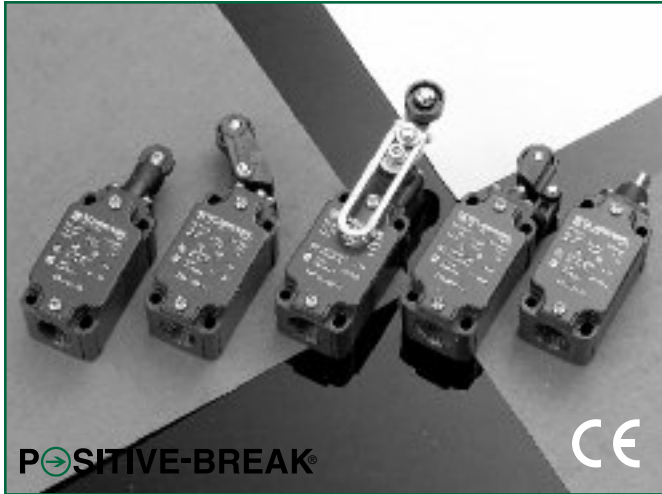


SERIES Z/T335

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.
- **Meets rigid safety agency standards** ... IEC, BG, VDE, UL and CSA.
- **Optional LED indicators** ... provide visual display of supply voltage and switch operation.

Description

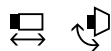
The Z/T335 Series limit switches are designed for use with movable machine guards/access gates which must be closed for operator safety ... and for any other presence/position sensing application normally addressed with conventional limit switches. Their positive-opening NC contacts provide a higher 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 metal housing and IP67 rating make them ideal alternatives to conventional limit switches.

Typical Applications

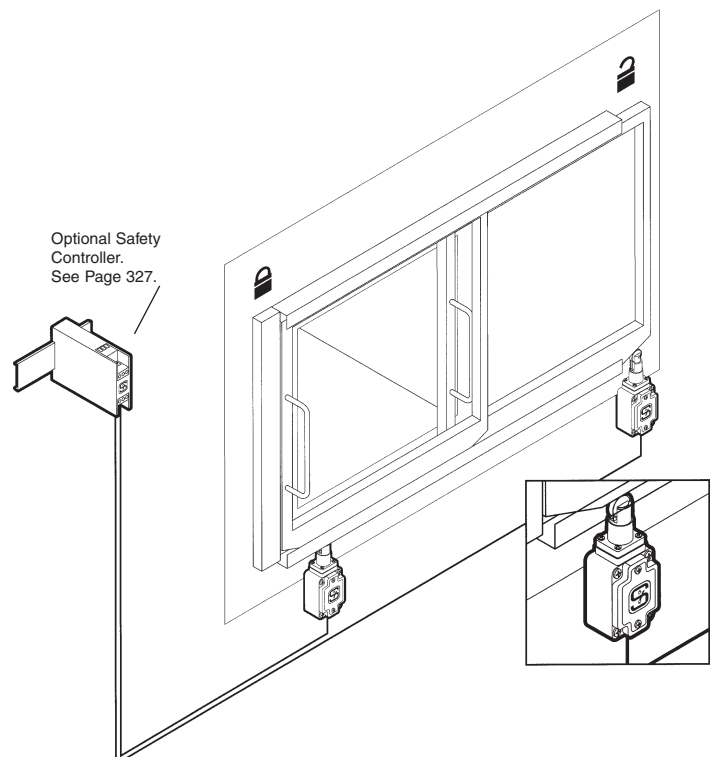


The Z/T335 Series may be used in any presence/position sensing application normally addressed with conventional limit switches. Models with positive-break NC contacts are approved for use in safety systems. For safety applications the switch must be mounted such that the actuating element of the machine displaces the switch actuator far enough to exceed the positive-break point. (See contact function diagrams: symbol *).

ORDERING GUIDE

FOR FEATURE:	SPECIFY:
1. Contact operation: Slow Action Snap Action	T Z
2. Operating head	4V
3. Roller lever	H
4. Body size	335-
5. No. of NO contacts	1
6. No. of NC contacts	1
7. Degree of protection IP 67	Z
8. Sealing of operating head (optional)	Z
Example 1:	T4VH 335-11z
Example 2:	Z4VH 335-11z

Note: The Z/T335 Series is also available with 1 NO and 2 NC and with 3 NC contacts. Please consult factory.



POSITIVE-BREAK® is a trademark of SCHMERSAL INC.

Z/T335 TECHNICAL DATA

MECHANICAL SPECIFICATIONS

Housing	Diecast aluminum with enamel finish
Operating Temperature	-22°F to +195°F (-30°C to +90°C)
Mechanical Life	30 million operations
Maximum Operating Rate	5000 operations/hour
Bounce Time	Z335 Series: < 2 ms T335 Series: Function of cam speed
Changeover Time	Z335 Series: < 2 ms for cam speed of 1 mm/minute T335 Series: Function of cam speed
Degree of Protection	IP67
Conformity to Standards	IEC 947-5-1 EN 60947-5-1 DIN VDE 0660 Part 200 BG-GS-ET-15 DIN EN 50041 CSA-C22.2 No. 14 (Suffix -1577) UL508 (Suffix -1594)

ELECTRICAL SPECIFICATIONS

Contacts	Fine silver
Contact Configuration	Double-pole, double-break with electrically-separated contact bridges
Contact Gap	Z335 Series: 2x0.03 inches T335 Series: 2x0.16 inches
Contact Rating	4A/230VAC 2.5A/400VAC
Switching Action	Z335 Series: Snap-action with positive-break NC contacts T335 Series: Slow-action, positive-break NC contacts
Short Circuit Protection	Fuse: 10A (time delay) 16A (no time delay) 6A (time delay) as positive-break position switch
Rated Insulation Voltage	500VAC
Rated Impulse Withstand Voltage	6kV
Type Terminals	Screw terminals, maximum 2.5mm ² (AWG13) wire

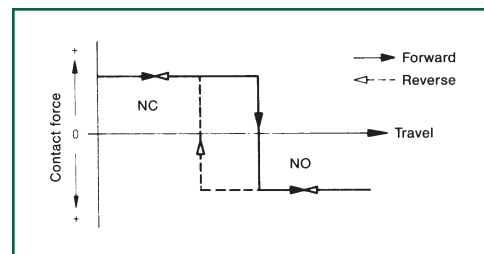


Slow Action Switch
T335 (S) (P)

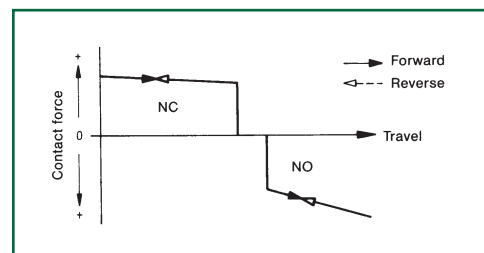


Snap Action Switch
Z335 (S) (P)

SNAP ACTION CONTACT SYSTEMS

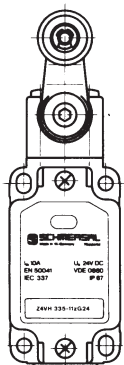


SLOW ACTION CONTACT SYSTEMS



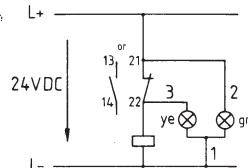
LED INDICATOR MODELS

Green LED (gn) indicator supply voltage and yellow LED (ye) indicator for switch operation of NO or NC contacts for **24VDC**. Available for all models of Series 335.

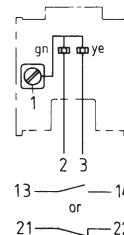


Shown here:
Z4VH 335-11zG24

Wiring diagram:



Shown here:
indication of operation of NC contact (terminals 21-22);
for indication of operation of NO contact use terminals 13-14

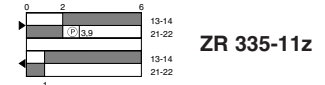
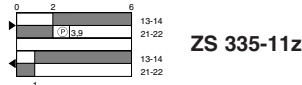


protected against wrong polarity connection
protected against transient voltages 700V
Attention: no inductive loads

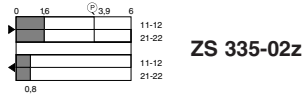
Z/T335 TECHNICAL DATA

Contact function diagrams

Snap action positive break
1 NO + 1 NC

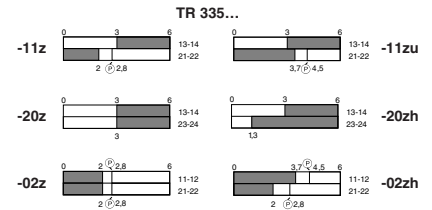
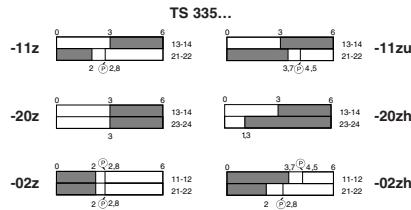


2 NC

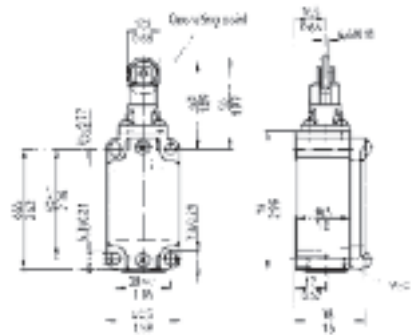
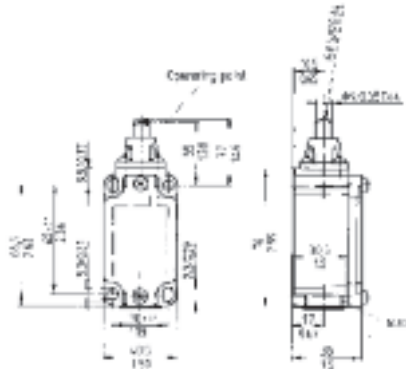
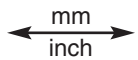


Slow action 1 NO + 1 NC

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

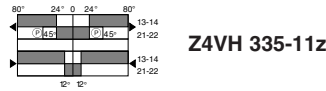
Part No.	Contact Function	Model	Actuating Force	
			Style S	Style R
13-14 21-22	Snap Action positive break	ZS 335-11z	12 N	ZR 335-11z 12 N
11-12 21-22	Snap Action positive break	ZS 335-02z	12 N	ZR 335-02z 12 N
13-14 21-22	Slow Action Make before break	TS 335-11z	15 N	TR 335-11z 15 N
13-14 23-24	Slow Action 2-step	TS 335-20z*	17 N	TR 335-20z*
		TS 335-20zh*		TR 335-20zh*
11-12 21-22	Slow Action 2-step	TS 335-02z	14 N	TR 335-02z 14 N
		TS 335-02zh		TR 335-02zh

246

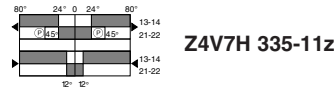
11-12
21-22 Slow Action
1 NC CW + 1 NC CCW

* Not for use in safety applications

Z/T335 TECHNICAL DATA



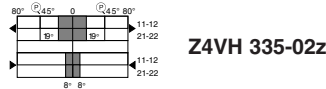
Z4VH 335-11z



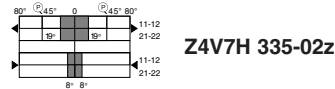
Z4V7H 335-11z



Z4V10H 335-11z



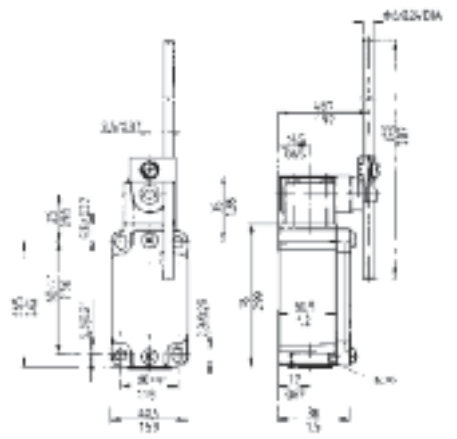
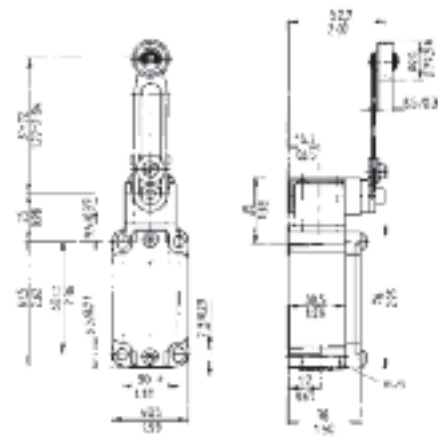
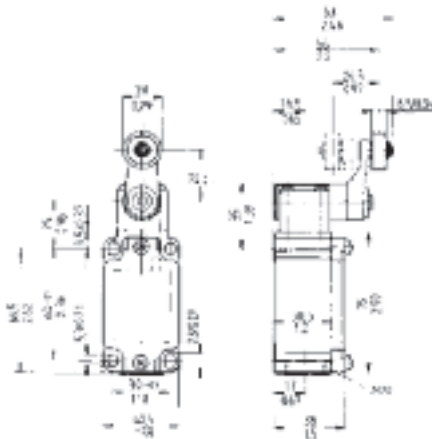
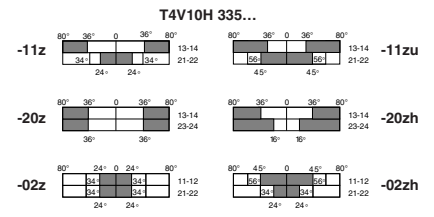
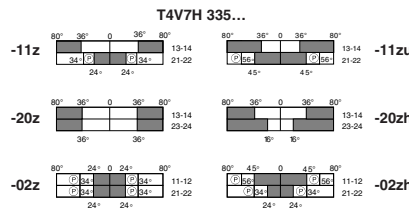
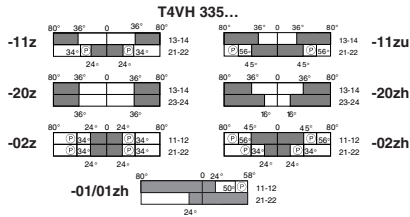
Z4VH 335-02z



Z4V7H 335-02z



Z4V10H 335-02z



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 335-11z	27 Ncm		Z4V7H 335-11z*	27 Ncm	Z4V10H 335-11z*	27 Ncm
Z4VH 335-02z	27 Ncm		Z4V7H 335-02z*	27 Ncm	Z4V10H 335-02z*	27 Ncm
T4VH 335-11z	27.5 Ncm		T4V7H 335-11z*	27.5 Ncm	T4V10H 335-11z*	27.5 Ncm
T4VH 335-11zu			T4V7H 335-11zu*			
T4VH 335-20z*	28 Ncm		T4V7H 335-20z*	28 Ncm	T4V10H 335-20z*	28 Ncm
T4VH 335-20zh*			T4V7H 335-20zh*			
T4VH 335-02z	27.5 Ncm		T4V7H 335-02z*	27.5 Ncm	T4V10H 335-02z*	27.5 Ncm
T4VH 335-02zh			T4V7H 335-02zh*			

TVH 335-01/01z 26.5 Ncm

* Not for use in safety applications

(other levers upon request)

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Z/T335 TECHNICAL DATA

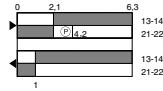
Contact function diagrams

Snap action positive break
1 NO + 1 NC

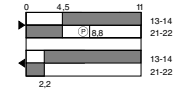
2 NC

Slow action 1 NO + 1 NC

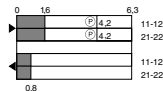
break before make or make before break
2 NO simultaneous contacts staggered (2-step)
2 NC simultaneous contacts staggered (2-step)
1 NC + 1 NC (CW-CCW)



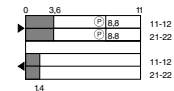
Z1K 335-11z



Z3K 335-11z

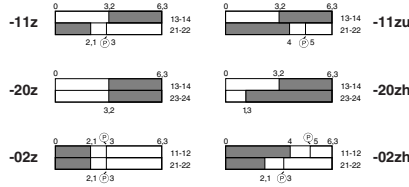


Z1K 335-02z

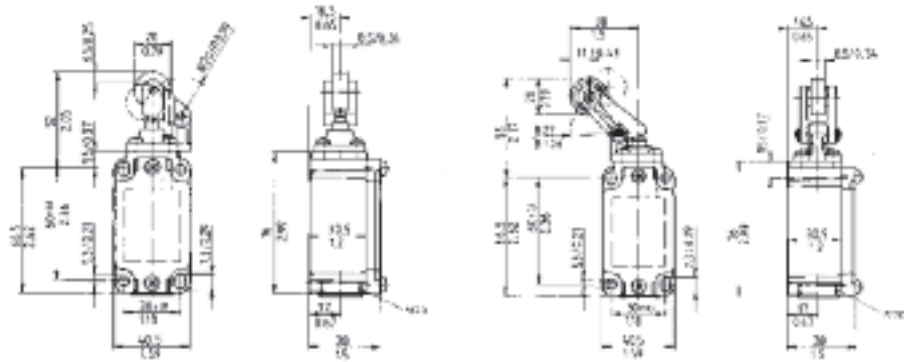
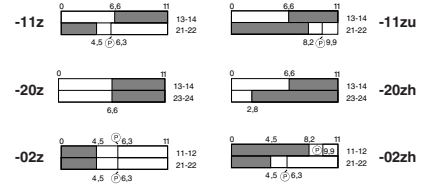


Z3K 335-02z

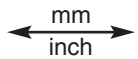
T1K 335...



T3K 335...



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	
		Part No.	Actuating Force	Part No.	Actuating Force
13-14 21-22	Snap Action positive break	Z1K 335-11z	12 N	Z3K 335-11z	5.0 N
11-12 21-22	Snap Action positive break	Z1K 335-02z	12 N	Z3K 335-02z	5.0 N
13-14 21-22	Slow Action Make before break	T1K 335-11z	15 N	T3K 335-11z	6.3 N
13-14 23-24	Slow Action 2-step	T1K 335-20z*	17 N	T3K 335-20z*	7.2 N
		T1K 335-20zh*	17 N	T3K 335-20zh*	7.2 N
11-12 21-22	Slow Action 2-step	T1K 335-02z	14 N	T3K 335-02z	6.0 N
		T1K 335-02zh	14 N	T3K 335-02zh	6.0 N

* Not for use in safety applications