COMMERCIAL & MIL TOGGLE SWITCHES

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**
- **UL, CSA & CE approvals (pending)**
- **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

T9 – X X X – XX X

Type
M. MIL Qualified to MIL-PRF-3950
C. Commercial Version

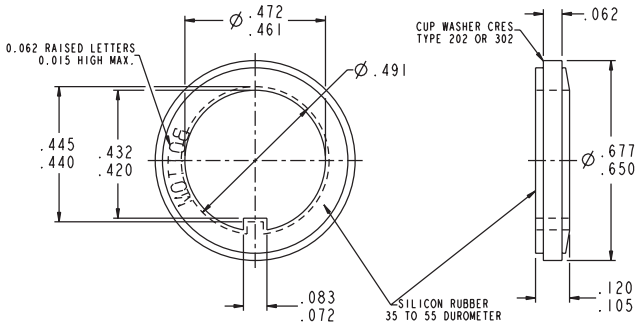
Contacts
S. Std. (Silver Plate)
L. Low Level (Gold Plate)*

Poles
1. Single Pole
2. Double Pole

Circuit ID
21. to **33.** 1 or 2-Pole (See Chart)
01. to **06.** 2-Pole Only (See Chart)

Lockout Suffix
A, B, D, E, F, G, H, J, K, L, M, N, P (See Chart)

* Available in commercial only.

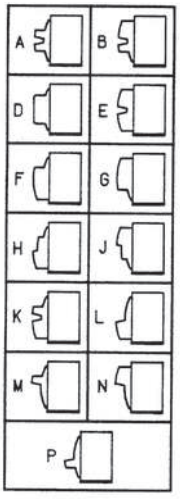


Optional Panel Seal P/N 710196, MIL. P/N M5423/16-01

Lever Lockout Configuration Codes

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

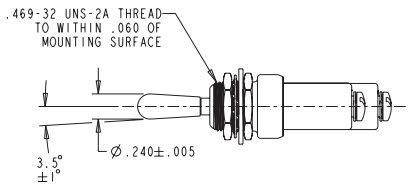
A Locked in all three positions
B Locked in Center and Keyway Side position
D Locked out of Center position
E Locked in Center position
F Locked in Opposite Keyway position
G Locked in Keyway Side position
H Locked out of Center and Keyway Side Position
J Locked out of Center and Opposite Keyway position
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

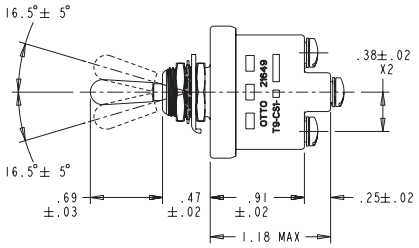


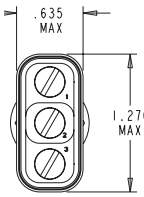
Specifications Subject To Change Without Notice

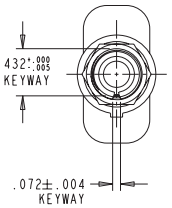
PRODUCT FAMILY TABLE

Single Pole









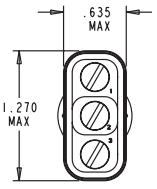
Low level 10mA @ 30mV (commercial version only)

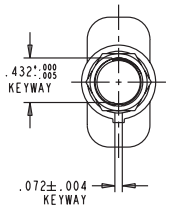
OTTO PART NO.	MILITARY NO.	DASH NO.	CIRCUIT BY TOGGLE LEVER POSITION			ELECTRICAL RATINGS - SEA LEVEL & 65,000 FT					
			KEYWAY 1-2	CENTER	OPP. KEYWAY 2-3	28 VDC			115 VAC		
						LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIVE
T9-MSI-	MS24523-	21	ON	OFF	ON	5	20	15	3	15	10
		22	OFF	NONE	ON						
		23	ON	NONE	ON						
		24	NONE	OFF	ON						
		25	NONE	MOM OFF	ON	4	15	10	2	15	7
		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 1-2	OPP. KEYWAY 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

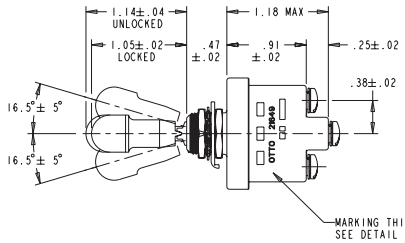
Lever/Lock Single Pole

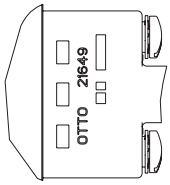
LOCKING CONFIGURATIONS

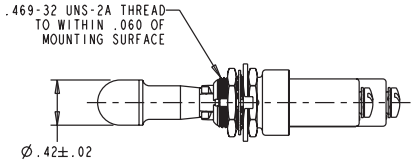
LOCKED IN THREE POSITIONS A	LOCKED IN CENTER & KEYWAY SIDE POSITION B	LOCKED OUT OF CENTER POSTION D	LOCKED IN CENTER POSITION E	LOCKED IN OPPOSITE KEYWAY POSITION F	LOCKED IN KEYWAY SIDE POSITION G	LOCKED OUT OF CENTER & KEYWAY SIDE POSITION H
LOCKED OUT OF CENTER & OPPOSITE KEYWAY POSITION J	LOCKED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

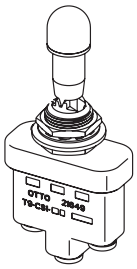








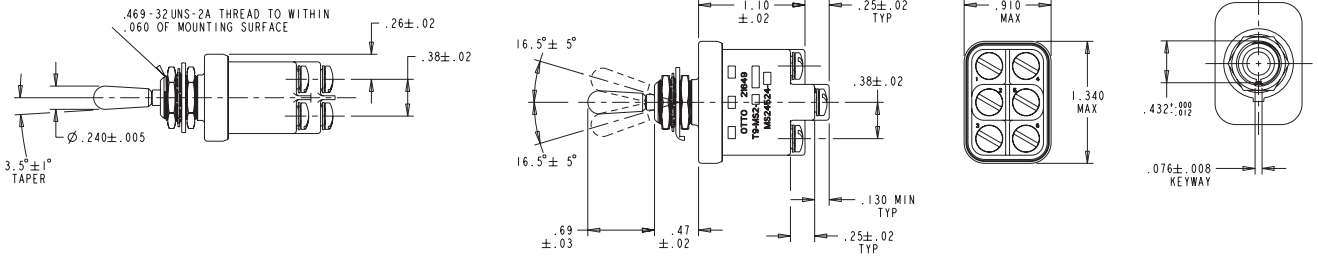




OTTO BASE PART NO.	MILITARY NO.	DASH NO.	AVAILABLE LOCKOUTS (SEE CHART)	CIRCUIT BY TOGGLE LEVER POSITION			ELECTRICAL RATINGS - SEA LEVEL & 65,000 FT					
				KEYWAY 1-2	CENTER	OPP. KEYWAY 2-3	28 VDC			115 VAC		
							LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIVE
T9-MSI-	MS24658-	21	ALL	ON	OFF	ON	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	4	15	10	2	15	7
		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	CENTER 1-2	OPP. KEYWAY 2-3	28 VDC			115 VAC		
							LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIVE
T9-MSI-	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

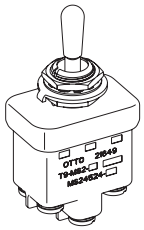
PRODUCT FAMILY TABLE

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 1-2 / 4-5	CENTER	OPP. KEYWAY 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 PART NO.	MILITARY STANDARD	DASH NO.	KEYWAY	CENTER 1-2 / 4-5	OPP. KEYWAY 2-3 / 5-6	28 VDC			115 VAC		
						LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIVE
T9-MS2-	MS24524-	32	NONE	ON	MOM ON	5	18	10	2	11	8
		33	NONE	ON	ON	7	20	15	4	15	15

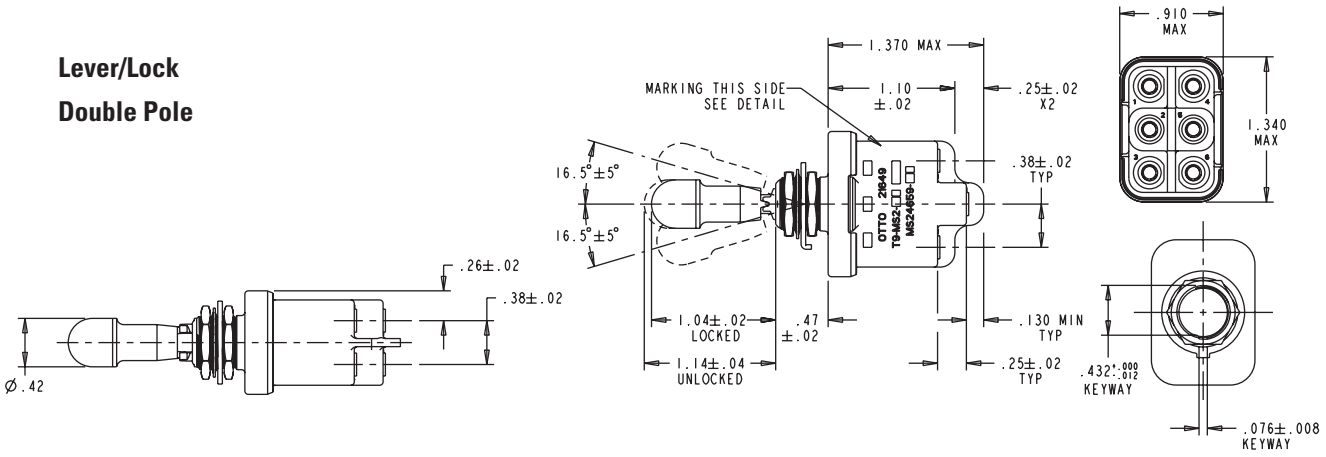


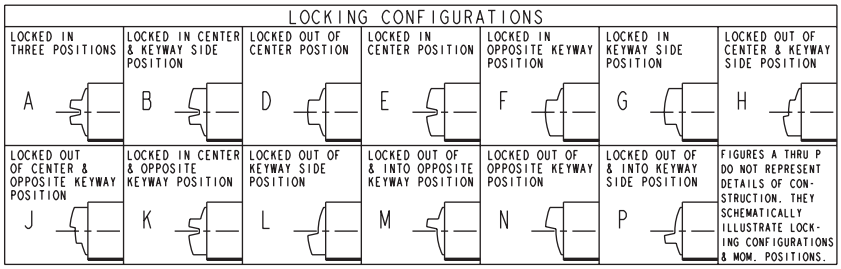
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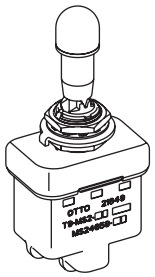
PRODUCT FAMILY TABLE

Lever/Lock

Double Pole







OTTO BASE PART NO.	MILITARY STANDARD	DASH NO.	AVAILABLE LOCKOUTS (SEE CHART)	CIRCUIT CONFIGURATION			SWITCH POSITION MARKING	ELECTRICAL RATINGS - SEA LEVEL & 65,000 FT					
				KEYWAY 1-2 / 4-5	CENTER	OPP. KEYWAY 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 PART NO.	MILITARY STANDARD	DASH NO.	AVAILABLE LOCKOUT	KEYWAY	CENTER	OPP. KEYWAY	SWITCH POSITION MARKING	28 VDC			115 VAC		
					1-2 / 4-5	2-3 / 5-6		LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIVE
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