

tend FOOT SWITCH

FEATURES

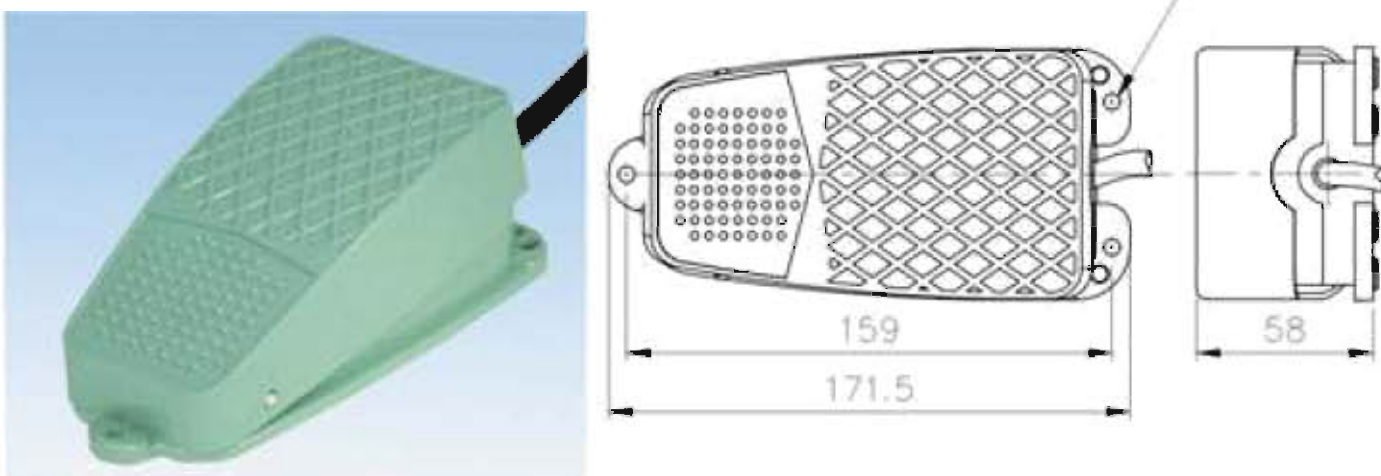
Designation	Type	Rating	Type of Switch Enclosed & contact Arrangement	Cable Type/Length	Contact	Actuation Force	Material of Rind	
Standard Type Momentary Action	TFS-101	10A 250VAC	TMV-10 Micro-Switch Momentary	0.75mm ² ,3C/0.5m~3m	1A1B	3.5kg	Plastics Aluminium cast	
	TFS-102	15A 250VAC	TM1704	0.75mm ² ,3C/1.5m~2m	1A1B	3.5kg		
	TFS-103	10A 250VAC	TMV-10 Micro-Switch Momentary 2pcs.	0.75mm ² ,6C/1m2m	2A2B	3.5kg		
	TFS-104	15A 250VAC	TM-1704 * 2	0.75mm ² ,6C/1m2m	2A2B	3.5gk		
Standard Type Alternate Action	TFS-105	6A 250VAC	TS-105 Push Button Switch Alternate Action	0.75mm ² ,2C/1m, 1.5m2m	PUSH ON PUSH OFF	3.5kg	Plastics Aluminium cast	
	TFS-106	6A 250VAC	Imported Micro-Switch	0.75mm ² ,3C/1m	PUSH 1A PUSH 1B	3.5kg		
Mini Foot Switch Front End Push	TFS-201	10A 250VAC	TMV-10 Micro-Switch Momentary	0.5mm ² ,3c/1m~3m	1A1B	1kg	Plastics	
Front End Push with Metal Mounting Plate	TFS-202	10A 250VAC			1A1B	1kg		
Mini Foot Switch	TFS-203	10A 250VAC			1A1B	1kg		
Protective Guard Foot Switch	TFS-302	15A 250VAC	TM 1704	Accessory:Cable gland(No Cable)	1A1B	3.5kg	Plastics and Aluminium cast	
	TFS-304	15A 250VAC	TM 1704 * 2		2A2B	3.5kg		
	TFS-305	6A 250VAC	TS-105 Push Button Switch Alternate Action		PUSH ON PUSH OFF	3.5kg		
	TFS-306	6A 250VAC	Imported Micro-Switch		PUSH 2A PUSH 2B	3.5gk		
Large Type	TFS-402	15A 250VAC	TM 1704		1A1B	3.5kg		Aluminium cast
	TFS-404	15A 250VAC	TM 1704 * 2		2A2B	3.5kg		
	TFS-405	6A 250VAC	TS-105 Push Button Switch Alternate Action		PUSH ON PUSH OFF	3.5kg		
	TFS-406	6A 250VAC	Imported Micro-Switch		PUSH 2A PUSH 2B	3.5kg		
Full Shield	TFS-502	15A 250VAC	TM 1704	1A1B	3kg	Aluminium cast		
	TFS-602	15A 250VAC	TM 1704 * 2	2A2B	3.2kg			

● :Add "R" for waterproof. Available in TFS3 & TFS4.

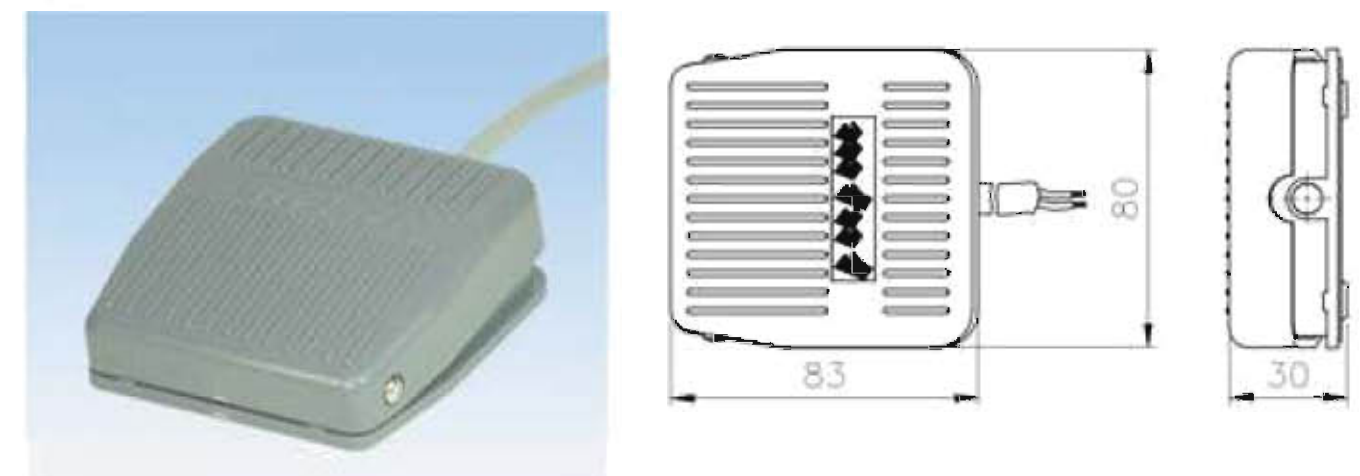
● :Add "Z" for aluminium housing. Available in TFS1, TFS3 & TFS4.

● : TFS5 series has TFS-504, TFS-505, TFS-506. Inside Micro-Switch is the same as TFS3 series.

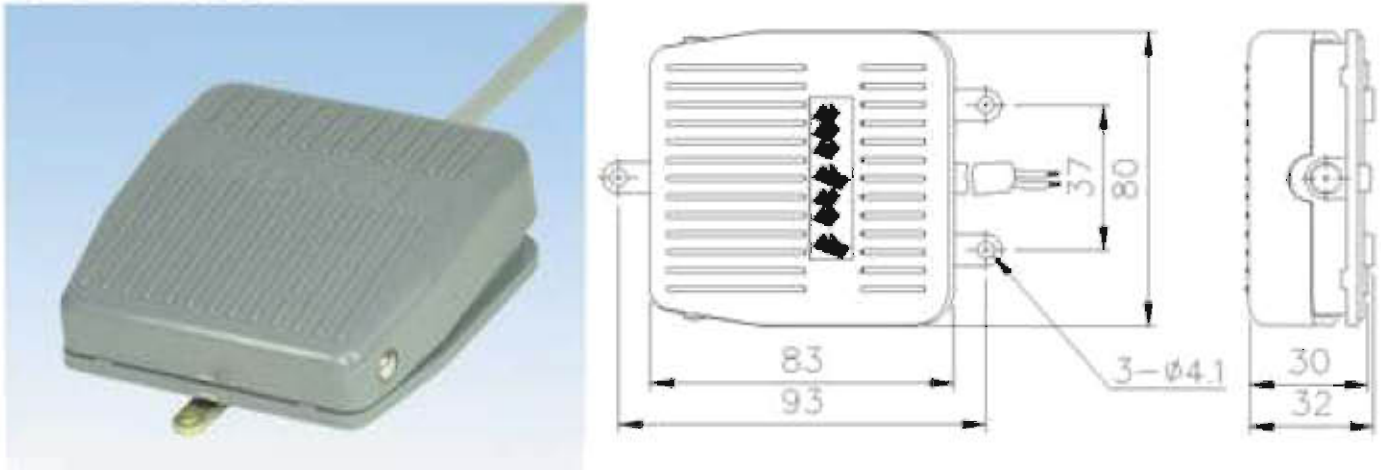
TFS-101,102,104,105,106



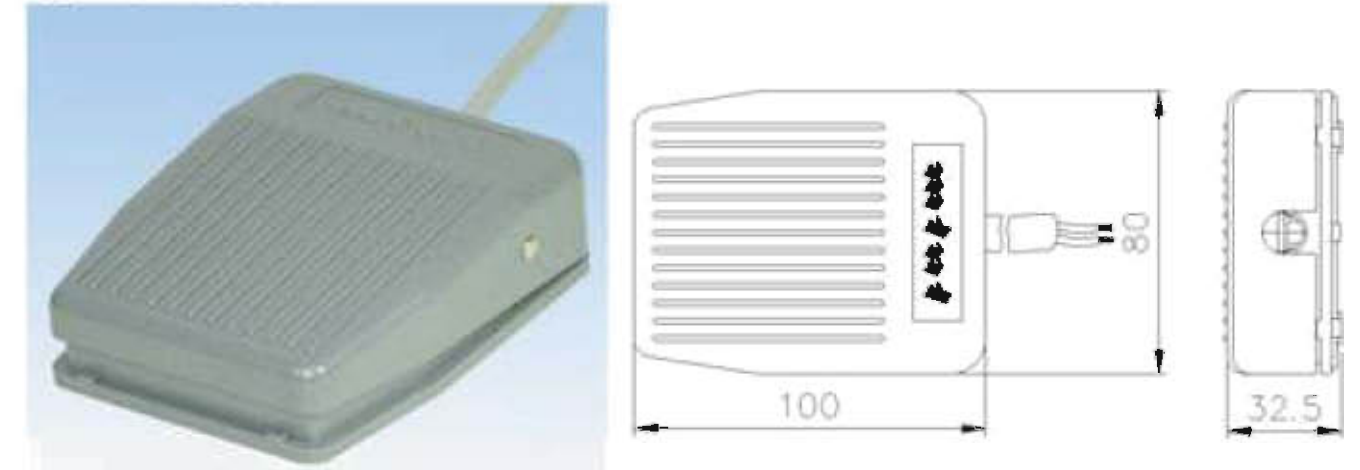
TFS-201



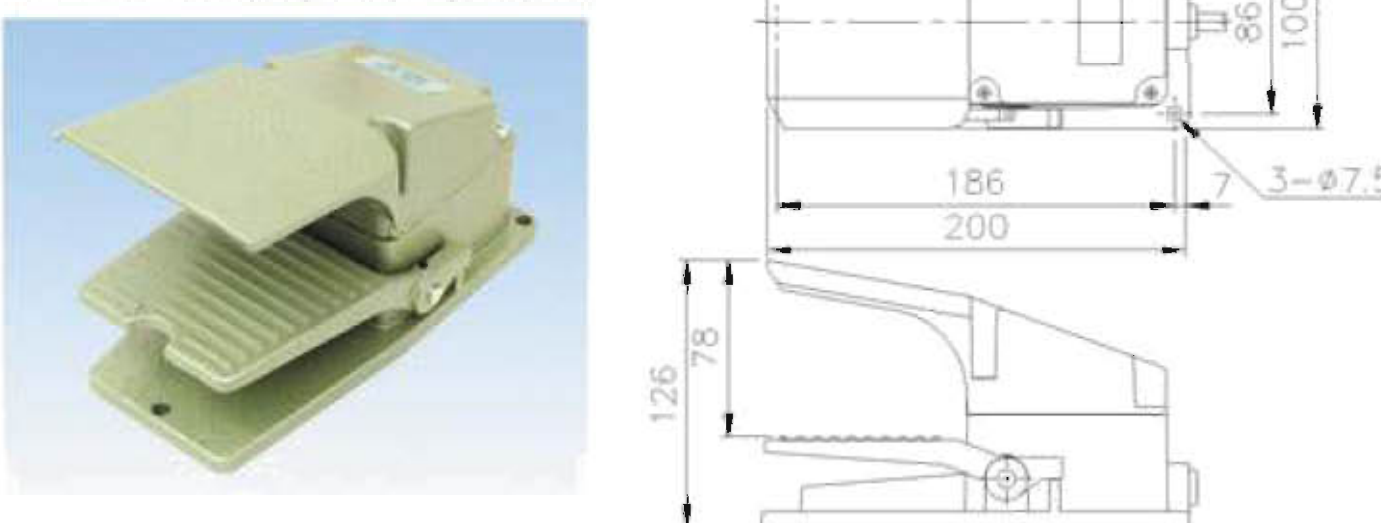
TFS-202



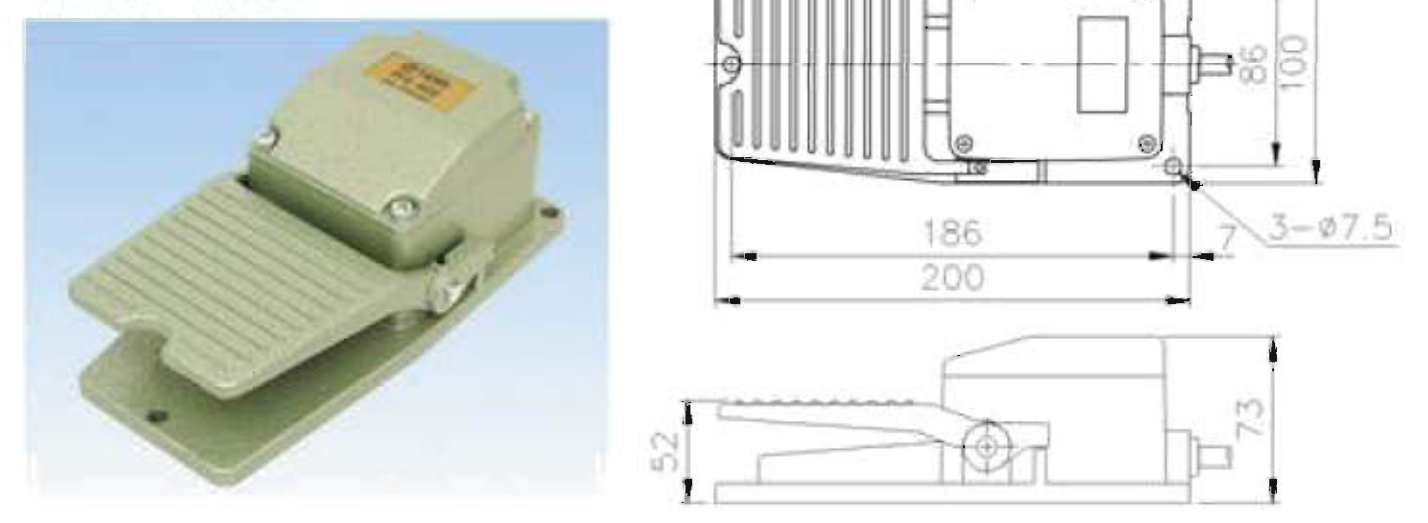
TFS-203



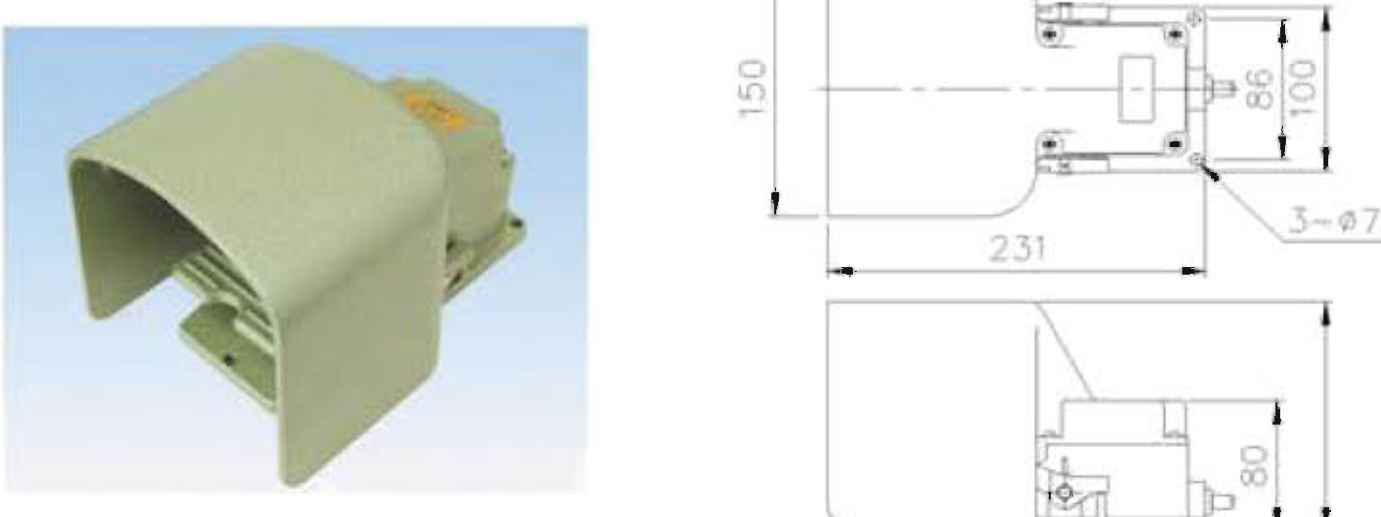
TFS-302,304,305,306



TFS-402



TFS-502



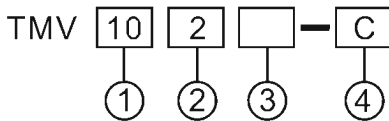
TFS-602



FEATURES

- Wide variety of actuators.
- High precision.
- Wide operating speed range.

MODEL DESIGNATION



DESIGNATION	Signal	DESCRIPTION
1.Rating	10	10A
	16	16A
	21	21A
2.Actuator	0	Push Button Type
	1	Long Lever Type
	2	Short Lever Type
	3	Long Roller Type
	4	Short Roller Type
	5	Extra Lever Type
3.Contact	None	1C(com bottom terminal)
	S	1C(com side terminal)
4.Terminal	C	#250Terminal
	D	#187Terminal

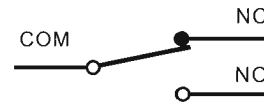
TYPES

Actuator	Com Terminal	Rating Contact	Rating Terminal	10A	16A	21A		
Push Button Type	Side terminal	1C	Terminal type of #187	TMV100-C/D	TMV160-C/D	TMV210-C/D		
Long Lever Type				TMV101-C/D	TMV161-C/D	TMV211-C/D		
Short Lever Type				TMV102-C/D	TMV162-C/D	TMV212-C/D		
Long Roller Type				TMV103-C/D	TMV163-C/D	TMV213-C/D		
Short Roller Type				TMV104-C/D	TMV164-C/D	TMV214-C/D		
Extra Lever Type				TMV105-C/D	TMV165-C/D	TMV215-C/D		
Crank Lever Type			Bottom terminal	1C	Terminal type of #250	TMV106-C/D	TMV166-C/D	TMV216-C/D
						TMV100S-C/D	TMV160S-C/D	TMV210S-C/D
						TMV101S-C/D	TMV161S-C/D	TMV211S-C/D
						TMV102S-C/D	TMV162S-C/D	TMV212S-C/D
						TMV103S-C/D	TMV163S-C/D	TMV213S-C/D
						TMV104S-C/D	TMV164S-C/D	TMV214S-C/D

Type and shape of terminal

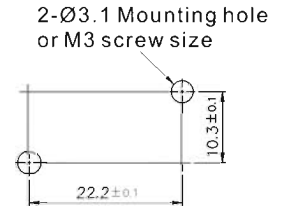
Type of terminal	#187 quick connect	#250 quick connect
Bottom terminal		
Side terminal		
Terminal size		

CONTACT CONFIGURATION



MOUNTING HOLES

Using M3 screw-washer and spring washer as install. The twist force of 0.39~0.59N.m or 4~6Kg.cm is recommended and applicable.



SPECIFICATIONS

RATINGS

Item Type	Rated voltage (V)	Noninductive load(A)				Inductive load(A)				Inrush current (A)	
		Resistive load		Lamp load		Inductive load		Motor load		NC	NO
		NC	NO	NC	NO	NC	NO	NC	NO		
10A	250 VAC	10	1.5	6	2	24 max.					
	8 VDC	10	3	6	3						
	30 VDC	6	3	6	3						
	125 VDC	0.6	0.1	0.6	0.1						
16A	250 VDC	0.3	0.05	0.3	0.05	40 max.					
	250 VAC	16	2	10	3						
	8 VDC	16	4	10	6						
	30 VDC	10	4	10	4						
21A	125 VDC	0.6	0.1	0.6	0.1	50 max.					
	250 VDC	0.3	0.05	0.3	0.05						
	250 VAC	21	3	12	4						
	8 VDC	21	5	12	7						
	30 VDC	14	5	12	5						
	125 VDC	0.6	0.1	0.6	0.1						
	250 VDC	0.3	0.05	0.3	0.05						

CHARACTERISTICS

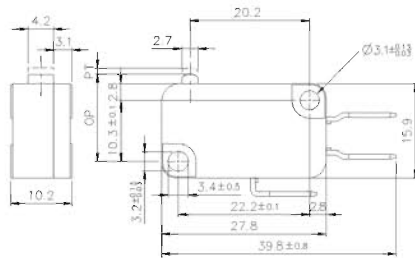
Item	Type	TMV 10	TMV 16	TMV 21
Operating speed		0.1mm~1m/s (push button type)		
Operating frequency		Mechanically:240 operations/min electrically :20 operations/min		
Insulation resistance		100MΩ min(at 500 VDC)		
Contact resistance		15mΩ max		
Dielectric strength	Non-continuous terminals	1,000VAC,50/60Hz for 1 minute		
	between non-continuous terminals	1500VAC, 50/60Hz for 1 minute	2000VAC,50/60Hz for 1 minute	
Vibration	Malfunction	10~55Hz, double amplitude 1.5mm		
Shock	Mechanical durability	1,000m/sec ² { approx.100G's }		
	Malfunction	200m/sec ² { approx.20G }	300m/sec ² { approx.30G }	
Service life	Mechanically	20,000,000 operations min		
	Electrically	300,000 operations min	100,000 operations min	
Ambient temperature		General purpose type:-25° to +65°C		
Ambient Humidity		General purpose type:85%RH max General purpose type:+5° to +35°C		
Weight		Approx:7.2~8g		

OPERATION CHARACTERISTICS

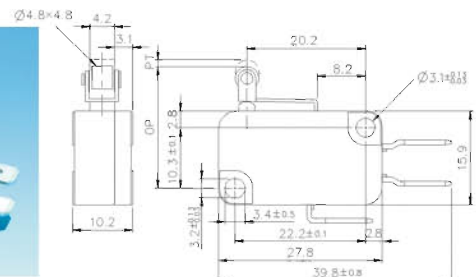
Type	TMV100 TMV160 TMV210	TMV101 TMV161 TMV211	TMV102 TMV162 TMV212	TMV103 TMV163 TMV213	TMV104 TMV164 TMV214	TMV105 TMV165 TMV215	TMV106 TMV166 TMV216
OF Max.	200g	125g	200g	125g	240g	70g	125g
RF Min.	50g	14g	50g	14g	50g	6g	14g
PT Max.	1.4mm	4.0mm	1.6mm	4.0mm	1.6mm	9.0mm	4.0mm
OT Min.	0.8mm	1.6mm	0.8mm	1.6mm	0.8mm	3.2mm	1.6mm
MD Max.	0.5mm	1.5mm	0.6mm	1.5mm	0.6mm	2.8mm	1.5mm
OP	14.7 ±0.5mm	15.2 ±1.2mm	15.2 ±0.5mm	20.7 ±1.2mm	20.7 ±0.6mm	15.2 ±2.5mm	18.7 ±1.2mm

DIMENSIONS

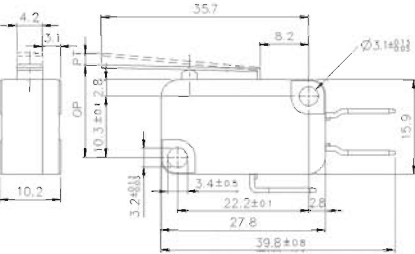
TMV100-C



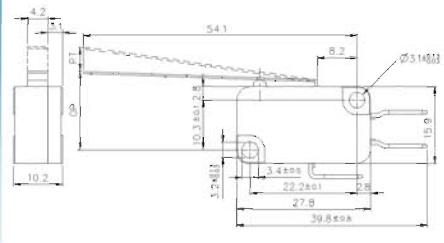
TMV104-C



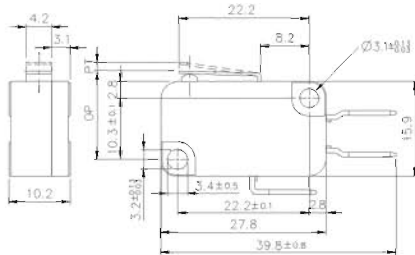
TMV101-C



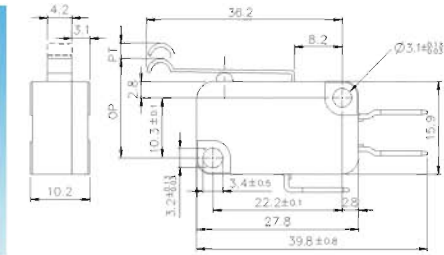
TMV105-C



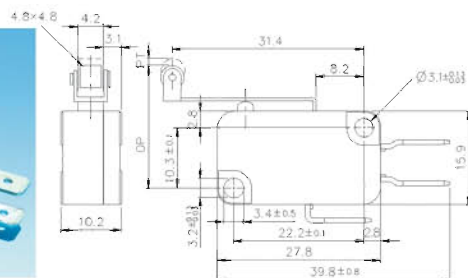
TMV102-C



TMV106-C



TMV103-C



FEATURE

- UL safety approval.
- Operating power DC 510mW.
- Nominal power DC 900mW&AC1.2VA.
- Either with or without lamp is optional for AC&DC coil.
- Low coil power consumption with high response time.

Contact Specification

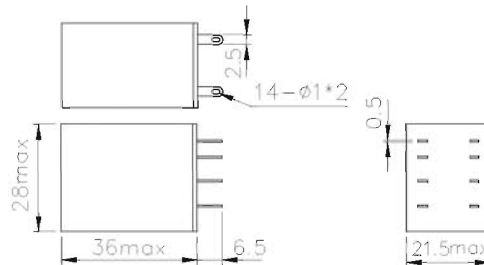
Type	TRM2/TRNM2	TRM4/TRNM4	TRL2/TRL4 TRNL2/TRNL4
Rating Voltage	7A 250VAC 7A 30VDC	5A 250VAC 5A 30VDC	10A 250VAC 10A 30VDC

Coil Character

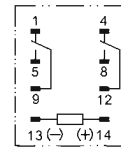
Coil Type	Voltage (V)	Resistance(Ω) (±10%Pa)	Pick-Up Voltage (V) ≥	Drop-Out Voltage (V) ≤
DC	6	40	4.5	0.6
	12	160	9	1.2
	24	650	18	2.4
	48	2600	36	4.8
	100	11000	75	10
AC	12	46	9	3.6
	24	180	18	7.2
	110	3750	82.5	33
	120	4430	90	36
	220	12950	165	66
	240	18790	180	72
	270	24150	202.5	81

Dimensions

TRM2/TRNM2

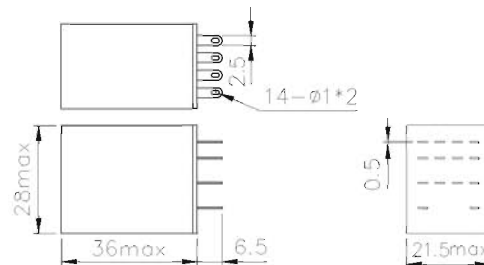


Circuit diagram

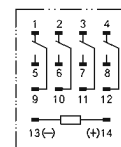


Workable with PYF08N
Tend's Relay Sockets

TRM4/TRNM4

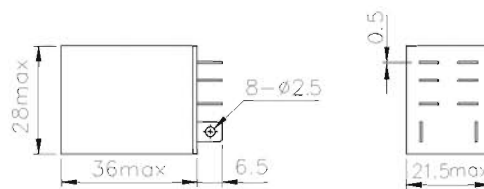


Circuit diagram

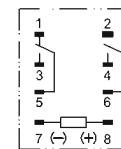


Workable with PYF14N
Tend's Relay Sockets

TRL2/TRNL2

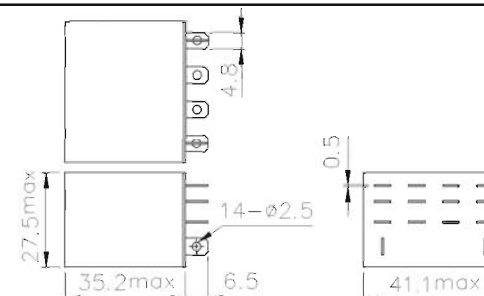


Circuit diagram

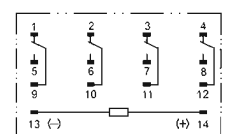


Workable with PTF08N
Tend's Relay Sockets

TRL4/TRNL4

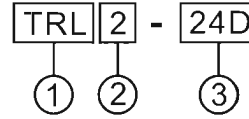


Circuit diagram



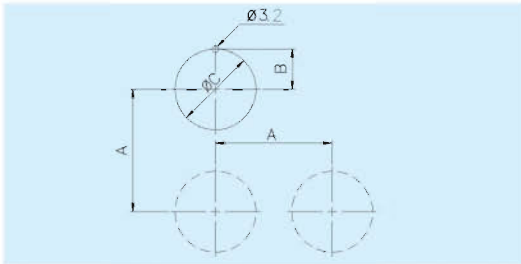
Workable with PTF14N
Tend's Relay Sockets

MODEL DESIGNATION



Designation	Signal	Description
1.Type	TRM	Narrow Terminal
	TRNM	Narrow Terminal with LED lamps
	TRL	Wide Terminal
	TRNL	Wide Terminal with LED lamps
2.Contact	2	2A2B
	4	4A4B
3.Voltage	6D	6VDC
	12D	12VDC
	24D	24VDC
	48D	48VDC
	100D	100VDC
	12A	12VAC
	24A	24VAC
	110A	110VAC
	120A	120VAC
	220A	220VAC
	240A	240VAC
270A	270VAC	

■ PANEL CUT-OUT Ø22/Ø25 series



DIMENSIONS (mm)

Series		Ø22	Ø25
A	Light push button & Selector	31min.	
	Mushroom Head	39min.	
B	All types	11.2	12.7
C	All types	22.4	25.4

■ CONTACT RATING

AC	AC11	AC24V	AC110V	AC220V	AC380V	AC440V	DC	DC11	DC24V	DC110V	DC220V	DC380V
	Inductive load	7.5A	4.5A	3A	2A	2A		Inductive load	1.5A	0.5A	0.2A	0.1A
Resistive load	7.5A	7.5A	4.5A	4A	4A	Resistive load	10A	2A	0.6A	0.2A		

■ CHARACTERISTICS

Operating frequency	Mechanically	Push button (momentary) 60 cycles / min., Others 30 cycles / min
	Electrically	30 cycles / min.
Service life	Mechanically	Push button (momentary) 3,000,000 operations., Others 300,000 operations
	Electrically	Push button (momentary) 500,000 operations., Others 200,000 operations
Shock	Durability	1000m/s ²
	Malfunction	Push button(momentary)1000m/s ² , Others 250m/s ²
Vibration	Malfunction	10~55Hz double amplitude 1.5mm
Contact resistance	50mΩ max. (Initial value)	
Insulation resistance	100MΩ min. (500VDC)	
Dielectric strength	2500VAC, 50/60 Hz for 1 minute	
Ambient temperature	-20°C~+60°C	
Humidity	45~85%RH	

■ WIRING DIAGRAM

Type	TS2-A	TS2-B	TS2-C	TS2-2A	TS2-2B
Contact	1a	1b	1a1b	2a	2b
Contact Arrangement					

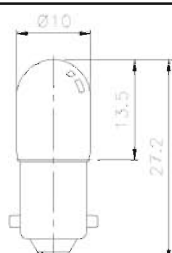
■ BULB TYPE AND CHARACTERISTICS

BA9S-11X28mm - 1.2W

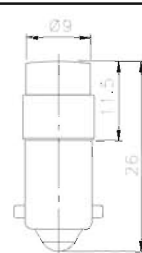
Lamp Type	Signal	Rated Voltage	Signal	Operating Voltage	Rated Current	Color Code	Signal	Designation
Incandescent	I	6V AC/DC	6	6V AC/DC	150mA	None	None	I - 6
		12V AC/DC	12	12V AC/DC	100mA			
		18V AC/DC	18	18V AC/DC	66mA			
		24V AC/DC	24	24V AC/DC	50mA			
		30V AC/DC	30	30V AC/DC	40mA			
LED	L	6V AC/DC	6	6V AC/DC	9~13mA	Red Blue	R BL	L - 110 R
		12V AC/DC	12	12V AC/DC	9~13mA	Green White	G W	
		24V AC/DC	24	24V AC/DC	8~13mA	Orange	O	
		110V AC	110	110V AC	3~5mA			
		220V AC	220	220V AC	3~5mA			

■ DIMENSIONS OF BULB

● Incandescent Bulb



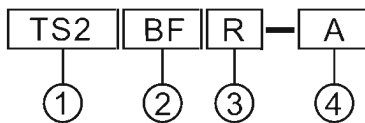
● LED Bulb



tend PUSH BUTTON SWITCH (TS2 Ø22/Ø25)

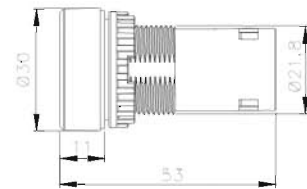
TS2

MODEL DESIGNATIONS

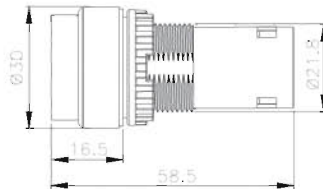


DIMENSIONS

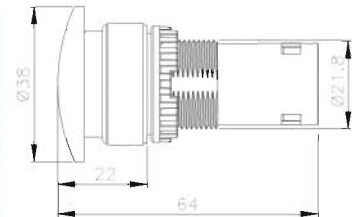
TS2BF



TS2BL



TS2BM

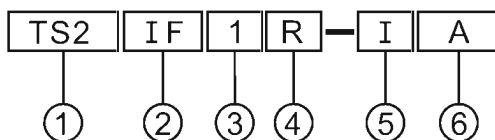


Designation	Signal	Description
1. Mounting Hole	TS2	Ø22mm/Ø25mm
2. Type	BF BL BM	Flat Head Long Head Mushroom Head
3. Lens Color	R G Y W B	Red Green Yellow White Black
4. Type of contact Block Fitted	A B C 2A 2B	1a 1b 1a1b 2a 2b

tend ILLUMINATED PUSH BUTTON

TS2

MODEL DESIGNATIONS

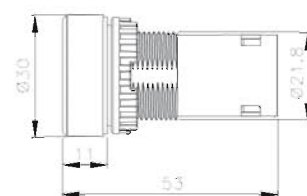


Designation	Signal	Description
1. Mounting Hole	TS2	Ø22mm/Ø25mm
2. Type	IF IL IM	Flat Head Long Head Mushroom Head

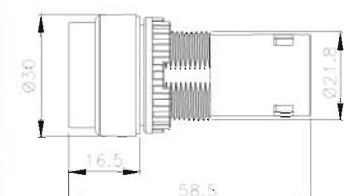
Designation	Signal	Description
3. Voltage	1 2 5 6 7 8 9	110VAC LED 220VAC LED 6VAC/DC Incandescent · LED 18VAC/DC Incandescent 24VAC/DC Incandescent · LED 30VAC/DC Incandescent 12VAC/DC Incandescent · LED
4. Lens Color	R G O W BL	Red Green Orange White Blue
5. No. of Contacts Fitted	I L	Incandescent LED
6. Type of contact Block Fitted	A B	1a 1b

DIMENSIONS

TS2IF

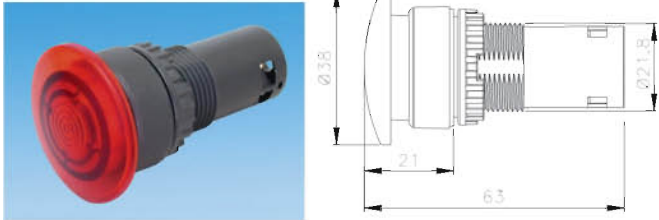


TS2IL



DIMENSIONS

TS2IM

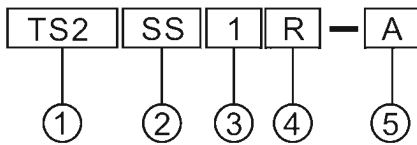


ILLUMINATED PUSH BUTTON CONTACT BLOCKS

Type	TN2-A	TN2-B
Contact	1a	1b
Contact Arrangement		

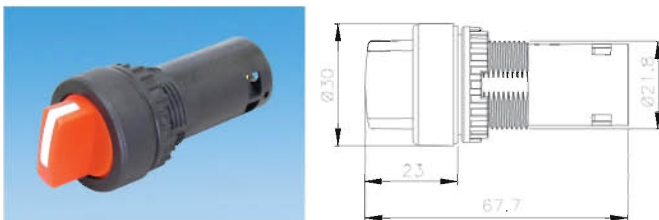
tend SELECTOR SWITCH (TS2 Ø22/Ø25)

MODEL DESIGNATIONS



DIMENSIONS

TS2SS



Designation	Signal	Description	
1. Mounting Hole	TS2	Ø22mm/Ø25mm	
2. Type	SS	Knob	
3. Positions	1	90°X2-Position	
	2	45°X2 3-Position	
	3	45°X2 3-Position spring return from right	
	4	45°X2 3-Position spring return from left	
	5	45°X2 3-Position 2-Way spring return	
4. Lens Color	R	Red	
	G	Green	
	B	Black	
5. Type of contact Block Fitted		2-Position	3-Position
	A	1a	—
	B	1b	—
	C	1a1b	1a 0 1a
	2A	2a	—
	2B	2b	—

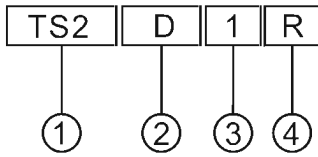
SELECTOR SWITCH 2-POSITION ARRANGEMENT

Type	TS2-A	TS2-B	TS2-C	TS2-2A	TS2-2B
Contact	1a	1b	1a1b	2a	2b
Contact Arrangement					
Contact	0 1	0 1	0 1	0 1	0 1
	3-4 X	1-2 X	1-2 X 3-4 X	3-4 X 3-4 X	1-2 X 1-2 X

SELECTOR SWITCH 3-POSITION ARRANGEMENT

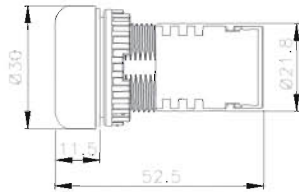
Type	TS2-C
Contact	1a 0 1a
Contact Arrangement	
Contact	1 0 2
	3-4 X 3-4 X

MODEL DESIGNATIONS



DIMENSIONS

TS2D

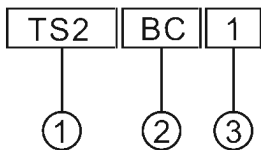


Designation	Signal	Description
1. Mounting Hole	TS2	Ø22mm/Ø25mm
2. Type	D	LED Continuous
	F	LED Flashing
3. Voltage	1	110VAC
	2	220VAC
	3	380VAC
	4	440VAC
	7	24VAC/DC
	9	12VAC/DC
4. Lens Color	R	Red
	G	Green
	O	Orange
	W	White
	BL	Blue

tend BUZZER BUZZER PILOT LAMP

- Only Red color for Buzzer Pilot Lamp.
- Only Black color for Buzzer.

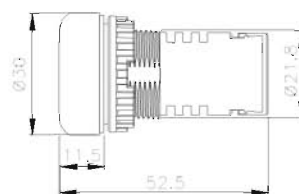
MODEL DESIGNATIONS



Designation	Signal	Description
1. Mounting Hole	TS2	Ø22mm/Ø25mm
2. Type	BC	Continuous Audible Alarm
	BI	Intermittent Audible Alarm
	BCL	Continuous Light with Audible Alarm
	BIL	Flashing Light with Audible Alarm
3. Voltage	1	110VAC
	2	220VAC
	7	24VAC/DC
	9	12VAC/DC

DIMENSIONS

TS2BCL



TS2BC

