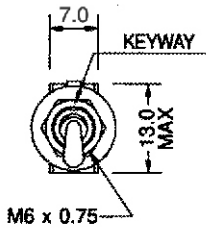
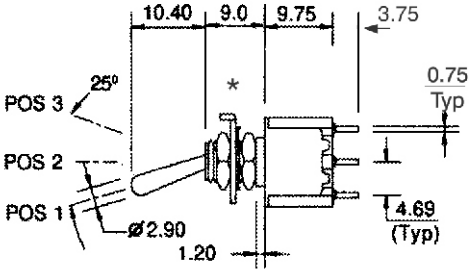
Series 20 - Solder Type

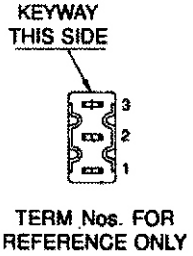
DESCRIPTION :

Integral (Series 20) Toggle Switches meet the needs of customers wanting a high quality, high current carrying switch in small volume. Standardisation of design in components used from single to four poles, careful choice of materials and attention to details result in reliable and consistent performance. They are available with popular actuator types and sizes. Design variations in the contacts result in all the required switching functions. Only limited types LCSO approved switches to JSS51201 available.

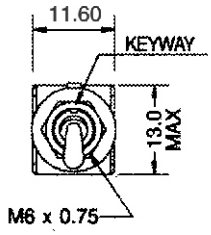
1 POLE

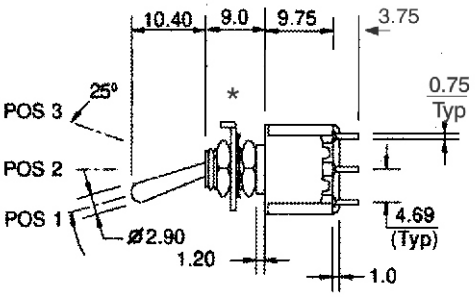


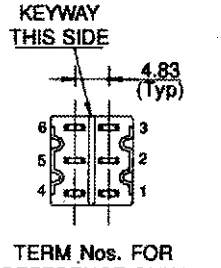




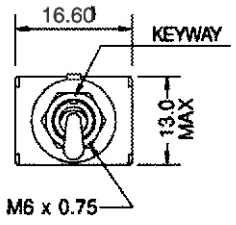
2 POLE

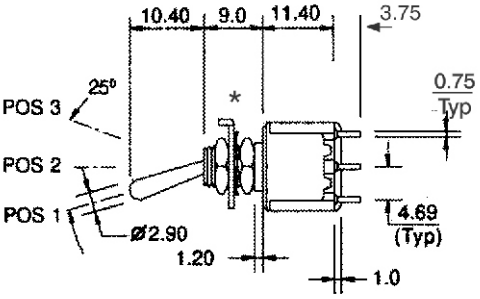


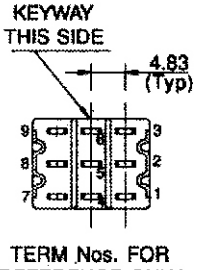




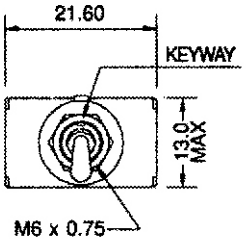
3 POLE

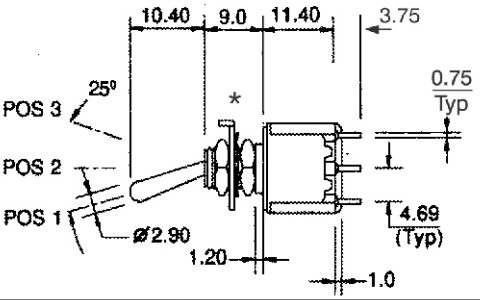


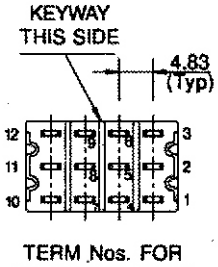


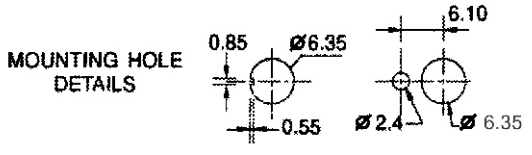


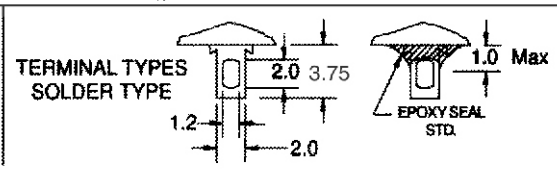
4 POLE











⋆ Locating Ring will be supplied on request.

All Dimensions in mm.

NOTE :

Actuator shown In Pos. 1 (i.e. Away from key way)

Refer to **A9**/**A10** for alternate selection of ACTUATORS & MOUNTING

SWITCHING FUNCTION

Order Code	Pos. 1	Pos. 2	Pos. 3
1	ON	NONE	ON
3	ON	OFF	ON
5	(ON)	OFF	(ON)
7	ON	OFF	(ON)
8	ON	NONE	(ON)

CONNECTED TERMINALS	Pos 1	Pos 2	Pos 3
1 POLE	2-3	OPEN	2-1
2 POLE	2-3	OPEN	2-1
	5-6		5-4
3 POLE	2-3		2-1
	5-6	OPEN	5-4
	8-9		8-7
4 POLE	2-3		2-1
	5-6	OPEN	5-4
	8-9		8-7
	11-12		11-10

(Refer to **A12** for other special switching functions)

SPECIFICATIONS

CONTACT RATING : 3 Amps @ 230 V AC ; 5A @ 28 V DC. See Contact selection for others.

ELECTRICAL LIFE : 100,000 make-and-break cycles at full load on all models ending in-1(ON-NONE-ON). All other models, 40,000 cycles.

CONTACT RESISTANCE : Below 10 milliohms initial @ 2-6 V DC. 100 mA for both silver and gold plated contacts.

INSULATION RESISTANCE : 1000 Megohms min.

DIELECTRIC STRENGTH : 1000 VRMS min. @ sea level.

OPERATING TEMP. : -30°C to 85°C.

MATERIALS & FINISHES

BODY : Diallyl Phthalate (DAP)

ACTUATOR : Brass Nickel plated

HOUSING : Stainless steel

BUSHING : Brass Nickel plated

HARDWARE : Brass nickel plated

TERMINAL SEAL : Epoxy

CONTACTS : See below under contact selection.

CONTACT SELECTION

For (Resistive Load)

Order Code			
0	CONTACTS & ALL TERMINALS.	:	Copper/Copper alloy silver plated
	RATING	:	2 Amps. @ 230 V AC
1	END CONTACTS	:	Coin silver, silver plated
	CENTRE CONTACTS. ALL TERMINALS.	:	Copper alloy silver plated.
	RATING	:	3 Amps. @ 230 V AC; 5A @ 28 V DC.
2	CONTACTS & TERMINALS	:	Copper alloy gold plate over nickel plate.
	RATING	:	0.4 VA max. @ 20 V AC or DC max. (Dry Circuit)
3	END CONTACTS	:	Coin silver gold plate over nickel plate.
	CENTRE CONTACTS & ALL TERMINALS.	:	Copper alloy gold plate over nickel plate.
	RATING	:	0.4 VA max. @ 20 V AC or DC or 3 Amps @ 230 V AC ; 5A @ 28 V DC.

(This contact can be used where either dry circuit or power conditions exist. However when dry circuit rating is exceeded the gold plating is removed from the contact and the switch cannot be used in dry circuits.)

MOUNTING SELECTION

Order Code	
0	M6x0.75 Threaded bush, 6.1 long with key
1	M6x0.75 Threaded bush, 7.7 long with key
2	∅6 Unthreaded bush, 7.7 long with key
3	∅6 Unthreaded bush, 6.1 long with key
4	M6x0.75 Threaded bush, 7.4 long with panel and Toggle splash proof seal.
5	M6x0.75 Threaded bush 7.7 long with milled flat.

(Refer to **A10** for further details)

ACTUATOR SELECTION

Order Code	
01	Toggle 10.4 long
02	Toggle 7.0 long
03	Toggle 21.4 long
04 to 11	Plastic moulded actuator.
12	Toggle 10.4 long with Rubber boot.
13 to 15	Toggle 10.4 long with cap.
20 to 23	Actuator with lock

(Refer to **A9** for details)

POLE SELECTION	One	Two	Three	Four
Order Code	**1**	**2**	**3**	**4**

ORDERING CODE **2** [ ] [ ] [ ] **2** [ ] [ ] [ ]

INTEGRAL SYSTEMS AND COMPONENTS PRIVATE LIMITED
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Telefax: (080) 2839 1707 / 2839 1708 / 2839 1709 / 2839 1710
An ISO 9001:2008 Company **Website:** www.integralsys.in **E-mail:** inty.systems@gmail.com / sales@integralsys.in

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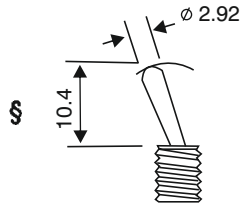
Series 20 Actuator Selection (M6x0.75)

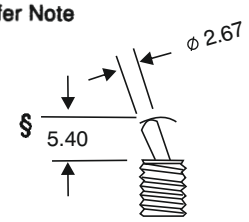
* Refer Note



Order Code : 01

§
Add 1.60 mm for bushing under Order Code '0' & '3'

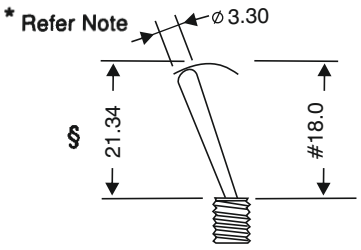
* Refer Note



§ **Order Code : 02**

Add 1.60 mm for bushing under Order Code '0' & '3'

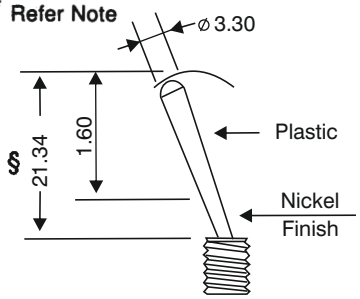
* Refer Note



Order Code :§ 03
 # 50

Add 1.60 mm for bushing under Order Code '0' & '3'

* Refer Note

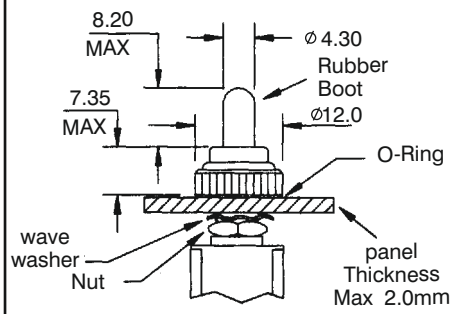


Order Code : 04 to 11
(See Table below)

§
Add 1.60 mm for bushing under Order Code '0' & '3'

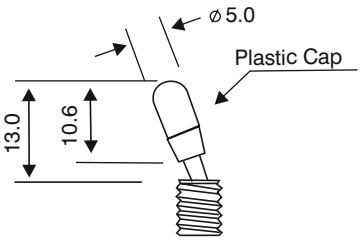
(Plastic moulded actuator)

Order Code	Moulding Colour
04	White
05	Black
06	Red
07	Yellow
08	Green
09	Blue (Std)
10	Brown
11	Grey



RUBBER BOOT (Black)
Order Code : 12
Available only with
Actuator or and Bush 1,4,5

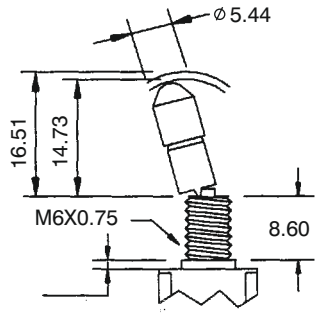
* Refer Note



Order Code : 13 to 16
(See Table below)

Actuator with cap

Order Code	Cap Colour
13	Black (Std.)
14	Red
15	Yellow
16	Green

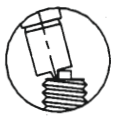


Actuator with Lock

Order Code	Cap Colour
20	Black (Std.)
21	White
22	Red
23	Golden yellow
24	Nickel Plated

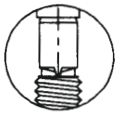
VARIOUS TYPES OF SWITCHING FUNCTION

(Key way on right side)



Type - 1
2 pos. lock

Type - 3 & 9
3 pos. lock



Type 5 & 6
1 pos. lock

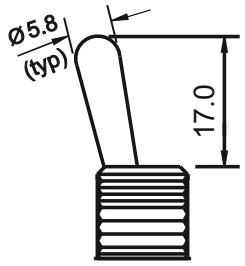
Type - 7
2 pos. lock

Type - 8
1 pos. lock

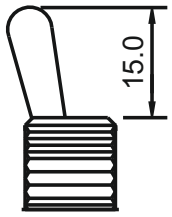
* NOTE :Dimensions shown above are with respect to bushing types (2,3,4 & 5)

All Dimensions in mm.

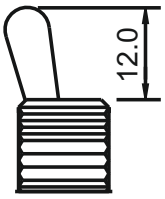
Series - 20 Actuator Selection (For M12 Bushes)



Order Code : 43



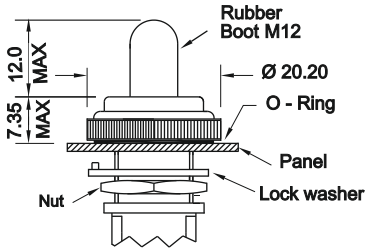
Order Code : 41



Order Code : 44

PANEL SEALING TYPE

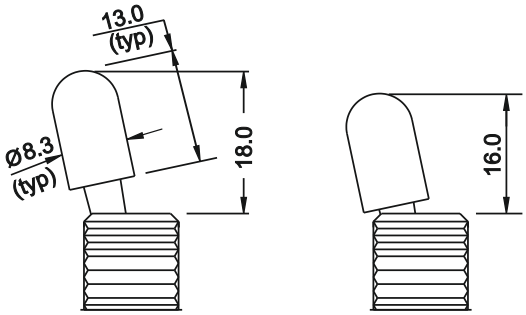
(Rubber Boot Type)



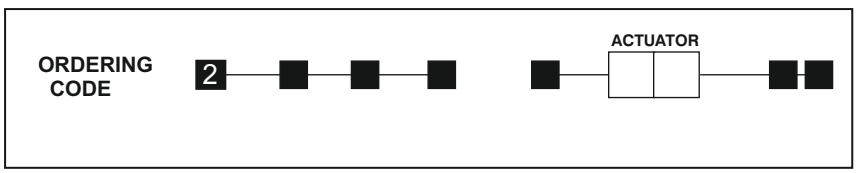
Order Code : 42

Note:- Actuator Length will be - 15.0mm only.

PLASTIC CAP SELECTION



NOTE:- Cap's available in Red & Black Colour only. for 15.0 & 17.0 mm Actuator only.



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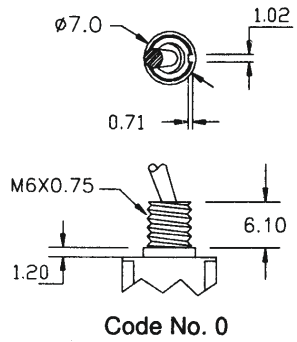
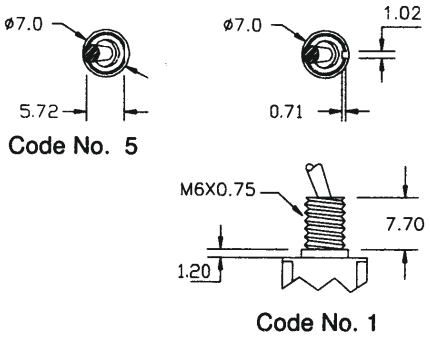
BUSH DETAILS FOR PC STRAIGHT AND SOLDER TYPES



Code No. 0

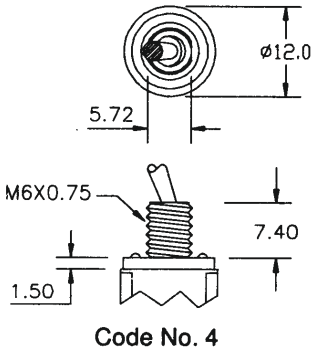
Order Code	Description
0	Short threaded bush
3	Same as **0** without threading



Code No. 5

Code No. 1

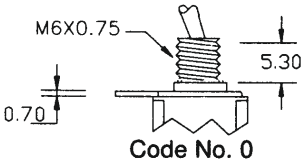
Order Code	Description
1	Standard threaded bush
2	Same as **1** without threading
5	Same as **1** with milled flat



Code No. 4

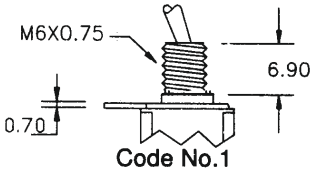
Order Code	Description
4	Threaded bush with panel seal and toggle splash proof seal.

BUSH DETAILS FOR PCR / PCRV TYPES



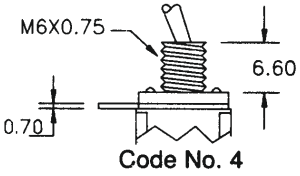
Code No. 0

Order Code	Description
0	Short threaded bush
3	Same as **0** without threading



Code No.1

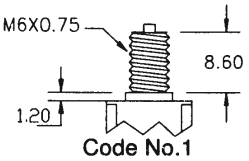
Order Code	Description
1	Standard threaded bush
2	Same as **1** without threading
5	Same as **1** with milled flat



Code No. 4

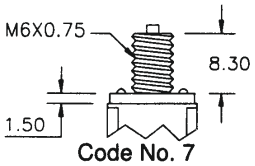
Order Code	Description
4	Threaded bush with panel seal toggle and splash proof seal. (Avaliable on request)

BUSH DETAILS (FOR LOCKING TYPE)



Code No.1

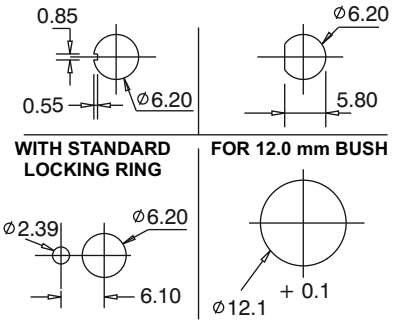
Order Code	Description
1	Threaded bush
2	Same as **1** without threading



Code No. 7

Order Code	Description
7	Threaded bush with panel seal and toggle splash proof seal.

PANEL MOUNTING WITHOUT LOCKING RING



NOTE : Above shown various types of bushes with M6 x 0.75 threading are readily available. For any other special type bush please contact factory.

BUSHING FINISH will be nickel plated (Standard)

All Dimensions in mm.

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integral

Series - 20 Mounting Selection for M12 Bushes

ROUND TYPE

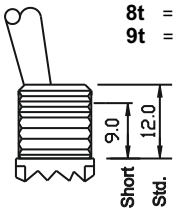
Order Code

Standard Bush

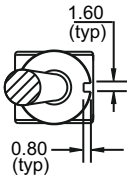
8 = Ø12 Unthreaded Bush
9 = M12x0.75 Threaded Bush

Short Bush

8t = Ø12 Unthreaded Bush
9t = M12x0.75 Threaded Bush



KEY WAY TYPE



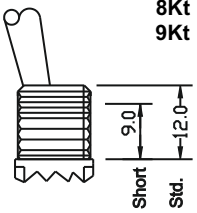
Order Code

Standard Bush

8K = Ø12 Unthreaded Bush
9k = M12x0.75 Threaded Bush

Short Bush

8Kt = Ø12 Unthreaded Bush
9Kt = M12x0.75 Threaded Bush



MILLED FLAT TYPE

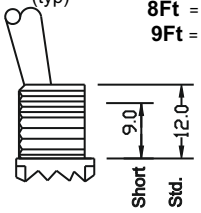
Order Code

Standard Bush

8F = Ø12 Unthreaded Bush
9F = M12x0.75 Threaded Bush

Short Bush

8Ft = Ø12 Unthreaded Bush
9Ft = M12x0.75 Threaded Bush



ROUND WITH COLLAR

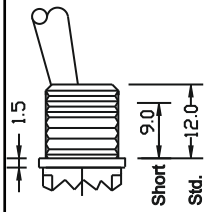
Order Code

Standard Bush

8C = Ø12 Unthreaded Bush
9C = M12x0.75 Threaded Bush
9CS = M12x0.75 Threaded Bush

Short Bush

8Ct = Ø12 Unthreaded Bush
9Ct = M12x0.75 Threaded Bush
9CSt = M12x0.75 Threaded Bush



KEY WAY WITH COLLAR

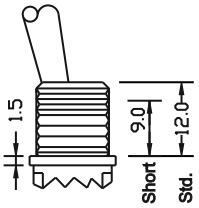
Order Code

Standard Bush

8KC = Ø12 Unthreaded Bush
9kC = M12x0.75 Threaded Bush
9kCS = M12x0.75 Threaded Bush

Short Bush

8KCt = Ø12 Unthreaded Bush
9KCt = M12x0.75 Threaded Bush
9kCSt = M12x0.75 Threaded Bush



MILLED FLAT

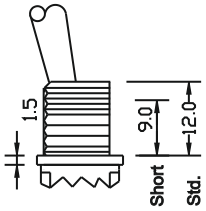
Order Code

Standard Bush

8FC = Ø12 Unthreaded Bush
9FC = M12x0.75 Threaded Bush
9FCS = M12x0.75 Threaded Bush

Short Bush

8FCt = Ø12 Unthreaded Bush
9FCt = M12x0.75 Threaded Bush
9FCS = M12x0.75 Threaded Bush



NOTE :- PANEL SEALING CAN BE GIVEN FOR ABOVE BUSH SELECTION EXCEPT FOR UNTHREADED BUSH.

SPLASH PROOF

ROUND TYPE

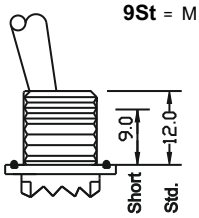
Order Code

Standard Bush

9S = M12x0.75 Threaded Bush

Short Bush

9St = M12x0.75 Threaded Bush



KEY WAY TYPE

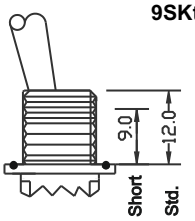
Order Code

Standard Bush

9Sk = M12x0.75 Threaded Bush

Short Bush

9SKt = M12x0.75 Threaded Bush



MILLED FLAT TYPE

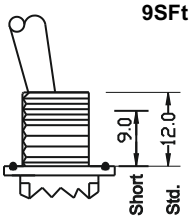
Order Code

Standard Bush

9SF = M12x0.75 Threaded Bush

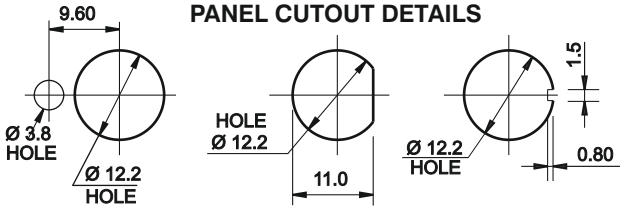
Short Bush

9SFt = M12x0.75 Threaded Bush



All Dimensions in mm.

PANEL CUTOUT DETAILS



Above shown various type of Bushes with M12 x 0.75 Threading are readily available. For any other special type Bush please Contact Factory.

BUSHING FINISH will be Nickel Plated (Standard)

t=Short Bush, **R**=Round, **K**=Key way, **F**= Milled Flat, **C**= Collar, **S**=Sealing.

Series 20 - Special Custom Built Switches

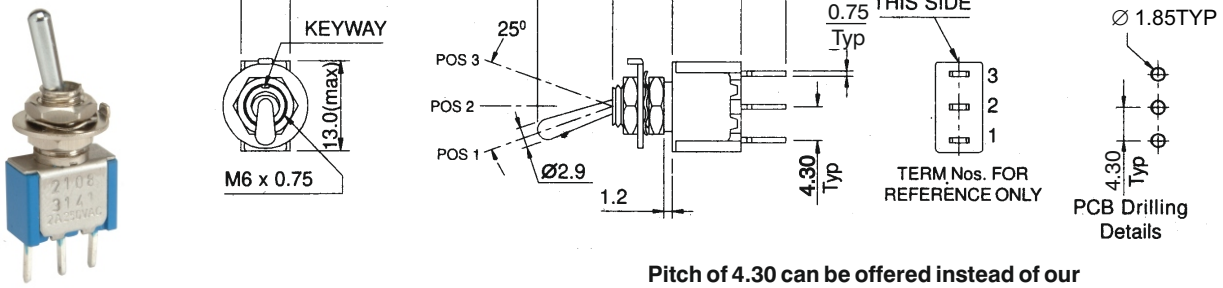
DESCRIPTION :

In Series 20 Toggle Switches, modifications are possible to meet customer's special requirements.

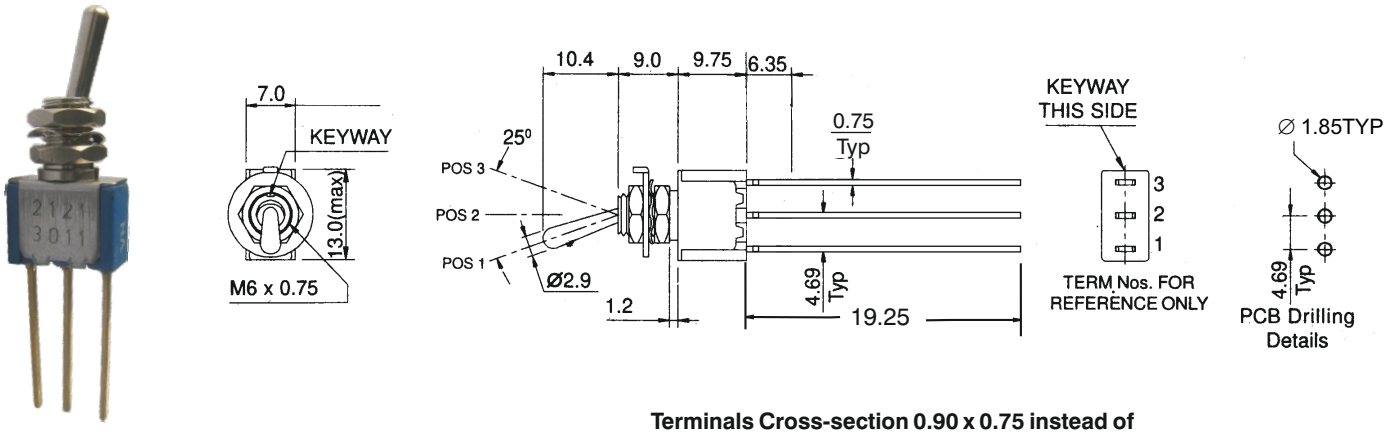
A very large number of variations are possible in our standard line of switches due to a wide selection possible in choosing the number of poles, switching function, contact selection, actuator and mounting selection.

However sometimes there may be a customer requirement which is not met by any one of the innumerable combination. In such cases Integral can develop samples as per the customer's drawings. Due to employment of modern production techniques even small number of samples can be made to exact dimension.

For Example :



Pitch of 4.30 can be offered instead of our standard 4.69 mm.



Terminals Cross-section 0.90 x 0.75 instead of standard 1.27 x 0.75 can be offered.

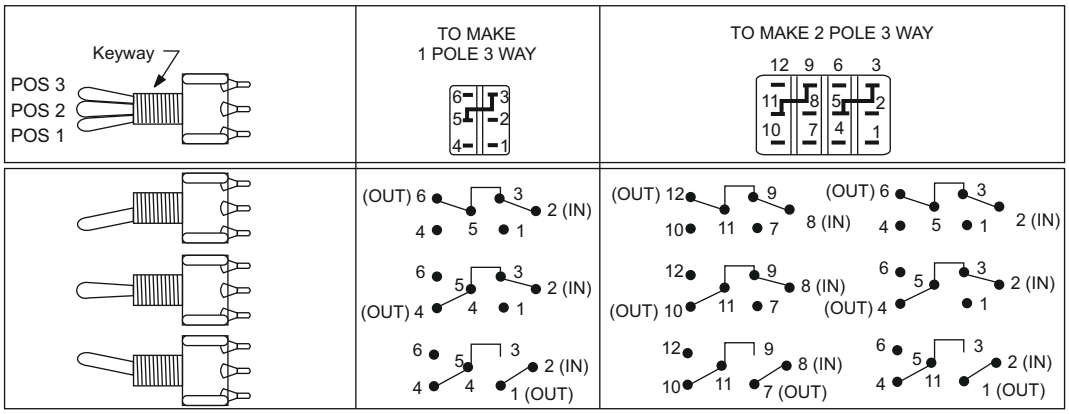
The factory can be contacted for special switches with specifications/drawings/samples, if available. Counter samples will be offered at the earliest.

All Dimensions in mm.

Series 20 Special Switching Functions

On our Standard 20 Series Toggle Switches, IP-3 Position and 2P-3 Position Toggle Switch with ON-ON-ON Switch Functions may be externally wired for 3 Way Function (See Wiring Design and Schematics given below)

Note : External Jumpers to be added by customer wiring for 3 Way Switches



ORDER CODE	POSITION 1	POSITION 2	POSITION 3
4	ON	ON	MOM
6	MOM	ON	MOM
9	ON	ON	ON

ORDER CODE	SWITCHING FUNCTION	CONNECTED TERMINALS					
		POSITION 1		POSITION 2		POSITION 3	
2	1P 3 WAY	2-3	5-6	2-3	5-4	2-1	5-4
4	2P 3 WAY	2-3 8-9	5-6 11-12	2-3 8-9	5-4 11-10	2-1 8-7	5-4 11-10

ORDERING CODE **2** □ ■ □ ■■■

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integral
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