

Warden online TDR Soil Moisture System



Warden is an online TDR (Time Domain Reflectometry) soil moisture meter of moisture, temperature and electrical conductivity. Minimal footprint meter equipped with an internal data recorder and eight channels, which can be used in both the lab and the field. Tiny sensors follow true TDR principle, the upper frequency of the analyzing needle pulse is about 1.5 GHz. Special designed sensor body with ultimate low heat conductivity, avoid the parasite "thermal bridge" effects on distribution of soil moisture in the probe's sensor vicinity. Warden is easy to connect with internet for cloud data storage, remote data access, configuration and synchronization of internal clock.

Features

Minimal footprint datalogger with up to 16 connection ability
 True TDR principle with 1.5GHz upper frequency
 Measurement of soil moisture, temperature and salinity

No special maintenance means are required
 Ultra-low power consumption for both work mode sleep mode

Technical parameters

Warden data logger	
Channels	8 Channels, ability to connect up to 16 warden units
Calibration	Each TDR channel and TDR sensor can be calibrated separately
Power	6 -15 V DC
Operating Temperature	-10 to 85°C

TDR-003 Laboratory Miniprobe for Soil Moisture and Salinity	
Installation Hole	metric thread diameter of 8mm, height of 3.3 mm
Sensor	two 53 mm long parallel stainless steel rods diameter of 0.8, separated by 5 mm
Sphere of Influence	a cylinder having diameter of about 5 mm and height of about 60 mm
Cable Length	2 m from the sensor to the terminating connector (or multiplexer)

TDR-004 Laboratory Miniprobe for Soil Water Capillary Pressure	
Pressure Diaphragm	15 mm long ceramic cup, 3 mm in diameter
Offset Drift	± 20 mbar/month, relative error: ± 15 %, resolution: 1 mbar
Cable Length	2m
Installation Hole	8 mm diameter

TDR-001 Soil Moisture Sensor and TDR-002 Soil Moisture, Electrical Conductivity, Temperature sensor	
Accuracy	soil moisture ±2 %, electrical conductivity±10 %, temperature 0.5°C
Sensor	two 100 mm long parallel stainless steel rods having 2 mm diameter and separated by 16 mm
Region of Influence	a cylinder having approximated diameter of 5 cm and height of 11 cm
Sensor Support	a section of a PVC tube having 2 cm outer diameter and optional length (15cm-150cm or longer) dependent on the intended depth of the sensor installation
Cable Length	from 1.5 to 9m from the sensor to the terminating connector

TDR-005 Laboratory Probe for Soil Temperature	
Range	temperature between -20°C and +60°C
Resolution	0.01°C
Absolute Error	not more than ±1°C or ±0.1°C if individually calibrated
Cable Length	2m
Installation Hole	8 mm diameter tapped with 8/1.5 mm thread

Soil column metal cylinder (for placing soil column samples and installing sensors)	
Specifications	Wall thickness 2.75mm, height 100mm, inner diameter 55mm
Features	The cylinder wall is provided with sensor mounting holes for installing LP/MS and LP/P sensors. Install the hole spiral distribution to minimize the impact between sensors