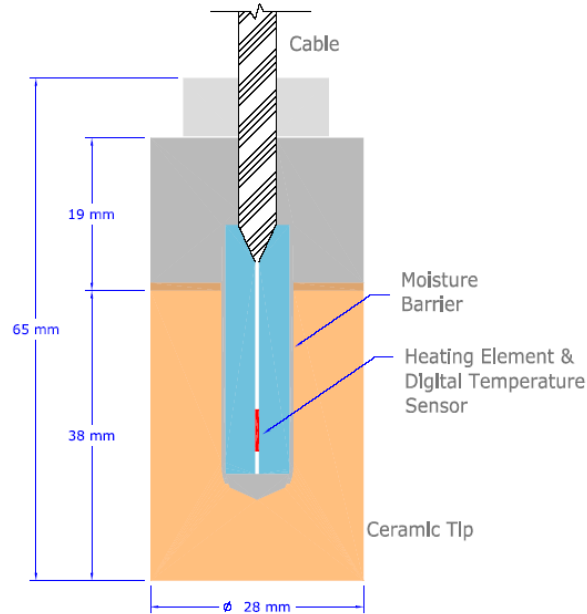


## Fredlund Thermal Conductivity Sensor (FTC-100)



- Digital design
- Transmission of data over 100 m without affecting signal quality
- 1 to 1,000 kPa range
- 5% accuracy\*
- Accurate for all soil types
- Measurements are unaffected by soil water salinity
- Moisture barrier protects electronics from unfavorable moisture infiltrations
- Special burial cable permits long-term installation in moist environments
- 16-channel multiplexer accepts four or more types of sensors including suction sensors
- 12V battery pack and a solar panel can be provided as power supply

### DESCRIPTION

The Fredlund Thermal Conductivity Sensor is an unsaturated soil sensor for measuring soil suction and temperature in the field. The system consists of ceramic-tipped sensors, a suction sensor controller (datalogger), and a power supply. Typically, 16 sensors are included with 10 m (30 ft) of cable for each sensor. The datalogger consists of a 16-channel multiplexer that can be connected to a laptop or PC. Power is supplied with a 12-Volt battery pack and a solar panel.

\* Sensors calibrated in wetting only and for 500 kPa range.

The sensor tip has a miniature heating element and a temperature sensor embedded in the center. The heating curve of the sensor is obtained by sending a controlled current to the heating element. The temperature rise (DT) in the sensor after heating depends on the water content of the sensor, which in turn is a function of the surrounding soil suction. Calibration curves developed in the laboratory are provided to obtain the suction corresponding to field measured DT.

### SPECIFICATIONS

Range: ..... 1 to 1,000 kPa  
Accuracy: ..... 5%\*  
Cable Length: ..... up to 100 m  
Controller: ..... 16 Channels  
Power: ..... 12 VDC  
Software: ..... Windows based

### SHIPPING (Full System w/ 16 Sensors)

Weight: ..... 25 kg  
Dimensions: ..... 60 x 60 x 60 cm