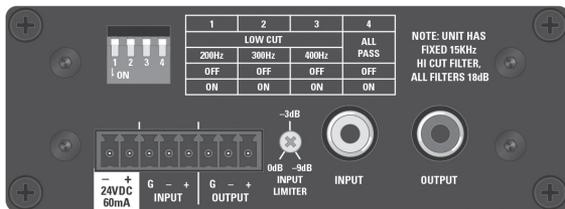




# TSD-HF11 1x1 Paging Horn Crossover and Limiter



1601 Jack McKay Blvd. • Ennis, Texas 75119 U.S.A.  
Telephone: 800.876.3333 • Fax: 800.765.3435

## Description

The AtlasIED Time Saving Device model TSD-HF11 is designed for audio applications that utilize paging horns and require maximum protection from being overdriven. The TSD-HF11 features a 1 Input and 1 Output configuration and includes Input and Output level controls, balanced Phoenix and unbalanced RCA input and outputs, selectable hi-pass filters, a contoured low-pass filter, and a variable output limiter.

The TSD-HF11 can be used with a variety of paging horns and amplifiers. The wide selection of protection settings allows the user to customize a paging system to achieve maximum performance while also achieving the protection level required.

The TSD-HF11 is part of a full line of AtlasIED Time Saving Devices. These compact (1.5" x 4" x 2.5") units are designed to solve some of the common audio system problems in the easiest, most efficient, and cost-effective way. All models are made from high quality components and include removable individual I/O connectors for quick and precise wiring, separate ground terminals for all I/Os assuring secured connections, and removable level controls that can be replaced with tamper-resistant security covers. The TSDs are highly efficient and meet most energy standards as one 24V DC power supply (available separately) can power multiple Atlas Time Saving Devices.

## Features

- Balanced Line Input & Output
- Unbalanced RCA Input & Output
- Selectable Low Cut Filters 200Hz, 300Hz, 400Hz
- Fixed 15KHz Hi-Cut Filter
- All Pass Frequency Mode
- High Gain Balanced Line Output for Long Distance Applications
- Input Signal Indicator LED
- Input Limiter Indicator LED
- Separate Ground Connections
- Security Covers Included for All Front Panel Controls
- Cable Management System
- Multiple Mounting Configurations
- Removable Phoenix Style I/O Connectors
- Meets Most Energy Standards
- Compact Chassis Design

## Audio Applications

- Line Limiter
- Pre-amps

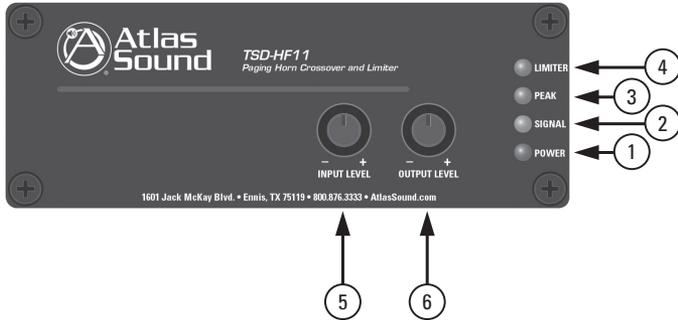
## Installation

- Restaurants
- Sports Complexes
- Schools
- Industrial Facilities



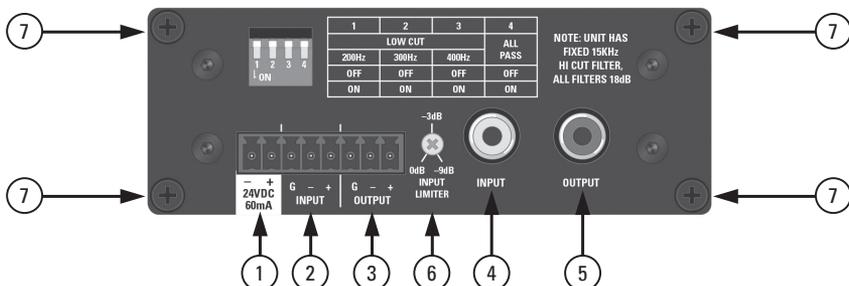
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### Front Panel Description



1. **Power LED** - Illuminates Blue when 24VDC power is present.
2. **Signal LED** - Illuminates Green when the input signal strength reaches 25mV to verify a signal path. **Note:** The LED will not illuminate if the input level is turned Off.
3. **Input Peak LED** - Illuminates Red when the input signal reaches -3dBV before clipping. Occasional flashing is normal but if this indicator is continuously On, then reduce the input level using the input level control on the front panel.
4. **Limiter LED** - Adjustment of the Limiter feature should be done after the input gain has been properly set. The input should be adjusted so the Input Peak LED just flashes on signal peaks. Next, adjust the Input Limiter control so the Limiter LED just flashes, indicating that the limiter circuit is active.
5. **Input Level Control** - Adjusts how much audio signal is applied to the input circuitry. Turn clockwise to increase the signal level and counter-clockwise to decrease it. **Note:** The Input Level Control knobs can be removed and replaced with supplied security covers to prevent unauthorized adjustment.
6. **Output Level Control** - Adjusts the amount of signal at the output. Turn clockwise to increase the output level and counter-clockwise to decrease it. **Note:** The Output Level Control knobs can be removed and replaced with supplied security covers to prevent unauthorized adjustment.

## Rear Panel Description



TSD Input/Output connections are removable for easy system wiring. The connectors have a 3.5mm pitch between pins.

- DC Power Input** - Each TSD that requires DC power comes with a 2 position connector for an external 24VDC power supply (sold separately). Because of the TSD's low power consumption, a single external power supply may power more than one TSD. Please refer to the specifications on current requirements in milliamps to match with the appropriate power supply. Please observe the polarity of the wiring to this connector. **Note:** It is acceptable to exceed the current requirements of the TSDs but NOT safe to use a power supply that is below the current requirement of the device.
- Balanced Line Input** - Balanced Line level signals are connected to this input. Your source connections must be mated properly to the input connector or signal loss and/or noise may be introduced. **Note:** Unbalanced Line level inputs can be inserted by using the following wire configuration, connect the (G) and (-) terminals together.
- Balanced Line Output** - Balanced Line level signals are present on this output when an input signal is present at the input. Your output connections must be connected properly to the connectors or signal loss and/or noise may be introduced to "upstream" devices. **Note:** Unbalanced Line level outputs can be configured by using the following wire configuration, connect the (G) and (-) terminals together.
- RCA Line Input** - Unbalanced Line level signals are connected to this RCA input. Your source connections must be mated properly to the input connector or signal loss and/or noise may be introduced.
- RCA Line Output** - Unbalanced Line level Output signals are present on this RCA Output.
- Input Limiter Control** - This control knob adjusts where the Limiter circuitry starts to reduce the Output Level and must be carefully set. Rotate clockwise to make the limiter more sensitive to input audio signals, thus reducing the Output levels. Rotate counterclockwise to reduce the sensitivity, thus letting larger signal "Peaks" through to the output of the TSD-HF11. See also "Limiter LED" in the previous section for setup instructions.



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7. **Cable Management Retainer Points** - Each TSD includes two cable retainer straps for securing the included cable management retainers. Remove one of the rear panel screws, align the panel hole with a retainer and firmly tighten the screws.

## Dip Switch Function Identification

SWITCH FUNCTIONS

1	2	3	4
LOW CUT			ALL PASS
200Hz	300Hz	400Hz	
OFF	OFF	OFF	OFF
ON	ON	ON	ON

## Switch Position

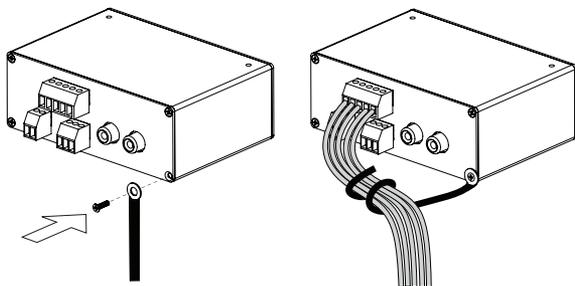
- Dip Switch # 1 - 200Hz Low Cut, place switch in the down position to activate the filter.
- Dip Switch # 2 - 300Hz Low Cut, place switch in the down position to activate the filter.
- Dip Switch # 3 - 400Hz Low Cut, place switch in the down position to activate the filter.
- Dip Switch # 4 - All Pass - No Hi Cut filter is active when the switch is placed in the down position.

**Note:** Hi Cut 15KHZ filter is always active.



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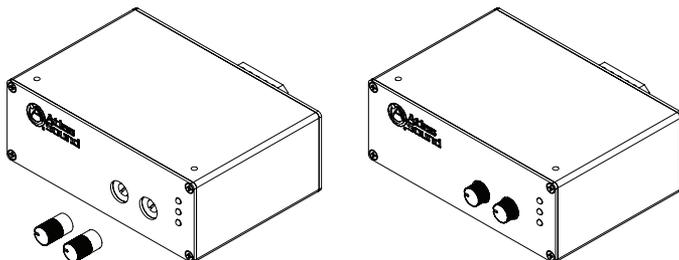
## Cable Management



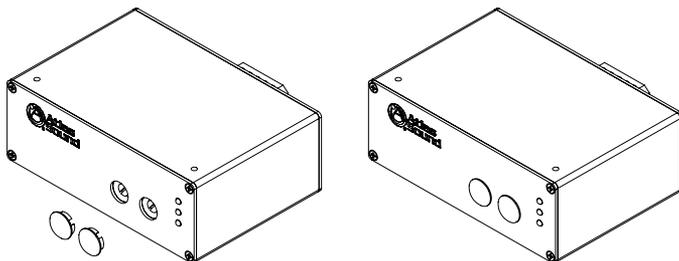
## Knob and Security Cover

All front panel level controls feature a removable knob that can be replaced with an included security cover. Follow these steps to prevent potentiometer damage or unwanted changes.

1. Knob Installation - Turn the potentiometer shaft fully counter-clockwise. Align the knob indicator to the lowest setting on the panel and the potentiometer shaft slot. Carefully press the knob onto the potentiometer shaft. Do not force or damage may occur to the potentiometer.



2. Security Cover Installation - Remove the knob from the panel and insert the cover. Small pliers may be required to remove the knobs. Align the security cover to the level control panel hole. Push the cover into the hole until it snaps into place. Do not force or damage may occur to the potentiometer.

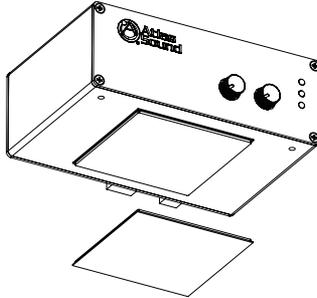


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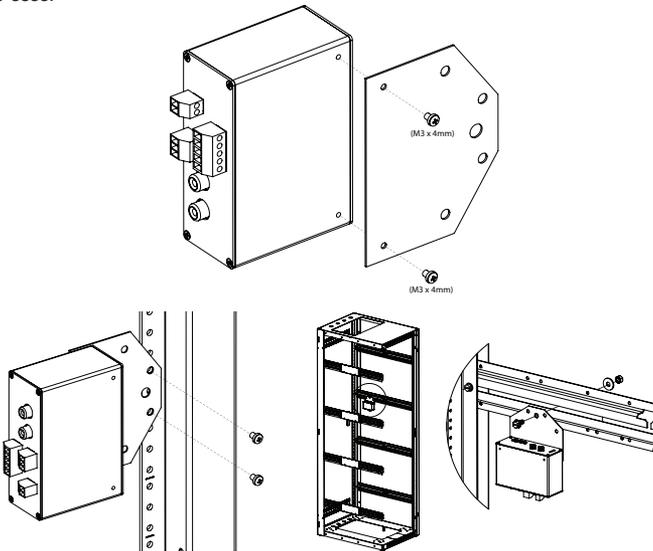
## Mounting

Listed below are the ways to mount the TSD and the optional accessories that can be purchased.

1. Velcro™ - Each unit includes two 2" x 2" pieces of industrial-grade Velcro™ with adhesive backing to adhere to any flat surface. Clean all surfaces before applying the adhesive side of the Velcro™.



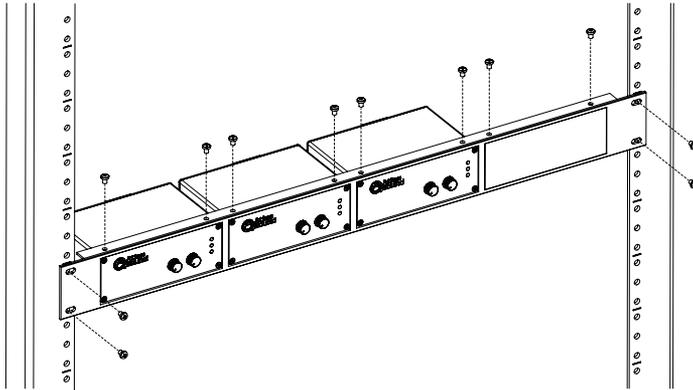
2. Multi Mount Plate - Each TSD includes a versatile multi-position mounting plate. This plate allows the TSD to be mounted to any surface; but is ideal for use with rear rack rails or side rack hat channels. Use the included M3 x 4mm screws to install the plate on the TSD. **Note:** Only use the included M3 x 4mm screws as other screws may be too long and will cause internal damage to the TSD. The multi-position mounting plate is a new addition being included with TSDs. If the TSD being used did not include the mounting plate, contact AtlasIED customer service at 1-800-876-3333.



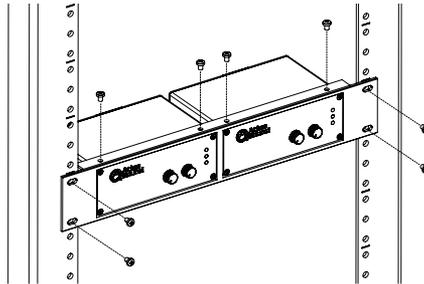
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## Optional Mounting Accessories

1. TSD-RMK 19" Width Rack Mount Kit - For 19" rack mounting, AtlasIED offers an optional rack mount kit, the TSD-RMK. This rack mount kit can support up to four TSD units. The kit includes three blank panels designed to fill any unused slots. Use the included hardware to mount the TSD into the rack mount kit using the top mount screw holes on the TSD.

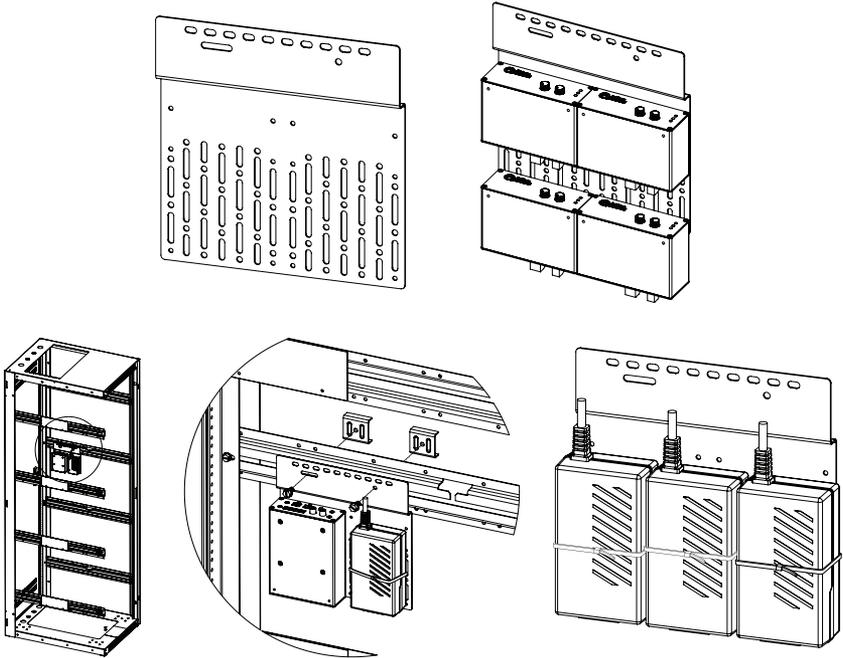


2. TSD-RMKHR Half Width Rack Mount Kit - AtlasIED offers an optional rack mount kit that can be used in half width rack applications including the AtlasIED WMA-HR and AWR-HR models. The TSD-RMKHR can support up to two TSDs. Included is an extra blank panel to fill one of the spaces if only one TSD is being used.

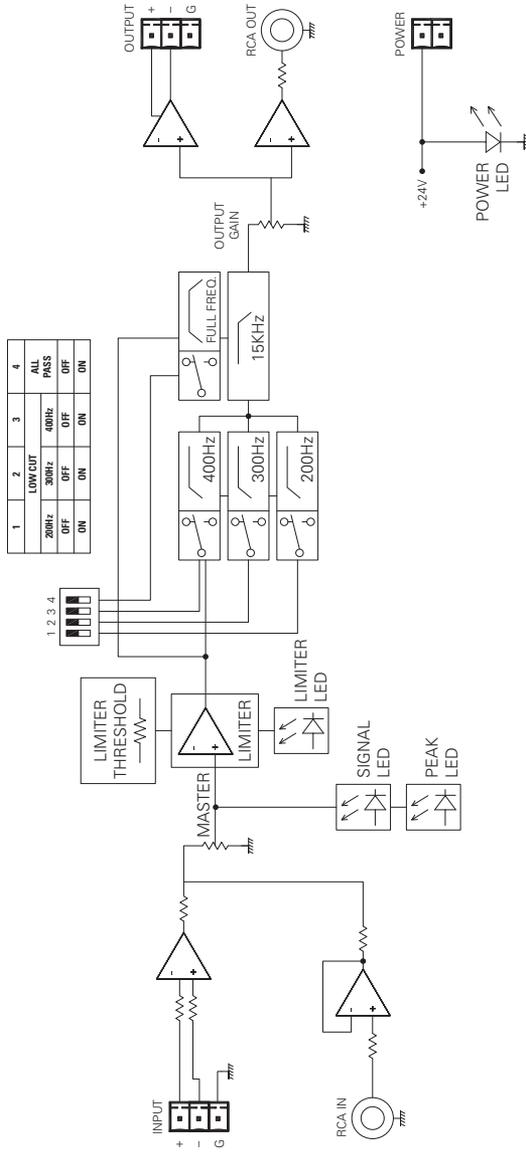


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3. TSD-RRMK Rear Rack Mounting Kit - For complete flexibility in mounting a TSD or TSD external power supplies the optional TSD-RRMK is available. The TSD-RRMK can support mounting of either two larger TSDs with external power supplies or up to 4 TSD models. **Note:** Only use the included M3 x 4mm screws as other screws may be too long and will cause internal damage to the TSD.



Block Diagram



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**Specifications**

Description	1 x 1 Paging Horn Crossover and Limiter
Chassis Color	Black
Chassis Material	Aluminum
<b>Inputs</b>	
Type	Qty 1, Unbalanced
Connection	RCA
Impedance	10k $\Omega$
Input Level	316mV (-10dBV) = 1V (0dBV) Unbalanced RCA Output, Maximum Input 3V (9.5dBV)
Type	Qty 1, Balanced Line
Connection	Removable 3 Position Captive Screw 3.5mm Spacing
Impedance	10k $\Omega$ Balanced
Line Input Level	1V (0dBV) Balanced = 2V (+6dBV) Balanced Output, Maximum Input 6V (15.5dBV)
<b>Outputs</b>	
Type	Qty 1, Unbalanced
Connection	RCA
Impedance	150 $\Omega$
Input Level	316mV (-10dBV) RCA Input = 1V (0dBV) RCA Output, Maximum Output 7V (16.9dBV)
Type	Qty 1, Balanced Line
Connection	Removable 3 Position Captive Screw 3.5mm Spacing
Impedance	300 $\Omega$ Balanced
Line Input Level	1V (0dBV) Balanced Input = 2V (+6dBV) Balanced Output, Maximum Output 12.5V (17dBV)
<b>Controls</b>	
Input Level Control	Qty 1, Removable Knob with Security Cover
Output Level Control	Qty 1, Removable Knob with Security Cover
Input Limiter	Threshold Adjust
<b>Dip Switch Function</b>	
Dip Switch # 1	200Hz Hi Cut / 18dB
Dip Switch # 2	300Hz Hi Cut / 18dB
Dip Switch # 3	400Hz Hi Cut / 18dB
Dip Switch # 4	All Pass
<b>Indicators</b>	
Input Signal	Green, 25mV ON Threshold, Qty 1
Input Peak	Red, -3dB Before Clip, Qty 1
Limiter	Yellow, Limiter Activation, Qty 1
Power	Blue, Qty 1



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**Electrical**

Frequency Response	Related to Dip Switch Settings, All References -3dB, Filters 18dB per Octave
	<ul style="list-style-type: none"> <li>• 200Hz - 15KHz</li> <li>• 300Hz - 15KHz</li> <li>• 400Hz - 15KHz</li> <li>• All Pass - 20Hz - 15KHz</li> </ul>
THD	.06% @ 1kHz
Noise, Maximum	450uV (-99dBV)
Input Limiter	Hard Limiter Potentiometer Position
	<ul style="list-style-type: none"> <li>• FCCW 0dB = 0dB</li> <li>• 12 O'clock = - 4dB +/-1dB</li> <li>• FCW -dB = -8dB</li> </ul>

**Power Requirements**

Voltage	24VDC, 35mA, Removable 2 Position Phoenix
Power Consumption VA Watts	1.6W
Dimensions	H 1.5" (39mm) x W 4" (101mm) x D 2.5" (70mm)
Weight	6oz, .165kg

**Included Accessories**

Velcro™	Industrial-Grade
Multi-Mount Plate	Qty 1, Includes Two (2) M3 x 4mm Screws
Cable Retainers	Qty 2
Level Control Knobs	Qty 2
Level Control Security Covers	Qty 2

**Optional Accessories**

TSD 24VDC	Power Supply
TSD-RMK	1 RU 19" Width Rack Mount Panel (Supports 4 TSD Units)
TSD-RMKHR	1 RU Half Rack Width Panel (Supports 2 TSD Units)
TSD-RRMK	Rear Rack Mounting Kit

**Safety and Certifications**

External Power Supply	cUL, CE, RoHS, TUV
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## 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 Atlas TSD require service, please contact the AtlasIED warranty department at 1-877-689-8055, ext. 277 to obtain an RA number.

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

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

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