

A large-scale industrial refinery or petrochemical plant at night, illuminated by warm yellow lights. The scene features a complex network of pipes, scaffolding, and a prominent tall distillation column. The sky is a deep blue, and the overall atmosphere is one of active industrial operations.

2025 CATALOG



≡ INSTRUMENT ≡

MODERN GULF SERVICES

WWW.MODERNGULFCO.COM

The Story of

Our engineering team began its activities in 2011, backed by technical knowledge and an unparalleled passion for industry and innovation.

With our expertise in hydraulic and pneumatic systems as well as electricity, we started our first activity by setting up a custom hydraulic and pneumatic systems design unit for customers, most of whom were manufacturing and industrial units in the Middle East such as Iran and Iraq, as well as China. The entire goal of the group was to provide constructive advice in accordance with the real needs of customers, develop their business, maintain safety and protect their capital.

Based on the credibility and satisfaction we had gained from these customers, after four years, with the help of our experienced team and up-to-date technology, we decided to set up a manufacturing unit to manufacture custom machinery, equipment, and hydraulic-pneumatic systems.

And this process of progress and development continued, until finally, in 2025, relying on more than 14 years of experience and with the aim of providing services directly in the GCC market, we registered Modern Golf Services (MGS) Company in Oman to expand our circle of real capital, which are our valuable customers.

Why

Our sense of responsibility to our customers over the years, and as a result, recognizing their real needs and providing them with the best advice and services in the shortest possible time, has led customers to consider us a part of their collection and to cooperate with us without any concerns about the capital, time, or safety of their collections. We are proud and happy to be with you in the safest and fastest way possible to develop your business, improve the efficiency of your industrial unit and machinery, and reduce your costs.

Quality and safety, along with understanding the importance of time, will be our distinguishing feature for you

Pressure Transmitters

Pressure transmitters are devices that convert pressure into an electrical signal. This electrical signal can be used for displaying, controlling, or recording pressure values.

● Working Principle:

Pressure Sensor: Pressure transmitters typically use a sensor that converts pressure into a physical change (such as a change in resistance, capacitance, or voltage).

Electronic Circuit: This physical change is then processed by an electronic circuit and converted into a standardized electrical signal (such as 4-20 mA or 0-10 V).

● Types of Pressure Transmitters

Based on the type of pressure measured:

Absolute Pressure: Measured relative to absolute vacuum.

Gauge Pressure: Measured relative to atmospheric pressure.

Differential Pressure: Measures the difference between two pressure points.

Vacuum Pressure: Measures pressures lower than atmospheric pressure

● Based on application:

Industrial: For general-purpose applications across various industries.

Sanitary: For applications requiring strict hygiene and compliance with specific standards (such as food and pharmaceutical industries).

Explosion-Proof: For environments with explosion hazards.

● Applications:

Measurement and control of pressure in various industries (oil, gas, petrochemical, chemical, food, pharmaceutical, water and wastewater, etc.)

Liquid level measurement in tanks

Fluid flow measurement

HVAC systems (Heating, Ventilation, and Air Conditioning)

Hydraulic and pneumatic systems



Diaphragm Pressure Transmitter with Display



Pressure Transmitter without Display

Differential Pressure Transmitter

A Differential Pressure Transmitter is a precision measuring device that measures the pressure difference between two points in a system and converts it into a standard electrical signal (typically 4-20 mA or 0-10 V).

● Applications of Differential Pressure Transmitters:

1- Flow Measurement: By using a flow restriction element (such as an orifice plate, venturi tube, or nozzle), a differential pressure transmitter can measure the flow rate of fluids (liquids, gases, and steam).

The differential pressure generated by the restriction is proportional to the square of the fluid flow rate.

2- Level Measurement: Differential pressure transmitters can measure the level of liquids in open or closed tanks.

In open tanks, the transmitter measures the hydrostatic pressure of the liquid, which is proportional to the liquid height.

In closed tanks, it measures the pressure difference between the top and bottom of the tank.

3- Pressure Measurement: By connecting one port of the differential pressure transmitter to a pressure point and leaving the other port open to the atmosphere, it can function as a standard pressure transmitter.

4- Filter Monitoring:

Differential pressure transmitters are used to monitor the condition of filters.

As the filter becomes clogged, the pressure difference between its inlet and outlet increases.

5- Density Measurement:

By using two pressure transmitters at different heights in a tank, the density of a liquid can be calculated.

● Advantages:

High Reliability: Differential pressure transmitters are highly reliable and can operate in harsh environmental conditions.

Flexibility: They can be used to measure a variety of parameters such as flow, level, pressure, and density.

Connectivity: They can be integrated with various control systems and provide real-time data.

● Types of Output for Differential Pressure Transmitters:

1- Analog:

4-20 mA
0-10 V

2- Digital:

HART (Highway Addressable Remote Transducer)
Fieldbus (Foundation Fieldbus or Profibus PA)
Modbus

Pressure Gauges

A Pressure Gauge is a device used to measure the pressure of fluids (gases or liquids) within a system. Pressure gauges are widely used across various industries, household systems, and laboratory applications. Below are some of the main applications of pressure gauges:

- **Process Industries:**

Oil, Gas, and Petrochemical Industries
Chemical Industries
Food and Pharmaceutical Industries
Water and Wastewater Industries



Dry Pressure Gauge

- **HVAC Systems (Heating, Ventilation, and Air Conditioning)**

Heating Systems
Air Conditioning and Ventilation Systems

Differential Pressure Gauge

A Differential Pressure Gauge is a device used to measure the pressure difference between two points in a system. Unlike standard pressure gauges that measure pressure relative to atmospheric pressure, differential pressure gauges measure the difference between two pressures, regardless of absolute pressure. This feature makes them highly useful for specific applications.

- **Applications:**

- 1- Filter Monitoring:**

Monitoring pressure drop across filters.

Industries: Oil and Gas, Petrochemical, Water and Wastewater, Food and Pharmaceutical Industries.

- 2- Flow Meters:**

Industries: Fluid flow measurement in pipelines, irrigation systems, and industrial processes.

- 3- HVAC Systems (Heating, Ventilation, and Air Conditioning):**

Industries: Commercial and residential buildings, factories.

- 4- Steam Systems:** Industries: Power plants, processing factories.

- 5- Tank Level Monitoring:** Measuring the liquid level in closed tanks.

Gauges

6- Process Industries: Measuring pressure drop in heat exchangers. Monitoring pressure drop in distillation and absorption columns.

● Types of Differential Pressure Gauges:

Diaphragm Type

Piston Type

Bellows Type



Differential Pressure Gauges

Pressure Switches

Pressure Switches

Pressure switches are devices that open or close an electrical circuit when the pressure of a fluid (liquid or gas) in a system reaches a certain set point. In other words, they act as a switch point that is activated at a specific pressure. These switches are used in a wide range of applications for controlling, monitoring, and ensuring the safety of systems.

● Main Types of Pressure Switches:

- 1- Mechanical Pressure Switches
- 2- Electronic Pressure Switches

● Types of Pressure Switches Based on Output Type:

- Normally Open (NO)
- Normally Closed (NC)
- SPDT (Single Pole Double Throw)

● Applications of Pressure Switches:

- Hydraulic and Pneumatic Systems
- Water and Wastewater Systems
- HVAC Systems
- Automotive Industry
- Medical Equipment
- Process Industries



Pressure Switches

Differential Pressure Switch

A Differential Pressure Switch is a control device that measures the pressure difference between two points in a system and, when the differential pressure reaches a pre-set value (Set Point), sends an electrical signal. This signal can be used to activate or deactivate another device, such as a pump, valve, alarm, or control system. In simple terms, these switches monitor the pressure difference, detect a condition, and trigger a predefined reaction.

● Types of Differential Pressure Switches:

- 1- **Mechanical** Differential Pressure Switch
- 2- **Electronic** Differential Pressure Switch



Differential Pressure Switch

Pressure Switches

● Applications of Differential Pressure Switches:

1- Filter Monitoring

Detecting filter clogging.

2- Liquid Level Control

3- Flow Measurement

4- HVAC Systems (Heating, Ventilation, and Air Conditioning)

5- Pumps and Compressors

Protecting pumps from cavitation.

Controlling pumps and compressors.

6- Fire Suppression Systems

Monitoring water pressure in sprinkler systems.

Flow Switch

Flow Switch

A Flow Switch is a control device used to detect the flow of a fluid in a pipe or system. When the fluid flow reaches a certain level (or drops below it), the flow switch sends an electrical signal. This signal can be used to activate or deactivate another device, such as a pump, alarm, valve, or control system. In other words, the flow switch detects the presence or absence of fluid flow (or its rate) and triggers a predefined response.

● Types of Flow Switches:

1- Paddle Type

2- Thermal Type

3- Turbine Type

● Applications of Flow Switches:

1- Pump Protection

2- Cooling Systems

Monitoring cooling water flow.

3- HVAC Systems (Heating, Ventilation, and Air Conditioning)

Controlling airflow or water flow in ducts and pipes.

4- Fire Suppression Systems

Detecting water flow in sprinkler systems.

5- Process Industries

Monitoring fluid flow in pipelines.

6- Water Treatment Systems

Controlling water flow in treatment processes.



Flow Switches

Temperature Transmitter

A Temperature Transmitter is an electronic device used to measure temperature and convert it into a standard electrical signal. This electrical signal can be sent to a control system, PLC (Programmable Logic Controller), DCS, or other control devices for monitoring, control, and data logging. In other words, a temperature transmitter converts a temperature sensor (such as a thermocouple, RTD, or thermistor) into a usable electrical output. This allows temperature data to be easily monitored remotely and used in various control systems.

● Applications of Temperature Transmitters:

- 1- Oil, Gas, and Petrochemical Industries
- 2- Chemical Industries
- 3- Food and Pharmaceutical Industries
- 4- Power Plant Industries
- 5- HVAC Systems (Heating, Ventilation, and Air Conditioning)
- 6- Steel and Metallurgical Industries

● Types of Temperature Transmitter Outputs:

Analog:

4-20 mA (milliamps)

0-10 V (volts)

Digital:

HART (Highway Addressable Remote Transducer)

Fieldbus (Foundation Fieldbus or Profibus PA)

Modbus

● Types of Temperature Transmitters:

- 1- **Rail** Mounted Temperature Transmitter
- 2- **Head** Mounted Temperature Transmitter
- 3- **Field** Mounted Temperature Transmitter



Head Mounted



Head Mounted



Rail Mounted

Temperature Gauge:

A temperature gauge or thermometer is a device used for measuring temperature. These devices are used in various industries and applications for different temperature measurement needs. Below is an introduction to the types of temperature gauges, how they work, their features, and common applications.

Thermometers

● Applications :

Food Industry
HVAC Systems
Chemical and Petrochemical Industries
Pharmaceutical Industries
Use in Research Centers

● Types of Temperature Gauges:

- 1- Analog Thermometer
- 2- Digital Thermometer
- 3- Infrared Thermometer
- 4- Temperature Gauge with RTD Sensor
- 5- Temperature Gauge with Thermocouple

Thermostat

A thermostat is an electronic or mechanical device designed to control the temperature within a specific environment, especially in heating and cooling systems. A thermostat automatically regulates the temperature by comparing the current temperature with the set (desired) temperature, and it turns the heating or cooling system on or off as needed.

● Types of Thermostats:

- 1- Mechanical Thermostat
- 2- Digital Thermostat
- 3- Smart Thermostat
- 4- Industrial Thermostat

● Applications of Thermostats:

- 1- Heating Systems
- 2- Cooling Systems
- 3- Factories and Industrial Plants



Thermostat

Inductive Sensors

Inductive sensors are non-contact electrical devices used to detect the position or presence of metallic objects. Due to their high precision and fast response, these sensors are widely popular in many industries and applications, especially in industrial automation. Below is a detailed description, types, advantages, and applications of inductive sensors.

● Types of Inductive Sensors:

Inductive sensors are divided into various types depending on the application and industry needs:

- 1- **AC Type** Inductive Sensors
- 2- **DC Type** Inductive Sensors
- 3- **Through-Beam** Inductive Sensors
- 4- **Cylindrical** Inductive Sensors
- 5- **Miniature** Inductive Sensors

● Applications of Inductive Sensors

Inductive sensors are used in a variety of industries and applications, including:

- 1- Industrial automation
- 2- Medical equipment
- 3- Access control systems
- 4- Product manufacturing



Inductive Sensors

Snubber

In instrumentation, a snubber refers to a set of circuits and devices designed to protect equipment exposed to sudden pressure surges and voltage fluctuations. Snubbers are commonly used in pressure and liquid level applications, industrial automation, and electrical equipment. Below is an overview of their functions, types, and applications in pressure systems.

● Types of Pressure Snubbers:

- 1- **Mechanical** Snubber
- 2- **Hydraulic** Snubber
- 3- **Electronic** Snubber

● Applications of Pressure Snubbers:

- 1- Oil and gas industries
- 2- Process systems
- 3- Hydraulic and pneumatic equipment
- 4- HVAC systems



Snubber

Cooling Element

A cooling element in instrumentation is a device or system designed to remove excess heat from equipment or processes. These elements are especially used in temperature-sensitive equipment such as pressure sensors, transmitters, and other electrical and electronic components. Below is a review of the different types, working principles, and applications of cooling elements.

● Types of Cooling Elements:

- 1- Air Coolers
- 2- Liquid Coolers
- 3- Evaporative Coolers
- 4- Thermoelectric Coolers (TECs)
- 5- Industrial Coolers

● Importance of Cooling Elements in Instrumentation:

- 1- Equipment protection
- 2- Increased accuracy
- 3- Improved efficiency
- 4- Extended equipment lifespan



Cooling Element

Transmitter Overpressure Protector

A Transmitter Overpressure Protector is a device designed to protect pressure transmitters from sudden and excessive pressure. Pressure transmitters are sensitive instruments used to measure and convert pressure into an electrical signal, playing a vital role in controlling and monitoring processes across various industries. Therefore, protecting them against unwanted conditions, such as overpressure, is critically important.

● Types of Transmitter Overpressure Protectors:

1- Pressure Limiting Valves

2- Rupture Discs

Used in systems that require rapid pressure relief, such as explosion protection systems or in systems where pressure limiting valves have lost reliability due to corrosion or other factors.

3- Snubbers

4- Siphons

5- Protective Filters



Transmitter Overpressure Protector

Manifold

In instrumentation, a manifold is a device designed to collect and distribute signals or fluids from one or multiple sources to several destinations. Manifolds are widely used in instrumentation, control, and industrial automation systems, and they come in various forms for effective management of signals and fluids. Below is a review of definitions, types, applications, and benefits of manifolds in instrumentation.

● Types of Manifolds:

1- Pressure Manifolds

2- Temperature Manifolds

3- Pneumatic Manifolds

4- Hydraulic Manifolds

5- Electrical/Signal Manifolds

● Applications of Manifolds in Instrumentation:

1- Preventing signal congestion

2- Simplifying installation

3- Better flow management

4- Enhancing safety



Manifold

Pressure Siphon

A Pressure Siphon is an important and essential component in instrumentation systems, specifically designed to protect transmitters and pressure sensors against fluctuations, direct heat, and the adverse effects of process fluids. This device is commonly used in hydraulic and pneumatic systems and acts as a thermodynamic barrier. Here, we explore the definition, function, advantages, and applications of the pressure siphon.

● Applications of Pressure Siphon:

- Hydraulic systems
- Steam pressure monitoring
- Temperature and pressure monitoring in chemical industries
- Gas systems



Pressure Siphon

Diaphragm Seal

The Diaphragm Seal, also known as a "diaphragm barrier" or "remote diaphragm system," is a critical component in instrumentation used to isolate the pressure sensor from the process fluid and protect it from harsh conditions. Diaphragm seals are especially important in industries where the process fluid may be corrosive, extremely hot, extremely cold, viscous, or contain solid particles.

● Types of Diaphragm Seals:

1- Based on Connection Type:

- Flanged
- Threaded
- Welded
- Sanitary (Clamp type)

2- Based on Shape:

- Extended
- Short
- Submersible

3- Based on Application:

- Sanitary
- Industrial
- Specialty



Diaphragm Seal

Accessory Equipment

● Applications of Diaphragm Seals in Instrumentation

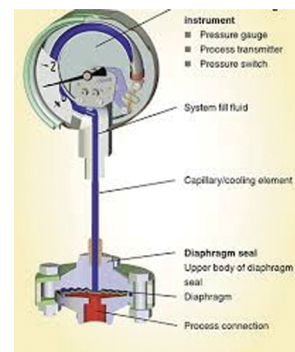
Diaphragm seals are used across a wide range of industries and applications, including:

- 1- Oil, gas, and petrochemical industries
- 2- Chemical industries
- 3- Food and pharmaceutical industries
- 4- Water and wastewater industries
- 5- Pulp and paper industries
- 6- Marine industries

● Types of Fill Fluids

The fill fluid plays a crucial role in the performance of a diaphragm seal. Depending on the process type, the fill fluid must be chosen to match the fluid conditions, temperature, and pressure. Some common fill fluids include:

- 1- Surfactants
- 2- Mineral oils
- 3- Special fluids



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