



SOR

PRODUCT GUIDE

Registered Quality System to ISO 9001



Engineered to Order with Off-the-Shelf Speed

The exact instrument you need delivered when you need it. It's what SOR® has built its reputation on since 1946. SOR has enjoyed the distinction of meeting the challenges of the measurement and control industry for many years. We provide the most reliable electronic and electromechanical pressure, level, temperature and flow instruments available.



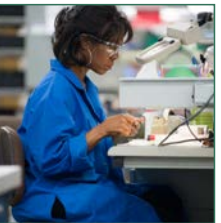
We Listen to Our Customers

We build each instrument to meet our customers' requirements and specific needs for the Oil and Gas, Power Generation and Nuclear industries. The highest quality engineering and construction materials and attention to the smallest of details go into every product we manufacture – one at a time.



Need an Application Solution? Ask SOR

No two applications are exactly the same. The performance and durability of any instrument is in the details and all you have to do is tell us what they are. We work one-on-one with customers all over the world to meet their individual application challenges and obstacles. While this Product Guide provides the specifications and options available for SOR products, our global Representatives organization and factory Sales Engineers also stand ready to help you get the right device for the job. Just give us a call.

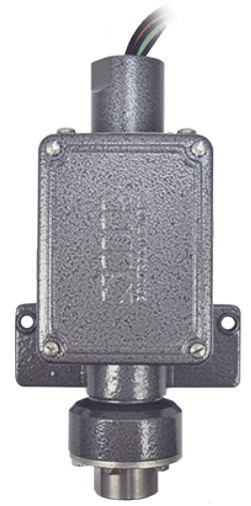


Design and specifications are subject to change without notice.
For the latest revisions, visit SORInc.com.

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Weatherproof
(Pressure/Vacuum/
Compound)



30 inHg vac to 7000 psi
1 bar vac to 480 bar

3 YEAR WARRANTY

- Low cost
- Set point adjustment with calibrated scale
- Pivot seal version available
- For more information, see [Catalogs 216 & 219](#)

Weatherproof, Terminal Block Connections
(Pressure/Vacuum/
Compound)



30 inHg vac to 7000 psi
1 bar vac to 480 bar

3 YEAR WARRANTY

- Low cost
- Set point adjustment with calibrated scale
- For more information, see [Catalogs 216 & 219](#)

Explosion Proof
(Pressure/Vacuum/
Compound)



30 inHg vac to 7000 psi
1 bar vac to 480 bar

3 YEAR WARRANTY

- Low cost
- Set point adjustment with calibrated scale
- For more information, see [Catalogs 216 & 219](#)

Explosion Proof, UL/CSA/ATEX
(Pressure/Vacuum/
Compound)



30 inHg vac to 7000 psi
1 bar vac to 480 bar

3 YEAR WARRANTY

- Terminal block connections
- Set point adjustment with calibrated scale
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalogs 216 & 219](#)

Explosion Proof, Hermetically Sealed
(Pressure/Vacuum/
Compound)



30 inHg vac to 7000 psi
1 bar vac to 480 bar

3 YEAR WARRANTY

- Hermetically sealed snap switch(es)
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalogs 455 & 219](#)

PRESSURE SWITCHES

Today's SOR Pressure Switches are the descendants of the original Static "O" Ring[®] mechanical pressure switches that set industry standards more than 50 years ago. They are field-proven, low cost process instruments for use as either primary or redundant pressure or flow monitoring applications in a wide variety of industries.



**Explosion Proof,
Hermetically Sealed**
(Pressure/Compound)



30 inHg vac to 7000 psi
1 bar vac to 480 bar

3 YEAR WARRANTY

- Hermetically sealed snap switch(es)
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalogs 456 & 219](#)



Weatherproof
(Pressure/Vacuum/
Compound)



30 inHg vac to 4000 psi
1 bar vac to 275 bar

3 YEAR WARRANTY

- Dual set points available
- Set point adjustment with calibrated scale
- Adjustable dead band on some models
- For more information, see [Catalogs 217 & 281](#)



**Explosion Proof,
Hermetically Sealed**
(Pressure/Vacuum/
Compound)



30 inHg vac to 4000 psi
1 bar vac to 275 bar

3 YEAR WARRANTY

- Dual set points available
- Hermetically sealed snap switch(es)
- Adjustable dead band on some models
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalogs 217 & 281](#)



**Explosion Proof,
Hermetically Sealed**
(Pressure)



8 to 200 psi
0.5 to 14 bar

3 YEAR WARRANTY

- Hermetically sealed snap switch(es)
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalog 987](#)



Explosion Proof
(Pressure)



100 to 10000 psi
7 to 700 bar

3 YEAR WARRANTY

- Compact, hermetically sealed enclosure
- Stainless steel sensor
- Solid state switch output
- Supplemental continuous output
- Up to 5:1 turndown
- For more information, see [Catalog 1552](#)





Weatherproof
(Single diaphragm)



3 to 500 psid
0.2 to 35 bar

3 YEAR WARRANTY

- Low cost
- Set point adjustment with calibrated scale
- For more information, see [Catalog 468](#)



Weatherproof, Terminal Block Connections
(Single diaphragm)



3 to 500 psid
0.2 to 35 bar

3 YEAR WARRANTY

- Terminal block connections
- Set point adjustment with calibrated scale
- For more information, see [Catalog 468](#)



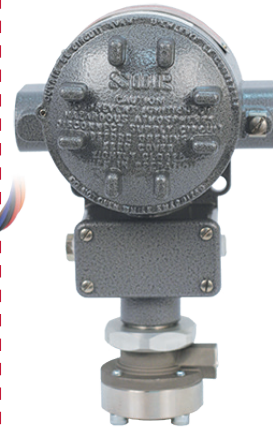
Explosion Proof
(Single diaphragm)



3 to 500 psid
0.2 to 35 bar

3 YEAR WARRANTY

- Low cost
- Set point adjustment with calibrated scale
- For more information, see [Catalog 468](#)



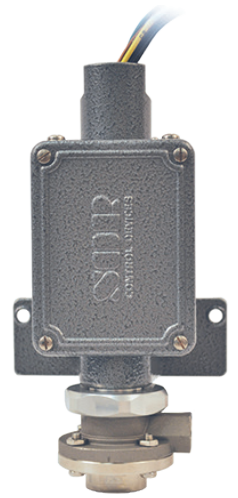
Explosion Proof, UL/CSA/ATEX
(Single diaphragm)



3 to 500 psid
0.2 to 35 bar

3 YEAR WARRANTY

- Terminal block connections
- Set point adjustment with calibrated scale
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalog 468](#)



Explosion Proof, Hermetically Sealed
(Single diaphragm)



3 to 500 psid

3 YEAR WARRANTY

- Hermetically sealed snap switch(es)
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalog 468](#)

DIFFERENTIAL PRESSURE SWITCHES

Accuracy, multi-use flexibility and the ability to match the instrument to the application distinguish SOR differential pressure switches from off-the-shelf products. Standard models are available in weatherproof and explosion proof configurations and can include an external set point adjustment mechanism for simplified calibration.



Explosion Proof, Hermetically Sealed
(Single diaphragm)



3 to 500 psid
0 to 172 bar

3 YEAR WARRANTY

- Hermetically sealed snap switch(es)
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalog 468](#)



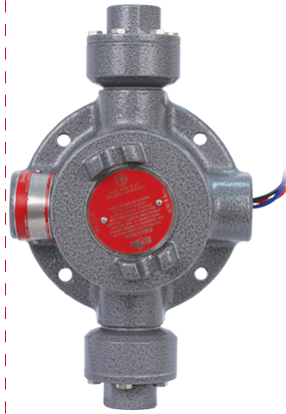
Weatherproof
(Dual, opposed piston)



0.5 to 1000 psid

3 YEAR WARRANTY

- Terminal block connections
- Set-point adjustment with calibrated scale
- For more information, see [Catalog 386](#)



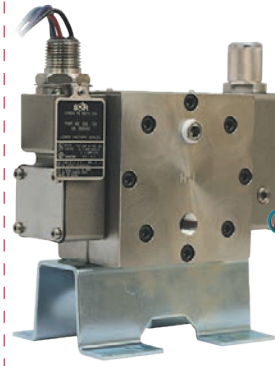
Explosion Proof
(Dual, opposed piston)



0.5 to 1000 psid

3 YEAR WARRANTY

- Set-point adjustment with calibrated scale
- For more information, see [Catalog 386](#)



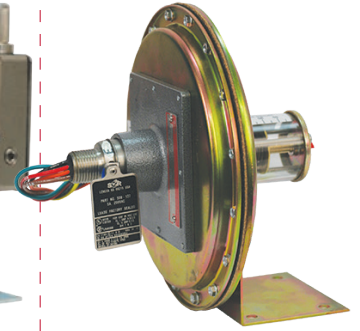
Explosion Proof, Hermetically Sealed
(High-static operation)



7 in wc to 2500 psid
18 mbar to 175 bar

3 YEAR WARRANTY

- Negligible temperature and/or static influence
- Hermetically sealed snap switch(es)
- Weatherproof version available
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalog 388](#)



Explosion Proof, Hermetically Sealed
(Low range)



0 to 40 in wc
0 to 1000 mm wc

3 YEAR WARRANTY

- Set point adjustment with calibrated scale
- Hermetically sealed snap switch(es)
- Weatherproof version available
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalog 459](#)





**Explosion Proof
(Gauge)**



100 to 10,000 psi

3 YEAR WARRANTY

- Compact, hermetically sealed enclosure
- Stainless steel sensor
- 0.25% accuracy
- 4-20mA or 1-5 VDC output
- Up to 5:1 turndown
- Available for quick delivery in 48 hours
- For more information, see [Catalog 1360](#)



**Explosion Proof
(Gauge)**



100 to 10000 psi
7 to 700 bar

3 YEAR WARRANTY

- Compact, hermetically sealed enclosure
- Stainless steel sensor
- Solid state switch output
- Supplemental continuous output
- Up to 5:1 turndown
- For more information, see [Catalog 1552](#)



**Explosion Proof
(Gauge)**



5 to 30,000 psi

3 YEAR WARRANTY

- HART®7
- Modbus RTU (RS-485)
- Compact, 316 stainless steel enclosure
- Stainless steel sensor
- +/-0.10% (URL) continuous output accuracy
- 4-20mA and/or 1-5 VDC output
- Solid state switch output
- 5:1 turndown
- Available for quick delivery in 48 hours
- For more information, see [Catalog 1570](#)



**Explosion Proof
(Differential)**



5 to 500 psid

3 YEAR WARRANTY

- HART 7
- Modbus RTU (RS-485)
- Compact, 316 stainless steel enclosure
- Stainless steel sensor
- +/-0.10% (URL) continuous output accuracy
- 4-20mA and/or 1-5 VDC output
- Solid state switch output
- 5:1 turndown
- Available for quick delivery in 48 hours
- For more information, see [Catalog 1587](#)



PRESSURE TRANSMITTERS

"Set it and forget it" reliability makes SOR pressure transmitters perfect for applications when space is tight. Our stainless steel construction stands up to the rigors of hostile environments and hazardous locations. They are available with 4-20mA, 1-5VDC, HART 7 and/or Modbus RTU protocol outputs and adjustable ranges for pressure transmitters.



Weatherproof
(Direct or remote mount)

CE CRN RTN

-50° to 1000°F
-45° to 540°C

3 YEAR WARRANTY

- Low Cost
- Set point adjustment with calibrated scale
- For more information, see [Catalog 220](#)



Weatherproof, Terminal Block Connections
(Direct or remote mount)

CRN
RTN

-50° to 1000°F
-45° to 540°C

3 YEAR WARRANTY

- Terminal block connections
- Set point adjustment with calibrated scale
- For more information, see [Catalog 220](#)



Explosion Proof, UL/CSA/ATEX
(Direct or remote mount)

CRN
RTN

-50° to 1000°F
-45° to 540°C

3 YEAR WARRANTY

- Terminal block connections
- Set point adjustment with calibrated scale
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalog 220](#)



Explosion Proof Hermetically Sealed
(Direct or remote mount)

CRN RTN

-50° to 1000°F
-45° to 540°C

3 YEAR WARRANTY

- Hermetically sealed snap switch(es)
- Set point adjustment with calibrated scale
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalog 220](#)



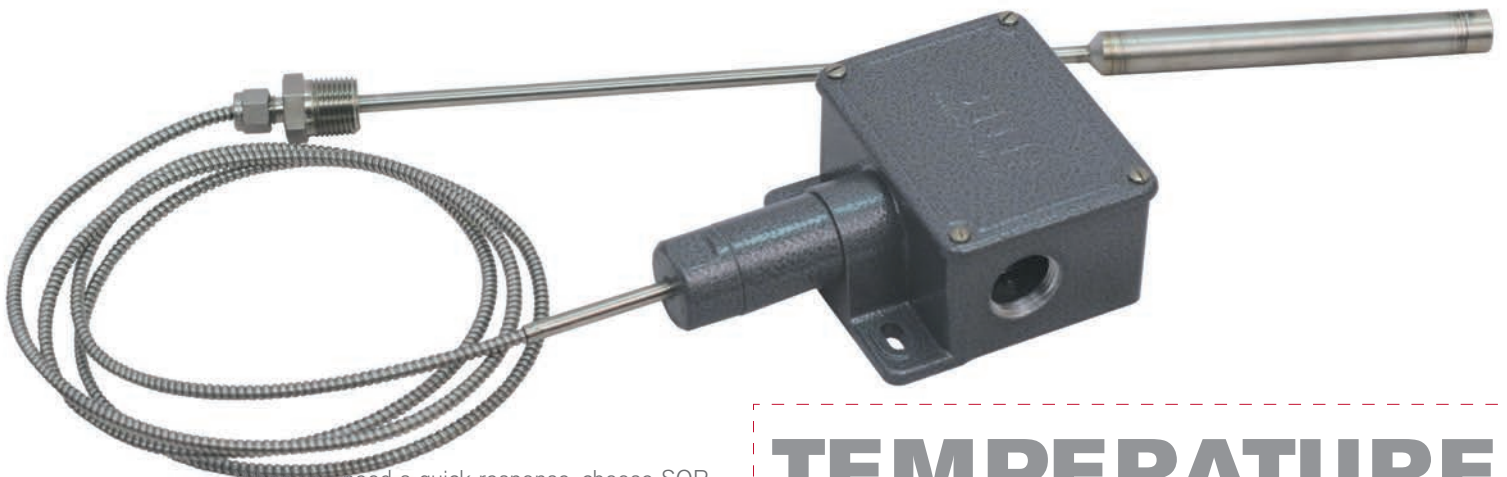
Explosion Proof Hermetically Sealed
(Direct or remote mount)

CRN RTN

-50° to 1000°F
-45° to 540°C

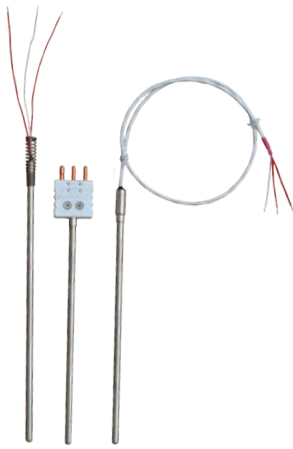
3 YEAR WARRANTY

- Hermetically sealed snap switch(es)
- Set point adjustment without declassification of hazardous area
- For more information, see [Catalog 220](#)



When you need a quick response, choose SOR temperature switches. They consistently lead the industry in sales year after year because of their small dead band ranges and legendary reliability.

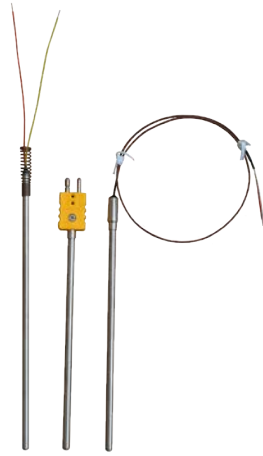
TEMPERATURE SWITCHES



RTDs

1 YEAR WARRANTY

- Industrial with spring
- 1150 with plug
- 1250 with leads
- For more information, see [Catalog RTDs](#)



THERMOCOUPLES

1 YEAR WARRANTY

- Industrial with spring
- 1100 with plug
- 1200 with leads
- For more information, see [Catalog Thermocouples](#)



SENSORS

1 YEAR WARRANTY

- 1340 remote mounted
- Field adjustable (cutable)
- General purpose with heads
- Specialty
- For more information, see [Catalogs Sensors and Specialty Sensors](#)



ASSEMBLIES

1 YEAR WARRANTY

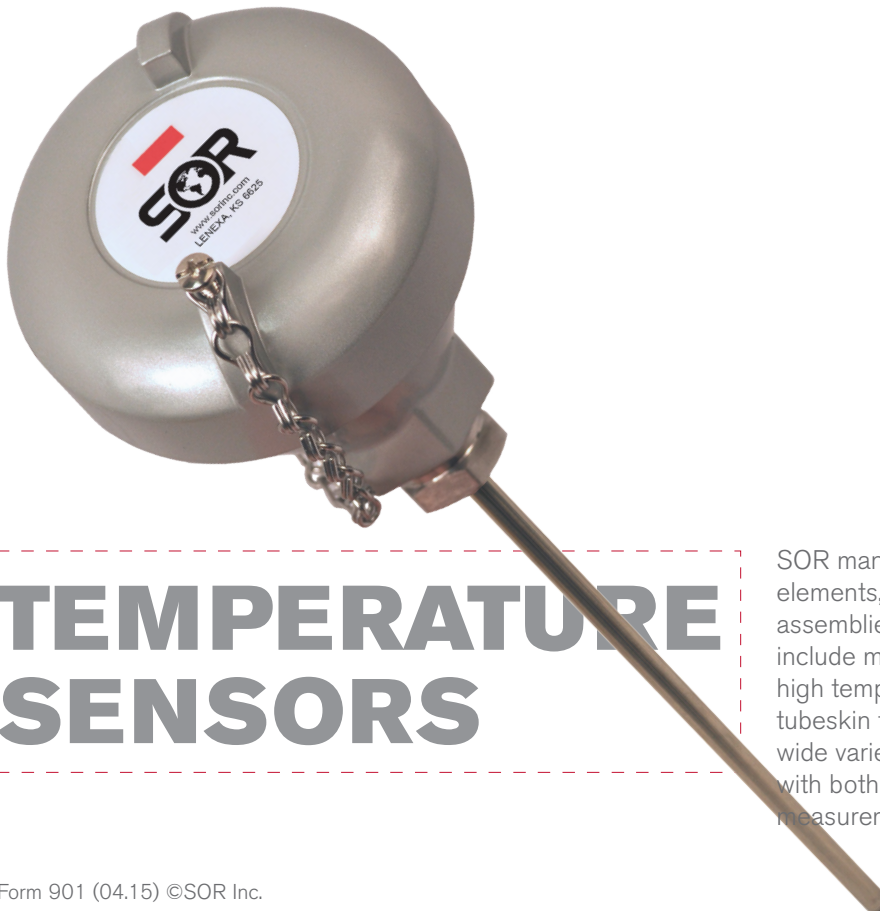
- General purpose
- Threaded wells
- Flanged wells
- Multipoint
- Hi temperature
- For more information, see [Catalog Sensors with Well Assemblies](#)



TRANSMITTERS

3 YEAR WARRANTY

- Programmable two-wire and fixed range
- Loop powered indicator
- Battery powered indicator
- For more information, see [Catalog Transmitters](#)



TEMPERATURE SENSORS

SOR manufactures a complete line of thermocouple elements, RTD sensors, thermowells, industrial assemblies and specialty temperature sensors. Products include multipoint temperature sensors, sanitary RTDs, high temperature furnace thermocouples, surface/tubeskin thermocouples and so much more to suit a wide variety of industrial applications and OEM markets with both demanding and general purpose temperature measurement requirements.



Thermal Differential

CRN RTN

-100° to 392°F
-70° to 200°C

Gases up to 500 ft/second
Liquids up to 5 ft/second

1 YEAR WARRANTY

- Wide operating process temperature range
- Designed for liquid and gas flow applications
- Removable, plug-in electronics board
- Self-heating sensor design
- For more information, see [Catalog 1021](#)



Vane Operated

RTN

vac to 1480 psi
vac to 102 bar

-65° to 800°F
-54° to 427°C

5 YEAR WARRANTY

- Stainless steel switching mechanism for harsh atmospheres
- All ASTM materials construction
- Flow monitoring for a wide range of pipe sizes and specific gravities
- For more information, see [Catalog 672](#)



OEM

CRN

vac to 5000 psi
vac to 345 bar

-40 to 400°F
-40 to 204°C

5 YEAR WARRANTY

- All stainless steel construction
- Standard product rating of 1500 psi @ (-40°F to 400°F), 100 bar @ -40°C to 204°C
- For more information, see [Catalog 499](#)



SOR flow switches have proven to be workhorses in the process instrumentation industry. They are ruggedly built to exacting standards and provide long-lasting service.

FLOW SWITCHES



Flanged Chamber



vac to 3500 psi
vac to 241 bar

-65° to 1200°F
-54° to 649°C

5 YEAR WARRANTY

- Serviceable flanged chamber
- Stainless steel switching mechanism for harsh atmospheres
- For more information, see **Catalog 912**



Sealed Chamber



vac to 3000 psi
vac to 207 bar

-65° to 1200°F
-40° to 649°C

5 YEAR WARRANTY

- Low cost sealed chamber
- Stainless steel switching mechanism for harsh atmospheres
- “Quick release” threaded cover
- For more information, see **Catalog 912, 1414**



Top Mounted Displacer



vac to 1000 psi
vac to 69 bar

-65° to 450°F
-54° to 232°C

5 YEAR WARRANTY

- Available in 1, 2 or 3-stage switching
- Narrow and wide differential
- Stainless steel switching mechanism for harsh atmospheres
- For more information, see **Catalog 912**



Top Mounted Float



vac to 750 psi
vac to 51 bar

-40° to 1000°F
-40° to 427°C

5 YEAR WARRANTY

- Available in 1- or 2-stage switching
- Stainless steel switching mechanism for harsh atmospheres
- For more information, see **Catalog 912**



Side Mounted Float



vac to 1250 psi
vac to 95 bar

-65° to 800°F
-54° to 427°C

5 YEAR WARRANTY

- Horizontal side mounted float
- Stainless steel switching mechanism for harsh atmospheres
- For more information, see **Catalog 912**

LEVEL SWITCHES

SOR level switches have earned a long-time reputation for their high quality, rugged construction and reliable performance under the most demanding applications. All level switches are individually built with strict attention to detail to meet the exact specifications of your process.



Steam Trap Chamber



vac to 5000 psi
vac to 345 bar
-65° to 1200°F
-54° to 649°C

5 YEAR WARRANTY

- Serviceable flanged or sealed chamber
- Stainless steel switching mechanism for harsh atmospheres
- For more information, see [Catalog 912](#)



Compact Level



vac to 5000 psi
vac to 345 bar
-40° to 400°F
-40° to 204°C

5 YEAR WARRANTY

- Economical side and top mounted versions available
- Stainless steel switching mechanism for harsh atmospheres
- Low cost sealed chamber available
- Wireless HART®7
- Explosion proof
- For more information, see [Catalogs 498, 850, 864, 1337 & 1563](#)



Single Point Ultrasonic



0 to 2000 psi
0 to 135 bar
-40° to 250°F
-40° to 121°C

3 YEAR WARRANTY

- Low cost
- No calibration required
- Relay and current shift (8/16mA) output available
- 316SS sensor
- Dual set point available
- For more information, see [Catalog 1145](#)



Single Point RF



0 to 2000 psi
0 to 135 bar
-40° to 400°F
-40° to 204°C

3 YEAR WARRANTY

- Low cost
- Single point switch for alarm applications
- Relay and current shift (8/16mA) output available
- A variety of probe configurations meet most application conditions
- For more information, see [Catalog 1100](#)



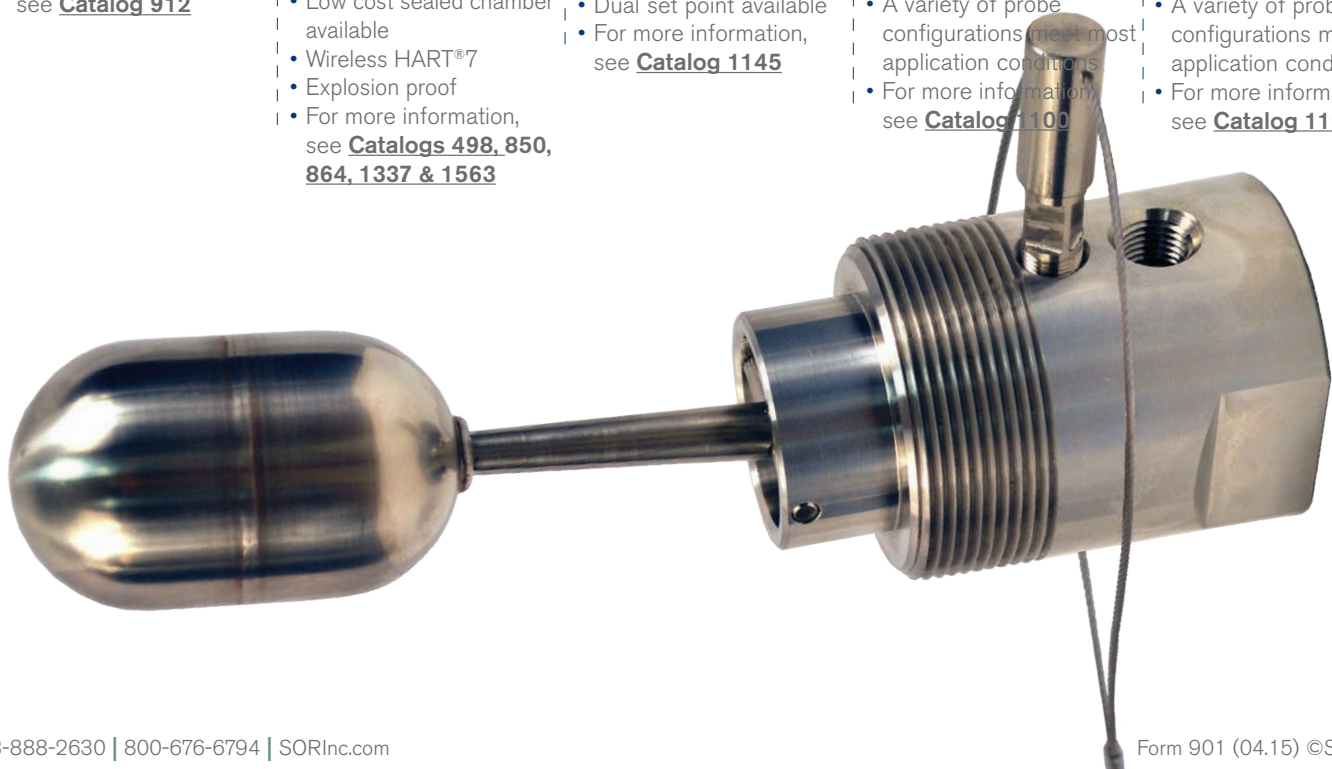
Multipoint RF



0 to 2000 psi
0 to 135 bar
-40° to 400°F
-40° to 204°C

3 YEAR WARRANTY

- Up to four points level indication for pump control
- Adjustable differential feature provides for pump control
- A variety of probe configurations meet most application conditions
- For more information, see [Catalog 1100](#)





Submersible Hydrostatic Pressure



10 to 463 ftwc
(3 to 140m)

1 YEAR WARRANTY

- Nose cone with NPT(M) connection or flush sensor design
- Unspliced cable lengths up to 3,000 ft.
- Ranges from 10 to 453 ftwc
- Compact 316SS housing
- For more information, see **Catalog 1144**



RF



Up to 150 ft.
(45m)

3 YEAR WARRANTY

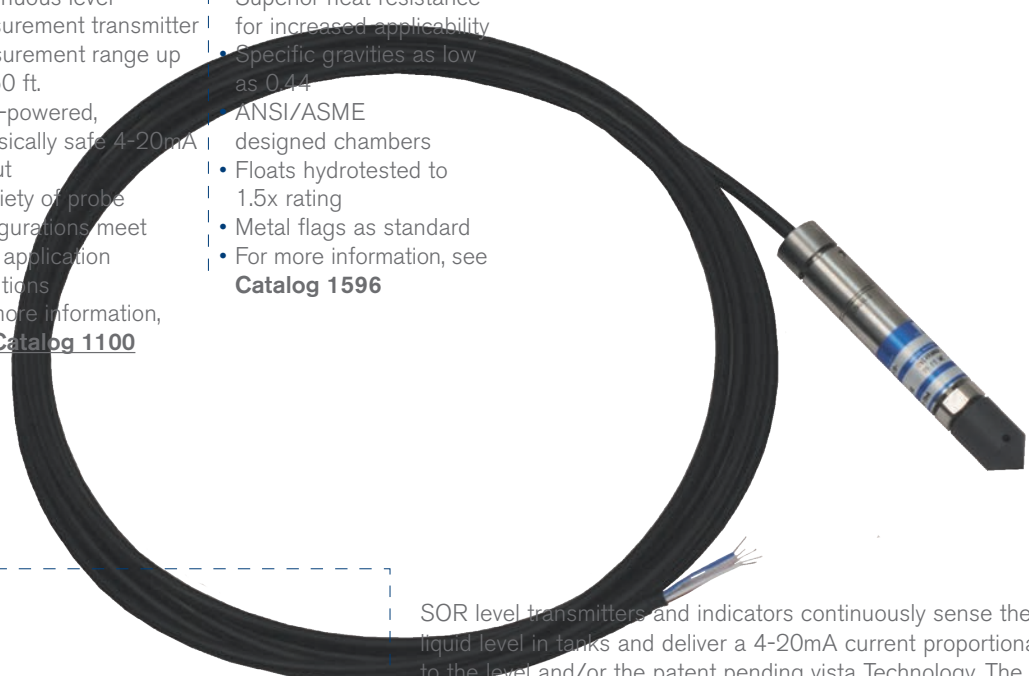
- Continuous level measurement transmitter
- Measurement range up to 150 ft.
- Loop-powered, intrinsically safe 4-20mA output
- A variety of probe configurations meet most application conditions
- For more information, see **Catalog 1100**



Magnetic Level Indicator

5 YEAR WARRANTY

- Superior heat resistance for increased applicability
- Specific gravities as low as 0.44
- ANSI/ASME designed chambers
- Floats hydrotested to 1.5x rating
- Metal flags as standard
- For more information, see **Catalog 1596**



LEVEL TRANSMITTERS & INDICATORS

SOR level transmitters and indicators continuously sense the liquid level in tanks and deliver a 4-20mA current proportional to the level and/or the patent pending vista Technology. The current output can be connected to a programmable logic controller, computer, remote display or relay module to display and/or control the liquid level in the tank. Depending on the model you choose monitoring may be accomplished without contacting the process. Our level transmitters may be used as a point or continuous level measurement device.

Chemical Seals

SOR Chemical Seals are custom-manufactured by trusted partners such as ReoTemp Instruments, a leading supplier of diaphragm seals with many years of experience in specialty seals.

SOR is ready to work with customers on any high-performance chemical seal application such as high vacuum, high temperature, high sterility, custom design, high static pressure/low differential span or high vacuum/high temperature.

THREADED SEALS

Regular or large (more sensitive) diaphragm.
With or without flushing port

30 inHg vac to 2500 psi

- Isolates sensor
- All 316SS
- Welded construction
- Custom assemblies & materials available

FLANGED SEALS

Regular or large (more sensitive) diaphragm.
For pipe sizes: 1, 1½, 2, 3, or 4".
With or without flushing port

30 inHg vac to 2500 psi

- Isolates sensor
- All 316SS
- Welded construction
- Custom assemblies & materials available

SANITARY SEALS

Tri-Clamp design for: ¾, 1, 1½, 2, 2½, or 3" pipe

30 inHg vac to 600 psi

- Sanitary isolation of sensor
- Quick connecting tri-clamp
- Meets 3A sanitary standards

Wireless

SOR pressure, level and temperature switches can easily be converted to operate in a wireless mode with the customer's choice of transmitter.



Engineered to Order



Nearly every SOR product can be designed to meet the demands of your process and custom built to your exact specifications. Our mixed-mode capabilities enable us to operate in a job shop environment with an OEM mentality. We specialize in short-run/quick-turn projects, but can also handle high-volume work. All of this and quick delivery that matches off-the-shelf suppliers.

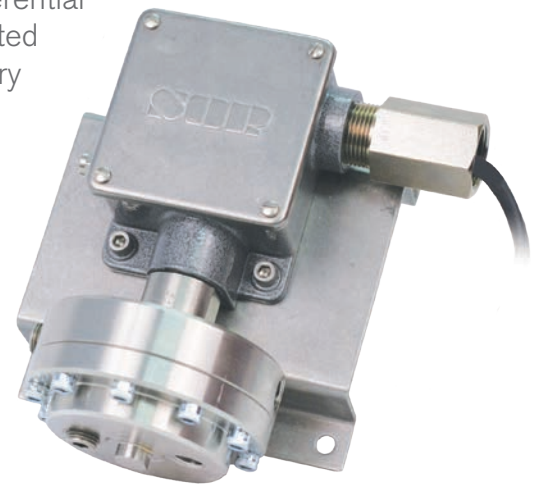
Nuclear Qualified Products

SOR custom engineers nuclear-qualified pressure, temperature, differential and vacuum switches. Our engineering expertise is specifically targeted to meet the unique demands of the nuclear power generation industry and provide solutions.

Compliant 10CFR50, Appendix B
ANSI N45.2
NQA-1 (including reporting)
ASME Section III, subsection NC and ND

Qualified by a combination of testing and analysis
IEEE-323-1974 & 1983
IEEE-344-1975 & 1987

Audited Nuclear Procurement Issues Committee (NUPIC)
Nuclear Industry Assessment Committee (NIAC)
Canadian Technical Standards & Safety Authority (TSSA) N285.0



Hazardous Area Classification

Hazardous Areas are locations where the potential for fire or explosion exists because of gases, dust or easily ignitable fibers or flyings in the atmosphere.

In North America, hazardous areas are separated by classes, divisions, and groups to define the level of safety required for equipment installed in these locations. Classes define the general form of the flammable materials in the atmosphere. Divisions define the probability of the presence of flammable materials. Groups classify the exact flammable nature of the material.

In Europe and countries outside of North America, classification of hazardous areas is accomplished differently. Zones are used to define the probability of presence of the flammable materials. Protection Types denote the level of safety for the device. Groups classify the exact flammable nature of the material. These groups are separated differently than North American Groups. Temperature Identifications convey the maximum surface temperature of the apparatus based on 104°F (40°C) ambient. These temperature codes are selected carefully so as not to exceed the ignition temperature of the specific gas or vapor to be encountered in the application.

Environmental Protection










Similar to hazardous location classifications, environmental protection ratings are slightly different within and outside of North America. National Electrical Manufacturers Association (NEMA) and Ingress Protection (IP) Codes provide similar information regarding protection against specified environmental conditions.

NEMA 4	Indoor or outdoor use. Protection against wind-blown dust and rain, splashing water, hose-directed water and damage from external ice formation.
NEMA 4X	NEMA 4, plus protection against corrosion.
IP 65	Dust-tight and protected against water jets.
IP 68	Dust-tight and suitable for indefinite immersion.

Some classifications are not shown here. For further detailed information, see specific standards published by approval organizations.

Agency Approvals

SOR products satisfy the requirements of approval agencies worldwide. Often, a common design is capable of multiple approvals. In other cases, modified construction techniques are necessary to meet specific agency requirements.

	ATEX (BASEEFA, DEMKO, KEMA, SIRA)
	TestSafe (Australia)
	Canadian Standards Association
	CE Marked: EMC Directive 89/3367/EEC
	Factory Mutual
	SOR products are certified to IEC 61508 for non-redundant use in SIL1 and SIL2 Safety Instrumented Systems for most models.
	GOST R
	Heavy Industrial (Self-Certified)
	INMETRO
	Technology Institution of Industrial Safety
	Korean Occupational Safety and Health Agency
PESO	Petroleum and Explosives Safety Organisation
	Rostekhnadzor
	SASO
	Underwriters Laboratories
	IEC (International Electrotechnical Commission)



General Applications



Oil & Gas

- Wellhead pressure
- Flow line monitoring
- Separator levels
- Compressor pressure monitoring
- Sump control

Petrochemical

- Catalytic cracker
- Distillation
- Fractionation
- Hydrotreater/Reformer
- Coker
- Flare knockout tank
- Sump control

Power

- Fuel storage and handling
- Steam turbine drip legs
- Hotwell condenser
- Feed water heaters
- Demineralization
- Ash precipitator/scrubber
- Steam drum level
- Sump control

Chemical & Other

- Storage and batch tank level
- High level alarm safety shutdown
- Solvent extraction
- Rupture disc integrity
- Filter integrity
- Water/wastewater treatment
- Pulp processing
- Rotating equipment lube systems
- Sump control

Nuclear Qualified

SORInc.com



MEASUREMENT AND CONTROL



MEASUREMENT AND CONTROL

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REGIONAL OFFICES

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