ENCARDIO RITE

ONE STOP MONITORING SOLUTIONS | HYDROLOGY | GEOTECHNICAL | STRUCTURAL | GEODETIC
Over 50 years of Excellence through ingenuity

DATASHEET

LIQUID LEVEL SETTLEMENT SYSTEM

MODEL ESM-30V

OVERVIEW

The ESM-30V high sensitivity liquid level settlement measuring system is designed for remote measurement of minute differential settlement in tunnels, bridges and buildings, etc. with high precision.

FEATURES

- Highly sensitive, reliable and accurate
- Suitable for remote reading of settlement
- Atmospheric pressure change does not affect reading
- Easy to install & maintain

APPLICATION

- Differential settlement along tunnel.
- Deflection in bridges
- Settlement of buildings, floor slabs.
- Other similar applications where very small change of settlement/deflection is to be monitored with high precision.

OPERATION

Model ESM-30V consists of two or more settlement systems with fluid filled vessels interconnected in series by a fluid filled tube.

Each system basically consists of a low range vibrating wire force transducer with high sensitivity. A submersible cylinder is suspended from the vibrating wire force transducer into a fluid filled vessel. The submersible cylinder is partially submerged in fluid in the vessel. The vibrating wire force transducer used is vented with the vent tube terminated in moisture trap of a desiccant chamber, via a common vent line. The common vent line being open to atmosphere helps the settlement reading not being affected by local air current and changes in barometric pressure. The fluid level vessels of settlement systems are mounted at locations where settlement is to be monitored. These are connected to a reference vessel mounted on a stable ground.

All interconnected vessels including reference vessel are mounted at same elevation and have a common fluid level initially. The fluid level in the reference vessel is maintained constant and maybe monitored with the vibrating wire force transducer.

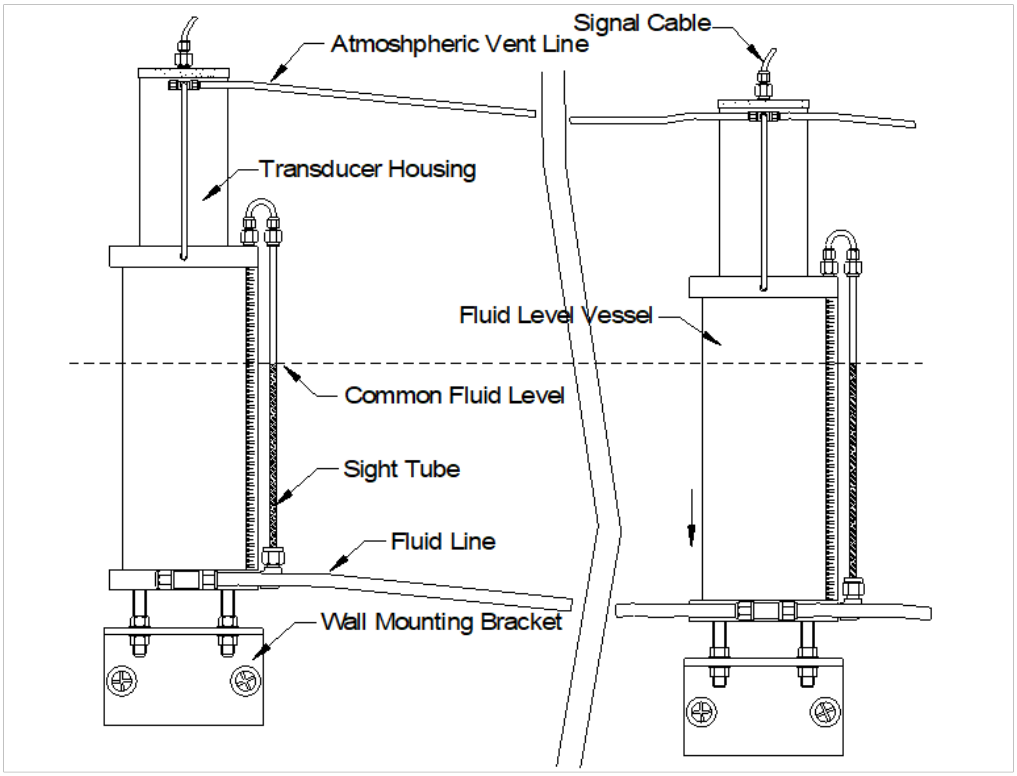
Settlement of any of the vessel installed at settlement location, causes change in its fluid level, affecting the buoyancy on the suspended cylinder, which is measured by the vibrating wire force transducer.

To compensate for change in density of the fluid due to temperature changes, similar systems with the cylindrical weight completely submerged in the fluid, may be used.

The vibrating wire force transducer can be read with model EDI-51V vibrating wire portable readout unit. It can also be read remotely with model EDAS-10 data acquisition system. Since the sensor is vibrating wire type and has frequency output, data can be transmitted over long lengths of cable without any problem.

SPECIFICATIONS

Range	150, 300, 600, specify
Resolution (mm)	0.07, 0.07, 0.15
Accuracy**	± 0.1 % fs
Non-linearity	± 0.5 % fs
Temperature limit	-20 to 80°C
Thermistor	YSI 44005 or equivalent
Vent Tubing (Two lines)	6 mm o.d., 4 mm i.d., nylon tube
Fluid Tubing	12 mm o.d., 10 mm i.d., nylon tube



**All specifications are subject to change without prior notice*

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