



## **PETRO TAG™ BT400/SS400**

### **AUTOMATIC TANK GAUGE AND ALARM SYSTEM FEATURES**

- \* **Monitors up to 16 tanks/controller**
- \* **Volume and height at  $\pm 0.1\%$**
- \* **Temperature at  $\pm 0.5^\circ\text{C}$**
- \* **Water interface measurement**
- \* **Programmable high level alarms**
- \* **Automatic measurements**
- \* **High reliability**
- \* **Multiple controller networking**
- \* **Mass and density at  $\pm 0.25\%$**
- \*  **$15^\circ\text{C}$  compensated volume**
- \* **Reports ullage for filling**
- \* **Overfill float switches**
- \* **Remote site measurements**
- \* **Low maintenance**

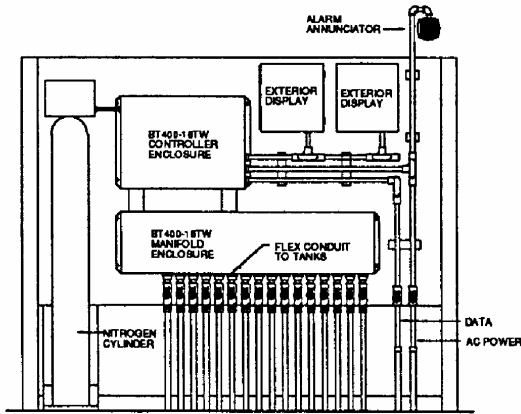
### **OVERVIEW**

The PETRO TAG 400 family of tank gauging systems can be used with any combination of tanks in above or below ground configurations and with tanks of any size. A user organization can therefore standardize on the PETRO TAG for all of its tank gauging needs from service through bulk stations to terminals and refineries.

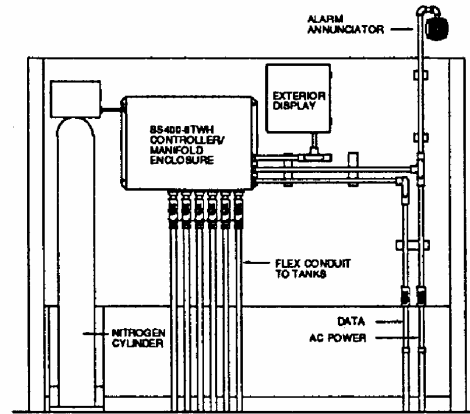
The BT400 has been optimized for use at large sites. It can monitor up to sixteen above or below ground tanks. Multiple BT400 systems can be networked for even larger sites. Figure 1 shows a typical BT400-16TW controller mounted to serve 16 tanks. Flexible conduit is used to house the cable and tubing which runs to the in-tank probes

The SS400 has been optimized for use in applications where up to six tanks can be accessed from a single controller. The electronics and the manifold are housed in cost effective single enclosure. Multiple SS400 systems can also be networked. Figure 2 shows a typical SS400-6TW controller Installation.

All PETRO TAG systems can report results to a local operator or, through modem connection, to a central site. They are capable of measuring the level and volume of fluid in the tank to 0.1% of full scale. They can also report ullage, mass, density and the water level at tank bottom.



**Figure 1 - BT400-16TW on backboard**



**Figure 2 - SS400-6TWH on backboard**

Each member of the PETRO TAG family has been designed to assure the highest degree of reliability. Very little maintenance is required since there are no moving parts in the tanks and no adjustments to make. System accuracy does not change over time and no calibration or re-calibration is required.

**APPLICATIONS**

A typical PETRO TAG 400 system application involves a fuel depot with a mixture of above and below-ground tanks. Each tank contains an intrinsically safe probe with no moving parts. The probes are lowered into the tank from a standard tank-top opening. They hang freely in the tank and require no calibration. The controller can be mounted indoors or outside, as required by the end user. A bottle of dry nitrogen is connected to the controller to supply air pressure for the gauge probes. Finally a display, used to conduct gauging operations, is connected to the controller. The operator can conduct measurements simply by entering the appropriate instructions on the display key-pad. The results are displayed on the local screen. An integral high level alarm system is included in every PETRO TAG 400. Alarm levels are typically programmed at 90% and 95% of maximum tank capacity. In addition, an optional overflow float switch can be mounted on the probe chain. This mechanical sensor provides a redundant high level alarm for extra safety.

**SPECIFICATIONS**

\* Accuracy: see Table 1 below

\* Capacity:

XP400 - 6 tanks/controller

SS400 - 6 tanks/controller

BT400 - 12 or 16 tanks/controller

\* Tank Type: Above or below-ground

\* Power Reqs: 2 amps at 120 VAC/60Hz

\* Physical Dimensions:

Probes - 2.8" dia x various lengths

SS400 Controller - 26"x20"x7"

BT400 Controller - 24"x18"x7"

BT400 12 Manifold - 40"x12"x7"

BT400 16 Manifold - 48"x12"x7"

\* Environment: -40oC to +40oC

Accuracy <sup>1</sup>	Height <sup>2</sup> (% of FS)	Volume <sup>3</sup> (% of FS)	Mass <sup>4</sup> (% of FS)	Density <sup>5</sup> (% of RD)	Temp <sup>6</sup> (°C)
BT400 with STD probe	+/-0.1% or 3mm	+/-0.1% or 3mm x A	+/-0.25% or 3mm x A x Density	+/-0.25%	+/-0.5°

**Table 1 - Accuracy Specifications**

**Table 1 Notes:**

1) Accuracy specifications are quoted at a 95% confidence level. The mass and volume specifications assume that the customer supplied strapping table is accurate. Readings include that portion of the vapor above the fuel which is in excess of the normal air mass. Water at the tank bottom is not subtracted from

readings. % of FS is percent of full scale. % of RD is percent of reading. "A" refers to the cross sectional area, or strapping table. Height, volume, and mass accuracy is expressed as the greater of either a percentage of full scale or an absolute value.

- 2) Height accuracy assumes that there is no temperature or density stratification in the tank. (see Technical Notes)
- 3) Volume measurement is not affected by temperature stratification. (see Technical Notes)
- 4) Mass measurement accuracy applies to tanks with a constant horizontal cross-section.
- 5) Density measurements are temperature corrected density.
- 6) Standard systems have one temperature sensor per tank. XP systems have two.

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