

# SERIES Z/T336

## Heavy-Duty Safety-Rated, Positive-Break Limit Switches



### Features & Benefits

- **“Positive-Break” NC contacts** ... won't stick or weld shut.
- **Watertight design** ... meets IP67 washdown requirements.
- **Rugged, corrosion-resistant housing** ... tolerates hostile environments.
- **Six popular actuator styles** ... for application versatility.
- **Four 90° actuator mounting positions** ... provide installation flexibility.
- **Slow or snap-action operation** ... choose to best satisfy application requirements.
- **Safety-system approved** ... models with positive-break contacts approved for use in machine guarding applications.
- **Designed to meet the Performance Level requirements of EN ISO 13849-1 and Safety Control Categories of EN 954-1.**

### Description

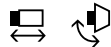
The Z/T336 Series limit switches are designed for use with movable machine guards/access gates which must be closed for operator safety ... and for any other presence/position sensing application normally addressed with conventional limit switches. Their positive-opening NC contacts provide a higher level of safety and/or reliability than conventional spring-driven switches whose contacts can weld or stick shut.

Each is available with a choice of six standard actuators ... rounded plunger, roller plunger, roller rocking lever, rod rocking lever, adjustable roller rocking lever and one-way roller lever ... mountable in any one of four 90° positions. All rocking levers are positively-locked to the shaft, and are adjustable throughout 360° in 10° increments.

Units are available with a choice of slow-action or snap-action contacts.

Their rugged fiberglass-reinforced thermoplastic housing and IP67 rating make them ideal alternatives to conventional limit switches.

### Typical Applications



The Z/T336 Series may be used in any presence/position sensing application normally addressed with conventional limit switches. Models with positive-break NC contacts are approved for use in safety systems. For safety applications the switch must be mounted such that the actuating element of the machine displaces the switch actuator far enough to exceed the positive-break point.

### PART NUMBER INFORMATION

①②③④⑤		
①Contact operation	T Z	Slow action Snap Action
②Operating Head	S R 4VH 4V7H 4V10H 1K 3K	Rounded plunger Roller plunger Roller rocking lever Roller rocking lever* Rod rocking lever* Roller lever Roller lever
③Contact Configuration	02 11 20 01/01	2 NC 1 NO/1 NC 2 NO* 1 NC (left) & 1 NC (right)
④Special extras	H UE -1637	Staggered contacts Overlapping contacts Gold contacts
⑤Connection	<blank> -NPT -ST	M20 threaded opening 1/2" NPT treaded opening M12x1, 4 pin connector

\*Not for use in safety applications

Note: See pages 248-250 for specific part numbers for available models.

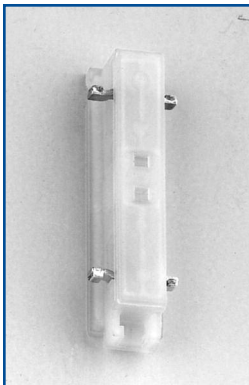
# Z/T336 TECHNICAL DATA

## MECHANICAL SPECIFICATIONS

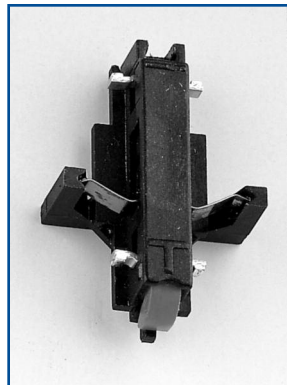
<b>Housing</b>	Glass fiber reinforced self-extinguishing thermoplastic	
<b>Operating Temperature</b>	-22°F to +195°F (-30°C to +90°C)	
<b>Mechanical Life</b>	30 million operations	
<b>Maximum Operating Rate</b>	5000 operations/hour	
<b>Bounce Time</b>	Z336 Series: < 2 ms T336 Series: Function of cam speed	
<b>Changeover Time</b>	Z336 Series: < 2 ms for cam speed of 1 mm/minute T336 Series: Function of cam speed	
<b>Degree of Protection</b>	IP67	
<b>Conformity to Standards</b>	IEC 947-5-1 EN 60947-5-1 EN ISO 13849-1 EN 954-1 CE	BG-GS-ET-15 DIN EN 50041 CSA UL

## ELECTRICAL SPECIFICATIONS

<b>Contacts</b>	Fine silver
<b>Contact Configuration</b>	Double-pole, double-break with electrically-separated contact bridges
<b>Contact Gap</b>	Z336 Series: 2x0.03 inches T336 Series: 2x0.16 inches
<b>Contact Rating</b>	4A/230VAC 2.5A/400VAC
<b>Switching Action</b>	Z336 Series: Snap-action with positive-break NC contacts T336 Series: Slow-action, positive-break NC contacts
<b>Short Circuit Protection</b>	Fuse: 10A (time delay) 16A (no time delay) 6A (time delay) as positive-break position switch
<b>Rated Insulation Voltage</b>	500VAC
<b>Rated Impulse Withstand Voltage</b>	6kV
<b>Type Terminals</b>	Screw terminals, maximum 2.5mm (AWG13) wire

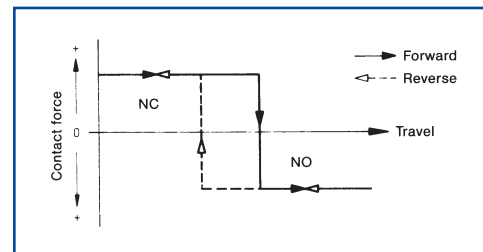


Slow Action Switch  
T336 (R) (P)

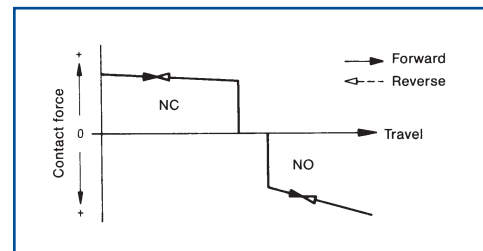


Snap Action Switch  
Z336 (R) (P)

## SNAP ACTION CONTACT SYSTEMS



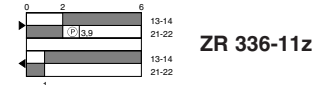
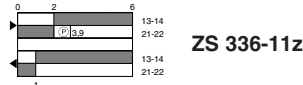
## SLOW ACTION CONTACT SYSTEMS



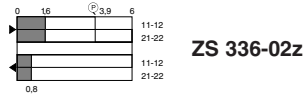
# Z/T336 TECHNICAL DATA

## Contact function diagrams

Snap action positive break  
1 NO + 1 NC

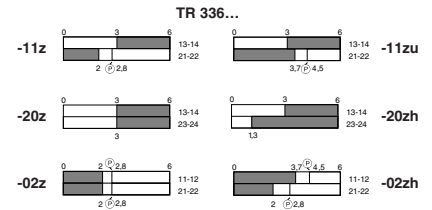
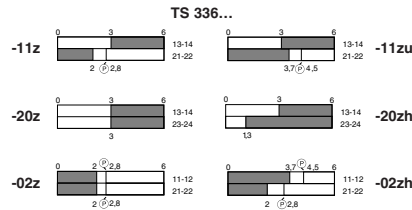


2 NC

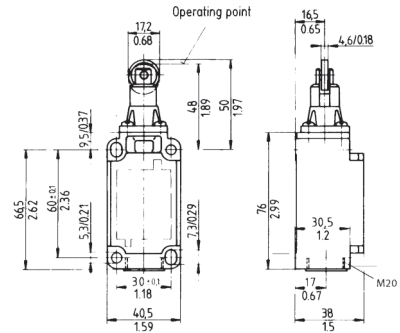
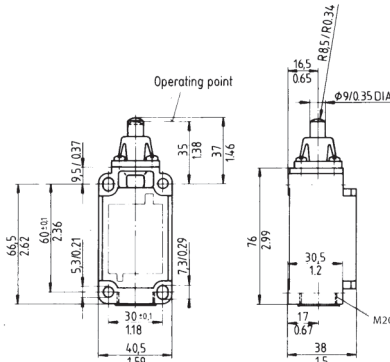
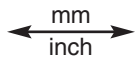


Slow action 1 NO + 1 NC

break before make or make before break  
2 NO simultaneous contacts staggered (2-step)  
2 NC simultaneous contacts staggered (2-step)  
1 NC + 1 NC (CW-CCW)



Dimensions



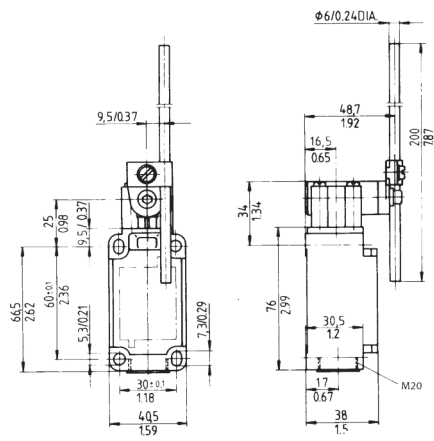
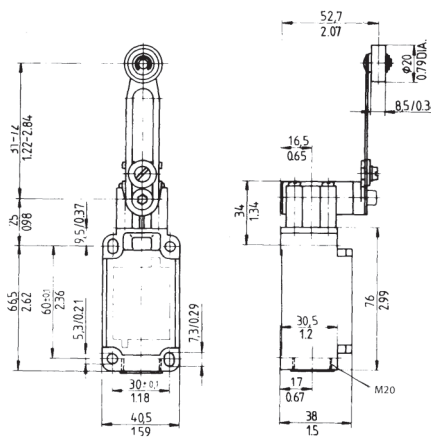
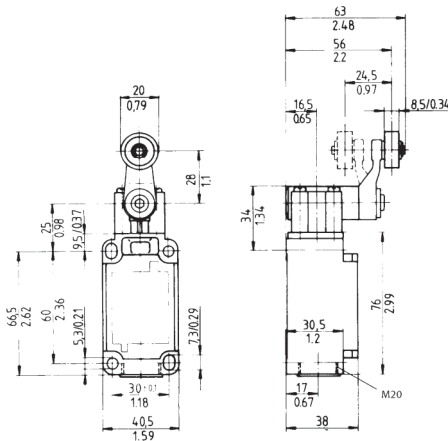
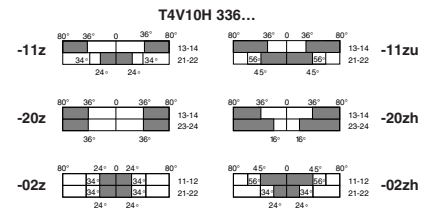
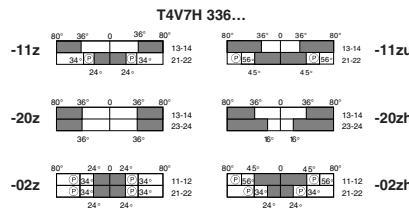
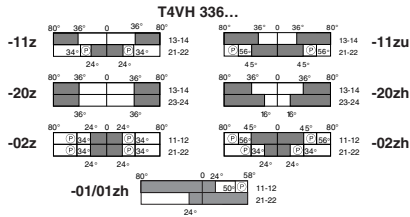
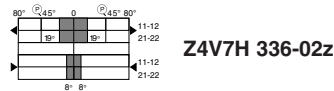
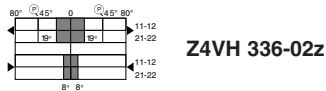
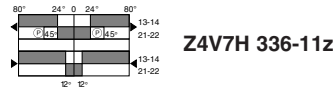
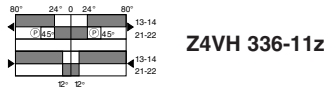
## Types of Actuators

Rounded plunger  
Style S

Roller plunger  
Style R

		Actuating Force		Actuating Force	
13-14	Snap Action positive break	ZS 336-11z	12 N	ZR 336-11z	12 N
21-22					
11-12	Snap Action positive break	ZS 336-02z	12 N	ZR 336-02z	12 N
21-22					
Part No.	13-14	Slow Action	TS 336-11z	15 N	TR 336-11z
	21-22	Make before break	TS 336-11zu		TR 336-11zu
	13-14	Slow Action	TS 336-20z*	17 N	TR 336-20z*
	23-24	2-step	TS 336-20zh*		TR 336-20zh*
11-12	Slow Action	TS 336-02z	14 N	TR 336-02z	14 N
21-22	2-step	TS 336-02zh		TR 336-02zh	

# Z/T336 TECHNICAL DATA



**4V operating head with roller rocking lever Style H**

**4V operating head with adjustable roller rocking lever Style 7H\***

**4V operating head with rod rocking lever Style 10H\***

Actuating Force		Actuating Force		Actuating Force	
Z4VH 336-11z	27 Ncm	Z4V7H 336-11z*	27 Ncm	Z4V10H 336-11z*	27 Ncm
Z4VH 336-02z	27 Ncm	Z4V7H 336-02z*	27 Ncm	Z4V10H 336-02z*	27 Ncm
T4VH 336-11z	27.5 Ncm	T4V7H 336-11z*	27.5 Ncm	T4V10H 336-11z*	27.5 Ncm
T4VH 336-11zu		T4V7H 336-11zu*		T4V10H 336-11zu*	
T4VH 336-20z*	28 Ncm	T4V7H 336-20z*	28 Ncm	T4V10H 336-20z*	28 Ncm
T4VH 336-20zh*		T4V7H 336-20zh*		T4V10H 336-20zh*	
T4VH 336-02z	27.5 Ncm	T4V7H 336-02z*	27.5 Ncm	T4V10H 336-02z*	27.5 Ncm
T4VH 336-02zh		T4V7H 336-02zh*		T4V10H 336-02zh*	

**TVH 336-01/01z** 26.5 Ncm  
(other levers upon request)

\* Not for use in safety applications

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# Z/T336 TECHNICAL DATA

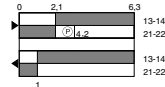
## Contact function diagrams

Snap action positive break  
1 NO + 1 NC

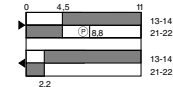
2 NC

Slow action 1 NO + 1 NC

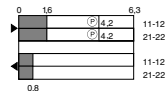
break before make or make before break  
2 NO simultaneous contacts staggered (2-step)  
2 NC simultaneous contacts staggered (2-step)  
1 NC + 1 NC (CW-CCW)



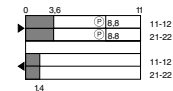
Z1K 336-11z



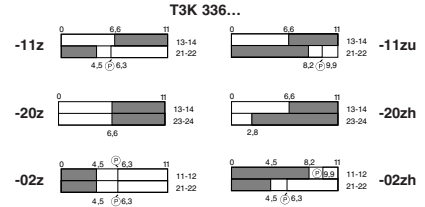
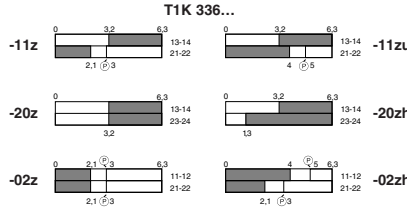
Z3K 336-11z



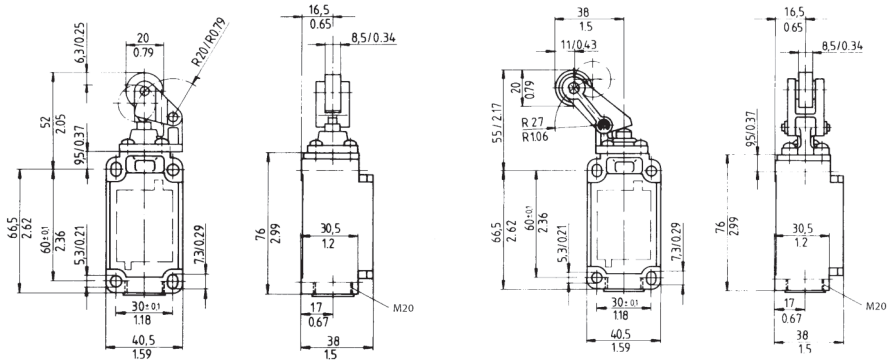
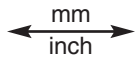
Z1K 336-02z



Z3K 336-02z



Dimensions



## Types of Actuators

One-way roller lever  
Style 1K

One-way roller lever  
Style 3K

Part No.	Contact Function	One-way roller lever Style 1K		One-way roller lever Style 3K	
		Model	Actuating Force	Model	Actuating Force
13-14 21-22	Snap Action positive break	Z1K 336-11z	12 N	Z3K 336-11z	5.0 N
11-12 21-22	Snap Action positive break	Z1K 336-02z	12 N	Z3K 336-02z	5.0 N
13-14 21-22	Slow Action Make before break	T1K 336-11z	15 N	T3K 336-11z	6.3 N
13-14 23-24	Slow Action 2-step	T1K 336-20z*	17 N	T3K 336-20z*	7.2 N
11-12 21-22	Slow Action 2-step	T1K 336-02z	14 N	T3K 336-02z	6.0 N
		T1K 336-02zh		T3K 336-02zh	

\* Not for use in safety applications