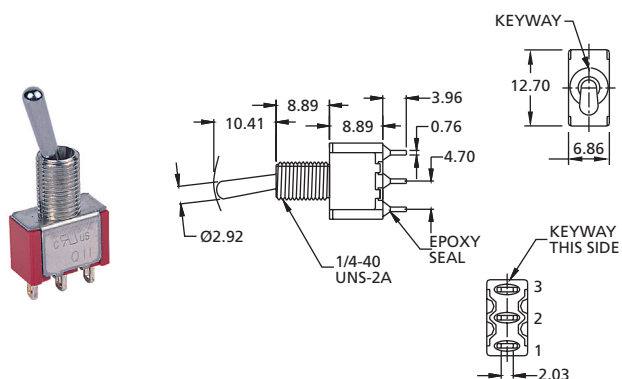


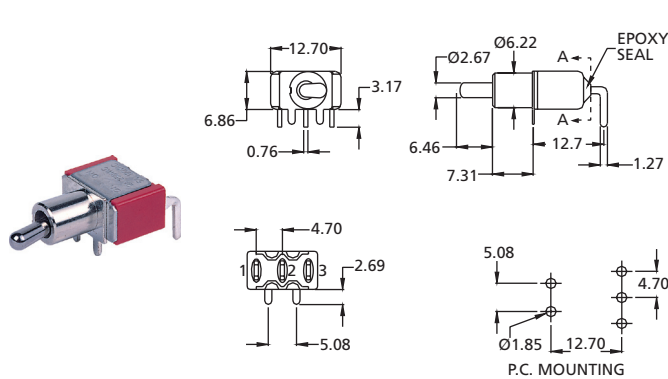
Toggle Switches

Miniature SPDT Toggle Switches

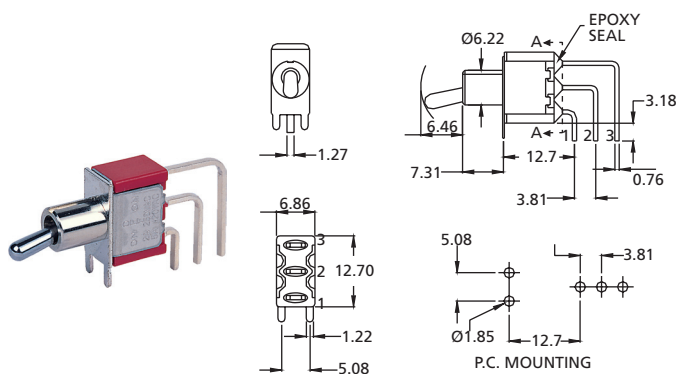
TK11 Series



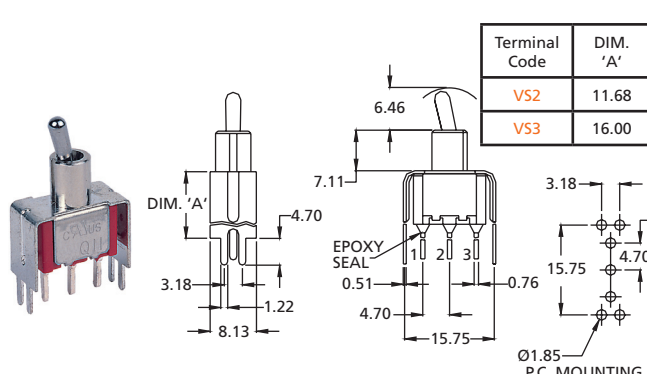
TK11S_A1B1T1 Solder Lug



TK11S_A2B4T6 THT Right Angle



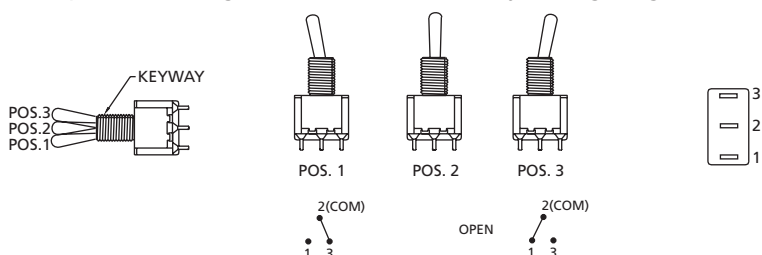
TK11S_A2B4T7 THT Vertical Right Angle



TK11S_A2B4VS with V-Bracket

Terminal Code	DIM. 'A'
VS2	11.68
VS3	16.00

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 2 3 4 5 6 7

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, flattened, anti-rotation
A62 Height = 21.00 mm, flattened, anti-rotation
A7 Height = 12.37 mm, 15/32 bushing
A8 Height = 17.56 mm, 15/32 bushing
AA Height = 26.30 mm, lever handle 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, keyway (torque)
B6 Height = 8.00 mm, flat (torque)
B7 Height = 8.89 mm, keyway (torque)
B8 Height = 8.89 mm, flat (thd standard thd)
B9 Height = 7.52 mm, keyway (metric thd)
B11 Height = 7.55 mm, flat (splash proof)
B12 Height = 7.55 mm, keyway (thd standard)
B13 Height = 7.55 mm, keyway (non-thd)
B15 Height = 11.38 mm, keyway (15/32 bushing)
B16 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
VS3 Snap-in V-Bracket, Height = 11.68 mm
VS4 V-Bracket, Height = 16.00 mm
VS5 V-Bracket, Height = 11.68 mm
VS5 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.

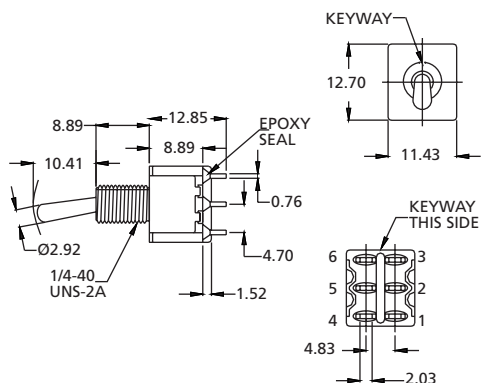
Toggle Switches

Miniature DPDT Toggle Switches

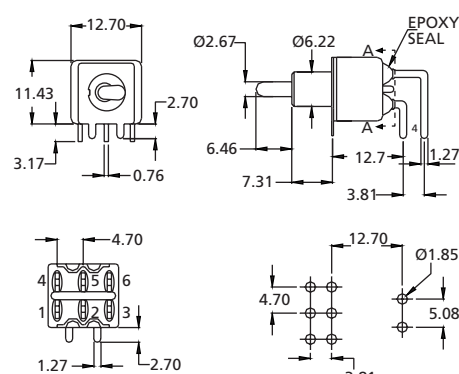
TK12 Series



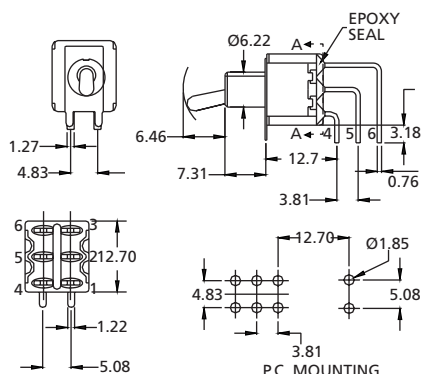
TK12D_A1B1T1 Solder Lug



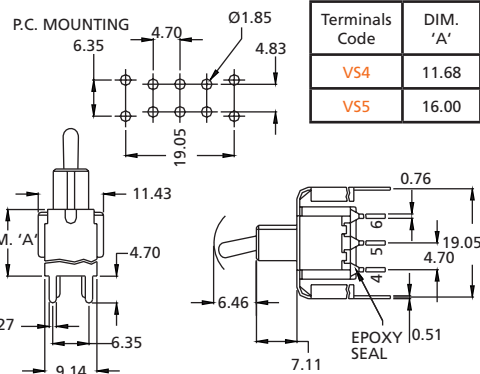
TK12D_A2B4T6 THT Right Angle P.C. MOUNTING



TK12D_A2B4T7 THT Vertical Right Angle

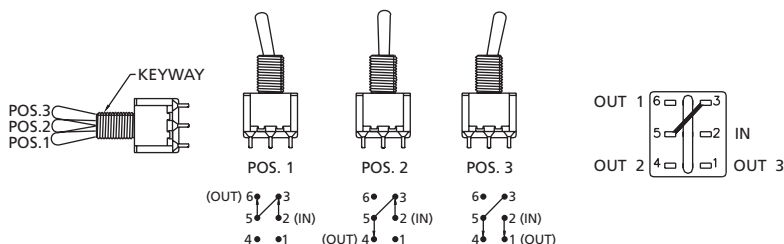


TK12D_A2B4VS with V-Bracket



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 2 3 4 5 6 7

1 POLES & SWITCH FUNCTION:

D1 DP ON-NONE-ON
D2 DP ON-NONE-MOM
D3 DP ON-OFF-ON
D4 DP MOM-OFF-MOM
D5 DP ON-OFF-MOM
D6 DP ON-ON-ON
D7 DP MOM-ON-MOM
D8 DP ON-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, flattened, anti-rotation
A61 Height = 21.00 mm, flattened, 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, 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 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 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
VS5 V-Bracket, Height = 16.00 mm

5

CONTACT MATERIAL:

Silver
AG Gold
AU Gold, Tin-Lead
UT Silver, Tin-Lead
GT Gold over Silver
UG Gold over Silver, Tin-Lead
6 SEAL: Epoxy (Standard)
N No Epoxy
7 ROHS & LEAD FREE: 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

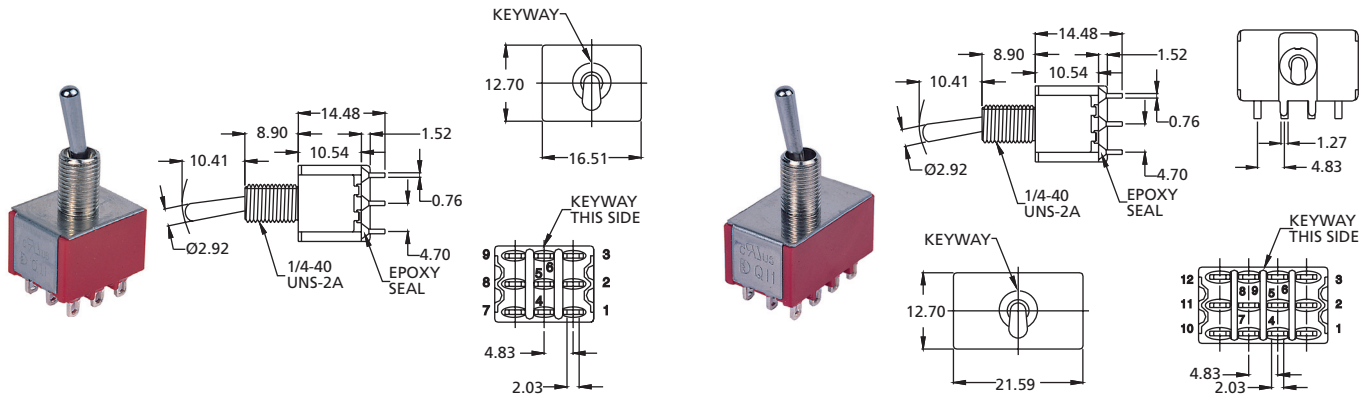
100mA for silver & gold plated contacts

» Insulation Resistance: 1,000MΩ min.

Toggle Switches

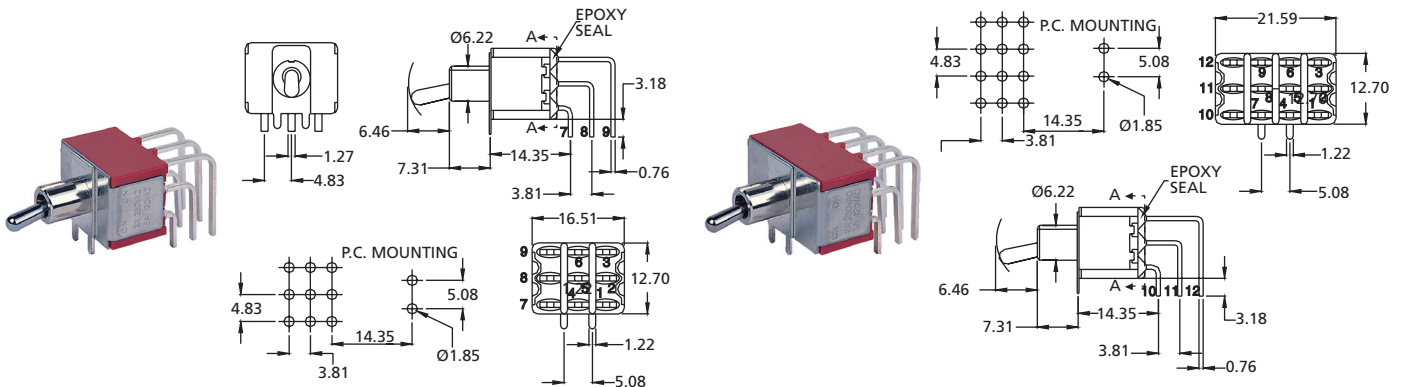
Miniature 3PDT & 4PDT Toggle Switches

TK13 Series



TK13T_A1B1T1 3PDT, Solder Lug

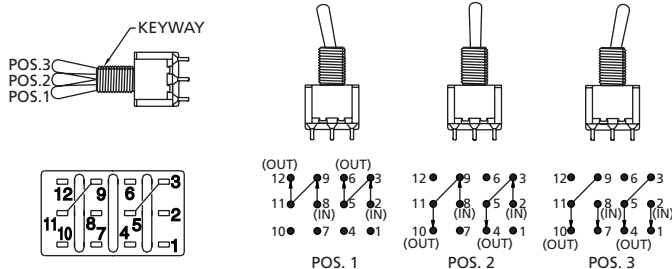
TK13F_A1B1T1 4PDT, Solder Lug



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	2-3,5-6,8-9	N/A	2-1,5-4,8-7
TK1333~TK1335		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	2	3	4	5	6	7
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							
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, flattened, anti-rotation							
A61 Height = 21.00 mm, flattened, 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 handle 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 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							

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.

6
E
N
7
blank
V

SEAL:
Epoxy (Standard)
No Epoxy

ROHS & LEAD FREE:
RoHS Compliant (Standard)
RoHS Compliant & Lead Free

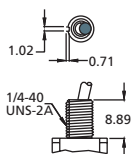
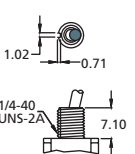
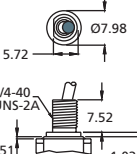
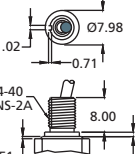
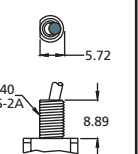
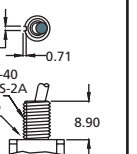
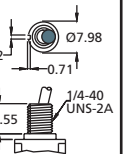
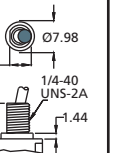
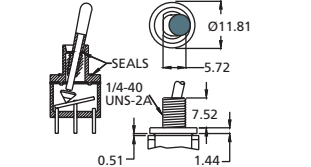
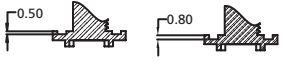
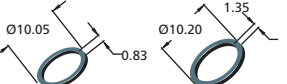
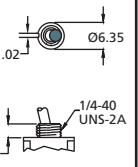
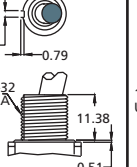
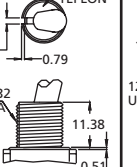
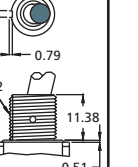
Toggle Switches

Additional Informations for TK11, 12 & 13 Series

ACTUATOR OPTIONS

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: Platted with Antirotation; Use with bushings B11, B12, B15 & B16 only.				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>			
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 & VS2.			

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	
	 						
B9(Splash Proof)	O-ring A O-ring B supplied with B9 bushing		B17	B13	B18	B20	
				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.			

TERMINAL OPTIONS

T1 Solder Lug	T2 THT	T3 Quick Connect	T5 Wire Wrap	T6N Right Angle, Snap-in, THT	V2N Snap-in, V-Bracket