FTT - Heat flux sensor
(Rev.1 010215)

Description

The FTT self-calibrating heat flux sensortm is a sensor intended for high accuracy measurement of soil heat flux. Also it offers improved quality assurance of the measurement. The on-line calibration (the Van den Bos- Hoeksema method) automatically corrects for various common errors, in particular those due to the non-perfect matching of the thermal conductivity of sensor and soil, and due to variations of the thermal conductivity of the soil caused by varying moisture content.

FTT is a combination of a heat flux sensor and a film heater. The primary purpose is to estimate the heat flux through the surrounding soil. The FTT output is a voltage signal that is proportional heat flux through the sensor. The film heater that is mounted on top can be activated to perform a calibration (see figure 2), resulting in a new calibration factor that compensates for the errors made under the circumstances of that moment. Implicitly also cable connection, data acquisition and data processing are tested. Also errors due to temperature dependence and instability of the sensor are eliminated. The result is a much improved accuracy & quality assurance of the measurement (relative to conventional models).
A typical measurement location is equipped with 2 sensors for good spatial averaging.

Advantages

- ✓ Excellent accuracy
- ✓ Good behaviour in temperature
- ✓ Easy to interface to different types of dataloggers

Main applications

- ✓ Meteorology and Study of glaciers
- ✓ Micro-climatic measurements
- ✓ Agriculture

Technical Data

Model	FTT-I	FTT-V
Range di misura	±2000 W/m^2	
Transducer	Thermopyle	
Electrical Output	**4…20mA** (4mA=-2000 W/m^2; 12mA=0 W/m^2; 20mA=2000 W/m^2)	**0…5Vdc** (0Vdc=-2000 W/m^2; 2,5Vdc=0 W/m^2; 5Vdc=2000 W/m^2)
Power supply	12-24Vdc	12-24Vdc
Accuracy	±3%	
Nominal Sensitivity	50 µV/W/m^2	
Nominal Resistance	2 Ohm	
Typical response time	3 minutes	
Temperature range	-30…+70°C	
Cable	Outdoor shielded cable; standard length: 5m	
Protection	IP68	
Housed	Plastic	
Dimensions, weight	ø80mm, thickness 5mm, 20g	

Geoves Snc
Via Magg.Piovesana, 155/a 31015 Conegliano (TV) - Italy
C.F. e P.IVA: 04433390269
tel.: +39 0438 22099 fax: +39 0438 420668
E-mail: info@geoves.it http://www.geoves.it