



**2014-2015**

# Limit switch

X42



# X42 series limit switch

product catalogue of Shanghai Tayee electric Co., Ltd

## Purpose

X42 series limit switch is suitable for various mechanical equipments and automatic product lines where the load is light or medium. They can be used to detect motion status of objects, such as detecting the existence or nonexistence of objects, their motion location, the end of run and so on.

## Brief introduction

A typical limit switch consists of operational unit, driving components and contact box. All switches possess double-breakpoint contacts. The normally off contact is affirmatively out. According to its connection mechanism the contacts can be divided into two types: high speed contacts (S) and low speed contacts (H). Technical criteria of X42 series limit switch accords with the international electric standards. High performance of our switches on mechanical life, degree of protection, electric performance, switch time accuracy and repeatability precision guarantee the safety of mechanical equipments.

## Tough and durable

Shells of X42 series limit switch are made of high performance fire-retardant nylon. Can endure strong impact. All switch rockers have undergone rust-proof treatment.

## High degree of protection

Various industrial operating environments require high protection performance of limit switches. Degree of protection of X42 series limit switch accords with IP65. they work well under all kinds of harsh environments.

## Affirmatively out, safe and reliable

Affirmatively-out operation means that when location of the operational unit accords with the out location of switch, all main contacts can be guaranteed at the out location. normally off contacts of X42 series limit switch are affirmatively out. They accord with the international standards of safety switches. With the switches affirmatively out, maloperation of ordinary switches can be prevented.

## Easy installation

A X42 limit switch can be mounted on mechanical equipments with two mere screws, the installation is very easy.





### Flexibility

A series limited switch possesses 12 kinds of operational units to cater for different demands of different customers. Any operational unit can rotate 90 degrees along each of the four directions. Maximum deflection angle of oscillating arm amounts to 270 degrees, oscillating arm and rotating axis joggle with teeth. Relative angle of oscillating arm and rotating axis can be adjusted by 10 degrees.



### Long life

X42 series limit switch possesses long life. The mechanical life of a X42 limit switch amounts to 5000,000 times of operation. Electrical life amount to 500,000 times of operation.

### High accuracy

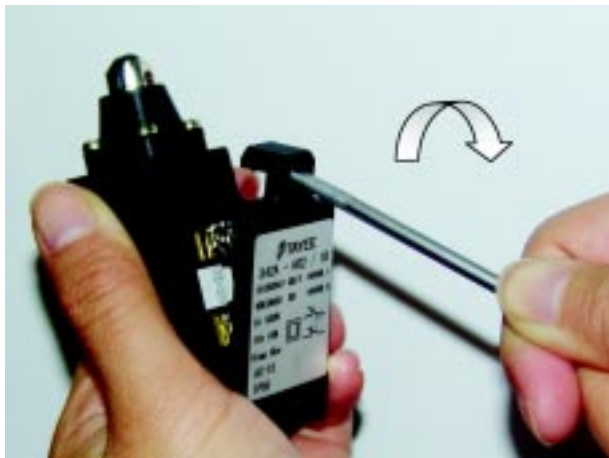
X42 series limit switch possesses high repeatability precision and high switch time accuracy.

### Double-breakpoint contact

All switch contacts possess double breakpoint, all contact points are made of silver alloy, circuit isolation between contact points guarantees high safety of the switches.

### Easy connection

Cover of the switch box is locked with a clipping machine, no screw is needed, Cover of the switch box can be easily opened or closed with one mere action on demand. Operation is simple and easy.

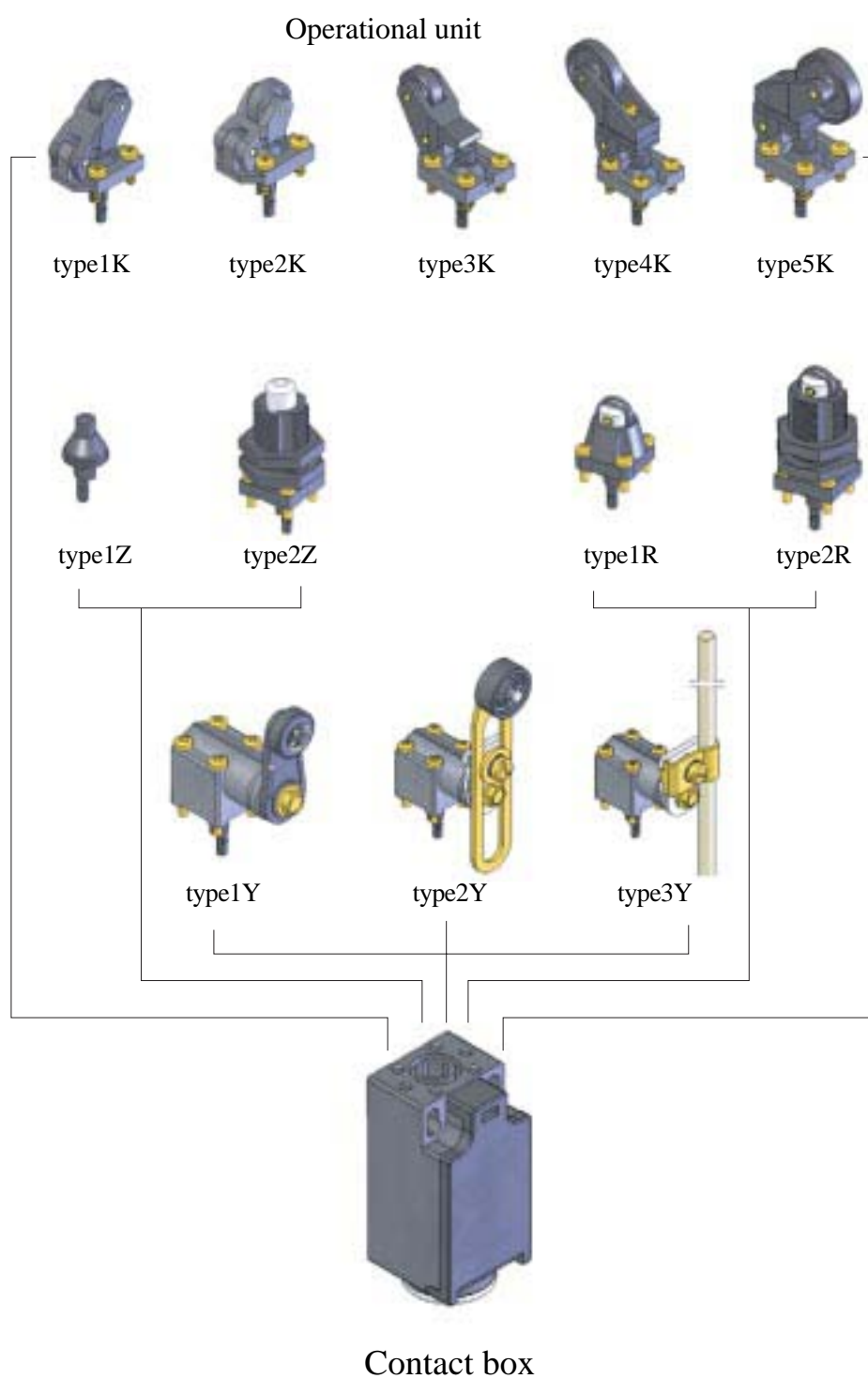


**NOTE:** before connection begins a plain screw driver can be used to open the switch box as shown in the sketch map.

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## Sketch map of products assembly





The standards accord with	IEC60947 GB/T 14048.1
Shell	reinforced fireretardant nylon66
Degree of protection	IP65
Contact material	silver alloy
Contact components	electrical isolation,double breakpoint contact
X42 series limit switch	The normally off contact is affirmatively out
Connection terminal	Screw connection£"maixmum2.5mm²(cable terminal included)
Rated impact voltage(Uimp)	6kV
Promissory radiation current(Ith)	10A
Rated isolation voltage(Ui)	690V
Application class	AC-15
Rated working current/voltage(Ie / Ue)	4A / 230V AC,2.5A/400V AC,1A/690V AC
Working temperature	-30°C - +80°C
Mechanical life	5,000,000 times of operation

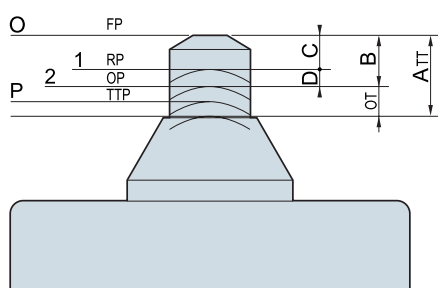
	Low speed	High speed
Breaking distance of contact points	2X3.5mm(maximum over travel)	2X2mm
Switching time	Depend on the speed of handspike	When the speed of handspike is 10mm/min£"≤5ms
Remaining bouncing time	Depend on the speed of handspike	≤ 3ms
Operating speed	minimun 60mm/min	Minimum 10mm/min
Switching	maximun 3000times/hour	Maximun 3000times/hour

# X42 series limit switch

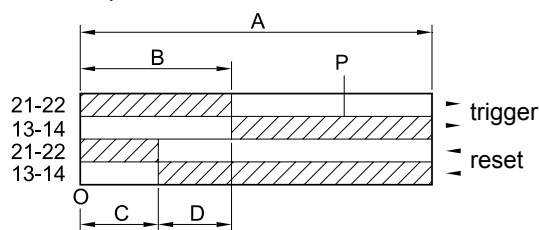
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**High speed switch:** the switching time is irrelevant with the operating speed. If and only if the operational unit is moved to a certain location the switch can be connected or broken, the time is for the spring to bounce, the time is very short and equals to a constant.

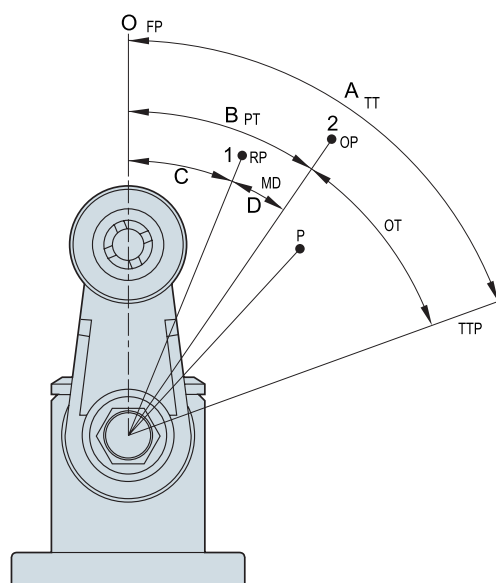
## Linear movement(straight movement)



For example: 1N/C+1N/O



## Rotation movement



## Standard techical terms

**A** . . . . . Maximum over travel

**B** . . . . . Trigger over travel

**C** . . . . . Reset over travel

**D** . . . . . Over travel difference

**P** . . . . . Contact points that ensures breaking

**A-B** . . . . . Special name

**1** . . . . . Reset point

**2** . . . . . Trigger point

**0** . . . . . No special name

**°TM** . . . . . No special name

**TT** . . . . . Total over travel

**PT** . . . . . The shortest over travel

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**MD** . . . . . Offset difference

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**OT** . . . . . Excessive over travel

**RP** . . . . . Release location

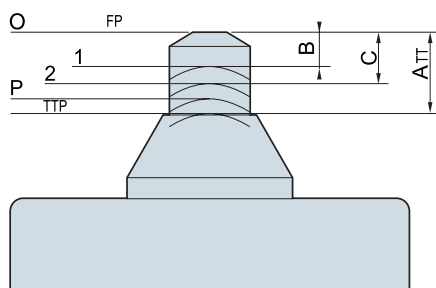
**OP** . . . . . Acting location

**FP** . . . . . The starting location

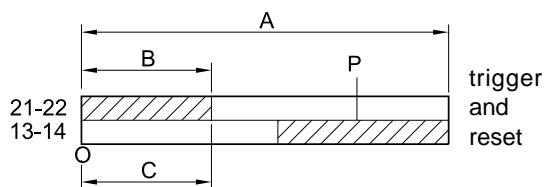
**TTP** . . . . . The location of total over travel

**Low speed switch:** the switching time depend on the operating speed. The faster the operating, the shorter the switching time

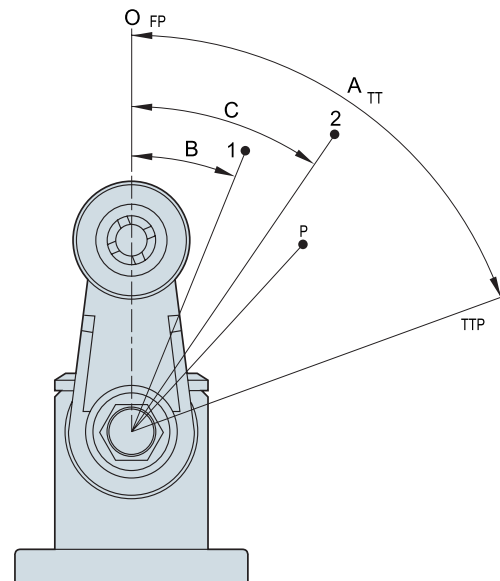
### Linear movement(straight movement)



For example:1N/C+1N/O break first connect



### Rotation movement



### Standard technical terms

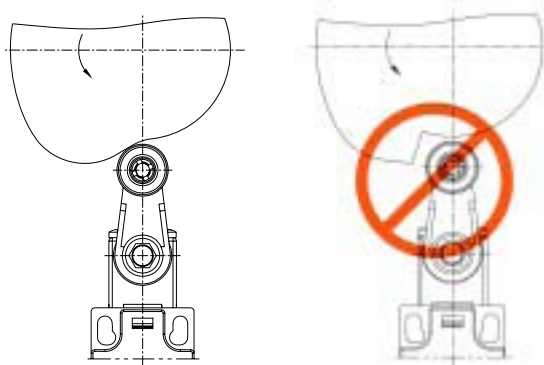
<b>A</b> . . . . .	Maximum over travel	<b>TT</b> . . . . .	Total over travel
<b>B</b> . . . . .	Trigger and reset over travel of normally off contact ---		
<b>C</b> . . . . .	Trigger and reset over travel of normally on contact ---		
<b>P</b> . . . . .	Contact points that ensure reliable breaking ---		
<b>1</b> . . . . .	Trigger and reset point of normally off contact ---		
<b>2</b> . . . . .	Trigger and reset point of normally on contact ---		
<b>0</b> . . . . .	No special name	<b>FP</b> . . . . .	The starting location
<b>---</b> . . . . .	No special name	<b>TTP</b> . . . . .	The location of total over travel

# X42 series limit switch

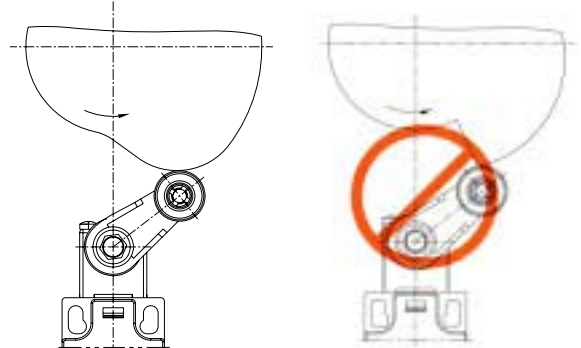
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## Proper use of limit switch

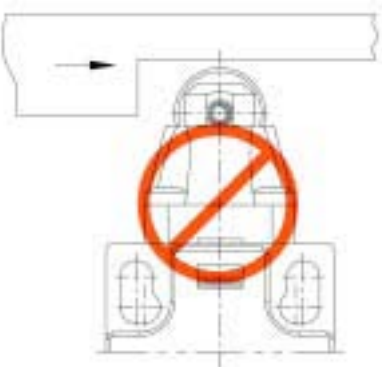
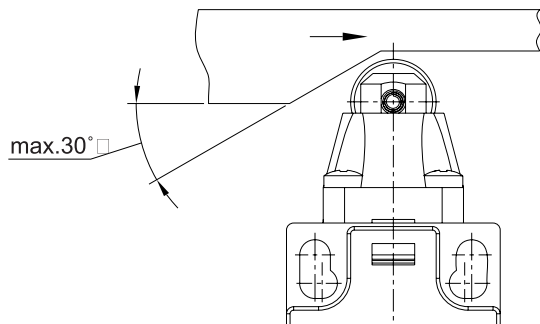
Ascending edge of cam



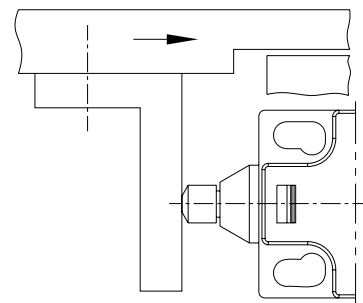
Descending edge of cam



Ttop of the truck translation unit



Ultimate limit



**NOTE:**high speed limit switches should be used under the following occasions

- The connection and breaking of contact points are realized at the same time;
- When the switch contacts separate for a certain distance, the equipment running stops, under this condition the tremor caused reconnection of contact points can be prevented lest the equipment will run (lag effect of switch);
- When the operating speed is extremely low<sup>a</sup>
- It is demanded that the unintended electric arc disappear promptly after the direct current is broken off.



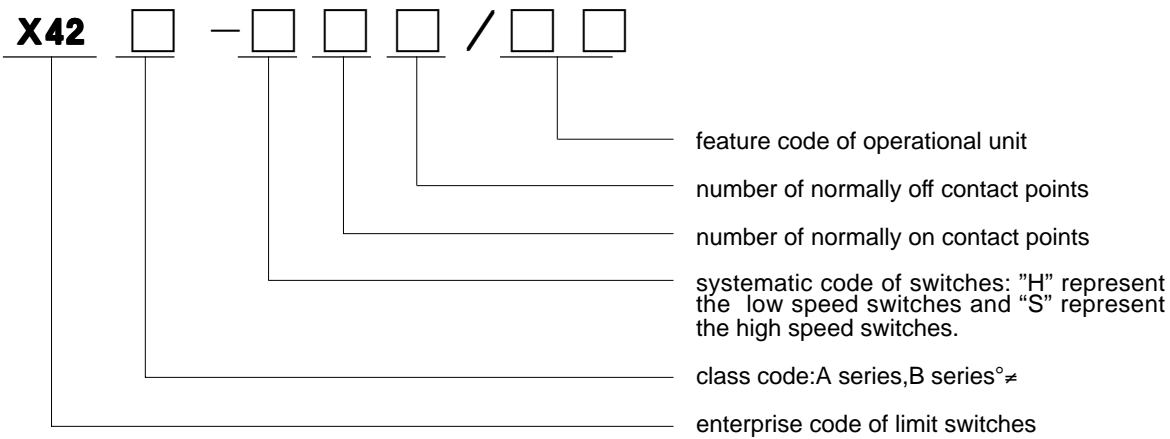
Degree of protection

IP

1st numeral:degree of protection against human body and solid objects	NO	2nd numeral:degree of protection against dripping water
No protection	0	No protection
ø50mm Protection against solid objects	1	Protection against dripping water(vertically)
ø12mm Protection against solid objects	2	Protection against dripping water of up to15° angle
ø2.5mm Protection against solid objects	3	Protection against wind and rain
ø1mm Protection against solid objects	4	Protection against cascade
Protection against dust intrusion£®dust proof£©	5	Protection against water spray
Dustproof£®totally dustproof£©	6	Protection against wave influence
	7	Protection against water jet
	8	Protection against flood

Purchase guidance

Type&specs



# X42 series limit switch

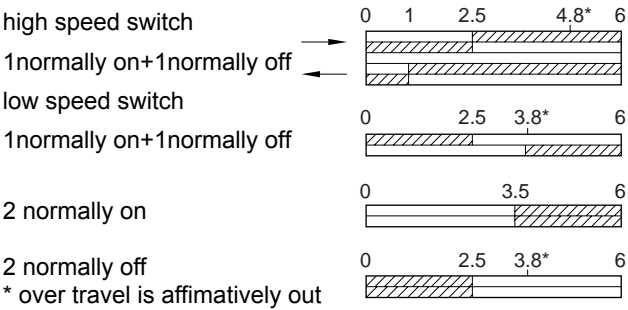
product catalogue of Shanghai Tayee electric Co., Ltd

## Purchase guidance

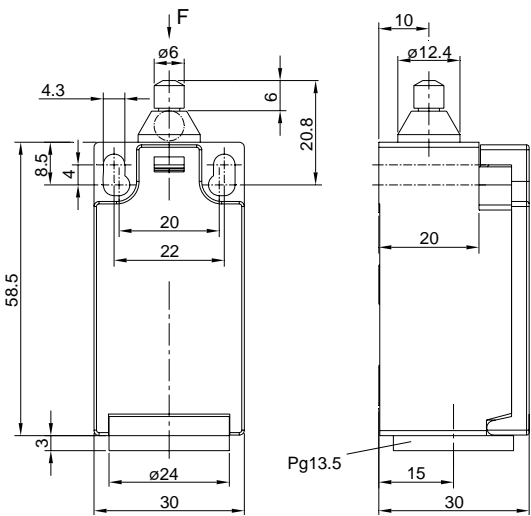
Straight bar



### Sketch map of switch over travel



### Physical appearance and outline sizes of products



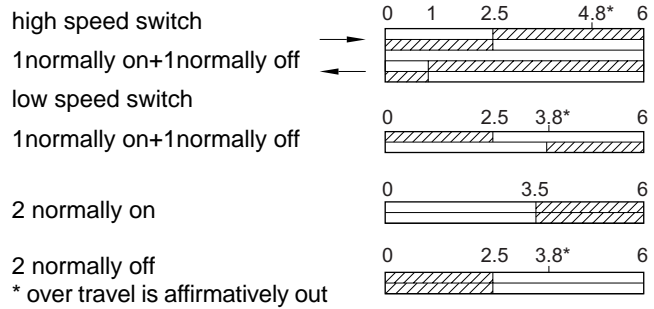
operational unit            type1Z (straight bar)  
operating force/moment    9Ncm (19Ncm) affirmatively out  
operating speed            minimum10/60mm/min,maximum1m/s

Type	X42A-S11/1Z	X42A-S02/1Z	X42A-H11/1Z	X42A-H02/1Z	X42A-H20/1Z
Type&Specs	High speed switch Affirmatively out	High speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out
	13 — 14 21 — 22	21 — 22 11 — 12	21 — 22 13 — 14	21 — 22 11 — 12	23 — 24 13 — 14

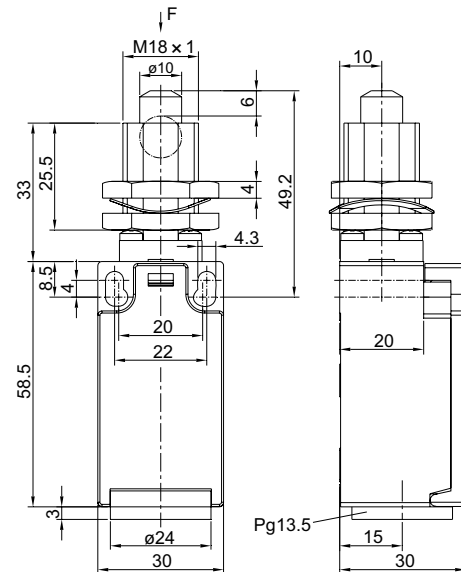
## Straight bar/central installation



### Sketch map of switch over travel



### physical appearance and outline products



operational unit      type2Z (straight bar/central installation)  
 operating force/moment    9Ncm (9Ncm) affirmatively out  
 operating speed      minimum10/60mm/min:maximum 1m/s

Type	X42A-S11/2Z	X42A-S02/2Z	X42A-H11/2Z	X42A-H02/2Z	X42A-H20/2Z
Type&Specs	High speed switch Affirmatively out	High speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out

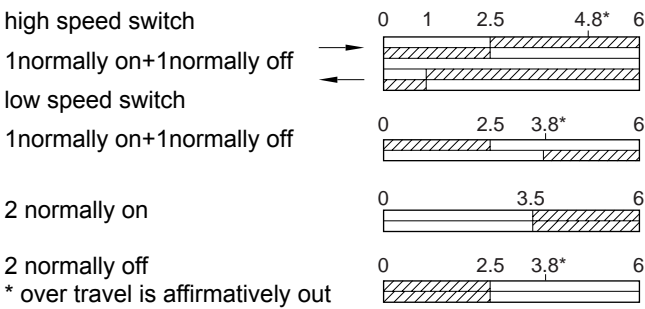
# X42 series limit switch

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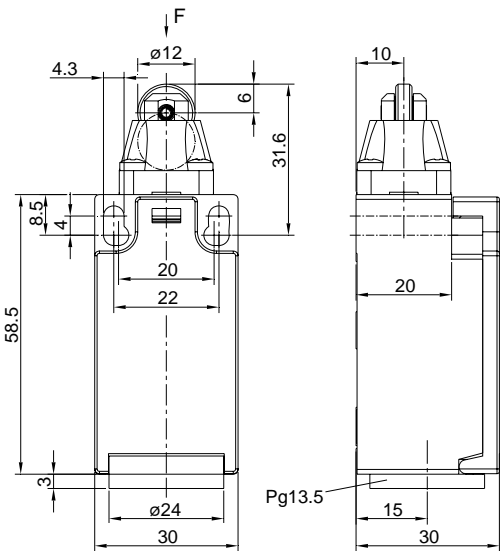
Truck straight bar



Sketch map of switch over travel



Physical appearance and outline sizes of products



operational unit            type1R (turck straight bar)  
operating force/moment    9Ncm (19Ncm) affirmatively out  
operating speed            minimum20/120mm/min:maximum1m/s

Type	X42A-S11/1R	X42A-S02/1R	X42A-H11/1R	X42A-H02/1R	X42A-H20/1R
Type&Specs	High speed switch Affirmatively out	High speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out
	13 — 14 21 — 22	21 — 22 11 — 12	21 — 22 13 — 14	21 — 22 11 — 12	23 — 24 13 — 14



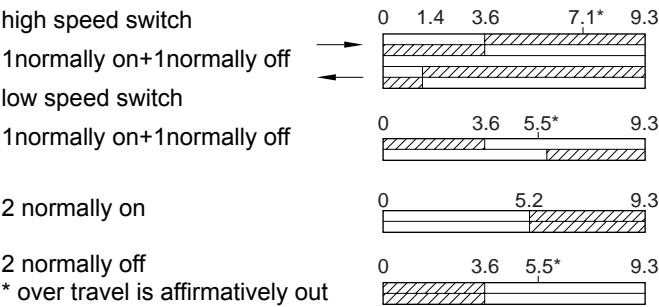
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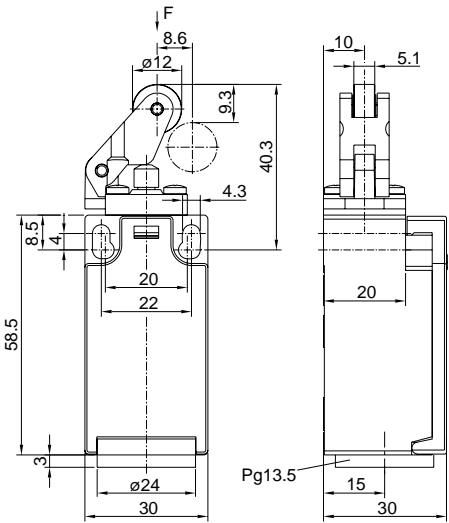
Bevel handspike



Sketch map of switch over travel



Physical appearance and outline sizes of products



operational unit                    type1K (bevel handspike)  
operating force/moment        8Ncm (18Ncm) affirmatively out  
operating speed                minimum24/240mm/min:maximum1m/s

Type	X42A-S11/1K	X42A-S02/1K	X42A-H11/1K	X42A-H02/1K	X42A-H20/1K
Type&Specs	High speed switch	High speed switch	Low speed switch	Low speed switch	Low speed switch
	Affirmatively out	Affirmatively out	Affirmatively out	Affirmatively out	Affirmatively out
	<div> <div>13</div> <div>14</div> <div>21</div> <div>22</div> </div>	<div> <div>21</div> <div>22</div> <div>11</div> <div>12</div> </div>	<div> <div>21</div> <div>22</div> <div>13</div> <div>14</div> </div>	<div> <div>21</div> <div>22</div> <div>11</div> <div>12</div> </div>	<div> <div>23</div> <div>24</div> <div>13</div> <div>14</div> </div>





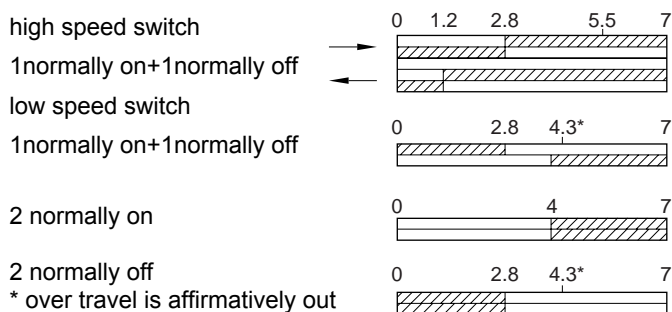
# X42 series limit switch

product catalogue of Shanghai Tayee electric Co., Ltd

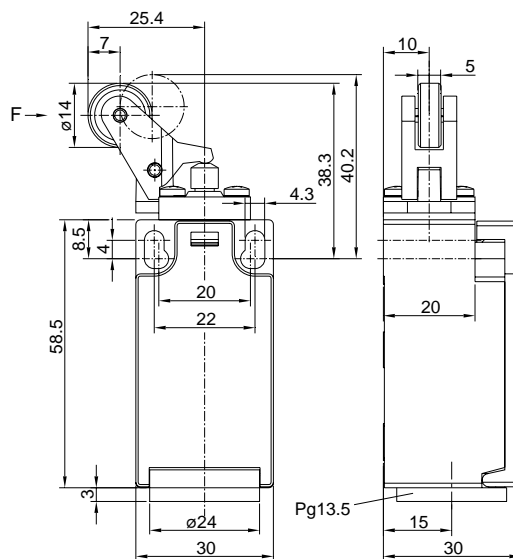
Bevel handspike



Sketch map of switch over travel



Physical appearance and outline sizes of products



operational unit            type3K (bevel handspike)  
operating force/moment    9Ncm (19Ncm) affirmatively out  
operating speed            minimum27/160mm/min:maximum1m/s

Type	X42A-S11/3K	X42A-S02/3K	X42A-H11/3K	X42A-H02/3K	X42A-H20/3K
Type&Specs	High speed switch Affirmatively out	High speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out



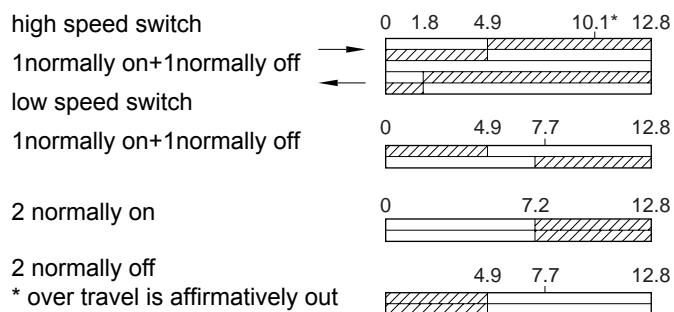
# X42 series limit switch

product catalogue of Shanghai Tayee electric Co., Ltd

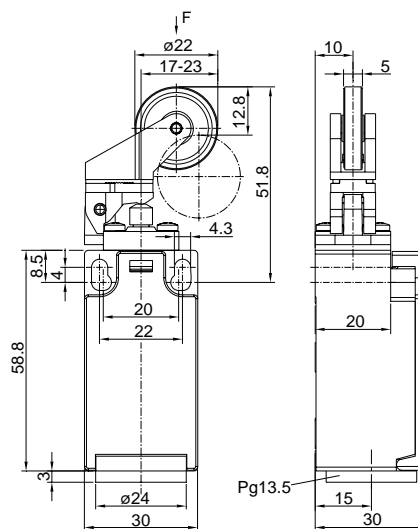
Truck rocker



Sketch map of switch over travel



Physical appearance and outline sizes of products



operational unit      type5K (bevel handspike)

operating force/moment    6Ncm (16Ncm) affirmatively out

operating speed      minimum56/336mm/min:maximum1m/s

Type	X42A-S11/5K	X42A-S02/5K	X42A-H11/5K	X42A-H02/5K	X42A-H20/5K
Type&Specs	High speed switch Affirmatively out	High speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out	Low speed switch Affirmatively out

## Truck rocker



### Sketch map of switch over travel

high speed switch

1 normally on+1 normally off

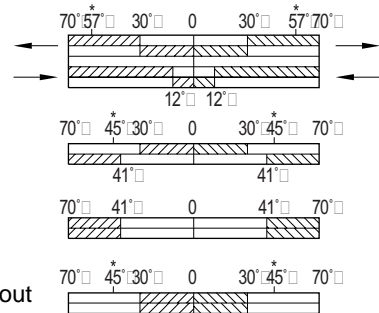
low speed switch

1 normally on+1 normally off

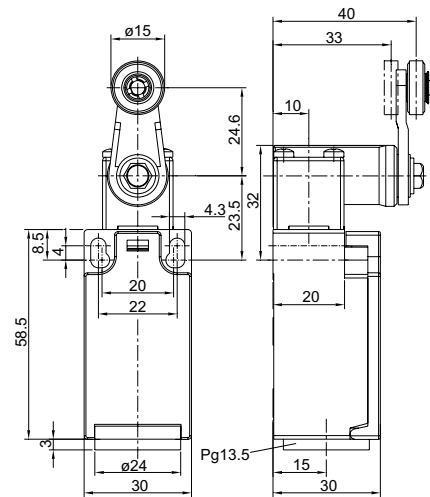
2 normally on

2 normally off

\* over travel is affirmatively out



### Physical appearance and outline sizes of products



operational unit      type1Y (straight bar/central installation)  
 operating force/moment      15Ncm (18.5Ncm) affirmatively out  
 operating speed      minimum92/492mm/min:maximum1m/s

Type	X42A-S11/1Y	X42A-S02/1Y	X42A-H11/1Y	X42A-H02/1Y	X42A-H20/1Y
Type&Specs	High speed switch	High speed switch	Low speed switch	Low speed switch	Low speed switch
	Affirmatively out	Affirmatively out	Affirmatively out	Affirmatively out	Affirmatively out

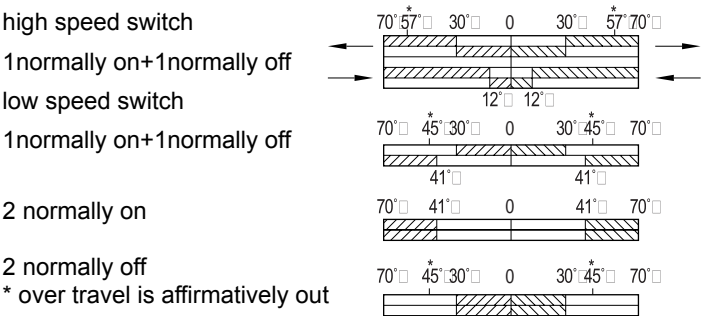
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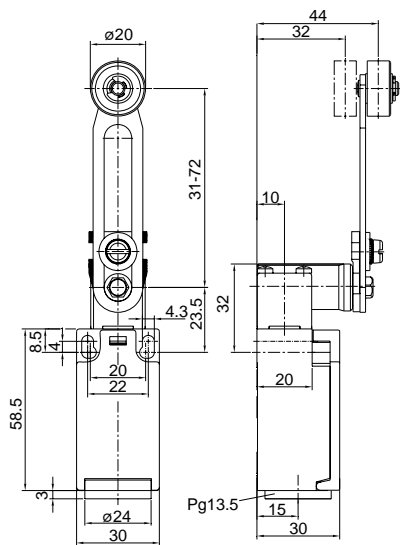
Adjustable truck rocker<sup>(1)</sup>



Sketch map of switch over travel



Physical appearance and outline sizes of products



operational unit            type2Y (bevel handspike)  
operating force/moment    15Ncm (18.5Ncm) affirmatively out  
operating speed            minimum240/1440mm/min:maximum1m/s

Type	X42A-S11/2Y	X42A-S02/2Y	X42A-H11/2Y	X42A-H02/2Y	X42A-H20/2Y
Type&Specs	High speed switch	High speed switch	Low speed switch	Low speed switch	Low speed switch
	Affirmatively out	Affirmatively out	Affirmatively out	Affirmatively out	Affirmatively out

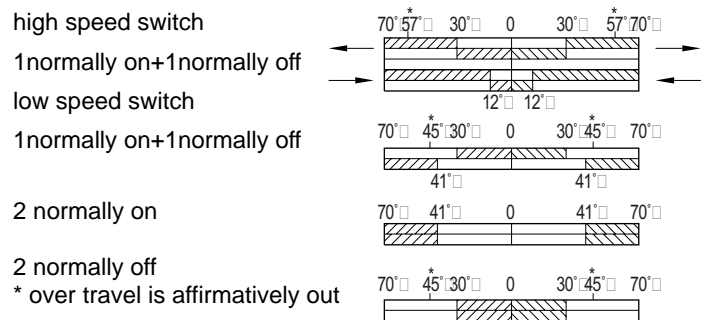
(1)only suitable for orientation



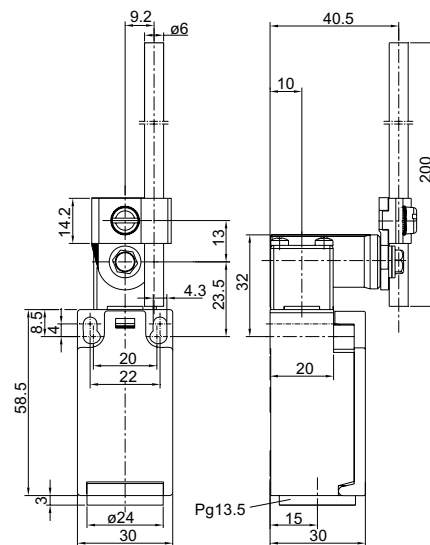
Pole rocker



Sketch map of switch over travel



Physical appearance and outline sizes of products



operational unit            type3Y (straight bar/central installation)  
operating force/moment    15Ncm (18.5Ncm) affirmatively out  
operating speed            minimum92/492mm/min:maximum1m/s

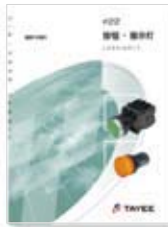
Type	X42A-S11/3Y	X42A-S02/3Y	X42A-H11/3Y	X42A-H02/3Y	X42A-H20/3Y
Type&Specs	High speed switch	High speed switch	Low speed switch	Low speed switch	Low speed switch
	Affirmatively out	Affirmatively out	Affirmatively out	Affirmatively out	Affirmatively out



TYIPB



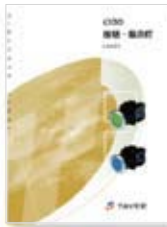
TYIPS



TYIP



TYIPA



TY3IP



TYZHD



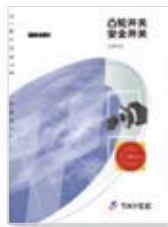
TYJSD



TYJSDS



TYJSDT



TYLW



TYX



TYBOX



TYZC



TYJ



TYCJ



LED



TYC



TYX42B



More detailed information is available for taking.  
Technology changes with each passing day, please feel free to contact to card when this version information.

Website qr code



Low qr code



More products information, please visit the website to download or for cd-rom electronic information.  
Thank you for your contribution to the energy conservation and environmental protection!

**Shanghai TAYEE Electric Co.,Ltd.**

Factory: 101 Beimin Road, Songjiang District, Shanghai  
Tel: 021-57776240 Fax :021-67654522 Postal Code: 201611  
Sales: 889 Yishan Road, Qilai Building Room 1702 Shanghai  
Tel: 021-54012233 Fax :021-54012399 Postal Code:200233  
<http://www.tayee.com.cn> Email:sale@tayee.com.cn

**Hotline: 400 820 4217**