

Toggle Switches



SERIES	FEATURE	ACTUATION	MAX RATING (Resistive @ 115VAC, 28VDC)	SEAL RATING	MOUNTING	CIRCUITRY
T1	2 or 3 Position, 1 to 8 Poles, Lever Lock Option	Momentary, Maintained	8A	MIL-PRF-83731	15/32" or 1/4" dia. Threaded	Multi-Pole B2, B3 Basics
T3	Snap Action, Lever Lock Option	Momentary, Maintained	5A	MIL-PRF-83731 - 15/32" Threaded Only	15/32" or 1/4" dia. Threaded	SPST, DPST
T7	Lower Cost, Sealed	Momentary, Maintained	16A	IP68S	15/32" dia. Threaded	SPST, SPDT DPST, DPDT
T9	High Performance Lever Lock Option	Momentary, Maintained	20A	IP68S or MIL-DTL-3950	15/32" dia. Threaded	SPST, SPDT DPST, DPDT
TE	Snap Action, Non-Teasible	Momentary, Maintained	5A	MIL-DTL-8834	15/32" or 1/4" dia. Threaded	SPST, DPST

SEALED TOGGLE SWITCHES

T1
SEALED
TOGGLES

PANEL SEALED PER MIL-PRF-83731

3-Position, 4 Pole, Lever Lock

Basic Switches: Per MIL-PRF-8805/101
Enclosure: Sealed per MIL-DTL-83731
Rating: 5 amps Resistive @ 28VDC
 1 amp Inductive @ 28VDC
 1 amp Lamp @ 28VDC
 2 amps Motor @ 28VDC
Action: Maintained
Cap: Nylon
Handle: Stainless steel



T1-0216* T1-0185*

*Lever Lock configurations A thru P available.

2-Position, 3 Pole, Lever Lock

Basic Switches: Per MIL-PRF-8805/109
Enclosure: Sealed per MIL-DTL-83731
Rating: 1 amp Resistive @ 28VDC
 0.5 amp Inductive @ 28VDC
Action: Maintained-momentary
Handle: Stainless steel, dull nickel plate
Cap, Handle: Brass, dull nickel
Bushing: Stainless steel with black oxide finish
T1-0175*



*Lever Lock configurations D, F and G available.

3-Position, 8 Pole, Lever Lock

Basic Switches: Per MIL-PRF-8805/101
Enclosure: Sealed per MIL-DTL-83731
Operating Force: 6.0 lbs. max
Rating: 5 amps Resistive @ 28VDC
 1 amp Inductive @ 28VDC
 1 amp Lamp @ 28VDC
 2 amps Motor @ 28VDC
Action: Maintained
Cap, Handle: Brass, dull nickel plate
Handle: Stainless steel
T1-0210*



*Lever Lock configurations A thru P available.

2-Position, 3 Pole, Lever Lock

Basic Switches: Per MIL-PRF-8805/101
Enclosure: Sealed per MIL-DTL-83731
Operating Force: 6.0 lbs. max
Rating: 5 amps Resistive @ 28VDC
 1 amp Inductive @ 28VDC
 1 amp Lamp @ 28VDC
 2 amps Motor @ 28VDC
Action: Maintained
Cap, Handle: Brass, dull nickel plate
Handle: Stainless steel
T1-0214*



2-Position, 2 Pole

Toggle Seal: Per MIL-DTL-83731
Basic Switch: Per MIL-PRF-8805/109 (except terminals)
Enclosure: Sealed per MIL-DTL-83731
Operating Force: 2.0 lbs. to 5.0 lbs. max
Rating: 1 amp Resistive @ 28VDC
 0.5 amp Inductive @ 28VDC
Action: Maintained-maintained
Bat, Handle, Bushing & Bracket: Stainless steel
T1-0051-1



2-Position, 3 Pole, Lever Lock

Basic Switches: Per MIL-PRF-8805/101
Enclosure: Toggle seal per MIL-DTL-83731
Operating Force: 5.0 lbs. max
Rating: 150mA Resistive @ 28VDC
Mechanical Life: 100,000 cycles
Action: Maintained-maintained
Handle: Stainless steel, dull nickel plate
Cap, Handle: Brass, dull nickel plate
Bushing & Bracket: Stainless steel
T1-0081D*



*Lever Lock configurations D, F and G available.

3-Position, 8 Pole, "T" Lever Lock

Basic Switch: Per MIL-PRF-8805
Enclosure: Sealed per MIL-DTL-83731
Rating: 5 amps Resistive @ 28VDC
 1 amp Inductive @ 28VDC
 1 amp Lamp @ 28VDC
 2 amps Motor @ 28VDC
Action: Maintained
Bushing, Cap & Handle: Stainless steel
T1-0215*



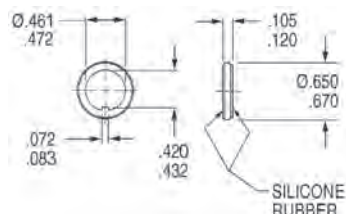
*Lever Lock configurations A thru P available.

Stainless Steel/Silicone Rubber Washer

Stainless steel cup washer with silicone rubber seal assures proper watertight panel seal. Mounts behind panel.
 Approved to MIL-DTL-5423/16. Designed for sealing 15/32" bushing with keyway.

OTTO P/N: 710196
MIL P/N: M5423/16-01

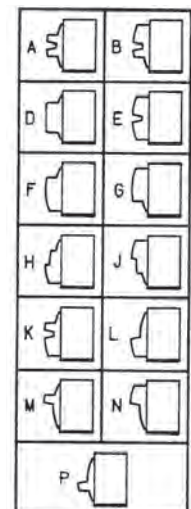
Thickness of bushing seal is reduced to 0.080" when mounted to panel.



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



FEATURING B2 & B3 BASIC SWITCHES

3-Position, 6 Pole, Lever Lock

SPECIFICATIONS:

Position	Circuit	Force	Action
1	3PNO, 3PNC	Switch OFF	Maintained
2	6PNO	2.0 lbs. to 6.0 lbs.	Momentary
3	6PNC	2.0 lbs. to 6.0 lbs.	Locked

Basic Switches: Per MIL-PRF-8805/4 (except with integral lever)

Operating Force: 1.5 lbs. to 2.5 lbs.

Rating: 0.1mA to 1 amp Resistive @ 28VDC
0.5 amp Inductive @ 28VDC

Handle: Stainless steel, dull nickel plate

Cap, Handle: Brass, dull nickel plate

Bushing: Stainless steel with black oxide finish

Bracket: Stainless steel



T1-0125

3-Position, 3 Pole

SPECIFICATIONS:

Position	Actuation
Up	N.C., N.C., N.C.
Center	N.C., N.O., N.C.
Down	N.O., N.C., N.O.

Basic Switches: Per MIL-PRF-8805/4

Operating Force: 1.0 lb. to 5.0 lbs.

Rating: 0.5 amp Inductive @ 28VDC
300mA @ 5VDC Resistive
Higher ratings available

Mechanical Life: 25,000 cycles



T1-0041

3-Position, 6 Pole

SPECIFICATIONS:

Position	Circuit	Force	Action
1	3PNC, 3PNO	2.0 lbs. to 6.0 lbs.	Maintained
2	6PNC	N/A	N/A
3	3PNO, 3PNC	2.0 lbs. to 6.0 lbs.	Maintained

Rating: 1 amp Resistive @ 28VDC
0.5 amp Inductive @ 28VDC

Mechanical Life: 25,000 cycles

Bushing, Bracket & Lever: Stainless steel



T1-0050-1

Mounting Hardware

MILITARY P/N	OTTO P/N	BUSHING SIZE (inches)
KEYWAY WASHERS		
MS25081-C0	710081-C0	0.250"
MS25081-C4	710081-C4	0.469"
MS25081-C6	710081-C6	0.625"
INTERNAL TOOTH LOCKWASHERS		
MS35333-135	710333-135	0.250"
MS35333-136	710333-136	0.469"
MS35333-138	710333-138	0.625"
HEX NUTS—STANDARD		
MS25082-C14	710082-C14	0.250-40
MS25082-C21	710082-C21	0.469-32
MS25082-B11	710082-B11	0.625-24
HEX NUTS—WIRE LOCKING		
MS21340-04	710340-04	0.469-32
MS21340-05	710340-05	0.625-24

All hardware is stainless steel except MS25082-B11 which is brass, black oxide plated.

COMMERCIAL & MIL MINIATURE TOGGLES

T3
MINIATURE
TOGGLES

FEATURING OTTO'S UNIQUE SNAP-ACTION MECHANISM

These miniature toggles are rugged, highly reliable switches offering positive detent action for safe switching operation. Featuring the unique OTTO snap-action switch mechanism in conjunction with a unique toggle actuator design, the T3 series offers snap-action contact actuation.

High contact pressure and superior wiping action of the OTTO design makes the T3 series an excellent choice for switching loads from logic level up to 5 amps.

Choose sealed one or two pole circuitry, 15/32-32 sealed or 1/4-40 unsealed bushing construction, momentary and/or maintained operation. The 15/32-32 bushing model is also available with lever lockout toggle feature or thumb button actuators.

Molded-in terminals seal the contacts against moisture and solder flux wicking. The front-panel side of 15/32-32 bushing models are sealed against water and other liquids per MIL-DTL-83731.

In addition to the single turret solder terminal specified in MIL-DTL-83731, we also offer two different lengths of pins for printed circuit soldering.

Mounting hardware provided includes two hex nuts, one lockwasher and one keyway washer.

Features:

- Snap-action contact actuation
- Shorter behind panel depth
- Superior wiping action keeps contacts clean
- Positive tactile response prevents operating errors
- Weighs up to 25% less than competitive products
- More contact/terminal plating choices
- Highly reliable, simpler design, fewer parts
- Black matte finish available. Contact factory.
- RoHS/WEEE/Reach compliant



Standard Characteristics/Ratings:

ELECTRICAL RATINGS:

Load	Sea Level @ 28VDC or 115VAC, 400Hz	@ 65,000 Feet
Resistive	5A	5A
Inductive	2A	2A
Lamp	1A	N/A
DWV	1050Vrms	400Vrms

Electrical Life: 30,000 cycles

Mechanical Life: 100,000 cycles

Seal: MIL-DTL-83731 (15/32-32 bushing style only)

Operating Temp Range: -65°C to +85°C

MATERIALS:

Handle: 303 Stainless

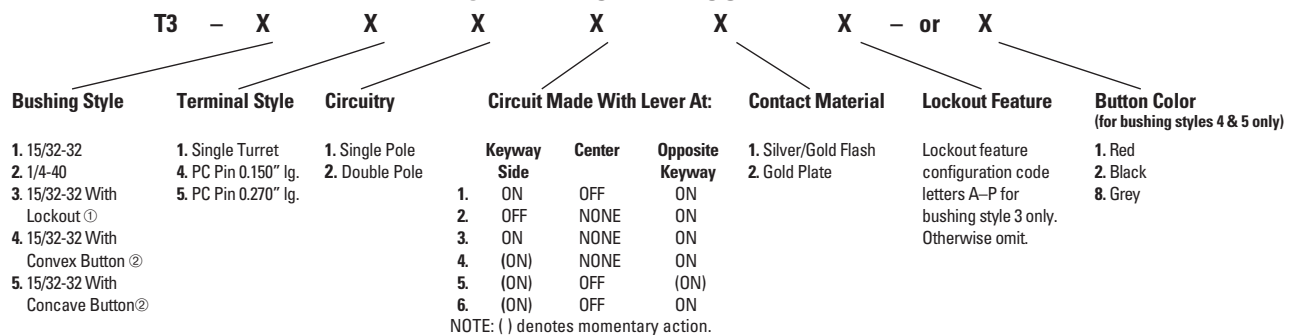
Bushing: Per MIL-DTL-83731

Body: Per MIL-DTL-83731

Terminal Hardware: None required

Mounting Hardware: Hex nuts, lockwasher and keyway washer

T3 PART NUMBER CODE



① Add appropriate lockout feature configuration code letter (A thru P) for bushing style 3 only.

② Button color codes (1, 2 and 8) for bushing styles 4 and 5 at end of Part Number.

Special Note: For black levers and bushings, please contact factory.

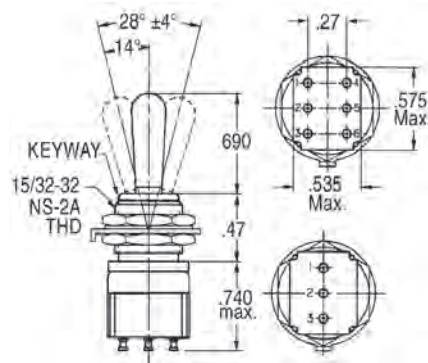
MEETS MIL-DTL-83731, COMMERCIAL & MILITARY GRADES

Circuit Made With Lever At				15/32" Bushing (Sealed)		1/4-40" Bushing (Unsealed)		Lever Lock-15/32" Bushing (Sealed)		
No. Poles	Keyway Side 1-2 4-5	Center Position	Opposite Keyway 2-3 5-6	MIL-SPEC Part Number	OTTO Part Number	MIL-SPEC Part Number	OTTO Part Number	MIL-SPEC Part Number	OTTO Part Number	Suffix for Lockout Feature
1	ON	OFF	ON	MS27718-21-1	T3-11111	MS27716-21-1	T3-21111	MS27720-21-1	T3-31111	All
1	OFF	None	ON	MS27718-22-1	T3-11121	MS27716-22-1	T3-21121	MS27720-22-1	T3-31121	D, F, G
1	ON	None	ON	MS27718-23-1	T3-11131	MS27716-23-1	T3-21131	MS27720-23-1	T3-31131	D, F, G
1	(ON)	None	ON	MS27718-26-1	T3-11141	MS27716-26-1	T3-21141	MS27720-26-1	T3-31141	F
1	(ON)	OFF	(ON)	MS27718-27-1	T3-11151	MS27716-27-1	T3-21151	MS27720-27-1	T3-31151	E, L, N
1	(ON)	OFF	ON	MS27718-31-1	T3-11161	MS27716-31-1	T3-21161	MS27720-31-1	T3-31161	E, F, K, L, M, N
2	ON	OFF	ON	MS27719-21-1	T3-11211	MS27717-21-1	T3-21211	MS27721-21-1	T3-31211	All
2	OFF	None	ON	MS27719-22-1	T3-11221	MS27717-22-1	T3-21221	MS27721-22-1	T3-31221	D, F, G
2	ON	None	ON	MS27719-23-1	T3-11231	MS27717-23-1	T3-21231	MS27721-23-1	T3-31231	D, F, G
2	(ON)	None	ON	MS27719-26-1	T3-11241	MS27717-26-1	T3-21241	MS27721-26-1	T3-31241	F
2	(ON)	OFF	(ON)	MS27719-27-1	T3-11251	MS27717-27-1	T3-21251	MS27721-27-1	T3-31251	E, L, N
2	(ON)	OFF	ON	MS27719-31-1	T3-11261	MS27717-31-1	T3-21261	MS27721-31-1	T3-31261	E, F, K, L, M, N

NOTE: () denotes momentary action.

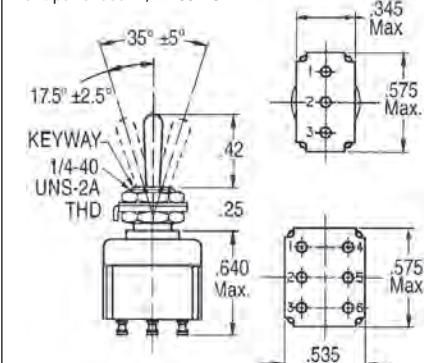
Standard Toggle, 15/32-32 Bushing

Sealed front panel construction.



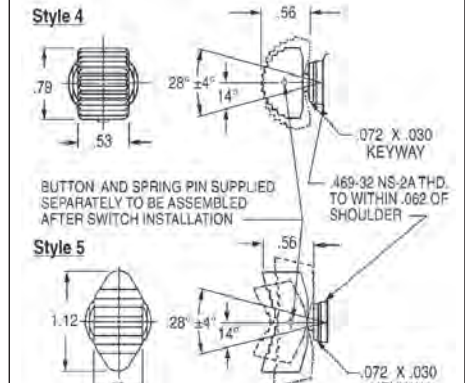
Standard Toggle, 1/4-40 Bushing

Unsealed front panel construction. Optional front panel seal P/N 700223.



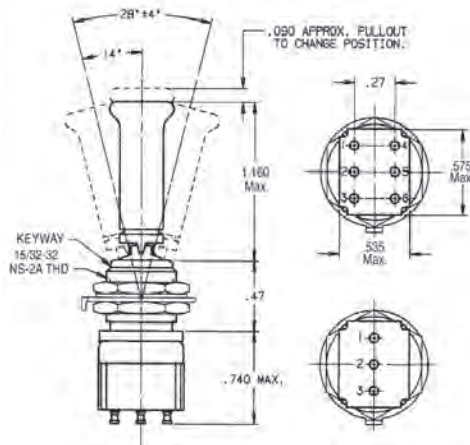
Thumb Actuators, 15/32-32 Bushing

Sealed front panel construction. Behind-panel dimensions same as 15/32-32 Bushing style.



Lever Lockout Toggle, 15/32-32 Bushing

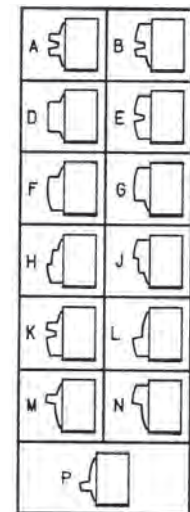
Sealed front panel construction.



Lever Lockout Configuration Codes

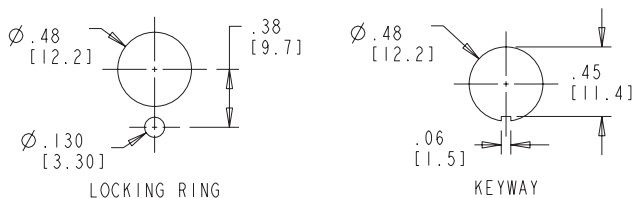
Figures A thru P are schematics to illustrate lockout configurations and momentary positions. They do not represent details of construction.

- 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

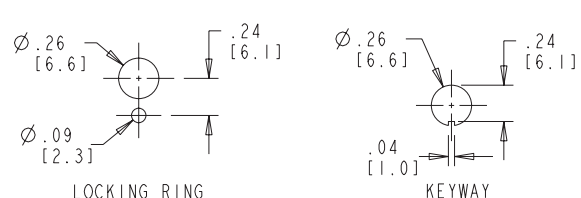


TOGGLE SWITCH MOUNTING DIMENSIONS (FOR REFERENCE ONLY)

MOUNTING DETAIL FOR 15/32" DIA. BUSHING SWITCHES



MOUNTING DETAIL FOR 1/4" DIA. BUSHING SWITCHES



SEALED TOGGLE SWITCHES

LOW COST TOGGLE FOR WET & DUSTY ENVIRONMENTS

These toggle switches are rugged, high performance sealed switches designed for use under severe conditions found in heavy equipment, industrial control, marine and appliance applications. They are totally sealed so the switch can withstand direct water spray and submersion, even during operation. They are designed to meet the international submersion specification level IP68S. OTTO's front panel seal is accomplished with an O-ring under the bat handle. However, now a secondary visible bushing seal is offered as an option.

T7 toggles are offered in single and double pole configurations. A choice of models are offered to handle power levels to 16 amps, 0.5HP and low level electronic switching applications.

These toggles feature positive detent action for safe switching operation. In conjunction with the unique OTTO snap-action switch mechanism, the T7 offers non-teasible contact transfer.

High contact pressure and superior contact wiping action of the OTTO design makes the T7 an excellent choice for switching loads from logic level up to 16 amps.

Mounting hardware provided includes two hex nuts, one lockwasher and one keyway washer. An optional panel seal is available, P/N 710196, MIL. P/N M5423/16-01.

Features:

- Withstands direct water spray
- Submersible to IP68S
- Switches up to 16 amps
- Withstands extreme shock & vibration
- Positive detent, non-teasible contact transfer
- 2 & 3-position, momentary & maintained action
- Choice of terminal styles
- UL recognized & CSA certified
- RoHS/WEEE/Reach compliant
- Black matte finish available. Contact factory.



Standard Characteristics/Ratings:

ELECTRICAL RATINGS:

Load	Sea Level @ 28VDC or 115VAC	Cycles
Resistive	16A	25,000
Resistive	10A	50,000
Inductive	10A	25,000
Motor	0.5HP	25,000
DWV	1050Vrms	N/A
Low Level	10mA max @ 30mV max DC Resistive for 50,000 cycles	

Electrical Life: See Rating Chart

Mechanical Life: 100,000 cycles

Seal: IP68S

Operating Temp Range: -30°C to +85°C

MATERIALS:

Case: Thermoplastic

Bushing: Anodized aluminum alloy

Toggle: Stainless steel

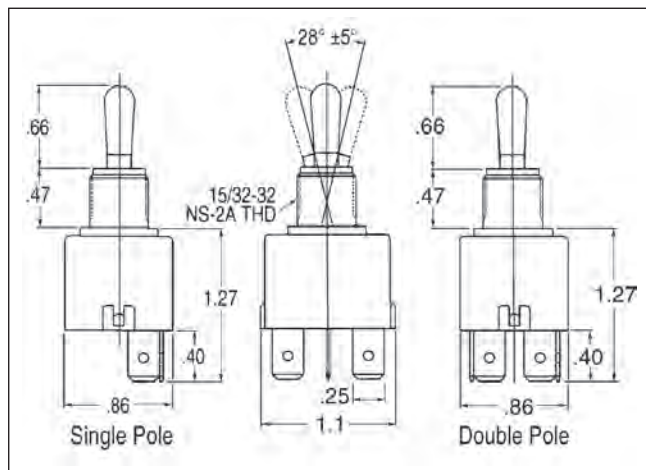
Terminals: Brass

Contacts: Fine silver/silver cadmium oxide

Low Level: Gold over silver

Terminal Hardware: 6-32 screw when applicable
T7 recommended Quick Connect terminals:
AMP 60253-2 for 12-16 AWG
AMP 42100-2 for 14-18 AWG

Mounting Hardware: Hex nuts, lockwasher, key way washer



T7 PART NUMBER CODE

Circuitry	Terminal Style	Contact Rating	Circuit Made With Actuator At:	Toggle Style	Button Color*
1. 1 Pole 2. 2 Pole	1. .250" O.C. 2. Screw 3. Solder 4. PC Pin (consult factory)	1. Std. 2. Low Level	Keyway Side Center Opposite Keyway	1. Bat Handle 2. Lever Lockout 3. Dome Button 4. Rocker Button 5. Bat Handle With Bushing Seal	1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Purple 8. Gray 9. White
			A. ON NONE OFF B. ON NONE ON C. (ON) NONE OFF D. (ON) NONE ON E. (ON) OFF (ON) F. ON OFF ON G. (ON) OFF ON H. OFF NONE ON J. OFF NONE (ON) K. ON OFF (ON)		

NOTE: () denotes momentary action.

* Only applicable to Toggle Styles 3 & 4; otherwise omit.

T7 Connector P/N C801765

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

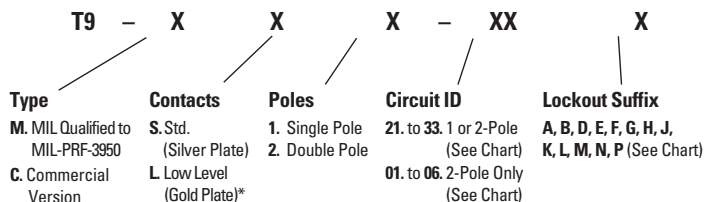
Bushing & Cover: Aluminum, clear anodized or zinc alloy

Case: Thermoset plastic

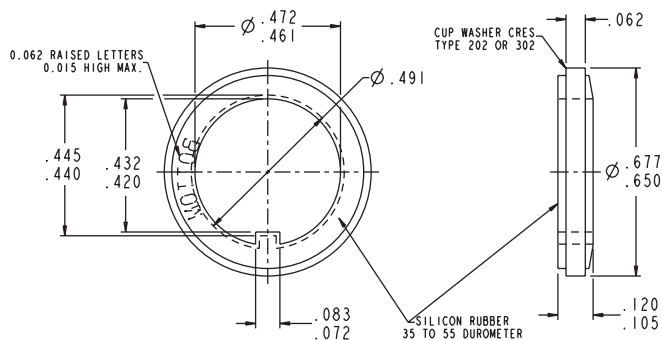
Terminal Hardware: Included

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

T9 PART NUMBER CODE



* Available in commercial only.

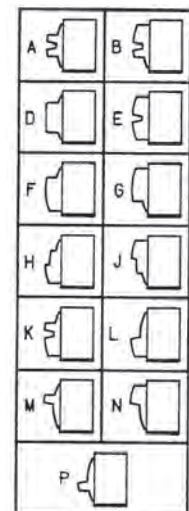


Optional Panel Seal P/N 710196, MIL. P/N M5423/16-01

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

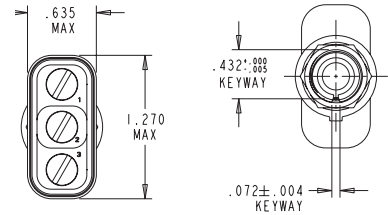
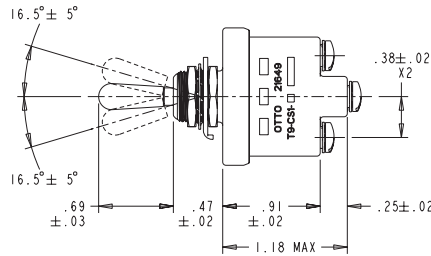
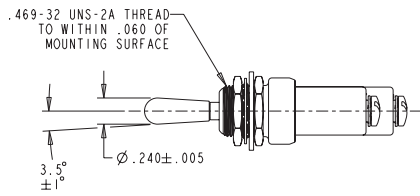


COMMERCIAL & MIL TOGGLE SWITCHES

T9
TOGGLES

PRODUCT FAMILY TABLE

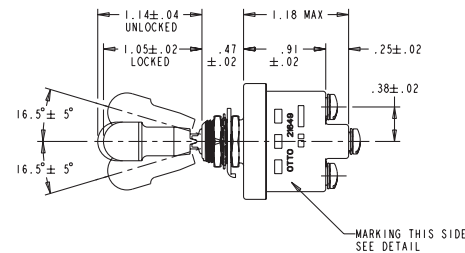
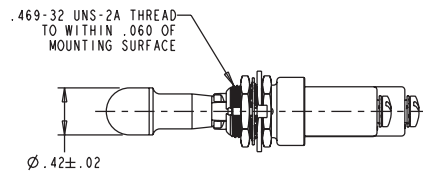
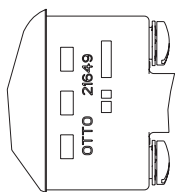
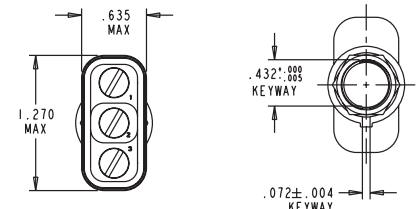
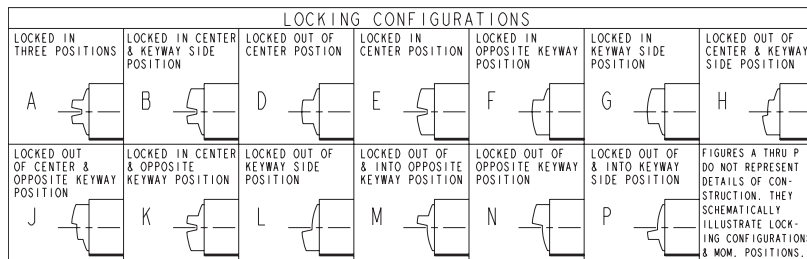
Single Pole



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-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	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		
T9-MS1-	MS24523-	32	NONE	ON	MOM ON	4	15	10	2	15	7
		33	NONE	ON	ON	5	20	15	3	15	10

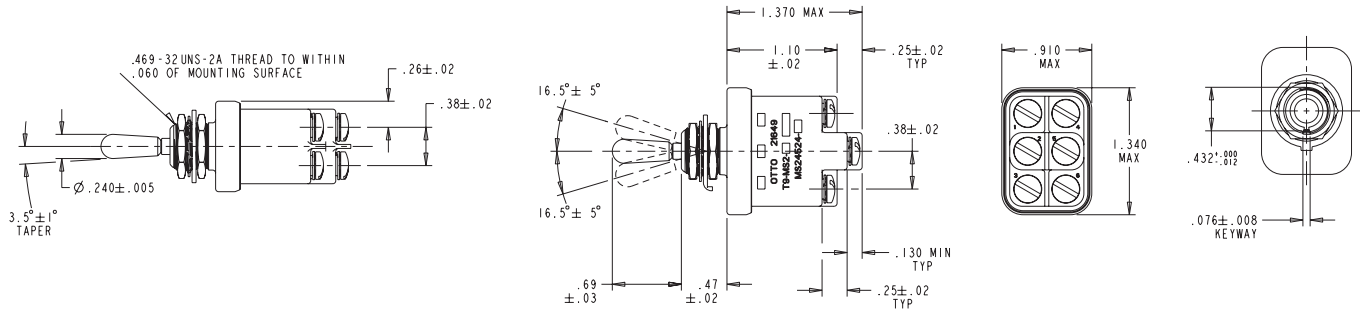
Lever/Lock Single Pole



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 1-2	CENTER	OPP. KEYWAY 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	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
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

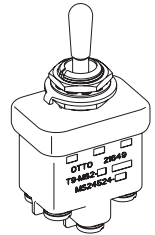
PRODUCT FAMILY TABLE

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 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	5	18	10	2	11	8
		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 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

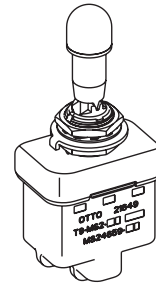
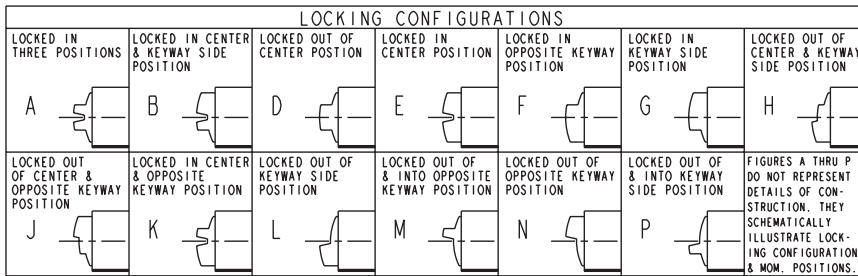
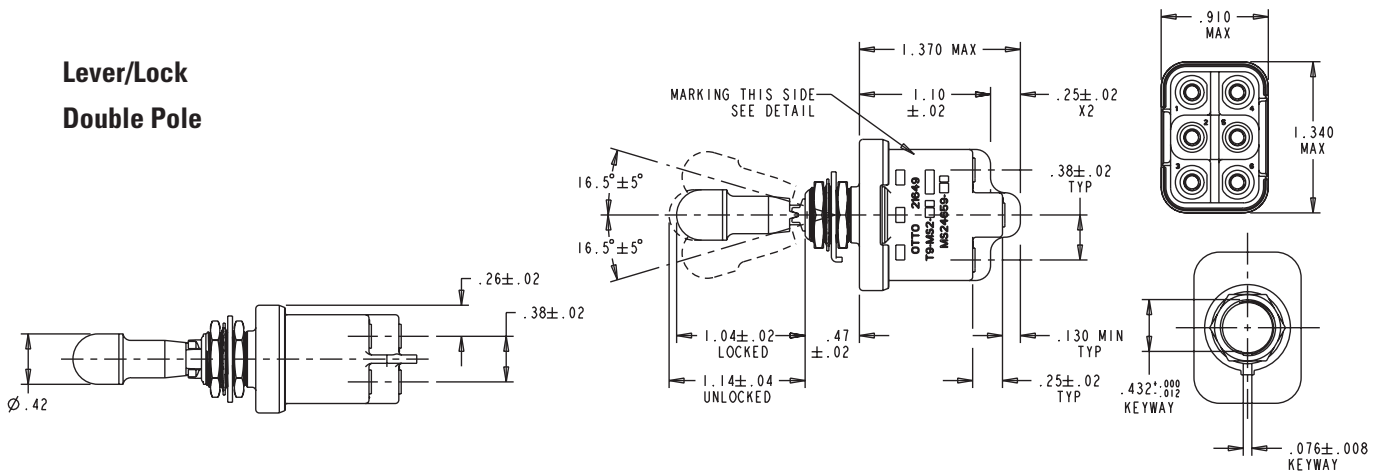


COMMERCIAL & MIL TOGGLE SWITCHES

T9
TOGGLES

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	5	18	10	2	11	8					
		25	F	NONE	MOM OFF	ON	OFF	ON											
		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 1-2 / 4-5	OPP. KEYWAY 2-3 / 5-6	SWITCH POSITION MARKING	28 VDC							115 VAC				
T9-MS2-	MS24659-	32	E	NONE	ON	MOM ON	ON ON	LAMP							RESISTIVE	INDUCTIVE	LAMP	RESISTIVE	INDUCTIVE
		33	E, F, K, M	NONE	ON	ON	ON ON	5	18	10	2	11	8						
								7	20	15	4	15	15						

POSITIVE ACTION NON-TEASIBLE TOGGLE

The TE series is a MIL qualified, snap-action, non-teasible, positive make and break, panel mount toggle switch.

The non-teasible mechanism assures that the switch will actuate and not “hang up” even when actuated very slowly. A fluorosilicone O-ring seals the contact area from contaminants such as dust, moisture and sand. All metal components are corrosion resistant and designed to exceed all military requirements.

This environmentally sealed switch is available in single and double pole configurations with 15/32 or 1/4-40 bushings. The TE series is ideal in applications for dry circuit, low level and power switching applications.

Features:

- Positive action miniature toggle
- Wiping action contacts
- Momentary & maintained toggle action
- Panel mount
- Solder lug termination
- Single & double pole
- Sealed per MIL-DTL-8834
- MIL qualified MS90310-211/221/231/271/311
MS90311-211/221/231/271/311
MS24655-211/221/231/271/311
MS24656-211/221/231/271/311/331/341/351
- RoHS/WEEE/Reach compliant
- Black matte finish available. Contact factory.



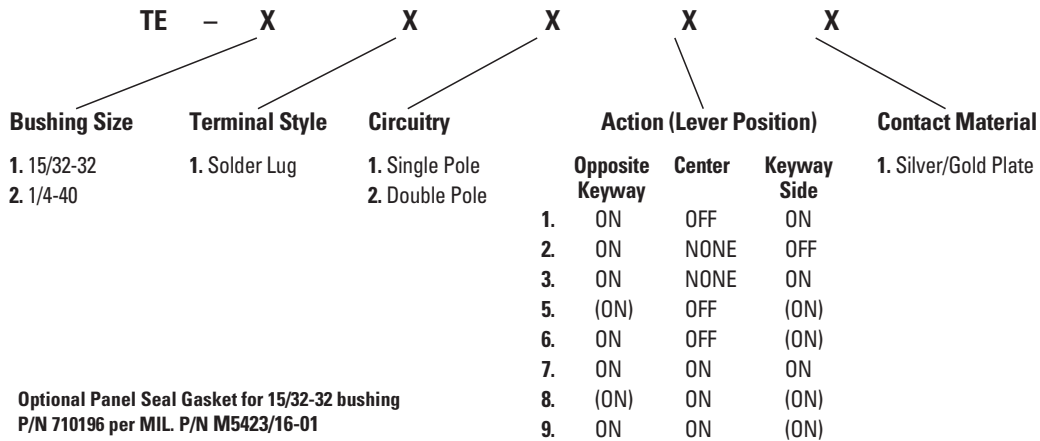
1/4-40 Bushing Style



15/32-32 Bushing Style

Standard Characteristics/Ratings:				
ELECTRICAL RATINGS:				
Load	Sea Level @ 28VDC	Sea Level @ 115VAC, 60Hz	Sea Level @ 115VAC, 400Hz	Sea Level Low Level @ 5mV
Resistive	5A	2A	3A	25mA
Inductive	1A	1A	2A	25mA
Electrical Life:	20,000 cycles			
Mechanical Life:	40,000 cycles			
Seal:	Per MIL-DTL-8834			
Operating Temp Range:	-55°C to +71°C			
MATERIALS:				
Handle:	Stainless steel with lusterless finish			
Bushing:	Aluminum alloy (15/32)			
Cover:	Stainless steel			
Mounting Hardware:	Hex nuts, lockwasher and keyway washer Silicone seal when applicable			

TE PART NUMBER CODE

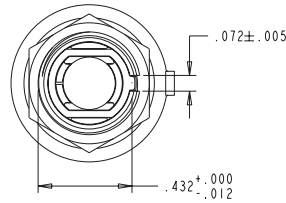
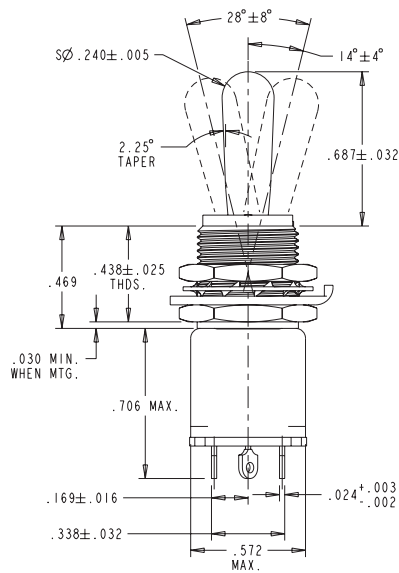


NOTE: () denotes momentary action.

Special Note: For black levers and bushings, please contact factory.

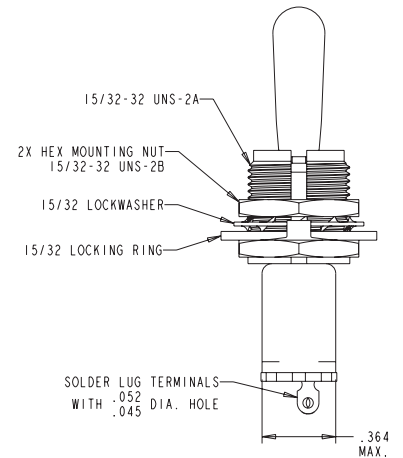
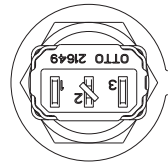
POSITIVE ACTION NON-TEASIBLE TOGGLE

TE-111 15/32-32, Single Pole MS90310

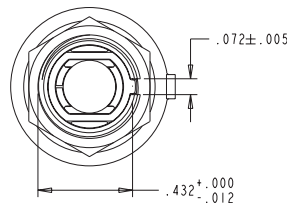
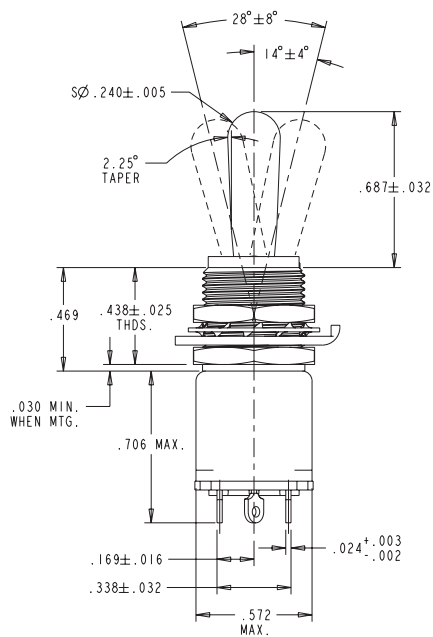


CIRCUITS MADE WITH LEVER IN THESE POSITIONS:				
	Opposite Keyway	Center	Keyway	MS Dash Number
1.	ON 2-3	OFF	ON 1-2	-211
2.	ON 2-3	NONE	OFF	-221
3.	ON 2-3	NONE	ON 1-2	-231
5.	(ON) 2-3	OFF	(ON) 1-2	-271
6.	ON 2-3	OFF	(ON) 1-2	-311

NOTE: () denotes momentary action.

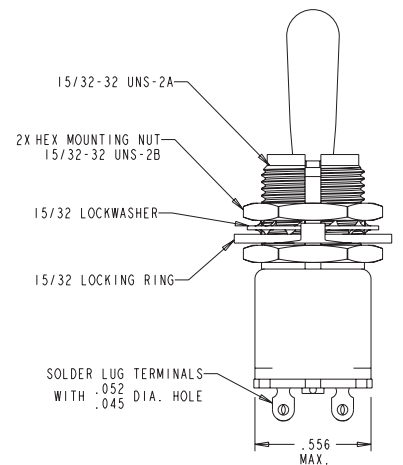
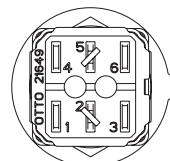


TE-112 15/32-32, Double Pole MS90311



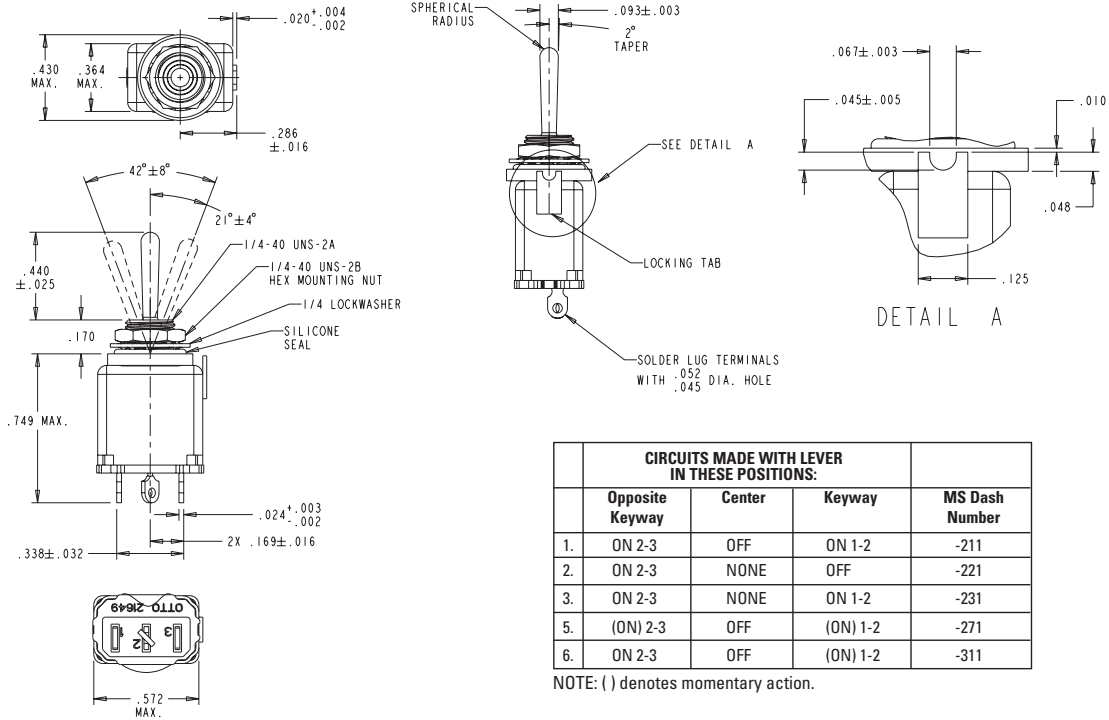
CIRCUITS MADE WITH LEVER IN THESE POSITIONS:				
	Opposite Keyway	Center	Keyway	MS Dash Number
1.	ON 2-3, 5-6	OFF	ON 1-2, 4-5	-211
2.	ON 2-3, 5-6	NONE	OFF	-221
3.	ON 2-3, 5-6	NONE	ON 1-2, 4-5	-231
5.	(ON) 2-3, 5-6	OFF	(ON) 1-2, 4-5	-271
6.	ON 2-3, 5-6	OFF	(ON) 1-2, 4-5	-311

NOTE: () denotes momentary action.

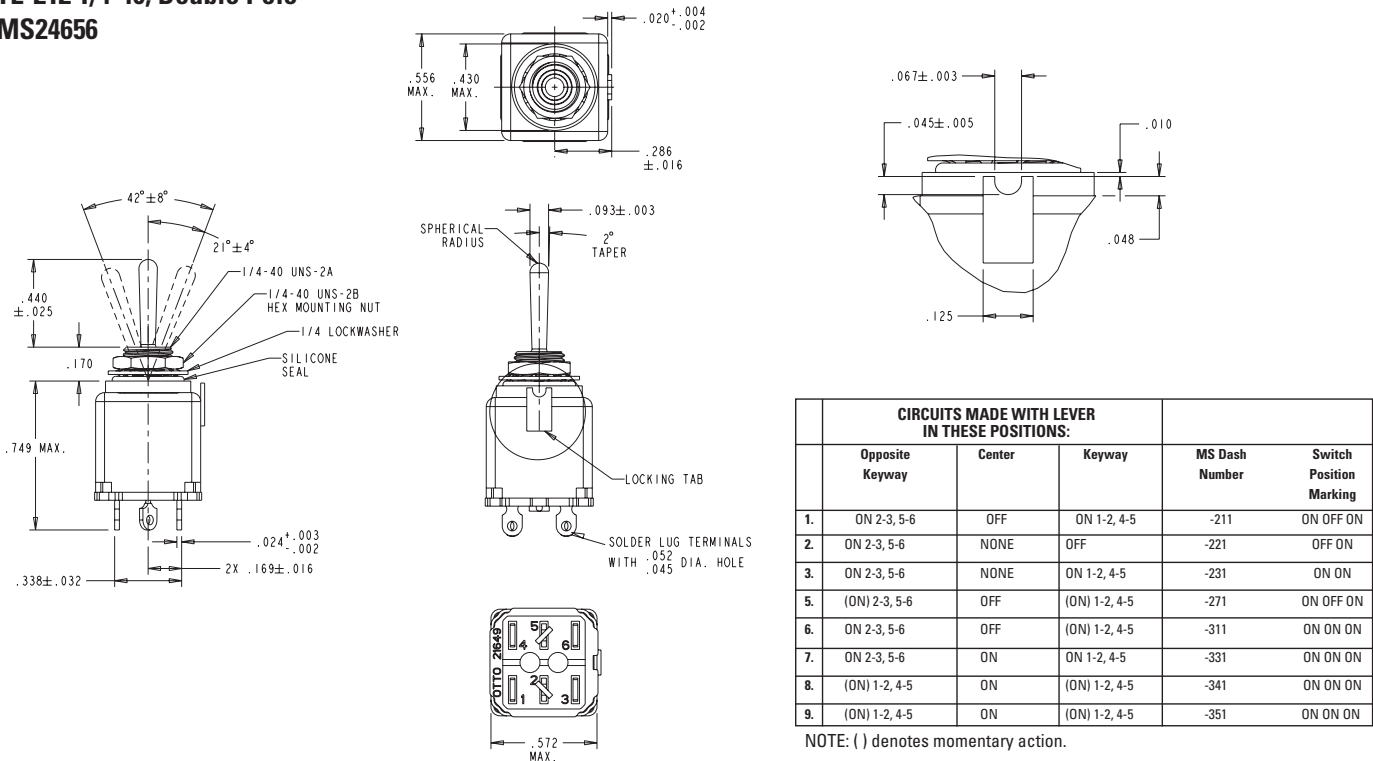


POSITIVE ACTION NON-TEASIBLE TOGGLE

**TE-211 1/4-40 Bushing, Single Pole
MS24655**



**TE-212 1/4-40, Double Pole
MS24656**



COMMERCIAL & MIL TOGGLE GUARDS

TG SERIES

The TG series toggle guards are offered for 2 and 3-position switches with 15/32-32 threaded bushings and slotted or flat keyways. All models feature spring loaded covers that lock in either the open or closed positions. In the open position the switch actuator operates on all positions freely, in the closed position, the switch actuator is locked in the desired position.

The toggle guard is easily installed on the switch from the front panel with two mounting hex nuts and may be used with an optional panel seal provided with each switch.

Features:

- MS approved & QPL'd choices
- Molded plastic cover - multiple color choices
- Bracket: Black painted steel

