



## **FS 12TEN-99**

### *Owner's Manual*



# FS 12TEN-99

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### Introduction

Thank you for purchasing the AtlasIED FS12TEN-99 multi-purpose horn system. The FS12TEN-99 is a two-way, full-range speaker system engineered to applications requiring weather resistance. It was designed to withstand exposure to environmental conditions and provide long-lasting reliability

### Key Features

- Ideal for a Wide Array of Outdoor and Indoor Applications
- Constant Directivity Design Offers Controlled Coverage of 90° Horizontal by 90° Vertical (2KHz Octave Band)
- Includes internal, high efficiency 70.7V / 100V transformer (may be bypassed by 4Ω operation)
- Barrier strip input with weather resistant cover and cable gland
- Flexible Mounting System Ensures Versatile Install Mounting Angles (Bracket included)
- All-Weather Construction Ensures Long-Term Reliability Through Varying Seasons
- Neutral Finish Blends into Any Environment
- Four Eyebolt Inserts for Multiple Mounting Capabilities

### Placement

#### Outdoor Use

The materials used in the construction of the FS12TEN-99 loudspeaker systems are weather resistant. The hardware is stainless steel, the grille is powder-coated aluminum, and the bracket is zinc plated, powder coated steel. The enclosure itself is shatter resistant. Adhering to these mounting guidelines will further extend the life of the product when installed outdoors:

- Whenever possible, mount the horn under an eave or other protective overhang
- Always aim the speaker downward, at a least 15 degrees angle, to prevent water from accumulating on the speaker cone
- Do not place the horn in a location where water, snow, or ice will accumulate on the speaker for extended periods of time

#### Indoor Use

The FS12TEN-99 loudspeaker works very well when it is wall-mounted in indoor applications. When the loudspeaker is placed on a wall, it can take advantage of the natural boundary effect that occurs when a loudspeaker system is placed against one or more surfaces. This boundary effect will provide increased overall output. When mounted against one surface (on a wall), the loudspeaker output will increase by 3dB. When mounted against two surfaces (on the wall near the ceiling or corner), the loudspeaker output increases by 6dB. When mounted against three surfaces (in a corner near the ceiling), the loudspeaker output increases by 9dB.

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### Safety Instructions

Please read carefully before installing or operating.

- Read all instructions carefully
- Heed all warnings
- Assure that the speaker is securely mounted
- Always assure amplifier power is Off before making any connections
- Ensure that all electrical equipment is properly grounded
- Keep instructions for future reference
- Should any questions arise after reading this document, please call AtlasIED Tech Support at 800-876-3333

### Heading Damage

**CAUTION:** All professional loudspeaker systems are capable of generating very high sound pressure levels. Use care with placement and operation to avoid exposure to excessive levels that can cause permanent hearing damage.

### Mounting

Mounting loudspeaker systems require training and expertise. Improper rigging of a suspended loudspeaker may result in injury, death, equipment damage, and legal liability. Installation must be carried out by fully qualified installers, in accordance with all required safety codes and standards at the place of installation.

A 5:1 design factor is a generally accepted minimum standard. However, legal requirements for overhead suspension vary by municipality. Please consult your local safety standards office before installing any product. We also recommend thoroughly checking any laws and bylaws prior to installation.

Loudspeakers flown in theaters, nightclubs, conference centers, or other places of work and entertainment must be provided with an independent, correctly rated and securely attached secondary safety — in addition to the principle suspension point(s). This secondary safety must prevent the loudspeaker from dropping more than 6" should the principle suspension device fail. If you lack the skills, training, and proper ancillary equipment to suspend a loudspeaker system, do not attempt to do so.

For additional information regarding the suspension of loudspeakers or to purchase rigging materials, please contact our friends at Allen Products, Inc.  
1635 E. Burnett St. Signal Hills, CA 90755  
[www.adapttechgroup.com](http://www.adapttechgroup.com)  
Telephone (562) 424-1100 and Fax (562) 424-3520

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### Installation via Mounting Bracket (Included)

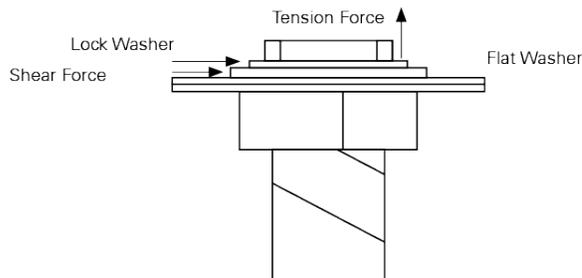
General considerations and hardware recommendations:

**CAUTION:** FS12TEN Series models weigh as much as 50 pounds (22.7 kg) – model FS12TEN-99. A fall from almost any height could result in serious injury or death. Assure that the loudspeaker is firmly mounted to an object that can handle its weight. Remember that wind will add considerable torque to the point of attachment. The mounting surface the FS12TEN loudspeaker is being attached to should be able to handle five or more times the weight of the FS12TEN loudspeaker (7x is recommended for locations subject to high wind forces).

Whenever the loudspeaker is mounted to a surface using the bracket, the installer must ensure that the surface is capable of safely and securely supporting the load. The hardware employed must be safely and securely attached both to the loudspeaker and the surface in question, using only the mounting holes. A general rule for soft surface installations (wood beams) is to multiply the corresponding working load limit by 75%; the result will be an approximate working load strength.

Use thread locking compound for all installations.

**CAUTION:** Mount the speaker such that the shear force is at a right angle to the mounting bolts, and as close to the connection, as shown:



When mounting the FS12TEN loudspeaker to a solid surface use the proper bolts, washers, and lock washers (stainless steel A193 grade B8 is recommended for high strength outdoor installations). Do not substitute mismatched bolts and washers.

The FS12TEN loudspeaker may be mounted to a pole or scoreboard. For such mounting, contact the light pole or scoreboard manufacturer for proper instructions. If mounting to another surface, such as a beam, see the diagram on page 3. When in doubt contact a qualified structural/mechanical engineer for approval of the mounting materials and methods.

## Mounting

**CAUTION:** Mounting the FS12TEN loudspeaker requires two people, unless it is possible to safely clamp the loudspeaker in position for alignment before mounting.

The bracket may be removed from the loudspeaker for installation convenience. When re-attaching loudspeaker to bracket be sure to tightly secure loudspeaker mounting bolts. A semi-permanent thread locking compound should also be used in this operation.

1. Choose the center mounting hole or any two of the 10mm bracket mounting holes best suited for the surface you are mounting to. For best stability using 2 holes is recommended.
2. When using these mounting holes 10mm (stainless steel A193 grade B8 hardware is recommended for high strength outdoor installations). Stainless flat and lock washers must also be used. Remember to use semi-permanent thread locking compound on threads.
3. Use the dimensions noted on the illustration to mark the points for drilling holes.
4. Choose appropriately sized bit and drill holes.
5. Attach loudspeaker bracket, using bolt, flat washer, and lock washer as shown and re-attach loudspeaker to bracket.
6. Secondary (safety) suspension point: Use a load rated cable or steel chain (capable of holding the loudspeaker should it come loose from the primary mounting point). This cable or chain assembly should be attached to and secured to the mounting surface via approved, load rated hardware.

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### Terminal Cover

The FS12TEN-99 includes a weather-resistant terminal cover with cable gland. Remove cover to gain access to the barrier strip. Feed service line through gland before terminating to barrier strip. Secure terminal cover (with gland) over barrier strip when complete. The weather-resistant cover and gland must be used in all applications.

### 4Ω Connections

The FS12TEN-99 loudspeakers include an 4Ω switch position.

**CAUTION:** Do not set switch to 4Ω position when speakers are wired in 70.7V / 100V Systems.

The FS12TEN-99 include a seven pole barrier strip housed by a weather-resistant cover. The barrier strip is designed to accept either spade connectors or bare wire.

Amplifier limitations will dictate how many FS12TEN-99 loudspeakers may be connected. Most consumer amplifiers are rated to operate at a 4Ω minimum output impedance per channel (check the back panel of the amplifier or the amplifier owners manual to verify). With this arrangement, two FS Series loudspeakers may be connected in parallel to each channel of the amplifier (two 4Ω loudspeakers per channel = a 2Ω load). (See Figure 1)

Be sure to use good quality, unshielded twisted pair speaker cable to connect the amplifier to the loudspeaker(s) (#14AWG for runs <80', #12AWG for runs >80'). Standard ZIP style speaker cable may also be used if twisted pair cable is not available.

DO NOT USE SHIELDED INSTRUMENT STYLE (Guitar) CABLES TO CONNECT SPEAKERS.

When making connections, be sure to maintain proper polarity between speakers. (Red wire to red or (+) terminal, black wire to black or (-) terminal where applicable) AtlasIED offers several auto-former speaker selectors (AtlasIED ASL series) and volume controls (Whisper Touch series) that will allow you to connect multiple pairs (up to 4) of 4Ω loudspeakers without damaging your amplifier. Contact your dealer or factory for details.

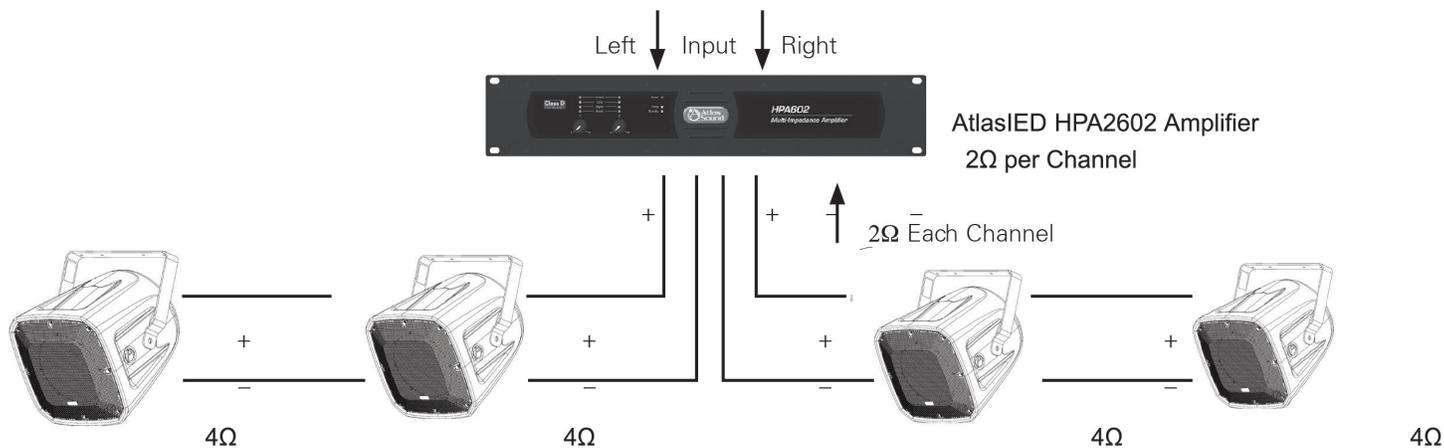


Figure 1

# FS 12TEN-99

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System	
Type	Full-Range, Outdoor, Direct Radiator Loudspeaker
Operation Mode	Non-Powered Passive
Operating Range (-10dB)	57Hz - 18.6kHz
Frequency Response ( $\pm 5$ dB)	80Hz - 17.6kHz
Usable Low Frequency Limit (10dB Down Point)	118 Hz
Input Sensitivity at 1W / 4M EN54-24	84.5dB
Vertical Coverage	90°
Horizontal Coverage	90°
Max Input Ratings (4 $\Omega$ )	400 W Continuous, 40 Volts RMS
Transformer Taps - 70V	400W (12.5 $\Omega$ ), 200W (25 $\Omega$ ), 100W (50 $\Omega$ ), 50W (100 $\Omega$ ) and Low Impedance (4 $\Omega$ )
Transformer Taps - 100V	400W (25 $\Omega$ ) RNP , 200W (50 $\Omega$ ), 10W (100 $\Omega$ ) and Low Impedance (4 $\Omega$ )
Directivity Factor (Q)	22.65 @ 4kHz
Directivity Factor (DI)	13.5 @ 4kHz
Power Handling in 4 $\Omega$ Switch Position	400 Watts
Max SPL at 4m EN54-24 (Passive 400W @ 100V)	106.8dB
Transducer Complement	
LF Transducer Qty and Size	1 x 12" Woofer
LF Voice Coil Size	2.5"
HF Transducer Qty and Size	1 x Compression Driver 1" Throat
HF Voice Coil Size	1.75"
Nominal Impedance (System)	4 $\Omega$
Minimum Impedance (System)	4.1 $\Omega$ @ 1050Hz
Crossover Frequency	1.1 kHz
Crossover Slope	18dB / Octave
Driver Protection (High and Low Frequency)	System Protection Circuit
Enclosure	
Color	Light Grey (Pantone 423 C)
Enclosure Material	LLDPE (Linear Low-Density Polyethylene)
Grille Material	Aluminum
Mount Material	Stainless Steel
Input Connection	7 Pole Barrier Strip with Weather-Resistant Cover
Mounting/Rigging Provisions	6mm Stainless Steel U-Bracket
Ingress Protection EN54-24	IP33C (When Tilted $\geq 15^\circ$ Downwards)
Environmental Testing	MIL-DTL-12606
Logo	2 Sides - Rear Cover and Grill
Product Dimensions (HxWxD)	19.56" x 18.5" x 18.5" (497.84mm x 469.9mm x 496.9mm)
Shipping Dimensions (HxWxD)	24.5" x 23.5" x 23.5" (622.3mm x 596.9mm x 596.9mm)
Net Weight	48 lbs (21.77kg)
Shipping Weight	60 lbs (27.21kg)
Warranty Coverage	
Warranty Period	5 Years

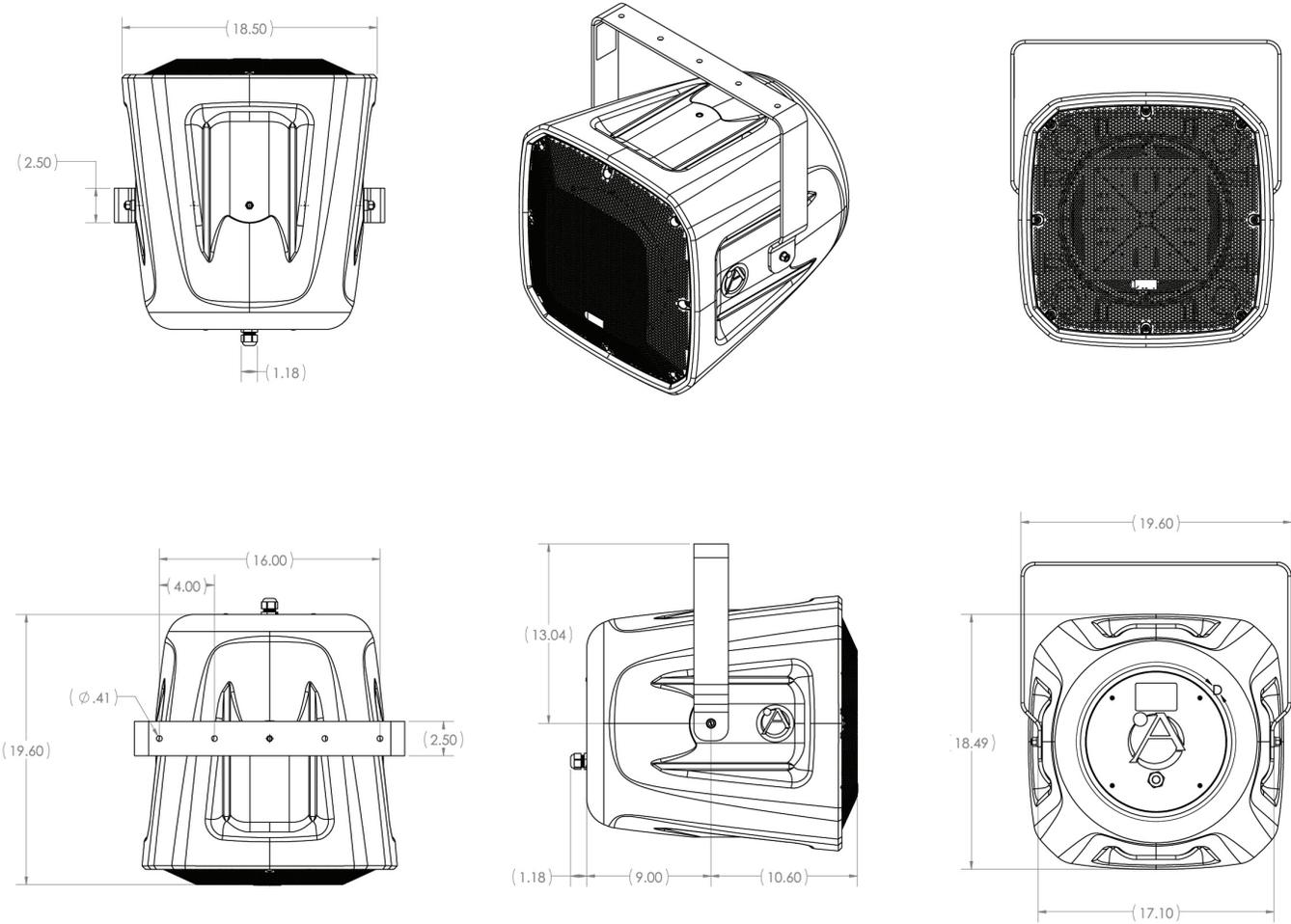
### NOTES:

1. Power: All power figures are calculated using the rated nominal impedance.
2. Frequency response and sensitivity are free field measurements
3. Recommended power amplification is 1.5x program power.
4. RNP - Rated Noise Power

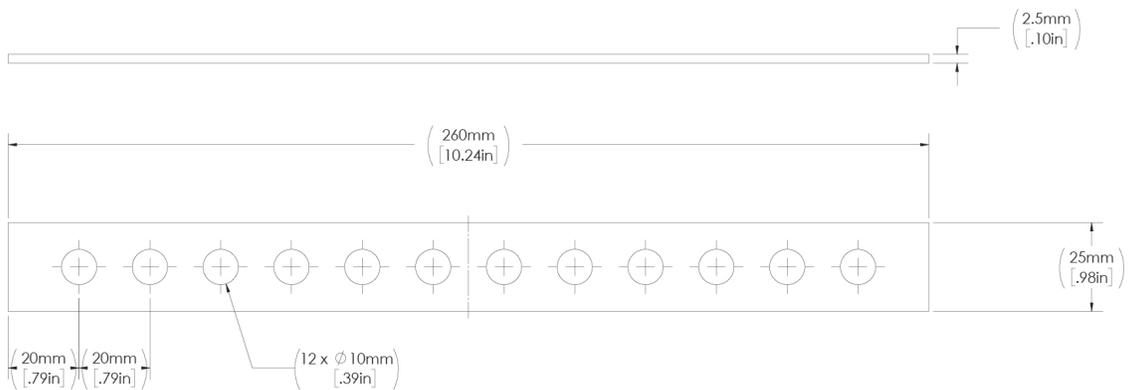
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## Dimensional Drawings



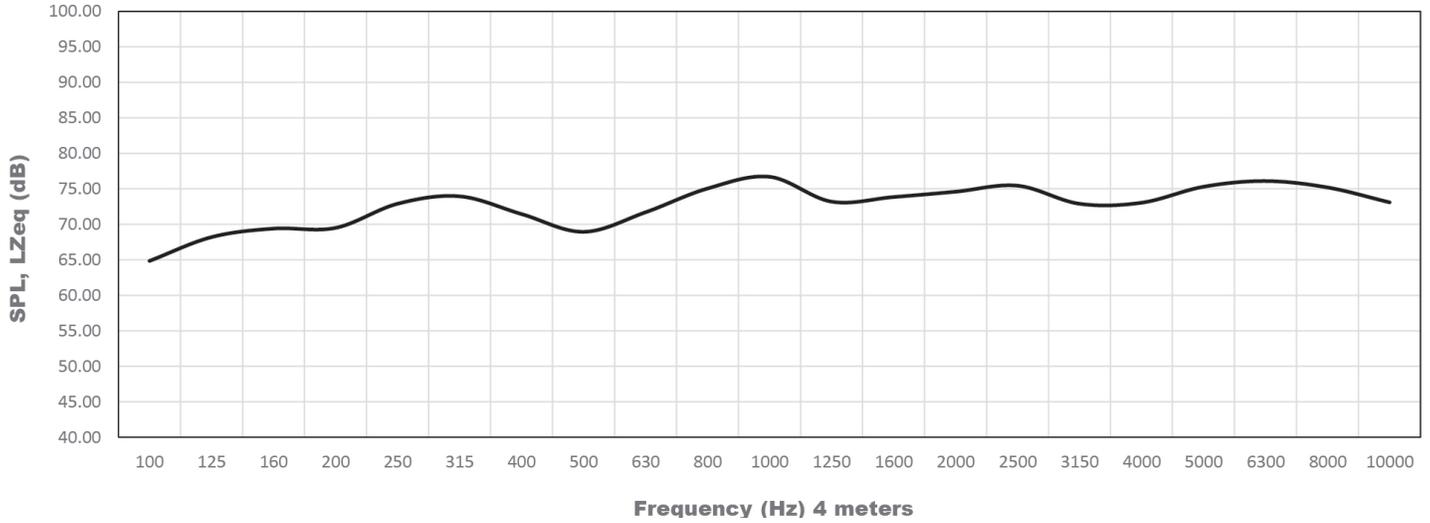
## Angle Set Strap



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## Frequency Response (EN54-24)



Vertical (Figure A)	Declared Coverage Angle	Measured Coverage Angle
Centre Octave Band (Hz)		
500	115	117
1000	65	61.5
2000	70	66
4000	75	74.5

Horizontal (Figure B)	Declared Coverage Angle	Measured Coverage Angle
Centre Octave Band (Hz)		
500	120	118.5
1000	65	63.5
2000	70	67
4000	75	75

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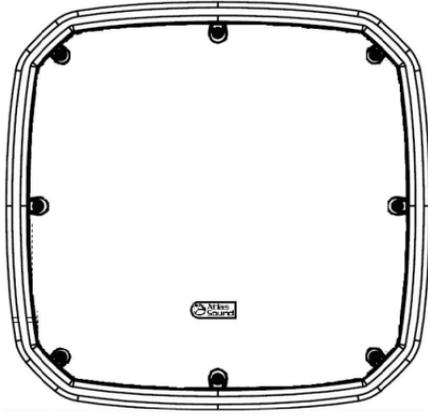


Figure A

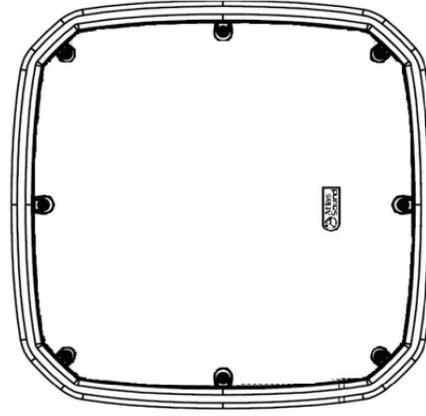


Figure B

Reference Axis - A horizontal line running through the center of the speaker, from back to front.

Reference Plane - The facial plane of the speaker.

Reference Point - The intersecting point of the Reference Axis and Reference Plane.

Horizontal Plane - The horizontal plane across the reference point when the device is placed upright



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## Owner's Manual Limited Warranty

All products manufactured by AtlasIED 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 AtlasIED 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. AtlasIED 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 AtlasIED 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, ATLASIED 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.

AtlasIED 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 FS12TEN-99 require service, please contact the AtlasIED warranty department through the online warranty claim process.

Online Warranty Claim Processes

1. Warranty submissions are accepted at: [https://www.atlasied.com/warranty\\_statement](https://www.atlasied.com/warranty_statement) where the type of return Warranty or Stock return can be selected.
2. Once selected, you will be prompted to enter your login credentials. If you do not have a login, register on the site. If already logged-in, navigate to this page by selecting "Support" and then "Warranty & Returns" from the top menu.
3. In order to file a Warranty Claim, you will need:
  - A. A copy of the invoice / receipt of the purchased item
  - B. Date of Purchase
  - C. The product name or SKU
  - D. The serial number for the item (if no serial number exists, enter N/A)
  - E. A brief description of the fault for the claim
4. Once all required fields are completed, select the "Submit Button." You will receive 2 emails:
  1. One with a confirmation of the submission
  2. One with a case# for your reference should you need to contact us.

Please allow 2-3 business days for a response with a Return Authorization (RA) number and further instructions.

AtlasIED Tech Support can be reached at 1-800-876-3333 or [atlasied.com/support](http://atlasied.com/support).

Visit our website at [www.AtlasIED.com](http://www.AtlasIED.com) to see other AtlasIED products.

A copy of the DoP can be found at [www.AtlasIED.com/FS12TEN-99](http://www.AtlasIED.com/FS12TEN-99)