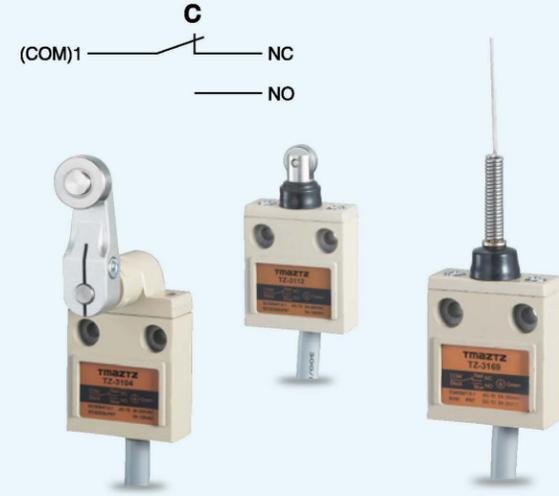


特征 Features

- ◎ 满足 IEC IP67 防护等级的高密封性。
- ◎ 三层密封构造：
柱塞部通过丁腈橡胶填料密封和隔膜密封，开关部通过丁腈橡胶帽密封；电缆入口通过封装材料密封。
- ◎ 标准型提供 3 和 5m 的电缆长度。
- ◎ 带柱塞的开关可实现并联安装。
- ◎ Sealing characteristics that meet IEC IP67 degree of protection.
- ◎ Triple-sealed construction:
Plunger section sealed via nitrile rubber packing seal and diaphragm; switch section sealed via nitrile rubber cap; cable entrance sealed via encapsulating material.
- ◎ Cable lengths of 3 and 5m available on standard models.
- ◎ Multiple mounting possible with Switches with Plungers.

接触形式 Contact form



额定值 Ratings

额定电压 Rated voltage	非电感性负载 Noninductive Load (A)				电感性负载 Inductive Load (A)			
	电阻性负载 Resistance Load		灯泡负载 Lamp Load		电感性负载 Inductive Load		马达负载 Motor Load	
	NC	NO	NC	NO	NC	NO	NC	NO
125VAC	5 (0.1)		1.5	0.7	3		2.5	1.3
250VAC	3		1	0.5	2		1.5	0.8
8VDC	5 (0.1)		2		5	4	3	
14VDC	5 (0.1)		2		4	4	3	
30VDC	4 (0.1)		2		3	3	3	
125VDC	0.4		0.05		0.4	0.4	0.05	
250VDC	0.2		0.03		0.2	0.2	0.03	
浪涌电流 Surge current	NC			20A 以下 (under)				
	NO			10A 以下 (under)				

特性 Characteristics

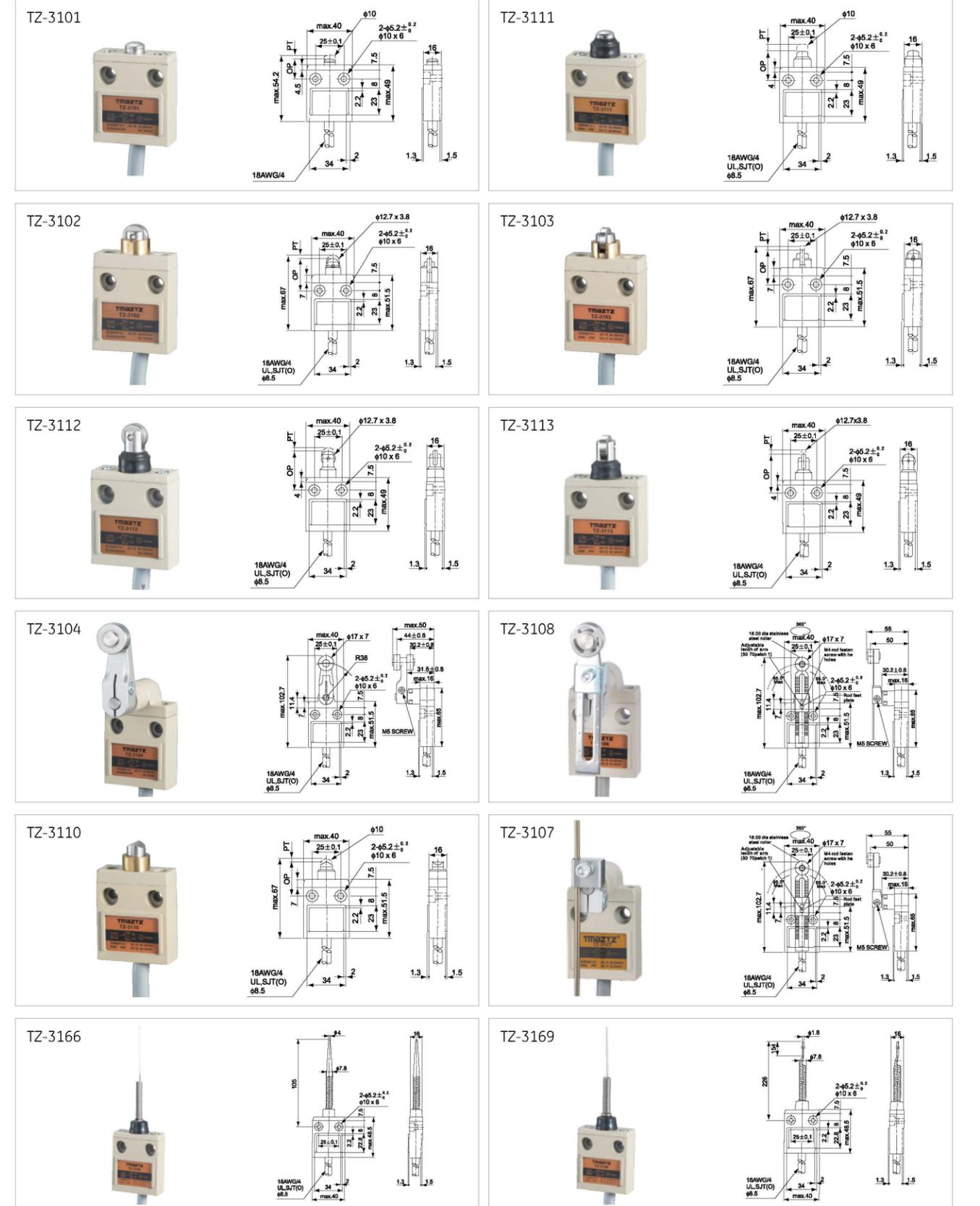
额定值 Rating	5A 125V, 3A 250VAC
操作速度 Operating speed	1mm~1m/s
动作频率 Operating frequency	电气: 30 次 / 分 Electrical: 30 operations/min.
接点电阻 Contact resistance	15mΩ 以下 15mΩ max(initial)
绝缘电阻 Insulation resistance	100mΩ 以上 (在 500VDC 以下) 100mΩ min.(at 500VDC)
电介强度 Dielectric strength	不连续端子间: 1000VAC, 50/60Hz, 持续 1 分钟 1000VAC, 50/60 Hz for 1 minute between terminals of the same polarity 端子和接地之间: 1500VAC, 50/60Hz, 持续 1 分钟 1500VAC, 50/60 Hz for 1 minute between current-carrying and non-current-carrying metal parts 端子和无载电流金属零件之间: 1500VAC, 50/60Hz, 持续 1 分钟 1500VAC, 50/60 Hz for 1 minute between each terminal and ground
振动 Vibration Frequency	误动作耐久: 10-55Hz, 1.5mm 双振幅 10 to 55Hz, 1.5mm double amplitude
冲击 Shock	机械耐久: 1000m/s ² 以上 (约 100G 以上) 误动作耐久: 500m/s ² 以上 (约 50G 以上) Mechanical: Approx. 1000m/s ² (Approx. 100G) S Electrical: Approx. 500m/s ² (Approx. 50G) S
使用温度 Ambient temperature	-10°C ~+70 °C (没有结冰 With no icing)
湿度 Humidity	< 95% RH
重量 Weight	约 360g(电缆线长 3m) 约 540g(电缆线长 5m) (TZ-3102) Approx. 360g(cable length 3m) Approx. 540g(cable length 5m)
防水等级 IP Degree	IP67
电气寿命 Electrical life	200000 次以上 Above 200000

动作特性 Operating Characteristics

动作特性	型号 Model	TZ-3101	TZ-3102	TZ-3103	3104,3107,3108	TZ-3111	TZ-3112	TZ-3113	TZ-3166,3169
动作力	OF 最大 (Max)	11.77N	11.77N	11.77N	5.69N	17.65N	17.65N	17.65N	1.47N
回复力	RF 最小 (Min)	4.41N	4.41N	4.41N	1.47N	4.41N	4.41N	4.41N	—
预行程	PT 最大 (Max)	1.8mm	1.8mm	1.8mm	25°	1.8mm	1.8mm	1.8mm	15°
过行程	OT 最小 (Min)	3mm	3mm	3mm	40°	3mm	3mm	3mm	—
应差距离	MD 最大 (Max)	0.2mm	0.2mm	0.2mm	3°	0.2mm	0.2mm	0.2mm	—
动作位置	OP	15.7 ± 1mm	28.5 ± 1mm	28.5 ± 1mm	—	24.9 ± 1mm(5) mm	34.3 ± 1mm(5) mm	34.3 ± 1mm(5) mm	—

注: 3104 的动作特性用于长度 38mm 的摆杆。 NOTE: 3104 the action characteristic of the swing rod for length 38mm.

外观和尺寸 Appearance and Dimension



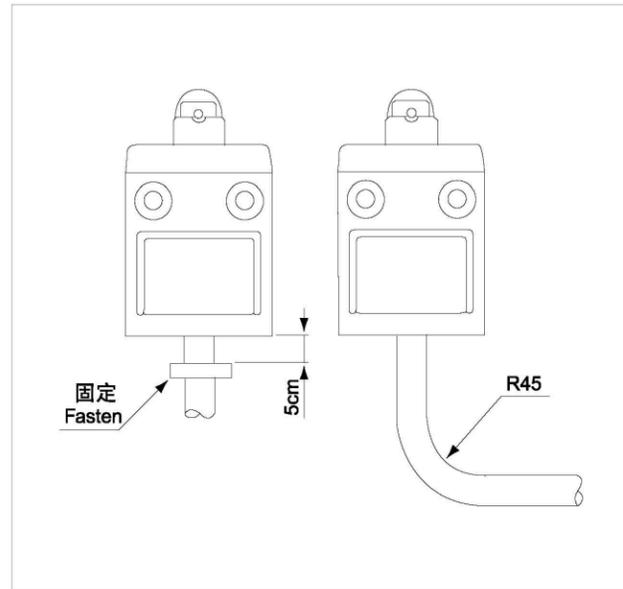
外观和尺寸 Appearance and Dimension

Technical drawings and photographs of various TZ-3 series limit switches, including models TZ-3101, TZ-3111, TZ-3102, TZ-3103, TZ-3112, TZ-3113, TZ-3114, TZ-3108, TZ-3110, TZ-3107, TZ-3166, and TZ-3169. Each drawing includes detailed dimensions and part numbers.

配线注意事项 Fastening Of The Switch Cable

配线需注意于离开开关 5cm 处须加以固定，而电线之弯曲半径不得小于 R45cm，注意勿伤及电线绝缘体，以避免电线漏电等情形。

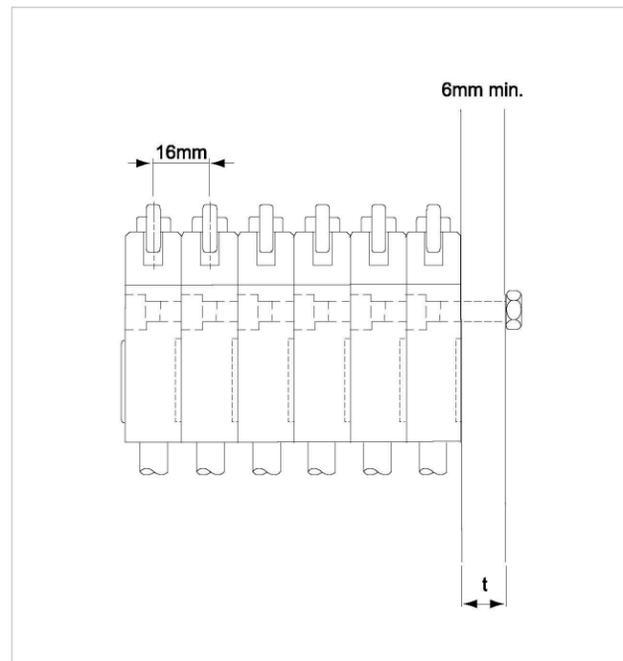
The switch bodies are filled with resin for sealing purposes. To avoid stressing the cable and switch body, fasten the switch at 5 cm or farther away from the switch body, should the wire be bent, the bending radius shall be at least 45mm.



多连接使用的场合 Switch Bank Mounting

需连接多组使用的场合时，最多可连接 6 组开关，连接时，开关表面之凹凸槽相互配合，另板厚 t 之尺寸应在 6mm 以上为适当。

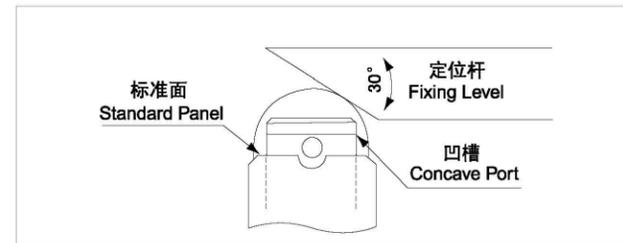
A maximum of six switches may be mounted together as a switch bank. During the installation, the convex part of the switch back. The mounting panel shall be 6mm or thicker.



安装注意事项 Installation

凸轮与定位杆等形状，频率及动作后移动等，将会影响使用寿命与精度，因此建议定位杆之角度约 30°，而定位杆之表面粗糙度，以上，硬度 HV400-500，在设定开关之行程时，凹沟必须高于标准面之上为最适当之位置。

The service life and accuracy of switches will be effected by the shape of actuator operation frequency & over travel. So the angular of the fixing level should be about 30° , the surface finish of the fixing level should be over, the hardness is from HV400~500. When installing, the position of the concave part should be above the standard panel



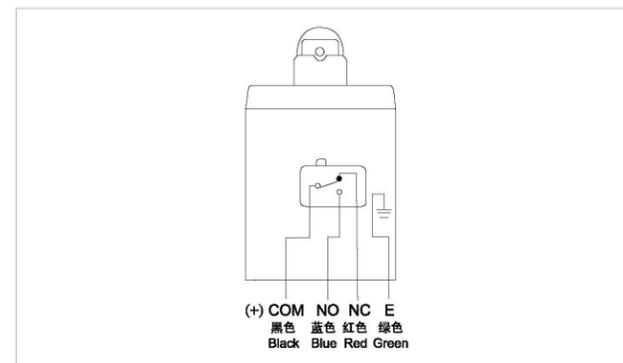
安装注意事项 Mounting

请依下表所示选择最适当之旋转扭力，施行锁紧作业，以避免伤害开关本体。

Recommended tightening torque according to the following form.

编号 Model	螺丝尺寸 Screw type	最适当之旋转扭力 Torque
1	M5 六角孔螺栓之固定螺丝 M5 fastening screws	43.4~52lb.in (50~60kgf.cm)
2	头部 M3.5 之安装螺丝 M3.5 installing screws	6.9~7.9lb.in (8~9kgf.cm)

接点型式 Contact Types



装配孔之尺寸 Mounting Holes

安装板发生翘曲或凸起之状态，会造成安装上之不良，安装板请经筛选确认后，再予以使用。

Mount the switch body to a rigid mounting panel using two M5 screws.

