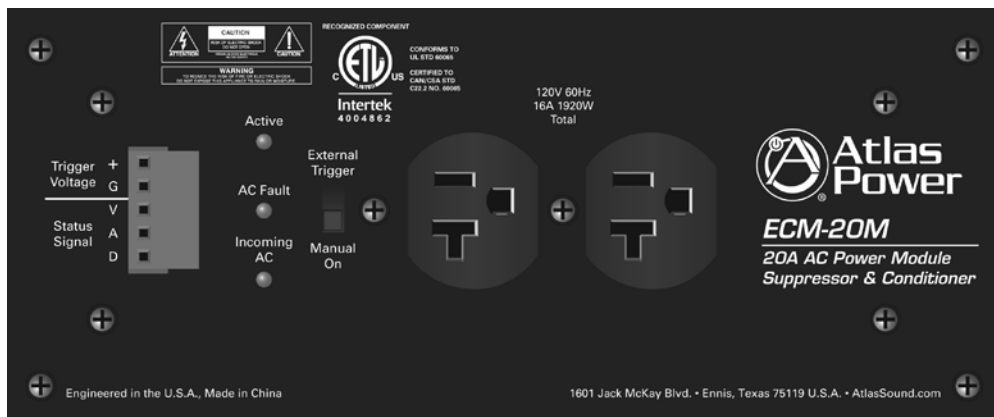
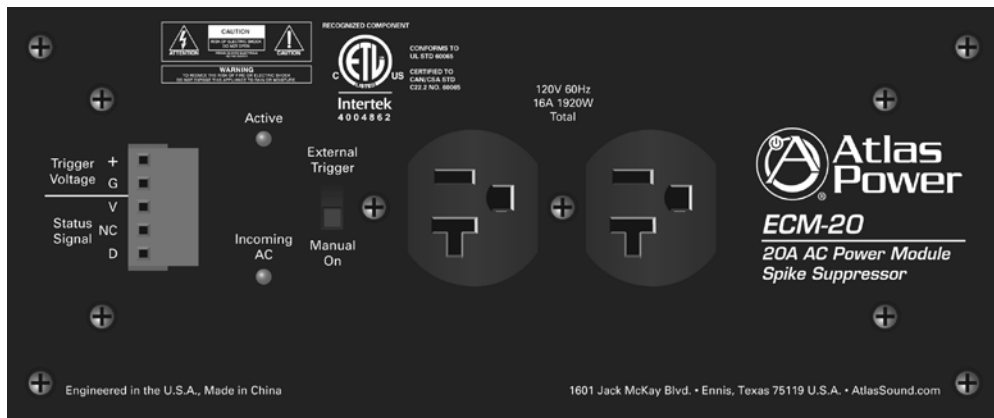




ECM-20 and ECM-20M
20A AC Power Module
Spike Suppressors



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ECM-20 and ECM-20M

20A AC Power Module Spike Suppressors

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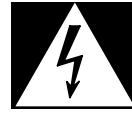


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Important Safety Instructions



The lightning flash with arrowhead symbol within an equilateral triangle, 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.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this device near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other device (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 are 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 they exit from the device.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the device. When a cart is used, use caution when moving the cart/device combination to avoid injury from tip-over.
13. Unplug this device during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the device 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 device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. **WARNING:** To reduce the risk of fire or electric shock, this device should not be exposed to rain or moisture and objects filled with liquids, such as a vase, should not be placed on this device.
16. To completely disconnect this equipment from the mains, disconnect the power supply cord plug from the receptacle.
17. The mains plug of the power supply cord shall remain readily operable.



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WARNING When The Device Is In Use

- To prevent electric shock, do not remove the product cover as there are high voltage components inside. Refer all servicing to Atlas Sound.
- Should any of the following irregularities occur during use, immediately switch off the power, disconnect the power cord from the AC outlet and contact Atlas Sound. Do not attempt to continue operation with the product as this may cause fire or electric shock:
 - Smoke or strange smell coming from the unit.
 - If the product falls or the case is damaged.
 - If water or any metallic objects falls into the product.
 - If the power supply cord is damaged in any way.
 - If the unit is malfunctioning.
- Do not insert or drop metallic objects or flammable materials into the ventilation holes of the product's cover, as this may result in electric shock or fire.
- Do not place any containers with liquid or metallic objects on the top of the product. If any liquid spills into the unit, fire or electric shock may result.
- Never operate this product or touch the power supply cord during an electrical storm, electric shock may result.
- Never exceed the power rating on the product when connecting equipment. Fire and/or property damage may result.
- Operate the product only with the voltage specified on the unit. Fire and/or electric shock may result if a higher voltage is used.
- Do not modify, kink, or cut the power cord. Do not place the power cord in close proximity to heaters and do not place heavy objects on the power cord, including the product itself, doing so may result in fire or electrical shock.
- Ensure that the safety ground terminal is connected to a proper ground. Never connect the ground to a gas pipe as a catastrophic disaster may result.
- Be sure the installation of the product is stable, avoid slanted surfaces as the product may fall and cause injury or property damage.



CAUTION When Installing The Product

- Installation of this product must be done by a certified electrician for a permanently connected apparatus provided neither with an all-pole mains switch nor an all-pole circuit breaker. A readily accessible disconnect device shall be incorporated in the building installation power wiring. The installation shall be carried out in accordance with all applicable installation rules in accordance with all applicable federal, state, and local laws, regulations, and safety codes and ordinances.
- Never install this product in humid or dusty locations, nor in direct sunlight, near sources of heat, or in areas where sooty smoke or steam are present. Fire and electric shock may result.
- Keep all sides of the unit at least 3½" away from objects that may obstruct air flow to prevent the unit's internal temperature rise.



CAUTION When The Product Is In Use

- Never place heavy objects on the product, causing it to fall and/or break, resulting in personal injury and property damage. In addition, the product itself may fall and cause injury and property damage.
- Contact Atlas Sound for instructions on cleaning the inside of the unit. Large accumulations of dust inside the unit may result in heat buildup and fire.
- Ensure that the power supply plug is securely plugged into the wall outlet. Never allow dust to accumulate on the power plug or inside the wall outlet.
- When cleaning the unit or the unit is not to be operated for an extended period, unplug the power cord from the wall.



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Introduction

Thank you for purchasing the Atlas Power Electrical Control Module Raceway system. This information sheet is an overview of the ECM-20/ECM-20M control module. Please refer to the ECM-RACEWY6/ECM-20/ECM-20M manual for full details on features and ECM module installation. **Note:** For your safety all electrical wiring must be done by a qualified electrician.

The Atlas Power ECM-20/ECM-20M is a Electrical Control Module (ECM) 20A Power Conditioner and AC Spike Suppressor that is designed to be used as a standalone unit or in conjunction with an ECS-6RM Controller up to 1000 ft away. AC Spikes, or Transients, are commonly caused by utility power plant grid switchovers. The amount of energy that can be injected into the power system can be immense with voltages reaching 6kV or amperage peaks of 3000A. These spikes are very fast and usually only last for a very short period of time. To protect against this potential problem, incoming AC Mains have special suppression circuitry to eliminate the unwanted energy. This circuitry is very fast and can suppress unwanted energy within a nanosecond, while sustaining the suppression for up to 2 milliseconds, thus ensuring virtually trouble free protection. High and low AC Main line voltages are another major contributor to equipment failures. The ECM modules support EVS circuitry which enables the module to be shut off during Low and High AC Line conditions.

The ECM-20M features noise filtering for unwanted Radio Frequency Interference (RFI) and Electromagnetic Interference (EMI) filters to reduce noise from such items as electric motors and switching power supplies. The benefit of these filters can be seen on video products or audibly by reducing static pops and external signal interference.

High line can also be known as surges. Surges usually are a slower steady state rise in voltages ranging from 128VAC and up. They can be caused from fluctuations from the utility company's power lines or industrial equipment turning On and Off, and are on the same power leg of the building's incoming AC.

Low line is also known as brownouts. This happens when the AC Mains drops below 107VAC. Most of the time it is caused by the utility company not being able to supply enough power during heavy utility consumption time periods, such as heat waves. Another factor can be from voltage drops in AC lines due to long transmissions. The ECS-6RM will inform you if any of these conditions occur. Extreme variances in Unstable AC Mains voltage are one of the main reasons for equipment failure.

The ECM-20 **does not** support the same current monitoring or EMI/RFI Filter features as the ECM-20M, ECM-20SH and the ECM-15SH models do. However, it does support AC Spike and Surge Suppression, AC Mains Voltage monitoring, EVS circuitry and Remote Activation.

Key Features

- Manual/Auto On/Off Switch
- Incoming AC Present LED
- Active LED
- AC Fault LED (ECM-20M Only)
- Clamping Spike & Surge Suppression EVS Circuitry
- AC Mains Voltage & Current monitoring (Voltage only for ECM-20)
- EMI & RFI Filtering (ECM-20M Only)

Applications

The following are just a few examples of applications where the ECM-20/ECM-20M can be used:

- Restaurants
- Houses of Worship
- Schools
- Home Theaters
- Office Buildings
- Sports Bars
- Industrial Facilities



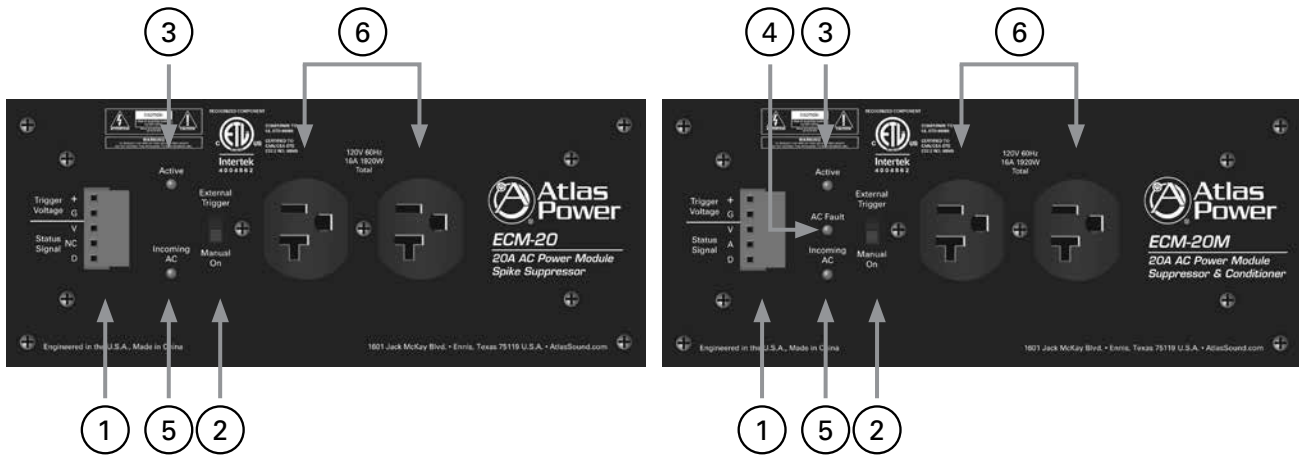
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ECM-20 and ECM-20M

20A AC Power Module Spike Suppressors

Front Panel



1. Trigger/Status Port Pin Identification

All signals are of low voltage and current. **DO NOT MISS WIRE** or damage may occur.

- A. (+) requires a minimum of 5–24V DC to activate the module with 5mA of current. **Note:** The DCV can be supplied from any source. The EVS protection requires the ECS-6RM for operation.
- B. G = Circuit Ground. Must be of the same circuit as the DCV source.
- C. V = AC Voltage Status Signal. Reports the Incoming AC Mains Voltage to the ECM module back to the ECS-6RM.
- D. A = AC Current Status Signal. Reports the AC Mains Current Draw to the ECM module back to the ECS-6RM. **Note:** Not available with the ECM-20.
- E. D = Fault Status Signal. Reports any fault conditions of an ECM module to the ECS-6RM.

2. External Trigger/Manual On Switch

The ECM-20/ECM-20M has a manual override switch allowing it to be used as a local Spike Suppressor. For remote monitoring and activation, the switch must be in the “External Trigger” position.

3. Active LED

This LED will illuminate Green when the ECM module has sensed the proper DCV to activate the unit. **Note:** If connected to the ECS-6RM and the EVS circuit has been activated, this LED will not be lit. The Channel Status LED on the ECS-6RM will flash indicating a problem and the ECM module will not turn On until the AC Mains voltage is stable.

4. AC Fault LED

If damage to the Spike Suppression circuit occurs, this LED will illuminate Red. The module may still operate but may not be protecting the items plugged into the AC outlets. The ECM module should be inspected and repaired by a qualified technician.

Note: Not available with the ECM-20.

5. Incoming AC LED

This LED will illuminate Red when the ECM has incoming AC power present at the module. This LED must be On to operate.

Note: If this LED is not illuminating check the following: 1) the unit is plugged in, 2) the AC Mains Breaker feeding the AC leg to the ECM module is Off, 3) the internal fuse has been damaged. This should only be inspected by an authorized technician.

6. AC Mains Outlet

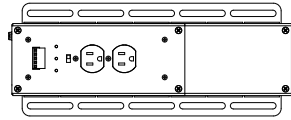
Two 120V AC 20A outlets.



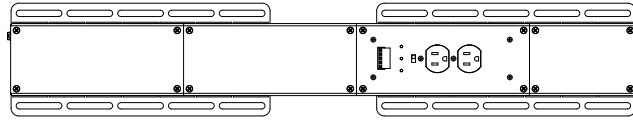
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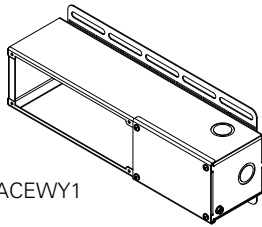
ECM Housing Types



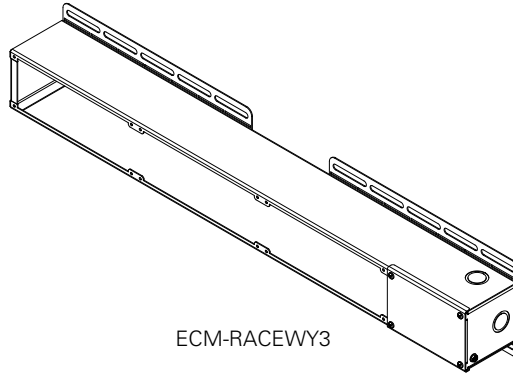
ECM-RACEWY1



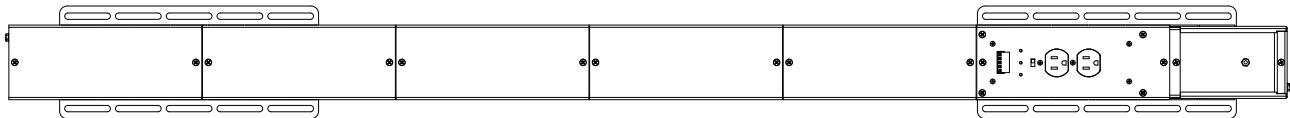
ECM-RACEWY3



ECM-RACEWY1



ECM-RACEWY3



ECM-RACEWY6

The ECM-20/ECM-20M requires an electrical housing. The ECM-RACEWY1 holds 1 ECM module, the ECM-RACEWY3 holds up to 3 ECM modules, and the ECM-RACEWY6 housed up to 6 ECM modules. Three standard ¾" and 1" electrical knockouts on the bottom of each raceway and a distribution area with cover plate supports standard electrical mounting hardware. **Note: All electrical wiring should be done by a certified electrician.**

ECM-3BP Module Cover Plate

The ECM-RACEWY3 can hold up to three ECM-20/ECM-20M Modules and the ECM-RACEWY6 can hold up to six ECM-20/ECM-20M Modules. If using fewer modules than the housing will hold, the open slots can be covered using an ECM Module Blank Plate. Two of these are included with the ECM-RACEWY6. If additional Blank Plates are required, they can be purchased in packages of three.

All cover plates must be secured tightly. For safety, there should be no open slots when the raceway is in use. Top and bottom mounting tabs are incorporated to mount inside an Atlas Rack. All rack mount rails are designed to be removed if they are not needed. Simply bend the tab back and forth until the tab breaks. Be careful of sharp edges.

ECM Data Wire and Distance

There are six ECM control ports on the ECS-6RM and up to six ECM Modules can be connected to it. There are many types of ECM Modules that require the same interface connectivity to the ECS-6RM. All ECM Modules can be interfaced with the ECS-6RM.

For connection between the ECS-6RM and an ECM module, use a 5 conductor cable that is a minimum of 22 gauge wire. It is recommended to use CAT5 cable due to the common availability and low cost. Pay special attention to the port connections and **DO NOT MISS WIRE** or damage may occur. The distance between the ECS-6RM and the ECM Module can be up to 1000ft.



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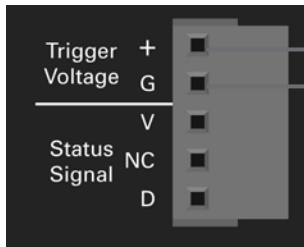


ECM-20 and ECM-20M **20A AC Power Module Spike Suppressors**

ECM Module Activation without using an ECS-6RM Controller

Any of the ECM Modules can be triggered remotely to activate without using an ECS type Controller. If you do not need the features of the ECS controllers, remote activation can be accomplished by applying DC external voltage or by hard switch contacts. **Note:** The EVS and Voltage monitoring will be disabled when not using an ECS controller.

Remote DC Voltage Trigger

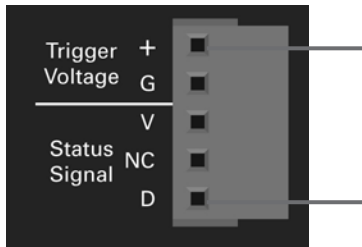


(+) requires a minimum of 5–24VDC to activate the module with 5mA of current. The DVC can be supplied from any source.

Note: The EVS and Voltage monitoring will be disabled

G=Circuit Ground. Must be of the same circuit as the DCV source.

Remote Hard Switch Contact Trigger



An external hard switch will also activate an ECM module by applying a contact to short terminals “+” and “D” together.

Note: The EVS and Voltage monitoring will be disabled.



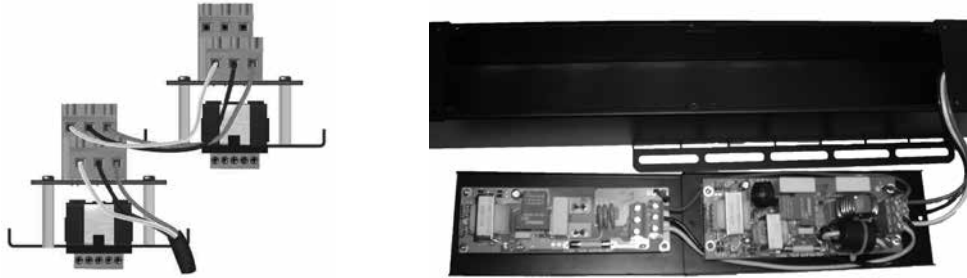
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Wiring the ECM-20/ECM-20M Control Module

The ECM-20/ECM-20M is designed to be inserted in the ECM-RACEWY1, ECM-RACEWY3, or ECM-RACEWY6 housing. The specific job (install) AC power requirements and power distribution layout will dictate how the ECM modules are wired into the housing. Each ECM module can be wired as a single 20A run or in a parallel (loop thru) configuration. Each ECM module has dual 3-position screw terminal blocks that are in parallel and are clearly labeled as follow: E - Green = Ground, L - Black = Load, N - White = Neutral. Follow all local electrical codes. All installation must be done by a certified electrician.



Note: The figures above show the ECM wiring configuration of one 20A AC main line coming into an ECM-20M, then paralleling with an ECM-20 type module. It appears that the wiring is in series but the ECM Module In/Out terminals are in parallel on the PCB.



ECM-20 and ECM-20M **20A AC Power Module Spike Suppressors**

ECM-20/ECM-20M Specifications

Type	AC Power Module Spike Suppressor
RoHS Compliant	Yes
Safety Listings	ETL (UL 60065 Standard)

Front Panel

Outlet	Two 20A
Indicators	Active (Green), Fault (Red) (ECM-20M Only), Incoming AC (Red)
Manual Override	Slide Switch
Connectors	5 Position Phoenix Euro Block Style
Hard Switch Remote Trigger	SPST Contact
Status Signals	Output for Voltage and Current Data (ECM-20M Only)
AC Mains Interconnect	Screw Terminal Block

Technical Data

Current Rating	15A
Operating Voltage	102VAC - 132VAC
Power Consumption	500 milliwatts
Power Requirements	120V 60Hz
Extreme Voltage Shutdown	(EVS) Below 102V or above 132V AC Line (When used with ECM-6RM) (ECM-20M Only)
DCV Remote Trigger	5-24DCV
High Voltage Surge Protection	Trigger at 133VAC, 1ms typically (When used with ECS-6RM) (ECM-20M Only)
Low Voltage Surge Protection	Trigger at 101VAC, 1ms typically (When used with ECS-6RM) (ECM-20M Only)
Spike and Surge Suppression	Hot to Neutral, Hot to Ground, Neutral to Ground
Spike Protection Modes	Circuitry on Incoming AC Mains
Min. Spike Clamping Voltage	460 VRMS @ 3,000 amps
Max. Spike Clamping Voltage	6kV
Max. Spike Clamping Resp. Time	<1 nanosecond
Spike Clamping Voltage @ 100A	1,250Vp for 20 μ s
Maximum Surge Current	6,500A
Energy Rating	600 Joules
Temperature Range	5° – 35°C
Humidity Range	5% to 95% R.H.

Mechanical

Chassis Finish	Black
Mounting	#8 5/16" Self Tapping Screws
Height	3" (76.2mm)
Width	3.5" (88.9mm)
Length	8.5" (215.9mm)
Weight	ECM-20: 1.25 lbs (0.68kg), ECM-20M: 1.75 lbs (.80kg)



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Limited Warranty

All products manufactured by Atlas Sound are warranted to the original dealer/installer, industrial or commercial purchaser to be free from defects in material and workmanship and to be in compliance with our published specifications, if any. This warranty shall extend from the date of purchase for a period of three years on all Atlas Sound products, including SOUNDOLIER brand, and ATLAS SOUND brand products except as follows: one year on electronics and control systems; one year on replacement parts; and one year on Musician Series stands and related accessories. Additionally, fuses and lamps carry no warranty. Atlas Sound will solely at its discretion, replace at no charge or repair free of charge defective parts or products when the product has been applied and used in accordance with our published operation and installation instructions. We will not be responsible for defects caused by improper storage, misuse (including failure to provide reasonable and necessary maintenance), accident, abnormal atmospheres, water immersion, lightning discharge, or malfunctions when products have been modified or operated in excess of rated power, altered, serviced or installed in other than a workman like manner. The original sales invoice should be retained as evidence of purchase under the terms of this warranty. All warranty returns must comply with our returns policy set forth below. When products returned to Atlas Sound do not qualify for repair or replacement under our warranty, repairs may be performed at prevailing costs for material and labor unless there is included with the returned product(s) a written request for an estimate of repair costs before any nonwarranty work is performed. In the event of replacement or upon completion of repairs, return shipment will be made with the transportation charges collect.

EXCEPT TO THE EXTENT THAT APPLICABLE LAW PREVENTS THE LIMITATION OF CONSEQUENTIAL DAMAGES FOR PERSONAL INJURY, ATLAS SOUND SHALL NOT BE LIABLE IN TORT OR CONTRACT FOR ANY DIRECT, CONSEQUENTIAL OR INCIDENTAL LOSS OR DAMAGE ARISING OUT OF THE INSTALLATION, USE OR INABILITY TO USE THE PRODUCTS. THE ABOVE WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Atlas Sound does not assume, or does it authorize any other person to assume or extend on its behalf, any other warranty, obligation, or liability. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

Service

Should your ECM-20/ECM-20M require service, please contact the Atlas Sound warranty department at 1-877-689-8055, ext. 277 to obtain an RA number.

Atlas Sound Tech Support can be reached at 1-800-876-3333.

Visit our website at www.AtlasSound.com to see other Atlas products.

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