

# ENERGY, OIL & GAS

Transducer & Transmitter Capabilities



**AST<sup>TM</sup> MACRO SENSORS<sup>TM</sup>**  
*Your sensor business partner...*

[astsensors.com](http://astsensors.com) | [macrosensors.com](http://macrosensors.com)

# About Us

## AST



**“The mission of American Sensor Technologies, Inc. is to be “your sensor business partner...”**

American Sensor Technologies, Inc. (AST) was incorporated in New Jersey on January 9, 1997, by Richard E. Tasker, Michael P. Eldredge and Karmjit S. Sidhu, for the purpose of developing MEMS (Micro-Electro Mechanical Structures) pressure sensor products with their proprietary Krystal Bond™ Technology.

The dynamics of AST’s technologies allow its pressure sensing element to be packaged in virtually an unlimited number of configurations along with offering millivolt output pressure sensors, amplified voltage pressure transducers, or current output pressure transmitters. Products can be offered from our standard catalog or modified into a semi-custom or custom package for OEM applications.

AST manufactures its pressure sensor products and related items under an **ISO 9001:2008** certified quality system.

- Innovator, manufacturer and seller of state-of-the-art Pressure, Position and Liquid Level Sensors
- Incorporated in 1997
- Over 120 personnel employed at three manufacturing facilities: Mount Olive, NJ, Pennsauken, NJ and Hong Kong, China
- ISO 9001:2008 Quality Management System



“American Sensor Technologies, Inc. will meet or exceed customer expectations for quality, delivery and performance. We will meet applicable regulatory requirements. We are committed to growing, improving and enhancing our processes, products and people.”



# About Us

## Macro Sensors

**“Macro Sensors is solving position measurement problems as an extension of the customer’s engineering resource.”**

Macro Sensors designs and manufactures highly accurate, extremely rugged linear and rotary position sensors utilized in various applications and industries worldwide. When combined with the most advanced signal conditioning electronics, Macro Sensors offers a variety of solutions for position sensor monitoring for extreme temperature and pressure conditions. Through experienced technical support and engineering staff, Macro Sensors is able to support custom sensor requirements.



- Manufacturer of linear and rotary positions sensors and related signal conditioning items
- Design engineering support for semi-custom and custom product designs
- ISO 9001:2008 Quality Management System

“Macro Sensors products are trusted in some of the world’s most demanding and challenging environments, including nuclear, aerospace, and subsea applications.”

# Main

## Markets

### Oil & Gas

- Wellhead Instrumentation
- Offshore
- Gas Compression
- Storage Tank
- Pipeline Monitoring
- Sub-sea

### Fluid Power

- Industrial Equipment
- Pumps
- Cylinders / Accumulators
- Filtration
- Hydrostatic Tank Level

### Alternative Energy

- Wind
- Hydrogen
- Solar
- Coal Bed & Methane
- Bio-Fuels & Gases

### HVAC / Refrigeration

- Freon
- Chilled Water
- Ammonia Systems  
(both stationary and mobile)

### Water

- Potable and Waste Water Management
- Residential and Commercial Pumps
- Sewage Lift Stations
- Water Wells

### Power Generation

- Turbine Valve and Boiler Controls
- Gas Flow Measurements
- Turbine Balancing
- Steam Pressure Measurements
- Micro-Turbines for Standby Power



# ENERGY, OIL & GAS

## Sensor Types



### Pressure

Pressure transducers and transmitters are built to operate accurately in various ambient conditions where hazardous location approvals are required. From 1 PSI for level measurement to 20,000 PSI for deep wells, AST provides solutions to customers needing pressure or pressure and temperature measurement in extremely cold and hot environments.



### Position

Macro Sensors manufactures LVDT position sensors integrated into sensor assemblies as well as custom designs for down hole, valve assemblies, and sub-sea applications. Special alloys, custom stroke lengths and unique electrical connections permit customers to find the best possible solution for monitoring position.



### Differential Pressure

AST manufactures differential pressure transmitters for oil and gas applications with hazardous location approval. Featuring line pressure up to 1,500 PSI, AST can accurately measure differential pressure without the use of 5-way valves, saving hundreds of dollars, reducing leak paths and potential installation issues. The oil-free design will also not fail due to cold ambient conditions.



# ENERGY, OIL & GAS

## Pressure Transmitter Options

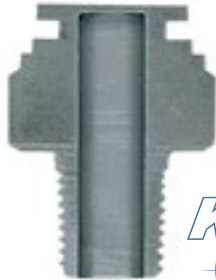
### Mechanical

Using the latest sensor technologies, AST packages transmitters for the oil and gas industry to measure pressures from 1 PSI up to 20,000 PSI with hazardous location approvals. Featuring material options such as 316L, 17-4 PH, Inconel, and Hastelloy, AST products cover NACE MR0175, CRN, and ANSI/ISA 12.27.01 Single Seal requirements.

#### Popular **Thread Options**

- 1/4" NPT
- F250C
- G 1/4
- 1/4 BSPP
- M20x1.5
- M18x1.5
- Or Custom!

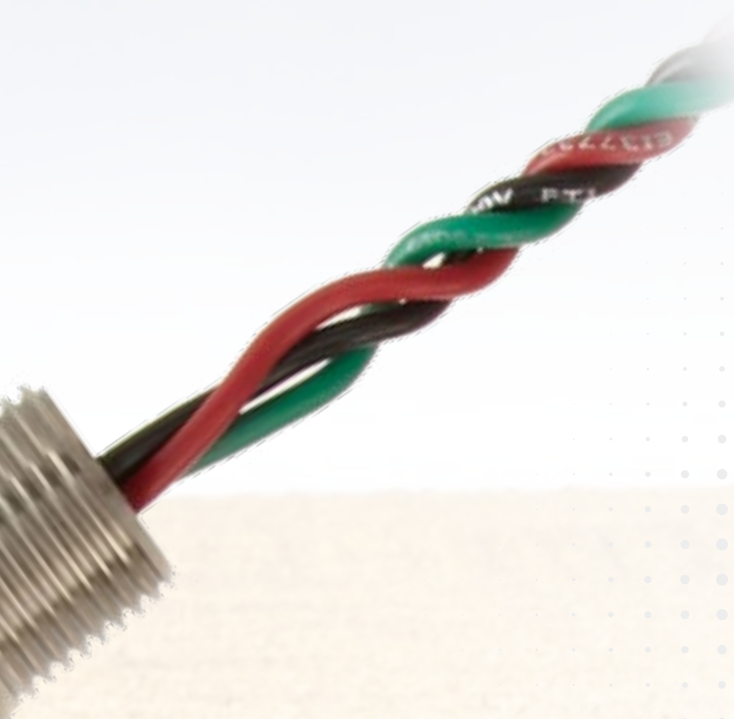
No welds, o-rings, or  
oil filled cavities.



**Krystal  
Bond™**  
Technology  
by AST

# ENERGY, OIL & GAS

## Pressure Transducer Options



### Electrical

AST manufactures pressure transducers and transmitters with a variety of options for the oil and gas industry. Voltage outputs offer well-site optimization low current consumption options, while 4-20mA output signals create opportunity for long distance transmissions.

An additional temperature output signal can reduce the number of instruments installed or at a minimum, add redundancy.

Solid state pressure switches offer the performance of a transmitter with normally open or closed switch points.

### Environmental

AST packages its transducers to withstand various outdoor conditions and hazardous locations, tested and certified by various third party independent laboratories and certification bodies. Products are installed in extremely hot and cold ambient conditions with superb accuracy using the latest in digital electronics.

*High Temperature LVDT Sensor Technology*



# ENERGY, OIL & GAS

## Applications

### Wellhead Instrumentation

- Robust, accurate sensor technologies -- Best Price to Performance Ratio
- Explosion-proof, intrinsically safe and non-incendive options from 1 PSI to 20,000 PSI
- Compact, yet rugged
- Low current consumption
- Excellent Accuracy over wide temperature span

### Pipeline Monitoring

- Differential pressure transmitters available with 1,500 PSI line pressure and 10 PSID
- Position transmitters manufactured for pipeline mapping via pipeline pigs
- Differential transmitters manufactured for gas odorization systems
- Pressure transients monitored along pipelines ensure pipe integrity



# ENERGY, OIL & GAS

## Applications

### Gas Compression

- Variety of approvals, process connections, and electrical connections
- Compound and bidirectional measurement ranges
- All 316L stainless steel material standard
- Withstand high shock and vibration

### Storage Tanks & Level Measurement

- Monitor liquid and gas level via submersible, gauge or differential transmitters
- Explosion-proof, intrinsically safe and non-incendive options
- Cost effective
- Will not fail due to vapors, moisture, vibration, foaming or reflective surfaces
- No tank modification required
- ABS Certified instrumentation for marine systems

# ENERGY, OIL & GAS

## Applications

### Offshore

- Class I Division 1 Explosion-Proof options for gauge, absolute and differential pressures
- 316L SS, Inconel and Hastelloy sensors available (NACE compliant)
- Stainless steel or coated housings withstand salt spray
- Explosion proof ratings up to 20,000 PSI for deep well applications
- Wide operating temperature

### Sub-Sea

- Monel position transmitters for sub-sea controls and transformers
- Down-hole position transmitters feature a small diameter and high temperature capability
- Highly accurate pressure and temperature transmitters design for test equipment

# APPROVALS and Standards



## HAZARDOUS LOCATION

### Explosion Proof

- CSA 30 Class I and II Division I Groups A, B, C, D, E, F, G
- ATEX Exd
- ANSI 12.27.01 - 2003
- ASME B31.3
- Canadian Registration Number (CRN)

### Intrinsically Safe

- CSA 157 (UL 913) Class I Division 1 Groups A, B, C, D
- ATEX Exia IIB, IIC, T4
- CNEX Exia IIB
- CRN
- ANSI 12.27.01 - 2003

### Non-Incendive

- CSA 213 (UL 1203) Class I Division 2 Groups A, B, C, D
- ATEX ExnA Class I, Zone 2
- CNEX Exn
- CRN
- ANSI 12.27.01 - 2003

## OTHER STANDARDS

- ISO 9001:2008
- ABS Type Approval
- CE Certified
- ROHS Compliant

- EN 60068-2-27, EN 60068-2-6, 60068-2-64, and IEC 68-2-32

- EC79/2009
- HyWay 2/3 Environmental E/E-Component Test Requirement, DaimlerChrysler Joint

# CONTACT

## Pressure & Position Products

### Pressure

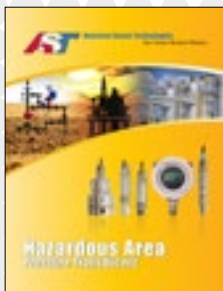
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### Position

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