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## SOILMOISTURE INTRODUCES

# The New MINITRASE Kit!



The new MiniTrase has proven reliability around the world in harsh environments, such as tropical and arid climates under constant use. “Plug and play” STD BUS architecture, plus a wide selection of waveguides and standard and customizable lookup tables. Carry it on your shoulder or use the optional backpack accessory. Aluminum waterproof case, indicator lights, “quick change” batteries and optional multiplexing; this CE device is ready for work!

The new MiniTrase retains all of the superior capabilities that made our Trase System I, a valued research instrument, but now features significantly reduced weight, size and cost. MiniTrase provides the largest signal pulse of any standard commercial TDR instrumentation used in soils or dielectric measurements. This means you get a return reflection from waveguide end points buried deep in wet, salty conditions. MiniTrase uses the proven step pulse methodology that is the expected standard for TDR measurements, a fact that is appreciated and acknowledged by discerning scientists worldwide.

With 1,200 point sampling resolution, 5,000 reading capacity and user-friendly operations, there is simply no better piece of equipment on the market than the new MiniTrase. With the largest selection of inexpensive waveguides available, the user can measure large areas at multiple sites and multiple depths at the lowest possible cost per site or area covered.

MiniTrase is small and lightweight and can be used in the field or lab. Power comes from NiCad quick charge, easy to change NiCad battery.

The new MiniTrase Kit consists of the MiniTrase, a standard waveguide connector, Palm IIIc terminal, backpack for easy portability, Makita battery plus all the necessary cables, chargers, and software to use and download data to your PC. Optional accessory items are expanded memory card, multiplexing card and multiplexing accessories, plus a variety of different waveguides.



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### SOILMOISTURE EQUIPMENT CORP.

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## Waveguide Options

MiniTrase works with all of the various type of waveguides that have been developed for Soilmoisture Equipment Corp. TDR moisture measuring products over the last ten years.

### Standard Waveguide Connector



The Waveguide Connector, supplied in the MiniTrase Kit, attaches to very inexpensive 1/4 inch diameter stainless steel waveguides that can be left in place in the soil or used as a portable probe system. Use of waveguides of different lengths from 15 to 70 cm gives an estimate of how soil water content changes with depth. If bulk soil electrical conductivity exceeds 3 dS/m, coated waveguides can be used to determine water content from the surface to 70 cm. For determination of soil water content at specific depths, the 20 cm long

### Slammer Waveguide Connector



The heavy duty waveguides (3/8 inch stainless steel rods) are fixed into the Slammer (4) field waveguide connector for extremely rugged, repeated pounding into and removal from the soil. The slammer/heavy duty waveguides are excellent for survey work and situations where conditions do not allow equipment to be left in the field. The Slammer has its own drop hammer included for controlled strikes on the waveguides as they are inserted into dense soils. The multiple waveguide types available for use with MiniTrase, combined with the optional calibration look up tables, make the Trase systems the most versatile and economical TDR moisture measuring system available. Whether your application requires discrete moisture measurements from specific depths, integrated moisture measurements throughout the root zone, data when salts build up in the soil, or small volume measurements MiniTrase is the only instrument you need.

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## Buriable Waveguides



Buriable Waveguides (2) with their built in, patented, automatic, zero set feature can be used. These economical coaxial (unbalanced) waveguides can be buried in any orientation at specific depths for detailed soil water profile determination. A two-meter coaxial cable is connected to the metal waveguides or “special” buriable waveguides can be ordered with user defined lengths of cable (maximum length 40 meters).

Coated buriable waveguides are also available for situations where the bulk soil e. c. is greater than 3 dS/m.

## Mini Buriable Waveguide



A variation of the buriable waveguide is the Mini Buriable Waveguide (3) . This small (8 cm long x 2.5 cm outer rod spacing) was designed for column studies and small pots. The mini buriable waveguide has the same features as the 20cm buriable waveguide described above except it is a smaller size for unique applications.

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# MiniTrase Specifications

<b>Measuring Range:</b>	0-100% volumetric moisture content
<b>Measuring Accuracy</b>	±2% full scale or better with the standard waveguide connector
<b>Operating Temperatures</b>	0 to +45°C
<b>Power Supply</b>	One each NiCad battery, supplied. Total capacity: 1.2 amp hr. Recharge time, 30-45 minutes.  Auxiliary power input 18 volt, 2.2 Amp AC Power Adapter for independent operation.  External battery input, 12 volts, for independent operation.
<b>Connecting Ports</b>	BNC port – For waveguide connection RS-232 serial port – For data transfer Power Port – 8-pin DIN
<b>MiniTrase Memory</b>	* Standard 256 Kb memory with storage capacity greater than 180 graphs/5,610 readings. * Optional 4 Mb memory board increases storage to greater than 3,900 graphs 122,880 readings. * Automatic data tagging with time and date plus user defineable Tag field.
<b>MiniTrase Electronic Particulars</b>	Measuring pulse amplitude 1.5 volt peak Sampling resolution, 10 picoseconds Hardware – 5-slot card cage, 3 system boards, 2 optional slots (for optional expanded memory and multiplexing)
<b>Included Items</b>	1 - MiniTrase (6050X3) 1 - Palm IIIc Color PDA Handheld Terminal - (6910) 1 - TraseTerm software on CD (6050X3SW) 1 - Standard Waveguide Connector (6002F1) 1 - Connector Cable from Palm to MiniTrase (MEZ032) 1 - Connector Cable from MiniTrase to PC (MEZ011) 1 - MiniTrase Battery Charger (6053V120) 1 - Power Supply unit for MiniTrase (6050V120/220) 1 - MiniTrase BackPack, Green with suede for durability (6031) 1 - Set MiniTrase Operating Instructions (0898-6050X3)

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