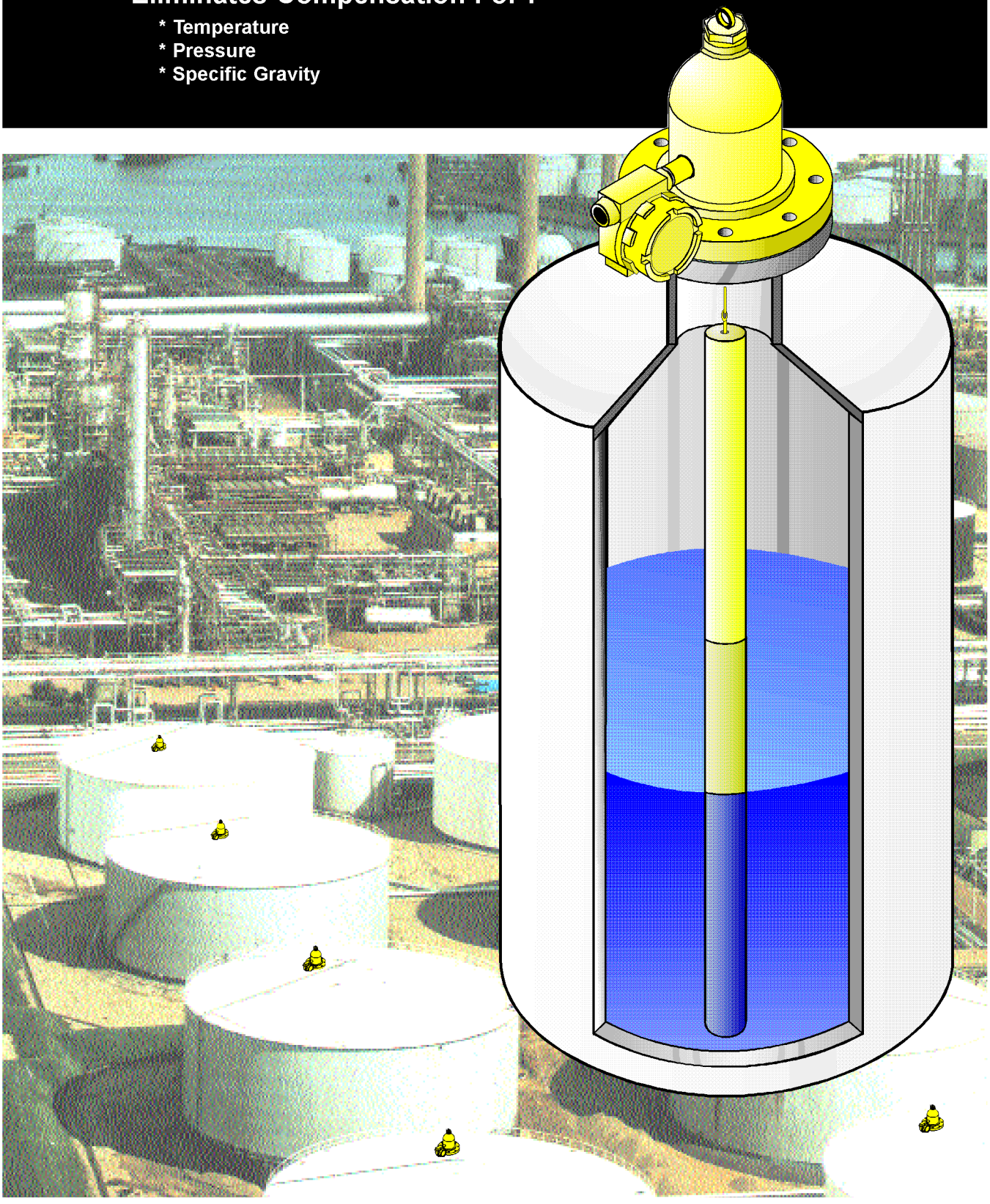
AccuMass

PATENT PENDING

CMT-30/PM-4000
CONTINUOUS MASS TRANSMITTER

High Accuracy
Eliminates Compensation For :

* Temperature
* Pressure
* Specific Gravity



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BULLETIN 1016

CMT-30/PM-4000 Continuous Mass Transmitter

FEATURES / BENEFITS

* Highly Accurate Liquid Mass Measurement without the need for Temperature Compensation.
* Sectioned Displacer Design for Ease of Shipment and Installation.
* Adaptable to Vented and Pressurized Storage Tanks.
* Process Compatible Materials.
* Not Sensitive to Wave Action.
* Single Point Analog Output.
* Multi Point Microprocessor based Monitoring.

CMT-30

DESCRIPTION

The Model CMT-30 will accurately measure Vessel contents regardless of temperature variations when calibrated to measure a product at Standard Temperature and Pressure.

This is accomplished by measuring the weight of the product, and not it's physical height.

The AccuMass System consists of two basic components:

1) CMT-30 Transducer / Displacer assembly mounted at the top of a process and or storage vessel on a compatible flanged connection.
2) PM-4000 Transmitter / Excitation Power Supply supplied in either a Nema 4 or NEMA 7 housing.

Remote or Local mounting available.

APPLICATIONS

Vessels requiring highly accurate Mass Measurement.

Optional Equipment includes such things as Remote Digital Indicators, Linearization, Alarm Outputs, Modbus Compatibility, and Custom System Packaging.

Since the Displacer element can be supplied in a wide range of materials and Section Lengths, many difficult applications or installation in congested areas may be easily handled.

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OPERATION

Operation of the CMT-30 / PM-4000 AccuMass System begins with the CMT-30 Transducer / Displacer Assembly.

This Assembly is generally mounted by means of a flanged connection at the top of the Vessel requiring measurement. The Standard mounting flange is 6" 150# . Consult Factory for other sizes and options.

The Displacer element hangs from a Hermetically Sealed Transducer, and extends the entire length of the Vessel.

This displacer consists of a sealed uniform cylinder whose diameter and weight depend on the following variables:

1) Specific Gravity at Standard Conditions for the measured fluid.

2) The Vessel Height.

3) The size of the Flange in which the displacer must be inserted.

Zero Measurement is an empty tank with the displacer completely suspended in air. As the liquid rises and covers the displacer, it becomes more buoyant. The weight that the Transducer senses becomes less in direct proportion to the linear distance covered and the Specific Gravity of the Fluid at Standard Temperature and Pressure. This method of measurement (known as an inferential method) is extremely useful in determining the amount of liquid by weight in a vessel.

EXAMPLE:

As a product in a vessel expands with temperature increase, the liquid level on the displacer will increase in height, and the specific gravity of the fluid will proportionately drop. The displacer however will not indicate any change because the total weight of this mass of fluid in this vessel has not changed. Therefore there is no need for temperature compensation of measured values because the displacer sees the weight of the fluid it displaces and not the height.

The AccuMass system will directly measure the Liquid Mass within the Vessel.

SPECIFICTIONS

CMT-30 Transducer / Displacer

Transducer Repeatability	.01% of FullScale
Transducer Type	3 mV/Volt Hermetically Sealed for Harsh Enviroments.
Transducer Comb Error	.013% of Full Scale.
Transducer Oper Temperature	-18 to 65 ^{0}C (Consult factory for higher / lower temp applications)
CMT-30 / Displacer Material	Stainless Steel Standard (Consult Factory for other possible materials)

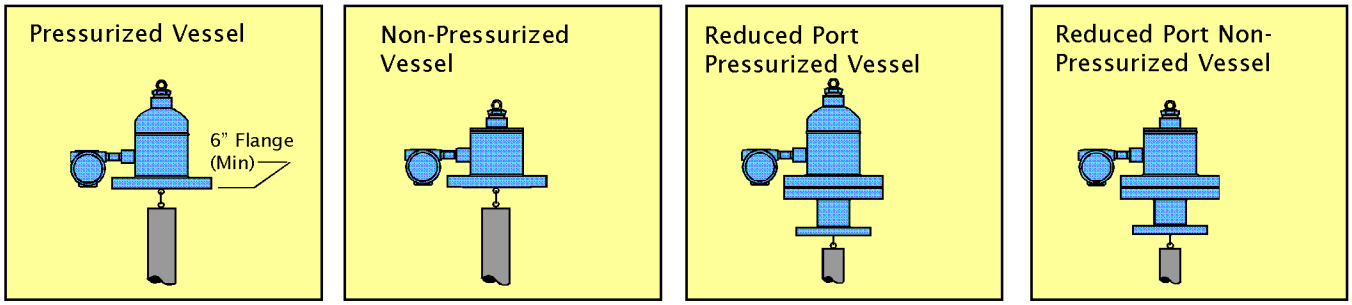
PM-4000 Transmitter

Power	Jumper Selectable 120/240 VAC at 5 Watts Maximum Consumption
Electrical Isolation	1500 VDC between Input, Output, and AC Power
Voltage Input	10 mV to +/- 200 mV with a 1 Meg Ohm input Impedance
Common Mode Input Voltage	1800 VDC Maximum
Zero Turn - Up	50 % of Full Scale Range
Span Turn - Down	50 % of Full Scale Range
Action	Direct or Reverse
Operating Temp Range	5 to 140 Deg F
Temperature Stability	.05% per Degree C Maximum
Housings	NEMA 4 - Non Hazardous loacations NEMA 7 - Hazardous locations

OUTPUTS

Single Point	Current Output - 0-1 mA, 0-20 mA, and 4-20 mA into 750 ohm maximum load Voltage Output - 0-5V, 0-10V with 1000 ohm min load
Multi Point	Same as above with options for : Microprocessor based outputs Alarm / Control Outputs Data Acquisition

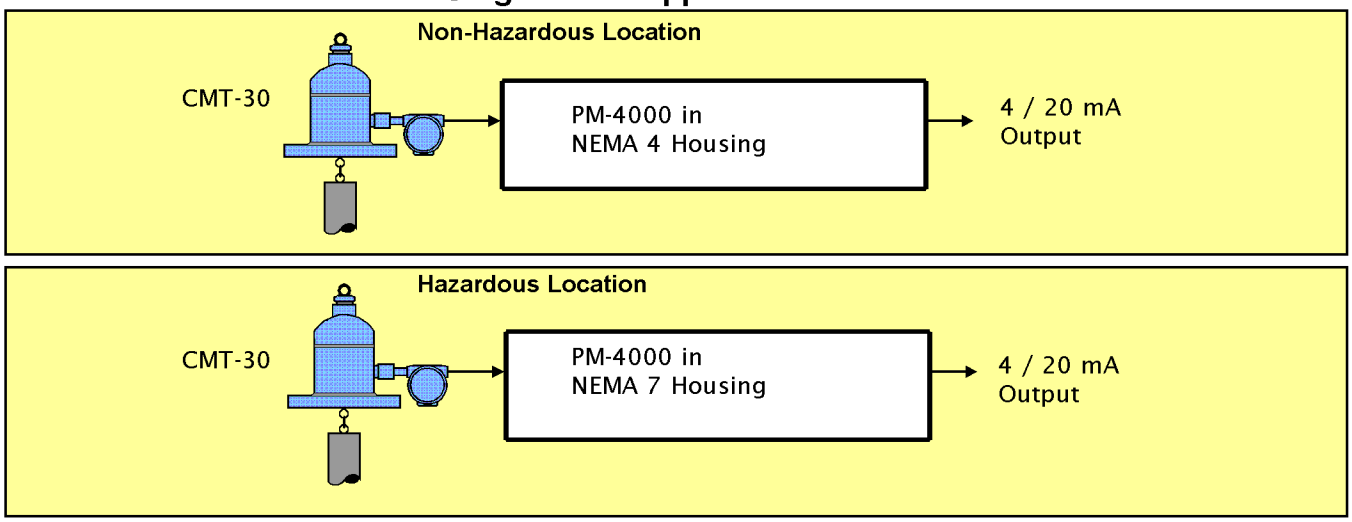
CMT-30 MOUNTING OPTIONS



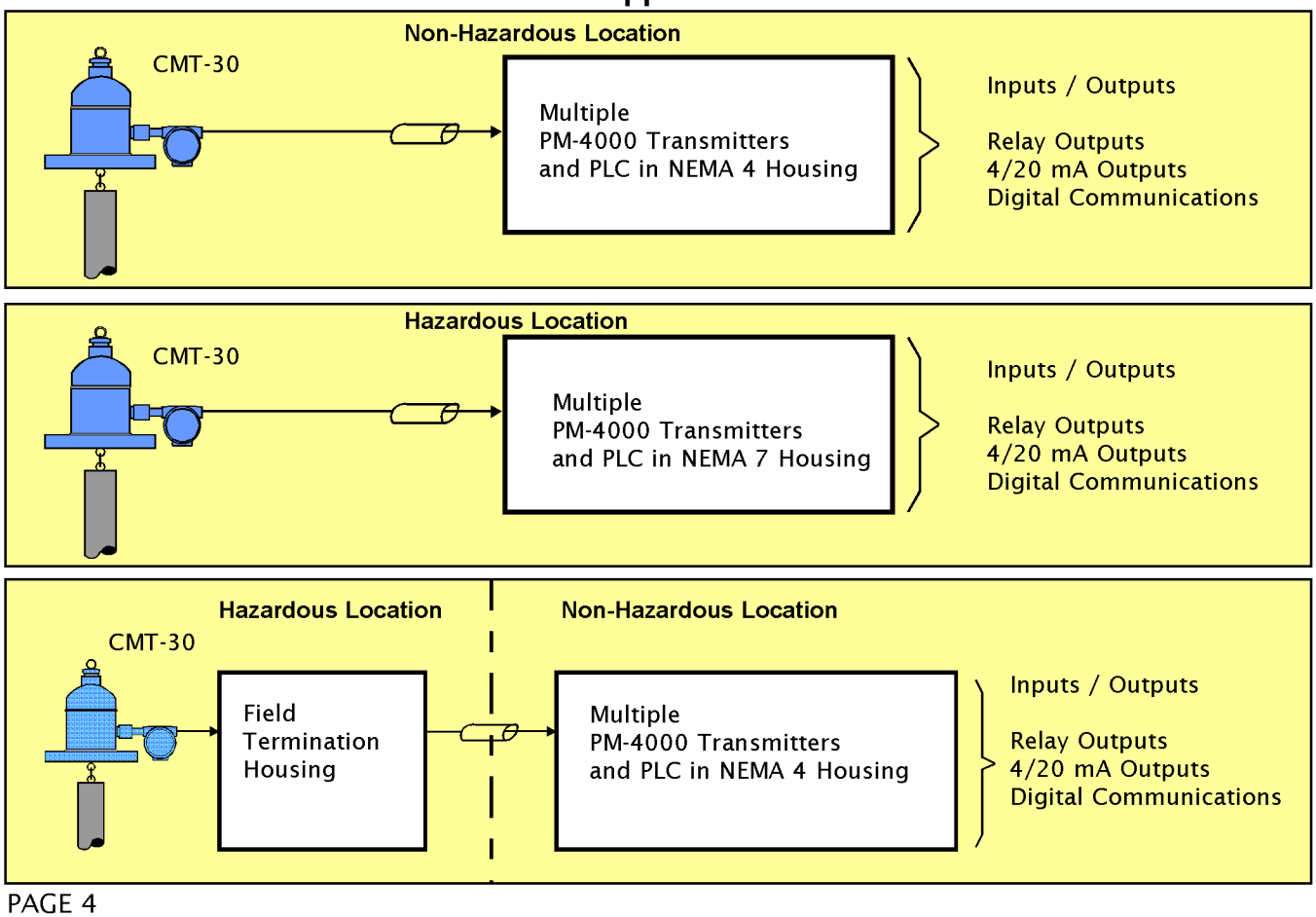
* Consult Factory for Additional Options

APPLICATION EXAMPLES

Single Point Applications



Multi Point Applications



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