

## Chapter 2 Specifications

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Data Recorded	One (1) acoustic and three (3) seismic channels.
Frequency Response	Two (2) to 250 Hz. (-3 dB points).
Transducer	Three (3) component velocity output. All units are interchangeable with accuracy within two percent.
Microphone	Ceramic element rated to at least 160 dB.
Memory	Solid state with all summary, setup and recorded data retained with power off. A lithium backup battery retains data if the primary power source fails.
Clock	A 24 hour clock maintains the date and time accurate to within one (1) minute per month even if the primary power fails.
Timer Mode	Allows an instrument to be active only during selected hours on a daily basis.
Display	Wide temperature LCD has two (2) lines, of 40 characters each, which help make setup easy and allow the operator to view operating parameters and summary data.
Keyboard	36 keys for power on and off, entering setup data, user comments and operating commands.
Power On Log	A log of the last 64 on/off cycles is kept in memory to indicate the active monitoring periods. If the timer is used, the log is updated each time it activates.
Printer	Thermal printer with 24 columns for text plus graphics capability. Paper take-up or tear-off operation is standard. The stationary print head and rugged mechanism require very little maintenance. The printer prints both text and graphics at high speed.
Chart Width	2.28 inches (5.8 centimeters).
Chart Length	82 feet (25 meters).
Battery	Internal 12 volt rechargeable.
Operating Time	With a fully charged battery all models will operate from two to four months at 1024 samples/sec. Longer times may be obtained using the Timer Mode or external power from a small solar cell or automobile battery.
External Battery Life	A standard automobile battery will keep the internal battery at full charge for several months at moderate temperatures. If the external battery fails, the unit will continue to operate on its

## Chapter 2. Specifications

	internal battery.
Charging	An internal charging circuit allows charging with the supplied plug and wall mount charger or any 10 to 16 volt AC or DC supply. Power supplies for international use are available.
Operating Temperature	0 to 130 degrees F (-18 to 54 degrees C).
Case	Heavy gauge aluminum for effective electrical shielding and rugged protection.
Size	Approximately 16 in. X 11 in. X 6.5 in. (40.6 cm. X 27.9 cm. X 16.5 cm.).
Weight	Approximately 23 pounds (10.5 kg.) with all accessories.

### **Bargraph Mode**

Header	The header prints when monitoring starts and contains the unit serial no., battery voltage, calibration status, start date and time, job number and recording ranges.
Comments	Up to six (6) lines of user comments may be entered from the keyboard for printing. These comments are also stored with each job in the event that printing is done later from memory.
Bargraph	Two sets of black bars representing the peak or resultant seismic and the peak acoustic level in dB are printed across the chart.
Summary	At user selected intervals, a summary of the seismic and acoustic activity is printed.
Ending Summary	When a job is ended by entering the inactive mode, an ending summary will print showing the highest peaks recorded for the job, the ending time and the ending battery voltage.
Power On Log	When the monitor is in the Inactive Mode, the power on log may be printed showing the times of the last 64 monitoring periods.
Sample Period	The highest peaks for the selected sample period are saved and printed as bars on the chart.
Stored Data	The highest peaks occurring in each period are stored in memory along with the summary and comments for the current job. The last 80 jobs are held in memory for printing anytime the unit is in the inactive mode.
Printer Ranges	User selected at the start of a job or prior to printing from memory from the inactive mode.
Seismic	Peak or Resultant 0.01 to 1.25 IPS            0.25 to 32 MMPS 0.02 to 2.50 IPS            0.5 to 64 MMPS

## Chapter 2. Specifications

	0.04 to 5.0 IPS	1.0 to 127 MMPS
	0.08 to 10 IPS	2.0 to 254 MMPS
Acoustic	106 - 138 dB, 110 - 142 dB, 116 - 148 dB.	

### Waveform Mode

Waveform Data	Each full waveform signature is stored in solid state memory for up to 341 events, depending on the instrument model.	
Summary Data	Summarized data include the event time, date, battery voltage, peak measurements, unit serial number and frequencies. The summarized data are stored in solid state memory for the last 341 events.	
Sample Rate	1024 samples per second, per channel, including while printing. Options of 512, 256, 128, 64 and 32 samples per second, per channel, are available.	
Recording Units	English (U.S.) or metric.	
Recording Ranges		
Seismic	0.01 IPS to 5.12 IPS (130 MMPS). 0.02 IPS to 10.0 IPS (254 MMPS).	
Acoustic	0.02 to 2.56 millibars (100 to 142 decibels). 0.04 to 5.12 millibars (106 to 148 decibels).	
Trigger Levels		
Seismic	0.02 to 1.14 IPS (0.05 to 29 MMPS).	
Acoustic	106 to 142 dB or 112 to 148 dB.	
Frequency Response	2 to 250 hertz (-3 dB points).	
Record Duration	From one (1) to 12 seconds, at a sample rate of 1024 samples per second. At lower sample rates, the duration is automatically increased proportional to the amount of decrease in the sample rate.	
Records Stored	From 20 to 341 typical coal mine or quarry events depending on the instrument model.	
Calibration Test (Seismic)	A dynamic transducer test is performed automatically after each event or manually on command. The test results are stored in the summarized data and may be printed as an event.	
Calibration Test (Acoustic)	An electronic test of the microphone is performed with the seismic test and is stored in memory along with the seismic test.	
84 Hour Cal Test	In a remote installation, an automatic calibration test occurs if no event has been recorded for 84 hours.	

## Chapter 2. Specifications

RS232 Serial Port	Data may be downloaded and setup commands may be uploaded directly by computer or remotely by modem. All components of an instrument, including the disk drive and printer, may be remotely controlled.
Baud Rate	From 300 to 9600.
Automatic Print	One or two copies may be printed immediately after an event is stored.
(P) PRINT Key	Allows the printing of any record in memory as many times as required, at different chart speeds and/or different trace amplitudes.
OSM/USBM Graph	Setup allows charts to be printed with or without this feature. The graph may be printed automatically with each record or manually for any record in memory or on disk.
Effective Chart Length	6 selections from 0.31 to 10.0 IPS (8 to 254 MMPS).
Print Time	Varies with record duration, chart speed and print options. Approximately five (5) to 10 seconds for a typical record.
Chart Length	Varies with the record time, chart speed and print options. Approximately 12 inches (30.5 centimeters) for a three (3) second record, without an OSM/USBM graph, at a medium chart speed.
No. of Records	Approximately 100 records per roll of paper at medium print speed.
Chart Ranges	Two (2) range options are available on the setup screen for acoustic and seismic to allow a wider range of recorded data.
Seismic Low Range	
5.0 IPS	Printer: 0.32, 0.64, 1.28, 2.56 and 5.12 IPS.
127 MMPS	Printer: 8, 16, 32, 65 and 130 MMPS.
Seismic High Range	
10.0 IPS	Printer: 0.64, 1.28, 2.56, 5.12, and 9.99 IPS.
254 MMPS	Printer: 16, 32, 64, 128 and 256 MMPS.
Acoustic Range	
142 dB Range	Printer: 0.64, 1.28, or 2.56 millibars. Auto ranged.
148 dB Range	Printer: 1.28, 2.56, or 5.12 millibars. Auto ranged.
<b>Disk Drive</b>	
General	The 3.5" high-density disk drive is available as an option to all

## Chapter 2. Specifications

Alpha-Seismite models with the exception of the Model 1. The disk drive may be connected to an instrument for automatic storage of recorded events or it can be used portably to download and store events from multiple instruments.

Disk Type	3.5", 1.44 megabyte, high-density floppy.
Compatibility	Each disk must be formatted or reformatted on an Alpha-Seismite but is DOS compatible thereafter.
Storage Format	Events are stored using a proprietary compression routine to increase the number of events and allow faster reading, writing and downloading of events. A primary file is placed on side 1 of the disk and a backup file is saved on side 2 for greater reliability in retrieving data.
Number of Disk Events	As many as 158, three (3) to five (5) second events (each event stored twice on the disk).
Format	The disk is formatted specifically to setup a primary directory (EVENT.DAT) on one side and a backup directory (EVENT.BAK) on the other.
Write	Events may be written to disk automatically or all full waveform events in memory may be selected for downloading to disk.
Read	A disk directory, summary data for the events on disk and any full waveform event on disk may be accessed from disk and printed.
Cycle Time	A single event requires about five (5) seconds to read from or write to disk. Multiple event storage is faster, but varies with record duration.
Temperature	Operation temperature is typically from 40 degrees F to 110 degrees F (4 degrees C to 43 degrees C). A wider operating range is possible, but not as reliable.
Humidity	85 percent non-condensing.
Power Requirements	All operating power is derived from the instrument and has little effect on the operating life of the instrument in the automatic record mode.