



PIC

SWITCHING THE SMART WAY

2010

Sensor Technology

Reed Switches

SMD Reed Switches

Reed Sensors

Level Sensors

Magnets

Welcome to PIC



Our work is never done.
Passion, respect, integrity and
discipline are the four core values
which drive us to sophisticated
products and continuous growth
in a globalized world.

P I C

Product Innovation

Intelligent Design

Creative Manufacturing

Innovation

Modern machinery, perfected production concepts, clear information policy and our comprehensive sensor know-how secure our premier position in the branch.



Quality

Continuous optimization in the areas of research, development, production, service and marketing assure high standards in product quality.

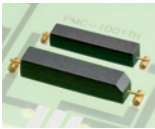
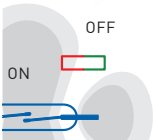


Sustainability

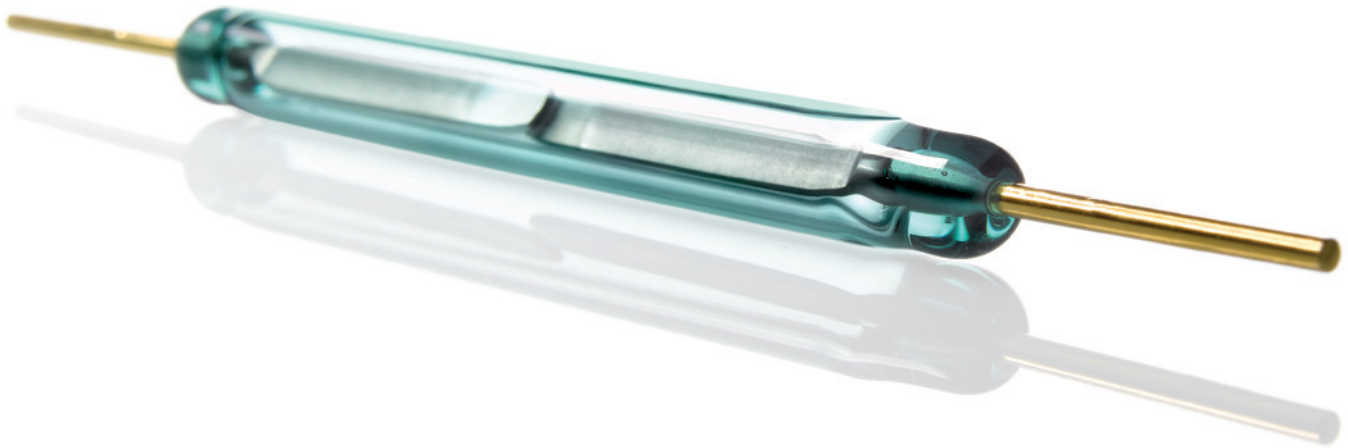
Sustainability is an essential part of our philosophy. Careful use of resources and environmental compatibility starts long before production and does not finish at sale. We remain true to this principle with regard to social and economic aspects.



Table of Contents

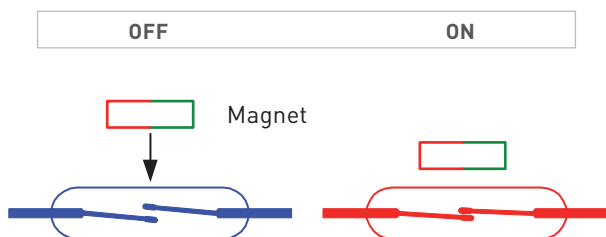
5-7	Reed Switches		Reed Switch Basics 5 Micro / Standard..... 6 Power / Special 7
8-11	SMD Reed Switches		S-Series 8 T-Series 9 TH-Series 10 PRX+2-Series 11
12-17	Reed Sensors		Reed Sensor Basics 12 Snap-fit NEW! 13 Flatpack 14 Tubular..... 15 Tubular Threaded..... 16 Through Hole..... 17
18-21	Level Sensors		Level Sensor Basics..... 18 PLS-PP-Series..... 19 PLS-PA-Series 20 PLS-VA-Series .. NEW! 21
22-25	Tech Center		Reed Switches: How to operate..... 22 Reed Switches: Precautions..... 23 Housing Materials: Chemical resistance chart..... 24 Magnets: Magnet Selector..... 25
26	Customized Products		Connectors and cable assemblies 26 Special housings 26 PCB assemblies 26 Hall Sensors 26 Customized Level Sensors 26 Magnets 26
27	Contact		

Reed Switch Basics



How does a Reed Switch work?

A Reed Switch consists of a pair of ferromagnetic reeds, hermetically sealed in a glass tube. Their free ends overlap at a very small distance.



Benefits

- > No power supply required
- > Contacts hermetically sealed
- > Most economic non-touch switching solution
- > Not ESD sensitive
- > Various methods of actuation possible
- > Magnetic and electrical pole independent
- > Non-touch actuation permits smooth surfaces and modern design
- > Various sensitivity ranges available

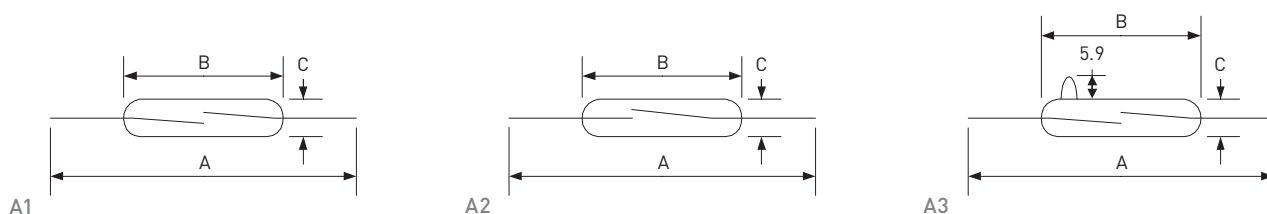
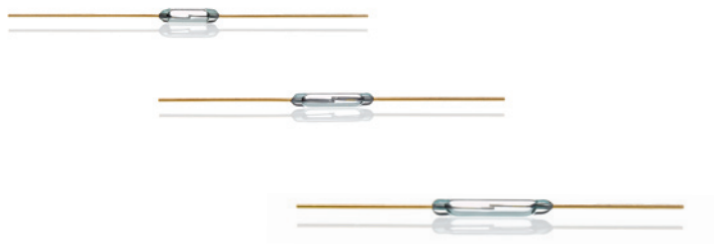
Applications



Micro / Standard

Features

- PMC-0701 for limited space the 7 mm glass length offers best solution
- PMC-1401 most cost-efficient general purpose switch using 14 mm glass length
- Close differential and mains voltage types available

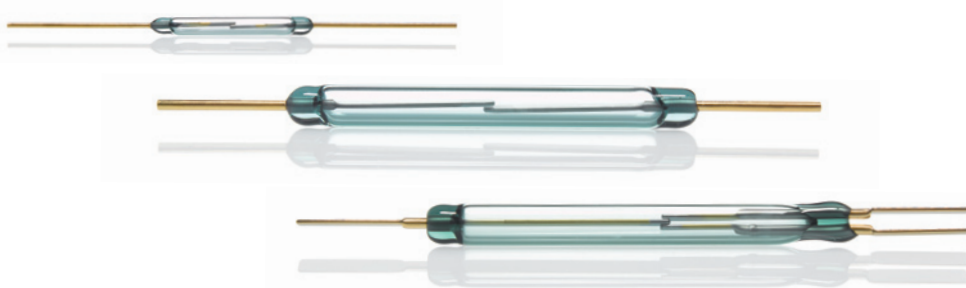


		Micro Switches				Standard Switches							
		HSR-0025	HSR-0035RT	PMC-0701	HSR-502	PMC-1001	PMC-1401	PMC-1402 DO min. 60%!	PMC-1406 DO min. 80%!	PMC-2003 DO max. 60%!	PMC-1515 mains voltage	PMC-1496	TRH-200
Dimensions													
A = Total length nom.	mm	26.7	26.7	41.8	37.9	41.8	44.0	44.30	44.0	45.6	40.4	55.0	52.5
B = Glass length max.	mm	4.32	5.08	7.0	8.0	10.0	14.2	14.0	14.2	21.0	15.3	14.5	14.8
C = Glass diameter max.	mm	0.97x1.27	1.4	1.8	2.4	1.8	2.3	2.3	2.3	3.0	2.3	2.2	2.7
Contact arrangement (figure)		A2	A2	A1	C2	A1	A1	A1	A1	A1	A1	C2	C2
Characteristics													
Contact form		A	A	A	C	A	A	A	A	A	A	C	C
Contact rating max.	W / VA	0.25	1.0	10	2	10	10	10	10	10	10	20	5
Switching voltage max.	VDC	30	30	150	30	180	200	200	100	180	200	150	175
	VAC	30	30	120	30	130	140	140	70	130	260	140	120
Switching current max.	A	0.01	0.05	0.5	0.1	0.7	1.0	0.5	0.5	1.0	0.3	1.0	0.25
Carry current max.	A	0.01	1.0	0.7	1.2	1.0	1.2	1.0	0.5	1.5	1.4	2.0	1.5
Breakdown voltage min.	VDC	80	200	200	175	200	240	250	150	250	400	200	200
Contact resistance (initial) max.	mΩ	500	750	200	200	150	100	100	150	150	100	150	100
Pull in range available	AT	2-15	5-20	10-20	15-35	10-25	10-30	10-20	7-17	30-50	17-33	15-30	15-30
Drop out min.	AT	1	3	4	5	4	5	60% of PI	80% of PI	30% of PI	4	6	5
Switching frequency max.	Hz	900	700	600	100	500	500	500	500	400	400	100	100
Vibration [50-2000 Hz]	g	15	15	10	30	20	20	30	20	20	30	30	30
Shock [1/2 sin 11 ms]	g	75	75	50	50	50	100	100	100	50	100	50	50
Operating temperature	°C	-40 to +125				-40 to +125	-60 to +155	-40 to +125			-20 to +125	-40 to +130	-40 to +125
UL / CSA / RoHS		--/--/•	--/--/•	•/•/•	--/--/•	•/•/•	•/•/•	•/•/•	•/•/•	•/•/•	•/•/•	--/--/•	•/•/•

Power / Special

Features

- Switching voltage up to 10 kV
- Carry current up to 5 A
- Contact rating max. 250 Watts
- Normally open, change over, high frequency and latching types

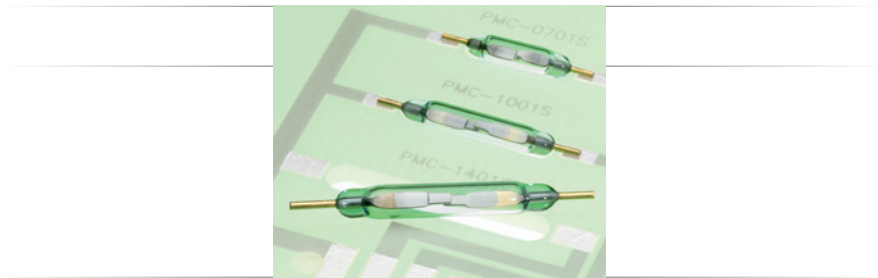


		Power Switches								Special Switches					
		PMC-2021	PMC-3617	PMC-5001	PMC-5002	HSR-V207	CRH-500	PMC-5025	HSR-834WT	High voltage			High frequency		Latching
										HSR-V7K	HSR-V10K	HSR-V15K	HSR-V100RF	HSR-V180RF	PMC-1401X
Dimensions															
A = Total length nom.	mm	55.0	70.0	80.0	80.0	82.0	85.7	80.0	86.2	82.0	82.0	82.0	55.5	82.0	44.0
B = Glass length max.	mm	20.0	36.0	50.0	50.0	53.4	39.7	52.0	34.3	53.4	53.4	53.4	20.3	53.4	14.2
C = Glass diameter max.	mm	2.54	5.6	5.4	5.4	5.4	5.4	5.6	5.35	5.4	5.4	5.4	2.8	5.4	
Contact arrangement (figure)		A1	C2	A1	A1	A3	C2	C2	C2	A3	A3	A3	A1	A1	E1
Characteristics															
Contact form		A	C	A	A	A	C	C	C	A	A	A	A	A	E
Contact rating max.	W / VA	50	60	120	250	200	60	60	100	50	50	50	10	25	5
Switching voltage max.	VDC	200	400	250	250	3500	500	230	500	5000	7500	10000	220	500	140
	VAC	250	400	250	250	3500	350	230	500	3500	5000	7000	220	500	100
Switching current max.	A	1.5	1.0	3.0	5.0	3.0	1.0	1.0	3.0	3.0	3.0	3.0	1.0	1.5	0.5
Carry current max.	A	2.0	2.0	3.0	5.0	5.0	3.0	2.0	3.0	4.5	4.5	4.5	3.0	5.0	0.7
Breakdown voltage min.	VDC	400	1000	700	700	7000	1200	400	1000	7500	10000	15000	2000	8000	200
Contact resistance (initial) max.	mΩ	100	100	200	300	500	130	100	500	150	150	150	150	100	150
Pull in range available	AT	25-40	50-80	50-90	50-100	100-150	50-80	80-120	60-100	60-125	100-150	130-170	15-40	100-125	
Drop out min.	AT	5	20	20	20	30	20	20	30	20	30	40	10	20	
Switching frequency max.	Hz	300	100	25	5	50	50	100	50	50	50	50	100	50	500
Vibration (50-2000 Hz)	g	20	35	10	10	30	15	15	15	30	30	30	30	30	10
Shock (1/2 sin 11 ms)	g	50	50	50	50	50	10	50	10	100	100	100	100	100	50
Operating temperature	°C	-60 to +125	-40 to +150	-60 to +130	-60 to +100	-60 to +125	-20 to +125	-40 to +150	-25 to +125	-60 to +125					-40 to +125
UL / CSA / RoHS		•/•/•	--/--/•	•/•/•	•/•/•	--/--/•	--/--/•	•/•/•	•/•/•	--/--/•	--/--/•	--/--/•	--/--/•	--/--/•	--/--/•

S-Series

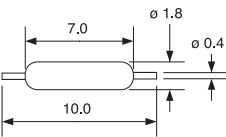
Features

- Most economic Reed Switch for automated assembly
- Assembly in PCB cutout reduces height above PCB by approx. 50%
- Various sensitivity ranges available

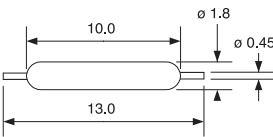


		PMC-0701S	PMC-1001S	PMC-1401S	PMC-1424S	PMC-1428S
Contact form		A	A	A	A	A
Contact rating max.	W / VA	10	10	10	10	10
Switching current max.	A	0.5	0.7	1.0	0.5	0.5
Switching voltage max.	VDC	150	180	200	200	100
	VAC	120	130	140	140	70
Pull in range available	AT	10-20	10-25	10-30	10-35	10-35
UL / CSA / RoHS		• / • / •	• / • / •	• / • / •	• / -- / •	• / -- / •

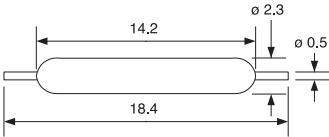
PMC-0701S



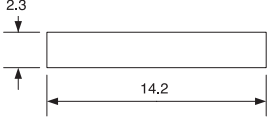
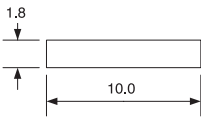
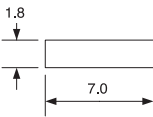
PMC-1001S



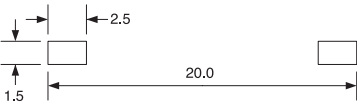
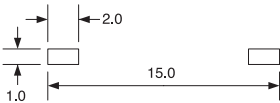
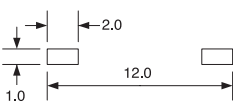
PMC-1401S
PMC-1424S
PMC-1428S



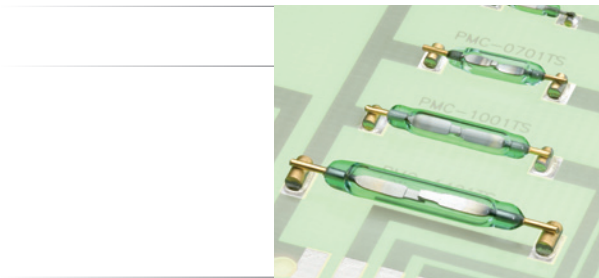
PCB cutout



Recommended pad size



T-Series

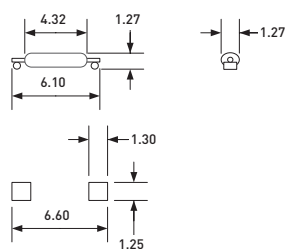


Features

- Attractively priced alternative to molded Reed Switches
- No PCB redesign required since direct substitute for molded competitors types
- Various sensitivity ranges available

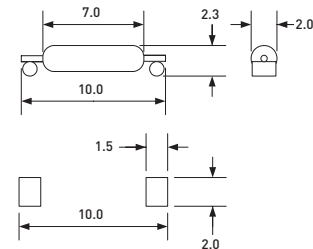
		HSR-0025TSM	PMC-0701TS	PMC-1001T/TS	PMC-1401T/TS	PMC-1424T/TS	PMC-1428T/TS
Contact form		A	A	A	A	A	A
Contact rating max.	W / VA	0,25	10	10	10	10	10
Switching current max.	A	0.01	0.5	0.7	1.0	0.5	0.5
Switching voltage max.	VDC	30	150	180	200	200	100
	VAC	30	120	130	140	140	70
Pull in range available	AT	2-15	10-20	10-25	10-30	10-35	10-35
UL / CSA / RoHS		--/--/•	•/•/•	•/•/•	•/•/•	•/--/•	•/--/•

HSR-0025TSM

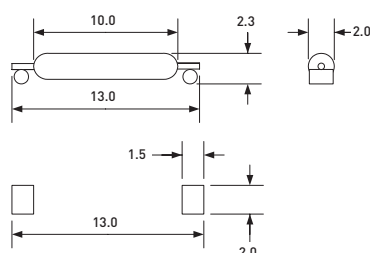


Recommended pad size

PMC-0701TS

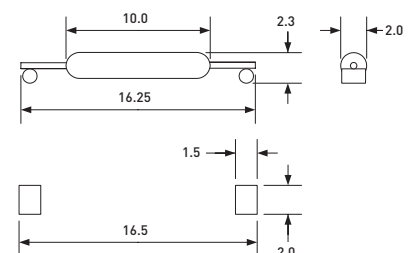
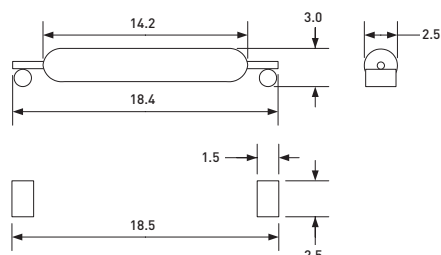


PMC-1001TS

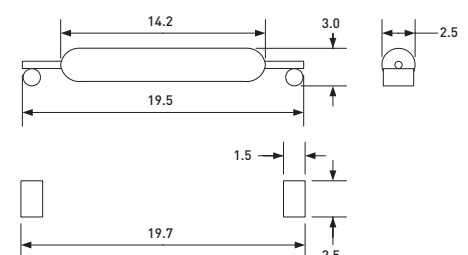


Recommended pad size

PMC-1001T

PMC-1401TS
PMC-1424TS
PMC-1428TS

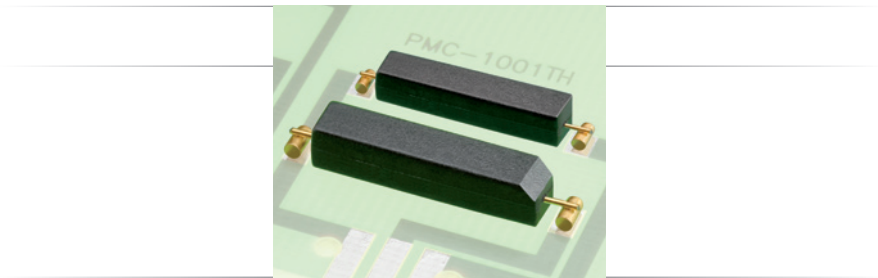
Recommended pad size

PMC-1401T
PMC-1424T
PMC-1428T

TH-Series

Features

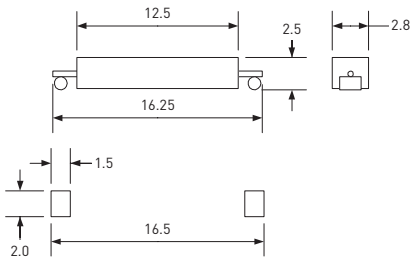
- Replaces various molded competitors types, thus no PCB redesign required
- Latching and Form B (normally closed) types available
- Various sensitivity ranges available



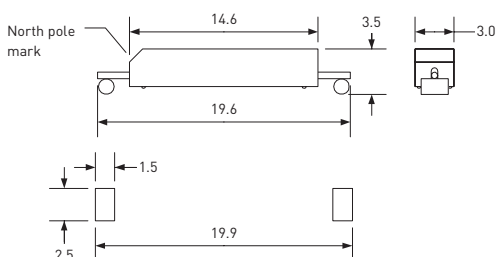
		PMC-1001TH PMC-1001THL	Normally closed PMC-1001THY	Latching PMC-1424THX
Contact form		A	B	E
Contact rating max.	W / VA	10	10	5
Switching current max.	A	0.7	0.7	0.5
Switching voltage max.	VDC	180	180	140
	VAC	130	130	100
Pull in range available	AT	10-25	consult factory	consult factory
UL / CSA / RoHS		--/--/•	--/--/•	--/--/•

PMC-1001TH

Recommended
pad size

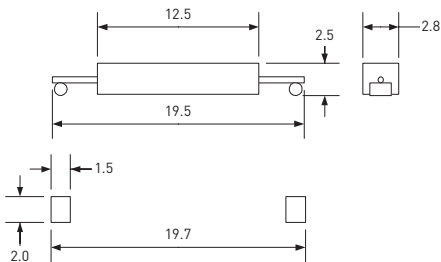


PMC-1001THY

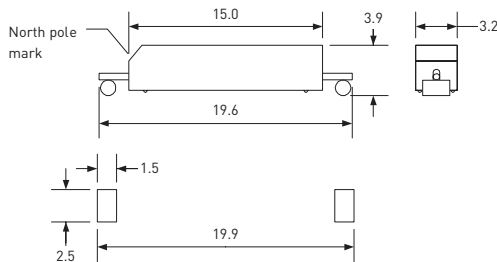


PMC-1001THL

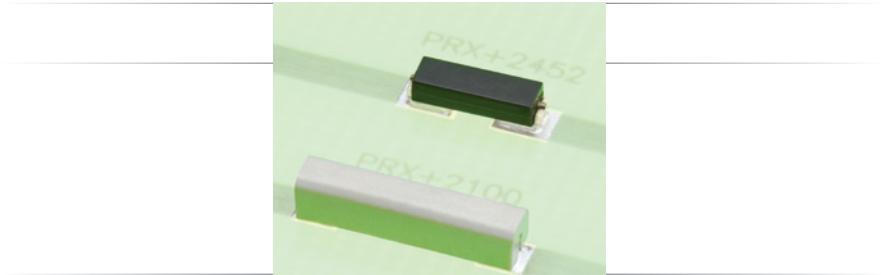
Recommended
pad size



PMC-1424THX



PRX+2-Series

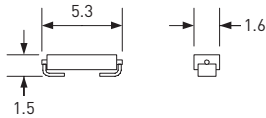


Features

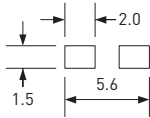
- Ultra miniature size
- Hi-Rel versions available
- Various sensitivity ranges available

		PRX+2452	PRX+2100
Contact form		A	A
Contact rating max.	W	0.25	1
Switching current max.	A	0.01	0.05
Switching voltage max.	VDC	30	30
	VAC	30	30
Pull in range available	AT	2-15	5-20
UL / CSA / RoHS		--/--/•	--/--/•

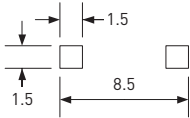
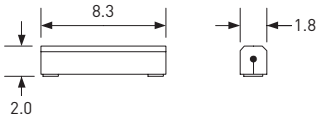
PRX+2452



Recommended pad size



PRX+2100



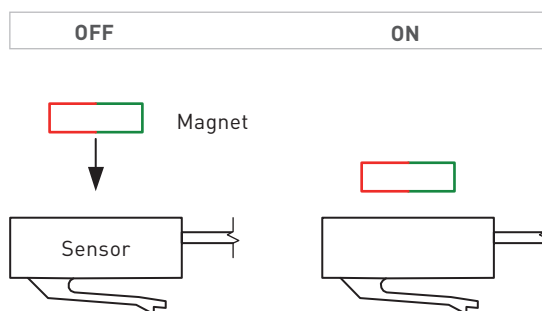
Reed Sensor Basics



How does a Reed Sensor work?

A Reed Sensor incorporates a Reed Switch inside a metal or plastic housing for better mechanical protection and easier mounting.

Actuation principles for Reed Switches also apply to Reed Sensors.



Benefits

- › Mechanically protected
- › Wide range of housing types available
- › No power supply required
- › Not ESD sensitive
- › Non-touch actuation permits smooth surfaces and modern design
- › Various sensitivity ranges available

We supply Reed Sensors to any requirement: for snap-fit or screw mounting, with special cable and connector etc.

Applications



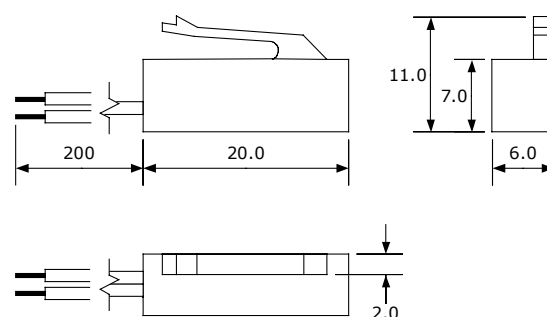
NEW!

Features

- Easily mountable and removable as no tools or screws required
- Small size
- Various sensitivity ranges available
- Customized types available

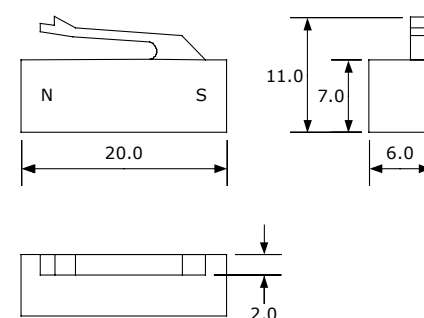


		MS-320
Contact form		A
Contact rating max.	W / VA	10
Switching current max.	A	0.7
Switching voltage max.	VDC	180
	VAC	130
Pull in range available	AT	10-25
Operating temperature	°C	-20 to +85
UL / CSA / RoHS		• / • / •
Housing material		PA66-GF
Cable type		AWG 22



		Actuator MSM-320
Remanence Br	mT	1190
Coercivity HcJ	kA/m	1274
Energy product (BH) max.	kJ/m³	275
Magnetic moment M	$\times 10^{-5}$ Vs cm	2.4
Operating temperature	°C	-20 to +85
UL / CSA / RoHS		-- / -- / •
Housing material		PA66-GF

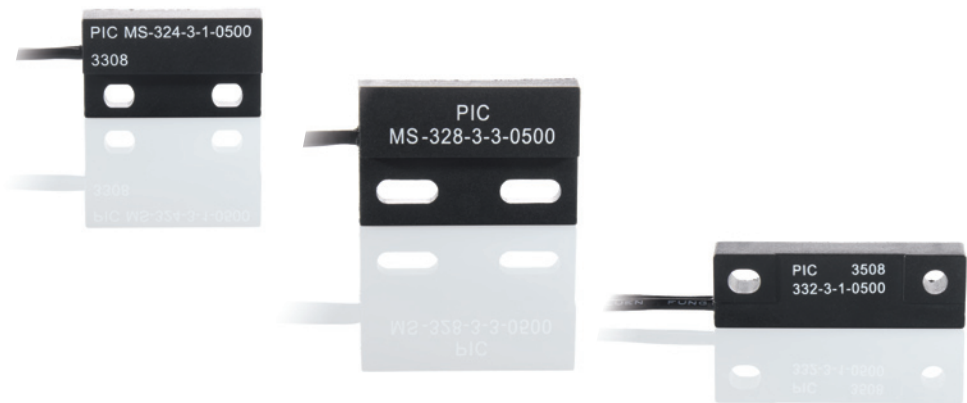
Nominal values unless otherwise specified.



Flatpack

Features

- Adjustable switching point
- Replaces various competitors types
- Mains voltage variants available
- Various sensitivity ranges available
- Customized types available



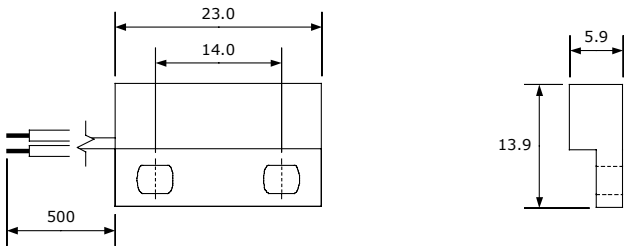
		MS-324-3 MS-328-3 MS-332-3	MS-324-4 MS-328-4	MS-324-5 MS-328-5 MS-332-5	MS-328-6 MS-332-6
Contact form		A	C	A	A
Contact rating max.	W / VA	10	5	10	50
Switching current max.	A	1.0	0.25	0.3	1.5
Switching voltage max.	VDC	200	175	200	200
	VAC	140	120	260	250
Pull in range available	AT	10-30	15-30	20-35	25-40
Operating temperature	°C	-20 to +85	-20 to +85	-20 to +85	-20 to +85
UL / CSA / RoHS		•/•/•	•/•/•	•/•/•	•/•/•

		MS-324	MS-328	MS-332
Housing material		ABS	PA66-GF	ABS
Cable type		AWG 24	AWG 20 (MS-328-4: AWG 24)	AWG 24

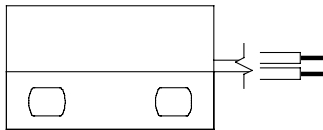
Standard types

Cable exit: right

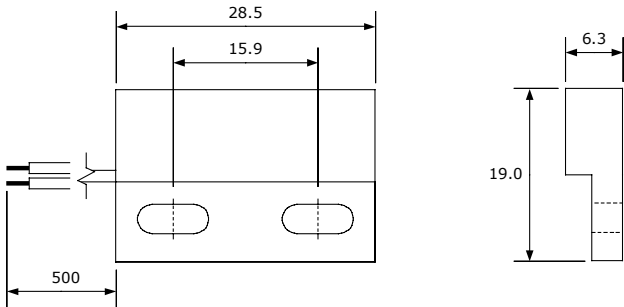
MS-324



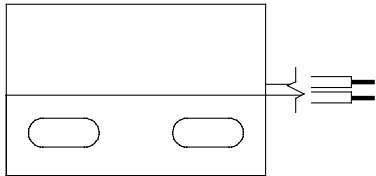
MS-324R



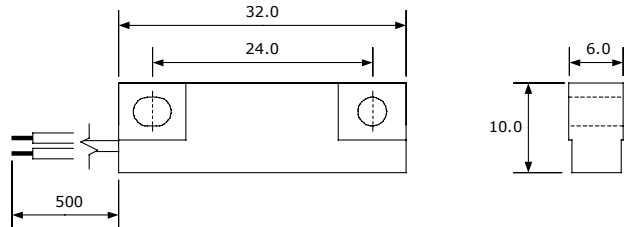
MS-328



MS-328R



MS-332



Tubular

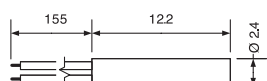


Features

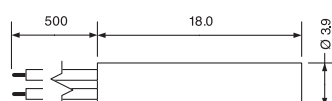
- Replaces various competitors types
- Mains voltage variants available
- Various sensitivity ranges available
- Customized types available

		PRX+1500	MS-213	MS-214
Contact form		A	A	A
Contact rating max.	W / VA	1	10	10
Switching current max.	A	0.05	0.7	0.7
Switching voltage max.	VDC	30	180	180
	VAC	30	130	130
Pull in range available	AT	10-25	10-25	10-25
Operating temperature	°C	-40 to +125	-20 to +85	-20 to +85
UL / CSA / RoHS		--/--/•	•/--/•	•/--/•
Housing material		HTM	ABS	ABS
Cable type		AWG 28	AWG 26	AWG 26

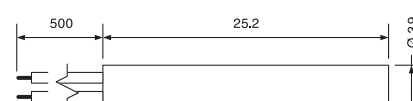
PRX+1500



MS-213

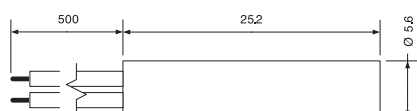


MS-214

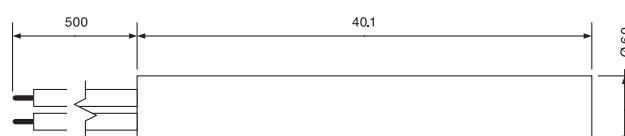


		MS-216-3 MS-217-3	MS-216-4 MS-217-4	MS-216-5 MS-217-5	MS-217-6
Contact form		A	C	A	A
Contact rating max.	W / VA	10	5	10	50
Switching current max.	A	1.0	0.25	0.3	1.5
Switching voltage max.	VDC	200	175	200	200
	VAC	140	120	260	250
Pull in range available	AT	10-30	15-30	20-35	25-40
Operating temperature	°C	-20 to +85	-20 to +85	-20 to +85	-20 to +85
UL / CSA / RoHS		•/•/•	•/•/•	•/•/•	•/•/•
Housing material		ABS	ABS	ABS	ABS
Cable type		AWG 24	AWG 24	AWG 24	AWG 24

MS-216



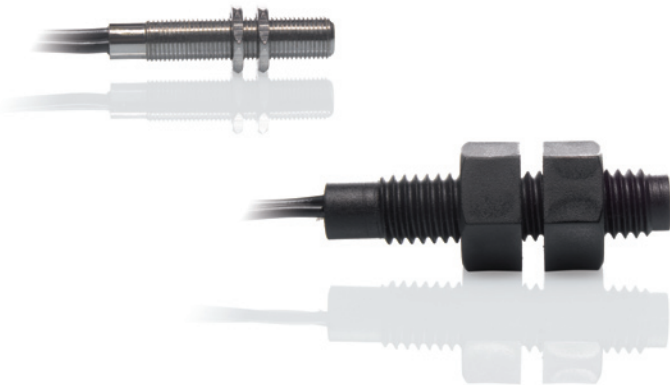
MS-217



Tubular Threaded

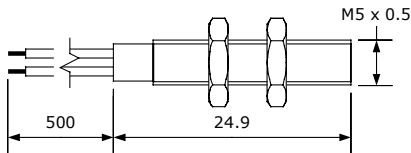
Features

- › Adjustable switching point
- › Replaces various competitors types
- › Mains voltage variants available
- › Various sensitivity ranges available
- › Customized types available



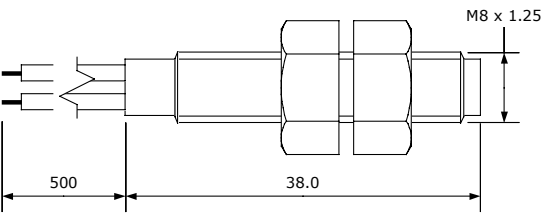
		MS-225
Contact form		A
Contact rating max.	W / VA	10
Switching current max.	A	0.7
Switching voltage max.	VDC	180
	VAC	130
Pull in range available	AT	10-25
Operating temperature	°C	-20 to +85
UL / CSA / RoHS		• / • / •
Housing material		Nickel plated brass
Cable type		AWG 24

MS-225



		MS-228-3	MS-228-4	MS-228-5	MS-228-6
Contact form		A	C	A	A
Contact rating max.	W / VA	10	5	10	50
Switching current max.	A	1.0	0.25	0.3	1.5
Switching voltage max.	VDC	200	175	200	200
	VAC	140	120	260	250
Pull in range available	AT	10-30	15-30	20-35	25-40
Operating temperature	°C	-20 to +85	-20 to +85	-20 to +85	-20 to +85
UL / CSA / RoHS		• / • / •	• / • / •	• / • / •	• / • / •
Housing material		PA6-GF	PA6-GF	PA6-GF	PA6-GF
Cable type		AWG 24	AWG 24	AWG 24	AWG 24

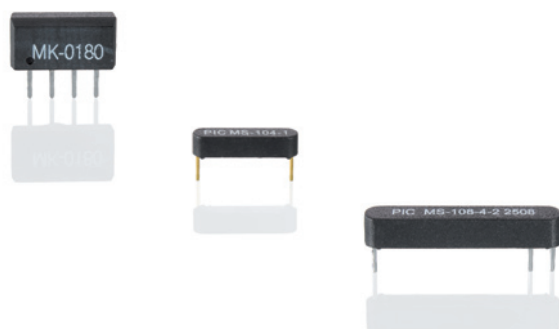
MS-228



Through Hole

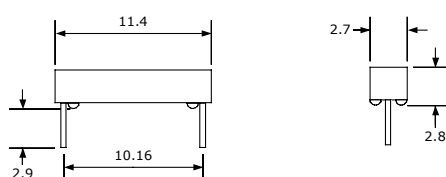
Features

- Pitch ranging from 2.54 to 20.32 mm
- Mechanically protected
- Replaces various competitors types
- MK sensor with integrated resistor
- Mains voltage variants available
- Customized types available

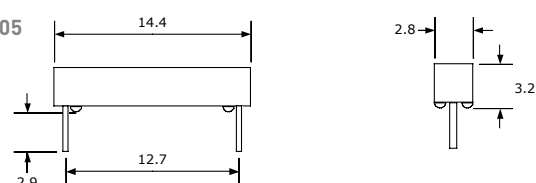


		MS-104 MS-105	MS-106	MS-108-3	MS-108-4	MS-108-5	MK
Contact form		A	A	A	C	A	A
Contact rating max.	W / VA	10	10	10	5	10	10
Switching current max.	A	0.5	0.7	1.0	0.25	0.3	0.5
Switching voltage max.	VDC	150	180	200	175	200	150
	VAC	120	130	140	120	260	120
Pull in range available	AT	10-20	10-25	10-30	15-30	20-35	10-15
Operating temperature	°C	-20 to +85	-20 to +85	-20 to +85	-20 to +85	-20 to +85	-40 to +125
UL / CSA / RoHS		•/•/•	•/•/•	•/•/•	•/•/•	•/•/•	--/--/•

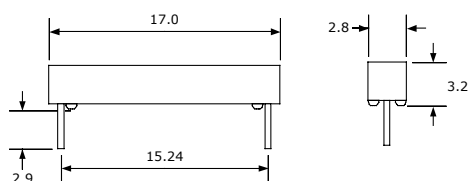
MS-104



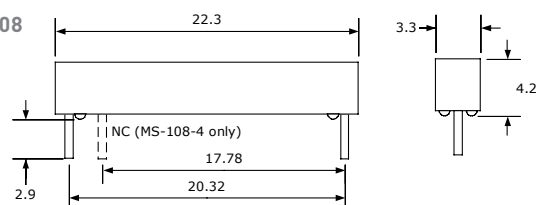
MS-105



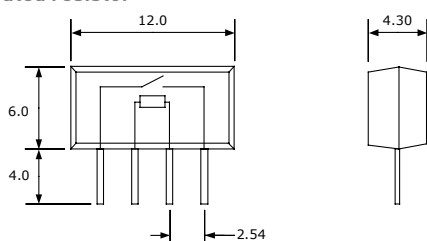
MS-106



MS-108



MK with integrated resistor



Level Sensor Basics



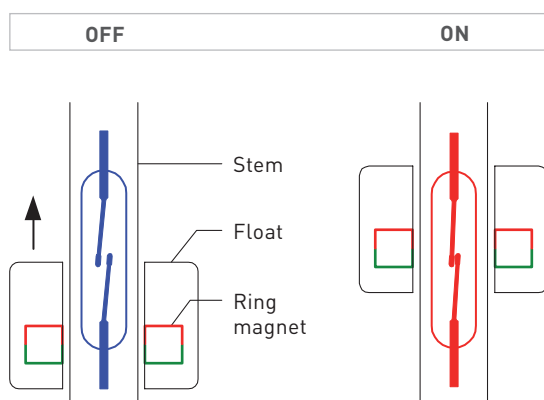
How does a Level Sensor work?

A Level Sensor incorporates a Reed Switch in a stem. An external float, with a magnet inside, passes and actuates the Reed Switch, depending on liquid level.

Actuation principles for Reed Switches also apply to Level Sensors.

Benefits

- > No power supply required
- > Various housing materials available
- > Form A and Form B
- > Suitable for food contact
- > Customized types available



Applications



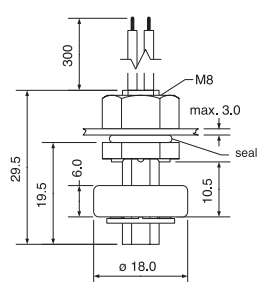
PLS-PP-Series

Features

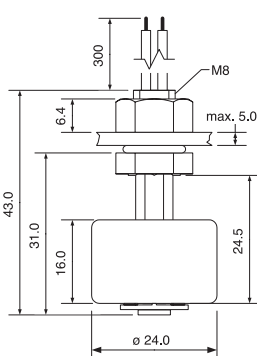
- Polypropylene housing
- Mains voltage variants
- Form A and Form B
- Suitable for food contact
- Covers a wide range of applications
- Customized types available

						Power Switch	
		PLS- 020A-3PP	PLS- 020B-3PP	PLS-031A-3PP	PLS-031B-3PP	PLS-031A-6PP	PLS-031B-6PP
		A	B	A	B	A	B
Contact form							
Contact rating max.	W / VA	10		10		50	
Switching current max.	A	0.7		1.0		1.5	
Carry current max.	A	1.0		1.2		2.0	
Switching voltage max.	VDC	180		200		200	
	VAC	130		140		250	
Breakdown voltage min.	VDC	200		240		400	
Operating temperature	°C	-20°C to +80°C		-20°C to +80°C		-20°C to +80°C	
UL / CSA / RoHS		•/•/•		•/•/•		•/•/•	
Housing material		PP		PP		PP	
Cable type		AWG 24		AWG 24		AWG 22	

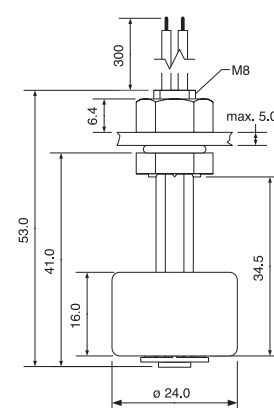
PLS-020 – world's smallest!



PLS-031 – Miniature



PLS-041 – Standard



Variants & mounting

FORM A (Normally open)

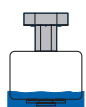
FORM B (Normally closed)



OFF



ON

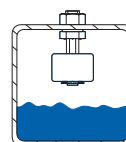


ON

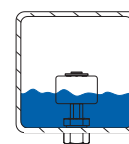


OFF

Top mounting



Bottom mounting



When mounted „stem up“, operating functions are reversed.

PLS-PA-Series

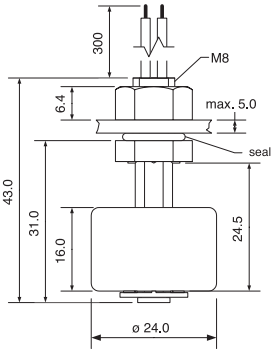


Features

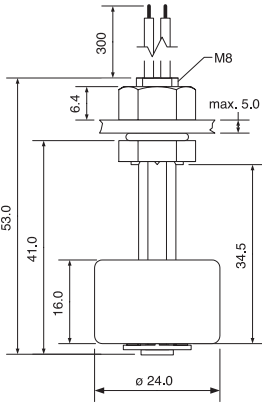
- › Polyamide housing
- › Mains voltage variants
- › Form A and Form B
- › Extended temperature range
- › Customized types available

				Power Switch	
		PLS-031A-3PA	PLS-031B-3PA	PLS-031A-6PA	PLS-031B-6PA
		PLS-041A-3PA	PLS-041B-3PA	PLS-041A-6PA	PLS-041B-6PA
Contact form		A	B	A	B
Contact rating max.	W / VA	10		50	
Switching current max.	A	1.0		1.5	
Carry current max.	A	1.2		2.0	
Switching voltage max.	VDC	200		200	
	VAC	140		250	
Breakdown voltage min.	VDC	240		400	
Operating temperature	°C	-20 to +100°C		-20°C to +100°C	
UL / CSA / RoHS		• / • / •		• / • / •	
Housing material		PA		PA	
Cable type		AWG 24		AWG 22	

PLS-031 – Miniature



PLS-041 – Standard



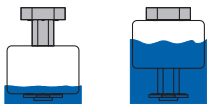
Variants & mounting

FORM A (Normally open)

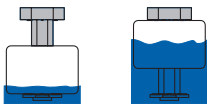
FORM B (Normally closed)

Top mounting

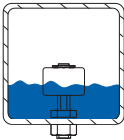
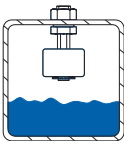
Bottom mounting



OFF ON



ON OFF



When mounted „stem up“, operating functions are reversed.

NEW!

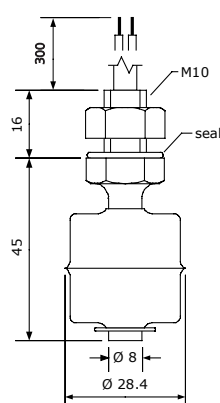
PLS-VA-Series

Features

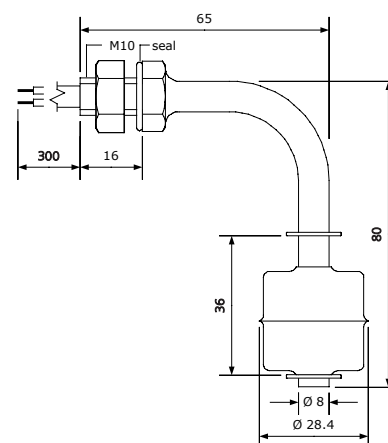
- Stainless Steel housing
- Rugged & durable
- Mains voltage variants
- Form A and Form B
- Suitable for food contact
- Extended temperature range
- Customized types available

				Power Switch	
		PLS-045A-3VAI	PLS-045B-3VAI	PLS-045A-6VAI	PLS-045B-6VAI
		PLS-080A-3VAL	PLS-080B-3VAL	PLS-080A-6VAL	PLS-080B-6VAL
Contact form		A	B	A	B
Contact rating max.	W / VA	10		50	
Switching current max.	A	1.0		1.5	
Carry current max.	A	1.2		2.0	
Switching voltage max.	VDC	200		200	
	VAC	140		250	
Breakdown voltage min.	VDC	240		400	
Operating temperature	°C	-30 to +125°C		-30°C to +125°C	
UL / CSA / RoHS		--/--/•		--/--/•	
Housing material		Stainless Steel 304		Stainless Steel 304	
Cable type		AWG 24		AWG 22	

PLS-045

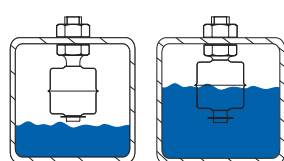


PLS-080



Variants & mounting

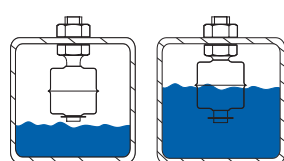
FORM A (Normally open)



OFF

ON

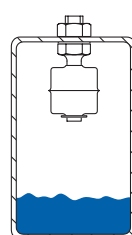
FORM B (Normally closed)



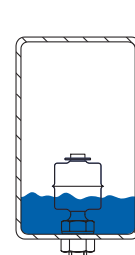
ON

OFF

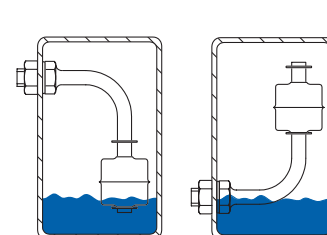
Top mounting



Bottom mounting



Side mounting

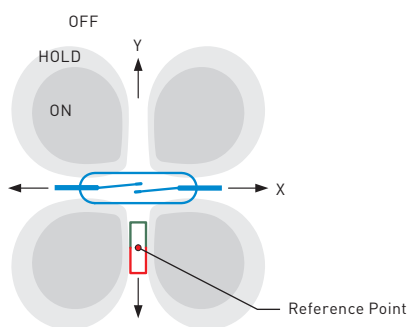


When mounted „stem up“, operating functions are reversed.

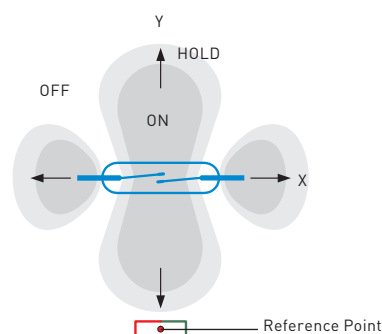
How to operate

In general **four** different magnet approaches are known when using permanent magnets

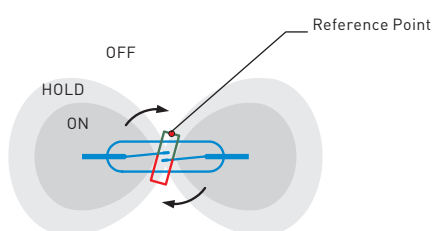
- 1 **One magnet pole** faces Reed Switch providing **two** operations max. when moving on X-axis. Minimum movement of magnet over switch center provides smallest possible switching differential.



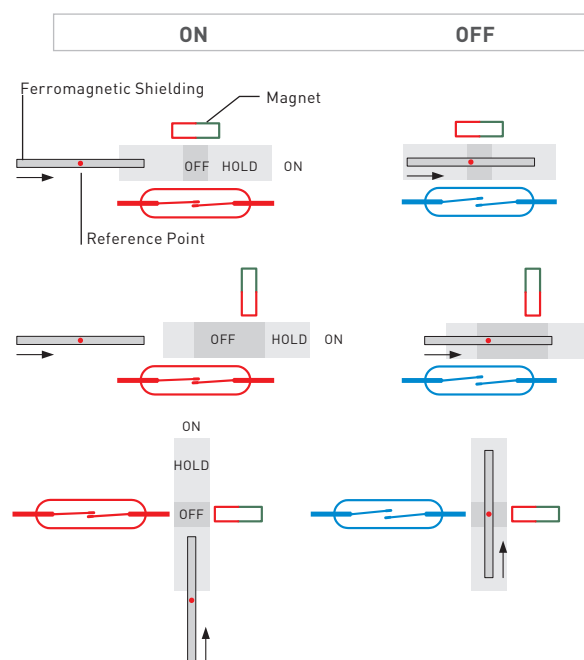
- 2 **Magnet parallel to longitudinal axis of switch:** Approaching magnet **vertically** to switch on Y-axis provides **one** operation only. Driving magnet over full length of switch (X-axis) may result in up to three operations. Minimum movement of magnet over switch center provides smallest possible switching differential.



- 3 Switch operation by **rotation** of magnet. This gives two operations per complete rotation.



- 4 Operation of switch by **shielding**. This method requires a permanently opposite location of magnet and switch. The switch is held closed continuously and will release only if magnet flux is removed by means of ferro-magnetic shield.

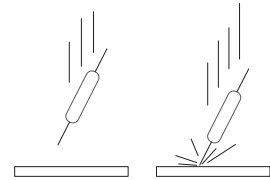


Check out our interactive Reed Switch here:
www.pic-gmbh.com/go

Precautions

Shock Resistance

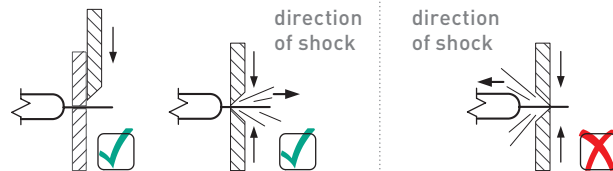
Generally Reed Switches provide high shock resistance up to 100 g. Still a drop on a hard surface can generate a shock of several 100 g, which can lead to de-adjustment of contacts. Switches having been dropped should be re-tested for sensitivity before usage!



Do's and Don'ts when cutting and bending Reed Switches

Incorrect bending or cutting of terminals may lead to cracks in the sealing area due to heavy mechanical stress. To avoid this problem the remaining part of terminal between glass body and point of bending resp. cutting, should be gripped tightly.

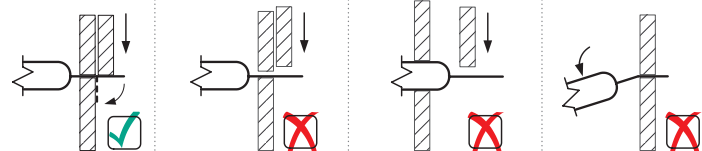
Cutting



Forces directed away from Reed Switch

Forces directed toward Reed Switch!

Bending



Terminal gripped tightly between glass body and point of bending

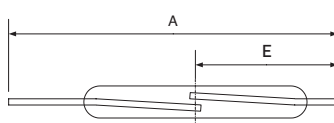
Terminal not gripped

Gripped on glass body

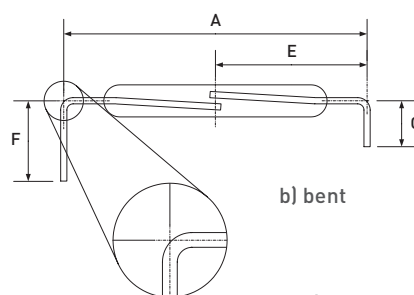
Terminal not gripped between glass body and point of bending

Dimensioning of modified Reed Switches

We supply Reed Switches with terminals modified to nearly any requirement. Dimensioning should be made according to the examples below.

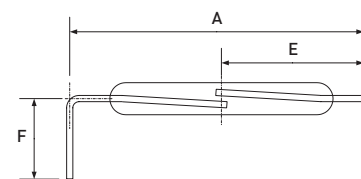


a) cut



b) bent

center wire



c) cut & bent

Chemical resistance chart

+ = Excellent o = Limited - = Poor	Chemical resistance @20°C / @60°C				
	ABS	PA	PP	POM	Stainless Steel 304
Acetic Acid, dilute	- / -	- / -	+ / +	+ / o	+ / +
Acetone	- / -	+ / +	+ / o	+ / o	+ / +
Ammonium Hydroxide	o / -	+ / +	+ / +	+ / +	+ / +
Aniline	- / -	o / -	+ / +	- / -	+ / +
Beer, Wine, Whiskey	+ / +	+ / +	+ / +	+ / +	+ / +
Butanol	+ / o	+ / +	+ / +	+ / o	+ / +
Chloroform	- / -	- / -	- / -	- / -	+ / +
Citric Acid	+ / +	+ / +	+ / +	+ / -	o / o
Copper Sulphate	+ / +	- / -	+ / +	+ / +	o / o
Detergents	+ / o	+ / o	+ / +	+ / +	+ / +
Diesel fuel	+ / +	+ / +	+ / o	+ / +	+ / +
Ethanol	+ / +	+ / +	+ / +	+ / +	+ / +
Ethylene Glycol	+ / +	+ / +	+ / +	+ / o	+ / +
Ferric Chloride	+ / +	- / -	+ / +	- / -	- / -
Formaldehyde (Formalin)	+ / +	o / o	+ / +	+ / +	+ / +
Formic Acid	+ / o	- / -	+ / +	- / -	+ / o
Fruit Juice	+ / +	+ / +	+ / +	+ / -	+ / +
Gasoline	- / -	+ / o	- / -	+ / +	+ / +
Glycerol (Glycerin)	+ / +	+ / +	+ / +	+ / +	+ / +
Hydrochloric acid	+ / -	- / -	+ / +	- / -	- / -
Hydrogen Peroxide, dilute	- / -	- / -	+ / +	o / -	+ / +
Lactic Acid	+ / +	o / -	+ / +	+ / -	+ / o
Methanol	- / -	o / -	+ / +	+ / +	+ / +
Milk	+ / o	+ / +	+ / +	+ / +	+ / +
Mineral Oil	+ / +	+ / +	+ / +	+ / +	+ / +
Nitric Acid, dilute	- / -	- / -	+ / +	- / -	+ / o
Nitrobenzene	- / -	- / -	+ / +	+ / -	+ / +
Phosphoric Acid, dilute	+ / +	- / -	+ / +	+ / -	o / -
Propanol (IPA)	o / -	+ / +	+ / +	+ / +	o / o
Silver Nitrate	+ / o	o / -	+ / +	+ / -	+ / +
Soaps	+ / +	+ / +	+ / +	+ / +	+ / +
Sodium Hydroxide, dilute	+ / +	o / -	+ / +	+ / +	+ / +
Sulphuric Acid, dilute	o / -	- / -	+ / +	o / -	o / -
Urine	+ / +	+ / +	+ / +	+ / +	+ / +
Vegetable Oil	+ / o	+ / +	+ / +	+ / +	+ / +
Water	+ / +	+ / o	+ / +	+ / +	+ / +
Water, Sea-, Salt-	+ / +	+ / o	+ / +	+ / +	- / -

Above data is intended only as a guide for chemical compatibility.

We do not assume any liability for the accuracy of the information.

It is strongly recommended that users perform their own tests to determine suitability of material.

Selection Guide	LOW HIGH			
Costs	Ferrite	NdFeB	AlNiCo	SmCo
Energy Product	Ferrite	AlNiCo	SmCo	NdFeB
Operating Temperature	NdFeB	Ferrite	SmCo	AlNiCo
Corrosion Resistance	NdFeB	SmCo	AlNiCo	Ferrite
Resistance to Demagnetization	AlNiCo	Ferrite	NdFeB	SmCo
Mechanical Strength	Ferrite	SmCo	NdFeB	AlNiCo
Temperature Coefficient	AlNiCo	SmCo	NdFeB	Ferrite

In recent years, Neodymium-Iron-Boron magnets (NdFeB) have advanced from being exotic luxury items to affordable power magnets.

- › increased switching distance
- › miniature design possible
- › resistance to demagnetization
- › greater product design flexibility



Material Grades		Remanence Br	Coercivity HcB HcJ		Energy Product (BH) max.	Operating Temperature max.
		mT	kA/m	kA/m	kJ/m³	°C
NdFeB	N30	1105	836	955	235	80
	N30H	1105	836	1274	235	120
	N30SH	1100	836	1512	239	150
	N33EH	1185	828	955	275	180
	N35	1185	828	955	275	80
	N35H	1190	828	1274	275	120
	N35SH	1190	828	1512	275	150
	N40SH	1260	844	1512	314	150
	N45	1350	840	955	354	80
SmCo5	S20	875	617	1194	159	250
Sm2Co17	S24H	975	724	1433	183	300
	S28H	1065	724	1433	215	300
AlNiCo	A500	1281	50	52	40	500
Ferrite	Y10	215	143	203	8	250
	Y30BH	390	229	231	29	300
	Y35	410	183	167	31	300
Bonded Ferrite	FB1	240	171	225	11	80
Bonded NdFeB	BN8	575	378	1035	64	150

Customized Products

Over 80 % of our products are special custom designs.

Connectors and cable assemblies

- › Sensor solutions + wire harnesses: tailor made to your requirements.



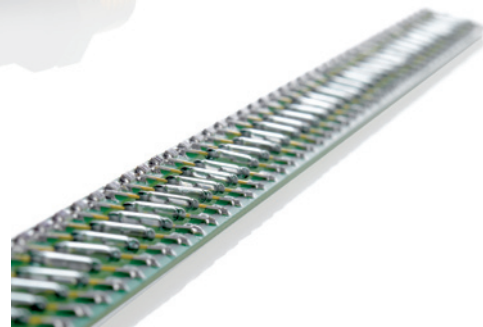
Special housings

- › Own molding facilities spell flexibility when it comes to special housings, snap-fit solutions and inserts.



PCB assemblies

- › Where large quantities in particular are concerned, assembly costs can make or break a product. We will be happy to supply Reed Switches and other components as fully assembled PCBs including cable and connector at highly competitive prices.



Hall Sensors

- › In cases where Reed Technology is reaching its limits (extended operating frequencies etc.) we offer Hall-based switching components with open collector output or two-wire variants.



Customized Level Sensors

- › We can do much more than what you see in this catalogue.



Magnets

- › We design the matching actuator magnet for your application - bare or cased.



SUNSTAR实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一，是一家专业代理和分销世界各大品牌IC芯片和电子元器件的连锁经营综合性国际公司。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。**专业以现代信息产业（计算机、通讯及传感器）三大支柱之一的传感器为主营业务，专业经营各类传感器的代理、销售生产、网络信息、科技图书资料及配套产品设计、工程开发。我们的专业网站——中国传感器科技信息网（全球传感器数据库）www.SENSOR-IC.COM 服务于全球高科技生产商及贸易商，为企业科技产品开发提供技术交流平台。欢迎各厂商互通有无、交换信息、交换链接、发布寻求代理信息。欢迎国外高科技传感器、变送器、执行器、自动控制产品厂商介绍产品到中国，共同开拓市场。**本网站是关于各种传感器-变送器-仪器仪表及工业自动化大型专业网站，深入到工业控制、系统工程计 测量、自动化、安防报警、消费电子等众多领域，把最新的传感器-变送器-仪器仪表买卖信息，最新技术供求，最新采购商，行业动态，发展方向，最新的技术应用和市场资讯及时的传递给广大科技开发、科学研究、产品设计人员。本网站已成功为石油、化工、电力、医药、生物、航空、航天、国防、能源、冶金、电子、工业、农业、交通、汽车、矿山、煤炭、纺织、信息、通信、IT、安防、环保、印刷、科研、气象、仪器仪表等领域从事科学研究、产品设计、开发、生产制造的科技人员、管理人员、和采购人员提供满意服务。**我公司专业开发生产、代理、经销、销售各种传感器、变送器、敏感元器件、开关、执行器、仪器仪表、自动化控制系统：专门从事设计、生产、销售各种传感器、变送器、各种测控仪表、热工仪表、现场控制器、计算机控制系统、数据采集系统、各类环境监控系统、专用控制系统应用软件以及嵌入式系统开发及应用等工作。如热敏电阻、压敏电阻、温度传感器、湿度变送器、湿度传感器、湿度变送器、气体传感器、压力传感器、压力变送器、称重传感器、物（液）位传感器、物（液）位变送器、流量传感器、流量变送器、电流（压）传感器、溶氧传感器、霍尔传感器、图像传感器、超声波传感器、位移传感器、速度传感器、加速度传感器、扭矩传感器、红外传感器、紫外传感器、火焰传感器、激光传感器、振动传感器、轴角传感器、光电传感器、接近传感器、干簧管传感器、继电器传感器、微型电泵、磁敏（阻）传感器、压力开关、接近开关、光电开关、色标传感器、光纤传感器、齿轮测速传感器、时间继电器、计数器、计米器、温控仪、固态继电器、调压模块、电磁铁、电压表、电流表等特殊传感器。同时承接传感器应用电路、产品设计和自动化工程项目。**

欢迎索取免费详细资料、设计指南和光盘；产品凡多，未能尽录，欢迎来电查询。

更多产品请看本公司产品专用销售网站：

中国传感器科技信息网：<http://www.sensor-ic.com/>工控安防网：<http://www.pc-ps.net/>

电子元器件网：<http://www.sunstare.com/>微波光电产品网：[HTTP://www.rfoe.net/](http://www.rfoe.net/)

消费电子产品网：<http://www.icasic.com/>军工产品网：<http://www.junpinic.com/>

实业科技产品网：<http://www.sunstars.cn/>传感器销售热线：

电话：0755-83607652 83376489 83376549 83370250 83370251

传真：0755-83376182 (0) 13902971329 MSN: SUNS8888@hotmail.com

邮编：518033 E-mail:szss20@163.com QQ: 195847376

技术支持：0755-83394033 13501568376

