



PRODUCT GUIDE

Registered Quality System to ISO 9001



Who we are

SOR Controls Group, LTD (SCG) is a global leader in the design and manufacture of measurement and control devices under the brands of SOR Inc., Smart Sensors Incorporated (SSi) and SETEX Products. SOR Controls Group actively serves all sectors of the process industry with particular strengths in the oil & gas, petrochemical, chemical and power segments. SCG supports a network of sales and service personnel capable of addressing customer requirements in any geographic market around the world.

One of the Best Machine Shops in America

Our manufacturing facilities include more than 85,000 square feet of vertically integrated production capability and we are proud of having our Lenexa, Kansas machine shop voted one of the top 10 in the United States by the American Machinist magazine. With decades of experiencing manufacturing measurement and control products, we have designs for thousands of unique applications around the world.

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.

Customer Service is Our Focus

SOR is dedicated to reducing product lead times and has LEAN initiatives in place to continuously improve the quality and delivery of products we provide to you. We know that no two applications are exactly the same. 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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NN

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 for high pressure available
- For more information, see [Catalogs 216 & 219](#)



RN

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
- Terminal block connections
- For more information, see [Catalogs 216 & 219](#)



L

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
- Explosion proof rated as outlet box
- For more information, see [Catalogs 216 & 219](#)



B3

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](#)



BIG-HERMET

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



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

3 YEAR WARRANTY

- Complete pressure range offering
- 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.



MINI-HERMET
Explosion Proof,
Hermetically Sealed
(Pressure/Compound)



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

3 YEAR WARRANTY

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



V1
Weatherproof
(Pressure/Vacuum/
Compound)



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

3 YEAR WARRANTY

- Two independent switches sharing same housing and port
- Dual set points available
- Set point adjustment with calibrated scale
- Adjustable dead band on some models
- For more information, see [Catalogs 217 & 281](#)



V2
Explosion Proof,
Hermetically Sealed
(Pressure/Vacuum/
Compound)



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

3 YEAR WARRANTY

- Two independent switches sharing same housing and port
- 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](#)



SUB MINI-HERMET
Explosion Proof,
Hermetically Sealed
(Pressure)



8 to 200 psi
0.5 to 14 bar

3 YEAR WARRANTY

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



805QS
Explosion Proof
(Pressure)



0-5 to 0-30,000 psi
0-.34 to 0-2068 bar

3 YEAR WARRANTY

- Solid state switch output
- Stainless steel sensor
- Compact, 316 stainless steel enclosure
- Supplemental continuous 4-20 mA or 1-5 VDC output
- For more information, see [Catalog 1552](#)





NN

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](#)



RN

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](#)



L

Explosion Proof
(Single diaphragm)



3 to 500 psid
0.2 to 35 bar

3 YEAR WARRANTY

- Low cost
- Set point adjustment with calibrated scale
- Explosion proof rated as outlet box
- For more information, see [Catalog 468](#)



B3

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](#)



BIG HERMET

Explosion Proof, Hermetically Sealed
(Single diaphragm)



3 to 500 psid
0.2 to 35 bar

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.



MINI-HERMET
Explosion Proof,
Hermetically Sealed
(Single diaphragm)



3 to 500 psid
0.2 to 35 bar

3 YEAR WARRANTY

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



RB
Weatherproof
(Dual, opposed
piston)



0.5 to 1000 psid
35 mbar to 70 bar

3 YEAR WARRANTY

- Separate pressure ports to customize material and size
- Terminal block connections
- Set-point adjustment with calibrated scale
- For more information, see [Catalog 386](#)



S
Explosion Proof
(Dual, opposed
piston)



0.5 to 1000 psid
35 mbar to 70 bar

3 YEAR WARRANTY

- Separate pressure ports to customize material and size
- Set-point adjustment with calibrated scale
- For more information, see [Catalog 386](#)



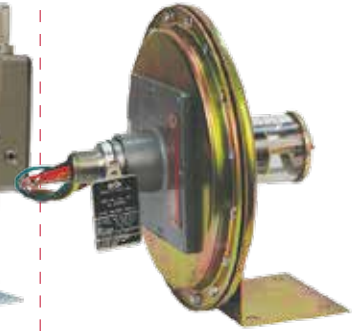
102 & 103
Explosion Proof,
Hermetically Sealed
(High-static operation)



7 in wc to 2500 psid
18 mbar to 175 bar

3 YEAR WARRANTY

- High static pressures at low differential set points
- Negligible temperature and/or static influence
- Hermetically sealed snap switch(es)
- Weatherproof version available
- For more information, see [Catalog 388](#)



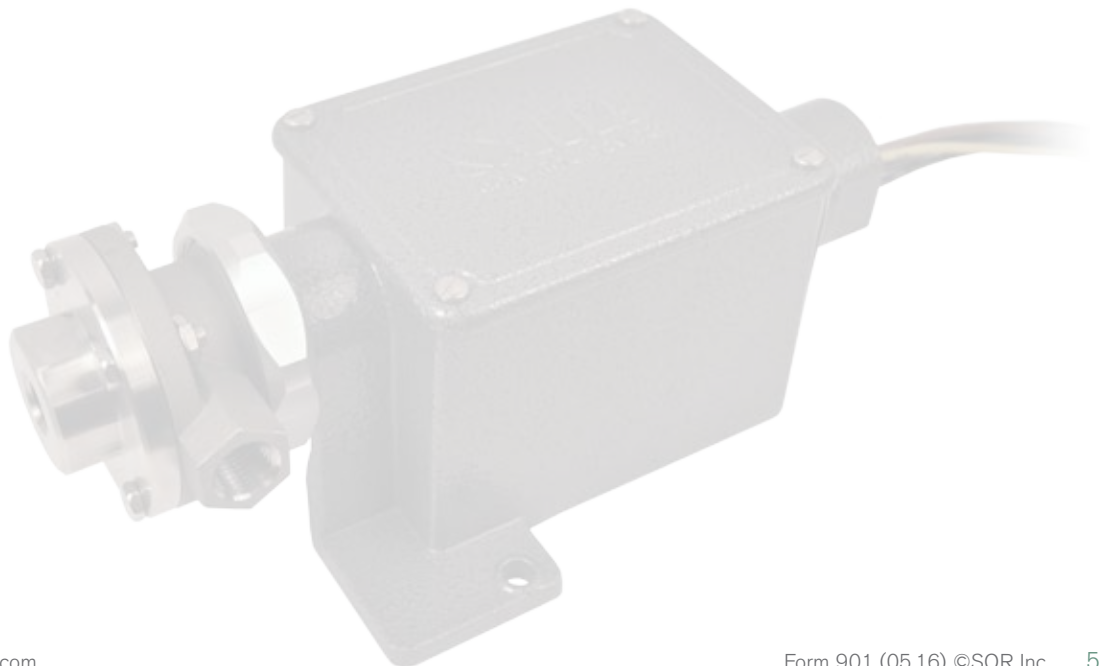
107
Explosion Proof,
Hermetically Sealed
(Low range)



0 to 40 in wc
0 to 1000 mm wc

3 YEAR WARRANTY

- Highly accurate low range for draft applications
- Set point adjustment with calibrated scale
- Hermetically sealed snap switch(es)
- Weatherproof version available
- For more information, see [Catalog 459](#)





805PT
Explosion Proof
(Gauge)



0-5 to 0-30,000 psi
0-.34 to 0-2068 bar

3 YEAR WARRANTY

- Compact, 316 stainless steel enclosure
- Stainless steel sensor
- 0.25% accuracy
- 4-20mA or 1-5 VDC output
- LCD explosion proof display option available
- Available for quick delivery in 48 hours
- For more information, see [Catalog 1360](#)



805QS
Explosion Proof
(Gauge)



0-5 to 0-30,000 psi
0-.34 to 0-2068 bar

3 YEAR WARRANTY

- Compact, 316 stainless steel enclosure
- Stainless steel sensor
- Solid state switch output
- Supplemental continuous output
- LCD explosion proof display option available
- For more information, see [Catalog 1552](#)



815PT
Explosion Proof
(Gauge)



0-5 to 0-30,000 psi
0-.34 to 0-2068 bar

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
- 9-way configurable solid state switch output
- LCD explosion proof display option available
- Available for quick delivery in 48 hours
- For more information, see [Catalog 1587](#)



815DT
Explosion Proof
(Differential)



5 to 500 psid
0-.34 to 0-35 bar

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
- 9-way configurable solid state switch output
- LCD explosion proof display option available
- Available for quick delivery in 48 hours
- For more information, see [Catalog 1587](#)



"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.

PRESSURE TRANSMITTERS



NN

Weatherproof

(Direct or remote mount)

CE CRN SR RTN SIL

-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](#)



RN

Weatherproof, Terminal Block Connections

(Direct or remote mount)

CRN SR Ex RTN SIL

-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](#)



B3

Explosion Proof, UL/CSA/ATEX

(Direct or remote mount)

CRN Ex SR P G RTN SIL UL

-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](#)



BIG HERMET

Explosion Proof Hermetically Sealed

(Direct or remote mount)

CRN SR RTN SIL Test F Safe UL

-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](#)



MINI-HERMET

Explosion Proof Hermetically Sealed

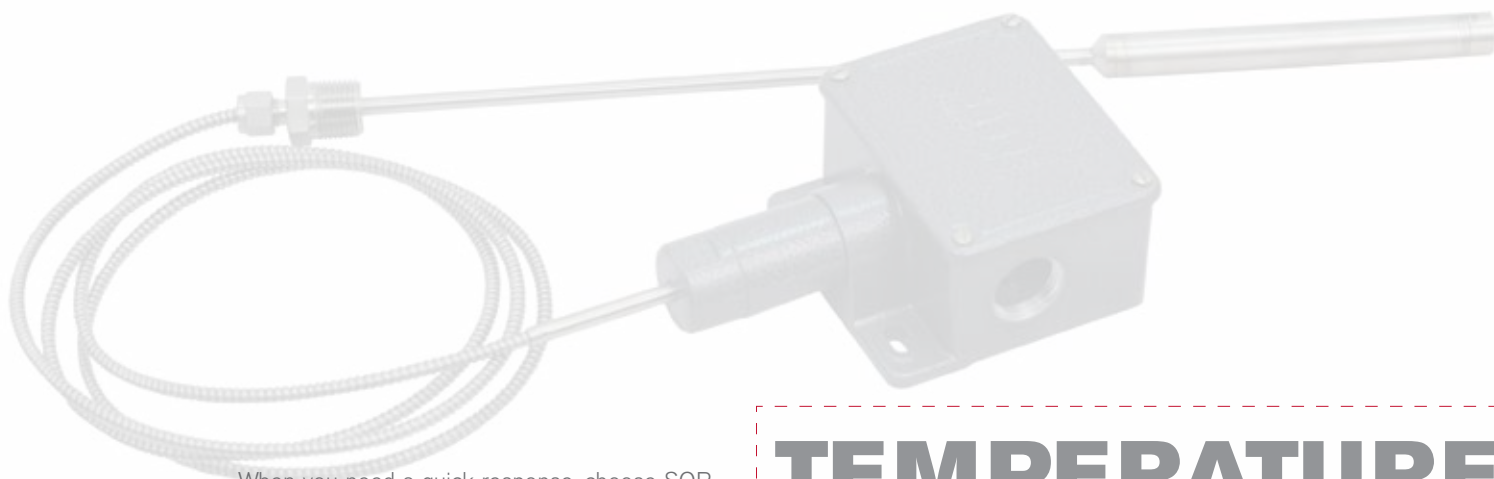
(Direct or remote mount)

CRN SR Ex P G RTN SIL Test F Safe UL

-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.

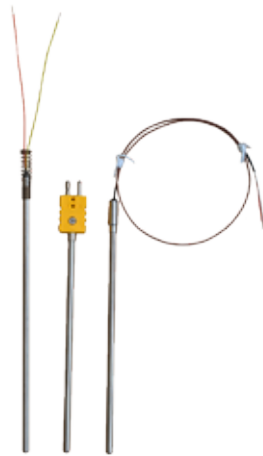
TEMPERATURE SWITCHES



RTDs

1 YEAR WARRANTY

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



THERMOCOUPLES

1 YEAR WARRANTY

- Quick delivery available
- 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.



T21
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](#)



900 SERIES
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](#)



1520
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](#)



815DT
Explosion Proof
(Differential)

5 to 500 psid
0-.34 to 0-35 bar

3 YEAR WARRANTY

- Square root output available
- 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
- 9-way configurable solid state switch output
- LCD explosion proof display option available
- Available for quick delivery in 48 hours
- For more information, see [Catalog 1587](#)

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 & TRANSMITTERS



**100 SERIES,
741-743, 801-802**
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**



**200 SERIES, 2210
740, 803-804**
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**



**700 SERIES,
730 & 750 SERIES**
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**



300 SERIES
Top Mounted Float



vac to 750 psi
vac to 51 bar

-40° to 1000°F
-40° to 537°C

5 YEAR WARRANTY

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



400 SERIES
Side Mounted Float



vac to 1250 psi
vac to 86 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.



108 & 208
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**



1500 SERIES,
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 & 1337**



1710, 1780
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 864 & 1563**



**701, 711,
721 & 722**
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**



651 & 681
Single Point RF
660 SERIES
Multipoint 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
- 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**



510LT, 510SF
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](#)



815DT
Explosion Proof
(Differential)



5 to 500 psid
0-.34 to 0-35 bar

3 YEAR WARRANTY

- 21 point strapping table for non-linear tank geometries
- 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
- 9-way configurable solid state switch output
- LCD explosion proof display option available
- Available for quick delivery in 48 hours
- For more information, see [Catalog 1587](#)



**670
SERIES**
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](#)



1100 SERIES
Magnetic
Level Indicators



vac to 5000 psi
vac to 345 bar

5 YEAR WARRANTY

- 0.35 min. specific gravity
- 200° viewing angle with vista™ viewing technology
- Designed to ANSI/ASME B31.1 and B31.3 guidelines
- Each float designed to meet process temperatures, pressure and specific gravities
- Floats hydrotested to 1.5X rating and shipped inside chamber for easy commissioning
- A wide variety of indicator flag colors are available
- 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.



1450
Control Valve

CRN

vac to 3750 psi
vac to 259 bar
-40 to 200°F
-40 to 93°C

1 YEAR WARRANTY

- Bonnet safety pressure relief
- NACE and high-temperature configurations available
- Optional Tungsten carbide hardened trim for erosive applications
- Reverse and direct acting options
- For more information, see [Catalog 1639](#)



1451
Control Valve

CRN

vac to 2220 psi
vac to 153 bar
-40° to 200°F
-40° to 93°C

1 YEAR WARRANTY

- NACE option available
- Stainless steel trim
- Compact size
- For more information, see [Catalog 1639](#)



1600 SERIES
Liquid Level Controllers

CRN

vac to 6000 psi
vac to 414 bar
-40° to 400°F
-40° to 204°C

1 YEAR WARRANTY

- Controller case is easily field reversible
- Well suited for liquid-liquid interface detection
- NACE option available
- Field selectable vertical or horizontal displacer configuration
- For more information, see [Catalog 1637](#)



1267AFR-1
Air Filter Regulator

0 to 30 psi (0-2 bar)
0 to 60 psi (0-4 bar)
0-120 psi (0-8 bar)

18 MONTH WARRANTY

- 1/4" NPT inlet & outlet ports
- Low air consumption for lower operating costs
- NACE option available
- 250 psi (17 bar) max inlet pressure
- For more information, see [Catalog 1631](#)



1267AFR-2
High Flow Capacity
Air Filter Regulator

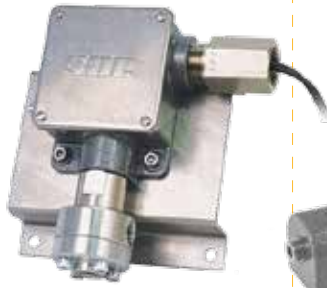
0 to 30 psi (0-2 bar)
0 to 60 psi (0-4 bar)
0-120 psi (0-8 bar)

18 MONTH WARRANTY

- 1/2" NPT inlet & outlet ports
- Low air consumption for lower operating costs
- High flow rate capacity
- 250 psi (17 bar) max inlet pressure
- For more information, see [Catalog 1631](#)

Valves and controls are designed and manufactured by SOR to be used in rugged and demanding applications like those found in the oil and gas industry. Each instrument is designed to provide superior performance and to solve industry specific challenges. SOR instruments have been proven over time to deliver increased reliability in the most demanding applications around the world.

VALVES, CONTROLLERS & REGULATORS



131 & 141 Differential Pressure Switches

5" wcd to 180 psid

1 YEAR WARRANTY

- 1E qualified
- Long-term stability
- Negligible temperature effect
- HELB tested to 33Mrad
- Quick delivery
- For more information see [Catalog 1291](#)



N6, RT, TA Pressure Switches

30" HgV to 1750 psi

1 YEAR WARRANTY

- Carbon and stainless steel housing for HELB tested to 33Mrad
- Ductile iron housing for LOCA tested to 200Mrad
- Threaded cover with double environmental seal
- Vent connection provided if needed
- Terminal block connections if needed
- May be engineered to meet your specifications
- For more information see [Catalog 651](#)



N6, RT, TA Temperature Switches

40° to 375°F

1 YEAR WARRANTY

- Carbon, ductile iron, and stainless steel housing for HELB tested to 33Mrad
- Threaded cover with double environmental seal
- Vent connection provided if needed
- Terminal block connections if needed
- May be engineered to meet your specifications
- For more information see [Catalog 651](#)

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.



BBSS
Basic Bottle
Sampling System

150 psig max
when sampling
Sample valve and system
rated up to 2000 psig

135°F max without cooler;
800°F max with cooler
& graphoil valve packing

- Simple, flow-thru valve design
- Zero dead volume
- Replaceable process and vent needles
- SENSOR Needle Purge available
- For more information see **Catalog 1675**



FVBSS
Fixed Volume Bottle
Sampling System

2000 psig @ 70°F

135°F max without cooler
800°F max with cooler
& graphoil valve packing

- Guarantees repeatable sample volume
- Zero dead volume
- Replaceable process and vent needles
- Suitable for high process pressures
- SENSOR Needle Purge standard
- For more information see **Catalog 1680**



ISS
Inline
Sampling System

1440 psig max
150 psig max when
sampling without fixed
volume option

135°F max without cooler
800°F max with cooler
& graphoil valve packing

- Available in wide variety of piping materials and end connections
- Suitable for high temperature, high viscosity service
- Available with open tube "stinger" or process needle
- SENSOR Needle Purge available
- For more information see **Catalog 1679**



LGSS & VSS
Liquefied & Vapor Gas
Sampling Systems

1440 psig
2000 psig max @ 70°F

350°F maximum

- Safe, simple methodology for sampling high pressure liquefied gasses and process gasses such as N₂ or H₂S
- Single handle operation
- Panel mounted pressure gauge
- Sight glass ensures safe cylinder outage
- Ability to depressurize quick connects before removing cylinder
- For more information see **Catalog 1681**



SENSOR Sampling Systems provide a representative sample that is safe to both the operator and the environment. Our systems are designed to meet Leak Detection Repair (LDAR), Maximum Achievable Control Standards (MACT) and Volatile Organic Compounds (VOC) emission standards. Since no two sampling systems are exactly alike, each of our products is engineered to order.

SAMPLING SYSTEMS

Hardware is key to reliable SCADA operations

- SOR Controls Group world-class pressure, temperature and level instruments
- Where other manufacturer instruments are required, we select vendors based on our experience and high quality and performance standards
- Central control panel is SENSOR manufactured using plug-and-play components

Communications collect data and bring it back to a central location

- HART®, Modbus and discrete signals all used
- Wireless, battery powered site radios available for easy installation and reduced costs
- Land-line, cellular, radio, and satellite communications to the server available

Data collection and reporting are the final piece to make it all worthwhile

- The client owns the server for full control and peace of mind
- Both hardware and Cloud based servers available
- Optional hardware only packages available for users with a preferred data collection network
- Data is reported via graphical screens representative of actual operations for easy, intuitive monitoring
- Alarm notification via text and email available and fully customizable

For more information, see **SENSOR Telemetry Monitoring System, Catalog 1594**

INPUTS

- Wireless
- Analog (4-20 mA, 1-5v, 0-10v, etc.)
- Discrete
- Digital Comms (modbus, HART®, Profibus, Devicenet, etc.)

OUTPUTS

- Cell
- Satellite
- Radio
- Ethernet



*Minimize Downtime and Lost Production
Reduce Costs
Increase Safety and Compliance
Improve Operational Performance*

WELL MONITORING SYSTEMS

SENSOR Engineered Solutions, as part of SOR Controls Group, manufactures high performance measurement devices required for monitoring and controlling each of the four primary process variables used in the safe remote operation and control of a wellsite: Pressure, Temperature, Level, and Flow. The SENSOR Remote Well Monitoring and Control System has a flexible design to provide a multitude of options using off-the-shelf components to meet the requirements of your process conditions. Automate and monitor a single area of the production process and later expand the system for full remote operation.

ENGINEERING EXPERTISE

- Capable of offering fully integrated solutions from design to installation
- Hardware development tools
- Test equipment
- Firmware development
- Desktop/Application software development
- Industrial communication protocol experience
- Mechanical design development and prototyping tools
- Full drafting capabilities including 3-D modeling
- Finite element analysis (FEA)
- Research and Development: comprehensive testing and evaluation capabilities

Engineered to Order

SOR can customize nearly every standard product, or design, develop and manufacture a custom product to meet your exact specifications. Our mixed-mode capabilities enable us to operate in a job shop environment with an OEM mentality. We specialize in short-turn projects, but can also handle high-volume work.



MANUFACTURING CAPABILITIES

MACHINING

- Precision machinists / tool & die makers
- CNC machining centers
- Full tool & die design, machining and fabrication

WELDING & FABRICATION

- Certified MIG/TIG Welders
- Level II NDE/Certified Weld Inspector on staff
- ASME Section IX and AWS D2.1 qualified welding system
- Capability to produce to ASME B31.1 & B31.3

ASSEMBLY, PAINT, TEST & CALIBRATION

- Vertically integrated assembly, painting and test process capability
- Manufacturing and quality engineers dedicated to production operation



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

Hazardous Area Classification

Hazardous Areas are locations where the potential for fire or explosion exists because of gases, dust or easily ignitable fibers 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
	KOSHA Korean Occupational Safety and Health Agency
PESO	Petroleum and Explosives Safety Organisation
RTN	Rostekhnadzor
	SASO
	Underwriters Laboratories
	IEC (International Electrotechnical Commission)
	China Compulsory Certification
	Taiwan Safety



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



MEASUREMENT AND CONTROL

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