

VW high sensitivity settlement system



Description

Model 1680 **VW high sensitivity settlement system** is designed to measure delicate deflection in bridge or pole and largely divided into four parts : reference water tank, monitoring vessel, automatic liquid system and liquid tube. In each monitoring pot buoy hangs onto the VW force sensor. The reference water tank and automatic liquid system should be set up on stable ground or structure.

The reference water tank is designed to connect to multiple monitoring vessels, which should be installed at the points where potential displacement may occur.

Both reference water tank and monitoring vessel should be installed on the same height, and the system operates after filling liquid and permitting generation.

The level of monitoring vessel and standard water tank are the same. Depending on settlement or upheaval, the liquid quantity in the buoy can be increased or decreased. The differential buoyancy is transmitted to VW force sensor and cause changes in the frequency. It can be easily estimated by calibration sheet.

The vessel is processed from stainless steel, and no leakage occurs. Applied to high-precision fitting, it has a high level of durability, allowing for precise and semi permanent use.

Foreign companies often provide products without automatic liquid system, which causes errors in measurement due to bubble, caused by temperature difference. To the contrary, model 1680 has an automatic liquid system and enables liquid to convection, which allows for precise measurement without any impacts from the environment.

Applications

Model 1680 is used VW force sensor as a basic element and shows high resolution and reproducibility. It is designed to measure vertical displacement such as minute settlements or heaving by 0.02mm, allowing for precise measurement by connecting displacement range or speed or minute displacement to automatic logger.

- Useful to measure delicate deflection in pier or abutment
- Measuring settlement, caused by adjacent or underground excavation work
- Measuring settlement for structure maintenance

Features

- Assuring reliability and stability under severe condition
- Optimal design for usage
- High stability and sensitivity
- Highly precise measurement (detecting 0.02mm)
- Excellent reproducibility and response due to its high resistance to the length of cable and the changes in resistance
- Adjusting the range, depending on expected displacement
- Automatic measurement

VW high sensitivity settlement system

Specification

| Model | | 1680 | | |
|-----------------------------|-----------------|---|---------------------|---------------------|
| Sensor part | Sensor element | VW force transducer | | |
| | Range | 100mm | 300mm | 600mm |
| | Resolution | 0.025% FSR (0.02mm) | 0.025% FSR (0.06mm) | 0.025% FSR (0.12mm) |
| | Accuracy | ±0.1% FSR | | |
| | Nonlinearity | ±0.5% FSR | | |
| Liquid circulator | Power | 220 VAC motor pump | | |
| | Supply of water | 10ℓ / min | | |
| Operating temperature | | -40~80°C | | |
| Built-in temperature device | | Thermistor (3k Ω) | | |
| Maximum length | | 100m (water tank - monitoring) tank | | |
| System compositions | | ① Water tank and liquid distributor ② Monitoring vessel ③ Automatic liquid circulation supply ④ Water line | | |
| Materials | | Engineering plastic, alloy steel plate, stainless steel, urethane hose | | |
| Weight | | ① Water tank and liquid distributor about 2.5kg ② Mounting vessel about 2.5kg ③ Mounting bracket about 2kg | | |
| Signal cable | | ∅6.4mm, 0.37mm ² × 4C shielded PVC sheath cable | | |

(Note) The accuracy and reliability depends on compensating for temperature variations, atmospheric pressure variations, de-airing in liquid and installation method.

The readout

It is connected to the system such as the VW readout units, data loggers to be data logging and data acquisition system to monitor readings. It is compatible with other company's readout unit.

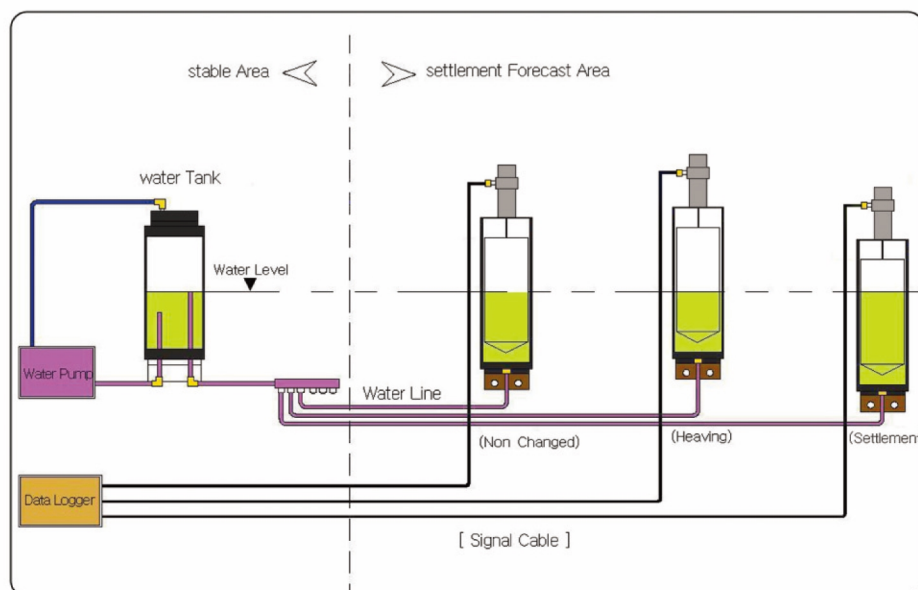
- ACE-800 (VW readout)
- ACE-1000 (VW data recorder)
- ACE-1100 series (VW mini logger)
- ADL-16V (VW data logger)
- ADL-200A (Smart logger)

Ordering information

- Application quantity
- Application field and used
- Measurement range (expected changes in quantity)
- Automatic measurement
- Keeping VW readout unit

Ancillary equipments

- Universal terminal box (model 7012/7024)



[Installation of VW high sensitivity settlement system]