



# FMF-900

DIGITAL BLACKBOX FISHFINDER

# Same performance, much simpler!

Introducing the FMF-900, a new product of the FMF platform, a fish finder designed to deliver solutions with less settings. A simpler, but very powerful tool for the fishermen. A more efficient software makes possible to use a lighter PC platform, making the equipment more affordable for the fishermen, maintaining the FMF level of performance. This new member of the FMF family is also capable to work in CW or FM (Chirp) pulses. It also features all the characteristics of the FMF

platform, including fish size measurement. The equipment takes advantage of a new approach for size measurement, combining the high resolution of CHIRP pulse and the simplicity of DUAL BEAM technology. The FMF-900 features total interconnectivity with different cartography and navigation software, like TIME ZERO™ or OLEX™, but also can be combined with sensors of the MARPORT™ family.



## For professional use

The **FMF-900** is aimed to all professional fishermen, particularly to those who are looking for flexibility and simplicity, maintaining the performance of the FMF platform.

This new product was developed after considering the end user feedback and understanding their needs and preferences. The requirement for performance, but at the same time, the necessity of providing a much simpler to operate option, specially to those users that must perform many tasks during the fishing trip. This professional requires accurate information for decision making, but they must have it immediately and in a very simple presentation, without the hassle of performing too many settings.

Simple size identification tool allows purse seiners, for example, to identify the targeted fish that increase the value in the market and makes its fishing effort more sustainable. For bottom trawlers, this echosounder can receive the information

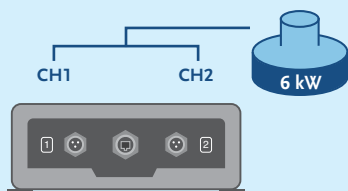
from MARPORT™ system and display the position of the net and the opening, knowing how the net behaves, but now in the echosounder expander window.

The equipment covers a wide range of frequencies from 10 to 500kHz, making possible to adapt it to different fisheries. The user can configure the echosounder according to specific needs and create profiles that can later be easily changed while using the equipment. This way you can set the echosounder to work in one season, one geographical area, or one specific species. The operator can create as many USERS as needed, so no complex setting must be done when switching fisheries or seasons. Only select the desired USER.

The FMF-900 is an echosounder created to solve the problem of fish detection and size determination, with the most powerful and simple to operate user interface, adapting to all fisheries at different depths.

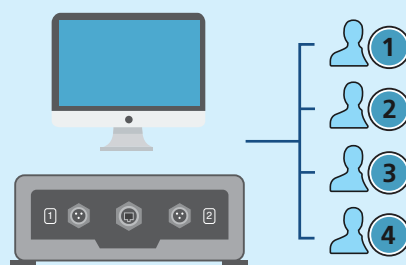
## + power

FMF-900 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.



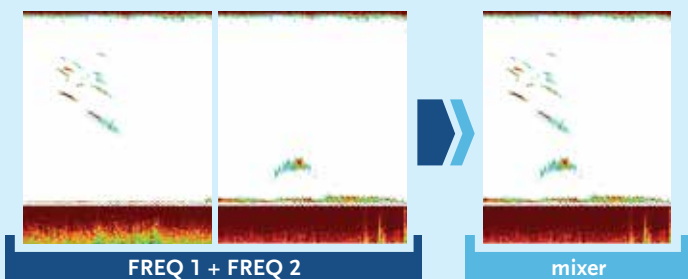
## + user

FMF-900 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.



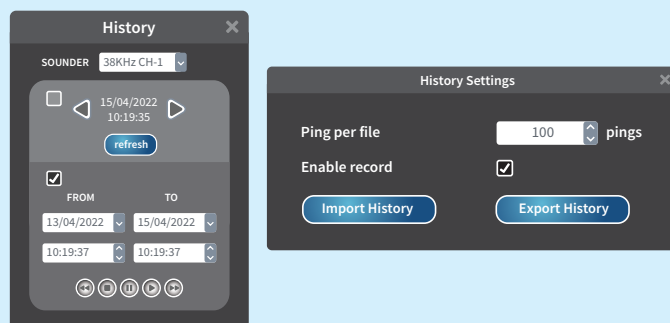
## + mixer

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.



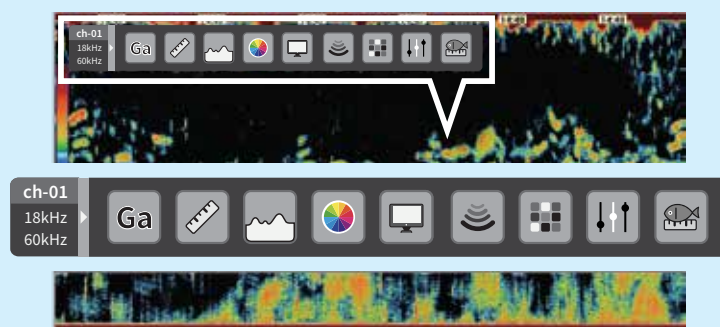
## + history

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.



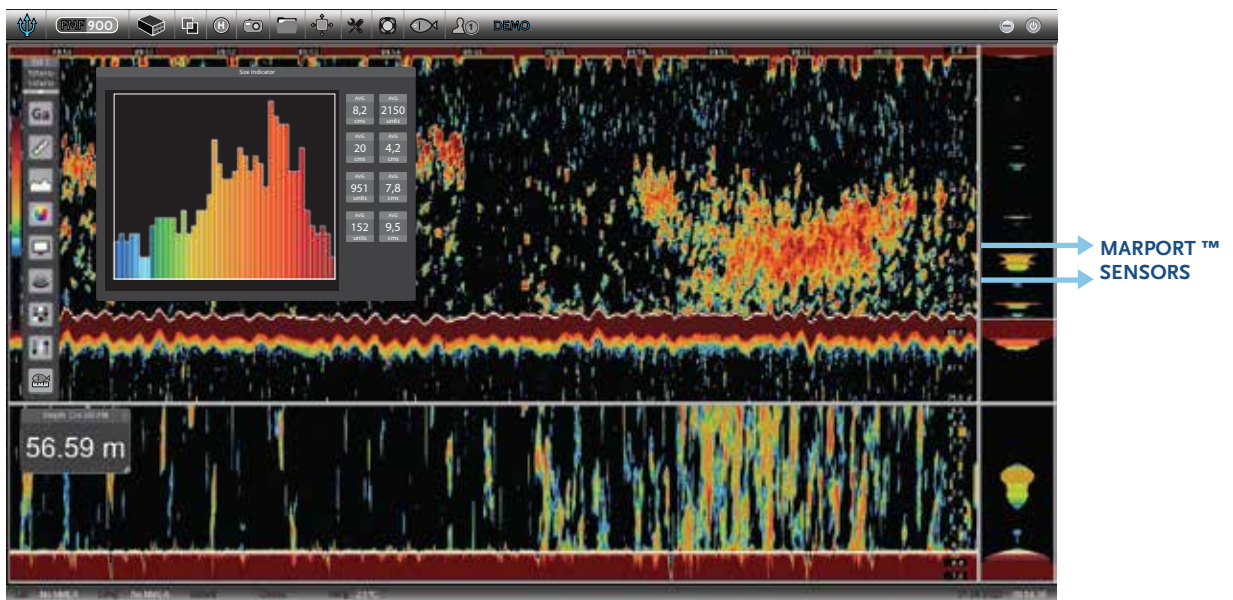
## + friendly

FMF-900 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.

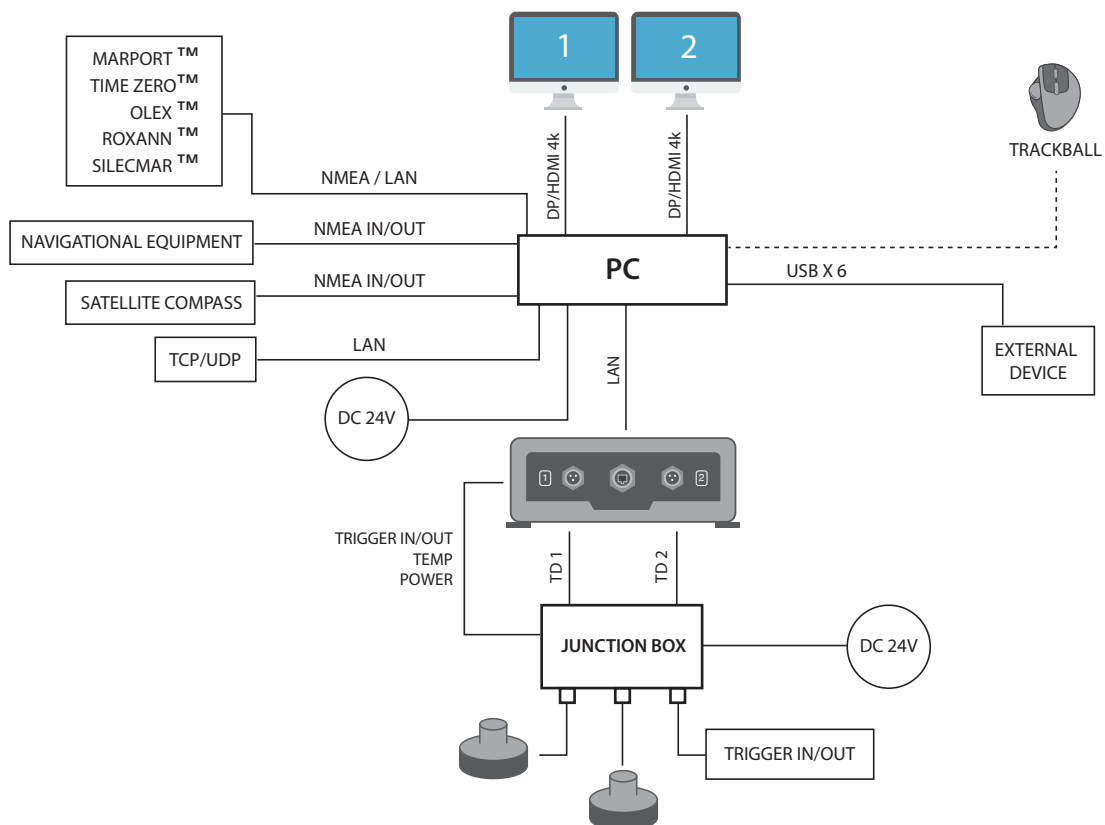


# Compatibility with MARPORT™

This new system takes advantage of other manufacturer sensors data to merge it with the echogram on the echosounder screen, thus providing new and important information for the fishermen. Combining information coming from MARPORT™ sensors makes possible to correctly know the door position or the point in which the seine is cast. The system can also display the numeric values of door spread, net opening, water temperature at sensors depth and all other data that MARPORT™ offers to export. A unique feature of this echosounder, displays the sensor position and the net opening, when a net echosounder is installed.

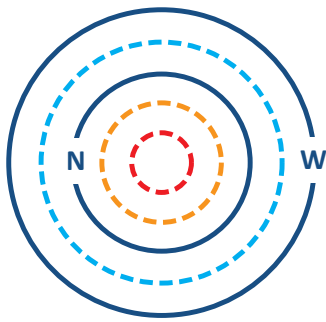


## Interconnection Diagram

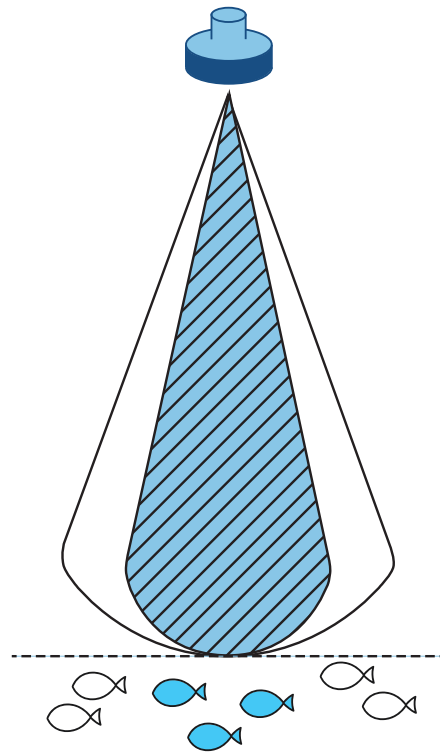


# Fish size measurement tool

## DUAL BEAM+CHIRP technology



- W — TD WIDE BEAM
- FISH 1 (not measured)
- N — TD NARROW BEAM
- FISH 2
- FISH 3

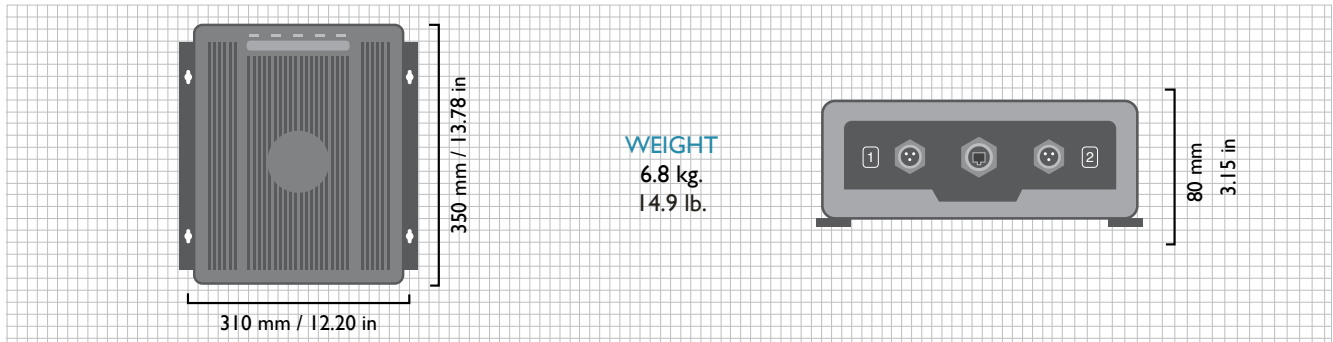


Dual Beam technology takes advantage of the different angle of the sound beam in high and low frequencies, to determine the target strength and calculate the size of the measured individuals. Low frequencies have wide angle beams, while high frequencies sound pulses have narrow angle beams. Using this method, the FMF-900 transmits with narrow beam (high frequency) and receive with both. Then the identified individuals are measured with the information gathered from the low frequency sound lobe, which allows a more accurate target strength determination. Applying a target strength formula to convert sound into size, makes possible to display the size of the fish, both in centimeters and inches.

The Dual Beam method combined with a broad band CHIRP pulse, which has a very high range resolution, allows the detection and measurement of a higher number of individuals when compared to CW pulse. This way, as the size measurement is a statistic, the higher the sample, the more accurate the result will be.

# 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 100W

24VDC / 4A

### ■ EQUIPMENT LIST

Blackbox Unit

Installation Materials / Trackball Unit

User Manual

FOR FURTHER INFORMATION, CONTACT: