Standex Electronics

PARTNER | SOLVE | DELIVER®

Reed Switches & Sensors

PRODUCT LINE BROCHURE

Standex | Smart.

Partner, Solve, Deliver® "Solving your complex problems is why we exist."

CONTENTS

ABOUT STANDEX

Customer Focused Engineering Solutions. "Innovating for more than 50 years."

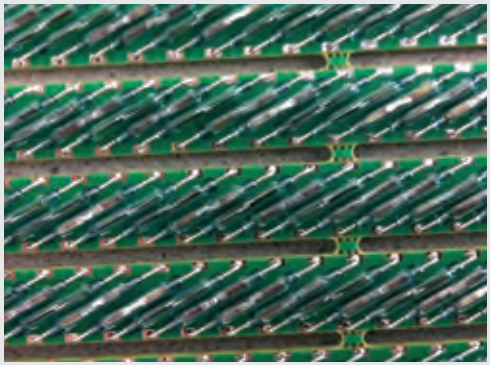
The Standex Electronics business, a division of Standex International Corporation (NYSE:SXI), has been providing solutions through high-performing products since the 1950's. Through growth, acquisition, strategically partnering with customers, and applying the latest engineering designs to the needs of our ever-changing world, Standex Electronics technology has been providing quality results to the end-user. The approach is achieved by partnering with customers to design and deliver individual solutions and products that truly address customers' needs.

Standex Electronics is headquartered in Fairfield, Ohio, USA, Standex Electronics has eleven manufacturing facilities in seven countries, located in the United States, Germany, China, Mexico, the United Kingdom, Japan, and India.

That's **Standex** | Smart.

WHO WE ARE / WHERE WE PLAY

Powerfully transforming. "When failure is not an option, designers of critical electronic components rely on Standex and their decades of experience."



Standex Electronics is a worldwide market leader in the design, development and manufacture of reed switch and sensor solutions. Our sensor solutions include Meder, Standex and KOFU (formerly OKI) brand reed switches, as well as a complete portfolio of reed relays, and a comprehensive array of fluid level, proximity, motion, water flow, HVAC condensate, hydraulic pressure differential, capacitive, conductive and inductive sensors. Our work, growth, and dedication to providing reliable high-quality products through our engineering and manufacturing expertise go beyond products we ship. We offer engineered product solutions for a broad spectrum of product applications in all major markets, including but not limited to:

- Aerospace & Military
- Alternative Energy
- Automotive & Transportation
- Fluid Flow
- Food Service
- General Industrial
- Heavy Duty Truck
- Household & Appliances
- HVAC/R
- Hydraulics
- Industrial & Power
- Lighting
- Medical
- Metering
- Off Highway
- Pool & Spa
- Recreational
- Security & Safety
- Space
- Test & Measurement
- Utilities & Smart Grid

Our values and what we believe align to the partner, solve, and deliver® approach. We produce parts but we are more than that. Connecting with your team as a strategic partner, listening to your challenges, and arriving at ways to solve your complex problems through our solutions are why we exist. We have custom capabilities that address your needs. Our team leverages our dynamic and diverse engineering expertise and other resources such as our global facilities for logistics and production.

Standex Electronics has been innovating for over 50 years by developing new products, partnering with customers, and expanding our global capabilities. We have also grown our global reach and local touch through synergistic acquisitions.

1960

1960 National Transistor
1969 Paul Smith Company

1970

1971 Comtelco
1973 Underwood Electric
1974 Van Products

1990

1998 ATR Coil / Classic Coil Winding

2000

2001 ATC-Frost Magnetics
2002 Cin-Tran
2003 Magnetico / Trans America
2004 Lepco
2008 BG Laboratories

2010

2012 Meder Electronic
2014 Planar Quality Corp.
2015 Northlake Engineering, Inc.®
2017 OKI Sensor Device Corp.
2018 Agile Magnetics
2020 Renco Electronics, Inc.

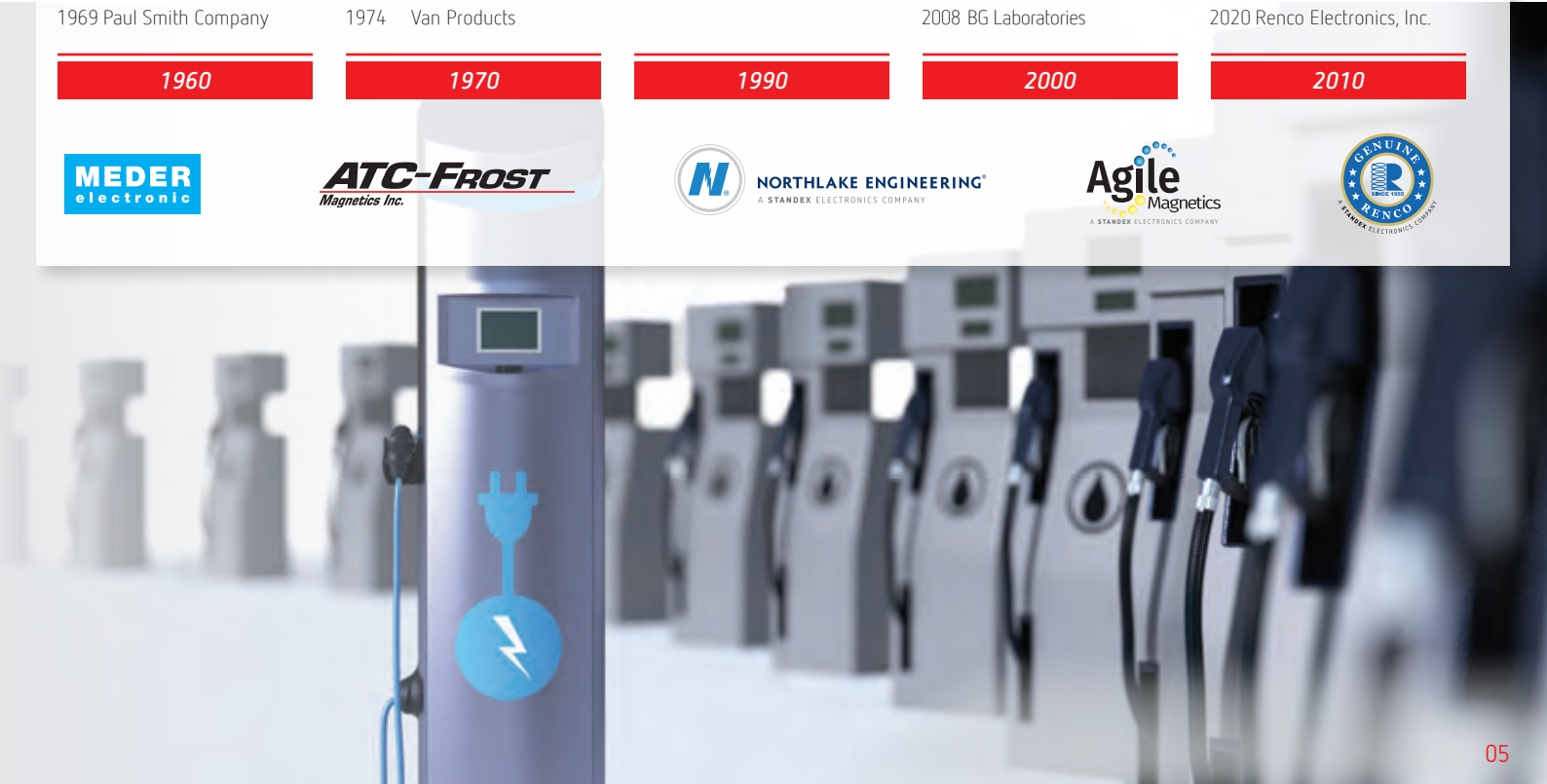
MEDER electronic

ATC-FROST Magnetics Inc.

NORTHLAKE ENGINEERING® A STANDEX ELECTRONICS COMPANY

Agile Magnetics A STANDEX ELECTRONICS COMPANY

GENUINE RENCO SINCE 1955 A STANDEX ELECTRONICS COMPANY



OUR CAPABILITIES

MANUFACTURING

Automated Optical Inspection (AOI)
Auto AT Switch Sorting
SMT Line with Pick & Place & Reflow
Reed Switch Manufacturing & Sensor Packaging
Wire Prep & Harness Assembly
Thermoplastic & Thermoset Overmolding
Wave & Selective Soldering
Low Pressure (Hot Melt) & Injection Molding
Potting - 2 Component
Reflow Oven – Multiple Zone Convection
Laser Welding
Plasma Surface Treatment
Stainless Steel, Metal & Plastic Fabrication
Lean Manufacturing Principles
Complete, In-House Machine Shop

ENGINEERING

3-D Magnetic Sensor Mapping
3-D CAD Modeling & 3-D Printing
Electronic sensor engineering
Circuit Design and PCB Layout
Mechanical Design & Packaging
Rapid Prototyping
Magnetic Simulation Software
Mechanical, Thermal & FEA Analysis
Plastic Mold Flow Simulation
APQP Project Management

QUALITY & COMPLIANCE

AS9100, ISO9001 & IATF16949 Certifications
ITAR Compliance
Automotive Core Tools
RoHS, REACH, UL, ATEX & IECEx, VDE, Vds

TESTING & LAB CAPABILITIES

High Voltage/Partial Discharge Testing
Specialized Lab Testing Equipment: Network Analyzers, Nanovoltmeters, Gauss /Teslameters, Fluxmeters, Picoammeters
Reed Switch Parametric Testing
Custom Sensor Test System Design & Build
Full Load & Temperature Rise Testing
2-D/3-D Microfocus X-ray Inspection
Digital Microscopic Inspection
Burn-In & Life Testing
Thermal Shock & Temperature Cycling
Humidity, Salt Fog, & Solderability
Moisture Resistance & Seal Testing

Complete, In-House Machine Shop

"Utilizing advanced techniques in milling, wire eroding, die sinking, and grinding since 1996"

- Laser welding
- PCB assembly and other
- Molding tool design and fabrication
- Machining processes including milling, wire eroding, die sinking, and grinding

TOOL SHOP - MACHINERY, TOOLS & ASSEMBLY

Tool Shop - Machinery & Equipment, Tools & Assembly Services

Standex Electronics' tool shop was established in 1996, as a result of the growing demand for high precision quality tooling for our Reed Products as well as a means of expanding our customer service offering. Our qualified tool shop is a reliable partner providing customer support in the areas of planning, designing and constructing molding tools, punching tools and smaller pressure die-casting tools. Whether single piece or mass production tooling, a team of highly motivated and qualified employees will work with you to design and construct the tooling that is according to your specifications as agreed upon in the form of a written quotation. The most advanced techniques will be utilized in milling, wire eroding, die sinking and grinding, as well as a select grade of steel in connection with the ideal coating will be used to guarantee that the best quality and durability is achieved for the longest life of the tool. In general, sampling, optimizing and in-house maintenance are provided for all tooling as well as first sample and failure analysis reporting.

Machinery & Equipment

- Sink EDM machine
  EXERON / INGERSOLL
  Machining stroke max. 620 x 420 x 400 mm
- Milling machine
  HERMLE / BRIDGEPORT
  Machining stroke max. 1000 x 500 x 500 mm
- Wire EDM machine
  SODICK / MITSUBISHI
  Machining stroke max. 530 x 370 x 265 mm
- Grinding machine
  ELB-SCHLIFF / ZIERSCH
  Machining stroke max. 800 x 400 x 475 mm
- Measuring machine
  ZEISS
  Machining stroke 450 x 450 x 400mm
- Several state-of-the-art lathe, milling and grinding machines

Machine & Assembly Services

Stainless steel tube machining
cutting, laser welding, marking

Fixture design and production

Development, design and construction

Manufacturing of electrodes
in copper or graphite

Tooling repair and maintenance

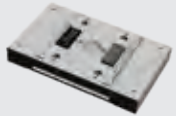
CNC design, simulation, verification and integration

Specific Tools

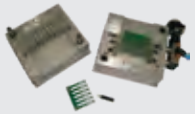
Die-cast zinc tools

Transfer molding tools

Various types for prototyping, molding and stamping



Low-pressure injection molding



Stamping Tools

Progressive stamping tools
for lead frames

Stamped parts for housing shields and contact pins

Injection Mold Tools

Design parts with high quality surfaces

Optical components

Technical molded parts
Gearwheels, spindles, frames and holders

Insert molded parts

Our Approach

PARTNER // TEAMWORK

Dig deep into the customer's project and develop relationship through our thought leadership, expertise, team, and global footprint.

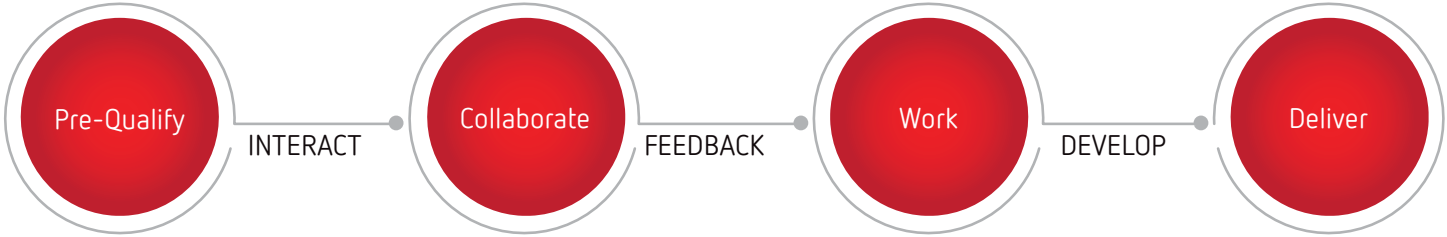
SOLVE // UNDERSTAND

Capabilities, lab, size, shape, power management, ranges, frequency, and more around how our capabilities can provide efficient, productive, designs & products.

DELIVER // QUALITY

Help customers win through our diverse products, dynamic capabilities, reliable high-quality magnetics solutions, and customer driven innovation and service.

Our Custom Solutions Process



- Understand Application
- Define Design Targets
- No. of Switches
- Form (A,B,C,E)
- Max Voltage, Power, & Current
- Hot or Cold Switching
- Life Expectancy Requirements
- Isolation Requirements
- Impedence Limitations
- Temperature Range

- Certifications & Standards
- Open Engineering Team Dialogue
- Footprint, Special Pin-Outs
- Optimize Efficiency
- Electrical Modeling
- Preliminary Design Approval
- Identify Custom Components
- Creepage & Clearance Distances
- Generate Print & Quotation

- Final Design Approval
- Generate BOM
- Order Material
- Queue Samples
- Sample Build
- Test & Report
- Application Testing
- Feedback
- Repeat As Needed

- Production Order
- APQP
- FAI
- DFMEA & PFMEA
- Line Audit
- PPAP
- Delivery
- Sustaining Engineering

Complex problems deserve custom solutions - As your "application engineer experts", we select the appropriate advanced sensing technology to meet the demands of our customers. Our versatile engineering expertise in magnetic sensing technologies and custom packaging allows us to be a one-stop-shop for your sensing requirements."

Standex Electronics

REED SWITCH TECHNOLOGY

Standex Electronics is the **world's largest manufacturer of reed switches (>700M/yr)** with >50% market share offering the most comprehensive listing of reed switches that cover the majority of low power switching requirements. Because reed switches are hermetically sealed (glass to metal seal) they are impervious to almost all environments. This opens up a vast number of applications where they are the only technology capable of meeting specific requirements where certain mechanical switches and semiconductor switches are environmentally limited.

Reed relays and reed sensors both use the reed switch as the heart of their switching mechanism. New applications continue to arise at a significant pace for both products because of the reed switch's unique switching capability. What is driving these new applications is the ever broadening of new reed relay, reed sensor and fluid level designs by Standex Electronics. Our solutions include **KOFU (formerly OKI Sensor Device Corp.), MEDER and KENT brand reed switches**...

KOFU
REED SWITCHES

MEDER
electronic
REED SWITCHES

KENT
REED SWITCHES

"Standex offers the most comprehensive listing of reed switches that cover the majority of low power switching requirements"

KOFU REED SWITCHES

- Largest global production volume >500M/yr
- Widest product range 7mm - 21mm
- Highest industry quality/long life
- Suitable for high-rel automotive & ATE
- Meet high voltage/breakdown requirements

MEDER REED SWITCHES

- Mechanized manufacturing in Germany
- World's smallest 3.95mm
- Unique flat blade ideal for surface mounting
- High voltage vaccuum version now available

KENT REED SWITCHES

- Manufactured in the UK
- Clear glass 12.7mm - 20mm glass
- Highly automated, lowest industry cost
- Industrial grade- security, appliance, consumer

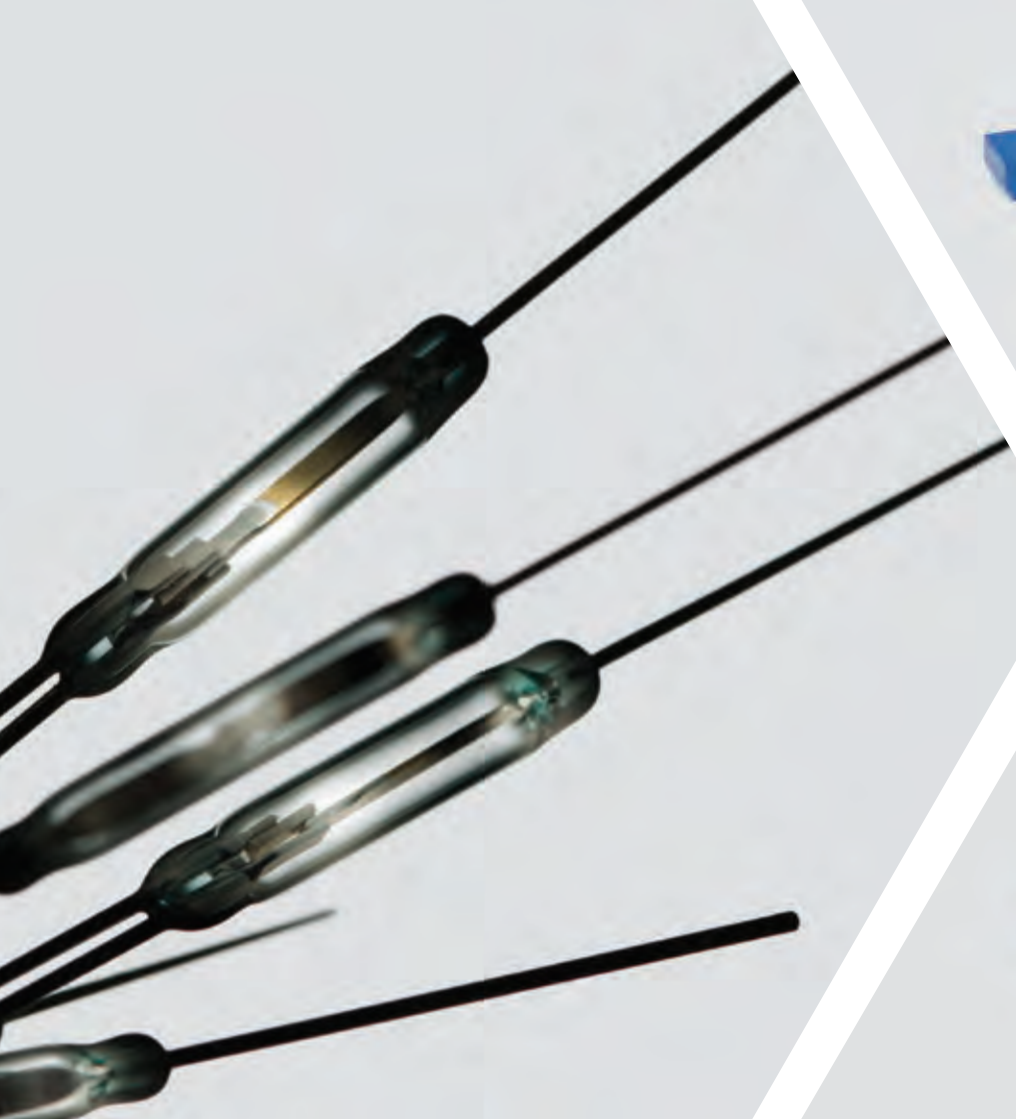
The Reed Switch was first invented by Bell Labs in the late 1930s. However, it was not until the 1940s when it began to find application widely as a sensor and a Reed Relay. Here it was used in an assortment of stepping/switching applications, early electronic equipment and test equipment. In the late 1940s Western Electric began using Reed Relays in their central office telephone switching stations, where they are still used in some areas today. The Reed Switch greatly contributed to the development of telecommunications technology.

Over the years several manufacturers have come and gone, some staying longer than they should have, tainting the marketplace with poor quality, and poor reliability. However, most of the manufacturers of Reed Switches today produce very high quality and very reliable switches. This has given rise to unprecedented growth.

Today Reed Switch technology is used in all market segments including: test and measurement equipment, medical electronics, telecom, automotive, security, appliances, general purpose, etc. Its growth rate is stronger than ever, where the world output cannot stay abreast with demand.

As a technology, the Reed Switch is unique. Being hermetically sealed, it can exist or be used in almost any environment. Very simple in its structure, it crosses many technologies in its manufacture. Critical to its quality and reliability is its glass to metal hermetic seal, where the glass and metal used must have exact linear thermal coefficients of expansion. Otherwise, cracking and poor seals will result. Whether sputtered or plated, the process of applying the contact material, usually Rhodium or Ruthenium, must be carried out precisely in ultra clean environments similar to semiconductor technology. Like semiconductors, any foreign particles present in the manufacture will give rise to losses, quality and reliability problems.

Over the years, the Reed Switch has shrunk in size from approximately 50 mm (2 inches) to 3.9 mm (0.153 inches) or less. These smaller sizes have opened up many more applications particularly in RF and fast time domain requirements.




MEDER F1/1
MEDER 8-C CN/1
MEDER 6-C CN/1
MEDER 4-B D5/1

ELECTRICAL & MECHANICAL BENEFITS

Ability to switch up to 10,000 Volts

Ability to switch currents up to 5 Amps

Ability to switch or carry as low as 10 nanoVolts without signal loss

Ability to switch or carry as low as 1 femtoAmp without signal loss

Ability to switch or carry up to 7 GigaHz with minimal signal loss

Isolation across the contacts up to 10^{15} Ohms

Contact resistance (on resistance) typical 50 milliOhms (mW)

In its off state it requires no power or circuitry

Ability to offer a latching feature

Operate time in the 100 ms to 300 ms range

Ability to operate at extreme temperature ranges from −55°C to 200°C

Ability to operate in all types of environments including air, water, vacuum, oil, fuels, and dust laden atmospheres

Ability to withstand shocks up to 200 G

Ability to withstand vibration environments of 50 Hz to 2000 Hz at up to 30 G

Long life with no wearing parts, load switching under 5 Volts at 10 mA, will operate well into the billions of operations

OUR PRODUCTS ARE RECOGNIZED*

Tested in accordance with AEC-Q200

In compliance with UL, CSA, EN60950, VDE, BABT 223ZV5, ATEX & IECEx, RoHS, REACH (*not applicable to all products)

REED SWITCH SELECTION GUIDE

"Standex has the expertise and specialized equipment to ensure the highest quality during the custom reed switch manufacturing process."

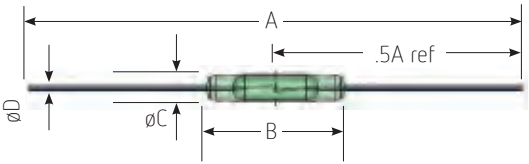
Standex Reed Switches can be customized for your design needs. Some customization includes sorting specific magnetic sensitivity pull-in ranges and cutting and/or bending the Reed contact leads for either horizontal or vertical surface mount applications or other special mounting requirements. All GR/GP, KSK and ORD Reed Switch series with normally open, normally closed or SPDT switching functions can be customized. Various different pad layouts, length of soldering pin and magnetic sensitivity class are standard options when it comes to customizing a reed switch.

In addition to these standard options, we can also customize any switch to your own design including many value add services such as PCB assembly, epoxy sealing, conformal coating, wire termination and much more. Custom switches can also be supplied in tape and reel or other desired packaging. Standex has the expertise and specialized equipment to ensure the highest quality during the custom reed switch manufacturing process.

KOFU
REED SWITCHES

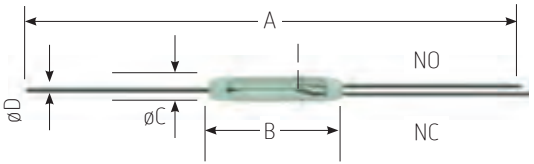
Form A

(Kofu ORD Series)
(Meder KSK-1A Series)



Form C

(Kofu ORT Series)
(Meder KSK-1C Series)

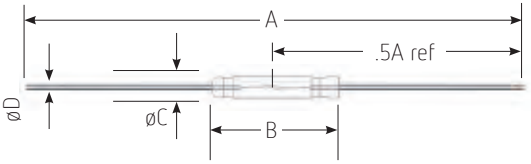


MEDER
electronic
REED SWITCHES

Form A

(Kent GR, NL, PR Series)

KENT
REED SWITCHES



Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments.

MEDER electronic REED SWITCHES | KENT REED SWITCHES

	Super Ultraminiature <8mm			Ultraminiature 9-14mm	
Reed Switch Series	**KSK-1A04***	**KSK-1A80***	**MK23-80 (SMD)**	**GP400***	**KSK-1A87**
Description	World's Smallest	Long Life / Close	Long Life / Close	Professional	Long Life
*** Most Used**	Flat Lead	Differential	Differential	Grade	
Dimensions in mm (inches)					
A - Overall Length	34.5 (1.358)	35.8 (1.410)	12.3 (0.484)-13.35 (0.525)	54 (2.125)	35.7 (1.405)
B - Glass Length Max.	3.95 (0.155)	7.0 (0.275)	7.0 (0.275)	10.0 (0.393)	10.0 (0.393)
C - Glass Dia. Max.	1.5 (0.059)	1.8 (0.070)	1.8 (0.070)	1.9 (0.075)	2.0 (0.078)
D - Lead Dia.	0.8 (0.031) x 0.15 (0.006) max	0.3 (0.011)	0.3 (0.011)	0.43 (0.017)	0.4 (0.015)
Specifications			**FORM A**		
Pull-In Range	5-30 AT	10-40 AT	10-40 AT	7-30 AT	10-40 AT
Rated Power Max.	3W	10W	10W	10W	10W
Switching Voltage	30VDC	170VDC	170VDC	180VDC	200VDC
Switching Current	0.3A DC	0.5A DC	0.5A DC	0.5A DC / AC	0.4A DC
Highlights	MEDER	MEDER	MEDER	KENT	MEDER
UL Certificate NRNT2 / 8.E156887	c UL us	c UL us	c UL us	c UL us	c UL us

MEDER electronic REED SWITCHES

	Ultraminiature 9-14mm				
Reed Switch Series	**MK23-87 (SMD)**	**KSK-1A35**	**MK23-35 (SMD)**	**KSK-1A35 / 1***	**KSK-1A31**
Description	Long Life	Flat Lead	Flat Lead	Mini / Flat Lead	Miniature
*** Most Used**				High Voltage	Mercury
Dimensions in mm (inches)					
A - Overall Length	14.9 (0.586)-16.6 (0.653)	34.5 (1.358)	15.75 (0.620)-19.9 (0.775)	34.5 (1.358)	41.0 (1.614)
B - Glass Length Max.	10.0 (0.393)	10.5 (0.413)	10.5 (0.413)	10.5 (0.413)	11.0 (0.433)
C - Glass Dia. Max.	2.0 (0.078)	2.1 (0.082)	2.1 (0.082)	2.1 (0.082)	2.5 (0.098)
D - Lead Dia.	0.4 (0.015)	1.2 (0.047) x 0.2 (0.008)	1.2 (0.047) x 0.2 (0.008)	1.2 (0.047) x 0.2 (0.008)	0.5 (0.019)
Specifications			**FORM A**		
Pull-In Range	10-40 AT	10-40 AT	10-30 AT	10-40 AT	10-40 AT
Rated Power Max.	10W	20W	20W	50W	50W
Switching Voltage	200VDC	200VDC	200VDC	500VDC	500VDC
Switching Current	0.4A DC	1A DC	1A DC	2.0A DC	2.0A DC
Highlights	MEDER	MEDER	MEDER	MEDER	MEDER
UL Certificate NRNT2 / 8.E156887	c UL us	c UL us	c UL us	c UL us	c UL us

Ultraminiature 9-14mm | Super Ultraminiature <8mm | c UL us UL Approval

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MEDER electronic REED SWITCHES | KENT REED SWITCHES

	Ultraminiature 9-14mm				
Reed Switch Series	**KSK-1A46**	**MK23-46 (SMD)**	**GP501***	**KSK-1A66***	**KSK-1E66**
Description	Close	Close	High	High Automotive Grade	Latching
*** Most Used**	Differential	Differential	Stability		High Automotive Grade
Dimensions in mm (inches)					
A - Overall Length	44.3 (1.744)	16.9 (0.665)-18.55 (0.730)	54 (2.125)	44.3 (1.744)	44.3 (1.744)
B - Glass Length Max.	12.0 (0.472)	12.0 (0.472)	12.7 (0.5)	14.0 (0.551)	14.0 (0.551)
C - Glass Dia. Max.	2.0 (0.078)	2.0 (0.078)	2.3 (0.090)	2.2 (0.086)	2.2 (0.086)
D - Lead Dia.	0.5 (0.019)	0.5 (0.019)	0.45 (0.017)	0.5 (0.019)	0.5 (0.019)
Specifications			**FORM A**		**FORM E**
Pull-In Range	10-40 AT	10-40 AT	10-35 AT	10-40 AT	30-40 AT
Rated Power Max.	10W	10W	10W	10W	10W
Switching Voltage	200VDC	200VDC	200VDC	180VDC	100VDC
Switching Current	0.5A DC	0.5A DC	0.5A DC/AC	0.5A DC	0.5A DC
Highlights					
UL Certificate NRNT2/8.E156887					

MEDER electronic REED SWITCHES

	Ultraminiature 9-14mm				
Reed Switch Series	**KSK-1A66/3***	**MK23-66 (SMD)**	**KSK-1B90U***	**KSK-1C90U***	**KSK-1C90F**
Description	High	High-Grade	Normally Closed	Changeover	Changeover
*** Most Used**	Performance	Automotive			NC Dog Leg Bend
Dimensions in mm (inches)					
A - Overall Length	44.3 (1.744)	18.8 (0.740)-20.55 (0.809)	55.1 (2.169)	55.1 (2.169)	54.5 (2.145)
B - Glass Length Max.	14.0 (0.551)	14.0 (0.551)	14.0 (0.551)	14.0 (0.551)	14.0 (0.551)
C - Glass Dia. Max.	2.2 (0.086)	2.2 (0.086)	2.54 (0.1)	2.54 (0.1)	2.54 (0.1)
D - Lead Dia.	0.5 (0.019)	0.5 (0.019)	0.5 (0.019)	0.5 (0.019)	0.5 (0.019)
Specifications	**FORM A**		**FORM B**		**FORM C**
Pull-In Range	10-40 AT	10-40 AT	15-45 AT	15-45 AT	15-45 AT
Rated Power Max.	10W	10W	10W	10W	10W
Switching Voltage	200VDC	180VDC	175VDC	175VDC	175VDC
Switching Current	0.5A DC	0.5A DC	0.5A DC	0.5A DC	0.5A DC
Highlights					
UL Certificate NRNT2/8.E156887					

Ultraminiature 9-14mm | UL Approval

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MEDER electronic REED SWITCHES | KENT REED SWITCHES

	Ultraminiature 9-14mm		
Reed Switch Series	**MK23-90 (SMD)**	**GP560***	**PR560**
Description	Changeover	High	AC Line
*** Most Used**	NC Dog Leg Bend	Stability	Voltage
Dimensions in mm (inches)			
A - Overall Length	24.9 (0.980)-25.9 (1.019)	54 (2.125)	54 (2.125)
B - Glass Length Max.	14.0 (0.551)	14.2 (0.559)	14.2 (0.559)
C - Glass Dia. Max.	2.54 (0.1)	2.3 (0.090)	2.3 (0.090)
D - Lead Dia.	0.5 (0.019)	0.6 (0.023)	0.6 (0.023)
Specifications	**FORM C**		**FORM A**
Pull-In Range	15-45 AT	10-50 AT	20-40 AT
Rated Power Max.	10W	10W	10W
Switching Voltage	175VDC	200VDC	100VDC/250VAC
Switching Current	0.5A DC	1.0A DC/AC	1.0A DC/AC
Highlights	MEDER	KENT	KENT
UL Certificate NRNT2/8.E156887	c UL us	c UL us	c UL us

MEDER electronic REED SWITCHES | KENT REED SWITCHES

	Miniature 16-21mm				
Reed Switch Series	**KSK-1A55**	**KSK-1A82**	**GR100**	**NL126**	**PR126**
Description	Lamp Load	High Current	Medium Power Professional Grade	Lamp Load	Line Voltage
*** Most Used**					
Dimensions in mm (inches)					
A - Overall Length	44.1 (1.736)	44.1 (1.736)	54 (2.125)	54 (2.125)	54 (2.125)
B - Glass Length Max.	16.5 (0.649)	16.5 (0.649)	20.3 (0.799)	20.3 (0.799)	20.3 (0.799)
C - Glass Dia. Max.	2.8 (0.110)	2.8 (0.110)	2.5 (0.098)	2.5 (0.098)	2.5 (0.098)
D - Lead Dia.	0.6 (0.023)	0.6 (0.023)	0.6 (0.023)	0.7 (0.027)	0.7 (0.027)
Specifications			**FORM A**		
Pull-In Range	15-60 AT	30-40 AT	10-40 AT	20-50 AT	20-50 AT
Rated Power Max.	50W	120W	10W	50W	70W
Switching Voltage	100VDC	150VDC	100VDC/150VAC	200VDC/150VAC	300VAC/200VDC
Switching Current	0.5A DC	2.0A DC	1.0A DC	1.5A DC/AC	1.5A DC/AC
Highlights	MEDER	MEDER	KENT	KENT	KENT
UL Certificate NRNT2/8.E156887	c UL us	c UL us	c UL us	c UL us	c UL us

High Power | SPDT Changeover | Ultraminiature 9-14mm | UL Approval

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments.

MEDER electronic REED SWITCHES

	Miniature 16-21mm				
Reed Switch Series	**KSK-1A53**	**KSK-1A52**	**MK23-52 (SMD)**	**MK23-85 (SMD)**	**KSK-1A85**
Description	High	High Breakdown	High Breakdown	Vacuum	Vacuum
* Most Used	Frequency	Voltage	Voltage	High Power	High Power
Dimensions in mm (inches)					
A - Overall Length	55 (2.165)	55.4 (2.181)	27.9 (1.098)-29.6 (1.165)	27.9 (1.098)-29.6 (1.165)	55.5 (2.185)
B - Glass Length Max.	20.5 (0.807)	21.0 (0.826)	21.0 (0.826)	21.0 (0.826)	21.0 (0.826)
C - Glass Dia. Max.	2.8 (0.110)	2.75 (0.108)	2.75 (0.108)	2.75 (0.108)	2.75 (0.108)
D - Lead Dia.	0.6 (0.023)	0.6 (0.023)	0.6 (0.023)	0.6 (0.023)	0.6 (0.023)
Specifications	FORM A				
Pull-In Range	-	15-70 AT	15-70 AT	15-55 AT	15-55 AT
Rated Power Max.	10W	50W	50W	100W	100W
Switching Voltage	200VDC	350VDC	350VDC	1,000VDC	1,000VDC
Switching Current	1.0A DC	0.5A DC	0.5A DC	1.0A DC	1.0A DC
Highlights					
UL Certificate NRNT2/8.E156887					

MEDER electronic REED SWITCHES

	Miniature 16-21mm				
Reed Switch Series	**KSK-1B85**	**KSK-1E85**	**KSK-1C10**	**KSK-1A33**	**KSK-1A83**
Description	Normally Closed	Latching	High Current	High Current	High Current
* Most Used	Latching		Changeover		Flat Lead
Dimensions in mm (inches)					
A - Overall Length	55.5 (2.185)	55.5 (2.185)	86.1 (3.390)	79.0 (3.110)	81.6 (3.212)
B - Glass Length Max.	21.0 (0.826)	21.0 (0.826)	34.3 (1.350)	52.0 (2.047)	53.4 (2.102)
C - Glass Dia. Max.	2.75 (0.108)	2.75 (0.108)	5.16 (0.203)	5.4 (0.212)	5.4 (0.212)
D - Lead Dia.	0.6 (0.023)	0.6 (0.023)	1.01 (0.040)	0.5 (0.019)	2.49 (0.098) x 0.54 (0.213)
Specifications	**FORM B**	**FORM E**	**FORM C**	**FORM A**	
Pull-In Range	15-55 AT	30-55 AT	60-80 AT	80-100 AT	100-150 AT
Rated Power Max.	100W	100W	100W	50W	50W
Switching Voltage	350VDC	350VDC	500VDC	10,000VDC	7,500VDC
Switching Current	1.0A DC	1.0A DC	3.0A DC	3.0A DC	3.0A DC
Highlights					
UL Certificate NRNT2/8.E156887					

High Power · High Voltage · High Frequency · Normally Closed · SPDT Changeover · UL Approval

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments.

Reed Switch Series	KSK-1A69	KSK-1A54
Description	High Current	High
*** Most Used**	Flat Lead	Frequency
Dimensions in mm (inches)		
A - Overall Length	81.6 (3.212)	81.6 (3.212)
B - Glass Length Max.	53.4 (2.102)	53.4 (2.102)
C - Glass Dia. Max.	5.4 (0.212)	5.4 (0.212)
D - Lead Dia.	2.49 (0.098) x 0.54 (0.213)	1.3 (0.051)
Specifications	FORM A	
Pull-In Range	95-170 AT	-
Rated Power Max.	50W	25W
Switching Voltage	10,000VDC	500VDC
Switching Current	3.0A DC	1.5A DC
Highlights		
UL Certificate NRNT2/8.E156887		

High Power · High Voltage · High Frequency · UL Approval

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments.

KOFU REED SWITCHES

	Super Ultraminiature <8mm		Ultraminiature 9-14mm		
Reed Switch Series	**ORD213***	**ORD311***	**ORD211***	**ORD219***	**ORD312***
Description					
* Most Used					
Dimensions in mm (inches)					
A - Overall Length	35.8 (1.409)	35.8 (1.409)	35.7 (1.405)	44.3 (1.744)	44.3 (1.744)
B - Glass Length Max.	7.0 (0.275)	7.0 (0.275)	10.0 (0.393)	12.0 (0.472)	12.0 (0.472)
C - Glass Dia. Max.	1.8 (0.070)	1.8 (0.070)	2.0 (0.078)	2.0 (0.078)	2.0 (0.078)
D - Lead Dia.	0.3 (0.011)	0.33 (0.013)	0.4 (0.015)	0.5 (0.019)	0.5 (0.019)
Specifications	FORM A				
Pull-In Range	10-40 AT	10-40 AT	10-40 AT	10-40 AT	10-40 AT
Rated Power Max.	1W	10W	1W	10W	30W
Switching Voltage	24VAC/DC	100VAC / DC	24VAC/DC	100VAC / DC	200VDC / 100VAC
Switching Current	0.1A DC	0.5A DC	0.1A DC	0.5A DC	0.5A DC
Highlights	KOFU	KOFU	KOFU	KOFU	KOFU
UL Certificate NRNT2.E70063					

KOFU REED SWITCHES

	Ultraminiature 9-14mm				
Reed Switch Series	**ORD221**	**ORD2221**	**ORD228VL***	**ORD324***	**ORD324H**
Description	Offset	Offset Long Lead	High Automotive Grade	High Performance	High Performance Long Lead
* Most Used					
Dimensions in mm (inches)					
A - Overall Length	44.2 (1.740)	56.7 (2.232)	44.3 (1.744)	44.3 (1.744)	56.7 (2.232)
B - Glass Length Max.	13.0 (0.512)	13.0 (0.512)	14.0 (0.551)	14.0 (0.551)	14.0 (0.551)
C - Glass Dia. Max.	2.3 (0.090)	2.3 (0.090)	2.2 (0.086)	2.2 (0.086)	2.2 (0.086)
D - Lead Dia.	0.35 (0.014) x 0.6 (0.024)	0.35 (0.014) x 0.6 (0.024)	0.5 (0.019)	0.5 (0.019)	0.5 (0.019)
Specifications	FORM A				
Pull-In Range	10-30 AT	10-30 AT	10-40 AT	10-40 AT	10-40 AT
Rated Power Max.	10W	10W	10W	10W	10W
Switching Voltage	100VAC / DC	100VAC / DC	100VAC / DC	200VDC / 150VAC	200VDC / 150VAC
Switching Current	0.3A DC	0.3A DC	0.5A DC	0.5A DC	0.5A DC
Highlights	KOFU	KOFU	KOFU	KOFU	KOFU
UL Certificate NRNT2.E70063					

Ultraminiature 9-14mm | Super Ultraminiature <8mm | UL Approval

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KOFU REED SWITCHES

	Ultraminiature 9-14mm		Miniature 16-21mm		
Reed Switch Series	**ORT551**	**ORT551-1**	**ORD2211**	**ORD2211H**	**ORD9215**
Description	Changeover	Changeover	Lamp Load	Lamp Load	General Purpose Miniature
*** Most Used**		NC Dog Leg Bend		Long Lead	
Dimensions in mm (inches)					
A - Overall Length	56.1 (2.208)	55.1 (2.169)	44.1 (1.736)	57.0 (2.244)	44.1 (1.736)
B - Glass Length Max.	14.0 (0.551)	14.0 (0.551)	16.5 (0.649)	16.5 (0.649)	17.0 (0.668)
C - Glass Dia. Max.	2.54 (0.1)	2.54 (0.1)	2.8 (0.110)	2.7 (0.106)	2.8 (0.110)
D - Lead Dia.	0.5 (0.019)	0.5 (0.019)	0.6 (0.023)	0.6 (0.023)	0.5 (0.019)
Specifications	FORM C		FORM A		
Pull-In Range	10-30 AT	10-30 AT	20-40 AT	20-40 AT	10-50 AT
Rated Power Max.	3W	3W	50W	50W	10W
Switching Voltage	30VAC / DC	30VDC	100VAC / DC	100VAC / DC	100VAC / DC
Switching Current	0.2A DC	0.2A DC	0.5A DC inrush 3A	0.5A DC inrush 3A	0.4A DC
Highlights	KOFU	KOFU	KOFU	KOFU	KOFU
UL Certificate NRNT2.E70063					

KOFU REED SWITCHES

	Miniature 16-21mm		
Reed Switch Series	**ORD229**	**ORD2210**	**ORD2210V**
Description	Pressurized		Vaccuum
*** Most Used**	High Breakdown Voltage		High Breakdown Voltage
Dimensions in mm (inches)			
A - Overall Length	55.4 (2.181)	55.4 (2.181)	55.4 (2.181)
B - Glass Length Max.	21.0 (0.826)	21.0 (0.826)	21.0 (0.826)
C - Glass Dia. Max.	2.75 (0.108)	2.75 (0.108)	2.75 (0.108)
D - Lead Dia.	0.6 (0.023)	0.6 (0.023)	0.6 (0.023)
Specifications	FORM A		
Pull-In Range	20-60 AT	15-60 AT	20-60 AT
Rated Power Max.	50W	50W	100W
Switching Voltage	350VDC / 300VAC	200VDC / 150VAC	350VDC / 300VAC
Switching Current	0.7A DC / 0.5A AC	1.0A DC / 0.7A AC	1.0A DC
Highlights	KOFU	KOFU	KOFU
UL Certificate NRNT2.E70063			

ORD / ORT switches are measured with Standex Electronics Japan (KOFU) standard coils. Pull-In value is measured with tolerances of +/-2AT

SPDT Changeover · Ultraminiature 9-14mm · High Voltage · High Power · UL Approval

CUSTOM SENSORS

"Complex problems deserve custom solutions"

Standex Electronics incorporates our magnetic reed switches into a wide variety of custom proximity sensors and switches. The reed sensors come in hundreds of different sizes and shapes to meet a multitude of different application requirements. Customers have the opportunity to work with our engineers to design or select the best packaging concept that will line up with their application.

Our unique and patented production process allows us to produce not only very small reed switches, but when we incorporate these into proximity sensors the result is a small sensor with big performance impact.

These ultra-miniature components allow big improvements in the performance of diverse products within medical devices, security systems, safes, and industrial control applications.

SENSING TECHNOLOGIES

Customer Focused Engineering Solutions

reed

- No power required
- Reliable 2-wire device
- High-end sensing applications
- World leader in reed technology/applications

TYPES OF SENSORS

- Proximity
- Push Button
- Fluid Flow
- Pressure Differential
- Metal Detection
- Fluid Level

combo

- Combine any of our sensing technologies and temperature together for multi-sensing/smart sensing

TYPES OF SENSORS

- Various technologies

capacitive

- Continuous analog output for fluid level sensing
- Solid state solution with no moving parts
- Capable of working over a wide temperature range

TYPES OF SENSORS

- Fluid Level

hall effect

- Advanced outputs over reed on/off
- Ideal for speed sensing
- Power consumption in low mA

TYPES OF SENSORS

- Proximity
- Angular
- Fluid Level
- Linear
- Speed
- Fluid Flow

magnetoresistive (AMR, GMR & TMR)

- Highest sensitivity
- Very low power consumption
- High accuracy over wide temperature range

TYPES OF SENSORS

- Proximity
- Angular
- Fluid Level
- Linear
- Speed
- Fluid Flow

inductive

- Non contact metal detection
- Ideal in applications with small changes in position
- Solid-state reliability

TYPES OF SENSORS

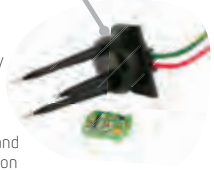
- Proximity
- Metal Detection

conductive

- Solid state reliability
- Measure fluid quality (WIF, Salinity, etc.)
- Patented false full and electrolysis protection

TYPES OF SENSORS

- Fluid Level
- Fluid Quality



That's **Standex** | Strong.

REED SENSORS

MK24 -B - 0 - OE

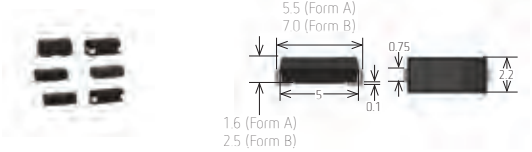
Surface Mount (SMD)

Rated Power Max. 3W/30VDC/0.3A | Operating Range 5-30 AT | Contact Form A, B

1	Sensitivity Range AT:	A=5-10, B=10-15, C=15-20, D=20-25, +5AT spans
2	Lead Design:	1 (Axial), 2 (Gull-Wing), 3 (J-Lead)
3	Option:	Contact Form B (Normally Closed)

Highlights

- On/Off control switch, position detection
- Portable medical device, white goods, telecomm, security
- Supplied in tape and reel according to IEC 286/part 3
- Worlds smallest SMD reed sensor



MK23 -000 - 0 - 0

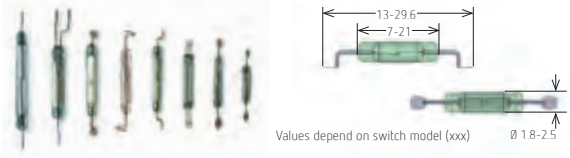
Surface Mount (SMD)

Rated Power Max. 100W/1000VDC/1A | Operating Range 10-60 AT | Contact Form A, C

1	Switch Model:	35, 46, 52, 66, 80, 85, 87, 90 (Form C), 501
2	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
3	Lead Design:	1 (Axial), 2 (Gull-Wing), 5 (Helix)

Highlights

- On/Off control switch, position detection
- Telecomm, white goods, industrial, security
- Supplied in tape and reel according to IEC 286/part 3
- Axial, Gull-Wing, inverse Gull-Wing, or helix lead, UL



MK31 -B - 3

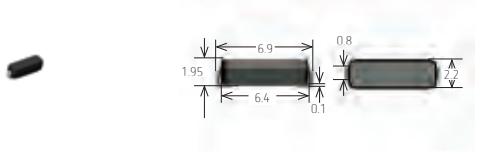
Surface Mount (SMD)

Rated Power Max. 3W/30VDC/0.3A | Operating Range 5-30 AT | Contact Form A

1	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
2	Lead Design:	3 (J-Lead)

Highlights

- On/Off control switch, position detection
- Portable medical device, white goods, telecomm, security
- Supplied in tape and reel according to IEC 286/part 3
- J-lead, UL



MK17 -B - 0

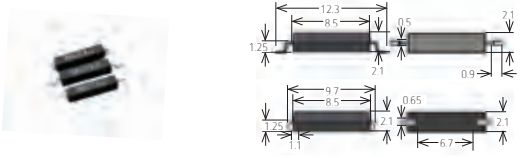
Surface Mount (SMD)

Rated Power Max. 10W/170VDC/0.25A | Operating Range 10-40 AT | Contact Form A

1	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
2	Lead Design:	1 (Axial), 2 (Gull-Wing), 3 (J-Lead)

Highlights

- On/Off control switch, position detection
- Portable medical device, white goods, telecomm, security
- Supplied in tape and reel according to IEC 286/part 3
- Axial, Gull-Wing or J-lead, UL



Best Value · High Voltage · Industrial · Security · Telecomm · White Goods · Medical · Normally Closed · Super Ultraminiature <8mm · UL Approval · Tape & Reel

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments. All product images are scaled 1:1 unless otherwise noted.

MK22 -B - 0
(1 - 2)

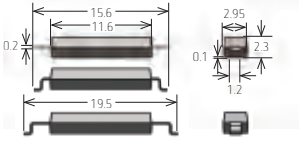
Surface Mount (SMD)

Rated Power Max. 20W/200VDC/1.0A | Operating Range 10-30 AT | Contact Form A

1 Sensitivity Range AT: B=10-15, C=15-20, D=20-25, ...+5AT increments
2 Lead Design: 1 (Axial), 2 (Short Gull-Wing), 4 (Long Gull-Wing)

Highlights

- On/Off control switch, position detection
- Portable medical device, white goods, telecomm, security
- Supplied in tape and reel according to IEC 286/part 3
- Axial or Gull-Wing lead, UL



MK23 -501-B - 0 "Helix"
(1 - 2)

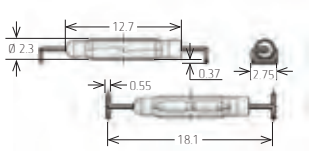
Surface Mount (SMD)

Rated Power Max. 10VA/200VDC/0.5A | Operating Range 7-30 AT | Contact Form A

1 Sensitivity Range AT: B=10-15, C=15-20, D=20-25, E=25-30
2 Lead Design: 5 (Helix)

Highlights

- On/Off control switch, position detection
- Telecomm, white goods, industrial, security
- Supplied in tape and reel according to IEC 286/part 3
- Axial or Helix lead, UL



MK16 -B - 0
(1 - 2)

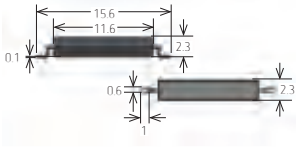
Surface Mount (SMD)

Rated Power Max. 10W/200VDC/0.5A | Operating Range 10-60 AT | Contact Form A

1 Sensitivity Range AT: B=10-15, C=15-20, D=20-25, ...+5AT increments
2 Lead Design: 1 (Axial), 2 (Gull-Wing)

Highlights

- On/Off control switch, position detection
- Portable medical device, white goods, telecomm, security
- Supplied in tape and reel according to IEC 286/part 3
- Axial or Gull-Wing lead, UL



MK15 -B - 0
(1 - 2)

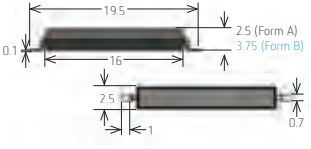
Surface Mount (SMD)

Rated Power Max. 10W/200VDC/0.5A | Operating Range 10-60 AT | Contact Form A, B

1 Sensitivity Range AT: B=10-15, C=15-20, D=20-25, ...+5AT increments
2 Lead Design: 1 (Axial), 2 (Gull-Wing)

Highlights

- On/Off control switch, position detection
- Telecomm, white goods, industrial, security
- Supplied in tape and reel according to IEC 286/part 3
- Axial or Gull-Wing lead, high power switch, UL



$ Best Value | Industrial | Security | Telecomm | White Goods | Medical | Normally Closed | Ultraminiature 9-14mm | UL Approval | Tape & Reel

MEDER electronic
REED SENSORS

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments. All product images are scaled 1:1 unless otherwise noted.

MK01 -X

1

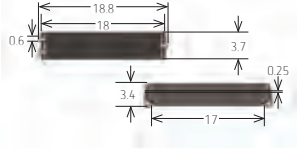
Surface Mount (SMD)

Rated Power Max. 10VA/200VDC/0.5A | Operating Range 10-60 AT | Contact Form A, B, C

1	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, E=25-30 (Form A,B) H=15-20, I=20-25, K=25-30 (Form C)

Highlights

- On/Off control switch, position detection
- Telecomm, white goods, industrial, security
- Supplied in tape and reel according to IEC 286/part 3
- J-Lead, high power switch, UL



MK02 /0 - 1 X 00 - 0000 X

1 2 3 4 5 Termination

Metal Detection

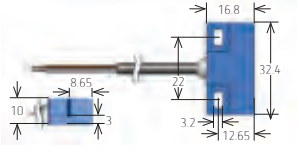
Rated Power Max. 10W/200VDC/0.5A | Operating Range 4.5-15 MM

1	Operation Series:	0, 1, 2, 3, 4
2	Contact Quantity:	1
3	Contact Form:	A, B, C
4	Switch Model:	66, 90
5	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

Highlights

- Integrated magnet (Only MK02/4 requires ext. magnet),
- Front or above operation

Scale 1:1.5



MK28 - 1 X - 000 X

1 2 3 Termination

Metal Detection

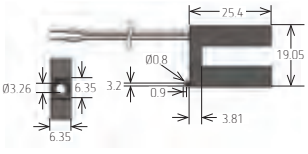
Rated Power Max. 10W/175VDC/0.5A | Operating Range Exact

1	Contact Quantity:	1
2	Contact Form:	A, B, C
	Switch Model:	90
3	Cable Length (mm):	500

Highlights

- Vane operated screw mount proximity/motion sensor (integrated magnet)
- Automotive, industrial automation equipment, robotics, harsh environments

Scale 1:1.5



MK04 - 1 X 00 0 - 0000 W

1 2 3 4 5 Termination

Screw Flange

Rated Power Max. 10W/400VDC/0.5A | Operating Range 10-60 AT

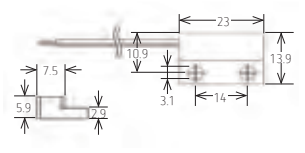
1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 90
4	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

*Magnet sold separate

Highlights

Position, level, and end limit sensing

Scale 1:1.5



Automotive · Hazardous Environments · IP67 Rated · Industrial · Security · Telecomm · White Goods · Medical · Normally Closed · SPDT Changeover · UL Approval · Tape & Reel

Note: All dimensions are in mm and tolerances according to ISO 2768-m. Please refer to the product datasheets on our website for full dimensions, specifications, tolerances, etc. Not all part number combinations are possible, consult the factory for more info. We reserve the right to make any changes according to technological progress or further developments. All product images are scaled 1:1 unless otherwise noted.

MK05 - 1 X 00 0 - 0000 W

1 2 3 4 5 Termination

Screw Flange

Rated Power Max. 10W/400VDC/0.5A | Operating Range 10-60 AT

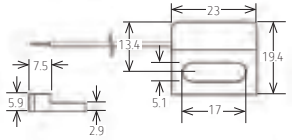
1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 90
4	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

*Magnet sold separate

Highlights

Position, level, and end limit sensing

Scale 1:1.5



MK13 - 1 X 00 0 - 0000 W

1 2 3 4 5 Termination

Screw Flange

Rated Power Max. 10W/400VDC/0.5A | Operating Range 10-60 AT

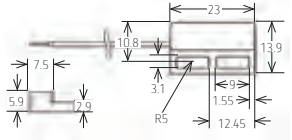
1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 90
4	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

*Magnet sold separate

Highlights

Position, level, and end limit sensing

Scale 1:1.5



MK12 - 1 X 00 0 - 0000 W

1 2 3 4 5 Termination

Screw Flange

Rated Power Max. 10W/400VDC/0.5A | Operating Range 10-60 AT

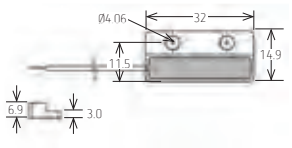
1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 90
4	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

*Magnet sold separate

Highlights

Position, level, and end limit sensing

Scale 1:1.5



MK26 - 1 X 00 0 - 0000 W

1 2 3 4 5 Termination

Screw Flange

Rated Power Max. 100W/1000VDC/1.0A | Operating Range 10-60 AT

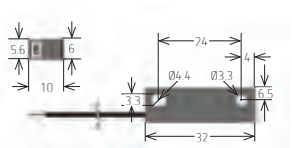
1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 90
4	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000
6	Termination:	W

*Magnet sold separate

Highlights

Position, level, and end limit sensing

Scale 1:1.5



$ Best Value | Industrial | Security | White Goods | Normally Closed | SPDT Changeover | UL Approval

MEDER electronic
REED SENSORS

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MK27 - 1 A 00 0 - 000 W

1 2 3 4 5 Termination

Screw Flange

Rated Power Max. 100W/1000VDC/1.0A | Operating Range 10-60 AT

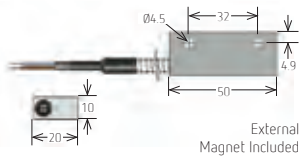
1	Contact Quantity:	1
2	Contact Form:	A
3	Switch Model:	66, 85
4	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
5	Cable Length (mm):	500

*Magnet included

Highlights

Position, level, and end limit sensing up to 40mm


Scale 1:2



External Magnet Included

MK20 /2- X - 000 W

1 2 Termination

Cylindrical

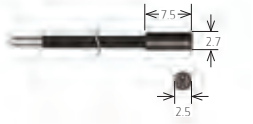
Rated Power Max. 3W/30VDC/0.25A | Operating Range 10-30 AT

	Contact Quantity:	1
	Contact Form:	A
	Switch Model:	04
1	Sensitivity Range AT:	B=10-15, D=20-25
2	Cable Length (mm):	100, 200, 300, 500

*Magnet sold separate

Highlights

2.7mm Position, level, and end limit sensing



MK21 /X- 1 X 00 0 - 0000 W

1 2 3 4 5 6 Termination

Screw Flange

Rated Power Max. 100W/1000VDC/1.0A | Operating Range 10-60 AT

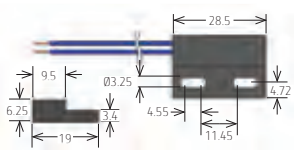
1	Case Version:	P=Potted, M=Molded (M = High Temp +150°C)
2	Contact Quantity:	1
3	Contact Form:	A, B, C
4	Switch Model:	66, 90
5	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
6	Cable Length (mm):	500, 1000, 1500, 2000, 3000, 5000

*Magnet sold separate

Highlights

Position, level, and end limit sensing


Scale 1:1.5



MK20 /1- X - 000 W

1 2 Termination

Cylindrical

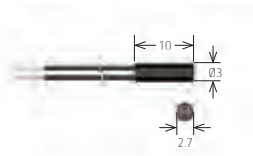
Rated Power Max. 10W/30VDC/0.25A | Operating Range 10-60 AT

	Contact Quantity:	1
	Contact Form:	A
	Switch Model:	80
1	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, E=25-30
2	Cable Length (mm):	100, 200, 300, 500

*Magnet sold separate

Highlights

3.0mm Position, level, and end limit sensing



Automotive · HVAC/R · Industrial · Hazardous Environments · Security · White Goods · High Voltage · High Temp Resistant · IP67 Rated · Normally Closed · SPDT Changeover · Super Ultraminiature < 8mm · UL Approval

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MK18 - X - 0000 W

1 2 Termination

Cylindrical

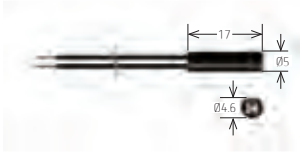
Rated Power Max. 10W/200VDC/0.5A | Operating Range 10-60 AT

	Contact Quantity:	1
	Contact Form:	A
	Switch Model:	87
1	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, E=25-30
2	Cable Length (mm):	100, 200, 300, 500, 1000, 1500

*Magnet sold separate

Highlights

5.0mm Position, level, and end limit sensing



MK03 - 1 X 00 0 - 0000 W

1 2 3 4 5 Termination

Cylindrical

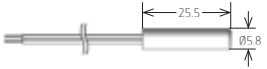
Rated Power Max. 10W/400VDC/0.5A | Operating Range 10-60 AT

1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 90
4	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

*Magnet sold separate

Highlights

5.75mm Position, level, and end limit sensing



MK14 - 1 X 00 0 - 0000 W

1 2 3 4 5 Termination

Cylindrical

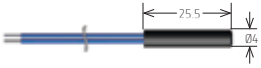
Rated Power Max. 10W/400VDC/0.5A | Operating Range 10-60 AT

1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 90
4	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500

*Magnet sold separate

Highlights

4.0mm Position, level, and end limit sensing



MK08 - 1 X 00 - 0000 W

1 2 3 Termination

Cylindrical

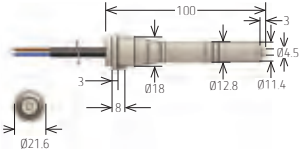
Rated Power Max. 60W/400VDC/1.0A | Operating Range 10-60 AT

1	Contact Quantity:	1
2	Contact Form:	A, B
3	Switch Model:	66, 85
4	Cable Length (mm):	200, 300, 500, 1000, 1500

(KEMA 00ATEX1112 X, IECEx KEM09.0006 X according to DIN EN 60062)

Highlights

Oil resistant wire
Operate
-40°C to +130°C



Scale 1:3

Industrial | Security | White Goods | Normally Closed | SPDT Changeover | Ultraminiature 9-14mm | UL Approval

MEDER electronic
REED SENSORS

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MK11 - 1 X 00 0 - 0000 W

1 2 3 4 5 6 Termination

Threaded Barrel

Rated Power Max. 10W/200VDC/0.5A | Operating Range 10-60 AT

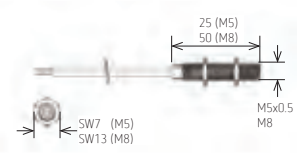
	Case, Thread Size:	Stainless Steel M5 or M8
1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 85, 90
4	Sensitivity Range AT:	C=15-20, D=20-25, E=25-30, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

*Magnet sold separate

Highlights

Position, level, and end limit detection and sensing adjustment

Scale 1:1.5



MK11 /B00- 1 X 00 0 - 0000 W

1 2 3 4 5 6 Termination

Threaded Barrel

Rated Power Max. 100W/1000VDC/1.0A | Operating Range 10-60 AT

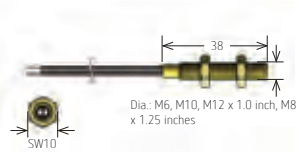
1	Case, Thread Size:	B=Brass, 6=M6, 8=M8, 10=M10, 12=M12
2	Contact Quantity:	1
3	Contact Form:	A, B, C
4	Switch Model:	66, 85, 90
5	Sensitivity Range AT:	C=15-20, D=20-25, E=25-30, ...+5AT increments
6	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

*Magnet sold separate

Highlights

Position, level, and end limit detection and sensing adjustment

Scale 1:3



MK11 /M8- 1 X 00 0 - 0000 W

1 2 3 4 5 Termination

Threaded Barrel

Rated Power Max. 100W/1000VDC/1.0A | Operating Range 10-60 AT

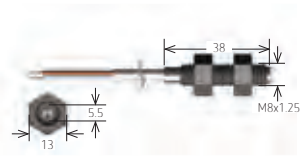
	Case, Thread Size:	Plastic M8
1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 85, 90
4	Sensitivity Range AT:	C=15-20, D=20-25, E=25-30, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

*Magnet sold separate

Highlights

Position, level, and end limit detection and sensing adjustment

Scale 1:1.5



MK07 - 1 X 00 0 - 0000 W

1 2 3 4 5 6 Termination

Threaded Barrel

Rated Power Max. 10W/200VDC/0.5A | Operating Range 10-60 AT

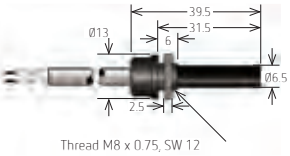
	Case, Thread Size:	Plastic M8
1	Contact Quantity:	1
2	Contact Form:	A, B
3	Switch Model:	66, 85, 90
4	Sensitivity Range AT:	C=15-20, D=20-25, E=25-30, ...+5AT increments
5	Cable Length (mm):	200, 300, 500, 1000, 1500

*Magnet sold separate

Highlights

Position, level, and end limit sensing

Scale 1:1.5



High Voltage | Hazardous Environments | Industrial | Security | Telecomm | White Goods | Normally Closed | SPDT Changeover | UL Approval | IP67 Rated | ATEX Certified | IECEx Certified

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MK10 -C - 270

(1 = C, 2 = 270)

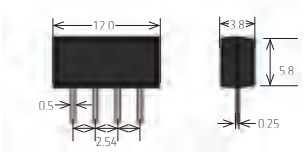
Other Packaging

Rated Power Max. 10W/170VDC/0.25A | Operating Range 10-40 AT | Contact Form A

1	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, E=25-30
2	Resistance Ω:	270 (others available)

Highlights

- On/Off control switch, position detection
- Level sensing applications
- Excellent for low power operation



MK09 - 1 A 00 - 0

(1 = 1, 2 = A, 3 = 00, 4 = 0)

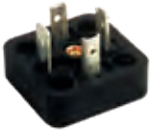
Other Packaging

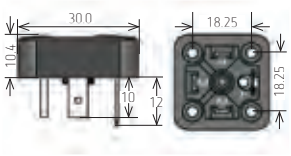
Rated Power Max. 10W/180VDC/1.25A | Operating Range 10-30 AT

1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	66, 84, 90
4	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, E=25-30

*Reed sensor integrated into a standard Hirschmann connector

Highlights





MK06 -00-X

(1 = 00, 2 = X)

Other Packaging

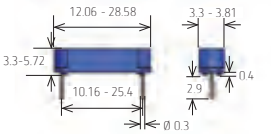
Rated Power Max. 10W/170-200VDC/0.25-0.5A | Operating Range 10-60 AT

1	Package Length (mm):	4=12.06, 5=14.30, 6=17.24, 7=19.78, 8=22.32, 10=28.50
2	Sensitivity Range AT:	B=10-15, C=15-20, D=20-25, E=25-30 (Form A,B) H=15-20, I=20-25, K=25-30 (Form C)
	Switch Model:	66, 87, 90 (Form E Latching option)

Highlights

On/Off control switch, position detection 1inch (2.54mm) pin spacing

Scale 1:1.5



MK25 - 1 X 00 - 0000 W

(1 = 1, 2 = X, 3 = 00, 4 = 0000, Termination = W)

Other Packaging

Rated Power Max. 10W/400VDC/0.5A | Push Button Reed Sensor/Contactless Switching

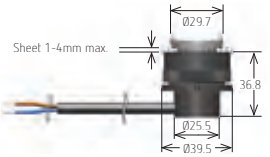
1	Contact Quantity:	1
2	Contact Form:	A, B, C
3	Switch Model:	46, 90
4	Cable Length (mm):	200, 300, 500, 1000, 1500, 2000, 3000, 5000

Operate -40°C to +60°C (KEMA 05ATEX1206 X according to EN 60062)

*Button Accessories Sold Separate

Highlights

Scale 1:1.5



Button plates, emergency stop buttons, etc. can be provided with laser inscriptions as required. The information is burnt into the surface and thus, unlike with print-inscribed elements, is very durable.

HVAC/R | Hazardous Environments | Industrial | Security | Telecomm | White Goods | Normally Closed | SPDT Changeover | ATEX Certified | UL Approval

MAGNETS

	LOW			HIGH
costs	Ferrite	AlNiCo	NdFeB	SmCo
energy (WxH max.)	Ferrite	AlNiCo	SmCo	NdFeB
working temperature	NdFeB	Ferrite	SmCo	AlNiCo
corrosion - resistant	NdFeB	SmCo	AlNiCo	Ferrite
opposing field - resistant	AlNiCo	Ferrite	NdFeB	SmCo
mechanical strength	Ferrite	SmCo	NdFeB	AlNiCo
temperature coefficient	AlNiCo	SmCo	NdFeB	Ferrite

A Reed Switch requires either a permanent magnet or magnetic field in order to activate the switch, thus it is commonly called a magnetic reed switch. Magnets have reversible and irreversible demagnetization specifications. Engineers should consider shock, vibration, strong external magnetic fields as well as high temperatures in their designs. All these factors influence the magnetic force and the long term stability in different ways.

Preferably the magnet is mounted on the moving part of the application. Professional tuning of the magnet and reed switch pairing can improve the functionality of the whole sensor-magnet system. We offer permanent magnets in various standard housings for quick mounting or as is.

We offer the following types of permanent magnets:

- AlNiCo (Aluminum Nickel, Cobalt, Iron and Titanium)
- SmCo (Samarium–Cobalt) & NdFeB (Neodymium) - rare earth
- Hf - hard ferrite

These are some of our most widely used models, others available as required.

Dimensions in mm

AlNiCo

AlNiCo Ø2.5 x 12.7
AlNiCo Ø3.0 x 12.0
AlNiCo Ø4.0 x 19.0
AlNiCo Ø5.0 x 4.0
AlNiCo Ø5.0 x 20.0
AlNiCo Ø5.5 x 22.0
AlNiCo Ø7.5 x 27.0
AlNiCo 3.2 x 3.2 x 19.0

Rare Earth

SmCo5 Ø1.9 x 3
SmCo5 Ø3 x 4
NdFeB N35 Ø4 x 19
NdFeB N35H Ø4 x 19
NdFeB N45 Ø4 x 19
NdFeB 250/175H Ø6 x 10
NdFeB 250/175H 10 x 5 x 1.9

Hard Ferrite

Hf 28/26 2.6 x 2.6 x 4.0
Hf 28/26 3.5 x 1.8 x 1.8
Hf 28/26 6.7 x 6.7 x 2.7

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Magnets in Housings

M02	M04	M13	M05	M21/P(1,2)
Dimensions in mm (inches)				
L - 32.4 (1.275)	L - 23 (0.905)	L - 23 (0.905)	L - 23.2 (0.913)	L - 28.6 (1.125)
W - 16.7 (0.657)	W - 13.9 (0.547)	W - 13.9 (0.547)	W - 19.6 (0.771)	W - 19 (0.748)
H - 10 (0.393)	H - 5.9 (0.232)	H - 5.9 (0.232)	H - 5.9 (0.232)	H - 6.35 (0.25)
				

Magnets in Housings

M27	M11(B)	M11(S)	M11(P)	M03
Dimensions in mm (inches)				
L - 50.0 (1.969)	L - 38 (1.496)	L - 25 (0.984)	L - 38 (1.496)	L - 25 (0.984)
W - 20.0 (0.787)	Ø - M6-M12	Ø - M5 x 0.5 / M8 x 0.5	Ø - M8 x 1.25	Ø - M5 x 0.5
H - 10.0 (0.394)	–	–		
Scale 1:1.5	Scale 1:2.25			
				

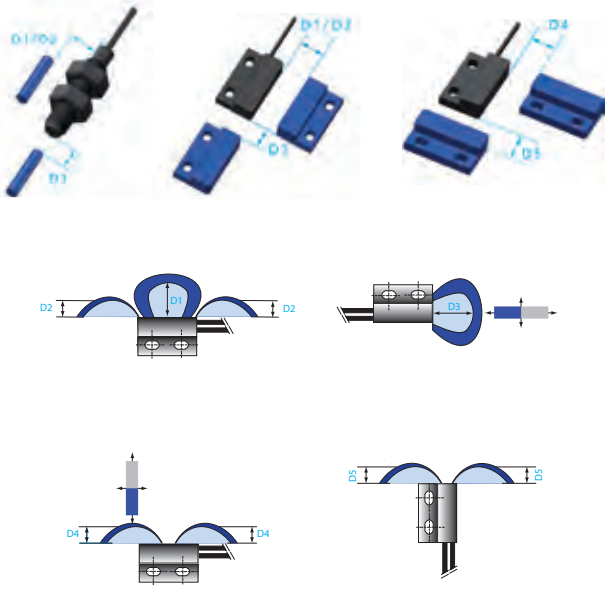
SENSOR ACTIVATION DISTANCES

Reed Sensor	Magnetic Sensitivity	Position and Movement Max. Pull-in Distance in mm					Position and Movement Min. Drop-out Distance in mm				
	mT	D1	D2	D3	D4	D5	D1	D2	D3	D4	D5
MK03-1A66**B**-500W	> 1.70	15.0	6.5	9.3	8.5	8.5	17.5	8.0	11.4	10.1	10.1
MK03-1A66**C**-500W	> 2.30	13.0	4.4	7.4	7.2	7.2	16.5	6.5	9.9	9.5	9.5
MK03-1A66**D**-500W	> 2.70	11.0	4.0	5.7	6.5	6.5	14.5	5.5	8.5	9.0	9.0
MK03-1A66**E**-500W	> 3.10	10.0	3.5	4.5	5.7	5.7	13.5	5.0	8.0	8.5	8.5
MK04-1A66**B**-500W	> 1.70	15.0	6.5	9.3	8.5	8.5	17.5	8.0	11.4	10.1	10.1
MK04-1A66**C**-500W	> 2.30	13.0	4.4	7.4	7.2	7.2	16.5	6.5	9.9	9.5	9.5
MK04-1A66**D**-500W	> 2.70	11.0	4.0	5.7	6.5	6.5	14.5	5.5	8.5	9.0	9.0
MK04-1A66**E**-500W	> 3.10	10.0	3.5	4.5	5.7	5.7	13.5	5.0	8.0	8.5	8.5
MK05-1A66**B**-500W	> 1.70	15.0	6.5	9.3	8.5	8.5	17.5	8.0	11.4	10.1	10.1
MK05-1A66**C**-500W	> 2.30	13.0	4.4	7.4	7.2	7.2	16.5	6.5	9.9	9.5	9.5
MK05-1A66**D**-500W	> 2.70	11.0	4.0	5.7	6.5	6.5	14.5	5.5	8.5	9.0	9.0
MK05-1A66**E**-500W	> 3.10	10.0	3.5	4.5	5.7	5.7	13.5	5.0	8.0	8.5	8.5
MK11/M8-1A66**B**-500W	> 1.70	15.0	6.5	9.3	8.5	8.5	17.5	8.0	11.4	10.1	10.1
MK11/M8-1A66**C**-500W	> 2.30	13.0	4.4	7.4	7.2	7.2	16.5	6.5	9.9	9.5	9.5
MK11/M8-1A66**D**-500W	> 2.70	11.0	4.0	5.7	6.5	6.5	14.5	5.5	8.5	9.0	9.0
MK11/M8-1A66**E**-500W	> 3.10	10.0	3.5	4.5	5.7	5.7	13.5	5.0	8.0	8.5	8.5
MK13-1A66**B**-500W	> 1.70	15.0	6.5	9.3	8.5	8.5	17.5	8.0	11.4	10.1	10.1
MK13-1A66**C**-500W	> 2.30	13.0	4.4	7.4	7.2	7.2	16.5	6.5	9.9	9.5	9.5
MK13-1A66**D**-500W	> 2.70	11.0	4.0	5.7	6.5	6.5	14.5	5.5	8.5	9.0	9.0
MK13-1A66**E**-500W	> 3.10	10.0	3.5	4.5	5.7	5.7	13.5	5.0	8.0	8.5	8.5

All distance data above are valid for the magnets below:

4003004003 / Perm. magnet Ø4 x 19mm
2500000002 / M02
2500000004 / M04
2500000005 / M05
2500000013 / M13
2500000021 / M21

Resulting from position and movement of the actuator magnet.



HALL EFFECT SENSORS

Standex Electronics' Hall Effect Sensor series offer **solid state reliability, low power consumption**, and consistent activation points over a wide temperature range in a rugged and environmentally isolated package. Micro-Power versions operate on 2.5-3.5V battery voltage with only 5µA average supply current vs. the industry average of 5mA.

Custom options include: output- switch, latch, etc., high temperature resistance, package design and much more.

MH21 - 00 X - 000 W

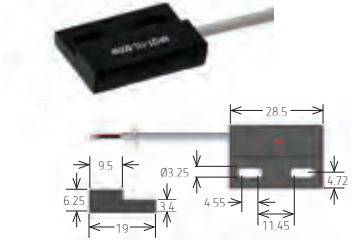
1 2 3 Termination

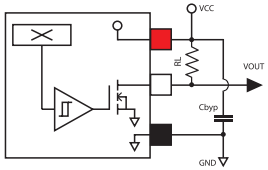
Screw Flange

Standard Power 3-24VDC/4mA (V_{cc}=12V) | Micro Power 2.5-3.5V/10µA (V_{cc}=3.5V)

1	Power Version:	11 = Standard Power, 10 = Micro Power
2	Function:	Switch, *Latch (*Standard Power only)
3	Cable Length (mm):	300, 500, other lengths as needed

Highlights





MH04 - 00 X - 000 W

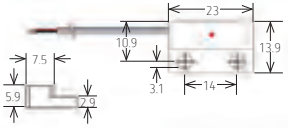
1 2 3 Termination

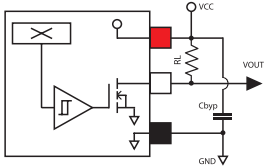
Screw Flange

Standard Power 3-24VDC/4mA (V_{cc}=12V) | Micro Power 2.5-3.5V/10µA (V_{cc}=3.5V)

1	Power Version:	11 = Standard Power, 10 = Micro Power
2	Function:	Switch, *Latch (*Standard Power only)
3	Cable Length (mm):	300, 500, other lengths as needed

Highlights





MH32 - 00 X - 000 W

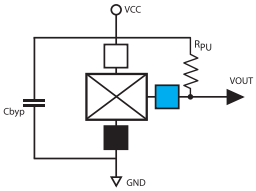
1 2 3 Termination

Screw Flange

Standard Power 2.7-24VDC/25mA (V_{cc}=12V) | Micro Power 2.5-3.5V/10µA (V_{cc}=3.5V)

1	Power Version:	11 = Standard Power, 10 = Micro Power
2	Function:	Bipolar Switch, *Bipolar Latch (*Standard Power only)
3	Cable Length (mm):	300, 500, other lengths as needed

Highlights



Automotive | Food & Beverage | HVAC/R | Industrial | Marine | Security | Telecomm | White Goods | High Temp Resistant

Standex Electronics

Standex Electronics
+1.866.STANDEX (+1.866.782.6339)
info@standexelectronics.com

StandexMeder Europe (Germany)
+49.7733.9253.200
salesemea@standexelectronics.com

StandexMeder Asia (Shanghai)
+86.21.37606000
salesasia@standexelectronics.com

Standex Electronics India (Chennai)
+91.98867.57533
salesindia@standexelectronics.com

Standex Electronics Japan (Kofu)
+81.42.698.0026
sej-sales@standex.co.jp

Worldwide Headquarters
450 Thunderbird Lane
Fairfield, OH 45014 USA