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Our Expertise, Your Values

SERVO TANK GAUGE



Smart Servo Tank Gauging
System BJLM-80 H

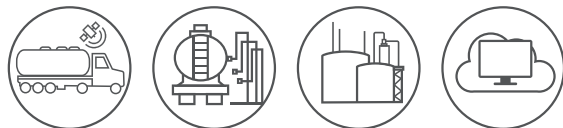
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Our Expertise, Your Values



> About JOYO M&C

A Leading Expert in Liquid Measurement and Control Technologies

Established in Beijing BDA in 1995, JOYO M&C is currently a high-tech company focusing on R&D and manufacturing of measurement and control instruments and related equipment, delivery of integrated TAS systems and related technical supporting services for oil terminals, tank farms, refineries and petrochemical complexes. As a competent high-tech company in China, it has won a lot of honors and R&D funds from governmental establishments.

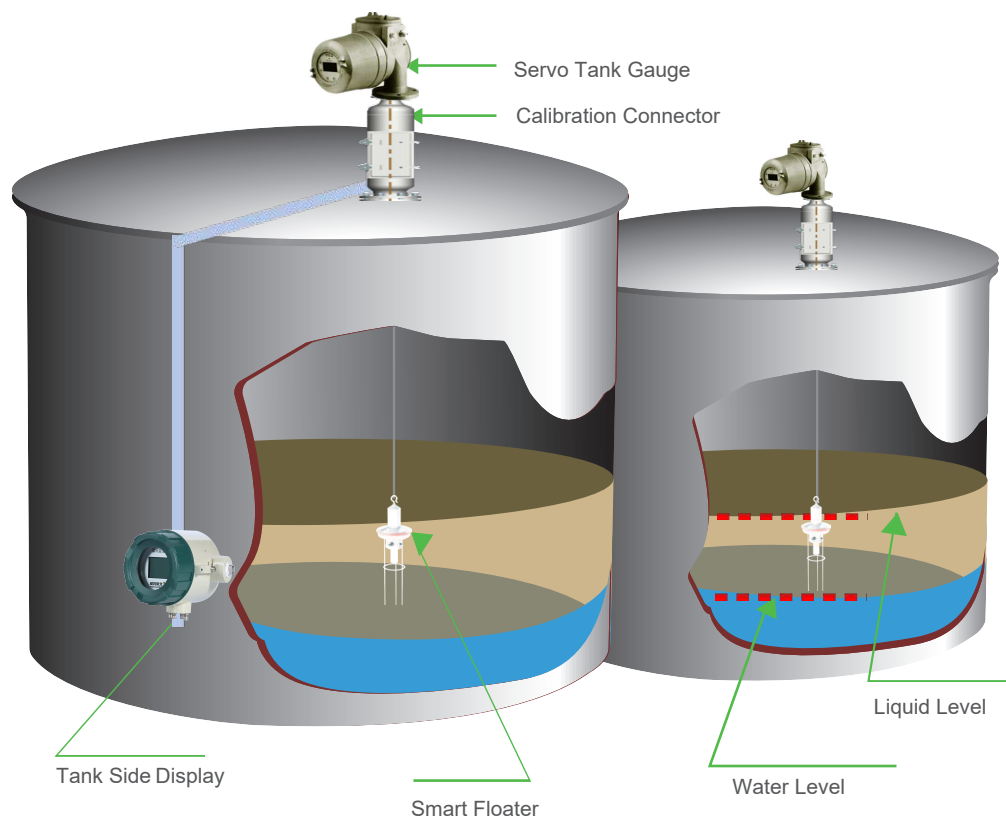
Inovative Servo Tank Gauge Measurement System BJLM-80 H

1. Function

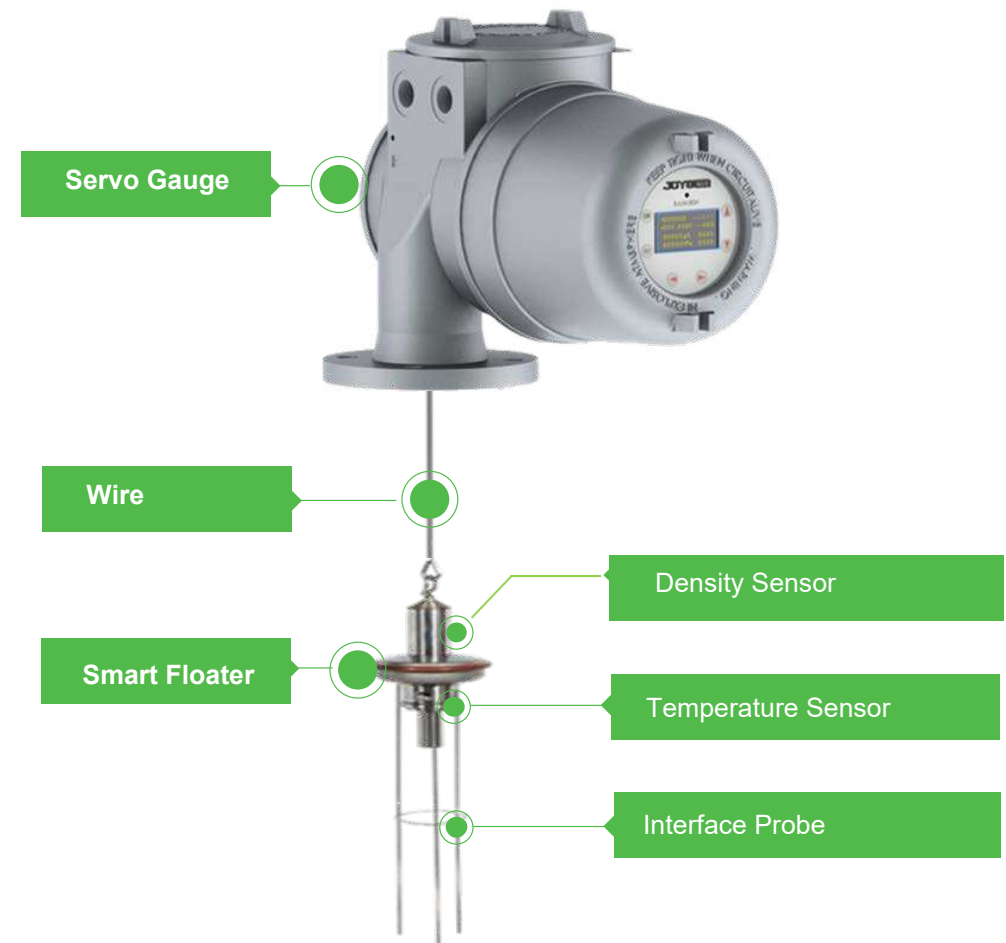
BJLM-80H series Servo Tank Gauges are designed for ambient and high pressure liquid tankage measurements with multiple functions are integrated in one unit, including measuring the level, density, temperature, mass quantity and the oil-water interface of the liquids in tank. It is new inovative technology

- Mainly used for tankage measurements for
- different liquid products, such as light oil products, petrochemicals, liquid chemicals, LPG, edible oil or liquid foods;
- different type of tanks, such as fixed roof tanks, floating roof tanks, and spherical pressure tanks.

2. System Information



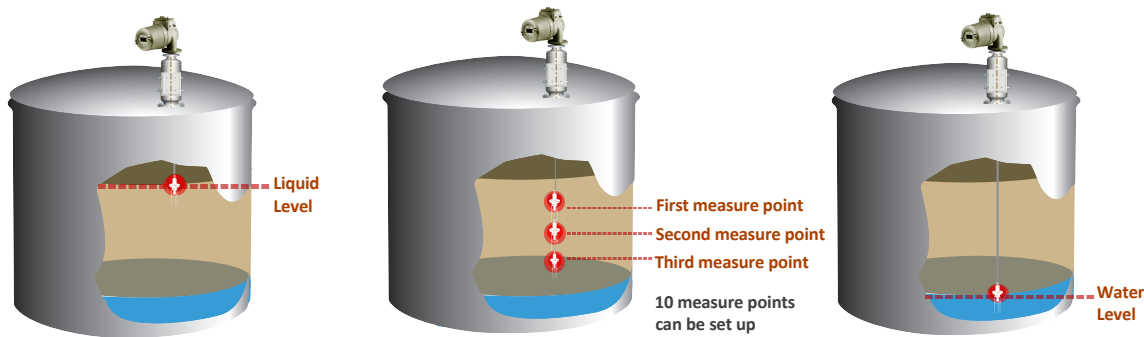
Structure of Servo Tank Gauge BJLM-80 H



Features

- Multiple functions are integrated in one unit, with the measurements for level, temperature, density, mass quantity and oil-water interface being precisely conducted in one trip of the floater, no needing for any other auxiliary devices, such as multi-point thermometers, differential pressure transmitters and/or water interface detectors, to be mounted. It significantly reduced error sources, and makes the onsite wiring and installation much simpler and easier;
- With the direct and simultaneous measurements for level, temperature, density and oil-water interface, not only the error sources are remarkably reduced but also the accuracy of the gauging system in overall for the tankage measurement is greatly enhanced;
- The oil-water interface in the tank is measured more accurately by detecting the resistance difference between oil and water instead of using the traditional measurement based on buoyancy detection;
- Available for both volume and mass tankage measurements;
- The wireless communication between the smart floater and the head of the servo tank gauge, together with the specially designed manual gauging cabinet on the top of the dipping well, the floater can be easily taken out of the tank and replaced.

3.Measurement Process

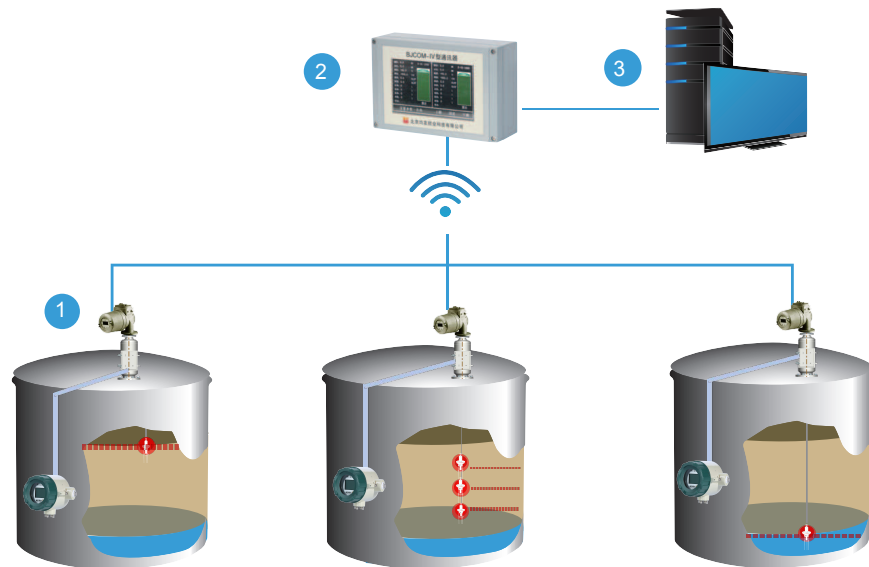


Step 1:
Measuring Liquid Level

Step 2:
Measuring Density and
Temperature from several spots

Step 3:
Measuring interface

Step 4:
Tankage measurement data sent
to Management System



Remark: ① Servo Tank Gauge ② Communication Controller ③ Tankage Measurement Management System

4.Technical Specifications

Accuracy	
Measuring Range	0~23M (Standard)
Measuring Accuracy for Level	± 0.1mm
Measuring Accuracy for O-W Interface	± 0.2mm
Measuring Accuracy for Density	±0,3~0,5kg/m³
Measuring Accuracy for Temperature Relative	± 0.1°C
error for Mass Measurement	± 0.50%
Resolution	
Sensitivity	±0.1mm
Repeatability	±0.1mm
Parameter Related to Running Environment	
Temperature	-40 C ~ 70 C
Pressure	0.2MPa/5.0MPa
Allowable humidity	90%
Explosion Proof Rating	Exd IIC T5Gb, ExialIBT5Ga
Protection Class	IP 65
Mechanical Parameter	
Total Weight	17.5kg
Floater Height	300mm
Floater Diameter	75mm
Cable Entry	3/4NPT × 4
Communication	Enraf BPM; RS485 MODBUS; RS 485,HART; 4~20mA+HART
Mounting flange	Diameter ∅340mm, pitch diameter ∅295mm and aperture ∅22m
Power Supply	
Voltage	24V/DC, 220V/AC, 110V/AC, 36V/AC
Power consumption	5W
Material	
Housing	Cast Aluminum/ Stainless Steel 304 (for LPG)

5. System Function List

Function	Description
Measure and Display	Description Liquid Level Interface Density Temperature Mass
Standard Calculation	Liquid Volume Tank table export Standard Density Calculation Standard Volume Calculation Liquid Mass Calculation
System Parameter Setting	Communication Parameter Setting Tank Parameter Setting (Tank No., Product No., Tank height) Liquid Alarming Setting Servo Tank Gauge Parameter Setting Setting for Auto Measure at fixed time User Access Management User Password Management
Alarming	Acousto-optic Alarming for High-high and Low-low level Alarming for problem by Communication Alarming for problem by Equipment
Data Inquiry	Inquiry for History Measurement Data
Data Interface	Mysql SQL SERVER Tcp, ip
Remote Data Access/ Data Inquiry	Remote Data Inquiry Export document in office file Tank Stock Graphs Many Customers Inquiry Simultaneously

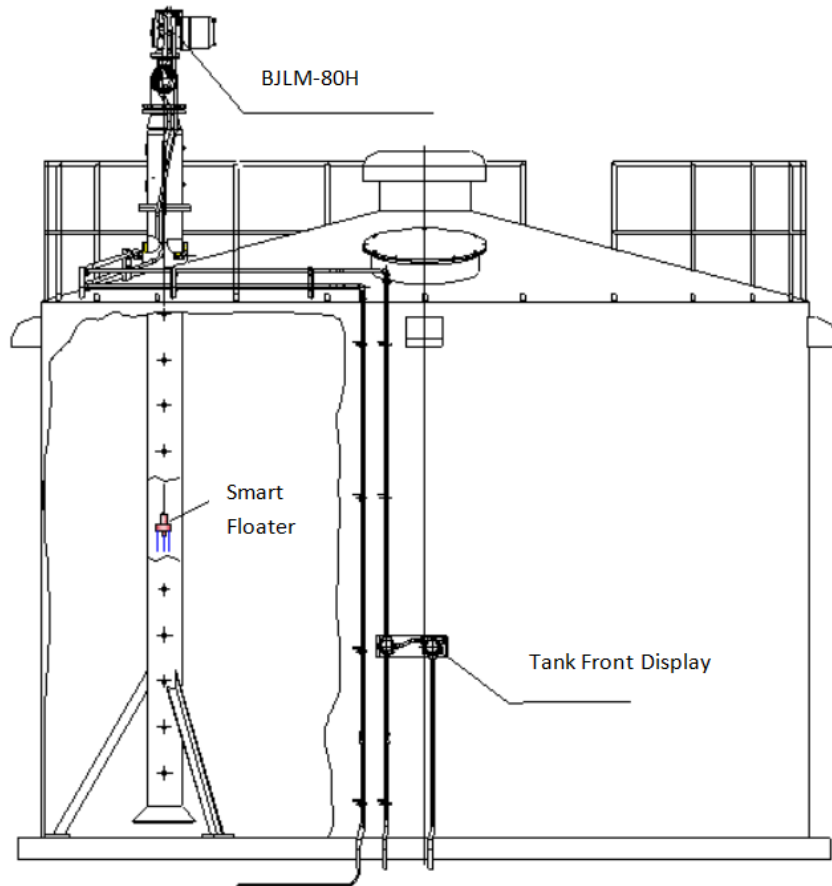
6. Comparison with traditional Servo Tank Gauge

Items		Servo Tank Gauge BJLM-80H	Traditional Servo Tank Gauge
Accuracy	Liquid Level	High Reliable	Need to be calibrate regularly
	Density	High and Reliable	Need to be calibrate regularly
	Temperature	High and Reliable	High and Reliable
	Interface	High and Reliable	Big errors
	Volume and Mass measurement	High and Reliable	Need to be calibrate regularly
Comapact		Minimum componants, all the measurement are done by only one floater	Many sensors and auxiliary components and devices
Installation		Minimum Cost	High cost
Maintainance		No	Yes

Benifits

- Very high accuracy with outstanding performance;
- Proved to be very high reliability;
- Compact design, simple installation and easy for wiring;
- Wireless communication resealed the wiring work;
- No need to be maintained, released the labor work and cost for the oil companies .
- The visualization of of tank data provides a clear view of the tankage data to avoid delivery losses to the customers.
- Benefited customers with a lot of true values and made their daily performances in both overall safety, security, delivery efficiency and accuracy greatly enhanced and improved. Consequently, the productivity of oil depot and terminals in overall has been significantly increased with higher accuracy in inventory management, better planning in daily operations and quicker responses in accidents.

7. Installation diagram



Calibration Connector PM-F



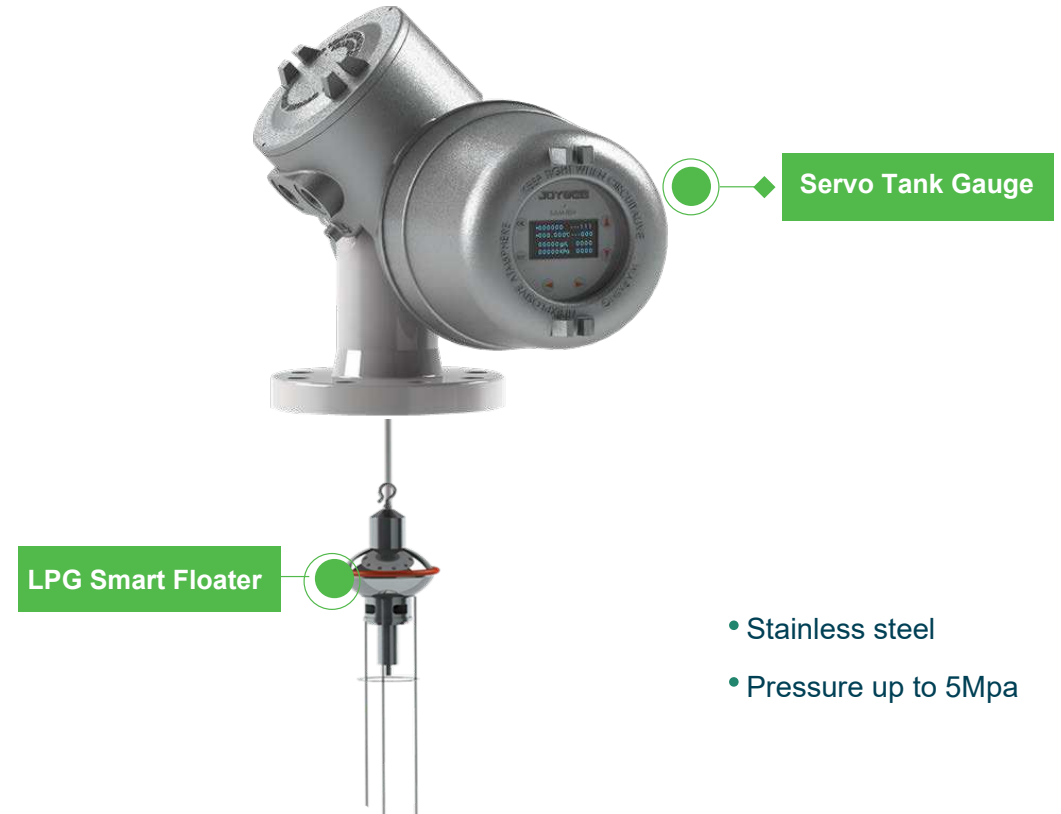
Calibration Connector PM-D



Calibration Connector PM-S

Calibration connector PM-F/D are compatible with your existing tank, no need to reopen a hole special for level gauge.

8. Servo Tank Gauge BJLM 80LPG for LPG



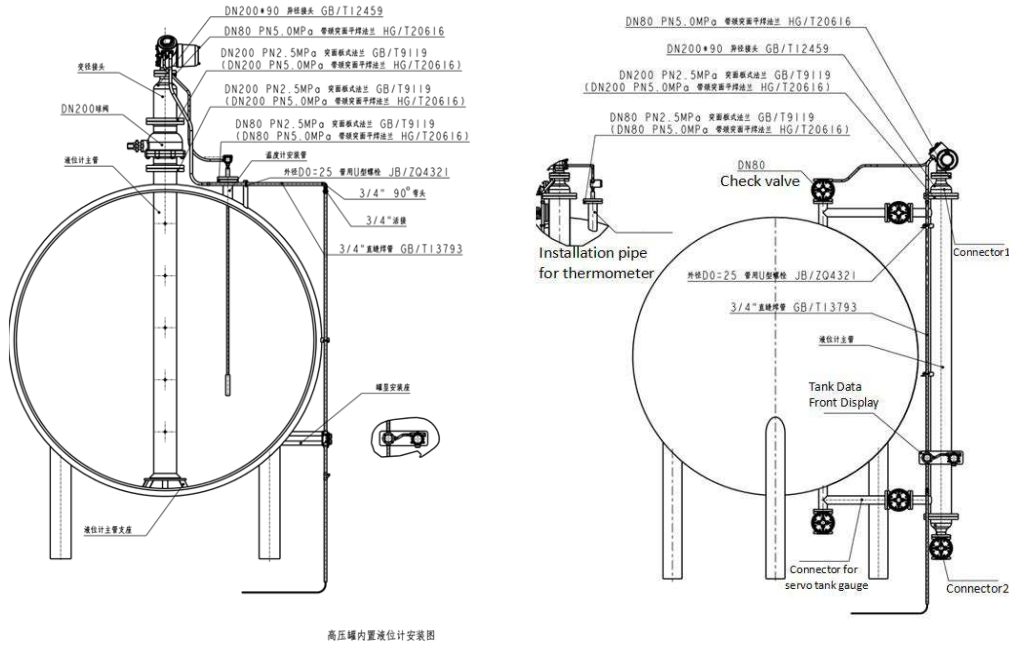
- Stainless steel
- Pressure up to 5Mpa

Technical Specification:

Accuracy	
Measuring Range	0~23m (Standard)
Measuring Accuracy for Level	± 0.1mm
Measuring Accuracy for O-W Interface	± 0.2mm
Measuring Accuracy for Density	±0.3~0.5kg/m³
Measuring Accuracy for Temperature Relative	± 0.1°C
Resolution	
Sensitivity	±0.1mm
Repeatability	±0.1mm
Parameter Related to Running Environment	
Temperature	-40 C ~ 70 C
Pressure	-40 C ~ 70 C
Allowable humidity	90 %
Materials	
Housing	Stainless Steel

9. Installation diagram of servo tank gauge BJLM80 H

10. Certification



高压罐内置液位计安装图

Diagram of Servo Tank Gauge installed inside spherical pressure tank

Diagram of servo tank gauge installed outside Spherical pressure tank



Russia Meteorology Certificate



China Explosion proof certificate



Russia Explosion proof certificate

