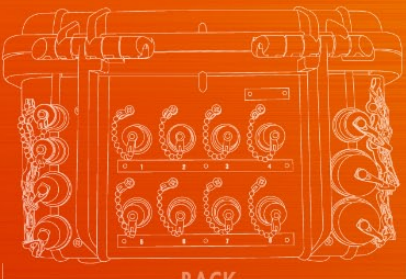# MREL®
BLASTING INSTRUMENTATION

DATATRAP II™ DATA/VOD RECORDER

RESOLUTION: 14 BITS, 1 PART IN 16,384.
CHANNELS: 8 SCOPE/VOD/STRAIN CHANNELS.
MEMORY: UPGRADABLE TO 256 MILLION DATA POINTS.
SENSORS: ACCELEROMETERS, PRESSURE, TEMP., ETC.
EXPLOSIVES SAMPLES: UP TO 8 SAMPLES PER TEST.
EXPLOSIVES IN BLASTHOLES: UP TO 32 BLASTHOLES PER TEST.

DataTrap II
DATA/VOD RECORDER

HOURS OF OPERATION

PANEL

BACK

18cm (7")

28cm (11")

25cm (10")

TEMPERATURE RANGE

+60°C +140°F

0°C 0°F

-40°C -40°F

Easy to use, extremely rugged and portable.

10 MHz recording rate per channel, 14 bit resolution.

Outstanding operational temperature range.

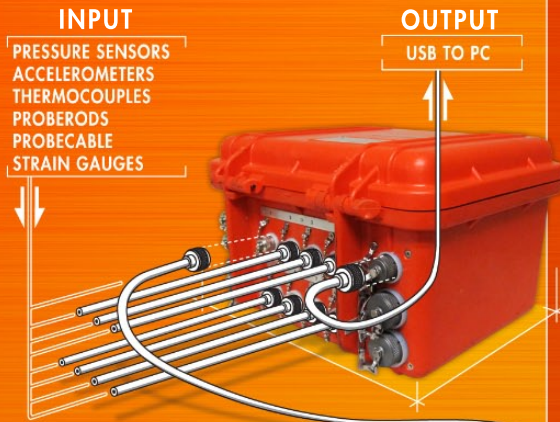Long operational battery life & non-volatile memory.

8 channels, expandable to 56 channels.

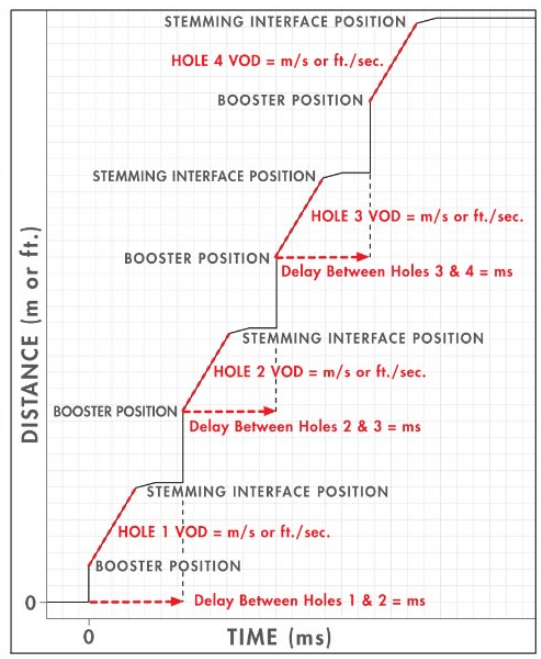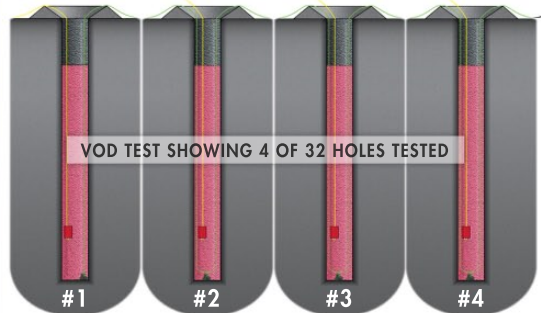DataTrap II™ Advanced Analytical Software for Windows.

MREL's 1 year Comprehensive Parts & Labour Warranty.

Your PC based Data Acquisition System (DAS) could cause failure of your testing program.
When confronted by dust, high or low temperatures, moisture, or even rough handling,
a typical DAS will fail.

If you want to record acceleration, pressure, and other dynamic sensors under tough outdoor conditions, then the DataTrap II™ Data/VOD Recorder is the only rugged recorder that provides this capability and the optional ability to record dynamic strain, and explosives velocity of detonation (VOD) continuously along explosives columns in multiple blastholes, along explosives samples, as well as to determine the delay times between blastholes.

RESEARCHERS OF HIGH-RATE PHENOMENA
You are running a sophisticated testing program involving measurement of the performance and/or effect of energetic materials. The DataTrap II™ Data/VOD Recorder is used by corporate, university and government researchers to record signals from airblast overpressure and underwater pressure sensors, accelerometers, thermocouples, strain gauges, VOD probes in explosives samples, and other sensors on outdoor testing ranges without the requirement of running long signal cables to a distant instrumentation shelter.

EXPLOSIVES CONSUMERS AND MANUFACTURERS
Your explosives and delay detonators must provide the energy and timing your blasts need under your specific blasting conditions. The DataTrap II™ Data/VOD Recorder is used to document the VOD performance of the explosives and delay times of the delay detonators during blasts to compare the actual VOD and delay time results to the published specifications. It also records near-field blast vibrations using high-G uniaxial and triaxial accelerometers.

MREL Group of Companies Limited //
1555 Sydenham Road // Kingston, Ontario K7L 4V4 // Canada //
Tel: +1.613.545.0466 // Fax: +1.613.542.8029
www.mrel.com

MREL®
GROUP OF COMPANIES

DATATRAP II™ CONNECTIONS:

INPUT

PRESSURE SENSORS
ACCELEROMETERS
THERMOCOUPLES
PROBERODS
PROBECABLE
STRAIN GAUGES

OUTPUT

USB TO PC

| CH #5: H17-H20 | CH #8: H21-H24 | CH #8: H25-H28 | CH #8: H29-H32 |
| CH #1: H1-H4 | CH #2: H5-H8 | CH #3: H9-H12 | CH #4: H13-H16 |

VOD TEST SHOWING 4 OF 32 HOLES TESTED

#1   #2   #3   #4

RECORDING DYNAMIC SENSORS

Begin by connecting the DataTrap II™ Data/VOD Recorder to a PC using USB. Set the recording parameters using the DataTrap II™ Advanced Analytical Software or using the LCD panel on the recorder without a PC. Disconnect the PC – it is not required on the range. Connect the sensor to its signal conditioner and the voltage output from the signal conditioner to one of the eight DataTrap II™ Data/VOD Recorder channels using coaxial cable. Turn ON the DataTrap II™ Data/VOD Recorder. Press the NEXT TEST button and then the START button. *You can even bury the recorder below the ground surface if conducting large airblast tests.* Retreat from the testing area and conduct the test at any time. The DataTrap II™ Data/VOD Recorder will record the signals from the sensors automatically without operator assistance. Download the data from the DataTrap II™ Data/VOD Recorder to a PC at any time and view the graphs of voltage versus time. Apply the sensor conversion factors to the voltage graphs to convert them to engineering units versus time. Point and click to zoom in and analyze each graph. The DataTrap II™ Data/VOD Recorder data files are also available in the standard TDMS format so that they can be opened and analyzed by popular analytical software such as LabVIEW™, MATLAB™, Origin™ and others.

TEST EXPLOSIVES IN ONE OR MORE BLASTHOLES

With the optional VOD Upgrade installed, the eight channels of the DataTrap II™ Data/VOD Recorder can be independently set to record a sensor or VOD or turned OFF. Using the same standard procedure as the World's most popular VOD recorder, the MicroTrap™ VOD/Data Recorder, the DataTrap II™ Data/VOD Recorder will record the VODs of up to 8 explosives samples simultaneously (1 per channel), and up to 32 blastholes (typically, from 1 to 4 per channel) and determine the delay times between holes and decks of explosives. Operators can connect accelerometers (or other sensors) on several channels and VOD on other channels to determine the explosives performance and the effects on the rock walls simultaneously in one blast on a common time base.

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, strain gauges, and airblast overpressure sensors.

DATATRAP II™ DATA/VOD RECORDER SPECIFICATIONS:

Number of Channels: Standard = 8 Scope channels. Multiple recorders can be connected together and time-synched for up to 56 channels.
Optional = Conduct VOD testing on one or more channels with the VOD Upgrade.
Optional = Conduct strain testing on one or more channels with the Strain Upgrade.
Input Ranges: OFF, 0-2.5 VDC, 0-5 VDC, 0-7.5 VDC, 0-10 VDC, +/-2.5 VDC, +/-5 VDC, +/-7.5 VDC, +/-10 VDC, VOD, STRAIN.
Resolution: 14 bits, 1 part in 16,384.
Recording Rates: Selectable from 1 Hz to 10 MHz per channel.
Non-Volatile Memory: Standard = 64 million data points allocated across the channels in use. Optional = 128 million data points or 256 million data points.
Trigger Mode: Trigger internally on the signal from the event (2 to 98%) or trigger externally from TTL or a trigger wire.
Multiple Event Storage: 1 to 32 tests can be stored in the internal memory.
Power: AC mains or internal rechargeable NiCad battery providing 6 hours of active operation on a full charge. Charger provided. Optional = Battery Adapter.
Size and Weight: 28 x 25 x 18 cm (11 x 10 x 7 in.)   4 kg (8.8 lbs.).
Environmental: Fully operational at -40 to +60 °C (-40 to +140 °F). Snow, rain, dust and sand proof.
PC Connection: At any time after recording, the operator can connect the DataTrap II™ Data/VOD Recorder to a computer's USB port.
Software: The DataTrap II™ Advanced Analytical Software operates under Windows XP™ and later. DataTrap II™ data files are also available in TDMS format for opening and analyses with analytical software including LabVIEW™, MATLAB™, Origin™ and others.
System Components Provided: DataTrap II™ Data/VOD Recorder, 120 or 230 VAC Battery Charger, USB Communications Cable, Operations Manual, DataTrap II™ Advanced Analytical Software for Windows XP™ and later.
Warranty: MREL's 1 year Comprehensive Parts and Labour Warranty.
Technical Support: MREL's Unlimited Technical Support Program by secure customer portal, email, and telephone.

UPGRADES:

Enhanced Memory Upgrade: Provides a total memory of 128 million data points.
Maximum Memory Upgrade: Provides a total memory of 256 million data points.
VOD Upgrade: Installed in the DataTrap II™ Data/VOD Recorder. Provides VOD recording capability to each of the 8 channels allowing the Operator to select VOD or Scope input on each channel independently. The recorder is physically unable to output as much as 50 mA of current to a VOD PROBEROD or VOD PROBECABLE.
Strain Upgrade: Can be attached to the lid of the recorder by the Operator and provides 8 channels of strain recording capabilities.
12 VDC Battery Adapter: Allows the operator to operate the DataTrap II™ Data/VOD Recorder for an extended time from external 12 VDC power sources.

ACCESSORIES:

SENSORS: A variety of calibrated uniaxial and triaxial accelerometers, airblast and underwater pressure sensors, signal conditioners, signal cables and mounts.
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.
STRAIN: Strain gauges and associated signal cables.