MREL®
BLASTING INSTRUMENTATION

MICROTRAP™ VOD/DATA RECORDER

RESOLUTION: 14 BITS, 1 PART IN 16,384.
CHANNELS: 1 VOD + 4 SCOPE CHANNELS OPTIONAL.
RECORDING RATE: SELECTABLE UP TO 2MHz.
MEMORY: UPGRADABLE TO 8 MILLION DATA POINTS.
EXPLOSIVES SAMPLES: 1 SAMPLE PER TEST.
EXPLOSIVES IN BLASTHOLES:
SEVERAL BLASTHOLES PER TEST.
OTHER SENSORS: ACCELEROMETERS,
PRESSURE, TEMPERATURE, ETC.

- Affordable, easy to use, and portable.
- 2 MHz recording rate, 14 bit resolution.
- Outstanding operational temperature range.
- Long operational battery life & non-volatile memory.
- Record one or several blastholes per test.
- MicroTrap™ Advanced Analytical Software for Windows™.
- MREL's 1 year Comprehensive Parts & Labour Warranty.

MICROTRAP
VOD/DATA RECORDER

Velocity of detonation (VOD) is cited as *the* performance specification for explosives. If you are not measuring VOD then you cannot be sure that your explosives are performing properly.

If you want to profile the VOD continuously along the explosives columns in multiple blastholes, along an explosives sample, or determine the delay times between blastholes, the most affordable and easiest to use recorder is the MicroTrap™ VOD/Data Recorder. It is the World's most popular VOD recorder and can be optionally extended to record any sensor that outputs DC voltage such as pressure sensors and accelerometers.

EXPLOSIVES CONSUMERS

You are paying for explosives and delay detonators to provide you with the energy and timing your blasts need under your specific blasting conditions. The MicroTrap™ VOD/Data Recorder is used by mines and quarries to perform spot checks of explosives and detonator delay time performance during blasts to compare the actual VOD and delay time results to the specifications published by the explosives manufacturer.

EXPLOSIVES MANUFACTURERS

Your customers depend on you for their explosives and detonators. At the customer's blast site the MicroTrap™ VOD/Data Recorder is used by your technical service representative to document the VOD performance of the explosives and delay times of the delay detonators being sold to the customer. At explosives plants, the MicroTrap™ VOD/Data Recorder is used as part of the quality control process to test VOD, airblast overpressure, or underwater pressure of samples of explosives including cartridges, boosters, detonating cord, bulk explosives of all types, and military explosives.

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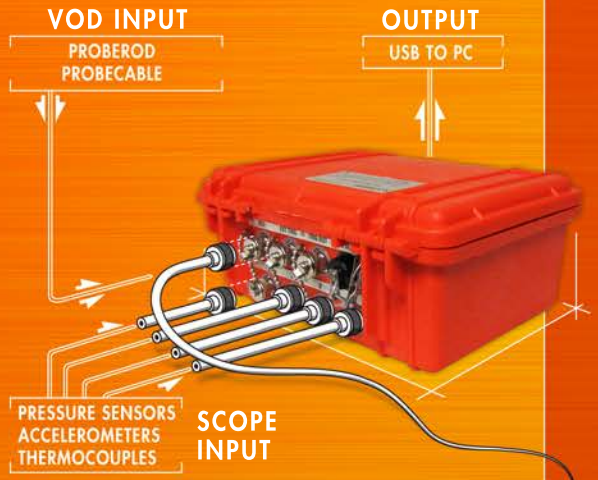
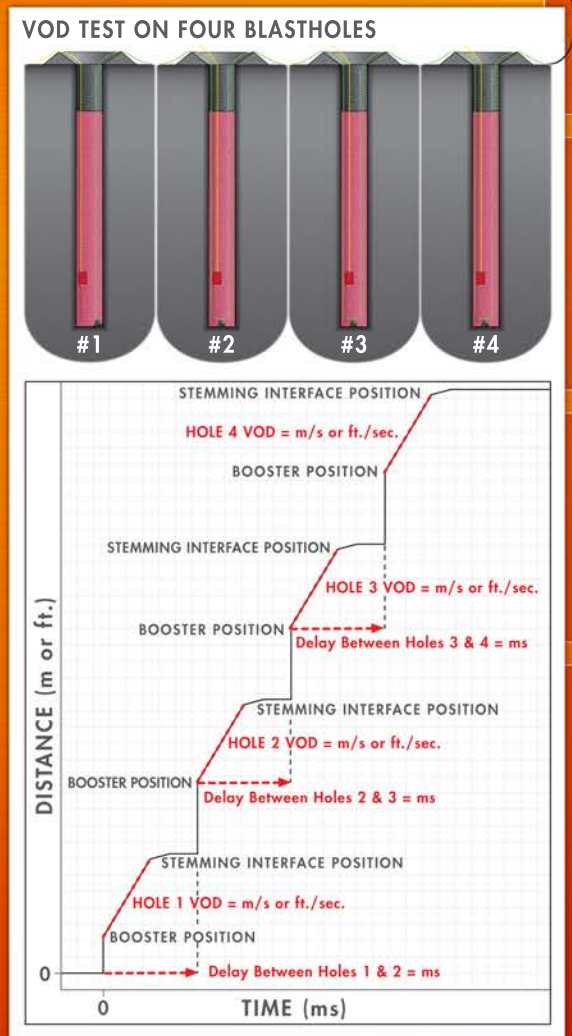
MREL® GROUP OF COMPANIES

MICROTRAP™ CONNECTIONS:





TEST EXPLOSIVES IN ONE OR MORE BLASTHOLES

Lower one continuous length of VOD PROBECABLE into each blasthole to be tested. The MicroTrap™ VOD/Data Recorder can record up to 900 m (3,000 ft.) of VOD PROBECABLE per blast. Load the blastholes with explosives as per normal procedure. Connect coaxial cable between the VOD PROBECABLE and the MicroTrap™ VOD/Data Recorder. Turn ON the MicroTrap™ VOD/Data Recorder, press the NEXT TEST button to test the VOD circuit, and press the START button. Retreat from the blasting area and fire the blast at any time. The MicroTrap™ VOD/Data Recorder will record the explosives performance in the blastholes and the delay times automatically without operator assistance. After the blast, or later in the office, download the VOD data from the MicroTrap™ VOD/Data Recorder to a PC and view the graph. Point and click to zoom in on the graph and point and click on the graph to calculate and display the VODs anywhere along the explosives columns and the delay times between holes.

TEST ONE SAMPLE OF EXPLOSIVES

The procedure is essentially the same as for a blasthole test, except that a 0.9 m (3 ft.) long VOD PROBEROD is inserted into the explosives sample or taped to the outside of the sample instead of the VOD PROBECABLE. Cable connections, MicroTrap™ VOD/Data Recorder operation, downloading data, and analysis procedures are the same as in a blasthole test.

RECORD OTHER SENSORS

The MicroTrap™ VOD/Data Recorder can be upgraded at any time to record an additional 4 channels of voltage signals from sensors such as accelerometers, pressure transducers, thermocouples, etc. These sensors can be recorded at up to 1 MHz per channel and VOD data can be collected at the same time.

EXAMPLES

Contact MREL to request a link to download a variety of typical VOD results from augered, pumped, cartridge, and decked explosives in dry and wet blastholes; explosives samples; and other sensors such as accelerometers and airblast overpressure sensors.

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MICROTRAP™ VOD/DATA RECORDER SPECIFICATIONS:

Number of Channels: Standard = 1 VOD channel.
Optional = 1 VOD + 4 Scope channels.
Resolution: 14 bits, 1 part in 16,384.
Recording Rates: Selectable from 1 Hz to 2 MHz.
Non-Volatile Memory: Standard = 4 million data points.
Optional = 8 million data points.
Recording Time (@ 2 MHz Recording Rate): Standard = 2 seconds.
Optional = 4 seconds.
Trigger Mode: Trigger internally on the signal from the event (2 to 98%) or trigger externally from a trigger wire.
Multiple Event Storage: 1 to 16 tests can be stored in the internal memory.
Power: AC mains or internal rechargeable NiCad battery which provides 12 hours of active operation on a full charge. Charger provided.
Size and Weight: 21 x 17 x 9 cm (8.3 x 6.7 x 3.5 in.) 2 kg (4.4 lbs.).
Environmental: Fully operational at -40 to +60 °C (-40 to +140 °F). Snow, rain, dust and sand proof. Drop proof from a height of at least 1 m (3 ft.).
PC Connection: At any time after recording, the operator can connect the MicroTrap™ VOD/Data Recorder to a computer's USB or parallel (LPT) port.
Software: The MicroTrap™ Advanced Analytical Software operates under Windows XP™ and later.
System Components Provided: MicroTrap™ VOD/Data Recorder, 120 or 230 VAC Battery Charger, Communications Cable with USB Adapter, padded carry case, colour Operations Manual, MicroTrap™ Advanced Analytical Software for Windows XP™ and later.
VOD Excitation and Safety: The MicroTrap™ VOD/Data Recorder is physically unable to output as much as 50 mA of current to a VOD PROBEROD or VOD PROBECABLE.
Warranty: MREL's 2 years Comprehensive Parts and Labour Warranty.
Technical Support: MREL's Unlimited Technical Support Program by secure customer portal, email, and telephone.

UPGRADES:

Memory Upgrade: Provides an additional 4 million data points of memory.
Scope Upgrade: Provides 4 channels of digital oscilloscope recording capabilities. Allows recording output of any sensor that produces a DC voltage signal between –10 to +10 volts. The voltage ranges are operator selectable +/-2.5, +/-5, +/-10, 0-2.5, 0-5, 0-10 VDC independently per channel. Recording speeds are adjustable from 1 Hz to 1 MHz per channel.
12 VDC Battery Adapter: Allows the operator to operate the MicroTrap™ VOD/Data Recorder from external 12 VDC power sources.

ACCESSORIES:

VOD PROBEROD: A variety of types of calibrated resistance probes for use in explosive samples.
VOD PROBECABLE: A variety of types of calibrated resistance cables for use in blastholes.
COAXIAL CABLE REEL: A variety of lengths used to carry the signals from the VOD PROBEs to the recorder.
OTHER SENSORS: A variety of calibrated uni-axial and tri-axial accelerometers, air blast and underwater pressure sensors, signal conditioners, signal cables and mounts.