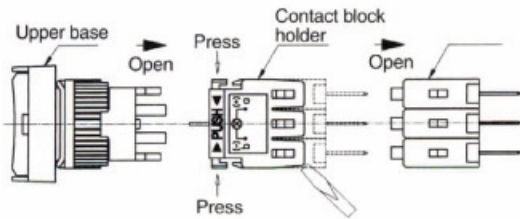


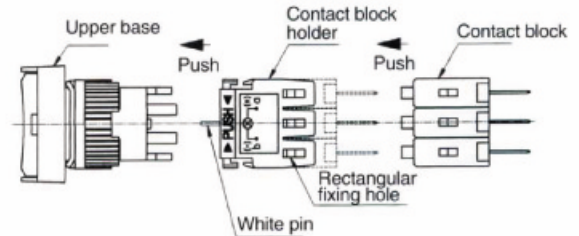


■ Features

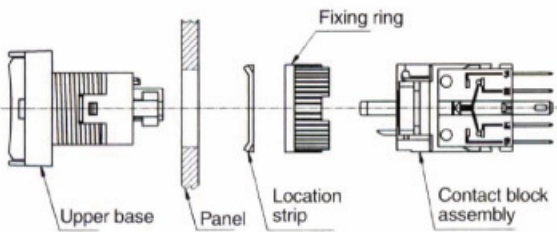
- TN16 series are highly modular detachable switches, including upper base, contact block holder and contact block. When disassembling, press the contact block holder in the direction of arrow with "Push" by manual or a flat "-" screwdriver to disassemble contact block assembly from upper base. To disassemble contact block from contact block holder, insert the screwdriver in the groove between contact block and contact block holder, then twist it.



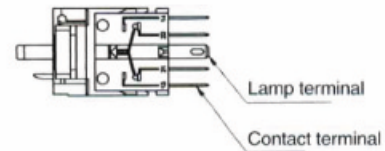
- When Assembling the contact block and contact block holder, aiming the rectangular spot on the contact block to the rectangular fixing hole on the contact block holder, then push in. Aiming the white pin of the contact block assembly to the slot of white pin located on the upper base to assemble the switch.



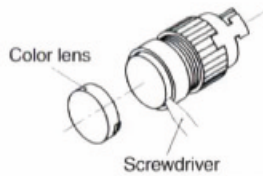
● Mounting method



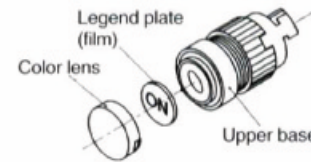
- The lamp terminal for pilot lamp and illuminated push button switch is in the middle position which is 90 degrees from other terminals.



- Method of replacing color lens, insert a flat "-" screwdriver into the groove of the lens twist it.

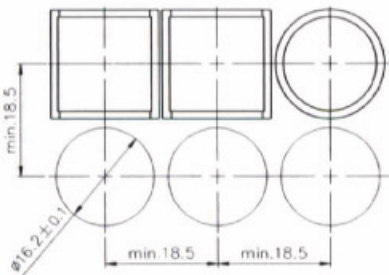


- The legend plate can be removed by detaching the lens, and replace the legend plate you need.

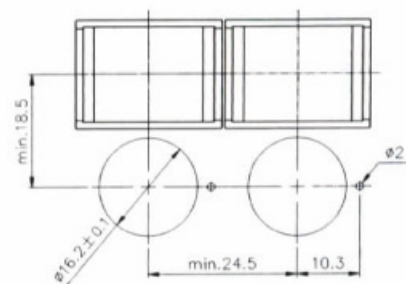


■ The space of mounting holes (mm)

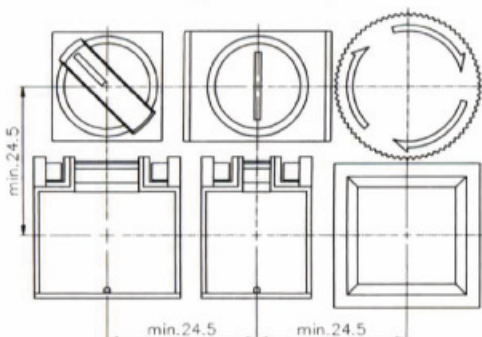
- (Round, square) pilot lamp, illuminated push button Switch



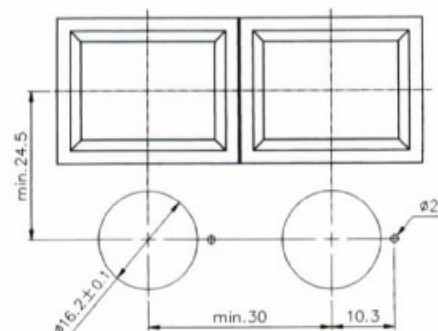
- (Rectangular) pilot lamp, illuminated push button Switch (Square) protection cover



- (Round, square, rectangular) selector, key switch
(Round, square) waterproof cap
(Rectangular) protection cover
Mushroom head, push-lock push button Switch

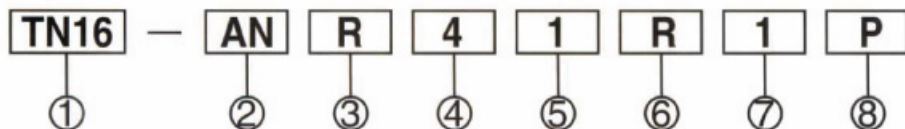


- Rectangular waterproof cap





■ MODEL DESIGNATION



Designation	Signal	Description
1. Mounting Hole	TN16	16m/m Series
2. Type	AI	Illuminated Push Button (Alternate)(Incandescent lamp)
	AL	Illuminated Push Button (Alternate)(LED lamp)
	AN	Illuminated Push Button (Alternate)(Neon lamp)
	MI	Illuminated Push Button (Momentary)(Incandescent lamp)
	ML	Illuminated Push Button (Momentary)(LED lamp)
	MN	Illuminated Push Button (Momentary)(Neon lamp)
	PI	Pilot lamp (Incandescent lamp)
	PL	Pilot lamp (LED lamp)
	PN	Pilot lamp (Neon lamp)
3. Shape	R	Round
	S	Square
	L	Rectangular

Designation	Signal	Description
4. Operator Protection	4	IP40
	6	IP65
5. Voltage	1	110V AC
	2	220V AC
	3	380V AC
	5	6V
	7	24V
	8	28V
	9	12V
6. Lens Color	R	Red
	G	Green
	Y	Yellow
	O	Orange
	W	White
	BL	Blue
7. Contact Blocks	1	1a1b
	2	2a2b
	3	3a3b
8. Terminal	None	Solder/Plug-in
	P	Pc Board

AL/ML/PL use DC voltage; AN/MN/PN use AC voltage .

■ CHARACTERISTICS

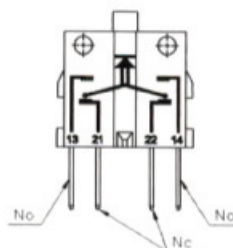
Contact resistance	50mΩ max. (initial)
Insulation resistance	100MΩ min. (at 500VDC)
Dielectric strength	1000VAC, 50/60 Hz for 1 minute between non-continuous terminals 2000VAC, 50/60 Hz for 1 minute between current-carrying part and ground
Vibration	Mechanical durability: 10 to 55Hz 1.5mm double amplitude
Shock	Mechanical durability: Approx. 500m/sec ² (approx. 50G's) Malfunction durability: Approx. 500m/sec ² (approx. 50G's)
Ambient operating temperature	Operating: -25°C to 55°C Storage: -30°C to 80°C
Humidity	45% to 80% RH
Mechanical Life (min)	Momentary: 2,000,000 Alternate: 250,000
Electrical Life (min)	Momentary: 100,000(1800 operations/hour) Alternate: 100,000(1200 operations/hour)

■ RATING(CONTACT)

Rated insulation voltage		250V AC/DC			
Rated continuous current(A)		5A			
Rated operating current(A)					
AC			DC		
Voltage	AC13	AC12	Voltage	DC13	DC12
110V	1.0	1.5	24V	0.7	1
220V	0.7	1.0	110V	0.15	0.2

AC13/DC13: Inductive load; AC12/DC12: Resistivw load

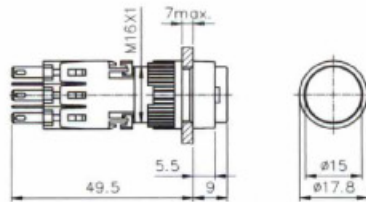
■ CONTACT CONFIGURATION



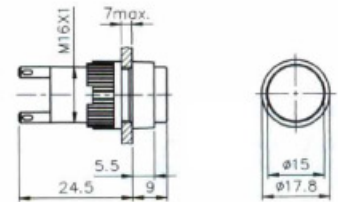


■ DIMENSIONS

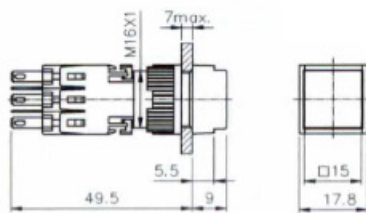
TN16-AIR/ALR/ANR
TN16-MIR/MLR/MNR



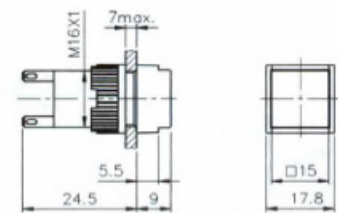
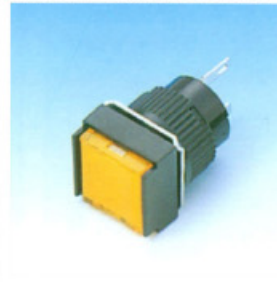
TN16-PIR/PLR/PNR



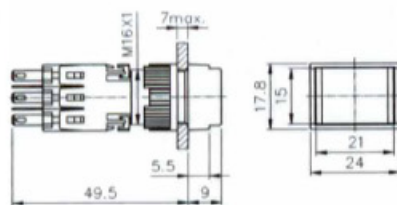
TN16-AIS/ALS/ANS
TN16-MIS/MLS/MNS



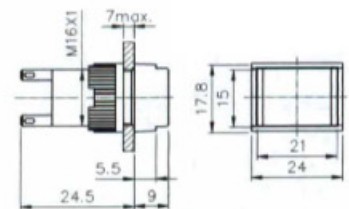
TN16-PIS/PLS/PNS



TN16-AIL/ALL/ANL
TN16-MIL/MLL/MNL



TN16-PIL/PLL/PNL



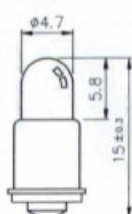
■ LAMP DESIGNATION

LAMP Type	Signal	Rated Voltage	Signal	Operating Voltage	Rated Current	Color Code	Signal	Designation
Incandescent	I	6.3V AC/DC	6	6V AC/DC	110 mA	None	None	I-6
		14V AC/DC	14	12V AC/DC	50 mA			
		28V AC/DC	28	24/28V AC/DC	25 mA			
LED	L	6V DC	6	6V DC	26 mA	Red Orange Green Blue Yellow White	R O G BL Y W	L-6-R
		12V DC	12	12V DC	26 mA			
		24V DC	24	24V DC	26 mA			
Neon	N	110V AC	110	110V AC	1.5 mA	Red Green	R G	N-110-R
		220V AC	220	220V AC	1.5 mA			
		380V AC	380	380V AC	1.5 mA			

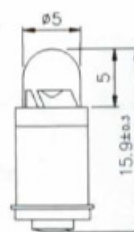
• Designatin need to be completed according to signals.

■ LAMP DIMENSIONS (T1³/₄BASE)

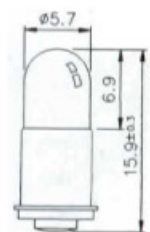
Incandescent



LED

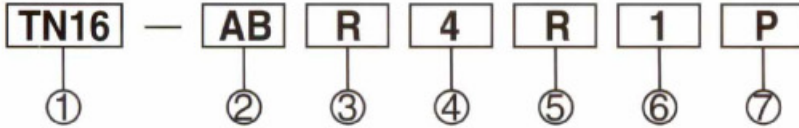


Neon





■ MODEL DESIGNATION



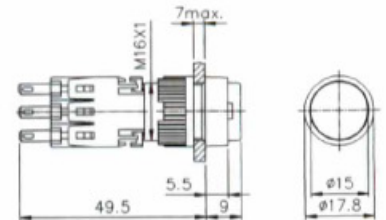
Designation	Signal	Description
1. Mounting Hole	TN-16	16m/m Series
2. Type	AB	Push Button (Alternate)
	MB	Push Button (Momentary)
	AM	Push Button (Alternate) (Mushroom Head)
	MM	Push Button (Momentary) (Mushroom Head)
	BK	Push-lock Turn-reset
3. Shape	R	Round
	S	Square
	L	Rectangular
4. Operator Protection	4	IP40
	6	IP65
5. Lens Color	R	Red
	G	Green
	Y	Yellow
	O	Orange
	W	White
	BL	Blue
	B	Black
6. Contact Blocks	1	1a1b
	2	2a2b
	3	3a3b
7. Terminal	None	Solder/Plug-in
	P	Pc Board

■ CHARACTERISTICS

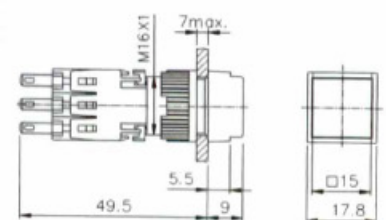
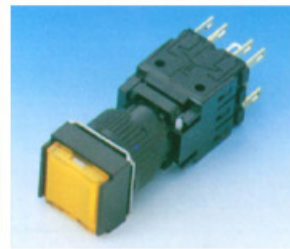
Contact resistance	50mΩ max. (initial)
Insulation resistance	100MΩ min. (at 500VDC)
Dielectric strength	1000VAC, 50/60 Hz for 1 minute between non-continuous terminals 2000VAC, 50/60 Hz for 1 minute current-carrying part and ground
Vibration	Mechanical durability: 10 to 55Hz 1.5mm double amplitude
Shock	Mechanical durability: Approx. 500m/sec ² (approx. 50G's) Malfunction durability: Approx. 500m/sec ² (approx. 50G's)
Ambient operating temperature	Operating: -25°C to 55°C Storage: -30°C to 80°C
Humidity	45% to 80% RH
Mechanical Life (min)	Momentary: 2,000,000 Alternate/BKR: 250,000
Electrical Life (min)	Momentary: 100,000 (1800 operations/hour) Alternate/BKR: 100,000 (1200 operations/hour)

■ DIMENSIONS

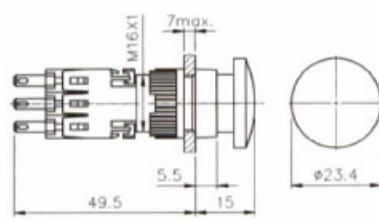
TN16-ABR/MBR



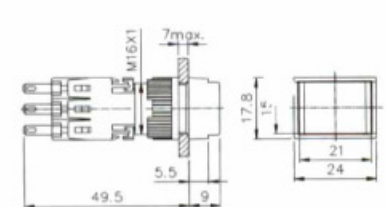
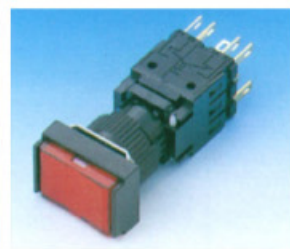
TN16-ABS/MBS



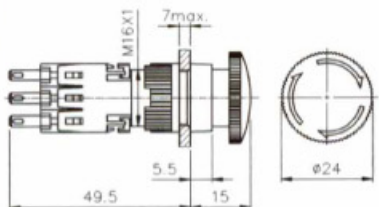
TN16-AMR/MMR



TN16-ABL/MBL



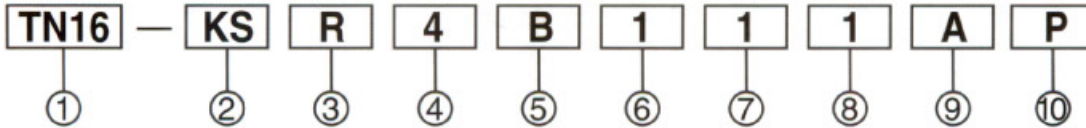
TN16-BKR



- AM/MM/BK Types only available in round shape.
- AM/MM Types available in Red, Yellow, Green, Black Colors.
- BK Types available in Red Colors.



MODEL DESIGNATION



Designation	Signal	Description
1. Mounting Hole	TN16	16m/m Series
2. Type	SS KS	Knob Operator Key Operator
3. Shape	R S L	Round Square Rectangular
4. Operator Protection	4 6	IP40 IP65
5. Color	R G B	Red Green Black
6. Positions	1	90° 2-Position
	2	90° 2-Position Spring return from right
	3	180° 3-Position
	4	150° 3-Position Spring return from right
	5	150° 3-Position Spring return from left
	6	150° 3-Position 2-Way spring return

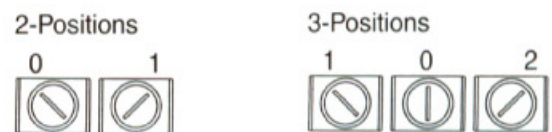
Designation	Signal	Description	
6. Positions	7	90° 3-Position	
	8	90° 3-Position Spring return from right	
	9	90° 3-Position Spring return from left	
	0	90° 3-Position 2-Way spring return	
7. Type of Contact Blocks Fitted	1 2 3	2-Position 3-Position	
		1a1b —	
		2a2b 1a1b 0 1a1b	
8. Key withdrawable	1	0.1 Key withdrawable	
	2	0 Key withdrawable	
	3	2-Position 1 Key withdrawable	
	4	0.1. 2 Key withdrawable	
	5	3-Position 0 Key withdrawable	
9. Key No.	A	F	2132 3123
	B	G	2231 3133
	C	H	2313 3213
	D	I	2331 3231
	E	J	3131 3331
10. Terminal	None P	Solder/Plug-in Pc Board	

* KSR/KSS/KSL Types only available in black colors.

CHARACTERISTICS

Contact resistance	50mΩ max. (initial)
Insulation resistance	100MΩ min. (at 500VDC)
Dielectric strength	1000VAC, 50/60 Hz for 1 minute between non-continuous terminals 2000VAC, 50/60 Hz for 1 minute between current-carrying part and ground
Vibration	Mechanical durability: 10 to 55Hz 1.5mm double amplitude
Shock	Mechanical durability: Approx. 500m/sec ² (approx. 50G's) Malfunction durability: Approx. 500m/sec ² (approx. 50G's)
Ambient operating temperature	Operating: -25°C to 55°C Storage: -30°C to 80°C
Humidity	45% to 80% RH
Mechanical Life (min)	250,000 operations
Electrical Life (min)	100,000 operations

KEY WITHDRAWABLE



2-Positions

Positions \ Key withdrawable	1		2		3	
	0	1	0	1	0	1
1	●	●	●	—	—	●
2	●	●	●	—	—	●

3-Positions

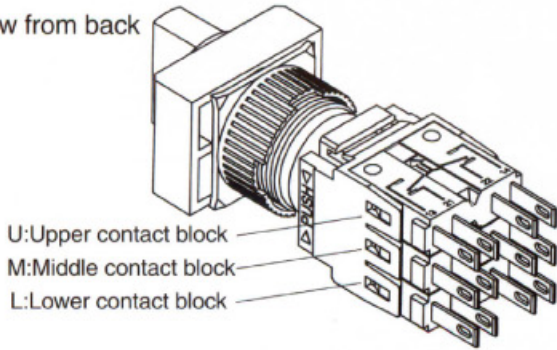
Positions \ Key withdrawable	4			5		
	1	0	2	1	0	2
3	●	●	●	—	●	—
4	—	—	—	—	●	—
5	—	—	—	—	●	—
6	—	—	—	—	●	—
7	—	—	—	—	●	—
8	—	—	—	—	●	—
9	—	—	—	—	●	—
0	—	—	—	—	●	—

●: Key withdrawable



CONTACT BLOCK POSITIONS

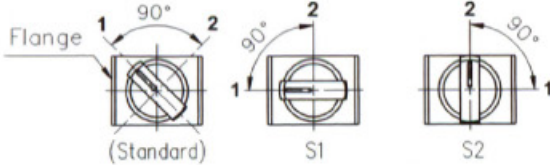
• View from back



• Contact arrangement and operator positions:
2-Position selector switch/Key switch

Contact arrangement		1NO+1NC (1a1b)	2NO+2NC (2a2b)	3NO+3NC (3a3b)
Operator position	Left ⤴	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14 21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14 21 ○ ○ 22 13 ○ ○ 14 21 ○ ○ 22 13 ○ ○ 14
	Right ⤵	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14 21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14 21 ○ ○ 22 13 ○ ○ 14 21 ○ ○ 22 13 ○ ○ 14

• The operating angle range can be changed as shown below by setting the attached flange shifted by 45° in combination with the contact block. In this case, the minimum mounting pitch is 26mm because the contact block is shifted by 45° from the flange.

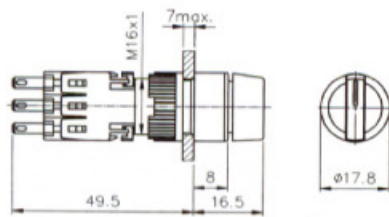


3-Position selector switch/Key switch

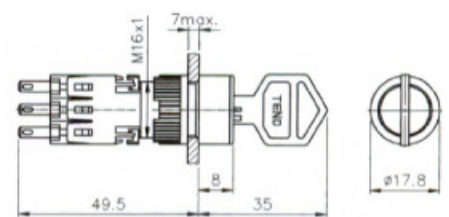
Contact arrangement		2NO+2NC (2a2b)		3NO+3NC (3a3b)		
Operator position	Left ⤴	U	L	U	M	L
	Center ⤴	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14
	Right ⤵	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14	21 ○ ○ 22 13 ○ ○ 14

DIMENSIONS

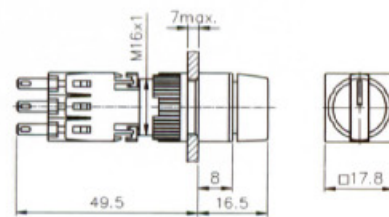
TN16-SSR



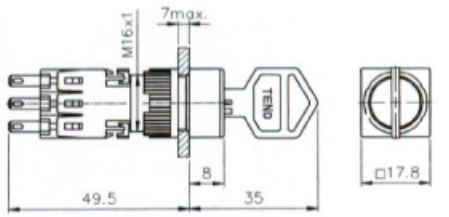
TN16-KSR



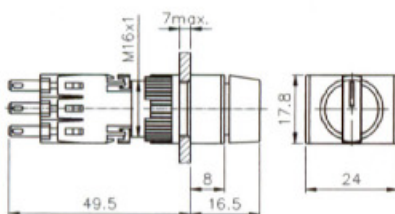
TN16-SSS



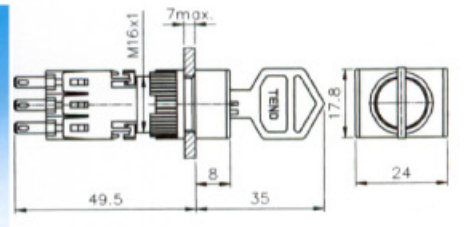
TN16-KSS



TN16-SSL



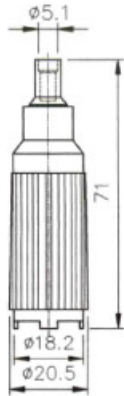
TN16-KSL



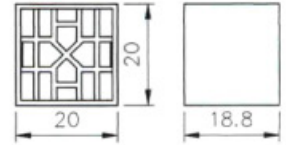
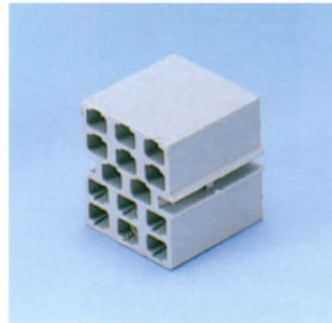


■ DIMENSIONS

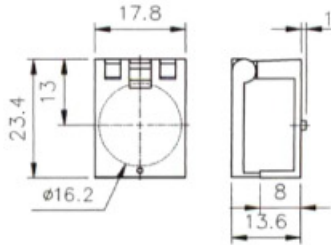
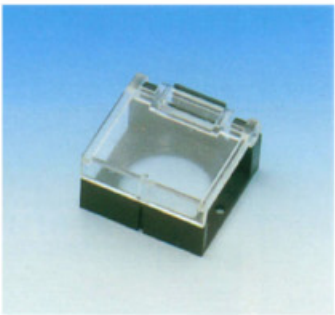
lamp Changer And Wrench TN16-A



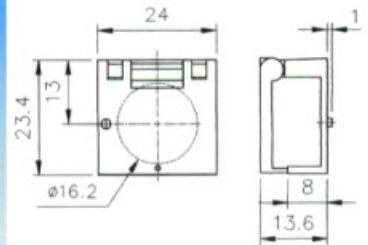
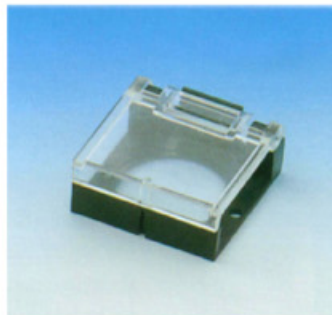
TN16-Terminal Cover TN16-TC



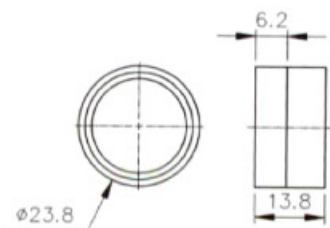
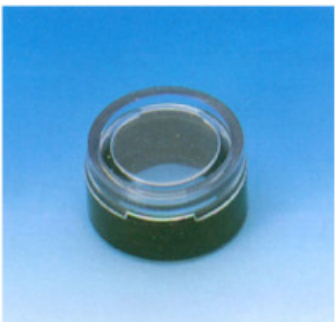
TN16-Round/Square Protection Cover TN16-GS



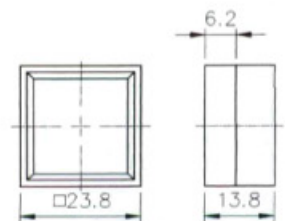
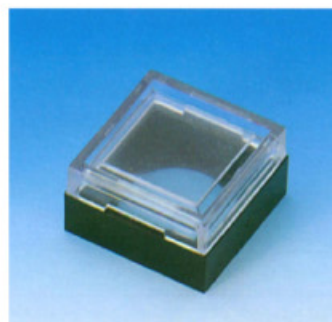
Rectangular Protection Cover TN16-GL



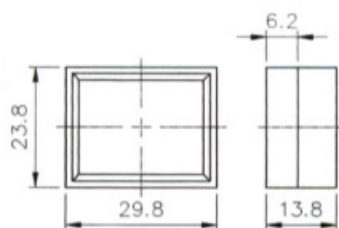
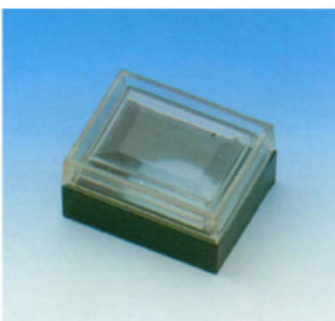
Round Head Dust-Tight Cover TN16-WR



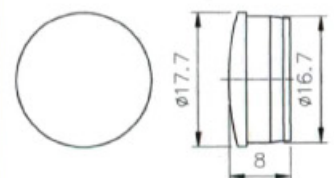
Square Head Dust-Tight Cover TN16-WS



Rectangular Head Dust-Tight Cover TN16-WL



Blanking Plug TN16-BP





TN16-RL Round Lens



Please choose the color code for

Color	Code
Red	R
Green	G
Yellow	Y
Orange	O
White	W
Blue	BL

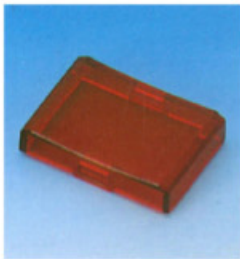
TN16-SL Square Lens



Please choose the color code for

Color	Code
Red	R
Green	G
Yellow	Y
Orange	O
White	W
Blue	BL

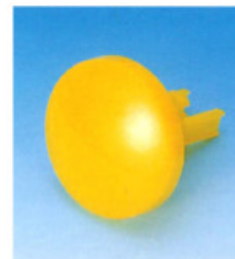
TN16-LL Rectangular Lens



Please choose the color code for

Color	Code
Red	R
Green	G
Yellow	Y
Orange	O
White	W
Blue	BL

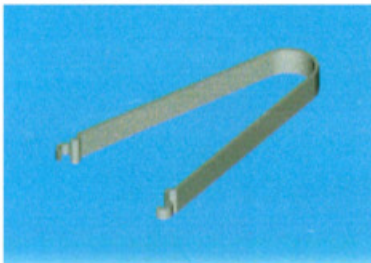
TN16-MM Mushroom Head




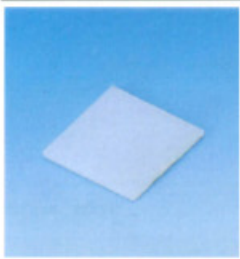
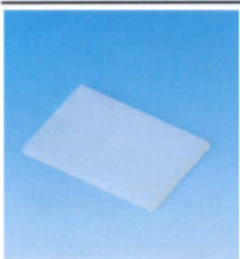
Please choose the color code for

Color	Code
Red	R
Green	G
Yellow	Y
Black	B

TN16-CR Remover for Contact Block Holder & Lens



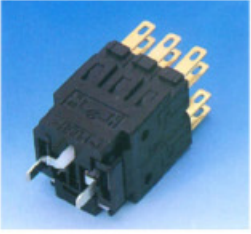
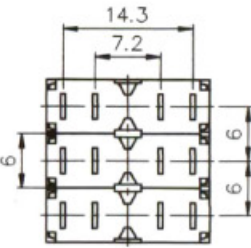



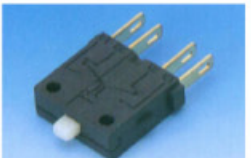
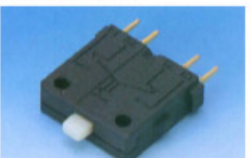

Please use TN16-CR to replace contact Block once the switch has been installed in the control panel. also use TN16-CR to take out the lens from TN16 switch if you want to Lamp.

	Round Name Plate	TN16-RP <input type="checkbox"/> Please choose signal for <input type="checkbox"/>
	Square Name Plate	TN16-SP <input type="checkbox"/> Please choose signal for <input type="checkbox"/>
	Rectangular Name Plate	TN16-LP <input type="checkbox"/> Please choose signal for <input type="checkbox"/>

Signals for Name Plate

01	02	03	04	05	06	07
○		ON	OFF	START	STOP	UP
08	09	10	11	12	13	14
DOWN	SOURCE	HAND	AUTO	RUN	FWD	REV
15	16	17	18	19	20	21
CLOSE	OPEN	FAST	SLOW	RESET	INCH	→
22	23	24	25	26	27	
B	1	2	3	4	5	



Features	Model	Type	Designation		
			Item	Signal	Designation
  (View from back)	Contact Blocks Assembly	TN16-A B 1 P Please choose Signal for <input type="checkbox"/>	1.Contact Blocks Holder	B	Contact Blocks Holder for Push Button
				I	Contact Blocks Holder for Illuminated Button
				S	Contact Blocks Holder for SS. KS. BK
			2.Contact Blocks Fitted	1	1a1b (1NO+1NC)
	2	2a2b (2NO+2NC)			
	3	3a3b (3NO+3NC)			
3.Type of Contact Holder	None	Solder/Plug-in			
	P	Pc Board Terminal			
TN16-BB 	Contact Blocks Holder	TN16-B B Please choose Signal for <input type="checkbox"/>	Contact Blocks Holder	B	Contact Blocks Holder for Push Button
TN16-BI 				I	Contact Blocks Holder for Illuminated Push Button
TN16-BS 				S	Contact Blocks Holder for SS. KS. BK
TN16-C 	Contact Blocks	TN16-C P Please choose Signal for <input type="checkbox"/>	Contact Blocks	None	Solder/Plug-in
TN16-CP 				P	Pc Board
	Blocks	TN16-D			