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 Cincinnati, Ohio, USA, Standex Electronics has nine manufacturing facilities in six countries, located in the United States, Germany, China, Mexico, the United Kingdom, and Japan.
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. 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.
Complete, In-House Machine Shop
“Utilizing advanced techniques in milling, wire eroding, die sinking, and grinding since 1996”

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
Wax & 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
Regulatory Agency Approvals
PRAP & First Article Inspection

SPC Data Collection
RoHS, REACH, UL, ATEX & IECEx

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”
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"**
  - Machining stroke max. 620x420x400mm
- **Sink EDM Machine "Ingersoll"**
  - Machining stroke max. 400x400x350mm
- **CNC Highspeed Milling Machine "Hermle C 30 V"**
  - Machining stroke max. 500x450x400mm
- **CNC Milling Machine "Bridgeport XRT 1000"**
  - Machining stroke max. 1000x500x500mm
- **Wire EDM Machine "Mitsubishi FX 10A"**
  - Machining stroke max. 400x400x175mm
- **Wire EDM Machine "Sadick ALC 4000"**
  - Machining stroke max. 400x300x250mm
- **Wire EDM Machine "Sadick AJ 5371"**
  - Machining stroke max. 530x370x265mm
- **Grinding Machine "Eib-Schiff"**
  - Machining stroke max. 800x400x175mm
- **Grinding Machine "Ziersch ZT 24"**
  - Machining stroke max. 400x250x350mm
- Several different conventional lathe, milling and grinding machines
- **Measuring machine "Zenos Scan Max"**
  - Machining stroke 450x350x300mm
- **Optical measuring machine "Zeiss"**
- **Hardness measurement machinery**

### Machine & Assembly Services
- Stainless steel tube machining cutting, laser welding, marking
- Fixture design and production
- Development, design and construction
- CNC design, simulation, verification and integration
- Tooling repair and maintenance

### Injection Mold Tools
- Design parts with high quality surfaces
- Technical molded parts

### Optical Components
- Gearwheels, spindles, frames and housings

### Specific Tools
- Die-cast zinc tools
- Various types for prototyping, molding and stamping
- Transfer molding tools
- Low-pressure injection molding
- Stamped parts for housing shields and contact pins
- Technical molded parts

### Tool Shop - Machinery, Tools & Assembly Services
- Measuring machine "Zeiss Scan Max" - Machining stroke 450x350x300mm
- Optical measuring machine "Zeiss" - Hardness measurement machinery
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

Pre-Qualify

- 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
- Impedance Limitations
- Temperature Range

INTERACT
- 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

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

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

DEVELOP

Deliver

- 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 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 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
- 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 vacuum 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

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

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 W
- 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)
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 (OR) 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 and specialized equipment to ensure the highest quality during the custom reed switch manufacturing process. In addition, we can provide sorting and specialized equipment to ensure the highest quality during the custom reed switch manufacturing process.
**Miniature 16-21mm**

<table>
<thead>
<tr>
<th>Description</th>
<th>Voltage</th>
<th>Power</th>
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<td><strong>FORM A</strong></td>
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**Specifications**

- **Rated Power Max.**
- **Switching Voltage**
- **Dimensions in mm (inches)**
  - A - Overall Length
  - B - Glass Length Max.
  - C - Glass Dia. Max.
  - D - Lead Dia.

**Highlights**

- UL Certificate MN172151687

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**Miniature 16-21mm**

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**Specifications**

- **Rated Power Max.**
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  - D - Lead Dia.

**Highlights**

- UL Certificate MN172151687
S tandex 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.

**CUSTOM SENSORS**

“Complex problems deserve custom solutions”

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.

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**Sensing Technologies**

**Customer Focused Engineering Solutions**
### REED SENSORS

#### MK24 - B - 0 - 0E

**Rated Power Max:** 3W/30VDC/10VA | **Operating Range:** 5 - 30 AT | **Contact Form:** A, B

- Sensitivity Range A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Sensitivity Range B: B = 10 - 15, C = 15 - 20, D = 20 - 25
- Sensitivity Range C: B = 15 - 20, C = 20 - 25
- Sensitivity Range D: B = 20 - 25
- LED Design: 1 (Axial), 2 (Gull-Wing), 3 (J-Lead)
- Lead Design: 1 (Axial), 2 (Gull-Wing), 4 (Long Gull-Wing)
- Contact Form A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Contact Form B: B = 10 - 15, C = 15 - 20

#### MK23 - 000 - B - 0

**Rated Power Max:** 10W/100VDC/50VA | **Operating Range:** 10 - 60 AT | **Contact Form:** A, C

- Sensitivity Range A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Sensitivity Range B: B = 10 - 15, C = 15 - 20, D = 20 - 25
- Sensitivity Range C: B = 15 - 20, C = 20 - 25
- Sensitivity Range D: B = 20 - 25
- LED Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Lead Design: 1 (Axial), 2 (Short Gull-Wing), 4 (Long Gull-Wing)
- Contact Form A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Contact Form B: B = 10 - 15, C = 15 - 20

#### MK31 - B - 0 - 0

**Rated Power Max:** 2W/20VDC/10VA | **Operating Range:** 5 - 30 AT | **Contact Form:** A

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

#### MK10 - B - 270

**Rated Power Max:** 1W/170VDC/25VA | **Operating Range:** 7 - 21 AT | **Contact Form:** A

- Sensitivity Range A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Sensitivity Range B: B = 10 - 15, C = 15 - 20, D = 20 - 25
- Sensitivity Range C: B = 15 - 20, C = 20 - 25
- Sensitivity Range D: B = 20 - 25
- LED Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Lead Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Contact Form A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Contact Form B: B = 10 - 15, C = 15 - 20

#### MK21 - B - 0

**Rated Power Max:** 10W/100VDC/50VA | **Operating Range:** 10 - 60 AT | **Contact Form:** A

- Sensitivity Range A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Sensitivity Range B: B = 10 - 15, C = 15 - 20, D = 20 - 25
- Sensitivity Range C: B = 15 - 20, C = 20 - 25
- Sensitivity Range D: B = 20 - 25
- LED Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Lead Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Contact Form A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Contact Form B: B = 10 - 15, C = 15 - 20

#### MK17 - B - 0

**Rated Power Max:** 20W/200VDC/100VA | **Operating Range:** 10 - 30 AT | **Contact Form:** A

- Sensitivity Range A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Sensitivity Range B: B = 10 - 15, C = 15 - 20, D = 20 - 25
- Sensitivity Range C: B = 15 - 20, C = 20 - 25
- Sensitivity Range D: B = 20 - 25
- LED Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Lead Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Contact Form A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Contact Form B: B = 10 - 15, C = 15 - 20

#### MK16 - B - 0

**Rated Power Max:** 50W/300VDC/200VA | **Operating Range:** 7 - 14 AT | **Contact Form:** A

- Sensitivity Range A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Sensitivity Range B: B = 10 - 15, C = 15 - 20, D = 20 - 25
- Sensitivity Range C: B = 15 - 20, C = 20 - 25
- Sensitivity Range D: B = 20 - 25
- LED Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Lead Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Contact Form A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Contact Form B: B = 10 - 15, C = 15 - 20

#### MK22 - B - 0

**Rated Power Max:** 20W/200VDC/100VA | **Operating Range:** 10 - 60 AT | **Contact Form:** A

- Sensitivity Range A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Sensitivity Range B: B = 10 - 15, C = 15 - 20, D = 20 - 25
- Sensitivity Range C: B = 15 - 20, C = 20 - 25
- Sensitivity Range D: B = 20 - 25
- LED Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Lead Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Contact Form A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Contact Form B: B = 10 - 15, C = 15 - 20

#### MK23 - 501 - B - 0

**Rated Power Max:** 10W/200VDC/50VA | **Operating Range:** 7 - 14 AT | **Contact Form:** A

- Sensitivity Range A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Sensitivity Range B: B = 10 - 15, C = 15 - 20, D = 20 - 25
- Sensitivity Range C: B = 15 - 20, C = 20 - 25
- Sensitivity Range D: B = 20 - 25
- LED Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Lead Design: 1 (Axial), 2 (Gull-Wing), 3 (Helix)
- Contact Form A: B = 5 - 10, C = 10 - 20, D = 20 - 25
- Contact Form B: B = 10 - 15, C = 15 - 20

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Note: All dimensions are in mm and tolerances according to ISO 2768-m. This guide refers 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. REED SENSORS A ST NEW ELECTRONICS BRAND

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### SOLUTIONS | Reed Sensors

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MK15 - B - O

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

- Contact Form: A, B, C
- Switch Model: B=10-15, C=15-20, D=20-25
- Surface Mount (SMD)
- Metal Detection
- Lead Design: J-Lead
- High power switch, UL

MK01 - X

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

- Contact Form: A, B, C
- Switch Model: B=10-15, C=15-20, D=20-25
- Surface Mount (SMD)
- Metal Detection
- Lead Design: J-Lead
- High power switch, UL

MK02 - / - 1 X 0 - 0 - 000 W

Rated Power Max.: 10W/200V DC/0.5A | Operating Range 4.5-15 MH

- Contact Form: A, B, C
- Surface Mount (SMD)
- Metal Detection
- Lead Design: J-Lead
- High power switch, UL

MK28 - 1 X 0 - 000 W

Rated Power Max.: 10W/200V DC/0.5A | Operating Range Exact

- Contact Form: A, B, C
- Switch Model: B=10-15, C=15-20, D=20-25
- Surface Mount (SMD)
- Metal Detection
- Lead Design: J-Lead
- High power switch, UL

MK04 - 1 X 0 0 - 000 - W

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

- Contact Form: A, B, C
- Switch Model: B=10-15, C=15-20, D=20-25
- Surface Mount (SMD)
- Metal Detection
- Lead Design: J-Lead
- High power switch, UL

MK12 - 1 X 0 0 - 000 - W

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

- Contact Form: A, B, C
- Switch Model: B=10-15, C=15-20, D=20-25
- Surface Mount (SMD)
- Metal Detection
- Lead Design: J-Lead
- High power switch, UL

MK13 - 1 X 0 0 - 000 - W

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

- Contact Form: A, B, C
- Switch Model: B=10-15, C=15-20, D=20-25
- Surface Mount (SMD)
- Metal Detection
- Lead Design: J-Lead
- High power switch, UL

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.
**SOLUTIONS | Reed Sensors**

**Switch Model:** A, B

**Contact Form:** Cylindrical

**Contact Quantity:** 1

**Hazardous Environments**

**Stainless Steel M5 or M8**

**Switch Model:** 66, 85, 90 (Form E Latching option)

**Threaded Barrel**

**B=10-15, C=15-20, D=20-25**

**Contact Form:** Security

**Cable Length (mm):** 200, 300, 500, 1000, 1500, 2000, 3000, 5000

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

**Rated Power Max.:** 10W/200VDC/0.5A | Push Button Reed Sensor/Contactless Switching

**Switch Model:** A, B, C

**Contact Form:** Cylindrical

**Contact Quantity:** 1

**Operating Range:** 10-60 AT

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

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

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

**Rated Power Max.:** 10W/180VDC/1.25A | Push Button Reed Sensor/Contactless Switching

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

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

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

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

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

**Rated Power Max.:** 10W/180VDC/1.25A | Push Button Reed Sensor/Contactless Switching
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 design. 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)**
- **Hf - hard ferrite**

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

### Dimensions in mm

#### AlNiCo

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>M02</th>
<th>M04</th>
<th>M13</th>
<th>M05</th>
<th>M21</th>
<th>M27</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>50</td>
<td>32.4</td>
<td>23</td>
<td>28.6</td>
<td>25</td>
<td>38</td>
</tr>
<tr>
<td>W</td>
<td>20</td>
<td>16.7</td>
<td>13.9</td>
<td>19.6</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>H</td>
<td>10</td>
<td>10</td>
<td>5.9</td>
<td>6.35</td>
<td>5.9</td>
<td>6.75</td>
</tr>
</tbody>
</table>

#### SmCo

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>M11(B)</th>
<th>M11(S)</th>
<th>M11(P)</th>
<th>M03</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>35</td>
<td>25</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>W</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>H</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
</tr>
</tbody>
</table>

### Cost Comparison

<table>
<thead>
<tr>
<th>Type</th>
<th>Ferrite</th>
<th>AlNiCo</th>
<th>NdFeB</th>
<th>SmCo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>LOW</td>
<td>HIGH</td>
<td>LOW</td>
<td>HIGH</td>
</tr>
<tr>
<td>Energy</td>
<td>Ferrite</td>
<td>AlNiCo</td>
<td>NdFeB</td>
<td>SmCo</td>
</tr>
<tr>
<td>Working temperature</td>
<td>NdFeB</td>
<td>Ferrite</td>
<td>SmCo</td>
<td>AlNiCo</td>
</tr>
<tr>
<td>Corrosion-resistant</td>
<td>NdFeB</td>
<td>Ferrite</td>
<td>SmCo</td>
<td>AlNiCo</td>
</tr>
<tr>
<td>Opposing field-resistant</td>
<td>NdFeB</td>
<td>Ferrite</td>
<td>SmCo</td>
<td>AlNiCo</td>
</tr>
<tr>
<td>Mechanical strength</td>
<td>NdFeB</td>
<td>Ferrite</td>
<td>SmCo</td>
<td>AlNiCo</td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>NdFeB</td>
<td>Ferrite</td>
<td>SmCo</td>
<td>AlNiCo</td>
</tr>
</tbody>
</table>
**Highlights**

- Bipolar Switch, *Bipolar Latch (\(> 2.30\))
- Latch (\(> 2.70\))
- 2.5-3.5V/10μA (V\(_{\text{CC}}\) = 3.5V) | Micro Power 2.5-3.5V/10μA (V\(_{\text{CC}}\) = 3.5V)
- Standard Power 3-24VDC (V\(_{\text{CC}}\) = 12V) | Micro Power 2.5-3.5V/10μA (V\(_{\text{CC}}\) = 3.5V)

**MH04 - 00 X - 000 W**

- Low power consumption
- Consistent activation points over a wide temperature range
- High temperature resistance
- Package design and much more.

**MH21 - 00 X - 000 W**

- Standard Power 3-24VDC (V\(_{\text{CC}}\) = 12V) | Micro Power 2.5-3.5V/10μA (V\(_{\text{CC}}\) = 3.5V)

- Sensitivity (mT)
- Max. Pull-in Distance in mm
- Position and Movement
- Min. Drop-out Distance in mm
- Low power consumption
- Consistent activation points over a wide temperature range
- High temperature resistance
- Package design and much more.

**MH32 - 00 X - 000 W**

- Standard Power 3-24VDC (V\(_{\text{CC}}\) = 12V) | Micro Power 2.5-3.5V/10μA (V\(_{\text{CC}}\) = 3.5V)

- Sensitivity (mT)
- Max. Pull-in Distance in mm
- Position and Movement
- Min. Drop-out Distance in mm
- Low power consumption
- Consistent activation points over a wide temperature range
- High temperature resistance
- Package design and much more.

**Sensors**

- Magnetic Sensitivity
- Position and Movement
- Max. Pull-in Distance in mm
- Position and Movement
- Min. Drop-out Distance in mm

**Data and Specifications**

- All distance data above are used for the magnetic distance.
- All data is subject to change without notice.
**FLUID SENSORS & FLOATS**

Standex Electronics supplies fluid level sensors that use a wide range of technologies - from magnetic Reed Switch technology to conductive technology Standex Electronics designs fluid level sensors that are appropriate for each individual application. From basic sensors which are driven by external electronics to humkey sensor systems with switched outputs, Standex Electronics delivers solutions to the most demanding fluid level sensing applications.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Sensor Technology</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS01</td>
<td>Compact Single Level Vertical Mount Level Sensor</td>
<td>Magnetic Reed Switch Technology</td>
<td>- Rated Power Max: 100/400VDC/1.0A</td>
</tr>
<tr>
<td>LS02</td>
<td>Compact Single Level Vertical Mount Level Sensor</td>
<td>Magnetic Reed Switch Technology</td>
<td>- Rated Power Max: 100/400VDC/1.0A</td>
</tr>
<tr>
<td>LS03</td>
<td>Compact Single Level Horizontal Mount Level Sensor</td>
<td>Magnetic Reed Switch Technology</td>
<td>- Rated Power Max: 100/400VDC/1.0A</td>
</tr>
</tbody>
</table>

**Highlights**
- High power switch option, other cables and connectors
- SpD1T, Switch Model
- Compact Single Level Vertical Mount Level Sensor
- Compact Single Level Horizontal Mount Level Sensor
- High power switch option, other cables and connectors
- Shaft/Float: S=Stainless Steel

**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, etc. Not all part number combinations are possible, consult the factory for further info. We reserve the right to change any changes according to technological progress or further developments. All product images are scaled 1:1 unless otherwise noted.
Fluid Level Sensors

Float located in bottle assembly, operates with fluid specific gravity at 0.79 min NBR 20.0 (0.787)
21.1 (0.834) PP 1=55, 2=114, 5=152, 7=220
Aviation 23.5 (0.925) 66, 85, 90 36.0 (1.417) Marine Resistant to high temperatures and ideal for food and beverage industry 38.3 (1.507) 2
24.0 (0.944) High resistant to chemical solvents, bases and acids Magnet direction radial N/A PA 25.0 (0.984)
28.5 (1.122) Contact Quantity: N/A 9.15 (0.360)
Contact Form: High strength to weight ratio, shock and abrasion resistant
Highlights

Switch Model:

- Single/Multi/Continuous

- Rated Power Max. 100/400VDC/1.0A | Horizontal Mount
- Rated Power Max. 100/400VDC/1.0A | Vertical Mount

- High temp up to 200°C (SS) and pressure up to 12 bar
- Multiple floats with a minimum 1.5" spacing
- Single, multi and continuous level control, detection and monitoring

- ©2020 ST ANDEX ELECTRONICS BRAND

- All product images are scaled 1:1 unless otherwise noted. We reserve the right to make any changes according to technological progress or further developments. Not all part number combinations are possible, consult the factory for more info.
The fluid level reed sensors sense level changes in liquid in an assortment of liquid mediums. The sensors generally have an attached float with an embedded magnet that moves up and down on a encased stem where the reed switches are housed. The reed switches will change their closure state when the float comes within their magnetic influence. The closure initiates a sequence of events alerting the change of the liquid level.

We offer an extensive selection of different reed sensor packages, switch configurations, stem lengths, float density sensitivities allowing for diverse applications. Our engineers are ready to match custom designs to stringent requirements.

Our reed sensors are used in the automotive industry to measure fuel, oil, brake fluid, radiator, windshield washer level, and other fluids. They are also found in recreational vehicles, such as jet skis, sensing oil and fuel levels. Wherever a liquid exists or can accumulate, Standex Electronics offers a sensing solution.

"Complex problems deserve custom solutions"
snap action switch assemblies. The contact quality,
switching life and non-intrusive sensing arrangement
of reed switches increases indicator reliability. We
partner with the customer to design and validate the
custom indicators to specific OEM requirements, often
creating a proprietary product line for each customer.

Fluid Level Sensors – Conductive Technology
Standex Electronics manufactures state-of-the-
art conductive liquid sensors that detect changes
in levels without the use of a float. These sensors
are used generally in water based conductive fluids
when the application cannot use a float based
system. Our conductive fluid level sensors have a
patented false full protection and current level shift
to indicate fluid level. They guard against electrolysis
and conduction paths along the sensor packaging
with high quality performance. Applications include
the measurement of syrups and juices in the food
industry, measurement of liquid soaps in washing
applications, liquid waste products, storm drains, bilge
pumps, sump water, and many other functions.

HVAC/R Series Flood Prevention Switches – Reed Technology
Truly Reliable, Plug-N-Play and Hassle Free
Standex Electronics provides the HVAC industry with
high performing Flood Prevention Switches (FPS’s)
that are easy to install and service. Our expertise and
capabilities allow for reliable innovations that prevent
overflowing that causes damage to floors, walls,
ceilings and the like. For example, if water levels in
the auxiliary or main drain pipe
rose due to a clogged air conditioning condensate,
the switch shuts off the system.

Pressure Differential Sensors – Reed Technology
Differential pressure sensors are utilized in the
hydraulics industry to alert equipment operators
that their hydraulic fluid filter has reached the
end of its life. Standex Electronics designs and
manufactures many configurations of these “filter
bypass” sensors with options for custom connection
methods, varying trip and reset pressures, N/O/N/C/
SPDT switch configurations, mounting and sealing to
the filter head. The hermetically sealed reed switch
contacts are more reliable in these applications than
other technologies such as open mechanical contacts,
visual pop-up indicators, or
Flow Sensors - Reed Technology
Standex Electronics designs and manufactures custom reed switch and magnet-based flow switches for specific customer applications. The designs often include harsh environments, significant durability requirements, and precise flow rate switching. Designs can be intrusive or non-intrusive with multiple custom packaging options for terminating and wiring and add-ons for temperature sensing, salinity, and multiple trip points.

Advanced Fluid Level Sensors - Hall Effect & Capacitive Technology
Standex Electronics Solid State Hall Effect Level Sensors (HLS) and Capacitive Level Sensors (CLS) are custom designed solutions for continuous fluid level monitoring. These smart sensors have an integrated onboard microcontroller with calibrated and programmable output for various tank geometries. Our patent pending & revolutionary designs can be configured in either engineering plastic or stainless-steel housings with PP, PA, NBR, and stainless steel floats as well as multiple mounting options.

FEATURES
• Full scale accuracy up to +/- 0.5% (CLS)
• Full scale accuracy up to +/- 2% (HLS)
• High resolution better than 1mm (HLS)
• Solid-state reliability in harsh environments
• Custom length continuous liquid level sensing
• For fuel, oil, water, ethanol blends, diesel, urea, etc.
• Onboard electronics analog output 0-5V or 4-20mA
• Wide operating temperature -40°C to +125°C
• Can meet IP67 requirements