



AED-2000M Acoustic Emission Multiplexer

Applications:

- Leak Detection
 - Piping
 - Valves
 - Heat Exchangers
 - Feedwater Heaters
 - Pressure Vessels
 - Boilers
- Cavitation detection in pumps and piping
- Machinery health monitoring (rotating equipment)
- Partial discharge detection in transformers
- Crack detection in piping, pressure vessels, concrete.
- Insect pest detection in grain, wood structures
- Geologic structures—slope stability, earthen dams, rocks



AED-2000M Acoustic Emission Multiplexer

Features:

- 32-channel multiplexed input
- 1 kHz to 1 MHz bandwidth
- Built-in PC-104 computer
 - Hard drive data storage
 - Windows XP software
 - Real-time data acquisition and graphics displays
 - Ethernet ports (1Gb, 10/100 Mb)
 - 4 USB ports
- Six parametric inputs
- Three alarm outputs (relay closures, voltage, audio)
- RMS and Thresholded Events/Counts signal processing
- Up to four Channel Groups
- Flexible gain/threshold by channel
- LCD status display



AED-2000M Acoustic Emission Multiplexer

AED-2000M Rear Panel

- Alarm outputs— Three relay closures, Three 5V CMOS voltage
- Six parametric inputs—Four 4-20 mA inputs, two voltage inputs (scaleable +/- 10 V)
- Hold input (5 V)
- Two ethernet ports—1 Gb & 10/100 Mb
- Four USB 2.0 ports
- VGA monitor display connector
- Two COM ports
- Power module—110-230V, 50-60 Hz



AED-2000M Acoustic Emission Multiplexer

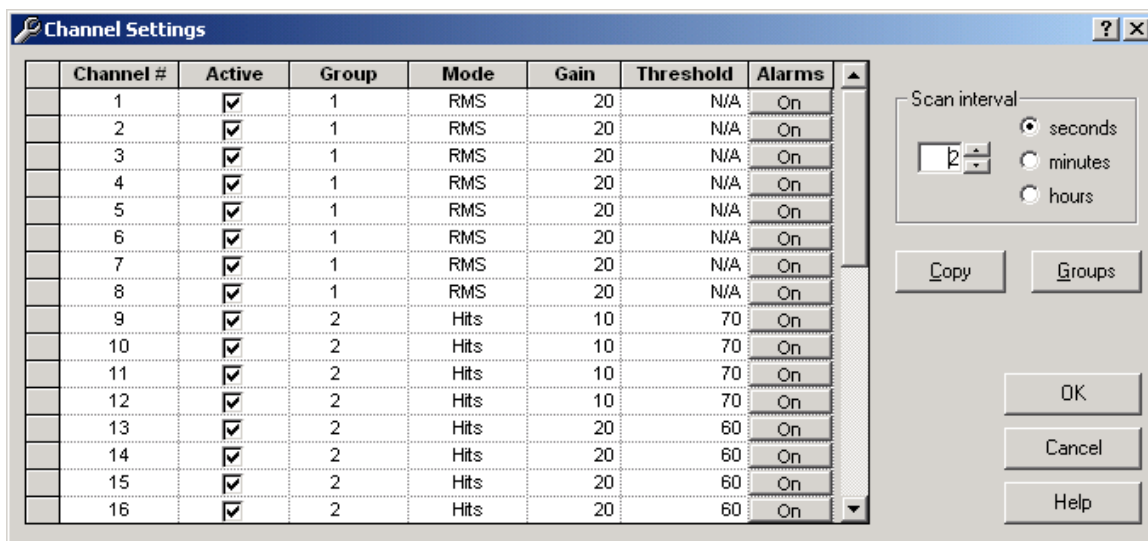
Shippable rack-mount configuration with
pull out keyboard/monitor

AED-2000M Acoustic Emission Multiplexer

Software Features

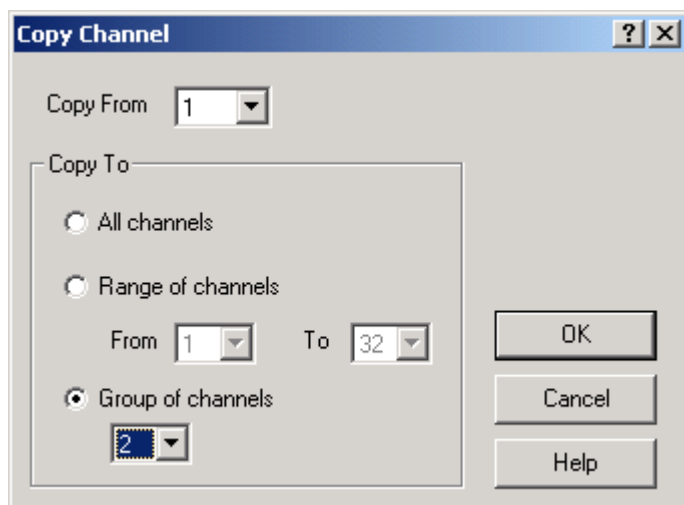
- Windows XP Operating System
- Flexible channel selections
 - Selectable multiplexing period (2 secs min)
 - One to four channel groups
 - Hits/Counts or RMS primary signal processing by group
 - Independent gain and threshold by channel
- Real time graphics
 - Time-based trend plots by channel
 - Group bar graphs by channel
 - Parametric trend plots
- Flexible alarm conditions
 - 3 alarm lines
 - Hits, counts, or RMS alarm conditions
- File controls
 - Day, week, month auto file restart
 - Selectable retention time on disk
 - Message log file with data
 - ASCII data files

AED-2000M Software Features



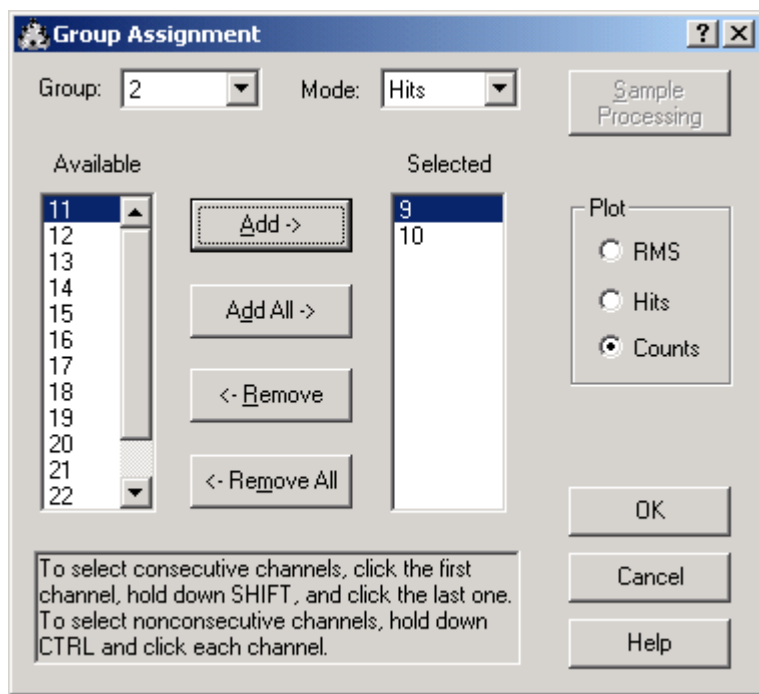
The Channel Settings dialog box displays a table of 16 channels with columns for Channel #, Active, Group, Mode, Gain, Threshold, and Alarms. The 'Active' column contains checkmarks for all channels. The 'Group' column shows groups 1, 2, and 2. The 'Mode' column shows RMS for channels 1-8 and Hits for channels 9-16. The 'Gain' column shows 20 for channels 1-8 and 10 for channels 9-16. The 'Threshold' column shows N/A for channels 1-8 and 70 for channels 9-16. The 'Alarms' column shows 'On' for all channels. To the right of the table are controls for 'Scan interval' (seconds, minutes, hours), 'Copy', 'Groups', 'OK', 'Cancel', and 'Help' buttons.

Channel #	Active	Group	Mode	Gain	Threshold	Alarms
1	<input checked="" type="checkbox"/>	1	RMS	20	N/A	On
2	<input checked="" type="checkbox"/>	1	RMS	20	N/A	On
3	<input checked="" type="checkbox"/>	1	RMS	20	N/A	On
4	<input checked="" type="checkbox"/>	1	RMS	20	N/A	On
5	<input checked="" type="checkbox"/>	1	RMS	20	N/A	On
6	<input checked="" type="checkbox"/>	1	RMS	20	N/A	On
7	<input checked="" type="checkbox"/>	1	RMS	20	N/A	On
8	<input checked="" type="checkbox"/>	1	RMS	20	N/A	On
9	<input checked="" type="checkbox"/>	2	Hits	10	70	On
10	<input checked="" type="checkbox"/>	2	Hits	10	70	On
11	<input checked="" type="checkbox"/>	2	Hits	10	70	On
12	<input checked="" type="checkbox"/>	2	Hits	10	70	On
13	<input checked="" type="checkbox"/>	2	Hits	20	60	On
14	<input checked="" type="checkbox"/>	2	Hits	20	60	On
15	<input checked="" type="checkbox"/>	2	Hits	20	60	On
16	<input checked="" type="checkbox"/>	2	Hits	20	60	On



The Copy Channel dialog box allows copying settings from one channel to others. It features a 'Copy From' dropdown set to '1'. Under 'Copy To', there are three radio button options: 'All channels', 'Range of channels', and 'Group of channels'. The 'Group of channels' option is selected, with a dropdown set to '2'. There are 'OK', 'Cancel', and 'Help' buttons.

- Easily configure each channel for
 - signal processing
 - group assignment
 - alarms
- Copy channel setups quickly



The Group Assignment dialog box shows settings for a specific group. The 'Group' dropdown is set to '2' and the 'Mode' dropdown is set to 'Hits'. There are 'Sample Processing', 'OK', 'Cancel', and 'Help' buttons. Below are two lists: 'Available' (channels 11-22) and 'Selected' (channels 9, 10). Between the lists are 'Add ->', 'Add All ->', '<- Remove', and '<- Remove All' buttons. To the right is a 'Plot' section with radio buttons for 'RMS', 'Hits', and 'Counts' (selected). A text box at the bottom provides instructions on how to select channels.

To select consecutive channels, click the first channel, hold down SHIFT, and click the last one. To select nonconsecutive channels, hold down CTRL and click each channel.

AED-2000M Software Features

Data Logger

Date	Time	Chan	Mode	RMS	Hits/ Min RMS	Counts/ Max RMS	Total Hits	Total Counts	Param1	Param2
2/20/2007	8:10:32 AM	25	Hits	8.03	6,575	51,575	6,575	51,575	2,258	1,124
2/20/2007	8:10:35 AM	26	Hits	8.38	6,994	53,794	6,994	53,794	2,838	2,637
2/20/2007	8:10:38 AM	27	Hits	8.73	7,425	56,025	7,425	56,025	3,324	3,265
2/20/2007	8:10:41 AM	28	Hits	9.08	7,868	58,268	7,868	58,268	2,729	3,457
2/20/2007	8:10:44 AM	29	Hits	9.43	8,323	60,523	8,323	60,523	3,275	1,557
2/20/2007	8:10:47 AM	30	Hits	9.78	8,790	62,790	8,790	62,790	2,885	3,797
2/20/2007	8:10:50 AM	31	Hits	10.13	9,269	65,069	9,269	65,069	2,682	1,802
2/20/2007	8:10:53 AM	32	Hits	10.48	9,760	67,360	9,760	67,360	1,995	2,584
2/20/2007	8:10:56 AM	1	RMS	1.13	1.03	1.23			3,282	3,000
2/20/2007	8:10:59 AM	2	RMS	1.38	1.18	1.58			4,490	1,079
2/20/2007	8:11:02 AM	3	RMS	0.63	0.33	0.93			1,135	1,379
2/20/2007	8:11:05 AM	4	RMS	0.88	0.48	1.28			3,938	4,553
2/20/2007	8:11:08 AM	5	RMS	1.13	0.63	1.63			2,512	2,075
2/20/2007	8:11:11 AM	6	RMS	1.38	0.78	1.98			1,688	2,264
2/20/2007	8:11:14 AM	7	RMS	1.63	0.93	2.33			1,595	2,542
2/20/2007	8:11:17 AM	8	RMS	1.88	1.08	2.68			3,991	2,955
2/20/2007	8:11:20 AM	9	Hits	3.03	2,151	18,351	2,151	18,351	2,033	3,506
2/20/2007	8:11:23 AM	10	Hits	3.38	2,450	20,450	2,450	20,450	3,723	2,630

Message Logger

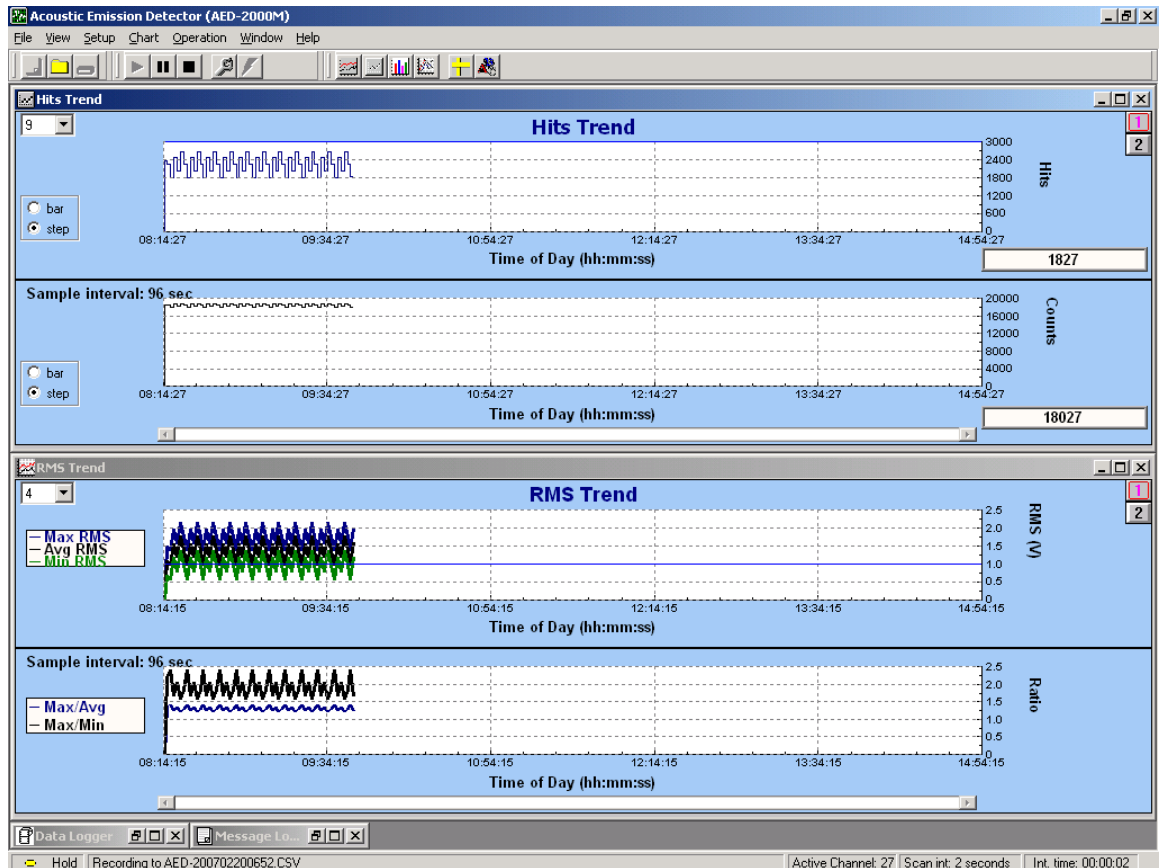
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2/20/2007 6:52:29 AM Channel 17 Mode=RMS Thresh(dB)=40 Instrument gain=40 Preamp gain=40 Total gain=80
2/20/2007 6:52:29 AM Channel 18 Mode=RMS Thresh(dB)=40 Instrument gain=40 Preamp gain=40 Total gain=80
2/20/2007 6:52:29 AM Channel 19 Mode=RMS Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:29 AM Channel 20 Mode=RMS Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:29 AM Channel 21 Mode=RMS Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:29 AM Channel 22 Mode=RMS Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:29 AM Channel 23 Mode=RMS Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:29 AM Channel 24 Mode=RMS Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:30 AM Channel 25 Mode=Hits Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:30 AM Channel 26 Mode=Hits Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:30 AM Channel 27 Mode=Hits Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:30 AM Channel 28 Mode=Hits Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:30 AM Channel 29 Mode=Hits Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:30 AM Channel 30 Mode=Hits Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:30 AM Channel 31 Mode=Hits Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:30 AM Channel 32 Mode=Hits Thresh(dB)=60 Instrument gain=20 Preamp gain=40 Total gain=60
2/20/2007 6:52:30 AM Group 1 Mode=RMS Sample processing= sample and store Plot=RMS Channels=1,2,3,4,5,6,7,8
2/20/2007 6:52:30 AM Group 2 Mode=Hits Sample processing= accumulate and store Plot=Counts Channels=9,10,11,12,13,14,15,16
2/20/2007 6:52:30 AM Group 3 Mode=RMS Sample processing= sample and store Plot=RMS Channels=17,18,19,20,21,22,23,24
2/20/2007 6:52:30 AM Group 4 Mode=Hits Sample processing= accumulate and store Plot=Hits Channels=25,26,27,28,29,30,31,32
2/20/2007 6:52:31 AM Hold on
    
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Hold | Recording to AED-200702200652.CSV | Active Channel: 11 | Scan int: 2 seconds | Int. time: 00:00:02

- Data logger window shows individual data samples as stored to file (ASCII format)
- Message logger file records all significant test details automatically

AED-2000M Software Features



- Real-time time-based trend plots
- Selectable by channel
- Hits mode
 - Hits, counts & Avg RMS
- RMS mode
 - RMS Min, Max, Avg
 - RMS Max/Avg ratio
 - RMS Max/Min ratio

AED-2000M Software Features



- Bar Chart Trend Graphics

- Independent by channel group and channel
- Selected signal processing (hits, counts, rms)
- Color selection of alarm condition