

# FMF-1000

DIGITAL BLACKBOX FISHFINDER

# Improved design for better performance

Introducing the new FMF-1000 echo sounder, the result of more than 25 years of experience in developing tools for professional fishing, along with the most advanced technology in underwater acoustics. Advanced engineering and new technologies were applied to develop a new robust and trusted equipment, capable of working under the most extreme conditions.

The FMF-1000 is a tool designed with main focus on the new challenges that professional fishermen face on a daily basis. An improved acoustic resolution, product of the combination of **CHIRP** pulse, **SPLIT BEAM** technology and the most powerful post processing tools, result in a key tool for a professional fisherman, who must focus in sustainability trough practices aimed to selectivity. The new feature **+ACOUSTIC SIGN** allows the operator to know the behavior of each target in a range of frequencies, showing the result as

a distinctive curve, which could lead to determine the detected species, when combined with known information. In professional fishing there is no room for failure. The high performance of the FMF-1000 and its reliability, are based on a rugged industrial grade computer and a “black box” processing unit ensambled in an aluminum-built enclosure, designed to resist high temperatures, humidity and vibrations.

The FMF-1000 introduces a completely new software with a friendly user interface, focused in simplicity. New graphic tools applied to software development, makes 4K resolution available, resulting FMF-1000 a unique echo sounder in the market.

The FMF-1000 echo sounder introduces the **PLUS** concept, where every feature of a professional acoustic equipment has been improved and strengthened, with the mind set in the fisherman.

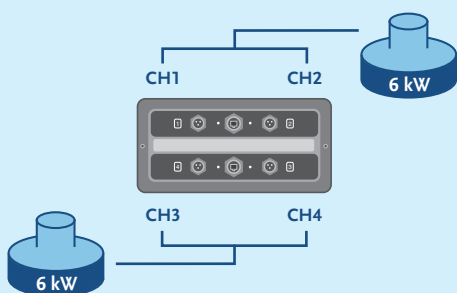
## FMF-1000

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- + CHIRP+SPLIT BEAM** to improve acoustic resolution without noise on the bottom, while a better size statistic is achieved.
- + ACOUSTIC SIGN** is a key tool to identify and manage acoustic signature of detected targets.
- + RESOLUTION** allowing up to two 4k simultaneous screens, a unique resolution in the market.
- + SENSITIVITY** a wide range of frequencies from 10kHz to 500kHz and a great capability to detect even the tiniest targets.
- + POWER** with the highest transmitting power in the market for a CHIRP and SPLITBEAM equipment.
- + LEGACY** to assure compatibility with transducers from different manufacturers.
- + HISTORY** that allows the user to store, re-process and share raw data.
- + USER** is a simple and powerful concept that allows the operator to create profiles with in-use parameters and settings.
- + MIXER** with the possibility of mixing channels and using different colors to identify the information coming from the different channels.
- + FRIENDLY** a completely new and improved graphic interface to enhance the user experience.
- + WIZARD** a virtual assistant that will guide you through all the steps of the initial settings and start up.

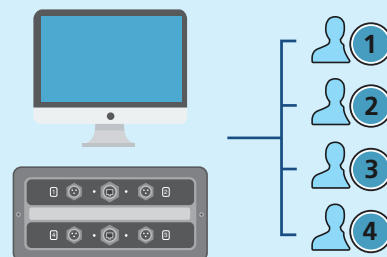
## + power

FMF-1000 echo sounder is the CHIRP + SPLIT BEAM equipment with the highest transmitting power in the market, with up to 3kW per channel. The installer can combine channels to achieve even higher rates, when necessary. This feature is useful in high depth fishing situations or when a high-power existing transducer should be used.



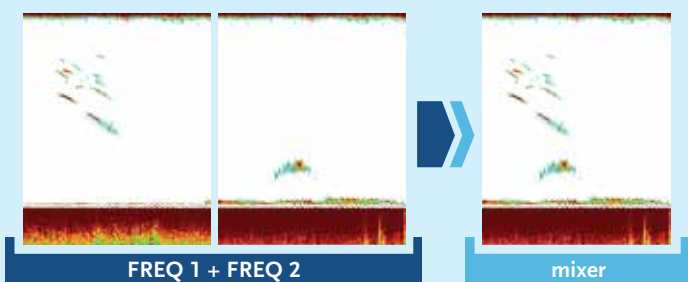
## + user

FMF-1000 introduces a new user-oriented working environment, which allows different user modes or fishing scenarios. Each user profile defines how the equipment is going to be used according with seasons, fishing gears or any other general setting that is required to be stored in memory for future use. These profiles could be used in any moment during its operation.



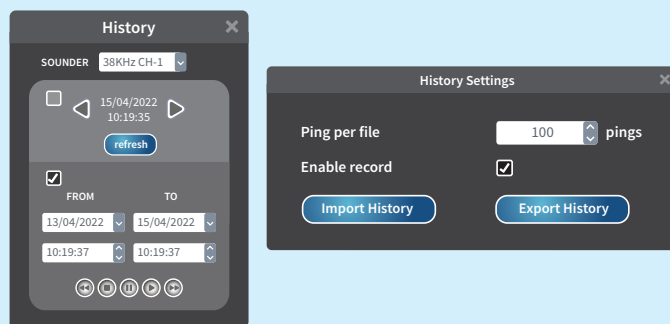
## + mixer

Users could create mixtures of different frequencies or frequency ranges. A powerful tool for making the best use of backscattered echo to discriminate certain species from its known frequency response. The new +MIXER concept will allow to mark with a color each frequency or range of frequencies to be added to the mix.



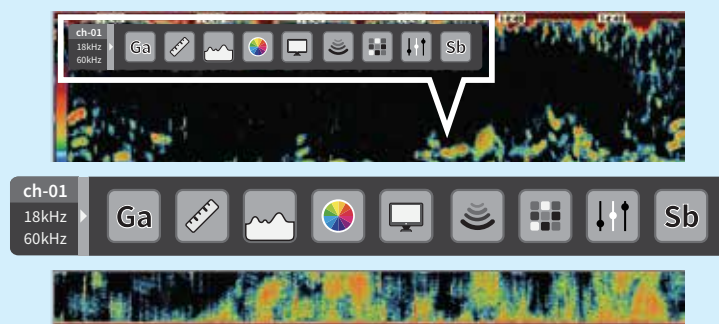
## + history

The user can replay and reprocess all raw data previously recorded and stored in memory. This is of great utility to recreate fishing situations, to confirm capture data and to decide fishing maneuvers. The user can also export and import data, with sharing or storing purpose.



## + friendly

FMF-1000 features a new user interface, completely renewed, and designed to enhance the user experience by simplifying tasks and shortening steps, using more icons and graphic solutions. User can create different layouts at will, storing them in memory for future use. The new interface introduces floating indicators on screen, designed to show useful information on system parameters.

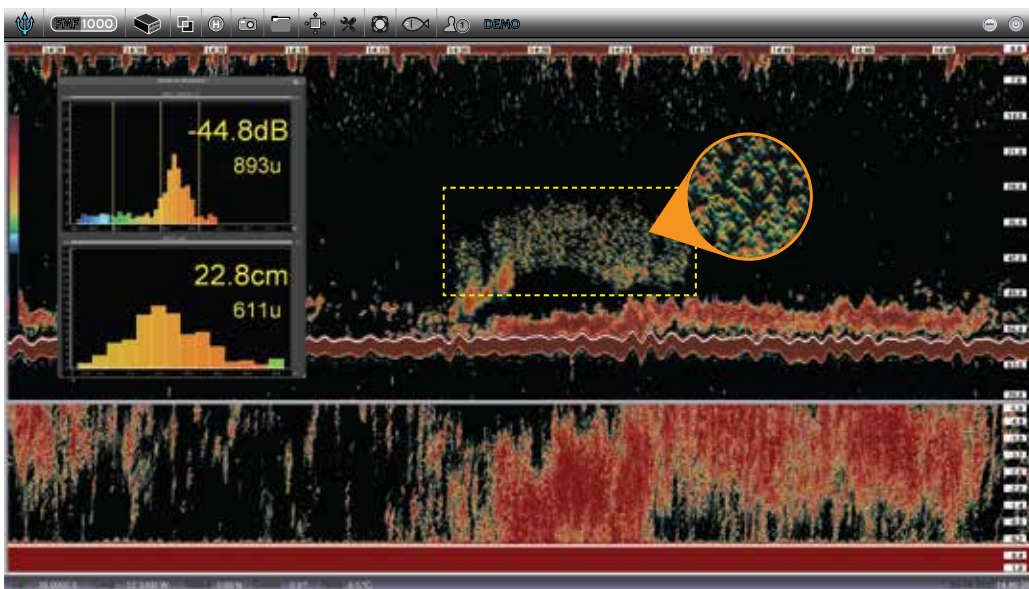


# + Chirp +Split Beam

**CHIRP** pulse is a way to transmit sound in different frequencies simultaneously. This technology offers different advantages in terms of increased resolution, due to the more information coming from the frequency diversity, which allows to obtain images never seen before. A better resolution on screen is achieved through this technology, allowing to define individual targets, where previously only big spots could be seen.

The improvement in resolution is not limited to the image on screen. Combining **SPLIT BEAM** technology with **CHIRP** pulse, more measurable targets are available, resulting in an improved size statistic. Fisheries such Purse Seining and Mid-Water trawling are particularly benefited by this improvement.

Our **+CHIRP** concept also introduces a set of mathematic post processing tools and algorithms, which helps to improve performance, especially in the bottom boundaries, where this equipment is very susceptible to noise.



**+RESOLUTION** introducing an improved on-screen resolution, up to 4K pixels, combining new color palettes and day/night modes, to offer the fisherman the best picture in the market.

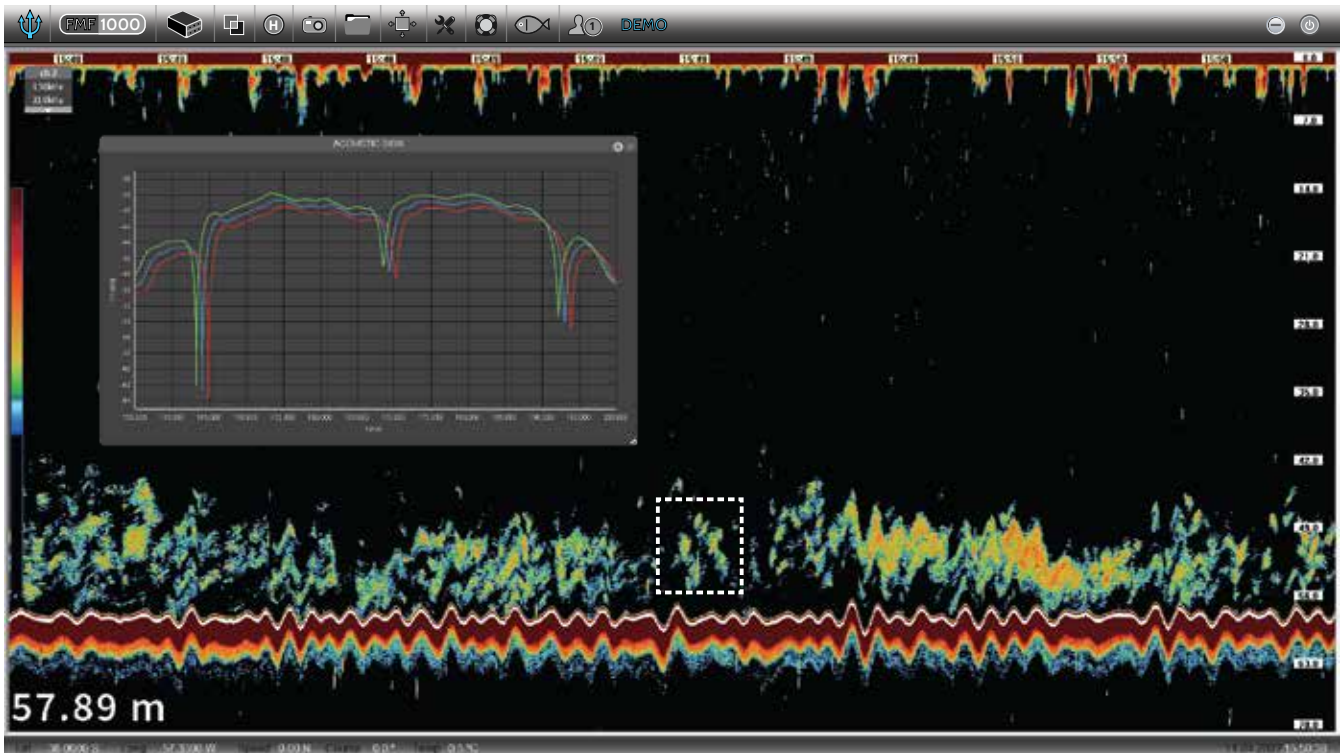
**+LEGACY** with the purpose of maintaining our policy of full compatibility with different manufacturers, the FMF-1000 offers a wide range of transducers available to use.

**+SENSITIVITY** a receiver with a wider spectrum of frequencies, ranging from 10kHz to 500kHz, combined with an improved sensitivity.

**+WIZARD** a tool that will allow the installer to perform an initial set up, going step by step through an assisted process to make it easier and faster.

# + Acoustic Sign

## artificial intelligence applied to selectivity



All objects detected by an echo sounder present different sound responses, depending on its shape and density. The frequencies contained in a sound pulse are also key to determine the way an object will respond to sound. That is how certain species of fish respond with a higher intensity than others to a certain frequency.

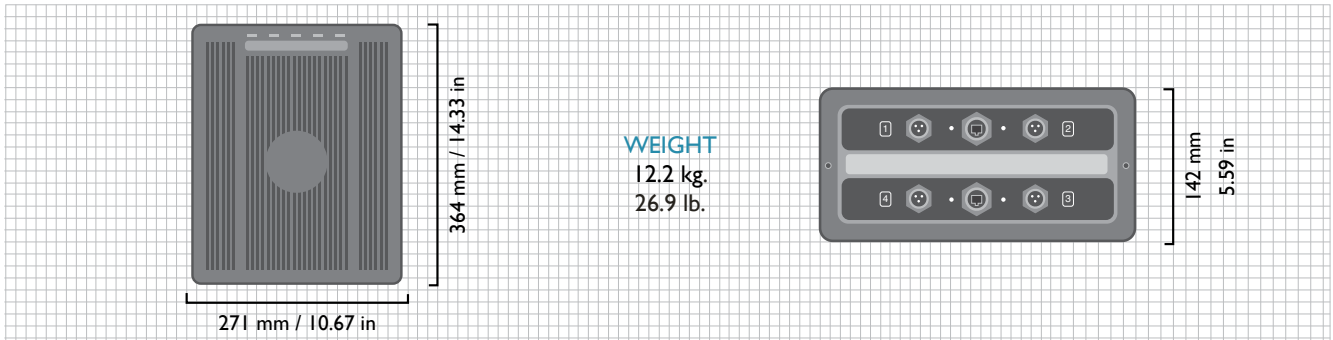
The sound reflected by an object is known as TS or Target Strength, which can be understood as the power of the target. FMF-1000 echo sounder allows the use of the measured TS in all the range of available frequencies. Different values of TS for each frequency result in a curve, which might be repetitive when similar targets are measured, conforming a pattern that can be related with some species.

Under certain circumstances, this tool could help the operator to identify different patterns of fish behavior. Combining this information with the image on screen, data from the environment and own experience, a qualified operator may be able to identify target species.

The **+ACOUSTIC SIGN** tool help fishermen to take advantage of this information, allowing to store and name these curves as patterns of reference, to be able to compare with future results.

# FISH FINDER | specifications & dimensions

## PROCESSOR UNIT



### ■ GENERAL

#### Operating Frequencies

10-500 kHz

#### Power

100W-3kW per channel / 25W RMS per channel

#### Pulse Length

100us – 8ms

#### Sound Speed

330m/s a 1530m/s

#### Digital Filters

3 noise filters / 2 interference filters / 1 smooth filter

#### History

Re-workable raw data / Data import and export

### ■ DISPLAY

#### Display

1920x1080 Full HD up to 3840x2160 4k UHDV (2 displays)

#### Color

7/12/15/32/high resolution

#### Display Mode

Day / Night

#### Range

5m-10000m

#### Shift

0m-9995m

#### Display Layout

Ecogram/ Ecogram+Fish Loupe / Ecogram+Expander / Ecogram+Fish Loupe+Expander

#### Picture Advance Speed

4/1, 2/1, Stop, 1/1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64

#### Input Trigger

High level / Low level

#### Output Trigger

High level / Low level

### Alarms

Audio-visual bottom and fish alarm

### Idioma

SPA / ENG / Others

### Others

Bottom Hardness and Roughness Graphic / Water Temperature Graphic / GPS Data Graphic / Auto Scale / Internal Pitch and Roll Compensation.

### ■ DATA INTERFACE

#### Ethernet Cat5e/6

#### NMEA0183 (v. 1.5, 2.0, 3.0)

Input: GGA, GLL, RMC, VTG, GGA, ZDA, PFEC, Temperature, Salinity Index.

Output: DBT, DPT, RMC, Roxann Interface

#### UDP

Input: Speed log sensor, winch control sensor, Salinity Index, Temperature, Bouys / Marport / TZ

### ■ ENVIRONMENTAL CONDITIONS

#### Temperature

-10°C to 55°C

#### Humidity

95%

### ■ POWER SUPPLY

Total power 160W

20VDC / 8A

32VDC / 5A

### ■ EQUIPMENT LIST

Blackbox Unit

Installation Materials / Trackball Unit

User Manual

FOR FURTHER INFORMATION, CONTACT: