

The cover features a grayscale seismic image of a geological landscape with a river and a lake. A large black rounded rectangle is centered over the image, containing the text 'mae' in yellow. Below this, the words 'Seismic prospecting' are written in white. The bottom of the cover has a yellow and white checkered pattern, and a solid yellow bar is at the very bottom.

mae

Seismic prospecting

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SEISMIC PROSPECTION

Abstract

For several decades, seismic prospecting tools have revolutionized the way geologists explore and understand the subsurface. What was initially used primarily for geophysical surveys has become an indispensable tool in a wide range of applications: from the exploration of hydrocarbon deposits to the characterization of land for infrastructure construction. Seismic prospecting has proven to be a powerful weapon in the toolbox of the modern geologist.

Immerse yourself in our exciting range of MAE seismic prospecting tools, designed to meet your every need. Here at **MAE**, we know that every project is unique, which is why we offer a wide selection of top-notch solutions for geologists like you.

ST3: *for microzonation!* Exceptional sensitivity and robust triaxial design, it is ideal for detailed exploration of terrains up to 30 meters deep!

ST6: *for hole applications!* With 6+1 channels it is perfect for all investigations with hole sensors.

ST24: *small, light and incredibly powerful!* If portability is your priority, ST24 is your answer. Perfect combination of performance and low weight, it will be your faithful companion for every exploration!

X824S: *all-in-one simplicity!* With this tool you won't have to bring anything else into the field. Take full advantage of the power of having a CPU on board!



1 OVERVIEW

ST3



- ▶ Use with external PC
- ▶ 24bit ADC Converter
- ▶ 2Hz triaxial geophones
- ▶ Plug and play
- ▶ Great for microzonation

ST6



- ▶ Use with external PC
- ▶ Up to 6 differential channels
- ▶ Preferred trigger channel
- ▶ 24bit ADC Converter
- ▶ Optimized for hole investigations and microzonation sensors

General

ST3

ST6

ADC technology	24bit Delta-Sigma ADC	24bit Delta-Sigma ADC
Geophone number	triaxial 2Hz geophones	6
Acquisition	Passive	Active and passive
Dimensions	Ø14x10 cm	21x17x9 cm
Weight	2 kg	0.5 kg
Export compatibility	.seg2; .csv	.seg2; .csv
In-line test	Noise analysis	Geophone test, noise analysis
Case	IP67	IP67
Environmental condition	-20°C / 80°C	-20°C / 80°C
Power supply	External source	External source

Acquisition

Dynamic range	144 dB (dynamic); 109 dB (at 1ms sampling)	144 dB (dynamic); 109 dB (at 1ms sampling)
Broadband	-3dB at 3500 Hz	-3dB at 3500 Hz
Frequency	251Hz, 502Hz, 1008Hz	from 250Hz to 12kHz active; 251Hz, 502Hz, 1008Hz passive
Gain	from 0 to 42dB	from 0 to 36dB
Samples per event		6255 pretrigger; 29127 acquisition
Anti aliasing	-3dB, 80% Nyquist's frequency, -80dB	-3dB, 80% Nyquist's frequency, -80dB
Common mode rejection	110 dB at 50Hz	110 dB at 50Hz
Input signal	±2.5V	±2.5V
Trigger type		Single-ended trigger, external channel

ST24



- ▶ Use with external PC
- ▶ 24bit ADC Converter
- ▶ 24 channels
- ▶ Serializable to 48
- ▶ Channel triggers

X824S



- ▶ All-in-one
- ▶ Up to 96 geophones
- ▶ Configurable Extensions
- ▶ Up to 48kHz
- ▶ Geophone testing and real-time noise analysis

General

ST24

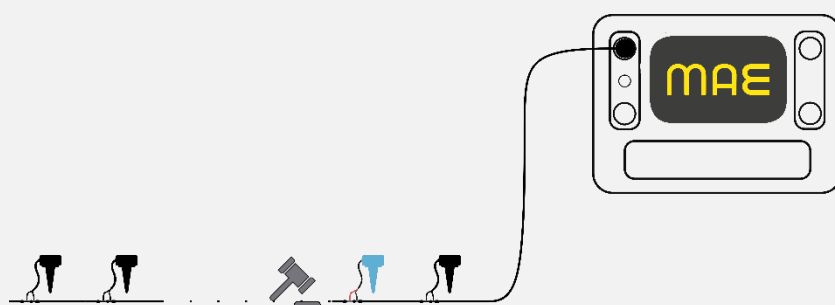
X824S

ADC technology	24bit Delta-Sigma ADC	24bit Delta-Sigma ADC
Geophone number	24 + 1	from 24 to 96 + 1
Acquisition	Active and passive	Active and passive
Dimensions	27x24x17 cm	40x39.5x15 cm
Weight	3.5 kg	6 kg
Display		10" touch screen
GPS		Yes
Export compatibility	.seg2; .csv	.seg2; .csv
In-line test	Geophone test, noise analysis	Geophone test, noise analysis
Case	IP67	IP67
Enviromental condition	-20°C / 80°C	-20°C / 80°C
Power supply	Internal Li-ion battery	Internal Li-ion battery
Autonomy	> 7h	> 7h

Acquisition

Dynamic range	144 dB (dynamic); 109 dB (at 1ms sampling)	144 dB (dynamic); 109 dB (at 1ms sampling)
Broadband	-3dB at 3500 Hz	-3dB at 3500 Hz
Frequency	from 250Hz to 48kHz active; 251Hz, 502Hz, 1008Hz passive	from 250Hz to 48kHz active; 251Hz, 502Hz, 1008Hz passive
Gain	from 0 to 42dB	from 0 to 42dB
Samples per event	6255 pretrigger; 29127 acquisition	6255 pretrigger; 29127 acquisition
Anti aliasing	-3dB, 80% Nyquist's frequency, -80dB	-3dB, 80% Nyquist's frequency, -80dB
Common mode rejection	110 dB at 50Hz	110 dB at 50Hz
Input signal	±2.5V	±2.5V
Trigger type	Differential trigger, geophone selectable	Differential trigger, geophone selectable
Trigger channel acquisition	Yes	Yes

Cable geophone trigger



The cable geophone trigger is a revolutionary feature that puts control in your hands. This powerful feature allows you to select the geophone that best suits your needs, allowing you more flexibility in the most inaccessible applications.

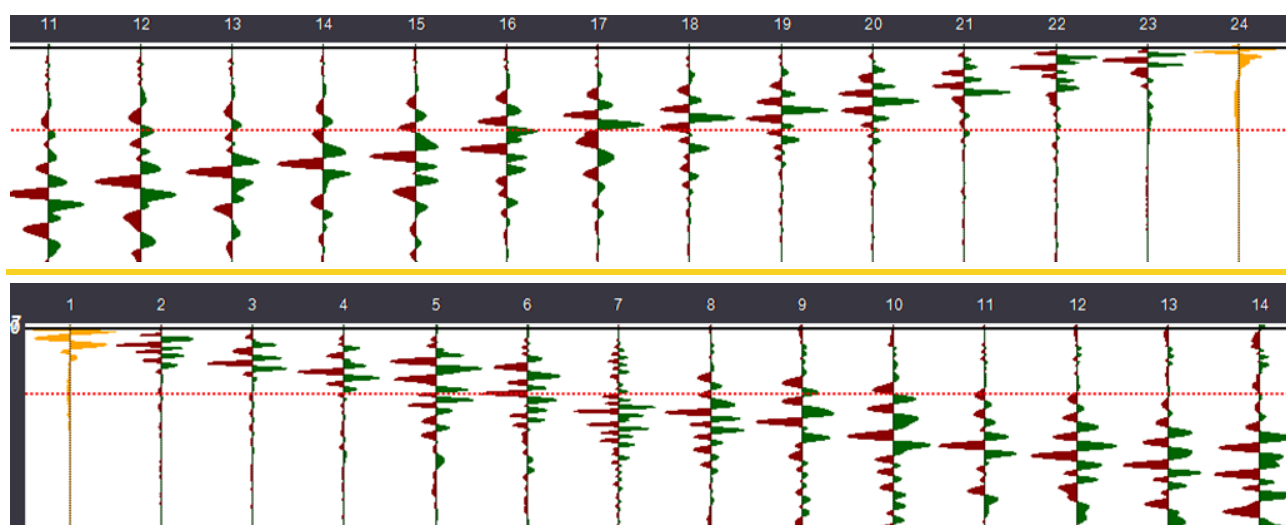
Our instrument technology captures data from all channels, including the trigger channel. This allows you:

Flexibility of choice: With the cable geophone trigger, you have the option to select the most relevant geophone for your survey to act as trigger.

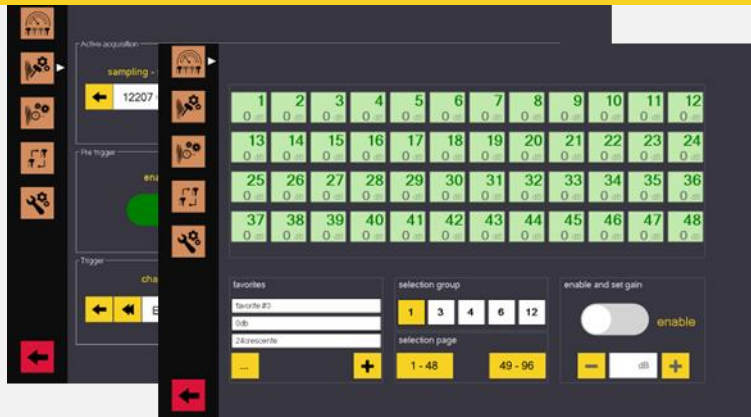
Trigger trace capture: This feature gives you even more control, allowing you to record the full trace of the trigger event. This gives you a complete and detailed view of seismic events, allowing you to accurately analyse the timing and characteristics of each event.

Extensive pretrigger acquisition: With the ability to set how much pretrigger to capture, you'll never miss an important moment. You can go back in time and capture valuable data even before the main event, ensuring nothing escapes you.

With the geophone trigger from cable and the capture of the trigger track, you have a versatile and powerful tool that gives you maximum control over seismic data, ensuring reliable and accurate results.



Channel configuration



The configuration of channels is a crucial element in the world of seismic. With this feature, you have the option to configure data acquisition exactly according to your needs.

Whether you're working on a microzonation survey or a larger application project, channel configuration gives you complete control over every aspect of your seismic data.

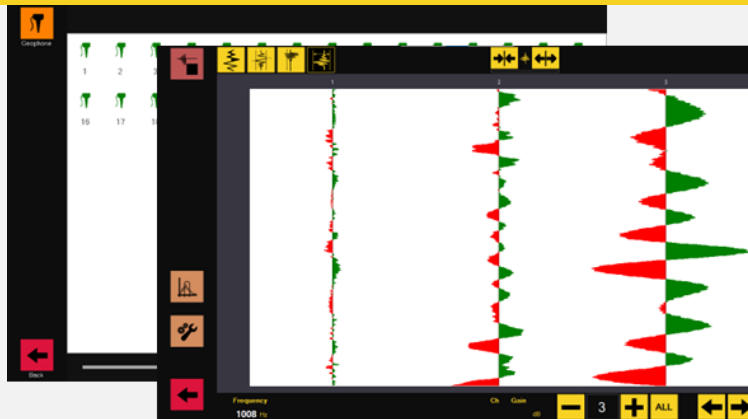
Custom Gain: The ability to set the gain individually for each channel is a key option. This means you have the ability to adjust the sensitivity of your sensors based on specific terrain conditions and survey objectives. In other words, you can adapt your instrument to your needs, ensuring maximum precision results.

Channel Selection: The ability to turn individual channels on or off gives you unparalleled flexibility. This is especially valuable when you want to focus on certain areas or specific seismic events. You can optimize your configuration to perfectly fit the field in which you are working.

Favourite Configurations: Saving your favourite configurations is a real time saver. You can easily record and retrieve optimal settings for different types of surveys. This means you're ready for action in moments, without having to repeat complex procedures every time you change context.

Channel configuration is much more than a technical feature. It's the key to unlocking higher-quality seismic data. With gain control, channel management, and the ability to save your favourite configurations, you'll be sure to achieve accurate results, no matter what challenges the terrain or environment presents to you. Thanks to this feature, the success of your seismic surveys is in your hands.

Line tests



This feature is crucial to ensure the success of your seismic surveys, ensuring that all system components are functioning properly and are ready for data logging.

The Line Test is a crucial feature in the MAE seismic tool, which gives you accurate and automated control of your geophones.

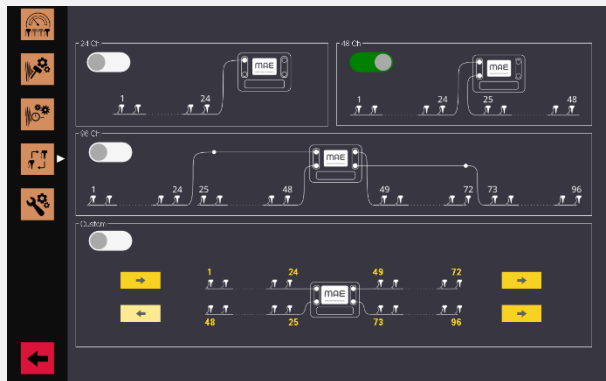
Geophone connection: The line test allows a quick and effective evaluation of all geophones connected to your instrument. With just one click, you can check if each geophone is properly connected and working. This feature saves you valuable time, as it immediately identifies any problems, allowing you to intervene promptly.

Noise Analysis: Noise analysis is an essential tool to ensure the quality of the seismic data collected. This feature provides you with a real-time assessment of the noise level on geophones. You can constantly monitor the quality of your measurements, ensuring they are free from external interference and obtaining reliable results.

Gains Rating: Through noise analysis, you can also assess whether the gains set for each channel are adequate. This allows you to optimize your settings for high-quality measurements.

The Line Test is your ally in the preparation and execution of seismic surveys. Thanks to this feature, you can be sure that your geophones are operational and that the data you will acquire will be of higher quality. With line testing and noise analysis, you have advanced tools at your disposal to achieve excellent results.

Configurable cables



This feature allows you to quickly adapt the instrument to your specific needs, whether you're working with a small set of geophones or tackling a complex application like 3D prospecting.

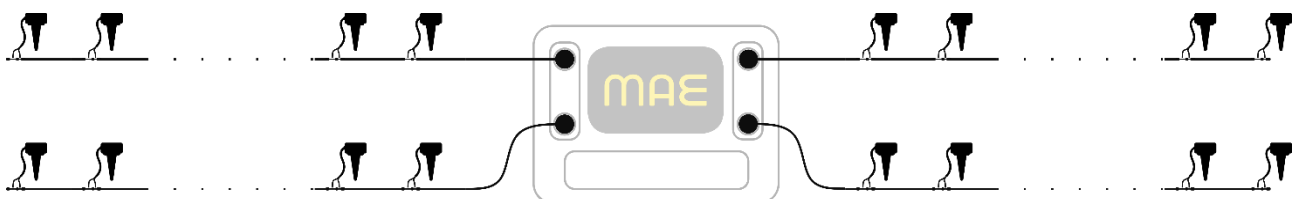
Versatility is key to achieving optimal results in your seismic surveys. The Configurable Cables feature of the MAE tool gives you complete control over the configuration of your geophones and the management of your cables:

Cables configuration: The configurable cables feature allows you to set the tool according to the number of geophones you intend to use. With a simple input, the instrument will adjust its settings so as to maximize the efficiency and accuracy of your measurements. This saves you valuable time during survey preparation.

Custom Management: In seismic surveys, the order of geophones on cables can greatly affect the processing of the collected data. Our feature allows you to customize the ordering of geophones according to your specific needs. This flexibility is particularly useful in complex applications such as 3D prospecting, where precision in the arrangement of geophones is crucial.

Maximum Efficiency: With the MAE tool and its configurable routing function, you get maximum efficiency in your seismic surveys. You don't have to worry about complex configurations. The system automatically adapts and customizes to your needs, allowing you to focus on your searches without distractions.

The cables configuration function is an indispensable ally for every geologist. It gives you the flexibility you need to tackle a variety of situations, from basic investigations to more complex projects. With our solution, you have complete control over the configuration of geophones and can obtain high-quality seismic data with maximum efficiency.



Stacking



The Stacking Control feature of the MAE instrument is a key element in maximizing the signal-to-noise ratio and ensuring that your measurements are reliable. This feature gives you complete control over the seismic data acquisition process, allowing you to optimize the quality of your surveys.

In the world of seismic surveys, data quality is critical to obtaining accurate and reliable results. Stacking multiple captures results in better quality:

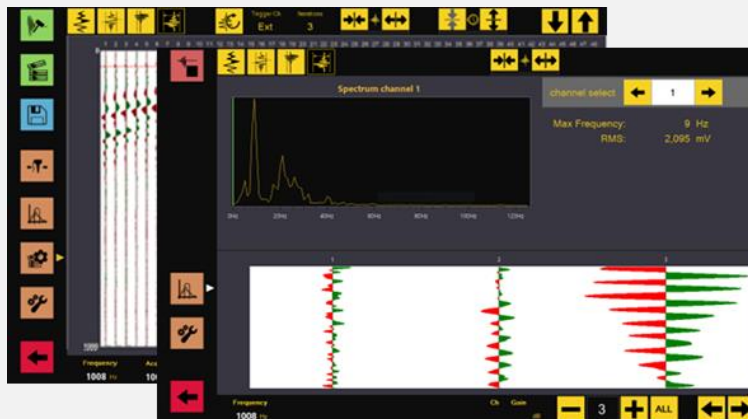
Increased Signal-to-Noise Ratio: The ability to capture multiple data captures allows you to dramatically improve your signal-to-noise ratio. This means you can get clearer and more detailed data, especially useful when you're working in unfavourable conditions or with weak signals.

Flexibility in Stacking Elimination: The iteration management feature allows you to carefully analyse the collected data and eliminate any iteration that does not meet your quality standards. This flexibility allows you to get more accurate data, eliminating any unwanted data.

Polarity Control: In addition to deleting iterations, you can also adjust the polarity of individual channels. This option is particularly useful in shear wave acquisitions, allowing you to evaluate their quality already in the field.

The Stacking Control feature is a powerful tool that gives you total control over the seismic data acquisition process. With the ability to capture multiple stacks, eliminate unwanted iterations, and adjust channel polarity, you're able to get high-quality data efficiently. This allows you to make informed and reliable decisions based on accurate and detailed seismic data.

FFT and filters



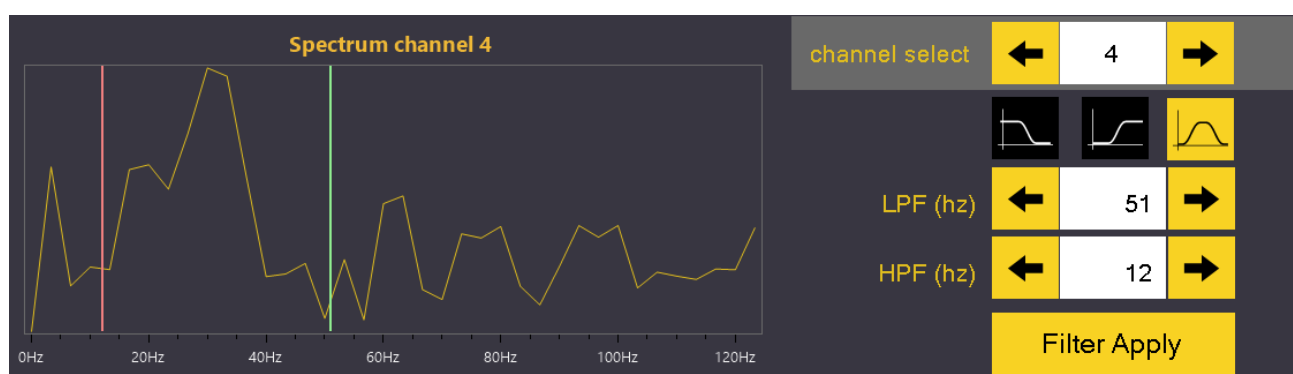
The FFT and Filters functionality of the MAE instrument is a key element in ensuring that your measurements are reliable and fit for purpose. This feature gives you the ability to analyse and filter seismic data efficiently and effectively, providing you with clear and detailed information.

Total Control over Filters: With the ability to set low, high, and bandpass filters, you have complete control over the frequency of seismic data you want to analyse. This flexibility allows you to tailor your acquisition and analysis to the specific needs of your survey.

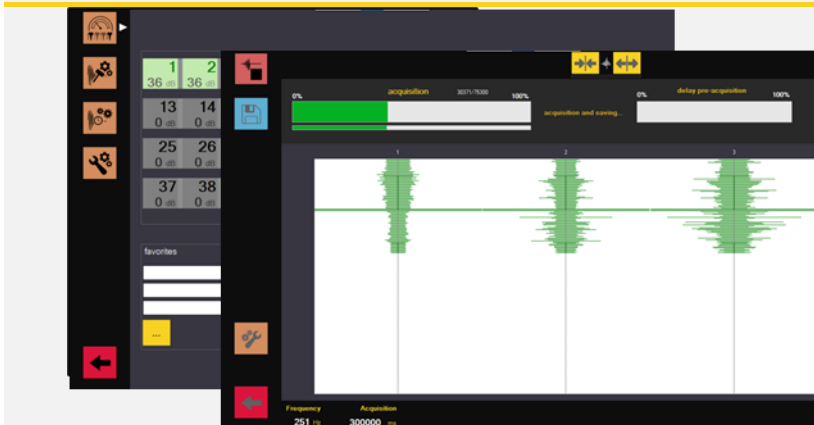
Spectrum Display: The "FFT and Filters" function allows you to visualize the spectrum both during acquisition and in noise analysis. This feature is essential to understand the composition of seismic waves and identify any anomalies or patterns relevant to your investigation.

Improving Data Quality: By setting filters appropriately, you can remove unwanted noise from seismic data and focus on signals of interest. This results in cleaner and more reliable data, which allows you to make informed and accurate decisions.

The FFT and Filters function is a powerful tool to optimize the quality of your seismic data. With complete control over filters and the ability to visualize the spectrum, you can tailor data analysis to your specific needs. This allows you to obtain high quality results and maximize the value of your seismic surveys.



Passive in real time



The Passive Real-Time Visualization feature of the MAE instrument gives you a unique opportunity to continuously monitor seismic data during passive acquisition. This feature allows you to react quickly to any problem, evaluate the quality of measurements and get more reliable results.

Constant Monitoring: Passive real-time visualization allows you to constantly keep an eye on seismic data during the acquisition process. You can quickly identify any issues or anomalies that could affect the quality of your measurements.

Problem Prevention: Thanks to this feature, you have the possibility to promptly detect any abnormal situation or any external interference that could compromise the seismic data. This allows you to take preventive measures to ensure accurate measurements.

Quality Assessment: During acquisition, you can evaluate the quality of measurements in real time. This means you're able to adjust settings immediately if needed for high-quality data and reliable results.

The Real-Time Passive Display feature is a valuable tool for seismic operators. It gives you constant control of your data, helping you prevent problems, evaluate the quality of measurements and get more reliable results. With this feature, you are ready to face any challenge in the field of seismic surveys with complete confidence.

