Long Throw Planar Magnetic Speaker Applications
The LT-PMS (Long Throw-Planar Magnetic Speaker) series is a family of speakers designed specifically for highly intelligible, long throw speech transmission. Tailored with a frequency response that is perfectly match for the voice range, each LT-PMS system has been shown to transmit a live or prerecorded spoken message with perfect articulation (1).

The secret to the LT-PMS exceptional performance is in the MAD-1 planar driver. This highly efficient, full range speaker has a frequency response that extends far beyond the voice range. As a true planar speaker, the diaphragm has extremely low mass that results in lightning fast transient response. These two planar characteristics reveal why every LT-PMS systems has such exceptional vocal clarity and intelligibility.

HPV Technologies has developed seven LT-PMS models ranging from speakers with a single driver to an incredibly powerful 96 driver system. As multiple drivers are assembled into a system, two significant performance characteristics occur. First, the speaker get louder and second, the dispersion pattern tapers down into a smaller, tighter area. With a tighter pattern and more power, the speaker can throw sound farther while remaining articulate and clear. The acoustical results become progressively more powerful as listening distances get extended to beyond a mile.

Another characteristic of a planar driver is that the output volume attenuates over distance at a much lower rate than conventional speakers, typically 1.5 dB for each doubling of distance as compare with the 3 to 6 dB for conventional speakers. This means that the vocal message coming from any LT-PMS speakers can be heard at distances which cannot be matched by any other product or transducer technology.

The following chart illustrates the useful working distances for each model. Actual distance and SPL performance may vary as a result of the existing environment and atmospheric conditions.

<table>
<thead>
<tr>
<th>Speaker Model</th>
<th>Number of Drivers</th>
<th>Useful Working Distance</th>
<th>Nominal Dispersion Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT-PMS-1HH</td>
<td>1</td>
<td>200 meters</td>
<td>30°H x 20° V</td>
</tr>
<tr>
<td>LT-PMS-2B</td>
<td>2</td>
<td>400 meters</td>
<td>20°H x 20° V</td>
</tr>
<tr>
<td>LT-PMS-4B</td>
<td>4</td>
<td>500 meters</td>
<td>15°H x 15° V</td>
</tr>
<tr>
<td>LT-PMS-6B</td>
<td>6</td>
<td>800 meters</td>
<td>10°H x 10° V</td>
</tr>
<tr>
<td>LT-PMS-24</td>
<td>24</td>
<td>1200 meters</td>
<td>5°H x 5° V</td>
</tr>
<tr>
<td>LT-PMS-54</td>
<td>54</td>
<td>1400 meters</td>
<td>3°H x 2° V</td>
</tr>
<tr>
<td>LT-PMS-96</td>
<td>96</td>
<td>1600 meters</td>
<td>2°H x 2° V</td>
</tr>
</tbody>
</table>

Note (1) In 2007, an independent testing laboratory performed articulation tests on the LT-PMS speakers where they achieved a 100% perfect score on the CIS word intelligibility test.
The LT-PMS models 1HH, 2B, 4B, and 6B are all self-contained, battery powered speakers that become the “first call” systems when communication is needed in remote or urban areas. These four easy-to-operate systems, ranging from the lightweight LT-PMS-1HH handheld weighing less than 12 lbs. (5.5 kilos) to the powerful LT-PMS-6B, provide exceptional clarity and commanding volume whenever the message has to be heard. Operating distances range from 500 feet to over a half mile.

Their compact size allows any LT-PMS speaker to be mounted on a tripod stand or on a wide of bicycles, motorcycles, ATVs (all-terrain-vehicles), utility vehicles, trucks, mobile command vehicles, marine vessels, and aircraft. With their exceptional sonic performance and compact size, the LT-PMS systems are the ideal speaker when a temporary system is needed for:

- Police and fire officials communicating to large crowds
- Public safety & rescue personnel responding in emergency situations
- Maritime hailing, warning, and safety commands
- Mobile or temporary command and control centers
- Security checkpoints
- Athletic training facilities
- Lifeguards and recreation centers
- Outdoor sporting events
- College & University security
- Arena and Coliseum venues

When a large area, Mass Notification system is required to communicate with thousands of people, the LT-PMS models 24, 54, and 96 can fulfill the most demanding requirements. These speakers are optimized for very articulate, high volume voice transmission over very long distances, typically ranging from a half mile to beyond a mile. MAD’s technical team configures each system with the exact functions and capabilities that will get the message heard in any situation. Any speaker can be installed at a fixed ground location or mounted on any vehicle and converted into a powerful mobile communications system...which can be dispatched wherever it’s needed.

These large LT-PMS systems are highly effective for:

- Fire and flooding evacuation of residential communities
- Law enforcement officials communicating to large crowds
- Search & rescue responds in emergency situations
- Ship-to-shore & maritime hailing, warning, and safety commands
- Temporary command and control centers and security checkpoints

For more information on how the LT-PMS systems, please contact HPV Technologies to discuss your specific requirements.
LT-PMS Features & Functions

LT-PMS 1HH, 2B, 4B, & 6B include the these standard items:
- Built-in class D amplification
- A three input mixer with one XLR balance mic/line input & two unbalanced line inputs
- Wired headworn dynamic microphone
- MP-3 player with connecting cable
- Three built-in warning sirens for ambulance, police, and fire
- Powered by built-in battery (charging adapter is included)
- Environmentally conditioned for harsh weather environments
- “Phraselater® compatibility to translate any phrase or command into any language
- Desert sand or black finish available for models 2B, 4B, and 6B. 1HH available only in black

The following optional items are available:
- A wireless microphone system for untethered connection
- Tripod speaker stand for stationary ground support
- Magnetic vehicle mount for mobile operation
- Remote controlled motorized pan/tilt mount
- Custom mounts for bicycles, utility vehicles, cars, trucks, boats, & aircraft
- Molded road case with wheels

LT-PMS models 24, 54, and 96 are fully configurable for specialized applications requiring exceptionally high SPL levels, long throw capabilities, or other special priorities. The speaker housing is normally mounted on a rolling frame which also houses the system DSP and amplifiers. In addition every system can also be custom mounted to a remotely controlled motorized pan/tilt assembly which can be operated from a stationary ground locations or on mobile utility vehicles, trucks, patrol boats, or ships.

Some of the customizable features available systems include:
- Wave guides that increase SPL output and extent the low frequency performance
- Laser pointer for precise speaker aiming
- Video camera for distance viewing and recording
- Remote operation via 3rd party network control interface
- Custom mounts for any application
This comparison chart provides a quick overview of the key features in the LT-PMS family. All of these speakers can be adapted for specialized applications. Refer to the row “Variations of basic speaker model” for some of the additional models available. Please contact HPV Technologies for more information or to discuss your specific performance objectives.

<table>
<thead>
<tr>
<th>Basic Speaker Model</th>
<th>1HH</th>
<th>1B</th>
<th>2B</th>
<th>4B</th>
<th>6B</th>
<th>24</th>
<th>54</th>
<th>96</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Transducers</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>24</td>
<td>54</td>
<td>96</td>
</tr>
<tr>
<td>Amplifier Type</td>
<td>Class D-Internal</td>
<td>Class D-Internal</td>
<td>Class D-Internal</td>
<td>Class D-Internal</td>
<td>Class D-Internal</td>
<td>Class D-External</td>
<td>Class D-External</td>
<td>Class D-External</td>
</tr>
<tr>
<td>Power Source</td>
<td>Internal Battery</td>
<td>Internal Battery</td>
<td>Internal Battery</td>
<td>Internal Battery</td>
<td>Internal Battery</td>
<td>100/240 VAC</td>
<td>100/240 VAC</td>
<td>100/240 VAC</td>
</tr>
<tr>
<td>Dispersion Horz. x Vert.</td>
<td>30° x 20°</td>
<td>30° x 20°</td>
<td>20° x 20°</td>
<td>15° x 15°</td>
<td>10° x 10°</td>
<td>5° x 5°</td>
<td>3° x 3°</td>
<td>2° x 2°</td>
</tr>
<tr>
<td>Weight-Lbs.</td>
<td>12</td>
<td>25</td>
<td>30</td>
<td>60</td>
<td>80</td>
<td>270</td>
<td>980</td>
<td>1,330</td>
</tr>
<tr>
<td>Dimensions H x W x D Inches</td>
<td>19.5 x 8 x 12.5</td>
<td>10.4 x 10.3 x 11.5</td>
<td>10.4x 12.9 x 11.8</td>
<td>13 x 20 x 11.75</td>
<td>19.65 x 28.8 x 11.75</td>
<td>44 x 86 x 26</td>
<td>63 x 86 x 32</td>
<td>90 x 96 x 40</td>
</tr>
<tr>
<td>Variations of basic speaker model</td>
<td>None</td>
<td>1B/ Dipole, 1BM</td>
<td>2B Pan/ Tilt, 2B Turbo</td>
<td>4B Pan/ Tilt, 4B Turbo</td>
<td>6B Pan/ Tilt</td>
<td>24WG, 24 Pan/ Tilt, 24 Stop Sign</td>
<td>54WG</td>
<td>96WG</td>
</tr>
<tr>
<td>Useful Throw Distance - In Meters (Feet)</td>
<td>200 (656’)</td>
<td>200 (656’)</td>
<td>400 (1,312’)</td>
<td>500 (1,640’)</td>
<td>800 (2,624’)</td>
<td>1,200 (3,936’)</td>
<td>1,400 (4,592’)</td>
<td>1,600 (5,248’)</td>
</tr>
</tbody>
</table>

**Chart Legend:** HH = Handheld; B = Battery; BM = Bicycle Mount; D = Dipole Dispersion; WG= Wave Guide