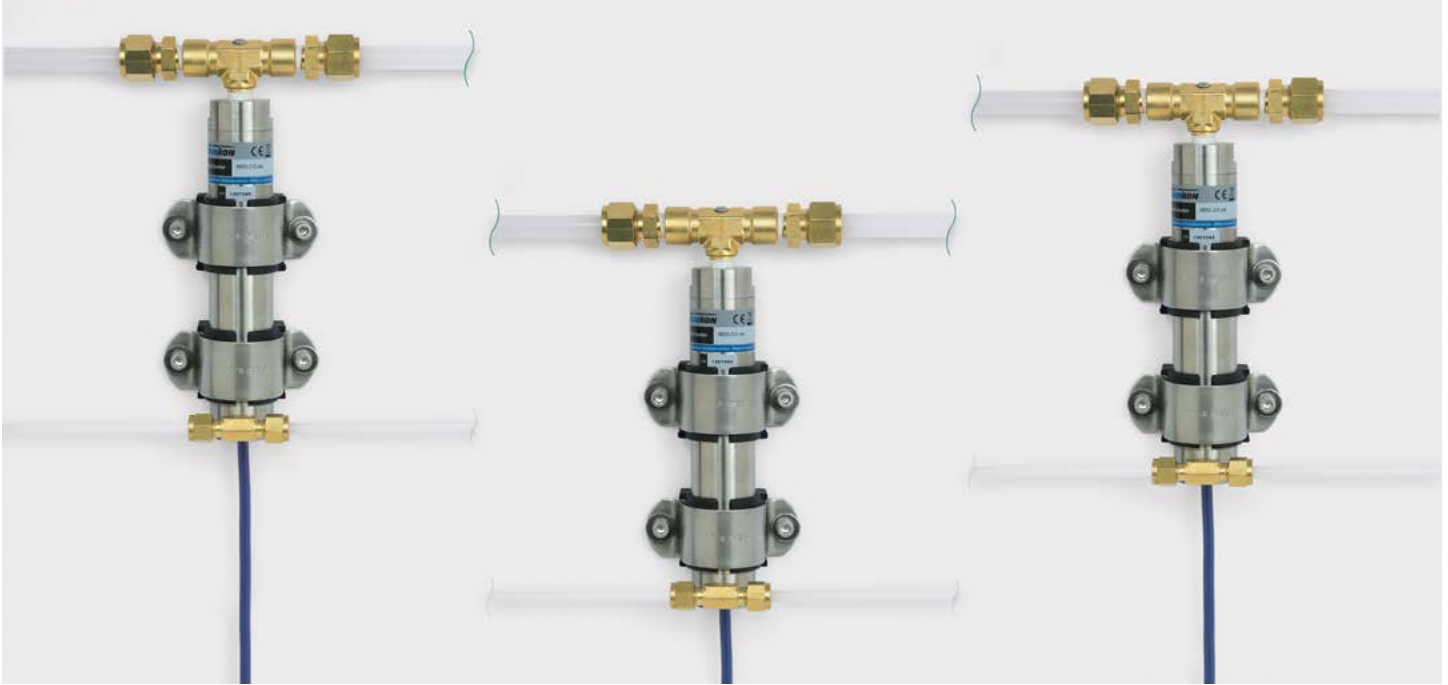


# MULTIPOINT HYDRAULIC LEVELING SYSTEM PRESSURE TRANSDUCER TYPE

**GEOKON®**

MODEL 3655, 4655



Model 3655 Multipoint Settlement System, semiconductor pressure transducers.

## APPLICATIONS

For the measurement of differential settlements in:

- Tunnels
- Bridges
- Excavations
- Floor slabs
- Compensation grouting projects

## OPERATING PRINCIPLE

The GEOKON Model 3655 and 4655 are Multipoint Settlement Systems comprising of a series of sensitive Semiconductor Pressure Transducers (3655) or Vibrating Wire Pressure Transducers (4655) connected together with a special Nylon tube filled with de-aired water or, where necessary, de-aired water and antifreeze.

The string of sensors is connected to a common reservoir. The reservoir has a large liquid capacity, compared to the volume required to fill the system; this helps minimize the effects caused by small changes in tubing volume which may occur due to varying temperatures.

Any of the sensors may be used as the "reference" where the elevation is known to be fixed and stable or can be

easily surveyed. Where the reservoir is to serve as the reference point, a pressure transducer is connected alongside to correct for any changes in reservoir level.

In use any change in elevation of a sensor will result in a change in the pressure measured by that sensor. Since all the sensors share the same liquid line and are referenced to the same liquid elevation in the reservoir, changes in the sensor elevations, relative to one another can be measured.

To eliminate barometric effects, a common vent line is also connected to the sensors and terminated at the reservoir as a closed loop settlement system.

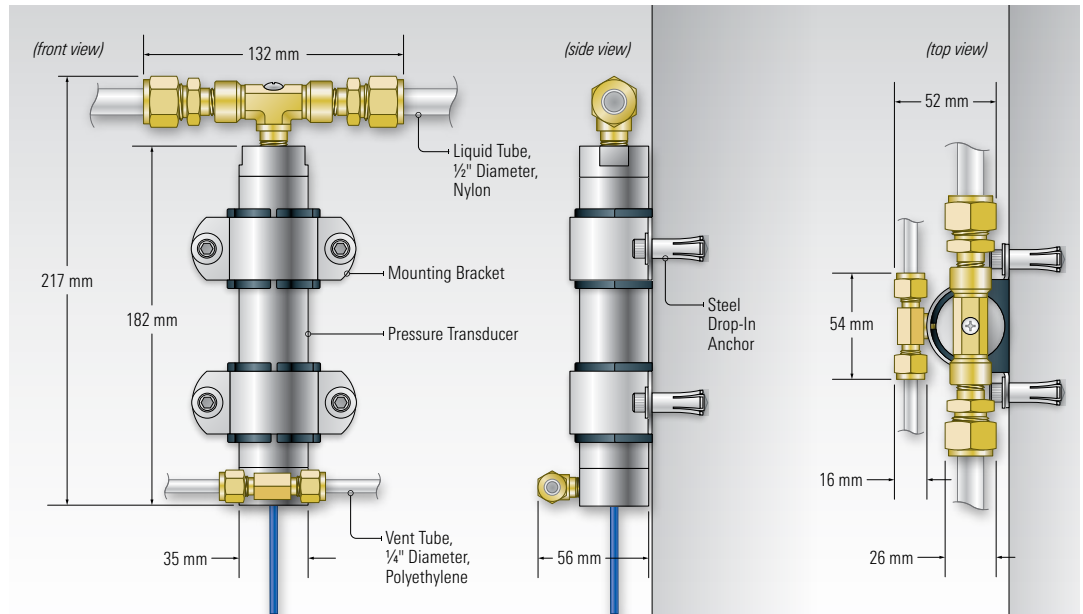
The 3655 Series uses molecularly bonded strain gauges to provide 100 mV output for full pressure when used with a 10 VDC supply. The high output versions provide 0–5 VDC or 4–20 mA, which are capable of being used in control and indicating loops without further amplification.

The 4655 Series uses a sensitive vibrating wire pressure transducer which senses changes in elevation by a vibrating wire attached to a pressure sensitive diaphragm. Changes in elevation result in changes in pressure, which cause the diaphragm to deflect and so change the resonant frequency of the vibrating wire.

Each sensor is equipped with a thermistor for temperature measurement.



Model 4655 Multipoint Settlement System, vibrating wire pressure transducer.



Model 3655/4655 Multipoint Settlement System sensor dimensions.

### ADVANTAGES AND LIMITATIONS

The pressure transducer system allows for greater differences in elevation between the sensors, takes up less physical space than the high precision Model 4675, is connected by relatively small diameter tubing and responds immediately to any changes in elevation as there is no flow between the sensors.

The Model 4655 Vibrating Wire System offers outstanding long-term stability and reliability, and low thermal zero shift. Cable lengths of several kilometers are possible and the frequency output signal is not affected by changing cable resistances (caused by splicing, changes of length, contact resistance, etc.) nor by penetration of moisture into the electronic circuitry.

The Model 3655 Analog System is particularly well suited for rapid data acquisition or where the readout or data acquisition system is incompatible with vibrating wire sensors.

Both systems include a vented pressure transducer in a rugged housing with fittings for a liquid line and an air (compensation) line, plus a bleed screw for eliminating trapped air.

Settlement Systems can be customized to meet your needs. Our staff will work with you throughout the process.

Common customizations include logger and reservoir integration, reservoirs for harsh environments, specialty cables, etc.

### MODEL 4655 TECHNICAL SPECIFICATIONS

Range	70 kPa (7.14 m) H <sub>2</sub> O
Resolution	0.025% F.S.
Accuracy <sup>1</sup>	±0.1% F.S.
Temperature Range <sup>3</sup>	-20 °C to +80 °C
Liquid Tubing	½" Nylon
Vent Tubing	¼" Polyethylene

<sup>1</sup> Accuracy established under laboratory conditions.

<sup>2</sup> 0-5 V, 4-20 mA (please contact GEOKON for mV/V accuracies).

<sup>3</sup> Other ranges available on request.

### MODEL 3655 SPECIFICATIONS

Please refer to the Model 3655 instruction manual.

### CABLE SPECIFICATIONS

Model	Cable
Liquid Tubing	04-375V9: 4 twisted pairs, Violet PVC Jacket, 9.53 mm Ø
Vent Tubing	02-250V6: 2 twisted pairs, Blue PVC Jacket, 6.35 mm Ø

### COMPATIBLE READOUTS AND DATALOGGERS

#### FOR MODEL 4655:

- GK-404: Handheld Readout
- GK-406: Vibrating Wire Analyzer
- 8910 Series: GeoNet Wireless LoRa® Data Acquisition System
- 8920, 8930, 8950 Series: GeoNet Cellular and Wi-Fi Network Loggers
- 8940 Series: GeoNet Dataloggers
- 8600 Series: Multi-Channel Dataloggers

#### FOR MODEL 3655:

- 8600 Series: Multi-Channel Dataloggers