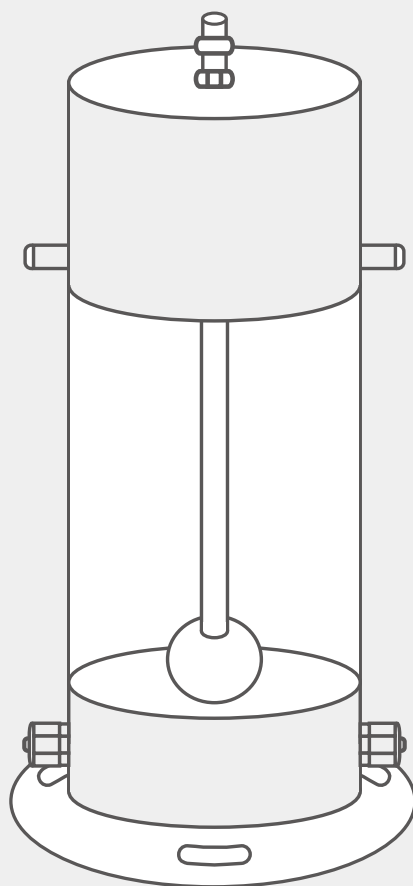




User Manual V1.0

Smart Engineering Smarter Future



SGS-65 Static Level Meter

Designed in Singapore

Disclaimer

Read this user manual carefully before using the product to ensure that you completely understand the product and can correctly use it. After reading this user manual, keep it properly for future reference. Improper use of this product may cause serious injury to yourself or others, or cause product damage and property loss. Once you use this product, it is deemed that you understand, approve and accept all the terms and content in this document. Apogee is not liable for any loss caused by the user's failure to use the product in compliance with this user manual.

In compliance with laws and regulations, Apogee reserves the right to final interpretation of this document and all documents related to the product. This document is subject to changes (updates, revisions, or termination) without prior notice. Please visit Apogee's official website to obtain the latest product information

1. Overview
2. Technical Specifications
3. Product Accessories
4. Product Appearance
5. Installation Guide
 - Measurement Point and Circuit Layout Plan
 - Tools and Components
 - Installation Process Overview
6. Wiring Operation
7. Inspection and Storage
8. Troubleshooting
 - Hardware Issues
 - Hardware Maintenance
9. Mobile DOQC Support
10. After-sales Service
 - Warranty Terms
11. Contact Information

1. Overview

The SGS-65 Static Level Meter is a high-precision device designed for measuring relative elevation changes. By calculating the distance between the transmitter in the electronic housing and the float, it precisely determines liquid level height. Settlement monitoring systems using these instruments employ the principle of communicating vessels to calculate settlement values based on liquid level changes at reference and observation points. It is primarily used for long-term, automated, high-frequency vertical displacement monitoring in geotechnical and structural safety engineering.

2. Technical Specifications

FEATURES	SPECIFICATION
Range	100/200/400 mm
Power Consumption	Operating:0.54 W; Standby:0.03 W
Accuracy	±0.1% F.S
Electrical Connection	Waterproof 5-pin aviation connector
Output Signal	Digital signal RS485
Protocol	Modbus
Baud Rate	2400-115200
Voltage	DC 9V-36V
Temperature	-20°C to +60°C
Compensation	-35°C to 60°C
Humidity	5% to 95%
Protection Level	IP68
Material	Aluminum alloy (top/bottom covers), acrylic (tank)
Dimensions	250mm x 124mm x 124mm

3. Product Accessories

ACCESSORIES	QUANTITY	REMARKS
SGS-65 Static Level Meter	1	
Stand and Screws	1	
User Manual	1	

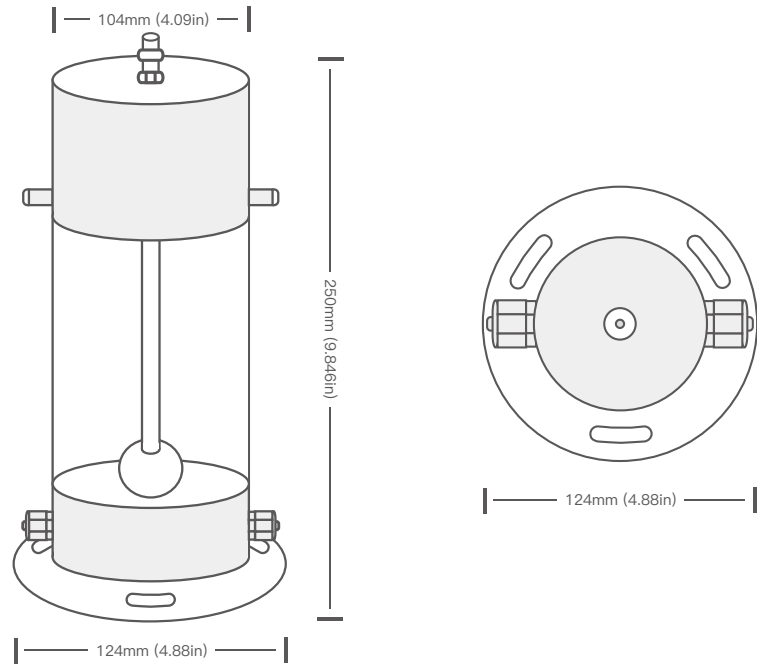
ACCESSORIES	QUANTITY	REMARKS
Factory Inspection Report	1	
Product Certification	1	
Warranty Card	1	One year

4. Product Instructions

Appearance

The product illustrated in the diagram is the SGS-65 Static Level Meter.

Dimensions: 250*124*124mm (9.84* x 4.88* x 4.88in)



5. Installation Guide

Measurement Point and Circuit Layout Plan

Confirm the measurement points and circuit layout plan according to the actual site and structural conditions. It is very important of selecting a stable reference point, ideally a stationary structural element.

Tools and Components

Tools and materials such as purified water, antifreeze (if necessary), pipes, air hoses, sensors, multimeter, wrenches, power modules, and laptops should be prepared.

Installation Process Overview

***Measurement Point Setup**

Confirm the elevation at each measurement point as per the design requirements. The installation elevations of all static level instruments should match, with an error margin within ± 5 mm.

***Bracket Installation**

Secure the brackets to the wall using four $\phi 8$ mm expansion bolts. The brackets are L-shaped steel plates, and the elevation of all brackets should be consistent after installation.

***Cable and Pipe Layout**

Consider the routing and protection of observation cables, water pipes, and air hoses. Use galvanized flexible tubing or PVC pipes for protection, secured with clamps.

***Reservoir Installation**

Mount the reservoirs onto the brackets using M8 screws. Use the U-shaped slot in the base plate and the level bubble on the upper cover to level the reservoir. Adjust the elevation of each reservoir to match across all measurement points.

***Liquid Pipe Connection**

Connect the reservoirs using $\phi 10$ mm transparent hoses.

***Adding Antifreeze**

For sub-zero environments, add antifreeze appropriate to the local minimum temperature. Clean the liquid level tubes and reservoirs with alcohol before adding liquid. Pump the liquid continuously to ensure no air bubbles remain in the system.

***Sensor Installation**

Mount the magnetostrictive level sensor rod onto the reservoir and secure it tightly.

***Air Balance System**

Connect the air balance system to ensure uniform liquid pressure across the system. Seal one end and connect a drying tube to the other end.

***Thermal Insulation and Protection**

Protect the meter and connecting pipes against temperature variations using $\phi 90$ mm PVC insulation material. For outdoor installations, place the system in a metal protective box filled with foam for insulation.

***Communication Cable Installation**

Lay the communication cables along the pipeline route between measurement points and connect them to the meter as instructed in this manual.

6. Wiring Operation

Wires	Wire Color
Positive terminal	Red
Negative terminal	Green
485-A	Black
485-B	White

7. Inspection and Storage

- *Upon receiving SGS-65 Static Level Meter, verify that the quantity matches the packing list.
- *Operate the meter within the rated measurement range.
- *Handle the instrument with care and avoid strong vibrations.
- *Store in a dry room with humidity below 80%, free from corrosive gases.

8. Troubleshooting

Please follow the FAQs to solve the issues. If the problem persists, feel free to contact us, and we will provide you with detailed assistance.

Hardware Issues

- *If SGS-65 Static Level Meter does not start after powering on, check if the battery is working correctly.
- *If SGS-65 fails to collect data, verify the connection between cables and meter and meter.
- *For unknown errors, reconnect the power to restart the meter.
- *If your troubleshooting is not listed, please contact us.

Hardware Maintenance

- *Proper Use: Operators should carefully read the manual, understand the device features, and follow the standard to install and use the SGS-65 Static Level Meter. Strictly follow the operating process when turning the device on and off to ensure it remains in good working condition. Pay attention to the use, maintenance, and inspection of the supporting accessories and facilities.
- *Harss Environments: Temperature and humidity in harsh environments can impact the work of the device. To maintain accuracy and extend service life, keep SGS-65 within the specified temperature range. See specifications for details.
- *Protection: As a precision instrument, avoid exposure to impact, humidity, strong electricity, magnetic fields, oil, and dust.
- *Surface Cleaning: Avoid using alcohol or thinner, which may corrode the Surface. Use soft cloth with a small amount of water for cleaning.

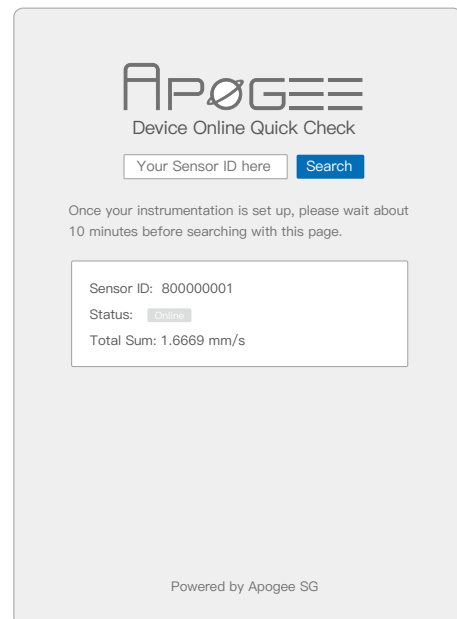
9. Mobile DOQC Support

Access Apogee Mobile DOQC Page

[<http://8.219.208.124>]

Input device sensor ID here and click **Search**

This simple page may help you to easily check on your mobile device whether the device is functioning normally after installation. You can also check the status of the meter anytime through your mobile device.



The screenshot shows the Apogee Device Online Quick Check (DOQC) web interface. At the top is the Apogee logo and the title 'Device Online Quick Check'. Below this is a search bar with the placeholder text 'Your Sensor ID here' and a blue 'Search' button. A message states: 'Once your instrumentation is set up, please wait about 10 minutes before searching with this page.' Below the message is a white box containing the following information: 'Sensor ID: 800000001', 'Status: Online' (with 'Online' in a green box), and 'Total Sum: 1.6669 mm/s'. At the bottom of the interface, it says 'Powered by Apogee SG'.

10. After-Sales Service

Warranty Terms

For products manufactured by our company, we offer the following warranty policies:

- *During the warranty period, any quality issues under normal use are repaired for free. After the warranty period, we offer long-term maintenance with a minimal service charge.
- *If damage results from improper use, regardless of warranty status, repair services are available with a service fee.
- *For assistance, contact after-sales support.
- *We are not liable for data loss or damage to programs or storage media. Please take care and be responsible for your data security.

11. Contact Information

Apogee Mgmt Private Ltd

Address: 53 Tuas South Link 1, Tuas South Connection, Singapore. S636797

Service Call : +65 96529565

Email : apogeessg24@gmail.com

