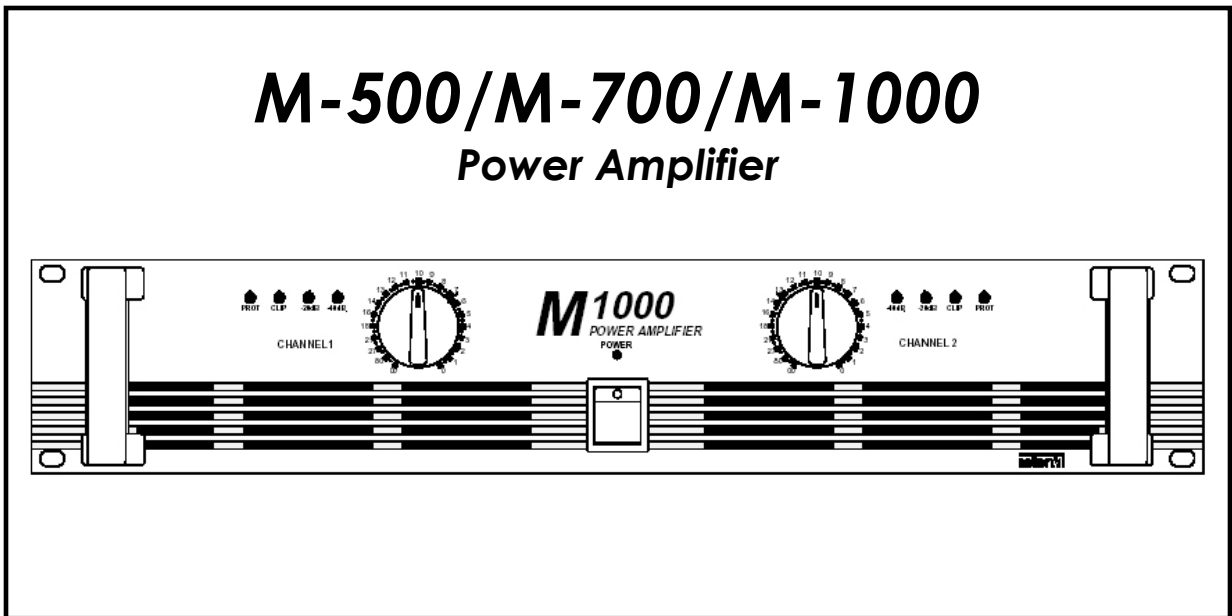


Operating Manual

M-500/M-700/M-1000 Power Amplifier



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Welcome

A personal welcome to you from the management and employees of Inter-M

Thank you for purchasing this fine Inter-M product. All of us here at Inter-M are dedicated to providing you with the highest quality products and the best value.

We sincerely trust this product will provide you with years of satisfactory service, but if anything is not to your complete satisfaction, we will endeavor to make things right.

Welcome to Inter-M, and thank you for becoming a part of our worldwide extended family!

Unpacking

Although your M-series Power Amplifier is neither complicated nor difficult to operate, we recommend you take a few minutes to read this brief manual and familiarize yourself with the important information regarding product features, setup and operation.

As with most electronic devices, we strongly recommend you retain the original packaging. In the unlikely event the product must be returned for servicing, the original packaging (or reasonable equivalent) is required.

Warnings




Environment

Never place this product in an environment that could alter its performance or reduce its service life. Such environments are usually characterized by high levels of heat, dust, moisture, or vibration.

Safety

1. Read these instructions carefully.
2. Follow all instructions.
3. Keep all warnings.
4. Do not operate this apparatus near water.
5. Clean only with a damp cloth.
6. Do not block any of the ventilation openings.
7. Install only in accordance with the instructions in this manual.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades, with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it is attached to the apparatus.
11. Use only the attachments/accessories specified.
12. Use only with a cart, stand, tripod, bracket, or table specified, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid overturning.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

 <p>CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN</p> <p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>	 <p>This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.</p>
<p>WARNING</p> <p>To prevent fire or shock hazard, do not expose the unit to rain or moisture.</p>	 <p>This symbol is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying the appliance.</p> <p>Caution: To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.</p> <p>Attention: Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.</p>
<p>*Do not install this equipment in a confined space such as a book case or similar unit. *The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus. *Worded: "WARNING FOR YOUR PROTECTION PLEASE READ THE FOLLOWING-WATER AND MOISTURE: Unit should not be used near water(e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings."</p>	

Operation

Make certain that speakers and input sources are properly connected before switching on.

Keep volume levels at minimum gain before switching on.

NOTE: The system's operation is delayed by approximately three seconds after pressing the AC Mains power switch. This is due to the built-in protection circuitry, designed to protect speakers and other system components.

M-500/M-700/M-1000 Power Amplifier

Features

Advanced Protection Circuitry

- Thermal and current overload protection, short and open circuit protection, DC detection circuitry and power-on delay for component and loudspeaker protection.

Bridged Mono Operation

- Bridged mono mode for increased power and versatility.

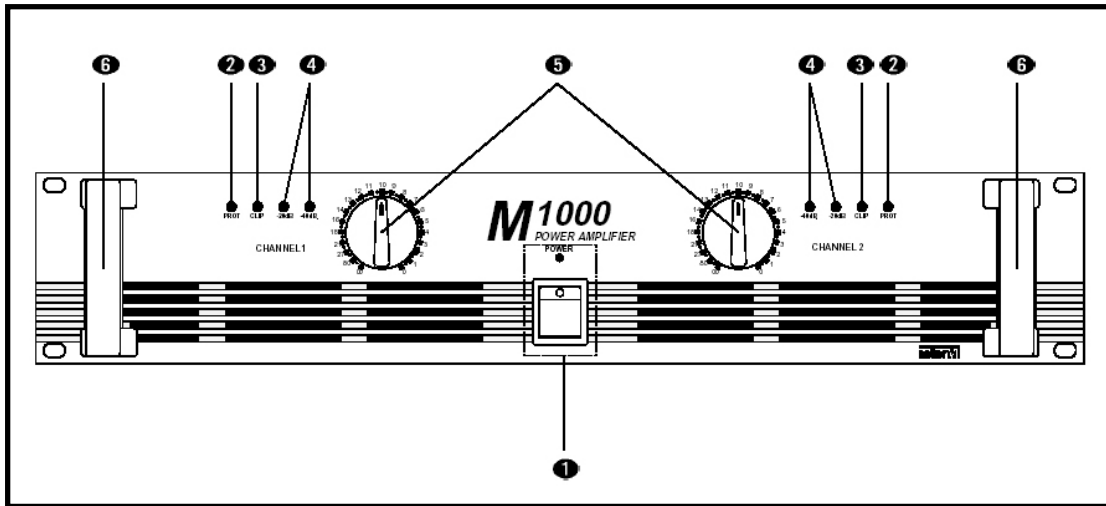
Versatile Connectivity

- Balanced inputs on hybrid XLR/TRS connectors, as well as speaker connect and five-way binding post output connectors to accommodate a wide array of system options.

Slim Design, Compact Size

- Streamlined design fits in a compact 3RU space.

Front Panel Controls



1. Power Switch and Indicator LED

Pushing this switch up switches the unit on. Pushing it down switches the unit off. When the unit is powered on, the Power LED will glow steadily.

2. Protection Indicator

This LED indicates the state of the amplifier's protection circuitry. When the Protection LED is on (illuminated), the protection circuitry is active, indicating that the unit is not operating normally. This is typically due to overheating or power limiting. Please check the Input and Output condition of the amplifier.

(Note that the Protection Indicator lights for approximately six seconds when the amplifier is first powered on.)

3. Clip Indicators

The red CLIP LED indicates an excessive output level, lighting when distortion reaches approximately 1%. Do not operate the unit with the CLIP LED continuously on (illuminated).

4. Output Level Indicators

These LEDs indicate the amplifier's output status, lighting when audio signal reaches -40dB and -20dB .

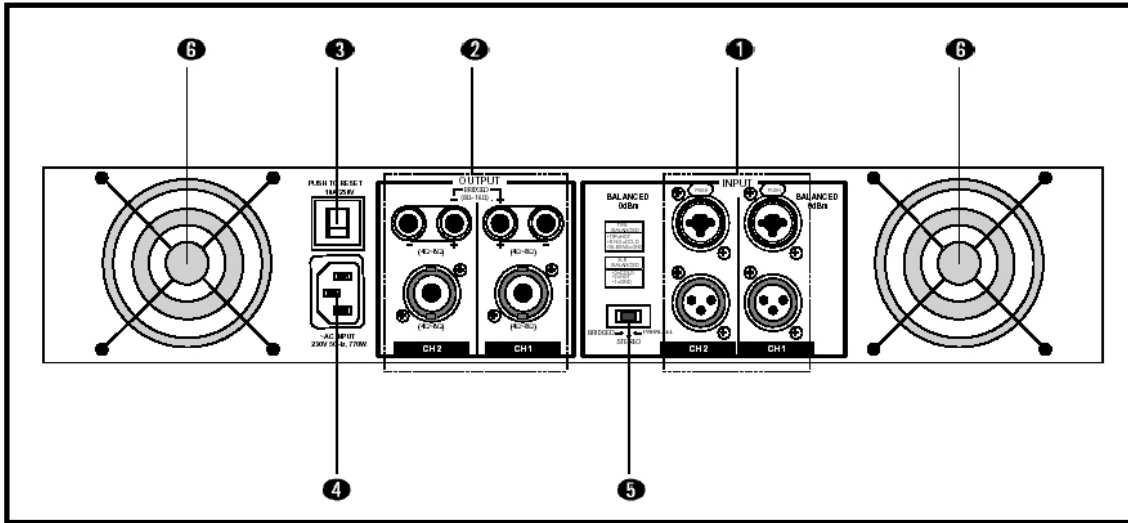
5. Input Attenuators

These are detented controls for regulating each channel's input level. Clockwise rotation increases gain.

6. Handles

Heavy-duty handles are provided to easily carry and position the amplifier.

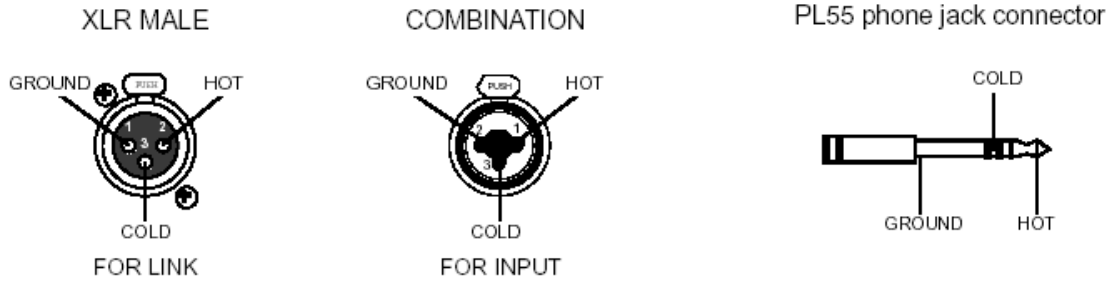
Rear Panel Controls



1. Input Connectors

Balanced input connectors are provided on hybrid XLR/TRS jacks. (When operating in bridged mono and parallel modes, only channel one input is active.)

Wiring for the input connectors is shown below:

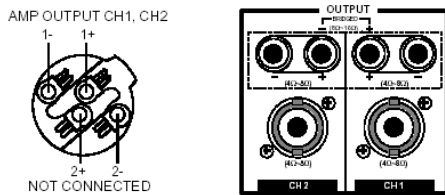


2. Speaker Output Terminals

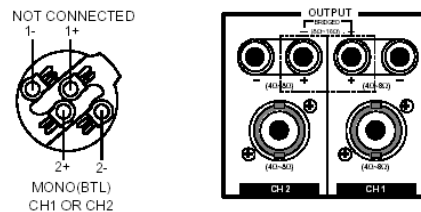
These five-way binding posts and speaker connect jacks are used to connect speakers to the unit.

Speakers may be connected in Stereo or Bridged Mono mode. Please refer to the illustrations below.

• STEREO MODE



• BRIDGED MODE



3. Circuit Breaker

When the AC protection Circuit Breaker has tripped, push to reset. If the Circuit Breaker continues to trip, refer servicing to qualified technical personnel.

4. AC Input

Connect this cable to a standard AC outlet.

5. Mode Selector

This switch selects the amplifier's mode of operation. Stereo, Bridged Mono or Parallel operational modes are available. Please refer to the section on operational modes for more information.

6. Fans

The fan vents should be kept clear of all obstructions to allow cool air to circulate.

Operational Modes

Stereo Mode

In Stereo mode, channels A and B operate independently, with each channel feeding its own amplifier circuit. In this mode, minimum speaker impedance per channel is 4Ω .

Bridged Mono Mode

In Bridged Mono mode, both amplifier channels are bridged together and function as a single-channel amplifier. Only the Left channel input is active, and only the Left channel Input Attenuator controls the amp's output. In this mode, minimum speaker impedance per channel is 8Ω .

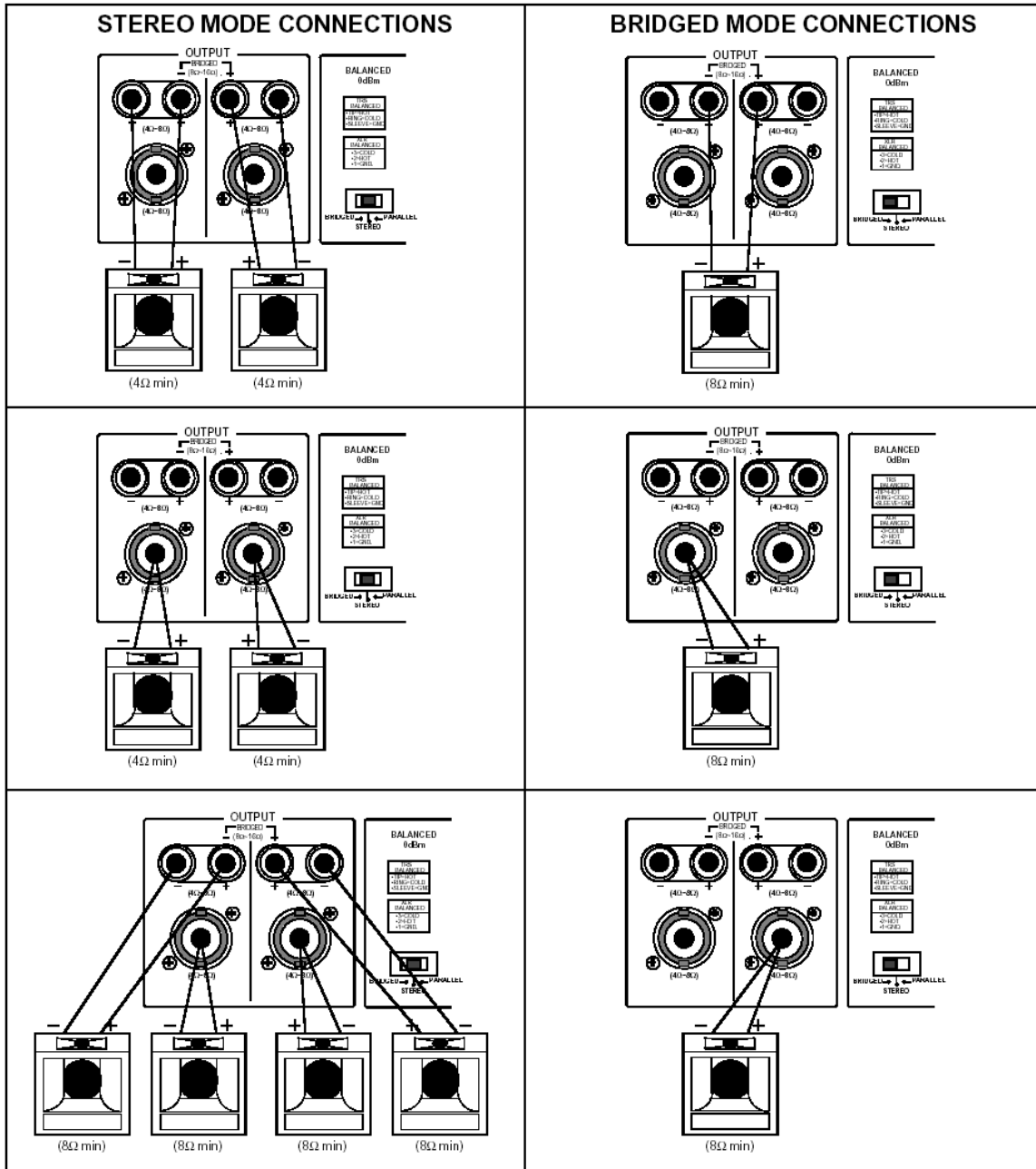
Parallel Mode

In Parallel mode, channels A and B operate independently, but are connected in parallel with another amplifier's A and B channels.

Speaker Impedance and Connections

The minimum speaker impedance is wholly dependent on the operational mode of the amplifier. It is critical that the minimum impedance not equal less than the recommended impedance.

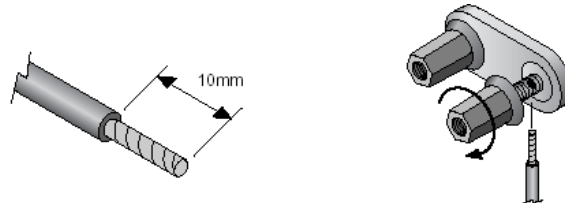
The illustration below shows examples of speaker connection in stereo and bridged mono modes.



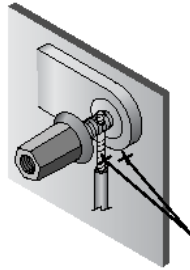
Speaker Connection Procedures

Always switch the power off before connecting speakers.

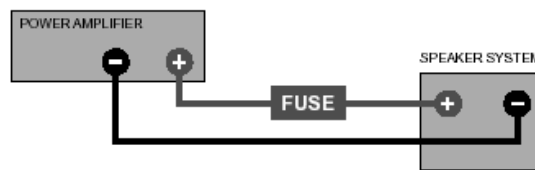
After removing approximately 10mm (1/4 inch) of insulation from the ends of the speaker cables, twist the strands tightly and pass the bare ends through the holes in the terminals, tightening the terminals to secure the wires.



Make certain the wires do not protrude from the terminals and touch any metal on the speaker chassis, or any other adjacent metal.



Your M-series amplifier is capable of very high output levels. Be certain to use a speaker system that can accept high input levels. If the input capacity of your speaker system is less than the amplifier's rated output, you may protect your speakers by connecting a fuse between the amplifier and speaker, as shown below:



Use the following formula to determine the needed fuse rating:

$$P_0 = I^2 R \rightarrow I = \sqrt{\frac{P_0}{R}}$$

P_0 (W) = Speaker's continuous input capacity (RMS)

R (Ω) = Speaker's nominal impedance

I = Required fuse rating.

For example: if the speaker's input capacity is 100W, with 8 Ω impedance,

$$I = \sqrt{\frac{100}{8}} = 3.5$$

The required fuse rating is 3.5A.

Speaker Cable

Always use the appropriate gauge of speaker cable. For cable runs of less than 25 feet (7.5 meters), 18-gauge cable is adequate. For longer cables, we suggest 16-gauge stranded cable.

Maintaining Proper Polarity

It is very important to wire your speaker connectors consistently at each end of each cable, in order to maintain proper polarity. All quality cables are manufactured with clear markings to identify the different conductors – normally by color-coding, printed markings, or textured ribbing on the cable's jacket material.

Rack Mounting Your Amplifier

The amplifier intakes cool air through the front panel and exhausts warm air through the rear panel. When mounting in a portable equipment rack, maintain adequate ventilation by making certain the front and rear panels are not obstructed.

Troubleshooting

The table below lists the main causes of abnormal operation, and the recommended corrective measures, as well as the protective circuit operation in each case.

Indicator	Probable Cause	Remedy	Protection Circuit
-40dB indicator lights only.	There is a short at a speaker terminal, amplifier terminal, or wire.	Locate and correct the cause of the short.	The PC limiter circuit operates to protect the power transistors.
CLIP indicator lights.	The amplifier load is excessive.	Use a speaker system with an impedance of at least 4Ω (stereo) or 8Ω (bridged).	Same as above.
PROTECTION indicator lights.	The heat sink temperature has exceeded 100°C.	Check the amplifier ventilation conditions and take appropriate measures to improve airflow around the amplifier.	The thermal protection circuit operates to protect the power transistors.
	DC voltage of +/-2V or greater was generated in the power amplifier's output circuit.	Consult your dealer.	The relay operates to protect the speaker system.

Specifications

Rated Output (RMS)	M-500	M-700	M-1000
Stereo 8Ω	130W+130W	220W+220W	330W+330W
Stereo 4Ω	250W+250W	350W+350W	520W+520W
Bridged 8Ω	500W	700W	1000W

Frequency Response 0dB+0.5, -1.5dB: f=DC~55KHz

Power Bandwidth Half Power, THD+N 0.1% 10Hz – 70kHz

THD+N

Stereo 8Ω	<0.05%
Stereo 4Ω	<0.07%
Bridged 8Ω	<0.07%

Channel Separation >80dB

Residual Noise <-70dB ATT min.

S/N >100dB

Voltage Gain	M-500	M-700	M-1000
	32dB	33.5dB	35dB

Input Impedance >20kΩ

Fan Circuit -50°C (122°F)–60°C (140°F)–
Low-Speed/Variable/Hi-Speed

Power Source AC 110V-240V, 50/60Hz,

Power Consumption	M-500	M-700	M-1000
	420W	520W	770W

Weight	M-500	M-700	M-1000
	12kg/26.4lb	15kg/33lb	17kg/37.5lb

Dimensions 482(W) x 88(H) x 369(D) mm
19(W) x 3.5(H) x 14.5(D) in.

Specifications and design subject to change without notice for improvements.



Inter-M, Ltd. (Korea) began operations in 1983.

Since then, Inter-M has grown to become one of the largest manufacturers of professional audio and commercial sound electronics equipment in the world.

Inter-M has gained worldwide recognition for its own branded products, as well as private label manufacturing of electronics sold under other names (OEM).

The company is no longer just a Korean company, but rather a global company that is truly international in scope, with factories and offices in Korea and China, and sales and marketing operations located in Japan, Europe, and the U.S.A.

With more than 850 employees around the globe, Inter-M is well-poised for further growth and expansion.

INTER-M AMERICAS, INC.

1 EAST BEACON LIGHT LANE, CHESTER, PA, USA 19013-4409

TEL: (610) 874-8870, FAX: (610) 874-8890

Home Page:<http://www.inter-m.net>, E-mail: service@inter-m.net

INTER-M Corporation

SEOUL OFFICE: 653-5 BANGHAK-DONG, DOBONG-KU, SEOUL, KOREA

TEL: 82-2-2289-8140~8, FAX: 82-2-2289-8149

Home Page:<http://www.inter-m.com>, E-mail: export@inter-m.com