Standex Electronics

PARTNER | SOLVE | DELIVER®

# Custom-Engineered Fluid Sensors & Floats

PRODUCT LINE BROCHURE

# Standex | Smart.

## Partner, Solve, Deliver®

"Solving your complex problems is why we exist."

**CONTENTS**



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

Standex offers different level sensor technologies that can be adapted and modified to meet any challenge. Standex level sensors specialize in detecting fluids of all sorts. By using different technologies – including reed, hall, capacitive, conductive, and inductive – we're able to perfectly adapt a solution to meet the customer's wishes and needs of detection. Through direct contact with the fluid we ensure that no matter the density, temperature or viscosity, the perfect sensing technology is selected.


That's **Standex**|Smart.

standexelectronics.com

# 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 hall effect, capacitive, conductive, and inductive technologies depending on the customers detection requirements. Our work, growth, and dedication to providing reliable high-quality products through our engineering and manufacturing expertise go beyond products we ship.

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.

**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

50 YEARS of INNOVATION

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**

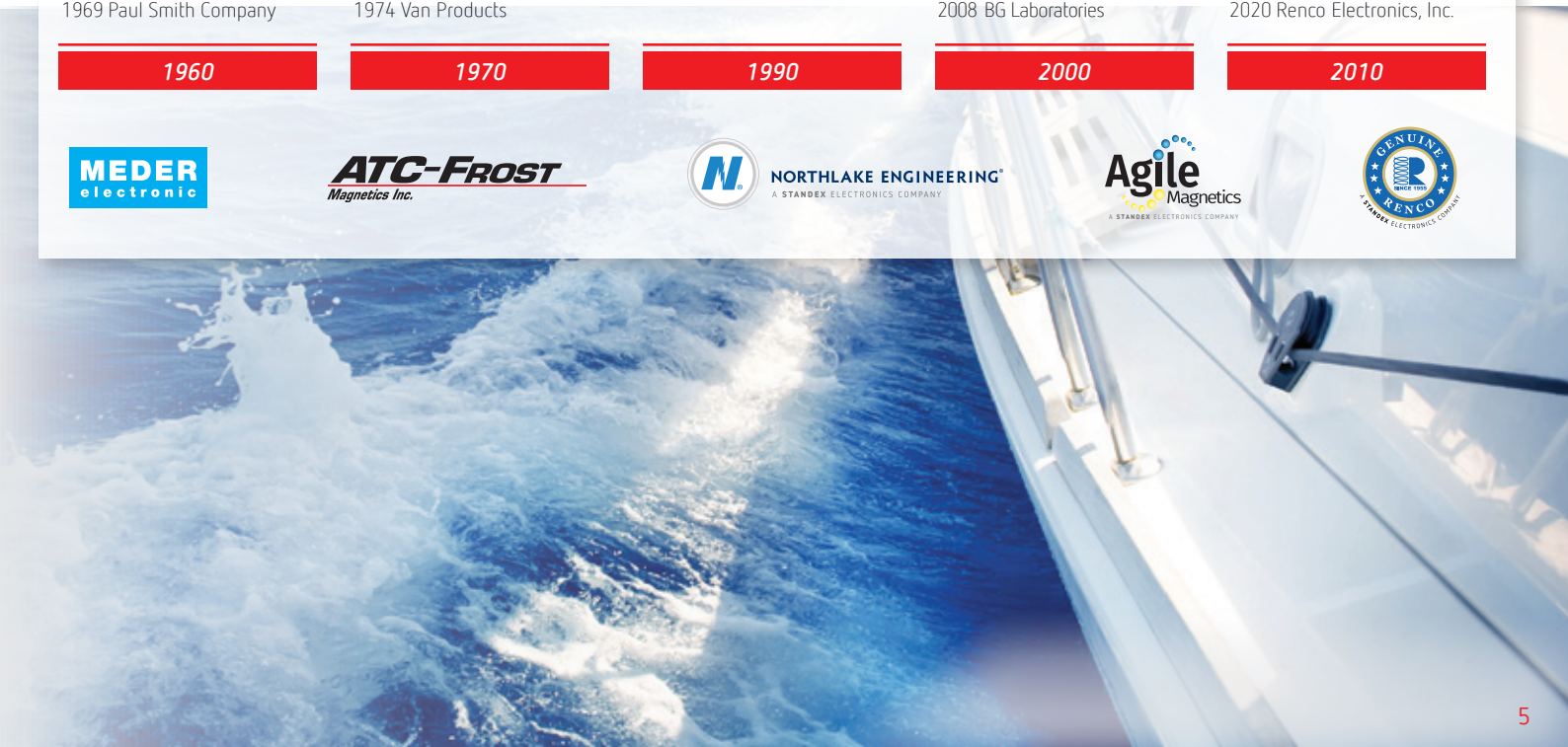
1998 ATR Coil / Classic Coil Winding

**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.



# OUR CAPABILITIES

ITAR INTERNATIONAL TRAFFIC IN ARMS REGULATIONS COMPLIANT

IATF 16949 CERTIFIED

ISO 9001 CERTIFIED

AS9100 CERTIFIED

## 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

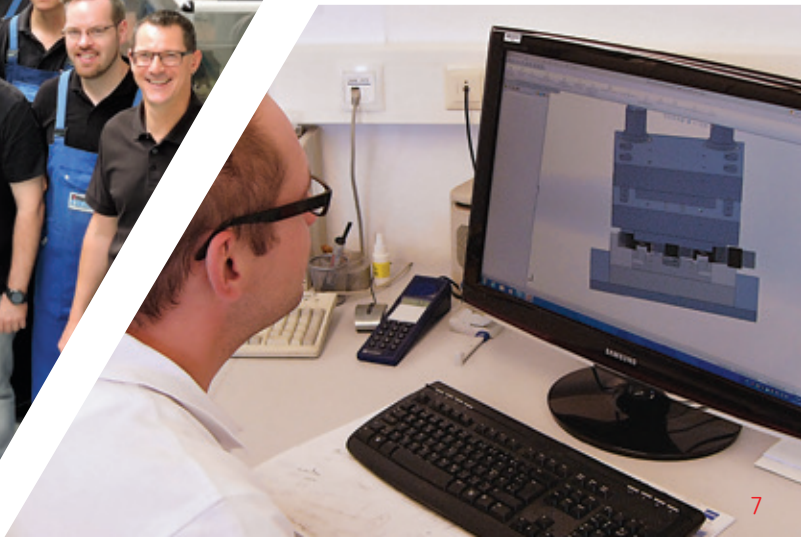
## TESTING & LAB CAPABILITIES

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 stainless steel fluid sensor fabrication."

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



# PARTNER | SOLVE | DELIVER®

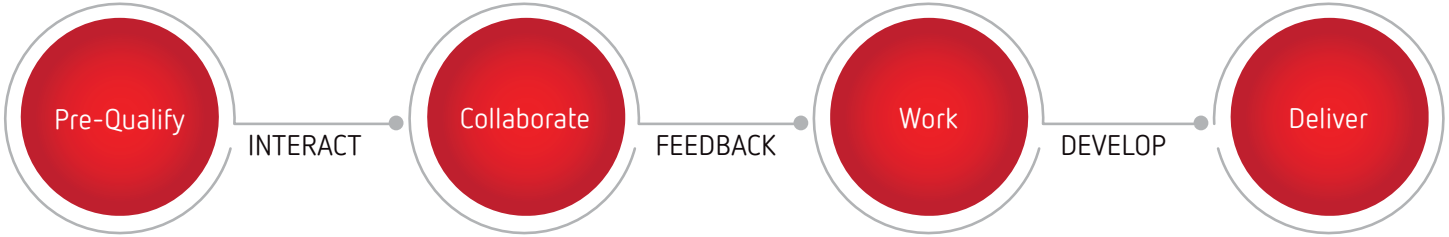
## Our Approach

**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



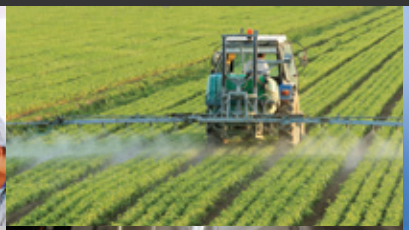

- Understand Application
- Define Design Targets
- Form (A,B)
- Liquid Type
- No. of Measurement Points
- Mechanical Float or Other
- Desired Output Signal
- Temperature Range
- Max Voltage, Power, & Current
- Life Expectancy Requirements

- Certifications & Standards
- Open Engineering Team Dialogue
- Footprint, Special Wire / Mounting
- 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

# Main Markets & Applications





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

# Standex | Strong.

## CUSTOM-ENGINEERED FLUID SENSORS

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.

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.

| FLUID SENSOR TECHNOLOGY | FEATURES |
|---|---|
| REED | • World leader in reed technology<br>• Over 50 Million in automotive applications<br>• No power required<br>• Reliable 2-wire device |
| HALL EFFECT | • Advanced outputs beyond on/off<br>• Ideal for speed sensing<br>• Power consumption in low mA |
| CAPACITIVE | • Continuous fluid level analog output<br>• Solid state reliable with no moving parts<br>• Handles wide temperature range |
| CONDUCTIVE | • Continuous analog output<br>• Solid state solution with no moving parts<br>• Operates over a wide temperature range |
| INDUCTIVE | • Non contact metal detection<br>• Ideal in marginal position change<br>• Solid-state reliability |

That's **Standex**|Strong.

standexelectronics.com

# AUTOMOTIVE & TRANSPORTATION

Many of the newer automotive sensor designs Standex Electronics can deliver to include onboard electronics, usually a circuit on a PC board packaged with a sensor that completes an operation based off supplied power and what the product is sensing. One example is a multi-level coolant sensor for large freight trucks. Standex designed a 2-piece sensor with a mechanical float and encapsulated magnet that provides feedback on both a coolant warning level and a dangerously low level, giving truck drivers the time to plan service. Older sensors would have only indicated a full or empty reading, putting the truck at risk of overheating.

A more advanced automotive sensor example is a smart conductive sensor that can detect water in fuel. This sensor has integrated electronics and no moving parts. Its unique design can be mounted at an angle and allows it to continuously sense and measure different resistance levels

## Automotive

- Brake fluid
- Fuel level
- Coolant level
- Windshield washer fluid
- Water in fuel
- Hydraulic oil

# HOUSEHOLD & APPLIANCE

The desire for more information and convenience, along with worldwide water and energy conservation initiatives, has led to a flurry of new household and appliance fluid level designs. Standex developed a patented 3-probe conductive sensor design to detect viscous bulk detergent level. The 3-probe design is able to sense a false positive condition when liquid is clinging to the sensor.


## Applications

- Humidifiers
- Coffee makers
- Dishwashers
- Refrigerators
- Washing machines
- Sump pump level
- HVAC overflow
- Water flow
- Hot tub water flow
- Pool chlorinator

# STANDARD 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 turnkey sensor systems with switched outputs, Standex Electronics delivers solutions to the most demanding fluid level sensing applications.


## Single Level

LS01 - 1 X 00 - PX - 0000 W

1 2 3 4 5 Termination

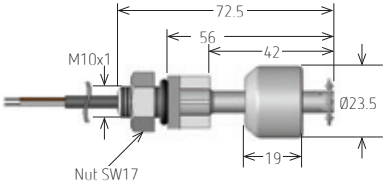
| Rated Power Max. 100/400VDC/1.0A \| Vertical Mount | | |
|---|---|---|
| 1 | Contact Quantity: | 1 |
| 2 | Contact Form: | A, B |
| 3 | Switch Model: | 66, 85 |
| 4 | Material: | PA, PP |
| 5 | Cable Length (mm): | 500, 1000, 5000 |

- Compact Single Level Vertical Mount Level Sensor
- High power switch option, other cables and connectors
- Shaft: PA or PP, Float: PA, PP, NBR
- IP68 only up to screw in thread

Highlights

Level control, detection and monitoring

Automotive · HVAC/R · Test & Measurement · White Goods · Normally Closed · SPDT Changeover · IP68 Certified · Food & Beverage




## Single Level

# LS02 - 1 X 00 - PX - 0000 W

1 2 3 4 5 Termination

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

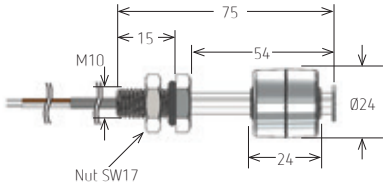
| | | |
|---|---|---|
| 1 | Contact Quantity: | 1 |
| 2 | Contact Form: | A, B : |
| 3 | Switch Model: | 66, 85 |
| 4 | Material: | PA, PP |
| 5 | Cable Length (mm): | 500, 1000, 5000 |

- IP68-only up to screw in thread
- Compact Single Level Vertical Mount Level Sensor
- High power switch option, other cables and connectors
- Shaft: PA or PP, Float: PA, PP, NBR

Highlights

Level control, detection and monitoring

Automotive HVAC/R Test & Measurement White Goods Normally Closed SPDT Changeover IP68 Certified Food & Beverage




## Single Level

LS02 - 1 X 00 - S - 0000 W

1 2 3 4 5 Termination

| Rated Power Max. 100/400VDC/1.0A \| Vertical Mount | | |
|---|---|---|
| 1 | Contact Quantity: | 1 |
| 2 | Contact Form: | A, B, C |
| 3 | Switch Model: | 66, 85, 90 |
| 4 | Material | S=Stainless |
| 5 | Cable Length (mm): | 500, 1000, 5000 |

- IP68-only up to screw in thread, high temp up to 120°C
- Compact Single Level Vertical Mount Level Sensor
- High power switch option, other cables and connectors
- Shaft/Float: S=Stainless Steel

Highlights

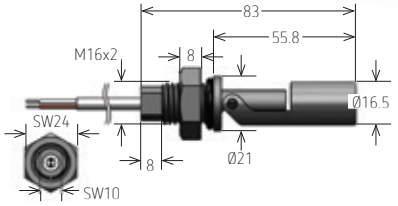
Level control, detection and monitoring

Automotive · HVAC/R · Test & Measurement · White Goods · Normally Closed · SPDT Changeover · IP68 Certified · Food & Beverage

## Single Level

# LS03 - 1 X 00 - PX - 0000 W

1 2 3 4 5 Termination



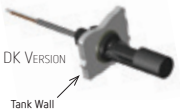

| Rated Power Max. 100/400VDC/1.0A \| Horizontal Mount | | |
|---|---|---|
| 1 | Contact Quantity: | 1 |
| 2 | Contact Form: | A, B, C |
| 3 | Switch Model: | 66, 85 |
| 4 | Material: | PA, PP |
| 5 | Cable Length (mm): | 500, 1000, 5000 |

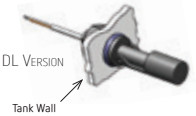
- IP68-only up to screw in thread
- Compact Single Level Horizontal Mount Level Sensor
- High power switch option, other cables and connectors
- Shaft/Float: PA, PP

Highlights

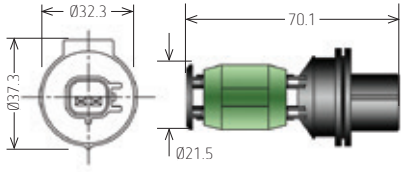
Level control, detection and monitoring

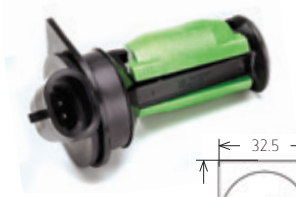


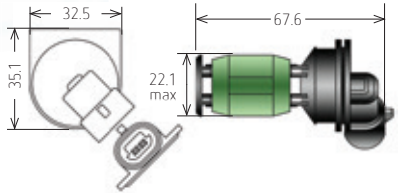



Automotive · HVAC/R · Test & Measurement · White Goods · Normally Closed · SPDT Changeover · IP68 Certified · Food & Beverage






Single Level

# KSS - BV00000

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

| | | |
|---|---|---|
| 1 | Contact Quantity: | 1 |
| 2 | Contact Form: | A, B |
| 3 | Shaft/Float: | PP |

- Compact Single Level Horizontal Mount Level Sensor
- Mounted from the outside
- Ideal in blow or injection molded bottles
- Mates with Yazaki 7283-6434-40 and Packard 12162193 connector

Highlights

Level control, detection and monitoring

Automotive | Normally Closed


Single / Multi / Continuous

## LS04 - 1 X 00 - 0 - 0000 W

1 2 3 4 5 Termination

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

| | | |
|---|---|---|
| 1 | Contact Quantity: | 1 |
| 2 | Contact Form: | A, B, C |
| 3 | Switch Model: | 66, 85, 90 |
| 4 | Shaft Length (mm): | 0, 2, 4, 5 |
| 5 | Cable Length (mm): | 500, 1000, 5000 0=255, 2=130, 4=178, 5=190 |

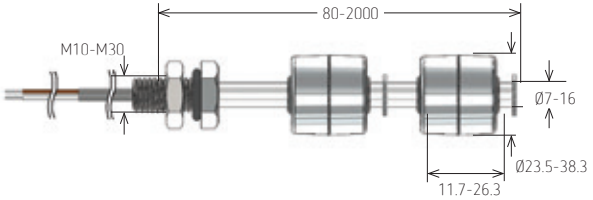
- Up to 6 floats, 1W-100W rated power, other cables, connectors
- Reservoir, tank, bottle or other container mounting configurations
- Shaft: PP Floats: PP, PA, NBR

Highlights

Level control, detection and monitoring

Automotive HVAC/R Test & Measurement White Goods Normally Closed SPDT Changeover IP68 Certified Food & Beverage

# STANDARD FLUID SENSORS & FLOATS




## Single / Multi / Continuous

LS05 - 1 X 00 - 0 - 0000 W

1 = Contact Quantity; X = Contact Form; 00 = Switch Model; 0 = Shaft Length (mm); 0000 = Cable Length (mm); W = Termination

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

| | | | |
|---|---|---|---|
| 1 | Contact Quantity: | 1 | |
| 2 | Contact Form: | A, B, C | |
| 3 | Switch Model: | 66, 85, 90 | |
| 4 | Shaft Length (mm): | 1, 2, 5, 7 | |
| 5 | Cable Length (mm): | 500, 1000, 5000 | 1=55, 2=114, 5=152, 7=220 |

- Multiple floats with a minimum 1.5" spacing
- 1W-100W rated power, other cables, connectors
- Shaft: SS, Floats: PA, PP, NBR, or SS
- High temp up to 200°C (SS) and pressure up to 12 bar

Highlights

Single, multi and continuous level control, detection and monitoring

Automotive · Marine · Industrial · Laboratory · Aviation · Food & Beverage · White Goods · High Voltage · High Temp Resistant · Normally Closed · SPDT Changeover · UL Approval

## Floats

| Series | Material | Outside Dia. mm (inches) | Inside Dia. mm (inches) | Height mm (inches) | Use with sensor | Additional Information |
|---|---|---|---|---|---|---|
| MS01-NBR | NBR | 24.5 (0.964) | 8 (0.314) | 19.0 (0.748) | LS01, LS02, LS02-S LS04, LS05 | Excellent resistance to petroleum derived liquids |
| MS02-NBR | NBR | 25.0 (0.984) | 9.15 (0.360) | 16.5 (0.649) | | |
| MS18-NBR | NBR | 28.5 (1.122) | 9 (0.354) | 16.5 (0.649) | | High buoyancy and excellent resistance to petroleum derived liquids |
| MS19-NBR | NBR | 25.5 (1.004) | 15.6 (0.614) | 20.5 (0.807) | | |
| MS01-PA | PA | 23.5 (0.925) | 8.5 (0.334) | 19.0 (0.748) | LS01, LS02-S LS05 | High strength to weight ratio, shock and abrasion resistant |
| MS02-PA | PA | 25.0 (0.984) | 9.15 (0.360) | 16.55 (0.651) | | |
| MS07-PA | PA | 36.0 (1.417) | 16.15 (0.635) | 19.0 (0.748) | | |
| MS01-PP | PP | 23.5 (0.925) | 8.4 (0.330) | 19.0 (0.748) | LS01, LS02 LS02-S LS04, LS05 | Highly resistant to chemical solvents, bases and acids |
| MS02-PP | PP | 25.2 (0.992) | 9.15 (0.360) | 16.55 (0.651) | | |
| MS02/R-PP | PP | 25.0 (0.984) | 9.15 (0.360) | 16.55 (0.651) | | Highly resistant to chemical solvents, bases and acids Magnet direction radial |
| MS03-PP | PP | 27.0 (1.062) | 11 (0.433) | 11.7 (0.460) | | Highly resistant to chemical solvents, bases and acids |
| MS04-PP | PP | 18.5 (0.728) | 10.2 (0.401) | 20.0 (0.787) | | |
| MS08-PP | PP | 20.0 (0.787) | 9.15 (0.360) | 16.0 (0.630) | | |
| MS06-PP | PP | 30.0 (1.181) | N/A | 8.0 (0.314) | All Reed Sensors | Highly resistant to chemical solvents, bases and acids; also for food and beverage industry |
| B12469 | PP | 32.6 (1.283) | N/A | 22.9 (0.901) | R12468 | Float located in bottle assembly, specific gravity per application |
| B12482 | PP | 42.0 (1.653) | 11.4 (0.448) | 25.0 (0.984) | R12481 | Float located in bottle assembly, specific gravity per application |
| B12450 | PP | L - 17.5 (0.688) | W - 13.4 (0.527) | 24.9 (0.980) | R11744/R12180 | Float located in bottle assembly, operates with fluid specific gravity at 0.79 min |
| MS09-S | V2A | 24.0 (0.944) | 9.5 (0.374) | 24.0 (0.944) | LS02-S LS05 | Resistant to high temperatures and ideal for food and beverage industry |
| MS10-S | V2A | 38.3 (1.507) | 9.5 (0.374) | 26.3 (1.035) | | |

PA (Polyamide) | PP (Polypropylene) | NBR (Nitrile Butadiene Rubber) | V2A (Stainless Steel)

High Temp Resistant  Food & Beverage

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