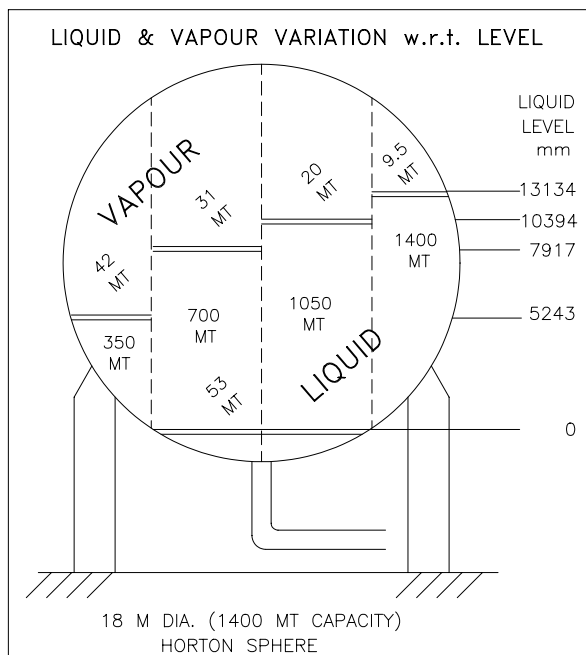
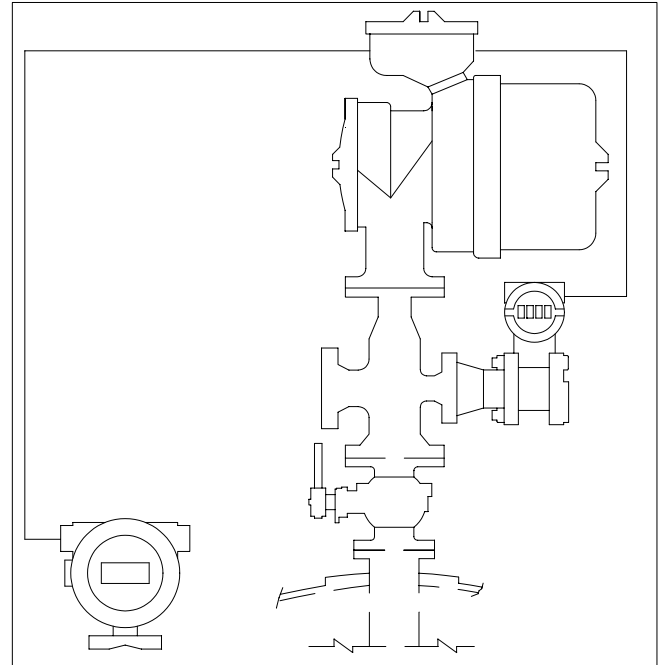




LPG Servo Gauge For Pressurized Liquid Inventory

FEATURES & BENEFITS

- ❑ Most Reliable, Proven Technique of Liquid Inventory (pressurized storage) - No Manual Calculations.
- ❑ Stand-alone instrument with dedicated Hardware.
- ❑ Built-in Software for all the Inventory Calculations
- ❑ Remote Display of all the measured & calculated parameters possible.
- ❑ Level, Temperature (Liquid & Vapour), Vapour Pressure and Liquid Density - all Measurements in One Instrument.
- ❑ Cost Effective Solution for Inventory Management using a HART® Pressure Transmitter.
- ❑ Pressure Transmitter fits on the Calibration Chamber itself - No separate Nozzle required.



LIQUID INVENTORY MEASUREMENT

The product stored under pressure has two states - Liquid and Vapour. The space above the liquid level has the product in Vapour State. Normal level measurement gives only liquid component of product. During loading and unloading of the product, there is transformation of vapour component into liquid and vice-versa. This causes errors in the net inventory calculations derived by measurement of liquid level alone.

SBEM has added a HART® Pressure Transmitter to the field proven Servo Gauge 139 M along with Vessel Calibration Charts and ASTM Tables, to give a complete, error-free net "Liquid Inventory".

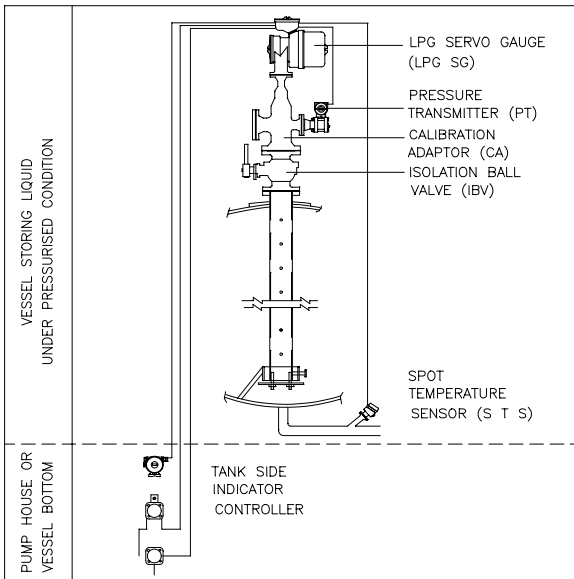
The LPG Servo Gauge is a stand-alone instrument. The in-service SBEM Servo Gauge 139 M can be converted into LPG Servo Gauge. Indication of all the measured and calculated parameters at vessel bottom or at remote location is available on the Tank Side Indicator Controller (TSIC). A full-fledged **Liquid Inventory Management System** can be provided using the LPG Communication Interface Unit (LPG CIU) for single or multiple Vessels, providing display and hard copy printouts in Control Room.

LPG SERVO GAUGE (LPG SG)

The 139M LPG Servo Gauge is an intelligent, microprocessor-based instrument- a variant of field proven Servo Gauge, with the addition of an interface for HART Pressure Transmitter (to measure vapour pressure). Vessel Calibration charts and ASTM tables are stored in an EPROM in the gauge. This permits calculation of the liquid equivalent of vapour. Remote indication of all measured and calculated data is available in pump house - on the Tank Side Indicator Controller (TSIC) and in Control room on the LPG Communication Interface Unit (LPG CIU).

The standard 139 M Servo Gauge can be converted into LPG Servo Gauge, by adding a HART interface card and replacing the communication card.

Remote indication of inventory data is available at vessel bottom/ pump house on the Tank Side Indicator Controller (TSIC). Field programming is possible through Portable Programming Unit (PPU).



SPECIFICATIONS:

- DENSITY MEASUREMENT** on demand
Measuring Range: 0.5 gm/cc to 1.1 gm/cc
Accuracy: ± 0.005 gm/cc
- LPG MASS MEASUREMENT**
Accuracy: $\pm 1.3\%$ of reading with LPG SG density ¹
 $\pm 0.3\%$ of reading with manually entered density ²
Resolution: 0.01 Metric Tone
 - Above given accuracy is for the Sphere dia of 18 M, Liquid Density 0.55 gm/cc., Liquid Temperature 25 °C, Vapour Temperature 30 °C, Vapour Pressure 6.0 kg/cm². Pressure Transmitter with - range of 70 kg/cm² calibrated span 30 kg/cm² and accuracy of 0.1% of calibrated span.
 - Accuracy of density assumed as 0.0006 gm/cc.
- OPERATING PRESSURE:** Max. 30 kg/cm²
- SECONDARY OUTPUTS**
Programmable potential free relay contacts (4 Nos.) for alarms. (Relay 3 & 4 are fixed for HH and LL level respectively) Pole and NO or NC (i.e. SPST) contact rated 6A @ 230 VAC / 28 VDC (Resistive)
- COMMUNICATION**
TSIC: 2 way / 2 wire RS485 ASCII Coded, Baud Rate -1200
PPU: Via infra-red optical link, Baud Rate-1200
Pressure: 2 way / 2 wire, phase continuous, FSK MODEM, HART protocol, Baud Rate- 1200
- DISPLAY:** 16 Character, 2 line, 0.3" high, dot matrix, backlit Liquid Crystal Display
- MATERIALS OF CONSTRUCTION:**
Main housing &: SS 304 (ASTM 351 CF8) or
Drum Cover SS 316 (ASTM 351 CF8M)
Servo Cover: Cast Aluminium LM 6
Displacer: SS 316
Measuring Wire: SS 316
Measuring drum: SS 316
Magnet Isolation Cap: SS 316
'O' rings: Viton
- PARAMETERS - (MANUAL ENTRY)**
Observed Density, Vapour Pressure, Liquid & Vapour Temperature. [Through Portable Programming Unit (PPU) or LPG Communication Interface Unit (LPG CIU)]

(For more information. refer leaflet LF-139-0801)

*** Continuous developments may necessitate changes without notice.

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