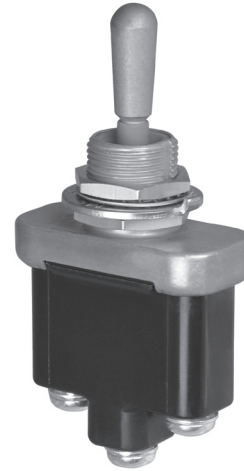


## ENVIRONMENTALLY SEALED TOGGLE

The T9 Toggle Switch is an ideal switch for demanding applications. Qualified to MIL-DTL-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-DTL-3950**
- **Commercial version is sealed per IP68S**
- **Lever lockout option available**
- **Maintained & momentary toggle action**
- **Optional panel seal**
- **RoHS/WEEE/Reach compliant**
- **Black matte finish available. Contact factory.**



### Standard Characteristics/Ratings:

**ELECTRICAL RATINGS:** See Product Family Table

**Electrical Life:** 20,000 cycles

**Mechanical Life:** 40,000 cycles

**Seal:** IP68S

**Operating Temp Range:** -65°C to +71°C

### MATERIALS:

**Toggle:** Stainless steel, passivated

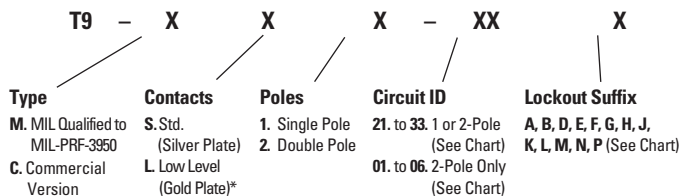
**Bushing & Cover:** Aluminum, clear anodized or zinc alloy

**Case:** Thermoset plastic

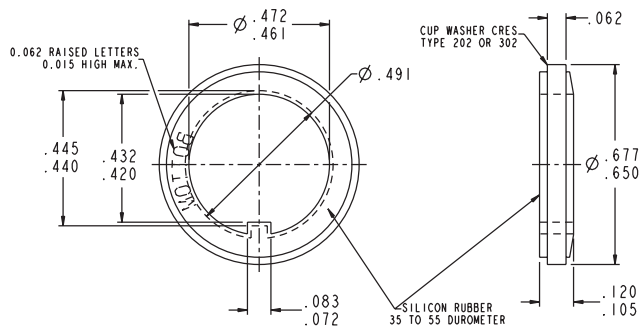
**Terminal Hardware:** Included

**Mounting Hardware:** Hex nuts, lockwasher, keyway washer, 0.138-32 UNC-2A screw with lockwasher

### T9 PART NUMBER CODE



\* Available in commercial only.

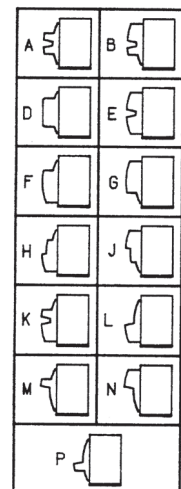


Optional Panel Seal P/N 710196, MIL. P/N M5423/16-01

### Lever Lockout Configuration Codes

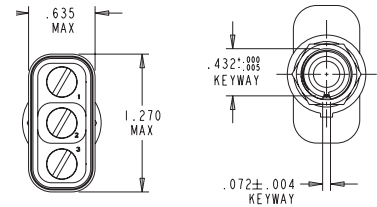
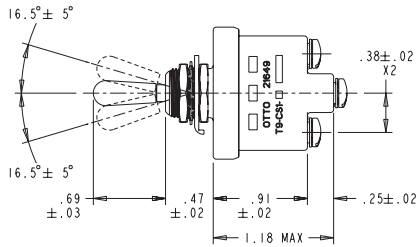
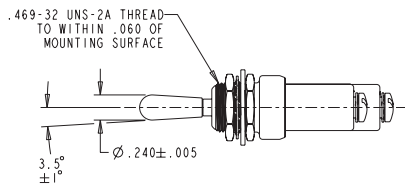
Figures A thru P are schematics to illustrate lockout configurations and momentary positions. They do not represent details of construction.

- A** Locked in all three positions
- B** Locked in Center and Keyway Side position
- D** Locked out of Center position
- E** Locked in Center position
- F** Locked in Opposite Keyway position
- G** Locked in Keyway Side position
- H** Locked out of Center and Keyway Side Position
- J** Locked out of Center and Opposite Keyway position
- K** Locked in Center and Opposite Keyway position
- L** Locked out of Keyway Side position
- M** Locked out of and into Opposite Keyway position
- N** Locked out of Opposite Keyway position
- P** Locked out of and into Keyway Side position



## PRODUCT FAMILY TABLE

### Single Pole

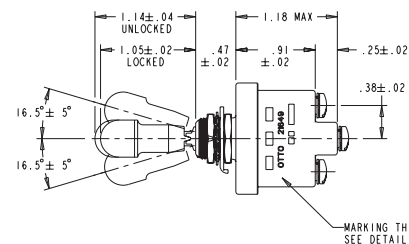
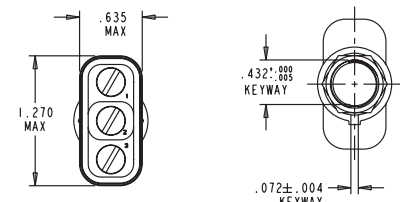
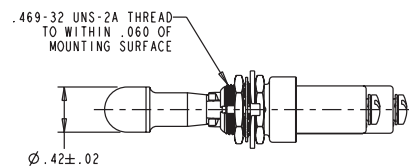
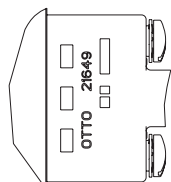


Low level 10mA @ 30mV (commercial version only)

| 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-MSI -      | 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                 | 4                                          | 15        | 10        | 2       | 15        | 7         |
|               |              | 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 |           |           |
|               |              |          |                                  |               |                    | LAMP                                       | RESISTIVE | INDUCTIVE | LAMP    | RESISTIVE | INDUCTIVE |
| T9-MSI -      | 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

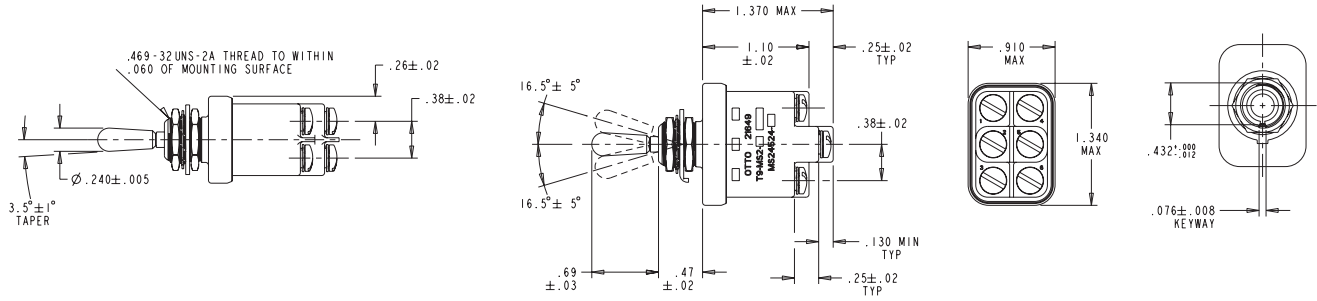
| LOCKING CONFIGURATIONS                          |                                             |                                    |                                               |                                        |                                           |                                                                                                                                   |  |
|-------------------------------------------------|---------------------------------------------|------------------------------------|-----------------------------------------------|----------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--|
| LOCKED IN THREE POSITIONS                       | LOCKED IN CENTER & KEYWAY SIDE POSITION     | LOCKED OUT OF CENTER POSITION      | LOCKED IN CENTER POSITION                     | LOCKED IN OPPOSITE KEYWAY POSITION     | LOCKED IN KEYWAY SIDE POSITION            | LOCKED OUT OF CENTER & KEYWAY SIDE POSITION                                                                                       |  |
| A                                               | B                                           | D                                  | E                                             | F                                      | G                                         | H                                                                                                                                 |  |
| LOCKED OUT OF CENTER & OPPOSITE KEYWAY POSITION | LOCKED IN CENTER & OPPOSITE KEYWAY POSITION | LOCKED OUT OF KEYWAY SIDE POSITION | LOCKED OUT OF & INTO OPPOSITE KEYWAY POSITION | LOCKED OUT OF OPPOSITE KEYWAY POSITION | LOCKED OUT OF & INTO KEYWAY SIDE POSITION | FIGURES A THRU P DO NOT REPRESENT DETAILS OF CONSTRUCTION. THEY SCHEMATICALLY ILLUSTRATE LOCKING CONFIGURATIONS & MOM. POSITIONS. |  |
| J                                               | K                                           | L                                  | M                                             | N                                      | P                                         |                                                                                                                                   |  |



| OTTO BASE<br>PART NO. | MILITARY<br>NO. | DASH<br>NO. | AVAILABLE<br>LOCKOUTS<br>(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                 | 4                                          | 15        | 10        | 2       | 15        | 7         |
|                       |                 | 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<br>BASE NO.      | MILITARY<br>NO. | DASH<br>NO. | AVAILABLE<br>LOCKOUT                 | KEYWAY                           | CENTER<br>1-2 | OPP. KEYWAY<br>2-3 | 28 VDC                                     |           |           | 115 VAC |           |           |
|                       |                 |             |                                      |                                  |               |                    | LAMP                                       | RESISTIVE | INDUCTIVE | LAMP    | RESISTIVE | INDUCTIVE |
| T9-MS1-               | MS24658-        | 32          | E                                    | NONE                             | ON            | MOM ON             | 4                                          | 15        | 10        | 2       | 15        | 7         |
|                       |                 | 33          | F F K M                              | NONE                             | ON            | ON                 | 5                                          | 20        | 15        | 3       | 15        | 10        |

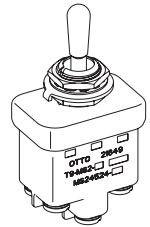
## PRODUCT FAMILY TABLE

### Double Pole



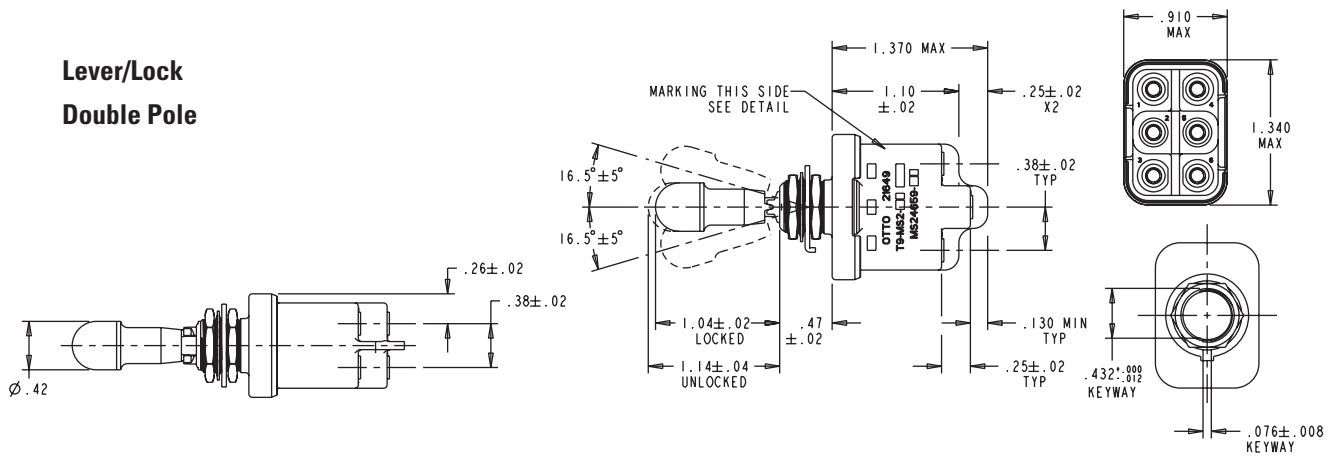
Low level 10mA @ 30mV (commercial version only)

| OTTO BASE<br>PART NO. | MILITARY<br>STANDARD | DASH<br>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                   |                                                           |           |           |                       |           |           |
| T9-MS2-04             |                      | 4           | ON                    | 1-2 ON 5-6          | ON                       | 7                                                         | 20        | 15        | 4                     | 15        | 15        |
| T9-MS2-05             |                      | 5           | MOM ON                | 1-2 ON 5-6          | ON                       | 5                                                         | 18        | 10        | 2                     | 11        | 8         |
| T9-MS2-06             |                      | 6           | MOM ON                | 1-2 ON 5-6          | MOM ON                   |                                                           |           |           |                       |           |           |
| T9-MS2-               | MS24524-             | 21          | ON                    | OFF                 | ON                       | 7                                                         | 20        | 15        | 4                     | 15        | 15        |
|                       |                      | 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                       |                                                           |           |           |                       |           |           |
| OTTO BASE<br>PART NO. | MILITARY<br>STANDARD | DASH<br>NO. | KEYWAY                | CENTER<br>1-2 / 4-5 | OPP. KEYWAY<br>2-3 / 5-6 | 28 VDC                                                    |           |           | 115 VAC               |           |           |
| T9-MS2-               | MS24524-             | 32          | NONE                  | ON                  | MOM ON                   | 5                                                         | 18        | 10        | 2                     | 11        | 8         |
|                       |                      | 33          | NONE                  | ON                  | ON                       | 7                                                         | 20        | 15        | 4                     | 15        | 15        |

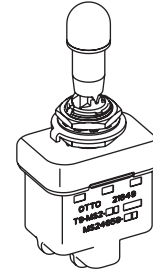


## PRODUCT FAMILY TABLE

### Lever/Lock Double Pole



| LOCKING CONFIGURATIONS                          |                                             |                                    |                                               |                                        |                                           |                                                                                                                                   |
|-------------------------------------------------|---------------------------------------------|------------------------------------|-----------------------------------------------|----------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| LOCKED IN THREE POSITIONS                       | LOCKED IN CENTER & KEYWAY SIDE POSITION     | LOCKED OUT OF CENTER POSITION      | LOCKED IN CENTER POSITION                     | LOCKED IN OPPOSITE KEYWAY POSITION     | LOCKED IN KEYWAY SIDE POSITION            | LOCKED OUT OF CENTER & KEYWAY SIDE POSITION                                                                                       |
| A                                               | B                                           | D                                  | E                                             | F                                      | G                                         | H                                                                                                                                 |
| LOCKED OUT OF CENTER & OPPOSITE KEYWAY POSITION | LOCKED IN CENTER & OPPOSITE KEYWAY POSITION | LOCKED OUT OF KEYWAY SIDE POSITION | LOCKED OUT OF & INTO OPPOSITE KEYWAY POSITION | LOCKED OUT OF OPPOSITE KEYWAY POSITION | LOCKED OUT OF & INTO KEYWAY SIDE POSITION | FIGURES A THRU P DO NOT REPRESENT DETAILS OF CONSTRUCTION. THEY SCHEMATICALLY ILLUSTRATE LOCKING CONFIGURATIONS & MOM. POSITIONS. |
| J                                               | K                                           | L                                  | M                                             | N                                      | P                                         |                                                                                                                                   |



| OTTO BASE<br>PART NO. | MILITARY<br>STANDARD | DASH<br>NO. | AVAILABLE<br>LOCKOUTS<br>(SEE CHART) | CIRCUIT CONFIGURATION |                     |                          | SWITCH<br>POSITION<br>MARKING | ELECTRICAL RATINGS - 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                       | ON OFF ON                     | 7                                          | 20        | 15        | 4                     | 15        | 15        |
|                       |                      | 22          | D,F,G                                | OFF                   | NONE                | ON                       | OFF ON                        |                                            |           |           |                       |           |           |
|                       |                      | 23          | D,F,G                                | ON                    | NONE                | ON                       | ON ON                         |                                            |           |           |                       |           |           |
|                       |                      | 24          | E,F,K,M                              | NONE                  | OFF                 | ON                       | OFF ON                        |                                            |           |           |                       |           |           |
|                       |                      | 25          | F                                    | NONE                  | MOM OFF             | ON                       | OFF ON                        | 5                                          | 18        | 10        | 2                     | 11        | 8         |
|                       |                      | 26          | F                                    | MOM ON                | NONE                | ON                       | ON ON                         |                                            |           |           |                       |           |           |
|                       |                      | 27          | E,L,N                                | MOM ON                | OFF                 | MOM ON                   | ON OFF ON                     |                                            |           |           |                       |           |           |
|                       |                      | 28          | E                                    | MOM ON                | OFF                 | NONE                     | ON OFF                        |                                            |           |           |                       |           |           |
|                       |                      | 29          | F                                    | MOM OFF               | NONE                | ON                       | OFF ON                        |                                            |           |           |                       |           |           |
|                       |                      | 30          | F                                    | MOM ON                | NONE                | OFF                      | ON OFF                        |                                            |           |           |                       |           |           |
|                       |                      | 31          | E,F,K,L,M,N                          | MOM ON                | OFF                 | ON                       | ON OFF ON                     |                                            |           |           |                       |           |           |
| OTTO BASE<br>PART NO. | MILITARY<br>STANDARD | DASH<br>NO. | AVAILABLE<br>LOCKOUT                 | KEYWAY                | CENTER<br>1-2 / 4-5 | OPP. KEYWAY<br>2-3 / 5-6 | SWITCH<br>POSITION<br>MARKING | 28 VDC                                     |           |           | 115 VAC               |           |           |
| T9-MS2-               | MS24659-             | 32          | E                                    | NONE                  | ON                  | MOM ON                   | ON ON                         | 5                                          | 18        | 10        | 2                     | 11        | 8         |
|                       |                      | 33          | E,F,K,M                              | NONE                  | ON                  | ON                       | ON ON                         | 7                                          | 20        | 15        | 4                     | 15        | 15        |