

PORTABLE DENSITY METER

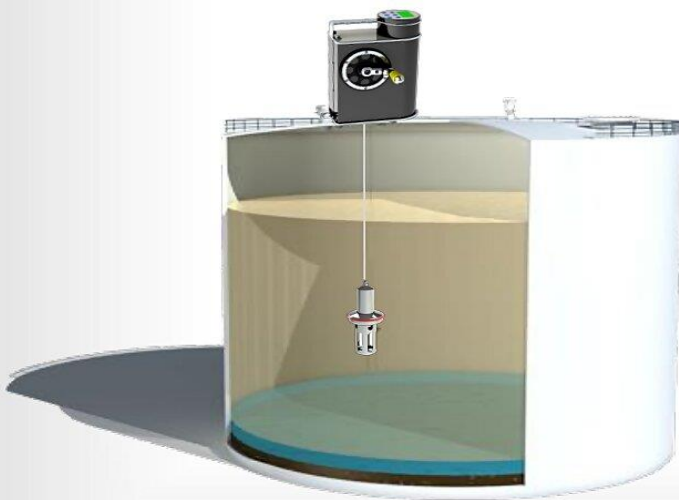
DH-50

A Effective Solution to Measure Density Onsite

Portable

Accurate

Intelligent





A Leading Expert in Liquid Measurement and Control Technologies

JOYO M&C is a high-tech company dedicated to developing and manufacturing measurement and control instruments and solutions for bulk liquid storage and transfer.

Based on 20 years experiences in the petrochemical industry, JOYO M&C developed many products and solutions are proven to be of high competence in terms of functions and performances. JOYO M&C was awarded 'Sinopec technology innovation awards 2017' for its innovative TGS technologies for bulk liquid storage and custody transfer used in Sinopec tank farms and terminals, which is turned out to facilitate customer operations and solve many problems for customers. JOYO M&C is one of the suppliers for SINOPEC and PETROCHINA for over ten years. Its products are also supplied to oil companies in Russia, Mongolia, Kazakhstan, South Asia, Middle East and other countries in the world.

Joyo M&C Technology Co., LTD, has been fully dedicated in the innovation and explorations of the up-to-date technologies, and manufacturing hi-end quality metering and control products. JOYO M&C will still adhering to the mission and provide higher values to his users worldwide with our expertise.

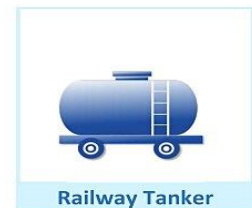
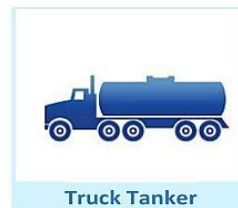
PNRJOYO was formed to market and service the ASEAN countries including Taiwan and Korea.

1. Overview

DH-50 portable density meter is mainly used for precise measurement of the density and temperature of the liquid in a tank at laboratory standard. Its portable design makes it very easy and convenient to take along to any sites by hand for a measurement.

Applications

- It is applicable to various liquid products, such as oil products, petrochemicals, liquid chemicals, edible oil or liquid foods;
- Used for measurement of the density and temperature of the liquid in the vertical tanks, horizontal tanks, truck tankers and train tankers.



Functions

Measurement



Real time measurement and display of density, temperature of liquid in the tank;

Real Time Display



Density, temperature, level and the sensor height value is real-time displayed on the OLED display;

Data Auto Record



Up to 2,000 measuring data can be recorded automatically.

Data Auto Upload



The data recordings can be transferred to your PC by Blue-tooth communication

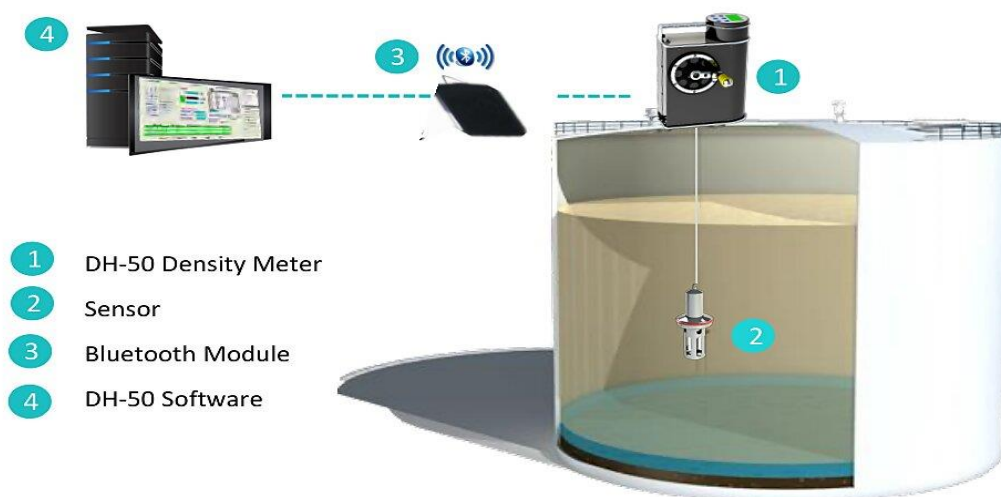
Data to HQ ERP



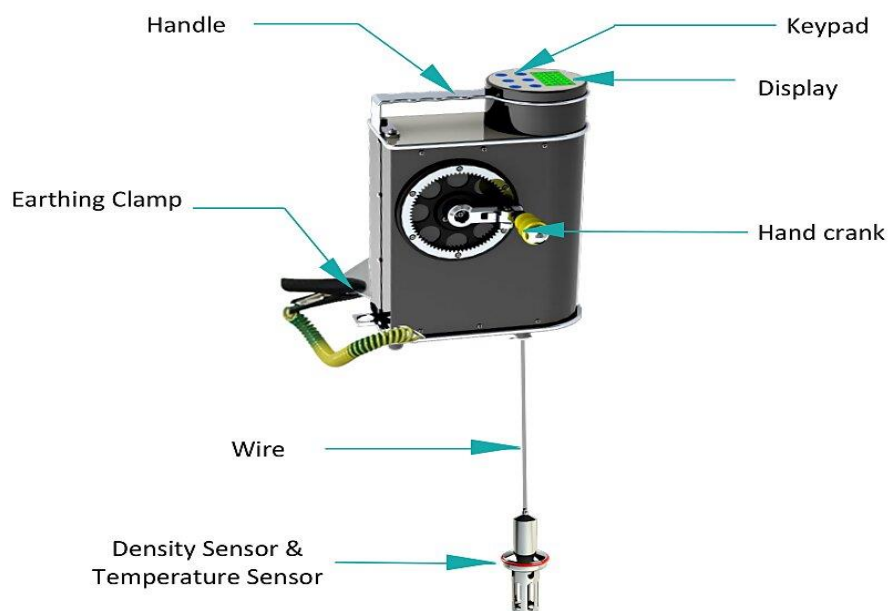
The data will be seamlessly transmitted to the HQ ERP system directly.

2. DH-50 Configuration

DH-50 portable density meter is mainly consist of density meter, sensor, bluetooth module and density software. The system architecture is demonstrated in the following figure.



3. DH-50 Structure



4. Working Principle

Working principle of DH-50 will be described as the following to help you better understand why DH-50 is distinguished in its performance and its operation from its principle point of view.


Density



$\pm 0.3\text{kg/m}^3$

Density is measured by the density sensor inside of sensor of DH-50 upon the resonance period of the liquid. Density is proportional to the resonance period according to the resonance mechanism which is one of the most accurate method to measure density.

Temperature



$\pm 0.1^\circ\text{C}$

Temperature is measured by the temperature sensor inside of sensor of DH-50. The accuracy and performance of the temperature measurement will be ensured by using the PT100 temperature sensor .




Data Transmission



Wireless

The measuring data inside sensor will be transmitted up to the DH-50 by the wireless communication.

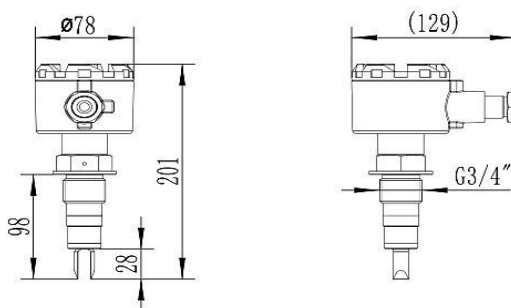
5. DH-50 Measuring Process

Step 1	Login	Input Password 1234
Step 2	Select Tank Number	01: Tank01 H.Tank: 10.100m
Step 3	Measuring: Move the sensor down to the preset point, press 'ok' to measure density; Measure density at 3 points to get average density .	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>ρ_1, t_1</p> <p>ρ_2, t_2</p> <p>ρ_3, t_3</p> </div>  </div>
Step 4	Save Data: 'SAVE' after measurement is completed for one tank, it is available for continuous measurement of other tanks.	<div style="display: flex; justify-content: space-between;"> 2019/08/20 09:35 Save? </div> <div style="display: flex; justify-content: space-between;"> Tank 01 6.60m </div> <div style="display: flex; justify-content: space-between;"> 832.1g/L 23.5°C </div>
Step 5	Data Download to PC: Data, e.g, Operator No., Tank No, Date, Time, Density, Temperature, height, and viscosity etc, will be download to DH-50 software.	
Step 6	Data Transmite to HQ ERP: Measurement data will be transmitted to ERP system of HQ through internet.	

6. Technical Specification

Parameter	Specification
Measuring Accuracy of density	$\pm 0.3 \text{ kg/m}^3$
Measuring Accuracy of temperature	$\pm 0.1^\circ\text{C}$
Measure Density Range	1~2000kg/m ³
Repeatability Error	$< \pm 0.1 \text{ kg/m}^3$
Allowed Humidity	90%
Working Temperature	-40°C ~ +70°C
Temperature compensation	Automatic
Communication	433MHz wireless communication
Material of the measurement parts	Stainless steel 316; Hastelloy
Protect Class	Sensor: IP68; Other parts: IP65
Explosion-proof Rating	Ex ia IIC T4Ga
Display	OLED 8*16 dot-matrix
Data Storage	2024
Weight	3.6kg

7. Demension



8. Features

- No need manual sampling;
- Real-time measurement & saving data;
- Compact and portable design;
- More than 2000 data records;
- Seamless measurement---record data---downloaded data to PC/ ERP system, avoiding manual operation, ensuring data authentic and objective;

8. Comparison between DH-50 and manual density sampling

Item	DH-50	Manual Sampling
Measure onsite	Yes Directly measure on-site	No Need manual sampling
Record	Automatic	Manual
Laboratory Analysis	No need	Sampling analysis
Auto Operation	Yes	No
Auto Report	Yes	No
Data Objectivity	Guaranteed	Not guaranteed

9. Cases



PNRJOYO



Our Expertise, Your Values

CONTACT US:

PNRJOYO PTE LTD

**35 TANNERY ROAD, #11-10 TANNERY BLK
RUBY INDUSTRIAL COMPLEX**

SINGAPORE 347740

TEL: +65 6742 8911

sales@pnr-engineering.com.sg

www.pnr-engineering.com.sg