



The James V-Meter Mark III

The most advanced ultra-sonic test system for accurately identifying basic characteristics of coarse grained materials.

Applications:

Locate Honey Combs & Voids
Fire Damage
Crack Depth Determination
Young's Modulus
Find Rotting Wood

Features and Benefits

- Direct digital read-out of transit time
- Built-in wave form display on LCD
- Daylight visible display
- Rugged and splash resistant case
- Flaw detection
- Simple calibration; no special bar required
- Portable, light weight with battery and A-C power
- Conforms to ASTM C-597, BS 1881-203 and other international standards
- RS-232 output for uploading to computer
- Direct reading of calculated P-wave velocity and S-wave velocity
- Direct reading of calculated modulus of elasticity
- Direct reading of Poisson's ratio
- Signal and trigger output

NDT INTERNATIONAL, INC.
 711 S. CREEK ROAD
 WEST CHESTER, PA 19382-8031

Tel: 610-793-1700
 Fax: 610-793-1702
 info@ndtint.com
 www.ndtint.com

The James V-Meter Mark III

Applications



Direct configuration

Concrete

The V-Meter Mk III is widely used and accepted for quality control and inspection of concrete. It can measure and correlate concrete strength to standard strength measurement, permitting non-destructive testing of complete structures. It will identify honeycombs, voids, frozen concrete, cracks and other non-homogenous conditions in concrete. Ultrasonic testing can be applied to new and old structures, slabs, columns, walls, fire damaged areas, hydroelectric structures, pipe, prefab and pre-stressed beams, cylinders and other concrete forms. A wide range of transducers are available.

Typically, the 54 KHZ transducers are used for concrete testing – the signal wavelength is about 3 inches (75mm). Finer materials require higher frequencies for optimum resolution. The basic V-Meter Mark III contains a transmitter, a receiver and a very accurate high speed electronic clock. The transmitter generates an electrical pulse which when applied to a transmitting transducer, converts the electrical energy into a pulse of ultrasonic mechanical vibration. This vibration is coupled with the specimen under test by placing the transducer in contact with the specimen. At another selected point on the specimen another receiving transducer is coupled by mechanical contact. Each transmitted pulse of energy registers on the high speed clock. The first energy wave reaching the receiving transducer is converted back to an electrical signal and turns off the clock. The elapsed time is displayed on the LCD in 0.1 microsecond increments.

Wood

V-Meter Mark III, ultrasonic testing of wood can, nondestructively, detect knots, shakes, splits, grain orientation, windfall cracks and presence of decay and rot. Basic parameters such as modulus of elasticity and density can be calculated. Practical applications include field testing of utility poles and structures, grading in the manufacturing process, fire ladder inspection, examination of laminates and paper roll density. The velocity of ultrasonic energy pulses traveling in a solid material are related to the density and elastic properties of the material. The pulse velocity is thus a measure of density and elastic properties of the material. In transmitting ultrasonic energy through a coarse grained material such as concrete, ceramics or wood, it is necessary for the wave length of energy to be greater than the diameter of the largest grain particle. If it is not, all of the energy will be reflected back by the particles and none will reach the receiver.

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Technical

The instrument has an easy to view display (320 by 240 pixels). The backlit for daylight use, makes field work easier and faster, since the operator can identify good results in seconds without the problems related with the sun light reflection on the screen.

The signals can be recorded in the instrument for review on the screen or for transfer to a PC. A remote switch located on the sender transducer, instantly captures the signal on the display for viewing. Use of the remote switch facilitates field work and makes the V-Meter M III a very practical system. More than 200 readings can be recorded in the main memory and data can be transferred to a PC.



Indirect configuration

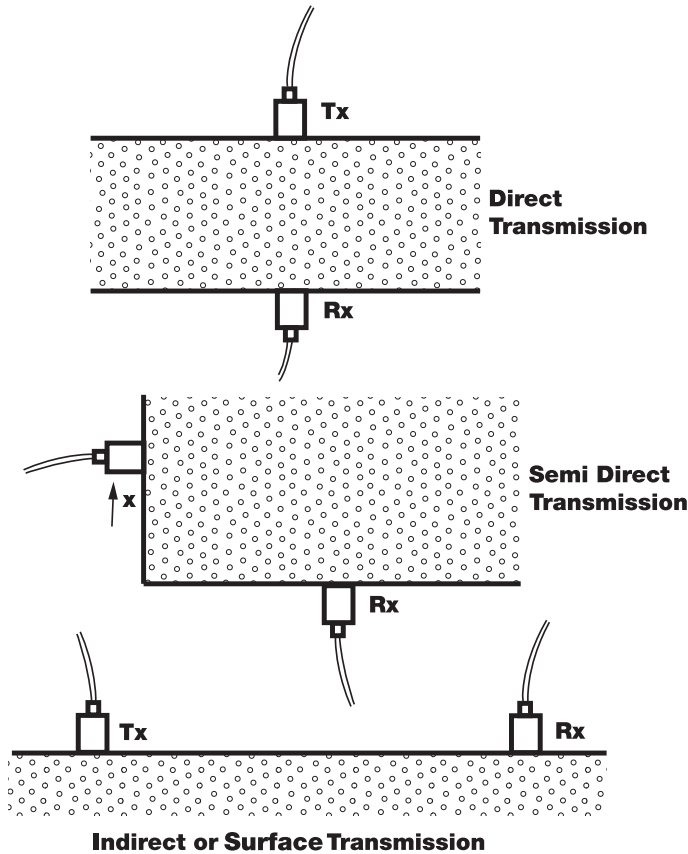


Semi-direct configuration

The James V-Meter Mark III

Technical Specifications

Methods of propagating ultrasonic pulses



Specifications

Instr. Weight:	6 lbs. (2.75 Kg)
Ship Weight:	17 lbs. (7.7 Kg)
Dimensions:	4.5" x 8.5" x 10.5" (114.3mm x 223.5mm x 267mm)
Frequency range:	24 to 500 kHz, based on transducers selected.
Receiver sensitivity:	250 micro volts, between 30 kHz and 100 kHz.
Receiver input impedance:	approximately 100 kOhms.
Transit time measurement:	0.1 to 6553.5 microseconds, direct digital display.
Measurement accuracy:	0.1 microseconds.
Transmitter output:	pulse 1000V/500V, 2 microseconds.
Transmitter pulse group rate:	selectable 1, 3 or 10.
Gain Selection:	1, 5, 10, 25, 50, 100, 250, 500
Battery:	14 Volt. 4-10 hours continuous use (lithium ion).
Display:	320 by 240; backlit for daylight use.
Storage:	1800 plus readings
Software:	Windows XP compatible.
Temperature:	0° - 50°C

Sales Numbers

V-C-9900:	V-Meter MkIII Complete System
V-C-9901:	V-Meter Mk III System w/o Software
V-C-9902:	V-Meter Mk III Basic system (everything but transducers)

Distributed by:

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