

REL





Operating Instructions for the

Predator HT/1510 Sub-Bass System

## **Caution Marking Explanation**





The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of un-insulated 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 appliance.

# **Important Safety Instructions**

- 1 Read all of these instructions.
- 2 Save these instructions for future use.
- 3 Heed all warnings.
- 4 Follow all instructions.
- 5 Do not use this apparatus near water.
- 6 Clean only with automotive polish and micro fiber cloth.
- 7 Install in accordance with the manufacturer's instructions.
- 8 Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
- 9 Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult and 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 apparatus.
- 11 Only use attachments/accessories specified by the manufacturer.
- 12 Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- 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 rail or moisture, does not operate normally, or has been dropped.

- 15 Minimum distances 10cm around the apparatus for sufficient ventilation.
- 16 WARNING: The main plug/appliance coupler is used as the disconnect device. The disconnect device shall remain readily operable.
- 17 CAUTION: To completely disconnect this product from the mains, disconnect the plug from the wall socket outlet. The mains plug is used to completely interrupt the power supply to the unit and must be within easy access by the user.
- 18 The equipment can be used at the maximum ambient temperature of 86 deg. F (30 deg. C).
- 19 Class I equipment, Protective earthing is used as a safeguard, shall require connection of equipment protective earthing conductor to the installation protective earthing conductor.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

# Warning

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on apparatus.

The mains plus is used as disconnect device. The mains plug of the apparatus should not be obstructed OR should be easily accessed during intended use. To be completely disconnected from the power input, the mains plug of the apparatus shall me disconnected from the mains.

An appliance with a protective earth terminal should be connected to a mains outlet with a protective earth connection.

# **Design Safety**

This apparatus is supplied with a detachable mains cord. For 240V operation an 8A fuse is fitted in the socket, for 120V operation a 15A fuse is fitted. Should the fuse need to be replaced use a similar rated fuse approved to ASTA or BSI 362 standards. Do not use without the fuse cover in place. Replacement fuse covers are available from your distributor.





L'éclair avec le symbole de pointe de flèche dans un triangle équilatéral est destiné à alerter l'utilisateur de la présence de non isolée tension dangereuse à l'intérieur de l'enceinte du produit qui peut être d'une ampleur suffisante pour constituer un risque d'électrocution pour les personnes.



Le point d'exclamation dans un triangle équilatéral est destiné à alerter l'utilisateur de la présence d'instructions dans la documentation accompagnant l'appareil exploitation et de maintenance (entretien).

# Informations Importantes Relatives a la Securite

- 1 Lisez attentivement ces instructions.
- 2 Conservez ces instructions.
- 3 Respectez tous les avertissements.
- 4 Suivez toutes les instructions.
- 5 Ne pas utiliser cet appareil près de l'eau.
- 6 Nettoyez seulement avec du vernis automobile et tissu microfibre.
- 7 Installer conformément aux instructions du fabricant.
- 8 Ne pas installer près de sources de chaleur telles que des radiateurs, registres de chaleur, poêles ou autres appareils (y compris les amplificateurs) qui produisent de la chaleur.

- 9 Ne pas contourner le dispositif de sécurité de la prise de terre. Une fiche de terre a deux lames et une troisième broche de mise à la terre. La troisième broche est fournie pour votre sécurité. Si la fiche fournie ne rentre pas dans votre prise, consultez un électricien pour le remplacement de la prise obsolète.
- 10 Protégez le cordon d'alimentation ne soit piétiné ou pincé, en particulier au niveau des fiches, des prises de courant, et le point de sortie de l'appareil.
- 11 Utilisez uniquement des fixations/accessoires spécifiés par le fabricant.
- 12 Utilisez seulement avec un chariot, stand, trépied, support ou table spécifié par le fabricant, ou vendu avec l'appareil. Lorsque vous utilisez un chariot, soyez prudent lorsque vous déplacez l'ensemble chariot / appareil pour éviter les blessures en cas de chute.



- 13 Débranchez cet appareil pendant un orage ou lorsqu'il est inutilisé storsm pour de longues périodes de temps.
- 14 Confiez toute réparation à un personnel qualifié. Une réparation est nécessaire lorsque l'appareil a été endommagé de quelque façon que ce cordon d'alimentation ou la fiche est endommagé, du liquide a été renversé ou des objets sont tombés dans l'appareil, l'appareil a été exposé à rail ou à l'humidité, ne fonctionne pas normalement, ou a été échappé.
- 15 10cm distance minimale autour de l'appareil pour une aération suffisante.
- 16 AVERTISSEMENT: Le coupleur principal de prise/appareil est utilisé comme dispositif de déconnexion. Le dispositif de déconnexion doit rester facilement utilisable.
- 17 ATTENTION: Pour déconnecter complètement ce produit du secteur, débranchez la fiche de la prise murale. La fiche secteur sert à interrompre complètement l'alimentation électrique de l'appareil et doit être facilement accessible par l'utilisateur.
- 18 L'équipement peut être utilisé à une température ambiante maximale de 86 deg. F (30 deg. C).
- 19 L'équipement de classe I, la mise à la terre de protection est utilisée comme protection, doit nécessiter la connexion du conducteur de mise à la terre de protection de l'équipement au conducteur de mise à la terre de protection de l'installation.

Attention: Tout changement ou modification non expressément approuvés par la partie responsable de la conformité pourraient annuler l'autorité de l'utilisateur à utiliser cet équipement.

#### **Avertissement**

Cet article est lourd. Pour éviter tout risque de blessure, prendre soin lors de la manipulation.

L'appareil ne doit pas être exposé à des éclaboussures et aucun objet rempli de liquide, comme des vases, ne doit être placé sur l'appareil.

Les conduites Plus est utilisé comme dispositif de déconnexion. La fiche de l'appareil ne doit pas être obstruée OU doit être facilement accessible pendant l'utilisation. Pour être complètement déconnecté de l'alimentation électrique, le cordon d'alimentation de l'appareil doit me débranché.

Un appareil avec une borne de terre doit être branché sur une prise de courant en étant relié à la terre.

## Sécurité Design

Cet appareil est livré avec un cordon amovible cordon. Pour le Fonctionnement d'un fusiblede 240V 8A est montee la douille, pour le fonctionnement de 120V un fusible de 15A est monté. Si le fusible doit être remplacé utilisation un fusible similaire approuvé pour ASTA ou BSI normes 362. Ne pas utiliser sans le couvercle de fusible en place. Les couvercles de rechange sont disponibles auprès de votre distributeur.

#### **FCC STATEMENT**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

# **Dear Friend and Valued Customer**

#### Dear Predator Owner,

Welcome, and congratulations on your purchase of a new HT/1510 Predator, the flagship of our Home Theatre HT range of REL's subwoofers! The original HT/1508 Predator bowed to instant recognition that, here was a new category of large scale, theatre-busters. For years, that category had been dominated by loud, heavy, slow subs that fostered the notion that big theatre was nothing more than an excuse to make loud sounds. Whereas, those of us who have been around theatre sound from the other side of the mastering console know how much detail and nuance goes into the making of film sound. Here finally, in Predator, was a sub that was lightning quick, yet with a large 15" driver and 800 watts behind it, could roll with the best, but had speed, insight, nuance.

And now get ready for something even more remarkable. HT/1510 Predator builds on where the original left off. We stepped up to a full 1,000 watt amplifier because theatre sounds best when amplifier and driver are cruising along effortlessly. The extra power allows for headroom, additional output and the sense that you'll likely run out of ears before it runs out of power. Adding to this are new versions of our LimitLess™ max volume limiters. These are now so transparent that it becomes difficult for even seasoned professionals to detect when they engage. Again, it makes movies at home more relaxing as there's nary a moment when the Predator limiters kick in and even when they do, you likely still won't detect it.

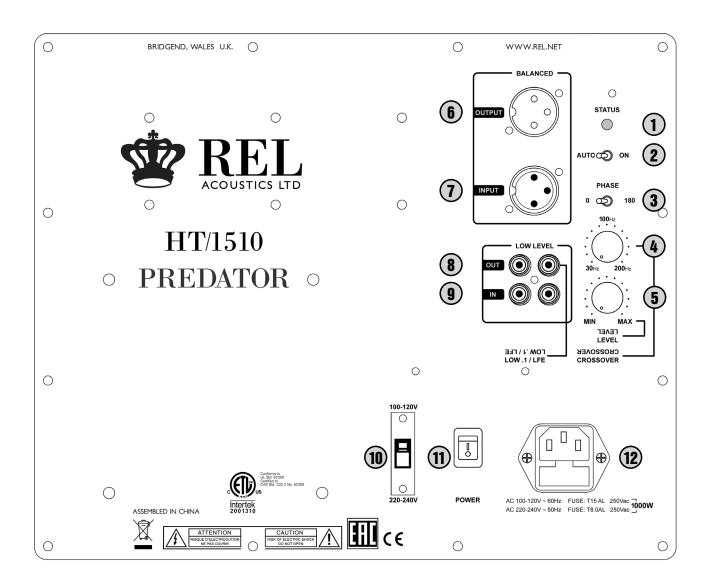
The CarbonGlas™ 15" driver has been retained with even greater power handling for obvious reasons. Speed is at the heart of this dreadnaught, but also wide bandwidth since we know that for theatre effects to sound shattering, the subwoofer, while still properly crossed over quite low, must be able to permit the crack at the outset of explosions to emerge unhampered. This necessitates the light weight but also the upper frequency bass region to be properly handled. True carbon fibre holds everything together with a large, stiff center cap that adds little weight but produces the Craack! needed to be convincing.

This new Predator is imbued with elegant proportions and beautiful finish treatments, the better to integrate into REL 3D and HT/3D systems. These call for powerful HT .1/LFE along with High Level Inputs available in our traditional model RELs that permit continuous full range bass; this is the missing link in home theatre. Conventional home theatre typically delivers cold, artificial vocals followed by loud, even annoying, bass. REL 3D/HT3D delivers rich, natural dialogue and engaging, spatially-correct Foley Effects, coupled with prodigious .1/LFE infra-bass.

HT/1510 Predator, welcome to the new era of home theatre.

# **REL Predator Rear Panel Connection Legend**

- 1 Power Pilot Light: Power On/Off indicator.
- 2 Auto/On Switch: Used to toggle between Auto On mode (left), and Always On (right).
- **3 Phase:** Used to set phase 0-180 degrees.
- **4 Crossover:** Used to adjust crossover frequency. Variable between 30-200Hz.
- **5 Level:** Volume control for Input.
- **6 XLR Output:** Used to connect or "daisy chain" to another REL in tandem.
- **7 Balanced XLR Input:** Used to connect balanced low-level signals to the Predator from the output of a preamplifier, integrated amplifier, or receiver.
- **8 RCA Output:** Used to connect or "daisy chain" to another REL in tandem.
- **9 Left & Right Channel Low-Level RCA Input:** Used to connect low-level signals to the sub-bass system from the output of a preamplifier, integrated amplifier or receiver (for home cinema use, use .1/LFE input).
- 10 Mains Select Switch: Slide switch used to set input AC between 120VAC and 230VAC.
- 11 Power On/Off Switch: Use to turn unit on or off.
- **12 IEC Mains Socket:** Fused mains (AC) input socket that accepts detachable power cord.



# **Connecting Up**

Always switch off your system before disconnecting any wires.

To simplify and to increase the versatility of connecting, the Predator models have two low-level RCA inputs as well as an XLR input. This is to facilitate ability to use with AV surround sound systems, two-channel stereo systems and powered speakers.

#### **Low-Level Inputs**

## .1/LFE Input

There is a single RCA jack labeled .1/LFE for LFE connection to a processor. Plug one end of the RCA to RCA cable into the .1/LFE jack of the REL and the other end into the SUB OUT Jack of your processor.

There is also a single XLR .1/LFE input for processors that provide this signal as a balanced output.

# Stereo L/R Input

The dual RCA jacks can be used for stereo low-level connection to the output a stereo processor source or powered speakers. When using stereo inputs, plug one end of the RCA to RCA cables into both of the LOW LEVEL INPUT jacks of the REL and the other end into the left and right channel output of your preamplifier.

The upper frequency amplification of these inputs can be limited using the CROSSOVER control. This CROSSOVER control is labeled 30Hz at its minimum. Rarely should the CROSSOVER control be set to it's maximum 200Hz setpoint when using either LFE or stereo inputs.

Both the RCA and XLR inputs have corresponding output connections so that multiple RELs can be run in parallel by connecting the OUT of one the IN of the next. This is what we refer to as "daisy chaining".

Please note that the type of input must be maintained for daisy chaining. If the input is in the RCA, the XLR OUT cannot be used to connect to the next amp and vise versa.

#### **Phase Switch**

The phase control on a REL has two positions, 0 and 180. One of these positions will set the REL in phase with the speakers, and one will set it out of phase. The labels 0 and 180 are just labels and tell us nothing about the rest of the system, only if the REL is working with the speakers or not. Whichever position results in the loudest and fullest sub bass, is the correct position.

We want the REL to work in harmony with the speakers, reinforcing bass, not cancelling it. In other words, we want the drivers in the speakers and the REL to move forward at the same time and move backward at the same time. When this happens, it results in an increase in sub bass volume and the pressurization in the room and they are in phase. The opposite is if the speakers and REL are working against each other causing cancelation of low bass. We call this out of phase

# **REL Set-Up Made Simple**

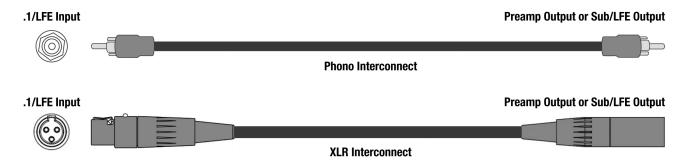
With the REL Predator, there are two basic ways to connect and setup. The first is a single channel input from the sub out of a theater or power speaker system. In this case a single RCA cable is needed. The second is a stereo input from a stereo preamp or powered speaker system. Here there will be the need for two RCA cables. In both cases the user can set the upper frequency limit using the CROSSOVER control.

## **Connecting and Setting Up**

Place in desired position. While your REL has been designed to be extremely easy to position and achieve excellent results, careful placement along the same wall as the screen will yield improvements. Listen for increases in deep bass output as well as precision of bass notes when setting up.

# 1 Theater Connection (Sub Out Connecton)

• Connect RCA or XLR cable from Sub Out of theater processor to LFE input of Predator.



- Adjust CROSSOVER control to 30Hz (minimum).
- Adjust LEVEL control to 1/4 of the rotation up from minimum setting.
- Plug in AC cord.
- Power on with switch next to AC input.
- Set toggle below STATUS light to ON.
- Fine tune LEVEL control using a known powerful .1 chapter to make sure your setting is not too high or damage can occur.
- Adjust CROSSOVER control lower to eliminate upper bass boom.
- DO NOT TURN CROSSOVER UP PAST 1/2 the rotation. Doing so is unnecessary and may result in damage to the driver.

## 2 Stereo Connection (Powered Speaker Connection)

• Connect RCA from output to right input for mono or both left and right for stereo.

# Low Level Input Right Phono Interconnects Left

- Adjust CROSSOVER control to 30Hz (minimum).
- Adjust LEVEL control to 1/4 of the rotation up from minimum setting.
- Plug in AC cord.
- Power on with switch next to AC input.
- Set toggle below STATUS light to ON.
- Fine tune LEVEL control to blend with powered speakers.
- Fine tune CROSSOVER control to blend.
- Note that CROSSOVER and LEVEL become inverse. Meaning, as you turn up the CROSSOVER, you will
  need to turn down the LEVEL.
- DO NOT TURN CROSSOVER UP PAST 1/2 the rotation. Doing so is unnecessary and may result in damage to the driver.
- Place carefully: While your REL has been designed to be extremely easy to position and achieve excellent results, careful placement along the same wall as the screen will yield improvements. Listen for increases in deep bass output as well as precision of bass notes when setting up.

#### 3 Phase Orientation

Once connected, we need to adjust for phase. This may be the single most critical step, and because it really is quite simple, it is often over-thought. Keep in mind; the right phase is whichever position is the loudest or fullest. While playing music with true low bass, adjust the crossover to a point where the REL and the speaker are sure to share frequencies at 50Hz on the crossover control, or slightly higher for smaller speakers. At this point turn the HI/LO LEVEL control up so that both the REL and speaker are roughly equal in volume and then switch, using the phase switch, from "0" to "180" phase positions. Again, whichever position is loudest or fullest is the correct position. That is, when the position is working in harmony with your main speakers, reinforcing bass, not canceling it.

# **4 Crossover and Level Settings:**

To determine the crossover point, take the volume of the REL (using the Level control) all the way down, and put the crossover to 1/4 of the rotation. At this point, bring the REL's volume back up slowly to the point where you have achieved a subtle balance, i.e. the point at which you can just hear the Predator even with the main speakers playing. First, bring the crossover point up until it is obviously too high; now gently reduce frequency to the appropriate setting. For all intents and purposes, this is the correct crossover point. Once this stage has been reached, subtle changes to volume and crossover may be accomplished to provide the last bit of complete and seamless integration. With that, set-up is complete.

Hint: There may be a tendency to set the crossover point too high and the volume of the Sub-Bass System too low when first learning how to integrate a REL with the system, the fear being one of overwhelming the main speakers with bass. In making this common error, the resulting set-up will be lacking in bass depth and dynamics. The proper crossover point and volume setting will increase overall dynamics, allow for extended bass frequencies, and improve soundstage properties. Note, volume adjustments may need to be made to offset the effects of crossover changes. In general, when selecting a lower crossover point, more volume may need to be applied. Higher crossover frequencies will generally necessitate less gain.

# **Stacking**

The Predator was designed to stack cabinets on top of each other to create a line array. Each foot has a pad on the bottom to protect the vinyl on the top. Please remove the plastic covering on the pad before stacking and take care to place the second sub on top of the first carefully to not scratch polished top plate.

Straps are provided to secure the top sub to the bottom sub safely. These are made of thick aluminum and strap the subs together using the hardware provided. The fasteners require a 6mm hex wrench to tighten.



We strongly advise purchasing furniture restraints from a quality supplier to anchor stacks of Predators to a wall. Use a quality furniture restraint made of nylon webbing or braided steel cable. Please follow the instructions of the restraint you choose and anchor to a structural portion of a wall.

https://www.consumerreports.org/furniture/how-to-anchor-furniture-to-help-prevent-tip-overs-a4328328212/

To operate multiple stacked Predators in parallel, REL has provided duplicate RCA and XLR connectors to go OUT of the bottom sub to the input of the top. This is provided for convenience to simply "daisy chain" from one sub to the next with RCA or XLR cables rather than employing multiple "Y" cables.

Please note that the type of input must be maintained for daisy chaining. If the input is in the RCA, the XLR OUT cannot be used to connect to the next amp and vise versa.

### **Running In**

Care taken during run in will be rewarded by many years of pleasurable use. Both the electronics and the drive unit will benefit from an initial period of carefully controlled use. Possible damage may be sustained by running in the unit at too high a volume setting over an extended period. On the other hand, by taking a little care over this initial period, about 24 hours of actual use, a longer life with a higher potential eventual performance is assured.

## **Care and Polishing**

The cabinets are best maintained by using only a damp cloth on the vinyl. For the top, please use automobile polish made by reputable manufacturers. Our favorites are those made by Meguiars and Mother's. If objects are to be placed upon the top, it is advisable to use a small mat to protect the surface and to avoid the risk of rattles.

# **Technical**

The Predator employs an advanced filter circuit which provides exceptional performance when coupled to the rest of the signal chain of the Sub-Bass System.

The amplifier is inherently stable and will retain its characteristics over very long periods of time – important in a unit designed for an exceptionally long working life. These amplifiers are designed to withstand reasonable abuse and overloads. If in doubt, please contact your dealer.

We believe that the importance of the electronics, cabinet and drivers being designed to work in harmony is paramount. This belief allows Predator to achieve the highest possible level of fidelity.

#### **Overload Protection**

All REL Sub-Bass Systems are designed as true sub bass speakers. They are designed to reproduce those exceptionally deep notes that are felt as well as heard. This it will attempt to do at whatever volume level you set. If set too high no damage should result because the built-in electronics will limit the cone movement. This electronic control is called Set-Safe™. It constantly and instantaneously monitors the output from the power amplifier and is totally transparent in operation until required. This means it has absolutely no effect on the sound quality of your REL until an overload is detected.

Ordinarily an overload would cause the power amplifier to go into clipping with resultant loss of control over the drive unit. This can cause drive unit damage, and always sounds nasty. Set-Safe™ detects the point of incipient clipping and gently soft-clips the waveform of the signal to ensure actual clipping does not occur.

This is a necessarily simplified description of what actually happens, but in effect, Set-Safe™ controls the amplifier and ensures there is minimum risk of amplifier and driver damage caused by over-driving.

A thermal overload device is fitted to all Predator Sub-Bass Systems. If the unit is deliberately over-driven this device will sense the temperature rise and cut the output; recovery time is approximately five minutes. If this happens, it is a warning that the unit is being over-driven and the volume level control should be reduced to a safe level.

Although everything possible has been done to minimize risk of thermal overload failure, there can be no defense against those individuals who deliberately abuse the device. Such damage is NOT covered by warranty. Please remember your REL is there to supplement your main system, not overwhelm it!

## **Power Saving Efficiency**

All REL sub bass system designs utilize a true Power On-Off switch that affords the owner the ability to turn off their unit completely, without having to unplug the A/C mains cord. When a REL sub bass system is switched off using the Power On-Off switch on the rear panel it draws ZERO power.

In addition to the power switch there is an ON/AUTO mode switch has two positions. Left is AUTO and right is ON.

The Predator features an AUTO standby mode that is enabled when the power mode switch on the rear of the unit is set to the "AUTO" position. In this mode, the input signal is constantly monitored for audio activity. If not audio information is detected over a period of 30 minutes, the unit will enter a low power standby mode in which less power is consumed. When input signal activity is detected, the unit resumes normal operation. By using the standby mode, you can ensure that there is no unnecessary power draw when the unit is not in use.

**Note:** Due to variations in program material, it is impossible to produce a perfectly reliable standby circuit. Bass rich music or effects will consistently trigger our standby circuit whilst content that is low in volume and possesses little or no bass cannot be relied upon to trip the standby function.

Alternatively, the user has the option to leave the unit in the normal operation mode at all times by selecting the "ON" position of the power mode switch. Leaving a REL on produces the best sonic performance and the most reliable operation. In this mode, the unit will not enter standby regardless of whether or not there is activity at the input. Using this setting ensures that the Predator is ready to react instantaneously to bass transients, whether in music or films.

Model	Power Draw at Standby	Power Draw at Idle
Predator	> 0.5 Watts	20 Watts

# **HT/1510 Predator Specifications**

**Type:** Closed box, front firing woofer

**Drive Unit:** 15 in., carbon fiber reinforced cone with inverted carbon fiber centre cap

In Room

**Lower Frequency Response:** -6dB at 20Hz

Input Connectors: Low Level stereo RCA, LFE RCA, LFE XLR

Output Connectors: Low Level stereo RCA, LFE RCA, LFE XLR

Gain Control Range: 95 dB

Power Output: 1000 watts (RMS)

Phase Switch: Yes, 0 or 180 degrees

Amplifier Type: Class D
Fully Electronic with SET-SAFE: Yes
DC Fault: Yes
Output Short: Yes

Mains Input Voltage: 220-240 volts, 110-120 volts for certain markets

**Fuses:** 8 Amp semi delay 230 volts operation

15 Amp semi delay 115 volts operation

**Dimensions** 

**W x H x D:** Including feet, grille and rear panel controls

21.3 x 18 x 19.4 in., (540 x 457 x 494 mm)

**Shipping Weight:** 99.7 lbs. (45.2 kg)

Finish: Vinyl

**Supplied Accessories** 

Mains Lead: Yes
Users Setup guide: Yes
Straps and hardware: Yes

