

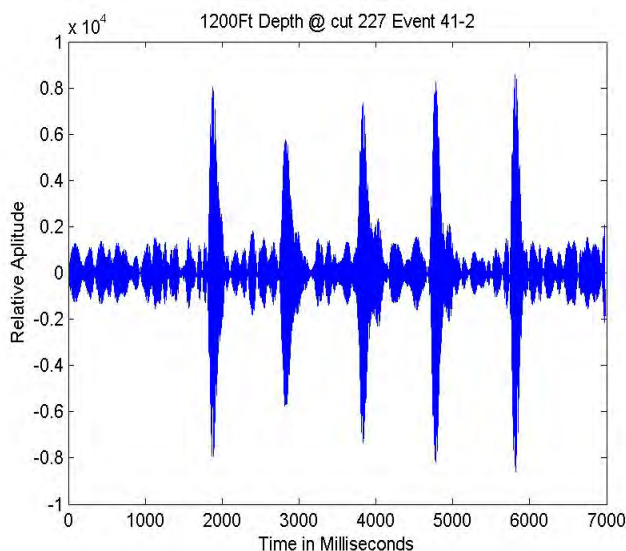


Microseismic Monitoring for Trapped Miners - SP2 Model TM2



Detect and Locate Trapped Miners

Revolutionary technology clearly identifies the signals from Trapped Miners. Proven at 1500 Feet. Confident up to 2000 feet depths. This is achieved by eliminating all of the surrounding noise associated with a fully working mine.



Multi channel seismic inputs

Unique proprietary IP 'Sees Through' Mine Noise

Extreme dynamic range exceeding 130dB

Stable embedded Windows platform

Touch screen technology in conjunction with powerful user interface software for ease of use

Rapid Deployment -Weighs less than 60Kg.

Multiple Sensors cover a wide area up to 1Km.

Product Specifications

SP2 Technology for Detecting and Locating Trapped Miners - Model: TM2 Microseismic Analytical Monitor

Overview

The TM2 (Trapped Miner System) is the second generation of SureWave Technology's unique microseismic monitoring instrumentation. The TM2 is specifically designed for the detection and location of Trapped Miners. No user setup or adjustment is required. The system automatically adjusts settings as required for any site. Location is achieved by following the procedures in the user manual.

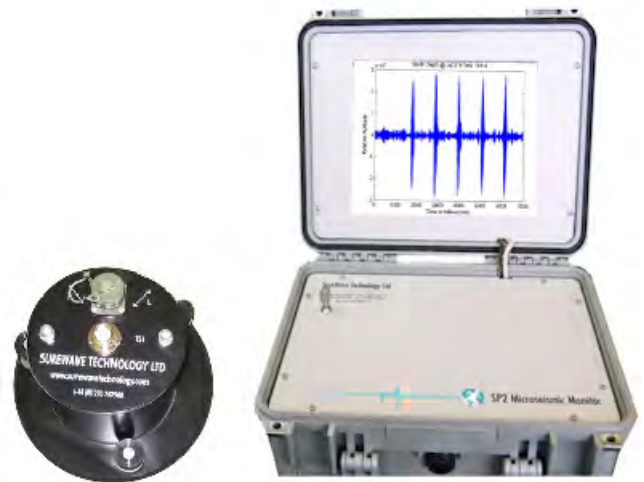
This system is capable of detecting Trapped Miners pounding with a crib block at distances up to 600 meters (2000 feet) vertical depth and up to 450 meters (1500 feet) horizontal distance at those depths whilst the mine is fully functional. Given a real emergency situation, where the mine activity is suspended these distances will be considerably enhanced. The sensors are positioned on solid material (rock is ideal) and if necessary a hole may be needed to avoid placing on soft earth or loose material. The sensors are positioned above the mine workings using a best guess as to the area the miners are trapped in. The detection distance will depend on good solid material without significant voids between the Trapped Miners and the sensors. SureWave Technology can "see through" surrounding seismic activity often many thousands of times larger from that generated from the working mine activity.

The Trapped Miners will generate regular signals through pounding on the roof with whatever is to hand. Tests have proven a crib block is over twice as effective as a sledge hammer. In the USA, miners are instructed, if trapped, to await a surface signal (explosion) and then pound 5 times at 1 second intervals as often as possible. The SureWave system automatically detects such pounding and instantly displays the wave forms processed to produce clear, visual indication of the detection. For increased confidence, these regular patterns will be observed providing the rescue teams with 100% confidence.

TM2 systems should be kept within 24 hours distance from any area or mine liable to such events. The system is supplied in a portable crate suitable for air freight and transport in a medium to large SUV. The system can be deployed by 1 person and be operational within 10 minutes of arriving on site depending on the exact conditions encountered. The sensors can be mounted on supplied spikes to eliminate the need for holes in most cases. The system is supplied with two tri-axis sensors as standard, expandable to four. Alternatively, single, vertical sensors can be supplied enabling the user to cover a huge area up to several kilometres. However due to the ease of rapid deployment, it is often far more practical to use 1 or 2 sensors and keep moving the whole system to cover such large areas, operating from the rear of the SUV.

Features

- Portable – for rapid deployment, or permanent installation
- Multi-channel seismic inputs (6, 9 or 12 channels)
- Unique proprietary intellectual property "Sees through background noise"
- Extreme dynamic range up to 130dB when used with TS1 Sensors
- Built in 12 inch backlit TFT monitor with touch screen technology
- Powerful user interface software makes the TM2 effortless to use
- Multiple sensor heads cover a wide area up to several KM's
- Tough and rugged design. IP67 (with lid closed)
- Designed and manufactured in the UK
- Manual levelling with visual levelling guide



Available Models

TM2/6	TM2 base unit with 6 monitoring channels supplied with two Tri-axis TS1/3 sensors
TM2/9	TM2 base unit with 9 monitoring channels supplied with three Tri-axis TS1/3 sensors.
TM2/12	TM2 base unit with 12 monitoring channels supplied with four Tri-axis TS1/3 sensors.
TM2/single	TM2 base unit with single vertical sensors available to customer requirements.

Portable systems are supplied with intelligent charger battery pack and battery pack interconnecting cable.
Fixed systems will require a permanent power supply of 12V DC @ 2.5A and 24V DC @ 200mA.

Specifications (when used with TS1 family of sensors)

OS Platform	Microsoft™ Embedded Windows XP™
Display	12" diagonal, 16.8million colour TFT with touch screen
Power Ports	1x 12V charge input, 1x 24V battery pack input
Sensor Ports	Sensor A, B, C and D
External Ports	2x USB 1.1 and 1x CAT5e Ethernet
Dynamic Range	Up to 130dB
Power Supply	Internal 12V 7AH battery with 12V charging cable and external 24V battery pack with built in intelligent charger If powered externally 12V DC @ 2.5A and 24V DC @ 200mA. Option of Solar Panel Power.
Dimensions	412 x 330 x 175mm (CPU), 130mm x 120mm diameter mounted on a 180mm base plate (TS1/3)
TS1/3	Sensor head with tri-axial sensors for vertical, latitude and longitude axis monitoring, including a 27" spike.
Weight	132lbs (60 kg) Full system with two sensors, cables / reels, Battery pack and accessories. (TS1/3 4.6Kg (10lbs))

* Sensor C only available on the 9 and 12 channel version, sensor D only available on the 12 channel version.

Standard Cables (depending on configuration) additional lengths on request

CABLE REEL 1	Tri-Axial cable reel 250ft (10 pin male to male)
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