# 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.

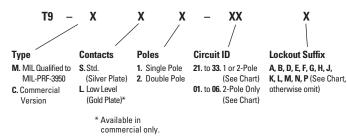
# **Features:**

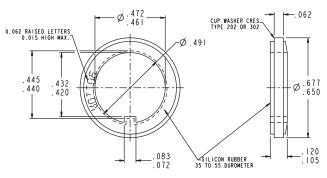
- Qualified to MIL-DTL-3950
- Commercial version is sealed per IP68S
- Lever lockout option available
- Maintained & momentary toggle action
- Optional panel seal
- RoHS compliant
- Black matte finish available. Contact factory.



Standard Characteri	lechanical Life: 40,000 cycles eal: IP68S and per MIL-DTL-3950 perating Temp Range: -65°C to +71°C  IATERIALS: bggle: Stainless steel, passivated ushing & Cover: Aluminum, clear anodized or zinc alloy										
ELECTRICAL RATINGS:	See Product Family Table										
Electrical Life:	20,000 cycles										
Mechanical Life:	40,000 cycles										
Seal:	IP68S and per MIL-DTL-3950										
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**



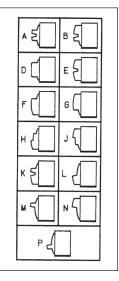


Optional Panel Seal P/N C710196, MIL. P/N M5423/16-01

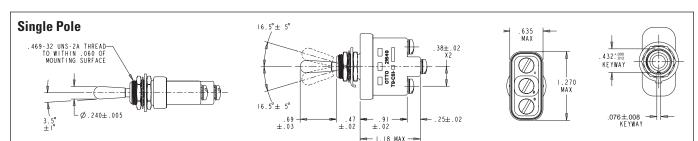
#### **Lever Lockout Configuration Codes**

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
- $\boldsymbol{\mathsf{D}}$  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
- ${\bf J}$  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



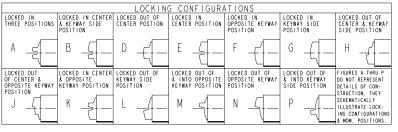
#### PRODUCT FAMILY TABLE

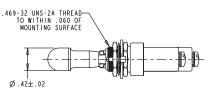


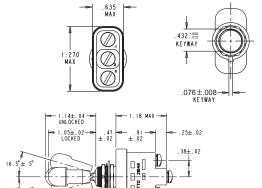
Low level 10m	ıA @ 30mV (con	nmercial version only)	

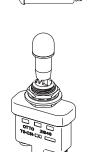
		I											
OTTO DADT	   MILITARY	DACII	CIRCUIT BY	TOGGLE LEVE	R POSITION	ELE:	CTRICAL R	SEA LEVEL	4 LEVEL & 65,000 FT				
OTTO PART NO.	NO.	DASH NO.	KEYWAY	CENTER	OPP. KEYWAY		28 VDC		II5 VAC				
	140.	.,,,	I - 2	CENTER	2 - 3	LAMP	AMP   RESISTIVE   INDUCTIVE   LAMP   RESISTIVE   INDUCTIVE						
		21	ON	OFF	ON						10		
		22	OFF	NONE	ON	_	20	1.5	,	1.5			
		23	ON	NONE	ON	)	20	15	3	15			
	MS24523-	24	NONE	OFF	ON								
T9-MSI-		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								
ОТТО	MILITARY	DASH	I/ E VIII A V	CENTER	OPP. KEYWAY		28 VDC	28 VDC		II5 VAC			
PART NO.	NO.	NO.	KEYWAY	1 - 2	2 - 3	LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIVE		
TO MCI	MCCAECO	32	NONE	ON	MOM ON	4	15	10	2	15	7		
T9-MSI-	MS24523-	33	NONE	ON	ON	5	20	15	3	15	10		

### Lever/Lock Single Pole









OTTO 21649

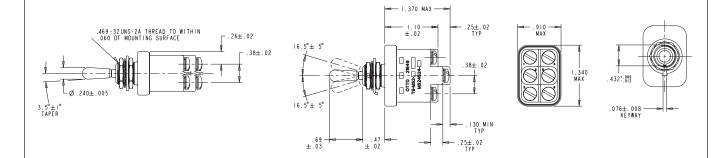
			AVAILABLE LOCKOUTS	CIRCUIT B	ELECTRICAL RATINGS - SEA LEVEL & 65,000 FT							
OTTO BASE	MILITARY	DASH						28 VDC		II5 VAC		
PART NO.	NO.	NO.	(SEE CHART)	KEYWAY I-2	CENTER	OPP. KEYWAY 2-3	LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIV
				1-2		2-3						
		21	ALL	ON	OFF	ON	4	20		2	15	7
		22	DFG	OFF	NONE	ON			15			
		23	DFG	ON	NONE	ON						
	MS24658-	24	EFKM	NONE	OFF	ON						
		25	F	NONE	OFF (M)	ON						
T9-MSI-		26	F	MOM ON	NONE	ON					15	
13 1101		27	ELN	MOM ON	OFF	MOM ON						
		28	E	MOM ON	OFF	NONE						
		29	F	MOM OFF	NONE	ON						
		30	F	MOM ON	NONE	OFF						
		31	EFKLMN	MOM ON	OFF	ON						
0110	MILITARY	DASH	AVAILABLE	45 WH L V	CENTER	OPP. KEYWAY		28 VDC			II5 VAC	
BASE NO.	NO.	NO.	LOCKOUT	KEYWAY	1 - 2	2 - 3	LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIV
T9-MSI-	MS24658-	32	E	NONE	ON	MOM ON	4	15	10	2	15	7
19-W21-	M324638-	33	EFKM	NONE	ON	ON	5	20	15	3	15	10

-MARKING THIS SIDE SEE DETAIL

TOGGLE SWITCHES

## PRODUCT FAMILY TABLE

#### **Double Pole**

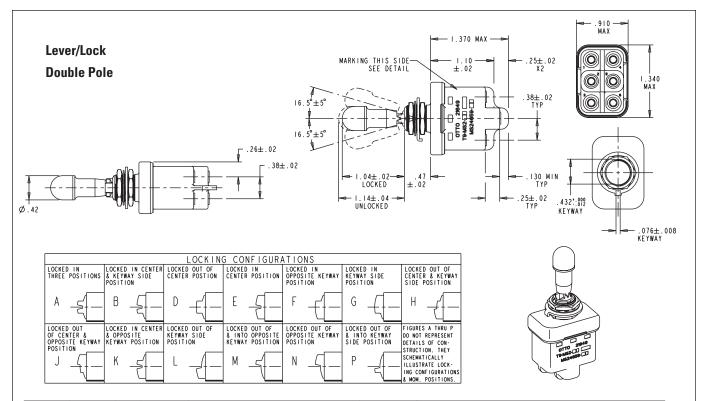


Low level 10mA @ 30mV (commercial version only)

											,,,	
OTTO BASE	MILITARY	DASH	CIRO	CUIT CONFIGURA	TION	ELECTRICA	L CURRENT	RATINGS (	AMPS) - SE	A LEVEL &	65,000 FT	
PART NO.	STANDARD	NO.	KEYWAY	CENTER	OPP. KEYWAY		28 VDC		115 V	AC, 60Hz &	400Hz	
	017.1107.110		1-2 / 4-5	CENTER	2-3 / 5-6	LAMP	RESISTIVE	STIVE   INDUCTIVE   LAMP   RESISTIVE   INDUCTIVE   RESISTIVE   INDUCTIVE   RESISTIVE   INDUCTIVE   RESISTIVE   RESISTIVE   RESISTIVE   RESISTIVE   RESIST	INDUCTIVE			
T9-MS2-01		- 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						
T9-MS2-03	MS27407-	.3	MOM ON	2-3 ON 4-5	MOM ON	]	10	10	2	''	8	
T9-MS2-04	M321401-	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				8
T9-MS2-06		6	MOM ON	1-2 ON 5-6	MOM ON	,	10	"	'	''		
		21	ON	OFF	ON	7	20			15	15	
		22	OFF	NONE	ON			1.5				
		23	ON	NONE	ON	1 '	20	13	4			
		24	NONE	OFF	ON							
		25	NONE	MOM OFF	ON					15 11 15 11		
T9-MS2-	MS24524-	26	MOM ON	NONE	ON							
		27	MOM ON	OFF	MOM ON							
		28	MOM ON	OFF	NONE	5	18	10	2	11	8	
		29	MOM OFF	NONE	ON							
		30	MOM ON	NONE	OFF							
		31	MOM ON	OFF	ON							
OTTO BASE	MILITARY	DASH	KEYWAY	CENTER	OPP. KEYWAY		28 VDC					
PART NO.	STANDARD	NO.		1-2 / 4-5	2-3 / 5-6	LAMP	RESISTIVE	INDUCTIVE	LAMP	C, 60Hz & RESISTIVE   15   11   15   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   11   15   15   11   15	INDUCTIVE	
T9-MS2-	MS24524-	32	NONE	ON	MOM ON	5	18	10	2	- 11	8	
13 1132	11024324	33	NONE	ON	ON	7	20	15	4	15	15	



#### PRODUCT FAMILY TABLE



0110 0405	MILLITARY	0.4.0.11	AVAILABLE	CIRCUIT CONFIGURATION			SWITCH		ELECT	ELECTRICAL RATINGS – SEA LEVEL & 65,000 FT						
OTTO BASE PART NO.	MILITARY STANDARD	DASH NO.	LOCKOUTS	KEYWAY	CENTER	OPP. KEYWAY				28 VDC		II5 VAC, 60Hz & 400Hz				
TAKT NO.	O T KIEDKIED	110.	(SEE CHART)	1-2 / 4-5	CENTER	2-3 / 5-6	MARKING		LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIVE		
		21	ALL	ON	OFF	ON	ON OFF (	ON					15			
		22	D,F,G	OF F	NONE	ON	OFF (	ON	5	20	15	4		15		
		23	D,F,G	ON	NONE	ON	ON (	ON		20				13		
		24	E,F,K,M	NONE	OFF	ON	OFF (	ON								
	MS24659-	25	F	NONE	MOM OFF	ON	OFF (	ON		18	10	2	11	8		
T9-MS2-		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 OI	FF								
		31	E,F,K,L,M,N	MOM ON	OFF	ON	ON OFF (	ON								
OTTO BASE	MILITARY	DASH	AVAILABLE	KEYWAY	CENTER	OPP. KEYWAY	SWITCH POSITION	. 1		28 VDC		II5 VAC				
PART NO.	STANDARD	NO.	LOCKOUT	NE I WAT	1-2 / 4-5	2-3 / 5-6	MARKING		LAMP	RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIVE		
T9-MS2-	MS24659-	32	E	NONE	ON	MOM ON	ON (	ON	5	18	10	2	- 11	8		
13-M32-	M374032.	33	E,F,K,M	NONE	ON	ON	ON (	ON	7	20	15	4	15	15		