



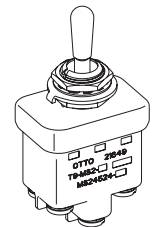
PRODUCT FAMILY TABLE

**Double Pole**



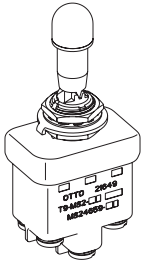
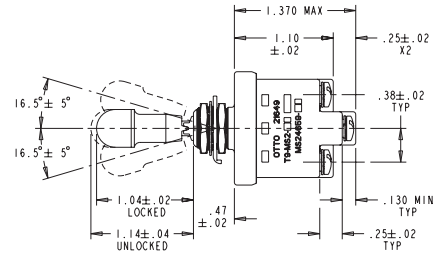
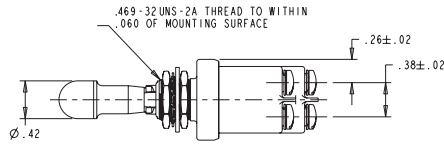
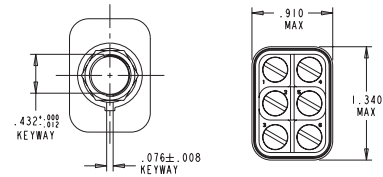
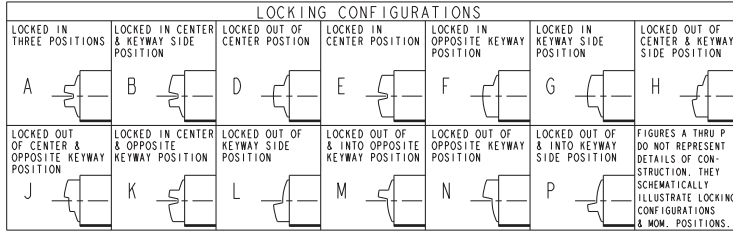
Low level 10mA @ 30mV (commercial version only)

| OTTO BASE PART NO. | MILITARY STANDARD | DASH NO. | CIRCUIT CONFIGURATION |            |                          | ELECTRICAL CURRENT RATINGS (AMPS) - SEA LEVEL & 65,000 FT |           |           |                       |           |           |
|--------------------|-------------------|----------|-----------------------|------------|--------------------------|---|-----------|-----------|-----------------------|-----------|-----------|
|                    |                   |          | KEYWAY<br>1-2 / 4-5   | CENTER     | OPP. KEYWAY<br>2-3 / 5-6 | 28 VDC  |           |           | 115 VAC, 60Hz & 400Hz |           |           |
|                    |                   |          |                       |            |                          | LAMP  | RESISTIVE | INDUCTIVE | LAMP                  | RESISTIVE | INDUCTIVE |
| T9-MS2-01          | MS27407-          | 1        | ON                    | 2-3 ON 4-5 | ON                       | 7   | 20        | 15        | 4                     | 15        | 15        |
| T9-MS2-02          |                   | 2        | MOM ON                | 2-3 ON 4-5 | ON                       | 5   | 18        | 10        | 2                     | 11        | 8         |
| T9-MS2-03          |                   | 3        | MOM ON                | 2-3 ON 4-5 | MOM ON                   | 7   | 20        | 15        | 4                     | 15        | 15        |
| T9-MS2-04          |                   | 4        | ON                    | 1-2 ON 5-6 | ON                       | 5   | 18        | 10        | 2                     | 11        | 8         |
| T9-MS2-05          |                   | 5        | MOM ON                | 1-2 ON 5-6 | ON                       | 7   | 20        | 15        | 4                     | 15        | 15        |
| T9-MS2-06          |                   | 6        | MOM ON                | 1-2 ON 5-6 | MOM ON                   | 5   | 18        | 10        | 2                     | 11        | 8         |
| T9-MS2-            | MS24524-          | 21       | ON                    | OFF        | ON                       | 7   | 20        | 15        | 4                     | 15        | 10        |
|                    |                   | 22       | OFF                   | NONE       | ON                       |   |           |           |                       |           |           |
|                    |                   | 23       | ON                    | NONE       | ON                       |   |           |           |                       |           |           |
|                    |                   | 24       | NONE                  | OFF        | ON                       |   |           |           |                       |           |           |
|                    |                   | 25       | NONE                  | MOM OFF    | ON                       | 5   | 18        | 10        | 2                     | 11        | 8         |
|                    |                   | 26       | MOM ON                | NONE       | ON                       |   |           |           |                       |           |           |
|                    |                   | 27       | MOM ON                | OFF        | MOM ON                   |   |           |           |                       |           |           |
|                    |                   | 28       | MOM ON                | OFF        | NONE                     |   |           |           |                       |           |           |
|                    |                   | 29       | MOM OFF               | NONE       | ON                       |   |           |           |                       |           |           |
|                    |                   | 30       | MOM ON                | NONE       | OFF                      |   |           |           |                       |           |           |
| 31                 | MOM ON            | OFF      | ON                    | 5          | 18                       | 10  | 2         | 11        | 8                     |           |           |
| 32                 | NONE              | ON       | MOM ON                |            |                          |   |           |           |                       |           |           |
| T9-MS2-            | MS24524-          | 33       | NONE                  | ON         | ON                       | 7   | 20        | 15        | 4                     | 15        | 15        |



PRODUCT FAMILY TABLE

## Lever/Lock Double Pole



| OTTO BASE PART NO. | MILITARY STANDARD | DASH NO. | AVAILABLE LOCKOUTS (SEE CHART) | CIRCUIT CONFIGURATION |                     |                          | ELECTRICAL CURRENT RATINGS (AMPS) - SEA LEVEL & 65,000 FT |           |           |                       |           |           |
|--------------------|-------------------|----------|--------------------------------|-----------------------|---------------------|--------------------------|---|-----------|-----------|-----------------------|-----------|-----------|
|                    |                   |          |                                | KEYWAY<br>1-2 / 4-5   | CENTER              | OPP. KEYWAY<br>2-3 / 5-6 | 28 VDC  |           |           | 115 VAC, 60Hz & 400Hz |           |           |
|                    |                   |          |                                |                       |                     |                          | LAMP  | RESISTIVE | INDUCTIVE | LAMP                  | RESISTIVE | INDUCTIVE |
| T9-MS2-            | MS24659-          | 21       | ALL                            | ON                    | OFF                 | ON                       | 7   | 20        | 15        | 4                     | 15        | 10        |
|                    |                   | 22       | D, F, G                        | OFF                   | NONE                | ON                       |   |           |           |                       |           |           |
|                    |                   | 23       | D, F, G                        | ON                    | NONE                | ON                       |   |           |           |                       |           |           |
|                    |                   | 24       | E, F, K, M                     | NONE                  | OFF                 | ON                       |   |           |           |                       |           |           |
|                    |                   | 25       | F                              | NONE                  | MOM OFF             | ON                       | 5   | 18        | 10        | 2                     | 11        | 8         |
|                    |                   | 26       | F                              | MOM ON                | NONE                | ON                       |   |           |           |                       |           |           |
|                    |                   | 27       | E, L, N                        | MOM ON                | OFF                 | MOM ON                   |   |           |           |                       |           |           |
|                    |                   | 28       | E                              | MOM ON                | OFF                 | NONE                     |   |           |           |                       |           |           |
|                    |                   | 29       | F                              | MOM OFF               | NONE                | ON                       |   |           |           |                       |           |           |
|                    |                   | 30       | F                              | MOM ON                | NONE                | OFF                      |   |           |           |                       |           |           |
|                    |                   | 31       | E, F, K, L, M, N               | MOM ON                | OFF                 | ON                       |   |           |           |                       |           |           |
| OTTO BASE PART NO. | MILITARY STANDARD | DASH NO. | E                              | KEYWAY                | CENTER<br>1-2 / 4-5 | OPP. KEYWAY<br>2-3 / 5-6 | 28 VDC  |           |           | 115 VAC               |           |           |
| T9-MS2-            | MS24659-          | 32       | E                              | NONE                  | ON                  | MOM ON                   | 5   | 18        | 10        | 2                     | 11        | 8         |
|                    |                   | 33       | E, F, K, M                     | NONE                  | ON                  | ON                       | 7   | 20        | 15        | 4                     | 15        | 15        |