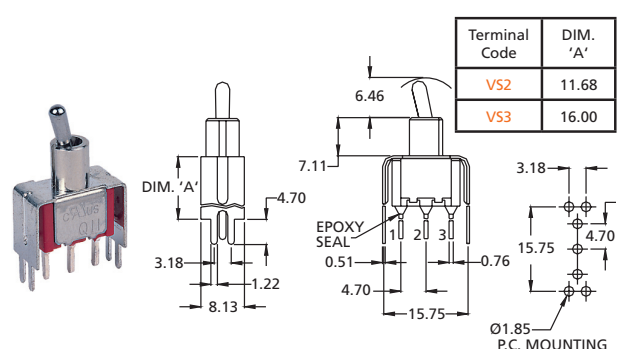
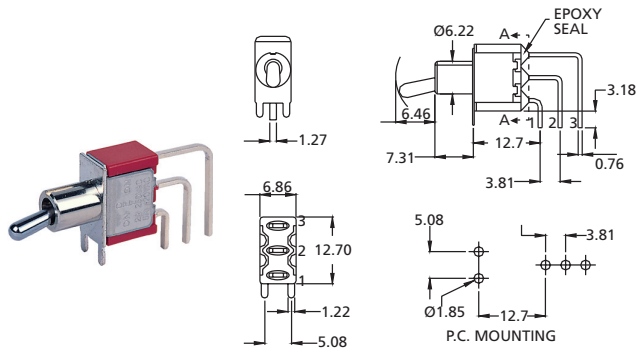
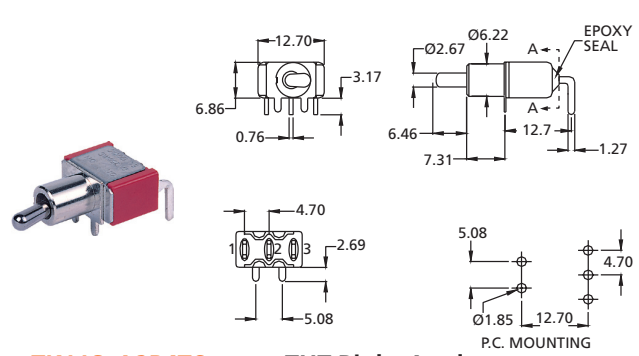
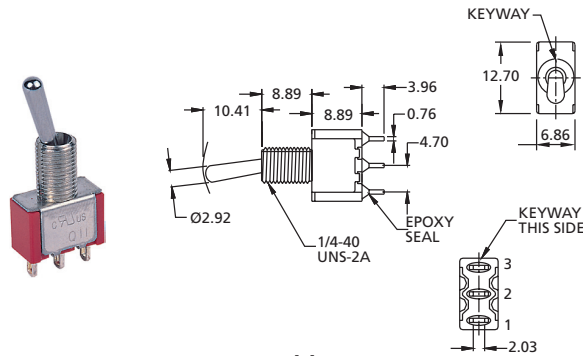


Toggle Switches

Miniature SPDT Toggle Switches

TK11 Series

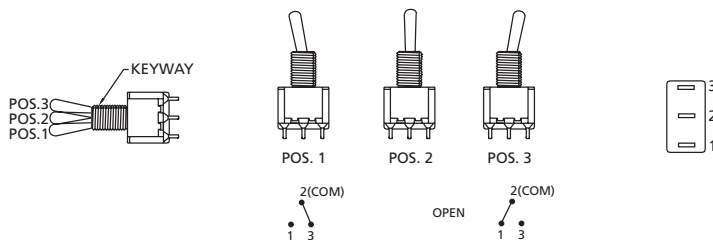
Toggle Switches



TK11S_A2B4T7 THT Vertical Right Angle

TK11S_A2B4VS with V-Bracket

Example Model Single Pole 3 Positions: 3-Way Wiring Diagram Schematics



Model No.	Position 1	Position 2	Position 3
TK11S1-TK11S2	2-3	N/A	2-1
TK11S3-TK11S5	2-3	OPEN	2-1

How to order:

TK11

1 POLES & SWITCH FUNCTION:

- S1 SP ON-NONE-ON
- S2 SP ON-NONE-MOM
- S3 SP ON-OFF-ON
- S4 SP MOM-OFF-MOM
- S5 SP ON-OFF-MOM

2 ACTUATOR (Details see page A04):

- A1 Height = 10.41 mm
- A2 Height = 5.08 mm
- A3 Height = 13.97 mm
- A4 Height = 16.26 mm
- A5 Height = 21.34 mm
- A6 Height = 12.30 mm, flatted, anti-rotation
- A61 Height = 21.00 mm, flatted, anti-rotation
- A62 Height = 13.49 mm, lever handle with cap
- A7 Height = 12.37 mm, 15/32 bushing
- A8 Height = 17.56 mm, 15/32 bushing
- AA Height = 26.30 mm, lever handel with cap, 15/32 bushing
- A11 Height = 11.80 mm, plastic
- AL1 Height = 16.00 mm, locking lever
- AL2 Height = 16.26 mm, locking lever

3 BUSHING (Details see page A04):

- B1 Height = 8.89 mm, keyway (thd standard)
- B2 Height = 8.89 mm, keyway (non-thd)
- B3 Height = 7.10 mm, keyway (thd)
- B4 Height = 7.10 mm, keyway (non-thd)
- B5 Height = 7.52 mm, flat (torque)
- B6 Height = 8.00 mm, keyway (torque)
- B7 Height = 8.89 mm, flat (thd standard)
- B8 Height = 8.89 mm, keyway (metric thd)
- B9 Height = 7.52 mm, flat (splash proof)
- B11 Height = 7.55 mm, keyway (thd standard)
- B12 Height = 7.55 mm, keyway (non-thd)
- B13 Height = 11.38 mm, keyway (15/32 bushing)
- B15 Height = 7.55 mm, flat (thd standard)
- B16 Height = 7.55 mm, flat (non-thd)

B17

- B17 Height = 3.50 mm, keyway
- B18 Height = 11.38 mm, keyway (15/32 bushing) with teflon insert
- B20 Height = 11.38 mm, keyway (15/32 bushing)
- B25 Height = 8.00 mm, keyw., locking lever (thd)
- B26 Height = 8.00 mm, keyw., locking lever (non-thd)

4 TERMINALS (Details see page A04):

- T1 Solder Lug
- T2 PC Thru Hole
- T3 Quick Connect
- T5-1 Wire Wrap, Length = 18.70 mm
- T5-2 Wire Wrap, Length = 24.20 mm
- T5-3 Wire Wrap, Length = 10.55 mm
- T5-4 Wire Wrap, Length = 26.97 mm
- T6 PC Thru Hole, Right Angle
- T6N PC Thru Hole, Right Angle, Snap-in
- T7 PC Thru Hole, Vertical Right Angle
- VS2 V-Bracket, Height = 11.68 mm
- V2N Snap-in V-Bracket, Height = 11.68 mm
- VS3 V-Bracket, Height = 16.00 mm
- VS4 V-Bracket, Height = 11.68 mm
- V55 V-Bracket, Height = 16.00 mm

5 CONTACT MATERIAL:

- AG Silver
- AU Gold
- UT Gold, Tin-Lead
- GT Silver, Tin-Lead
- UG Gold over Silver
- UGT Gold over Silver, Tin-Lead

6 SEAL:

- E Epoxy (Standard)
- N No Epoxy

7 ROHS & LEAD FREE:

- blank RoHS Compliant (Standard)
- v RoHS Compliant & Lead Free

General Specifications:

MATERIALS

- » Movable Contact & Fixed Terminals:
 - AG, GT, UG & UGT: Silver plated over copper alloy
 - AU & UT: Gold over nickel plated over copper alloy

MECHANICAL

- » Operating Temperature: -30°C to +85°C
- » Mechanical Life: 40,000 cycles

CONTACT RATING

- » AG, GT, UG & UGT: 5A120VAC/28VDC
2A250VAC
- » AU & UT: 0.4VA max. 20V max. (AC/DC)

ELECTRICAL

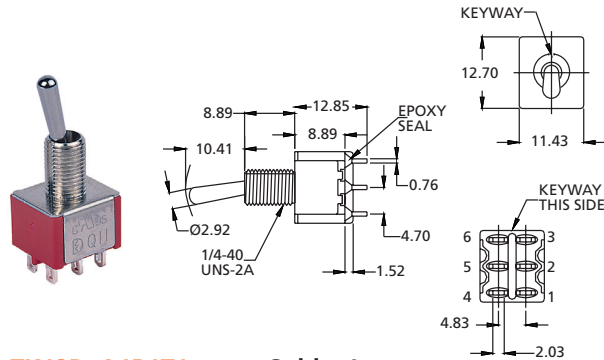
- » Contact Resistance: 10mΩ max. initial @ 2-4VDC
100mA for silver & gold plated contacts
- » Insulation Resistance: 1,000MΩ min.

Toggle Switches

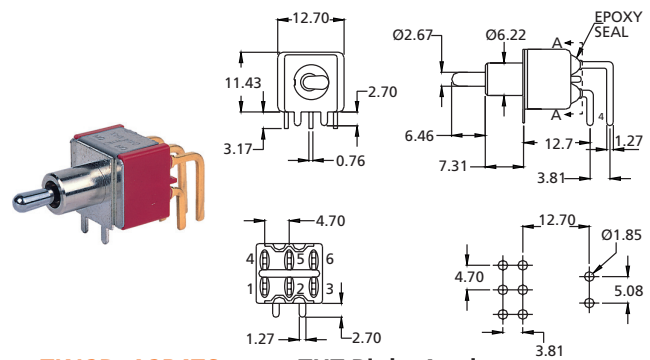
Miniature DPDT Toggle Switches

TK12 Series

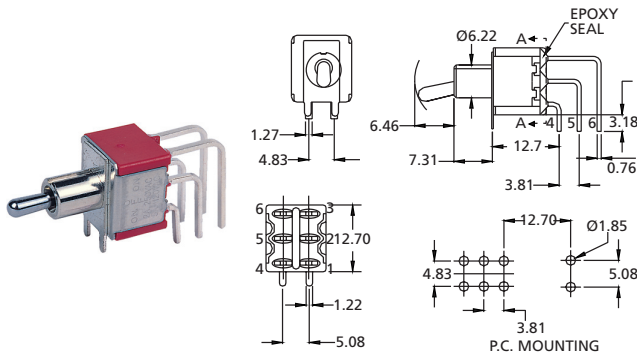
Toggle Switches



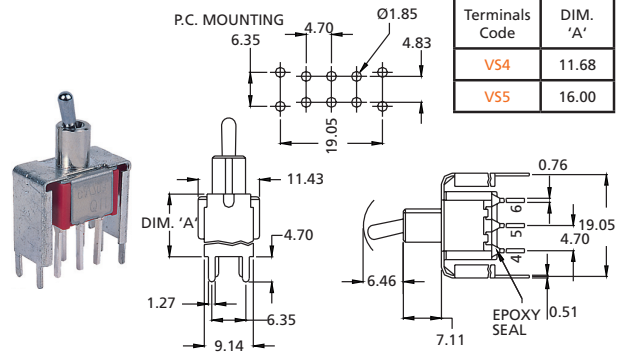
TK12D_A1B1T1 Solder Lug



TK12D_A2B4T6 THT Right Angle P.C. MOUNTING



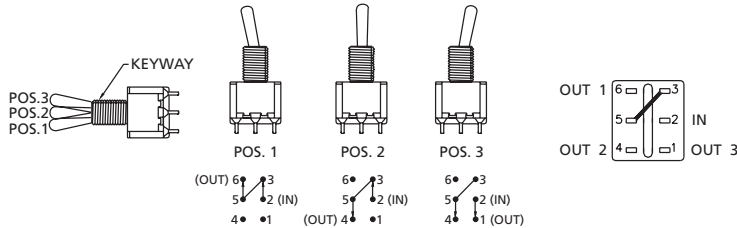
TK12D_A2B4T7 THT Vertical Right Angle P.C. MOUNTING



TK12D_A2B4VS with V-Bracket P.C. MOUNTING

Terminals Code	DIM. 'A'
VS4	11.68
VS5	16.00

Example Model Double Poles 3 Positions: 3-Way Wiring Diagram Schematics



Model No.	Position 1	Position 2	Position 3
TK12D1-TK12D2	2-3,5-6	N/A	2-1,5-4
TK12D3-TK12D5	2-3,5-6	OPEN	2-1,5-4
TK12D6-TK12D8	2-3,5-6	2-3,5-4	2-1,5-4

How to order:

TK12

1 POLES & SWITCH FUNCTION:	B15 Height = 7.55 mm, flat (thd standard)
D1 DP ON-NONE-ON	B16 Height = 7.55 mm, flat (non-thd)
D2 DP ON-NONE-MOM	B17 Height = 3.50 mm, keyway
D3 DP ON-OFF-ON	B18 Height = 11.38 mm, keyway (15/32 bushing) with teflon insert
D4 DP MOM-OFF-MOM	B20 Height = 11.38 mm, keyway (15/32 bushing)
D5 DP ON-OFF-MOM	B25 Height = 8.00 mm, keyw., locking lever (thd)
D6 DP ON-ON-ON	B26 Height = 8.00 mm, keyw., locking lever (non-thd)
D7 DP MOM-ON-MOM	4 TERMINALS (Details see page A04):
D8 DP ON-ON-MOM	T1 Solder Lug
2 ACTUATOR (Details see page A04):	T2 PC Thru Hole
A1 Height = 10.41 mm	T3 Quick Connect
A2 Height = 5.08 mm	T5-1 Wire Wrap, Length = 18.70 mm
A3 Height = 13.97 mm	T5-2 Wire Wrap, Length = 24.20 mm
A4 Height = 16.26 mm	T5-3 Wire Wrap, Length = 10.55 mm
A5 Height = 21.34 mm	T5-4 Wire Wrap, Length = 26.97 mm
A6 Height = 12.30 mm, flatted, anti-rotation	T6 PC Thru Hole, Right Angle
A61 Height = 21.00 mm, flatted, anti-rotation	T6N PC Thru Hole, Right Angle, Snap-in
A62 Height = 13.49 mm, lever handle with cap	T7 PC Thru Hole, Vertical Right Angle
A7 Height = 12.37 mm, 15/32 bushing	VS2 V-Bracket, Height = 11.68 mm
A8 Height = 17.56 mm, 15/32 bushing	V2N Snap-in V-Bracket, Height = 11.68 mm
AA Height = 26.30 mm, with cap, 15/32 bushing	VS3 V-Bracket, Height = 16.00 mm
A11 Height = 11.80 mm, plastic	VS4 V-Bracket, Height = 11.68 mm
AL1 Height = 16.00 mm, locking lever	VS5 V-Bracket, Height = 16.00 mm
AL2 Height = 16.26 mm, locking lever	5 CONTACT MATERIAL:
3 BUSHING (Details page A04):	AG Silver
B1 Height = 8.89 mm, keyway (thd standard)	AU Gold
B2 Height = 8.89 mm, keyway (non-thd)	UT Gold, Tin-Lead
B3 Height = 7.10 mm, keyway (thd)	GT Silver, Tin-Lead
B4 Height = 7.10 mm, keyway (non-thd)	UG Gold over Silver
B5 Height = 7.52 mm, flat (torque)	UGT Gold over Silver, Tin-Lead
B6 Height = 8.00 mm, keyway (torque)	6 SEAL:
B7 Height = 8.89 mm, flat (thd standard)	E Epoxy (Standard)
B8 Height = 8.89 mm, keyway (metric thd)	N No Epoxy
B9 Height = 7.52 mm, flat (splash proof)	7 ROHS & LEAD FREE:
B11 Height = 7.55 mm, keyway (thd standard)	blank RoHS Compliant (Standard)
B12 Height = 7.55 mm, keyway (non-thd)	V RoHS Compliant & Lead Free
B13 Height = 11.38 mm, keyway (15/32 bushing)	

General Specifications:

MATERIALS

- » Movable Contact & Fixed Terminals: AG, GT, UG & UGT: Silver plated over copper alloy; AU & UT: Gold over nickel plated over copper alloy

MECHANICAL

- » Operating Temperature: -30°C to +85°C
- » Mechanical Life: 40,000 cycles

CONTACT RATING

- » AG, GT, UG & UGT: 5A120VAC/28VDC 2A250VAC
- » AU & UT: 0.4VA max. 20V max. (AC/DC)

ELECTRICAL

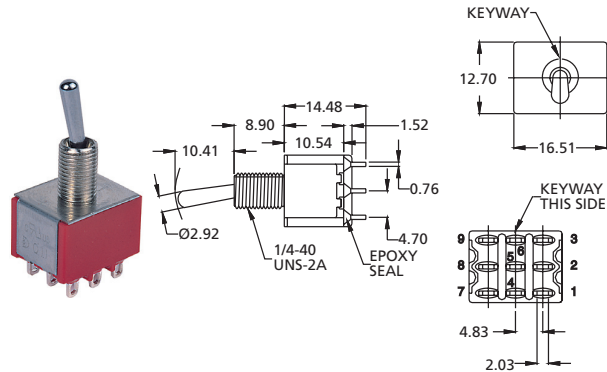
- » Contact Resistance: 10mΩ max. initial @ 2-4VDC 100mA for silver & gold plated contacts
- » Insulation Resistance: 1,000MΩ min.

Toggle Switches

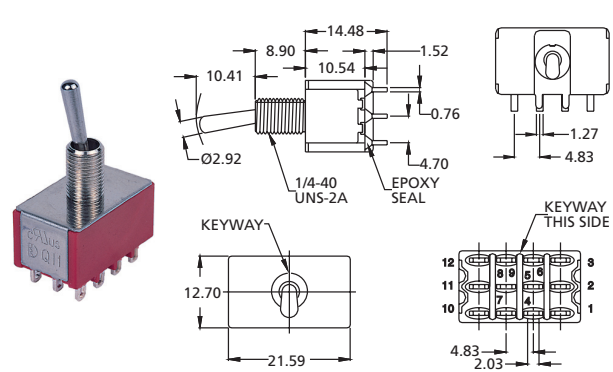
Miniature 3PDT & 4PDT Toggle Switches

TK13 Series

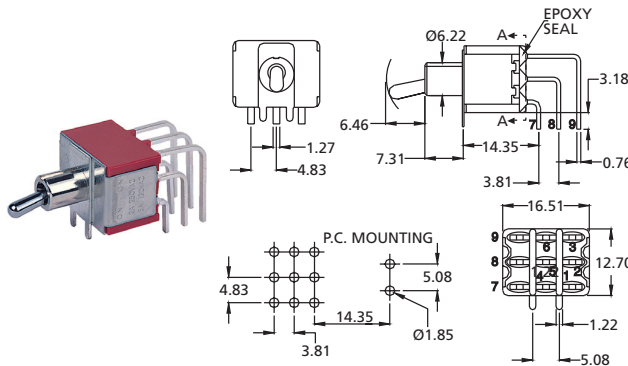
Toggle Switches



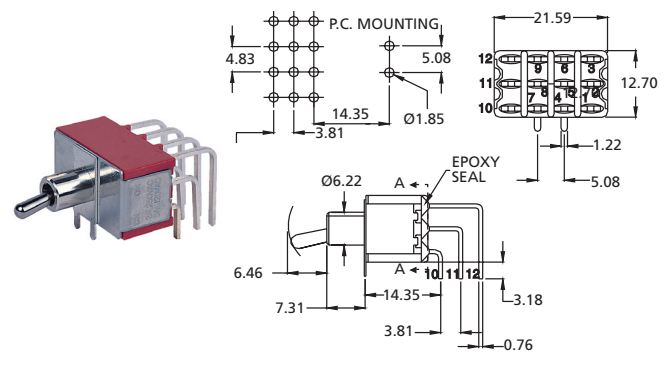
TK13T_A1B1T1 3PDT, Solder Lug



TK13F_A1B1T1 4PDT, Solder Lug

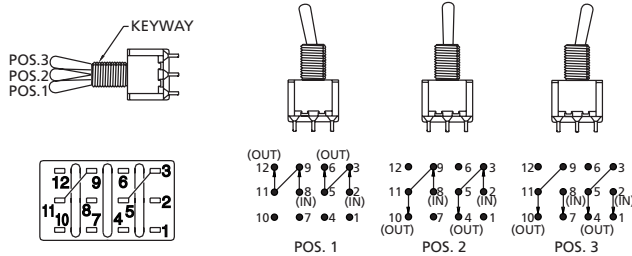


TK13T_A2B4T7 3PDT, THT Right Angle



TK13F_A2B4T7 4PDT, THT Right Angle

Example Model 4 Poles 3 Positions: 3-Way Wiring Diagram Schematics



Model No.	Position 1	Position 2	Position 3
TK1331-TK1332		N/A	2-1,5-4,8-7
TK1333-TK1335	2-3,5-6,8-9	OPEN	
TK1341-TK1342		N/A	
TK1343-TK1345	2-3,5-6, 8-9,11-12	OPEN	2-1,5-4,8-7,11-10
TK1346-TK1348		2-3,5-4,8-9,11-10	

How to order:

TK13

- 1 POLES & SWITCH FUNCTION:**
 - T1 3P ON-NONE-ON
 - T3 3P ON-OFF-ON
 - T5 3P ON-OFF-MOM
 - F2 4P ON-NONE-MOM
 - F4 4P MOM-OFF-MOM
 - F6 4P ON-ON-ON
 - F8 4P ON-ON-MOM
 - T2 3P ON-NONE-MOM
 - T4 3P MOM-OFF-MOM
 - F1 4P ON-NONE-ON
 - F3 4P ON-OFF-ON
 - F5 4P ON-OFF-MOM
 - F7 4P MOM-ON-MOM
- 2 ACTUATOR (Details see page A04):**
 - A1 Height = 10.41 mm
 - A2 Height = 5.08 mm
 - A3 Height = 13.97 mm
 - A4 Height = 16.26 mm
 - A5 Height = 21.34 mm
 - A6 Height = 12.30 mm, flatted, anti-rotation
 - A61 Height = 21.00 mm, flatted, anti-rotation
 - A62 Height = 13.49 mm, lever handle with cap
 - A7 Height = 12.37 mm, 15/32 bushing
 - A8 Height = 17.56 mm, 15/32 bushing
 - AA Height = 26.30 mm, lever handel with cap, 15/32 bushing
 - A11 Height = 11.80 mm, plastic
 - AL1 Height = 16.00 mm, locking lever
 - AL2 Height = 16.26 mm, locking lever
- 3 BUSHING (Details see page A04):**
 - B1 Height = 8.89 mm, keyway (thd standard)
 - B2 Height = 8.89 mm, keyway (non-thd)
 - B3 Height = 7.10 mm, keyway (thd)
 - B4 Height = 7.10 mm, keyway (non-thd)
 - B5 Height = 7.52 mm, flat (torque)
 - B6 Height = 8.00 mm, keyway (torque)
 - B7 Height = 8.89 mm, flat (thd standard)
 - B8 Height = 8.89 mm, keyway (metric thd)
 - B9 Height = 7.52 mm, flat (splash proof)
- 4 TERMINALS (Details see page A04):**
 - T1 Solder Lug
 - T2 PC Thru Hole
 - T3 Quick Connect
 - T5-1 Wire Wrap, Length = 18.70 mm
 - T5-2 Wire Wrap, Length = 24.20 mm
 - T5-3 Wire Wrap, Length = 10.55 mm
 - T5-4 Wire Wrap, Length = 26.97 mm
 - T6 PC Thru Hole, Right Angle
 - T6N PC Thru Hole, Right Angle, Snap-in
 - T7 PC Thru Hole, Vertical Right Angle
 - V2 V-Bracket, Height = 11.68 mm
 - V2N Snap-in V-Bracket, Height = 11.68 mm
 - V3 V-Bracket, Height = 16.00 mm
 - V4 V-Bracket, Height = 11.68 mm
 - V5 V-Bracket, Height = 16.00 mm
- 5 CONTACT MATERIAL:**
 - AG Silver
 - AU Gold
 - UT Gold, Tin-Lead
 - GT Silver, Tin-Lead
 - UG Gold over Silver
 - UGT Gold over Silver, Tin-Lead
- 6 SEAL:**
 - E Epoxy (Standard)
 - N No Epoxy
- 7 ROHS & LEAD FREE:**
 - blank RoHS Compliant (Standard)
 - V RoHS Compliant & Lead Free
- B11** Height = 7.55 mm, keyway (thd standard)
- B12** Height = 7.55 mm, keyway (non-thd)
- B13** Height = 11.38 mm, keyway (15/32 bushing)
- B15** Height = 7.55 mm, flat (thd standard)
- B16** Height = 7.55 mm, flat (non-thd)
- B17** Height = 3.50 mm, keyway
- B18** Height = 11.38 mm, keyway (15/32 bushing) with teflon insert
- B20** Height = 11.38 mm, keyway (15/32 bushing)
- B25** Height = 8.00 mm, keyw., locking lever (thd)
- B26** Height = 8.00 mm, keyw., locking lever (non-thd)

General Specifications:

MATERIALS

- » Movable Contact & Fixed Terminals:
 - AG, GT, UG & UGT: Silver plated over copper alloy
 - AU & UT: Gold over nickel plated over copper alloy

MECHANICAL

- » Operating Temperature: -30°C to +85°C
- » Mechanical Life: 40,000 cycles

CONTACT RATING

- » AG, GT, UG & UGT: 5A120VAC/28VDC 2A250VAC
- » AU & UT: 0.4VA max. 20V max. (AC/DC)

ELECTRICAL

- » Contact Resistance: 10mΩ max. initial @ 2-4VDC 100mA for silver & gold plated contacts
- » Insulation Resistance: 1,000MΩ min.

Toggle Switches

Additional Informations for TK11, 12 & 13 Series

ACTUATOR OPTIONS

<p>TOGGLE CAP</p> <p>A1: No Cap (Standard) A1A: Black Plastic A1B: White Plastic A1C: Red Plastic A1D: Orange Plastic A1E: Yellow Plastic A1F: Green Plastic A1G: Blue Plastic A1K: Brown Plastic A1H: Gray Plastic</p>		<p>TOGGLE CAP</p> <p>A2: No Cap (Standard) A2A: Black Plastic A2B: White Plastic A2C: Red Plastic A2D: Orange Plastic A2E: Yellow Plastic A2F: Green Plastic A2G: Blue Plastic A2K: Brown Plastic A2H: Gray Plastic</p>				
A1(Standard)		A2		A3	A4	A5
Actuators A1~A5: Shown with standard B1 bushing; +1.78mm for B3 bushing; -0.51mm for B6 bushing.						
A6		A61		A62		A7
A8		A9				
Actuators A6, A61 & A62: Flatted with Antirotation; Use with bushings B11, B12, B15 & B16 only.				Actuators A7 & A8: Use with B13 bushing; Use with B18 & B20, the lever is antirotation.		Actuator A9: B1/B2 bushing standard; with black & red color only.
<p>BLACK PLASTIC</p>		<p>TOGGLE CAP</p> <p>A11: No Cap (Standard) A11A: Black Plastic A11B: White Plastic A11C: Red Plastic A11D: Orange Plastic A11E: Yellow Plastic A11F: Green Plastic A11G: Blue Plastic A11K: Brown Plastic A11H: Gray Plastic</p>		<p>2 positions lock</p> <p>3 positions lock</p>		
AA		A11		AL1		AL2
Actuator AA: Use with B18 bushing only.		Actuators A11: Shown with standard B1 bushing; +1.78mm for B3 bushing; -0.51mm for B6 bushing; Standard for T1 & T2 terminal; -0.40mm for T6, T7 & V52.				

BUSHING OPTIONS

B1(THD STD) B2(Non-THD)		B3(THD STD) B4(Non-THD)		B5(High Torque)		B6(High Torque)		B7(THD STD)		B8(Metric THD)		B11(THD) B12(Non-THD)		B15(THD) B16(Non-THD)	
		B4 is standard for terminals T6, T7, VS.										B11, B12, B15 & B16: Use with actuator A6 only			
<p>SEALS</p>								<p>TEFLON</p>							
B9(Splash Proof)		O-ring A O-ring B supplied with B9 bushing		B17		B13		B18		B20					
										<p>B13: Use with actuators A7 & A8 only; Bear strength from top of actuator up to 10kg aside up to 15kg. B18: Use with actuators A7, A8 & A10 only; With plastic (teflon) insert; Bear strength from top of actuator up to 20kg aside up to 15kg. B20: Use with actuators A7, A8 & A10 only; Bear strength from top of actuator up to 20kg aside up to 15kg.</p>					

TERMINAL OPTIONS

				<p>EPOXY SEAL</p>		<p>Length</p>					
T1 Solder Lug		T2 THT		T3 Quick Connect		T5 Wire Wrap		T6N Right Angle, Snap-in, THT		V2N Snap-in, V-Bracket	