



Non-destructive measurements

Excellent accuracy and precision



Overview

Campbell Scientific time-domain reflectometry system is used to accurately determine soil volumetric water content, soil bulk electrical conductivity, rock mass deformation, or user-specific timedomain measurement. The system consists of the TDR100 Time-Domain Reflectometer, a Campbell Scientific datalogger, SDMX50-series coaxial multiplexers, TDR probes, and PC-TDR software. The system is often powered by a datalogger's sealed rechargeable battery recharged by a 10 W solar panel.*

Measurements

- Soil water content
- Soil bulk electrical conductivity
- Rock mass deformation
- Solution electrical conductivity
- Cable integrity
- Water level detection

Benefits and Features

- > Uses compact, low-cost TDR100 Reflectometer with performance features that match or exceed other available TDR reflectometers
- Compatible with CR800, CR850, CR1000, and CR3000 dataloggers
- Makes non-destructive, long-term, in-situ soil measurements
- Provides measurement time of 2 s for water content, electrical conductivity or reflection waveform collection (250 data points)
- Measures up to 512 TDR probes
- > Up to 16 TDR100s can be controlled using a single Campbell Scientific datalogger
- > Uses PC-TDR software to facilitate system setup
- > Supports operating temperature range of -40° to 55°C

*The power supply requirements depend on the number of sensors measured, how frequently the data's retrieved, data retrieval method used, and location of the site. Systems that measure more sensors, use a high current drain telecommunications method such as satellite transmitters, or retrieve data more frequently may require a user-supplied, deep-cycle rechargeable battery recharged with a 20 W solar panel.



Components



5 ENCTDR100 Environmental Enclosure

Customizations

The TDR100 -based system is completely customizable, allowing you to configure the station to your projects specification. The following are the components that are available:

Soil TDR Probes

- > CS605—recommended for typical soils (soil bulk conductivity \leq 1.4 dS/m) and cable lengths \leq 15 m.
- > CS610—recommended for typical soils (soil bulk conductivity \leq 1.4 dS/m) and cable lengths \leq 25 m.
- CS630—recommended for high conductivity soils (soil bulk conductivity ≤3.5 dS/m) and cable lengths ≤15 m.
- CS635—recommended for high conductivity soils (soil bulk conductivity ≤3.5 dS/m) and cable lengths ≤25 m
- CS640—recommended for very high conductivity soils (soil bulk conductivity ≤5 dS/m) and cable lengths ≤15 m.
- CS645—recommended for very high conductivity soils (soil bulk conductivity ≤5 dS/m) and cable lengths ≤25 m



Multiplexers

- > SDMX50—includes circuit board, enclosure, and strain relief backplate
- SDMX50LP—includes circuit board attached to a strain relief backplate. Mounts inside of a user-supplied enclosure.
- > SDMX50SP—includes multiplexer circuit board enclosed in metal housing and a strain relief bracket. Mounts to wall or to the backplate of a Campbell Scientific enclosure.

SDMX50SP Environmental Enclosures

10 Up to 512 three-rod TDR probes (not shown)

> ENCTDR100 16 in. by 18 in. enclosure— houses the datalogger, datalogger's power supply, TDR100, and SDMX50SP. Interconnecting SDM and coaxial cables are included.

Communications

Communication options include Ethernet, cellular, fiber, RS-485, satellite, and telephone.

Software

- > PC-TDR—used for setup and troubleshooting
- LoggerNet—supports telecommunications, datalogger programming, data transfer, and data processing functions
- > TDRSDK—allows software developers to customize and simplify the user-interface for the TDR100-based system.



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