

FSG/semiconductor settlement gages



Description

Model 4810F FSG settlement gage consists of 3 main parts reservoir, tube that liquid fills and FSG pressure sensor kit and **model 4810S semiconductor settlement gage** choose semiconductor pressure sensor kit.

One end of tube is connected with pressure sensor, and the pressure sensor part is laid in the perforation hole or suitable place of filling. The other end of it connected with water tank should be placed in the distance away from construction site and higher place than stable surface.

When sensor is settled with filled soil, pressure operating in sensor height of water post practically increase, measurement pressure happens.

Pressure sensor converts water pressure delivered in diaphragm into electric signal and generated electric signal is transmitted to output device and displayed in mechanical unit.

FSG and semiconductor pressure sensor is used with special material to minimize linear expansion factor caused by change of temperature.

In addition, it is adjusted individually in automatic water pressure adjuster and authorized readout unit.

Fitting is used and combined mechanically with high precision of stainless fitting authorized by ISO standard that it has no leakage. And by high precision of epoxy molding, it is waterproof and rustproof that it secures endurance enough for accurate semi-permanent.

Features

- Stability and confidence in severe environment
- Adoption of permanent system and rustproof
- Employed materials for minimizing thermal zero shift
- Possible to dynamic measurement

Applications

Settlement gage that has FSG pressure sensor and semiconductor pressure sensor can measure minute settlement or heaving in construction site that is hard to measure in standard optical skill.

In case setting numbers of it in perforation hole in multi type, it is useful to measure the stratified settlement by using water pressure anchor. Specially, it is used for real time measurement when the dynamic measurement is necessary for consolidated settlement in filling or test construction with a view of study.

- Inspection of stability of the abutment in constructing bridges.
- The best suited for measurement of stratified settlement on reclaimed land or poor ground
- Measurement of long period of the settlement in filling part or foundation of dam
- Measurement of the storage tank and settlement of the foundation ground
- Measurement of depressed zone

The readout

It is connected to the system such as the voltage readout units, or data logger as it is the electrical sensor that output mV.

- ACE-1500 (MEMS readout)
- ACE-900 series (MEMS mini logger)
- ADL-200A (Smart logger)

Ordering information

- Filling height and distance between a settlement gage and a reservoir
- Keeping readout unit
- Cable and tubes length
- Range
- Application field

Ancillary equipments

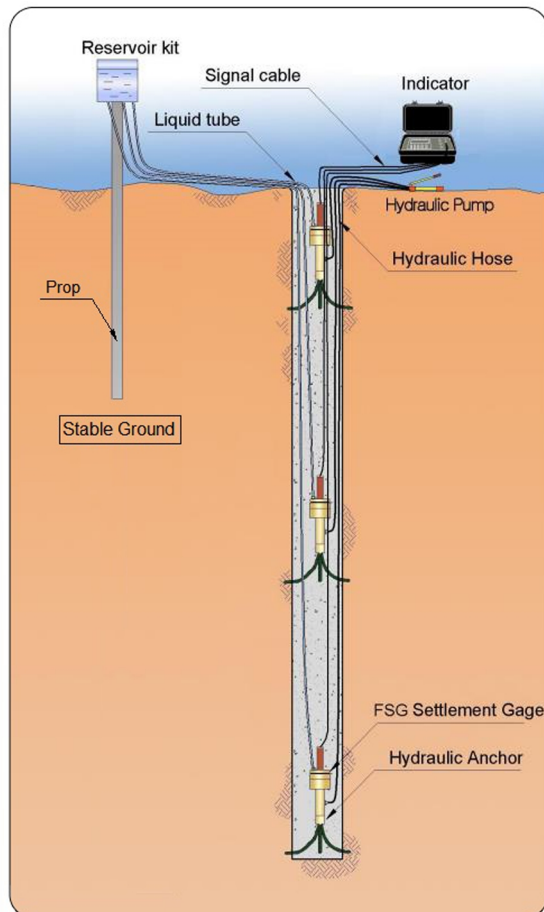
- Terminal structure
- Universal terminal box (model 7012/7024)
- Polyethylene sheath cable for heavy duty
- Overflow system for automatic measurement
- Portable hydraulic pump (model 7050)
- Hydraulic anchor & hose
- Barometer

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Specification

Model	4810F	4810S
Sensor element	FSG sensor (foil strain gage)	Semiconductor sensor
Range	1~3kg/cm ² (0~30m H ₂ O)	1.0kg/cm ² (0~10m H ₂ O) 2.0kg/cm ² (0~20m H ₂ O)
Rating output	1 mV/V	4~20mA 2 wire
Accuracy	±0.5% FSR	±0.5% FSR
Nonlinearity	±1.0% FSR	±1.0% FSR
Resistance	350 Ω	-
Insulation resistance	More than 100 MΩ / 500 V	
Exciting voltage recommended	Less than 5 VDC	12~30 VDC
Maximum tube length	250m	
Maximum pressure of tube	33kg/cm ² (@20°C)	
Tube dimensions	ID Ø2.5 × OD Ø4mm PE tube	
Liquid	Ethylene glycol + distilled pure water	
Water proof	500m H ₂ O	
Weight	① Sensor 2.4kg ② Settlement plate (250×250×4 t) 2kg	
Material	Stainless steel, high grade epoxy potting	
Signal cable	Ø10.5mm, 0.37mm ² × 4C, vent tube shielded PVC cable	
Accessories	① Settlement plate ② Reservoir ③ Mounting bracket ④ Desiccant case	

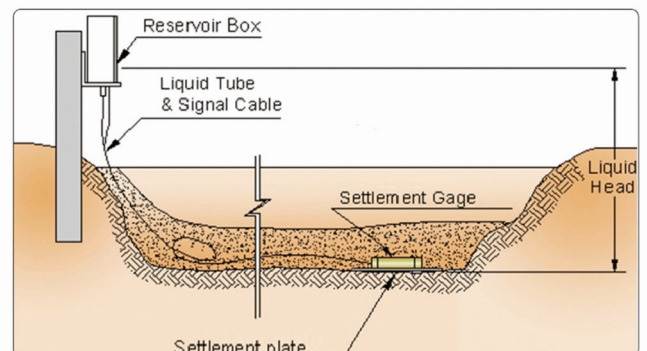
(Note) The accuracy and reliability depends on compensating for temperature variations, atmospheric pressure variations, de-airing in liquid and installation method.



[Installation by hydraulic anchor as multi type]

Recommendation

- Vent tube is attached on end of cable to correct barometric pressure. After connecting the vent tube into plastic case, it has to be used in dried condition that the silica gel is inserted. And use vent tube after drying every 4~6 months.
- In embedment of liquid tubes and signal cables, they must be covered with protective tubes and be back-filled with soft sands to prevent damage due to be pressed down by rock and large stones.



[Installation of settlement gage]