

Measurement Instruments

Catalog

MI-7 Series Dynamic Signal Analyzer MI-5 Series Shock Measurement Analyzer MI-2 Conditioning Amplifier





MI-7004/7008/7016

Dynamic Signal Analyzer

General Purpose, All-in-one Solution

MI-7004/7008/7016 Dynamic Signal Analyzer is an all-in-one general purpose solution dedicated for laboratory and field application of DAQ and recording, measurement and analysis.

They are working independent of PC with multiple kinds of measurement and analysis software modules for vibration and noise, model test, order tracking, machine health diagnosis, acoustic analysis, shock and impulses.

Also MI-7 series could work as an independent data recorder with software of post analysis.



Features

- Independent working from PC
- ✓ All in one solution for multiple tasks
- ✓ Simultaneous sampling on all channels
- ✓ 24-bit Σ-∆ ADC, 32-bit floating DSP
- ✓ Real-time DAQ, analysis and report
- ✓ With waveform generator output
- ✓ Multiple and dedicated software modules

Hardware	MI-7004	MI-7008	MI-7016
Input Channels	4	8	16
Output Channel (waveform source)	1	2	4
Signal Processing	32-bit floating DSP		
ADC Resolution	24-bit Σ-Δ		
Sampling Rate	Max. 204.8kHz		
Computer Connectivity	USB 2.0		
Dynamic Range	120dB		
Sensor Compatible	Voltage (AC/DC Single-ended, difference), IEPE, TEDS (optional), TACHO		
Measurement Accuracy	Frequency 0.001%, Amplitude 0.2% FS (1V input, <10 kHz)		
Software	MI-7004	MI-7008	MI-7016
	7711 Dynamic Signal Analysis, 7711-01 Waveform Generator, 7712 Data Recorder Acoustics Analysis (7721 Sound Pressure, 7722 Sound Power, 7723 Sound Intensity) Compliant with ANSI & IEC criterion 7731 Order Tracking, 7741 Modal Data Acquisition		
Optional for different application			
	7751 Shock Data Capture, 7751-01 Pulse Analysis, 7751-02 Shock Response Spectrum Analysis		
	7752 Shock Response Spectrum (SRS), 7753 Damage Boundary Curve		
	7711U Playback And Offline Analysis		



MI-7108

Dynamic Signal Analyzer

Portable, Field Use

MI-7108 is a portable solution to present engineers integrated and instant instrument for field measurement use. It builds display together with dynamic signal analyzer, saving engineers time to connect analyzer with computer. Engineers can get measured results instantly by touch screen operation.

Working as a powerful solution, MI-7108 features with DSP real-time processing, embedded-in storage, battery, power supply to external sensors, and versatile input connection. It supports multiple measurement applications for vibration, shock, noise, and rotating speed.

MI-7108 is also good choice for field data recording, and engineers can take it easy to analyze the stored raw data in laboratory.

Features

- ✓ 10.4" touch screen operation
- ✓ Portable and easy use
- ✓ 24-bit Σ - Δ ADC, 32-bit floating DSP
- ✓ Embedded-in storage for raw data recording
- ✓ Independent rotating speed measuring channel
- ✓ Built-in battery with long endurance
- Powerful recording and analysis functions
- ✓ Simultaneous recording of vibration, noise, and rotating signal

Hardware	MI-7108	
Input Channels	4, 8	
Operation and Display	10.4" touch screen, Capacitive, 1024x768 resolution	
Signal Processing	32-bit floating DSP	
ADC Resolution	24-bit Σ-Δ ADC	
Sampling Rate	Max. 102.4kHz	
Dynamic Range	120dB	
Sensor Compatible	Voltage (AC/DC Single-ended, difference), IEPE, TACHO (Sampling Rate 10MHz)	
Power supply to external sensors	12V, 24V	
Interface and Connectivity	Ethernet, LAN, Audio	
Measurement Accuracy	Frequency 0.001%, Amplitude 0.5% FS (1V input, <10 kHz)	
Storage Memory	64GB (standard)	
Battery Endurance	≥4 hours	
Software	MI-7108	
Embedded-in Measurement and Recording	Time Data Acquisition, Real-time FFT, Spectrum Analysis, Characteristic Values, 1/N Octave Analysis; Audio playback; Multiple data format storage and Data exportation to TXT, Excel, Matlab. Long Time Data Recording; Playback And Offline Analysis	







Dynamic Signal Analyzer

Chainable and General Purpose

MI-7208 is a chainable general purpose dynamic signal analyzer, which can be expanded to be max. 32 input channels with synchronized sampling in all channels. This feature presents customer a flexible solution to use one MI-7208 only, or more modules as chainable scale.

MI-7208 is a designed as general purpose solution dedicated for laboratory to field application of vibration and noise measurement, model test, order tracking and machine health diagnosis, acoustic analysis, shock and impulses.

Also MI-7208 can work as an independent data recorder with software of post analysis.

Features

- ✓ Chainable to be max. 32 inputs
- ✓ Embedded-in 64GB memory
- ✓ Independent TACHO input channel
- 24-bit Σ-Δ ADC, 32-bit floating DSP
- ✓ Sampling rate up to 204.8kHz in each channel
- ✓ All in one solution for multiple tasks
- ✓ With waveform generator output
- ✓ Rugged design and optional battery

Hardware	MI-7208	
Input Channels	8 in each module, chainable to be Max. 32 inputs	
Output Channel (waveform source)	1 (24-bit DAC)	
Signal Processing	32-bit floating DSP	
ADC Resolution	24-bit Σ-Δ ADC	
Sampling Rate	Max. 204.8kHz	
Dynamic Range	120dB	
Sensor Compatible	Voltage (AC/DC Single-ended, difference), IEPE, TACHO (Sampling Rate 26MHz)	
Power supply to external sensors	12V, 24V	
Interface and Connectivity	Gigabit Ethernet Connectivity	
Measurement Accuracy	Frequency 0.001%, Amplitude 0.2% FS (1V input, <10 kHz)	
Storage Memory	64GB (standard)	
Software	MI-7208	
Optional for different application	7711 Dynamic Signal Analysis, 7711-01 Waveform Generator	
	7712 Data Recorder, 7711U Playback And Offline Analysis	
	Acoustics Analysis (7721 Sound Pressure, 7722 Sound Power, 7723 Sound Intensity)	
	Compliant with ANSI & IEC criterion	
	7731 RPM and Order Tracking, 7741 Modal Data Acquisition	
	7611 Noise and Vibration Measurement.	







Dynamic Signal Analyzer

High Precision, Extreme Low Noise

MI-7308 is a superb dynamic signal analyzer for precise measurement and study on dynamic signals, such as acoustics, micro vibration, metrology, and other applications where a large dynamic range and tiny low noise is needed.

MI-7308 is designed with extreme low noise at 1μ V level and 160dB dynamic range. This feature provides engineers opportunity to measure very low level signals from noise background.

Also MI-7308 is presenting waveform source output with 6.5 bit precision and 200 kHz frequency range. This feature provides opportunity to calibrate other instruments or equipment.

Features

- ✓ Dual 32-bit ADC with 160dB dynamic range
- ✓ 768 kHz synchronized sampling rate in all channels
- ✓ 1µV noise level within 20 kHz range
- ✓ Accurate measurement with high precision
- ✓ 32-bit DAC in waveform source output with 6.5 bit precision
- ✓ Gigabit Ethernet connectivity
- ✓ All in one solution for multiple tasks
- ✓ Optional built-in battery available







Hardware	MI-7308		
Input Channels	8		
Output Channel (waveform source)	2		
Signal Processing	32-bit floating DSP		
ADC Resolution	Dual 32-bit Σ-Δ ADC		
Sampling Rate	204.8kHz (768kHz optional)		
Dynamic Range	160dB		
Sensor Compatible	Voltage (AC/DC Single-ended, difference), IEPE, TEDS (Optional)		
Measurement Accuracy	Frequency 0.001%, Amplitude 0.1% FS (<100 kHz)		
Interface and Connectivity	Gigabit Ethernet Connectivity		
Software	MI-7208		
Optional for different application	7711 Dynamic Signal Analysis		
	7711-01 Waveform Generator		
	Acoustics Analysis (7721 Sound Pressure, 7722 Sound Power, 7723 Sound Intensity)		
	Compliant with ANSI & IEC criterion		



MI-8008/8018

Dynamic Signal Analyzer

Scalable, High Channel Account

MI-8 Series high channel account measurement system is designed based on framework of PXI bus, modulized input & output, on-board DSP real-time analysis technique, and high precision synchronization.

MI-8 series support different kind of measurement software including Dynamic Signal Analysis, Shock Measurement Analysis, Shock Response Spectrum, Modal Data Acquisition and Analysis, Data Recording, Playback and Offline Analysis, etc.

Multiple MI-8 can be synchronized thru PXI bus to achieve hundreds of input channels, without degrading performance of each input.



Features

- ✓ PXI based structure with real-time operation system
- ✓ High Scalability, from 16 to max. 1,024 synchronized channels without degrading performance of each.
- High Performance, 120dB dynamic range, 24-bit ADC, Gigabit Ethernet connectivity.
- ✓ Real-time Processing, on-board 32-bit floating point DSP parallel processing and high-speed data transmission.
- High Versatility, vibration/shock measurement, Modal test, Data recording, HUMS, etc.
- High Synchronization Precision, highly assured thru PXI bus synchronization clock by within 100ppm



Hardware	MI-8008	MI-8018	
System Structure	PXI bus with real-time operating system		
Working Slots	7 17		
Input Channels	Max. 24	Max. 64	
Output Channels (waveform source)	Max. 4	Max. 16	
Sensor Compatible	Voltage(Single-ended, Differential), IEPE, TEDS (Optional)		
Embedded-in Storage	250GB/320GB		
Digital I/O	Supportable and optional		
Computer Connectivity	Gigabit Ethernet Connectivity		
Software	MI-8008 MI-8018		
	8711 Dynamic Signal Analysis, 8711-01 Waveform Generator		
Optional for different application	8711-02/03/04 Synchronized Dynamic Signal Analysis (max. 128/512/1,024 inputs)		
	8712 Data Recorder, 7741 Modal Data Acquisition		
	8751 Shock Data Capture, 8751-01 Pulse Analysis		
	8751-02 Shock Response Spectrum Analysis, 8752 Shock Response Spectrum (SRS)		
	7711U Playback And Offline Analysis		



MI-5202/5204/5104

Shock Measurement Analyzer

Scalable, High Channel Account

MI-5 series shock measurement analyzer is a powerful and tailored instrument for transient data capture and analysis in shock, drop and impact events. The impulse data could be generated by shock, drop or impact machine, also could be from unknown events. MI-5 series can meet rigorous criterions related to these events.

MI-5202/5204 models are used for common application with 2 or 4 acquisition channels, and MI-5104 is used for high-g level shock events measuring and analysis. MI-5 series provide software modules based on different test standards: Shock Measuring and Analysis, SRS, Pulse Analysis and Damage Boundary test.



Features

- ✓ Compliant with ISO, IEC, ISTA, ASTM, MIL-STD and User defined criterions
- ✓ Max. sampling rate up to 1MHz in each channel
- ✓ Acceleration range up to 100,000gn
- ✓ Independent working from PC
- ✓ Multiple and dedicated software modules
- ✓ All in one solution for shock data capture and measurement

Hardware Model	MI-5202	MI-5204	MI-5104
Input Channels	2	4	4
Output Channels	1	1	1
ADC Resolution	24-bit	24-bit	16-bit
Computation	32-bit floating DSP		
Dynamic Range	120 dB		
Sensor Compatible	Voltage, IEPE, Charge, TEDS	Voltage, IEPE, TEDS	Voltage, IEPE, TEDS
Max. Sampling Rate	192 kHz	204.8 kHz	1 MHz
Acceleration Range	10,000g	10,000g	100,000g
Software Module	MI-5202	MI-5204	MI-5104
Optional for different application	7751 Shock Data Capture, 7751-01 Pulse Analysis 7751-02 Shock Response Spectrum Analysis, 7752 Shock Response Spectrum (SRS) 7753 Damage Boundary Analysis, 7751U Playback And Offline Analysis		



Conditioning Amplifier

High Precision, Digital Display

Condition amplifier, also called charge amplifier, is working as an important device in measurement application, especially needed by PE sensors with charge signal output.

MI-2004 is a powerful and precise amplifier for charge conversion to voltage, helping to improve the performance and reliability of measurement systems by quality signal conditioning. It integrates filtering, integral and differential analysis functions. Customer can monitor the setting parameters, running status thru front screen, or thru software installed on PC via RS232 connectivity. And MI-2004 can be combined together for higher channel account use, say 8, 16, 32, 64 or more.

Features

- ✓ Compact and solid design with built-in battery
- ✓ High precision conditioning with digital display
- ✓ 1-4 channels per chassis, chainable to higher channel account
- ✓ 0.1Hz∼100kHz frequency range
- \checkmark Digital parameter setting, intuitive and easy to operate
- ✓ Support Charge, IEPE, and TEDS sensor input type
- ✓ Multi-stage low-pass, high-pass filter
- ✓ Support PC software operation

Hardware Model	MI-2004-1	MI-2004-2	MI-2004-4
Input Channels	1	2	4
Applications	Charge Sensor Amplifying, IEPE constant power supply, high and low pass filtering, integral and double integral function		
Sensors Compatible	Charge, IEPE, and TEDS sensors		
Max. Charge Input	10 ⁶ pC		
Gain	10μV/Unit, 31.6μV/Unit,100μV/Unit, 316μV/Unit,1mV/Unit3.16V/Unit, 10V/Unit		
Max. Voltage Input	± 10V _{PK}		
Gain	100µV/Unit, 316µV/Unit, 1mV/Unit ······316mV/Unit, 1V/Unit		
Frequency Range	Acceleration 0.1 Hz to 100 kHz, Velocity 1 Hz to10 kHz, Displacement 1 Hz to 1 kHz		
Filter	High-pass Filter (-3dB): 0.1Hz, 1Hz, 3Hz and 10Hz Low-pass Filter (-3dB): 100Hz, 1 kHz, 3 kHz, 10 kHz, 30 kHz and 100 kHz		
5th Harmonic Distortion	≤0.005% (Vin = 9.5V @160Hz, 0dB)		







About Us

ECON is a world-wide one station manufacturer and supplier for equipment and solution of vibration testing, measurement and calibration.

Founded in 2002, ECON have been dedicated in developing better quality and higher cost-efficiency equipment and solutions to help customers to meet market crucial demand on their products quality and reliability. More than 20 years experiences and innovative ambition support us to fulfill this vision into reality.

Today ECON is well-known and taking leading role in China to produce and supply Electro-dynamic Shaker, Servo-hydraulic Shaker, Vibration Controller, Measurement Instrument and Transducer Calibration system.



- > Headquarter
- R&D Center
- Sales and Market Center
- CNAS and CMA qualified Testing lab
- > 5,000 sqm Facility

Qualification & Certification

China Certificate of High & New Technological Enterprise ISO 9001:2015 Qualified

Testing lab qualified by CNAS (China National Accreditation Service for Conformity Assessment) and CMA (China Inspection Body and Laboratory Mandatory Approval) CE Compliance with all main products

Contact

ECON Technologies Co., Ltd. Building 4, 1418-41 Moganshan Rd. Hangzhou 310015, China Tel/Fax: +86-571-88174609

Product enquiry, quotation <u>salesintl@econ-group.com</u> Delivery and logistics <u>coordinator@econ-group.com</u> Technical support and service <u>support@econ-group.com</u>







- Factory
- Product Center
- Logistics Center
- 20,000 sqm Facility

