When Your Living Depends on Finding Fish...

Bay or online new broadband transducers for your ultimate fishing mission. Whether you’re a commercial fisherman, charter captain, or tournament angler, there’s a new game in town! Airmar transducers enable bottom detection down to 3,000 m (10,000 ft) with 5 to 10 times greater detail and resolution to precisely place all the way from baitfish, game fish, to underwater structures. One transducer delivers up to 11 kHz of total bandwidth in just one installation, saving customers time and money.

Airmar…It's what you're under your boat.

The CHIRP Difference

Broadband marine fishfinders operate at discrete frequencies such as 50 kHz and 200 kHz, using relatively short-duration transmit pulses, and use narrowband sonar transducers. In contrast, CHIRP (compressed high-intensity radar pulse) uses a precise sweep pattern of many frequencies within a single long transmit pulse from a broadband transducer, so the equispaced sound energy spreads into the water a 10 to 1,000 times greater than a conventional marine transducer. The echo energy returning to the transducer, superior to that generated by a conventional transducer, is then processed by the fishfinder’s Q（quality factor）-band pass signal processor and displayed in ultra-sharp detail on the display. The combination of CHIRP, a broadband transducer and the fishfinder’s DSP results in dramatically better fish and bottom detection, superior depth capability, and significantly better performance at speed.

Does Your Fishfinder CHIRP?

Only CHIRP®/Spread Spectrum sounders using Airmar broadband transducers can operate as a CHIRP fishfinder system. When Airmar’s new transducer is paired with a broadband fishfinder, the result is 5 to 10 times greater sensitivity and performance than current factory CHIRP technology. Packed with exclusive technology like Transducer ID® and newly engineered piezoceramic elements, Airmar transducers are ultra-sensitive and designed to automatically sweep frequency bands from 28 kHz to 210 kHz with no tuning necessary. As a result, all targets detected in the entire bandwidth will be seen on the display rather than just what is identified in traditional frequencies at 50 kHz and 200 kHz.

Airmar’s complete line of twenty-four (24) CHIRP transducers are available in seven (7) different mounting options frequencies at 50 kHz and 200 kHz.

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Technical Information

Advantages of Thru-Hull Transducers

Best performance, most advanced technology for larger boats, works with any hull material.

When external thru-hull transducers are installed with a High-Performance Fairing, the transducer face is parallel to the waterline, resulting in a beam that is vertically oriented for maximum echo return and the best possible performance. The fairing compensates for hull deadrise and reduces turbulence over the transducer face, which allows tracking at speeds over 30 knots (35 MPH). This installation, when matched in “clean water” (forared of propellers and running gear), produces the most effective signal return since nothing on the surface interacts with the transducer’s active surface. Thru-hull transducers will work with any engine type (inboard, outboard, or I/O).


Unique Transducer ID®

Airmar’s Transducer ID feature measures and stores the operating parameters for each transducer. This enables the fishfinder to automatically configure itself to the transducer being used. The onboard transducer continuously monitors ceramic operating temperatures inside the transducer, enabling closed loop control of power output. The transducer profile can be presented on the display showing beamwidth coverage as a function of frequency. Stored data also assists with troubleshooting, warranty or any required information about the transducer.

Quality “Q” Value

Q is a measure of bandwidth and the rise and fall times of target echoes. An ideal transducer has a Q of 1.5 to 3.0, depending on the model. Competitive transducers have an average Q of 25 to 30. The lower the “Q,” the less ringing and the better the performance—improved individual fish separation along with bottom imaging in rapidly changing water depths such as ledges and offshore canyons.

All Airmar CHIRP transducers have a Q of 3 or less.

Comparing CHIRP & Non-CHIRP Transducers

<table>
<thead>
<tr>
<th>Model</th>
<th>645 broadband</th>
<th>645 CHIRP</th>
<th>Roundtrip Sensitivity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE45</td>
<td>28 / 8 kHz</td>
<td>30 / 7 kHz</td>
<td>1 time</td>
</tr>
<tr>
<td>LF200</td>
<td>30 / 7 kHz</td>
<td>30 / 6 kHz</td>
<td>1 time</td>
</tr>
<tr>
<td>LF255</td>
<td>35 / 7 kHz</td>
<td>35 / 6 kHz</td>
<td>1 time</td>
</tr>
<tr>
<td>LF225</td>
<td>22 / 3 kHz</td>
<td>2 / 8 kHz</td>
<td>1 time</td>
</tr>
<tr>
<td>DE 50</td>
<td>1.6 / 37 kHz</td>
<td>2 / 80 kHz</td>
<td>1,000 times</td>
</tr>
<tr>
<td>DE 108</td>
<td>1.6 / 37 kHz</td>
<td>2 / 80 kHz</td>
<td>1,000 times</td>
</tr>
<tr>
<td>DE 125</td>
<td>1.6 / 37 kHz</td>
<td>2 / 80 kHz</td>
<td>1,000 times</td>
</tr>
</tbody>
</table>

*Roundtrip sensitivity data is based on the Figure of Merit (FOM) and the transducer bandwidth relative to the B45 model. The higher the figure, the more energy returned to the sounder.

See Theory of Operation for a complete understanding of transducer terminology and operation. www.airmar.com

Guide to Transducer Technology

• 5 to 10 times greater detail and resolution
• 10 to 1,000 times more energy on targets
• Accuracy down to 3,000 m (10,000 ft)
• Precise separation between baitfish and game fish
• Superior performance in noisy environments
• Improved bottom tracking at high boat speeds

Upgrade Your Sounder to a Serious Fishing Machine!

Only possible with the use of an AIRMAR broadband transducer.
When Your Living Depends on Finding Fish...

Bay of Former New broadband transducers have an ultimate fishing mission. Whether you’re a commercial fisherman, charter captain, or tournament angler, there’s a new game in town! CHIRP transducers enable bottom detection down to 3,000 m (10,000') with 5 to 10 times greater detail and resolution so precise it’s possible to distinguish between individual baitfish, game fish, and underwater structures. One transducer delivers up to 11 kHz of total bandwidth in just one installation, saving customers time and money.

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The CHIRP Difference

Broadband marine fishfinders operate at discrete frequencies such as 50 kHz and 200 kHz, relative short-duration transmit pulses, and use passive sonar transducers. In contrast, CHIRP (compressed high-intensity radar pulse) uses a precise sweep pattern of many frequencies within a long-duration transmit pulse from a broadband transducer, so the echo sound energy transmitted into the water is 10 to 1,000 times greater than a conventional marine fishfinder. The echo energy returning to the transducer, superior to that generated by a conventional transducer, is then processed by the fishfinder’s DSP (digital signal processing) computer and displayed in ultra-sharp detail on the display. The combination of CHIRP, a broadband transducer, and the fishfinder’s DSP results in dramatically better fish and bottom detection, superior depth capability, and significantly better performance at speed.

Does YOUR Fishfinder CHIRP?

Only CHIRP®/Spread Spectrum sounders using Airmar broadband transducers can operate as a CHIRP fishfinder system. When Airmar® new transducer is paired with a broadband fishfinder, the result is 5 to 10 times greater performance and superior performance than CHIRP technology. Packed with exclusive technology like Transducer ID® and new generational piezoelectric ceramics, Airmar transducers are ultra-sensitive and designed to automatically sweep frequency bands from 28 kHz to 210 kHz with no tuning necessary. As a result, all targets detected in the entire bandwidth will be seen on the display, unlike only what is identified in frequencies at 50 kHz and 200 kHz.

Airmar’s complete line of twenty-four (24) CHIRP transducers are available in seven (7) different mounting options to accommodate almost any hull design. CHIRP transducers are available in Gemeco Marine Accessories (www.gemeco.com) and Airmar E/A (www.airmar.com). Visit www.AIRMAR.com for a list of CHIRP-ready transducers.

Technical Information

Advantages of Thru-Hull Transducers

Best performance, minimum design for larger boats, works with any hull material.

When external thru-hull transducers are installed with a High-Performance Fairing, the transducer face is parallel to the waterline resulting in a beam that is vertically oriented for maximum echo return, and the best possible performance. The fairing compensates for hull deadrise and reduces turbulence over the transducer face, which allows tracking at speeds over 30 knots (35 MPH). This installation, when measured in “clear water” (forward of propellers and rudder gear), produces the most effective signal return since nothing on the hull interrupts the transducer’s active surface. Thru-hull transducers will work with any engine type, inboard, outboard, or I/O.

See Guide to Transducer Technology for a complete understanding of transducer terminology and operation. www.airmar.com

Unique Transducer ID®

Airmar’s Transducer ID® feature stores and stores the operating parameters for each transducer. This enables the fishfinder to automatically configure itself to the transducer being used. The embedded microcontroller continuously monitors ceramic operating temperatures inside the transducer, enabling closed loop control of output power. The transducer’s profile can be presented on the display showing beamwidth coverage and frequency of function. Stored data also assists with troubleshooting, warranty or any required information about the transducer.

Quality “Q” Value

Q is a measure of bandwidth and the rise and fall times of target echoes. Airmar® Q values range from 1.5 to 3.0, depending on the model. Competitive transducers have an average Q of 25 to 30. The lower the “Q,” the less ringing in the transducer and the better the performance—improved individual fish separation along with improved bottom imaging in rapidly changing water depths such as ledges and offshore canyons.

All Airmar transducers have a Q of 3 or less.

<table>
<thead>
<tr>
<th>Model</th>
<th>D / Bandwidth</th>
<th>Roundtrip Sensitivity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>445 Standard*</td>
<td>28 / 7 kHz</td>
<td>30 / 0.7 kHz</td>
</tr>
<tr>
<td>455 Standard*</td>
<td>20 / 2.5 kHz</td>
<td>8 / 25 kHz</td>
</tr>
<tr>
<td>505 Standard*</td>
<td>1.5 / 37 kHz</td>
<td>2 / 80 kHz</td>
</tr>
<tr>
<td>610F</td>
<td>1.6 / 37 kHz</td>
<td>2 / 80 kHz</td>
</tr>
<tr>
<td>710F</td>
<td>1.6 / 37 kHz</td>
<td>2 / 80 kHz</td>
</tr>
</tbody>
</table>

*Roundtrip Sensitivity is a measure of the sonar system performance of transducer. The energy sent to the water is the product of transmit voltage response (TVR) and roundtrip sensitivity. Sonar system performance is defined as the energy returning to the transducer relative to the energy transmitted into the water. TVR is the ratio of the transmit voltage divided by the peak voltage at the output of the transducer. See Theory of Operation for a complete understanding of transducer terminology and operation. www.airmar.com
**Core**

**B265LH (Low & High-Frequency)**
- Depth & fast-response water-temperature sensor
- Low—CHIRPS from 28 kHz to 65 kHz
- Medium—CHIRPS from 80 kHz to 135 kHz
- High—CHIRPS from 200 kHz plus everything else in the bandwidth

**R109LH / LM Transducer**
- Depth & fast-response water-temperature sensor
- Low—CHIRPS from 28 kHz to 75 kHz (9° to 1° port-starboard beamwidth (1° to 5° fore-aft beamwidth))
- High—CHIRPS from 130 kHz to 210 kHz (8° to 4° beamwidth)
- 117 MHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 38, 50, and 100 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and sea-mount tracking)
- Epoxy transducer housing with High-Performance Fairing

**R509LH (Low & High-Frequency)**
- Depth & fast-response water-temperature sensor
- Low—CHIRPS from 38 kHz to 75 kHz (9° to 1° port-starboard beamwidth (1° to 5° fore-aft beamwidth))
- Medium—CHIRPS from 80 kHz to 135 kHz (13° to 8° beamwidth)
- High—CHIRPS from 130 kHz to 210 kHz (8° to 4° beamwidth)
- 112 MHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 38, 50, 88, and 107 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and sea-mount tracking)
- Epoxy transducer housing with High-Performance Fairing

**Hull Type:** Fiberglass, wood, or metal

**DIMENSIONS**

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  - Epoxy transducer housing with High-Performance Fairing

**Hull Type:** Fiberglass, wood, or metal

**DIMENSIONS**
**Core**

**B265LH (Low & High-Frequency)**
- Depth & fast-response water-temperature sensor
- Low—CHIRP from 28 kHz to 70 kHz
- 7° to 10° port-starboard beamwidth (1° to 5° fore-aft beamwidth)
- 87 MHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 38, 50, and 107 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and seamount tracking)
- Urethane transducer housing with High-Performance Fairing
- Boat Size: 12 m (40') and above
- Hull Type: Fiberglass, wood, or metal

**R109LH (Low & Medium-Frequency)**
- Depth & fast-response water-temperature sensor
- Low—CHIRP from 38 kHz to 75 kHz
- 7° to 10° port-starboard beamwidth (1° to 5° fore-aft beamwidth)
- 117 MHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 38, 50, and 200 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and seamount tracking)
- Urethane transducer housing with High-Performance Fairing
- Boat Size: 25' (7.62 m) and above
- Hull Type: Fiberglass or wood

**ELITE**

**R509LH (Low & High-Frequency)**
- Depth & fast-response water-temperature sensor
- Low—CHIRP from 28 kHz to 60 kHz
- 23° to 9° port-starboard beamwidth (11° to 5° fore-aft beamwidth)
- 172 MHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 28, 38, 50, and 200 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and seamount tracking)
- Epoxy transducer housing with High-Performance Fairing
- Boat Size: 25' (7.62 m) and above
- Hull Type: Fiberglass, wood, or metal

**Thru-Hull**

**B265LM (Low & High-Frequency)**
- Depth & fast-response water-temperature sensor
- Low—CHIRP from 28 kHz to 70 kHz
- 16° to 11° beamwidth
- 73 kHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 38, 50, and 107 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and sea-mount tracking)
- Bronze transducer housing with High-Performance Fairing
- Boat Size: 8 m (25') and above
- Hull Type: Fiberglass or wood

**R109LM (Low & Medium-Frequency)**
- Depth & fast-response water-temperature sensor
- Low—CHIRP from 38 kHz to 75 kHz
- 16° to 11° beamwidth
- 103 kHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 38, 50, and 200 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and sea-mount tracking)
- Bronze transducer housing with High-Performance Fairing
- Boat Size: 8 m (25') and above
- Hull Type: Fiberglass or wood

**R509LM (Low & Medium-Frequency)**
- Depth & fast-response water-temperature sensor
- Low—CHIRP from 38 kHz to 75 kHz
- 10° to 6° beamwidth
- 200 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and sea-mount tracking)
- Epoxy transducer housing with High-Performance Fairing
- Boat Size: 12 m (40') and above
- Hull Type: Fiberglass, wood, or metal

**MSRP**
- **B265LH**: $1,900.00
- **B265LM**: $1,885.00
- **R109LH**: $3,250.00
- **R109LM**: $3,064.00
- **R509LH**: $4,495.00
- **R509LM**: $4,299.00

**DIMENSIONS**
- **B265LH**: 543 mm (21.37")
- **B265LM**: 538 mm (21.17")
- **R109LH**: 570 mm (22.44")
- **R109LM**: 568 mm (22.35")
- **R509LH**: 665 mm (26.18")
- **R509LM**: 576 mm (22.65"
**Thru-Hull Dimensions**

- **570 mm (22.44”)**
- **139 mm (5.48”)**
- **102 mm (4.01”)**

**R109LH / LM Transducer**

- Depth & fast-response water-temperature sensor
- Low—CHIRPS from 38 kHz to 75 kHz (9° to 10° port-starboard beamwidth (10° to 5° fore-aft beamwidth))
- High—CHIRPS from 130 kHz to 210 kHz 8° to 4° beamwidth
- 117 MHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 38, 50, and 200 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and seamount tracking)
- Urethane transducer housing with High-Performance Fairing
  - Boat Size: 12 m (40’) and above
  - Hull Type: Fiberglass, wood, or metal

**MSRP**

- $1,885.00
- $1,700.00

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**CORE**

**B265LM (Low & High-Frequency)**

- Depth & fast-response water-temperature sensor
- Low—CHIRPS from 42 kHz to 65 kHz (25° to 16° port-starboard beamwidth (16° to 10° beamwidth))
- Medium—CHIRPS from 85 kHz to 135 kHz 16° to 11° beamwidth
- 73 kHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 55, 88, and 107 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and seamount tracking)
- Bronze transducer housing with High-Performance Fairing
  - Boat Size: 8 m (25’) and above
  - Hull Type: Fiberglass or wood

**MSRP**

- $1,300.00

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**HARD-CORE**

**R109LM (Low & Medium-Frequency)**

- Depth & fast-response water-temperature sensor
- Low—CHIRPS from 38 kHz to 75 kHz (9° to 10° port-starboard beamwidth (10° to 5° fore-aft beamwidth))
- Medium—CHIRPS from 85 kHz to 135 kHz 13° to 8° beamwidth
- 87 MHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 38, 50, 88, and 107 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and seamount tracking)
- Urethane transducer housing with High-Performance Fairing
  - Boat Size: 12 m (40’) and above
  - Hull Type: Fiberglass, wood, or metal

**MSRP**

- $1,250.00

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**Thru-Hull**

**R509LM (Low & High-Frequency)**

- Depth & fast-response water-temperature sensor
- Low—CHIRPS from 28 kHz to 60 kHz 2.5° to 5° port-starboard beamwidth (11° to 5° fore-aft beamwidth)
- High—CHIRPS from 130 kHz to 210 kHz 10° to 5° beamwidth
- 172 MHz of total bandwidth from one transducer
- Covers popular fishing frequencies of 28, 38, 50, and 200 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and seamount tracking)
- Epoxy transducer housing with High-Performance Fairing
  - Boat Size: 12 m (40’) and above
  - Hull Type: Fiberglass, wood, or metal

**MSRP**

- $4,299.00

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**Fishing Profile**

- Commercial and recreational inshore fishing
- Commercial and recreational offshore fishing
- Deep-water canyon and seamount tracking

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**Dimensions**

- **Epoxy transducer housing with High-Performance Fairing**
  - **19° to 10° port-starboard beamwidth (10° to 5° fore-aft beamwidth)**
  - Medium—CHIRPS from 80 kHz to 130 kHz 13° to 8° beamwidth
  - **82 kHz of total bandwidth from one transducer**
  - Covers popular fishing frequencies of 28, 38, 50, 88, and 107 kHz plus everything else in the bandwidth
  - Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and seamount tracking)
  - Epoxy transducer housing with High-Performance Fairing
  - Boat Size: 12 m (40’) and above
  - Hull Type: Fiberglass, wood, or metal

**MSRP**

- $4,495.00

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**Urethane transducer housing with High-Performance Fairing**

- **103 kHz of total bandwidth from one transducer**
- Covers popular fishing frequencies of 38, 50, and 200 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and seamount tracking)

**MSRP**

- $3,250.00

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**Bronze transducer housing with High-Performance Fairing**

- **107 kHz of total bandwidth from one transducer**
- Covers popular fishing frequencies of 38, 50, and 107 kHz plus everything else in the bandwidth
- Fishing Profile: Commercial and recreational inshore and offshore fishing (deep-water canyon and sea-mount tracking)

**MSRP**

- $3,060.00

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**Installing the Transducer**

- **Temperature sensor**
- **Broadband Ceramic Assemblies**
- **Cable tube**
- **Stuffing**

**Hull Type**

- **Fiberglass, wood, or metal**

**Boat Size**

- **8 m (25’) and above**
**When Living Depends on Finding Fish...**

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### Does Your Fishfinder CHIRP?

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### Technical Information

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When external thru-hull transducers are matched with a High Performance Fishfinder, the transducer face is pulsed to the waterline resulting in a beam that is vertically oriented for maximum echo return, and the best possible performance. The fanfinder computes for hull deadrise and reduces turbulence over the transducer face, which allows tracking at speeds over 30 knots (35 MPH). This installation, when matched in "slow water" (forward of propeller and cavity area), produces the most effective signal return since nothing on the vessel interferes with the transducer's active surface. Thru-hull transducers will work with any engine type (inboard, outboard, or I/O).


**Unique Transducer ID**

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