

GENERAL SPECIFICATIONS

		T5n		T4n		T3n	
		120V(US)	230V(EU)	120V(US)	230V(EU)	120V(US)	230V(EU)
Output Power (W)	2Ω per channel	2500	2500	2200	2200	1900	1900
	4Ω per channel	2200	2350	1950	2050	1400	1400
1kHz	8Ω per channel	1350	1350	1150	1150	790	750
	4Ω bridge	5000	5000	4400	4400	3800	3800
THD+N=1%	8Ω bridge	4400	4700	3900	4100	2800	2800
	2Ω per channel	3400	3400	2900	3100	2200	2150
20mS burst	4Ω bridge	6800	6800	5800	6200	4400	4300
	Constant voltage line	100V line, 1250W / 8Ω		-		70.7V line, 625W / 8Ω	
SN ratio	20Hz-20kHz (DIN AUDIO)	107dB		106dB		105dB	
	Stand-by	-		5W		-	
Power consumption (W)	Idle	-		70W		-	
	1/8*1 (2Ω / Pink noise)	1600W		1400W		1200W	

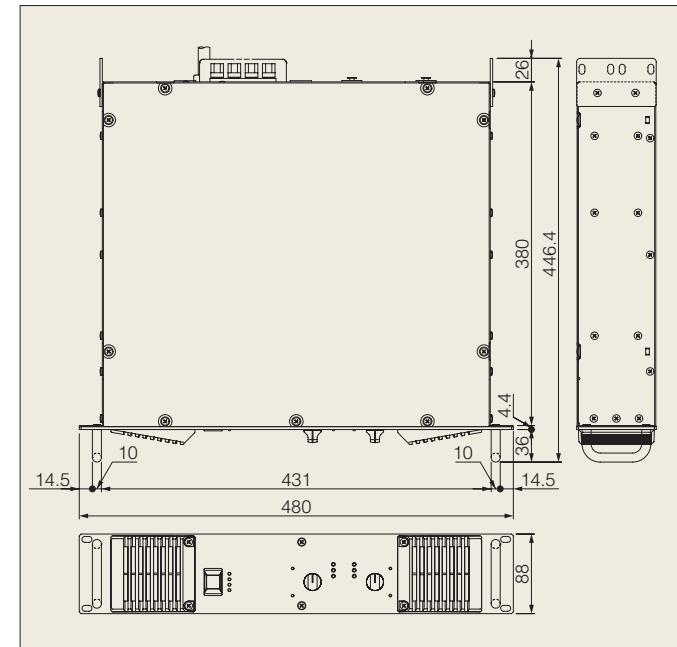
1/8 = Power consumption at 1/8 maximum output power

All Models		
THD+N	20Hz-20kHz, Half Power RL=4Ω, 8Ω	0.1%
Intermodulation Distortion	60Hz: 7kHz, 4:1, Half Power*2	0.1%
Frequency response	MAX	0dB
	TYP	0dB
	MIN	-0.5dB
Channel Separation	Half Power RL=8Ω, 1kHz Att, max input 600Ω shunt	67dB
Damping Factor	RL=8Ω 1kHz	800
Voltage Gain	Att.max	32dB / 26dB
Maximum Input Voltage		+24dBu*3
Input Impedance		20kΩ (balanced) 10kΩ (unbalanced)
Controls	Front Panel	POWER switch (push on / push off) attenuator (31 position) x 2
	Rear Panel	MODE switch (STEREO / BRIDGE / PARALLEL) x 1 GAIN switch (32dB/26dB) x 1 AMP ID switch (6P DIP) x 1
Connectors	Input	XLR-3-31 type x 2 Euroblock connector (balanced) x 2
	Output	Neutrik® SPEAKON® NL4 x 2, 5-way binding post x 2 pairs
	DATA PORT	RJ45 x 2
Indicators	POWER/STANDBY	x 1 (Green / Orange)
	REMOTE	x 1 (Green)
	PROTECTION	x 1 (Red)
	TEMP	x 1 (Red) heatsink temp ≥ 85°C
	SIGNAL	x 2 (Green)
	MUTE	x 2 (Red)
	CLIP/LIMIT	x 2 (Red)
Load protection		POWER switch on/off mute DC-fault: Amplifier shuts down automatically. clip limiting: THD ≥ 0.5%
	Amplifier protection	thermal: Mute the output (heatsink temp ≥ 90°C) (return automatically.) VI limiter (RL ≤ 1Ω) : Limit the output
	Power supply protection	thermal: Amplifier shuts down automatically. (heatsink temp ≥ 100°C)
Cooling		Continuously variable-speed fan: x 2
Power requirements		US&CANADA: 120V / 60Hz EUROPE: 230V / 50Hz
Dimensions(W×H×D)		480 x 88 x 456mm (2U)
Weight		14.0kg
Accessory		Handle x 2 (with flat-head screw x 4), Euroblock connector x 2, Owner's Manual,

\*1: 1/8 power = 9dB below rated power  
 \*2: Half power = 3dB below rated power  
 \*3: 0dBu = 0.775Vrms  
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Tn Series Dimensions

unit : mm



POWER AMPLIFIER **Tn** series



Specifications and appearance are subject to change without notice.

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# The New Standard for Large-scale Live Sound

In the 30 years that have passed since the P2200 power amplifier was introduced in 1976, Yamaha has been dedicated to the development of power amps that deliver superior sound, power, and reliability. And now, in 2006, Yamaha is proud to announce a new flagship series that marks this 30th anniversary with unprecedented performance: the Tn Series.

The Tn series amplifiers are ruggedly designed to deliver optimum performance even under tortuous tour conditions, while offering sonic quality befitting a top-line model with up to 2500 watts power output (T5n, stereo @ 2Ω). The ability to stably drive load impedances as low as 2 ohms makes the Tn series amplifiers ideal for powering line-array systems on the road. A high-volume fan cooling system and comprehensive protection circuitry help to maintain high reliability, and power consumption has been reduced by 50% compared to conventional amplifiers thanks to Yamaha's high-efficiency EEEngine amplifier technology. Of course the Tn Series includes on-board networking capability for remote control and monitoring, aptly denoted by the "n" of Tn.

Representing the culmination of 30 years of development and experience, Yamaha new amplifier for Touring with Network capability, the so called Tn series amplifiers are set to become the standard for a new generation of large-scale live sound systems.

## POWER AMPLIFIER T5n / T4n / T3n

Model	Power 2Ω	Power 4Ω	Power 8Ω
T5n	2500W	2350W*	1350W
T4n	2200W	2050W*	1150W
T3n	1900W	1400W	750W

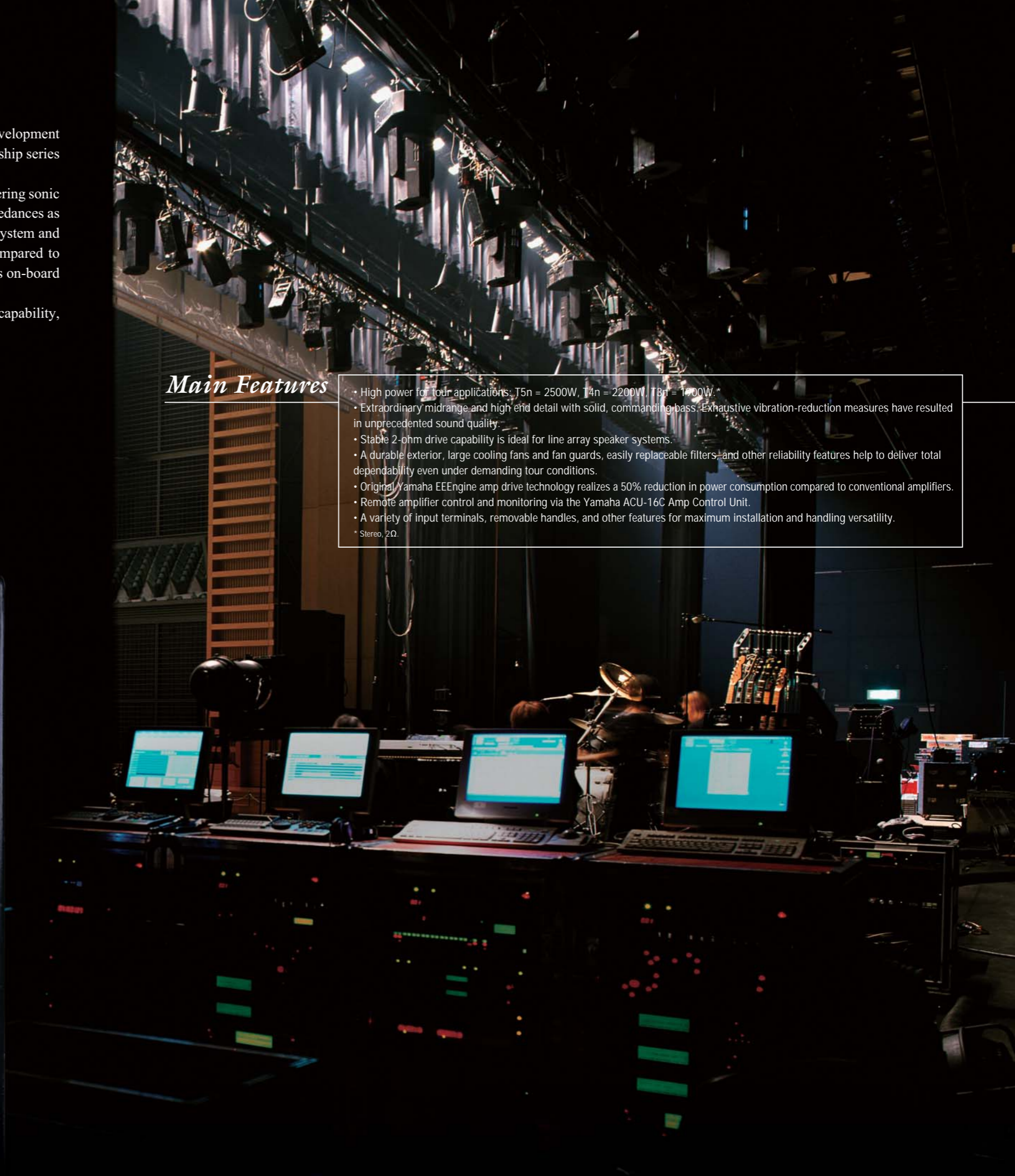
\*230V(EU)



### Main Features

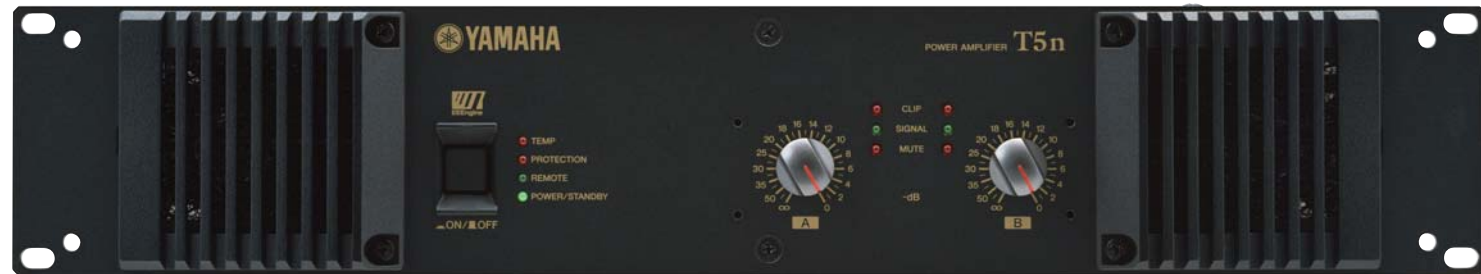
- High power for tour applications: T5n = 2500W, T4n = 2200W, T3n = 1900W.\*
- Extraordinary midrange and high efid detail with solid, commanding bass. Exhaustive vibration-reduction measures have resulted in unprecedented sound quality.
- Stable 2-ohm drive capability is ideal for line array speaker systems.
- A durable exterior, large cooling fans and fan guards, easily replaceable filters, and other reliability features help to deliver total dependability even under demanding tour conditions.
- Original Yamaha EEEngine amp drive technology realizes a 50% reduction in power consumption compared to conventional amplifiers.
- Remote amplifier control and monitoring via the Yamaha ACU-16C Amp Control Unit.
- A variety of input terminals, removable handles, and other features for maximum installation and handling versatility.

\*Stereo, 2Ω.



# POWER AMPLIFIER

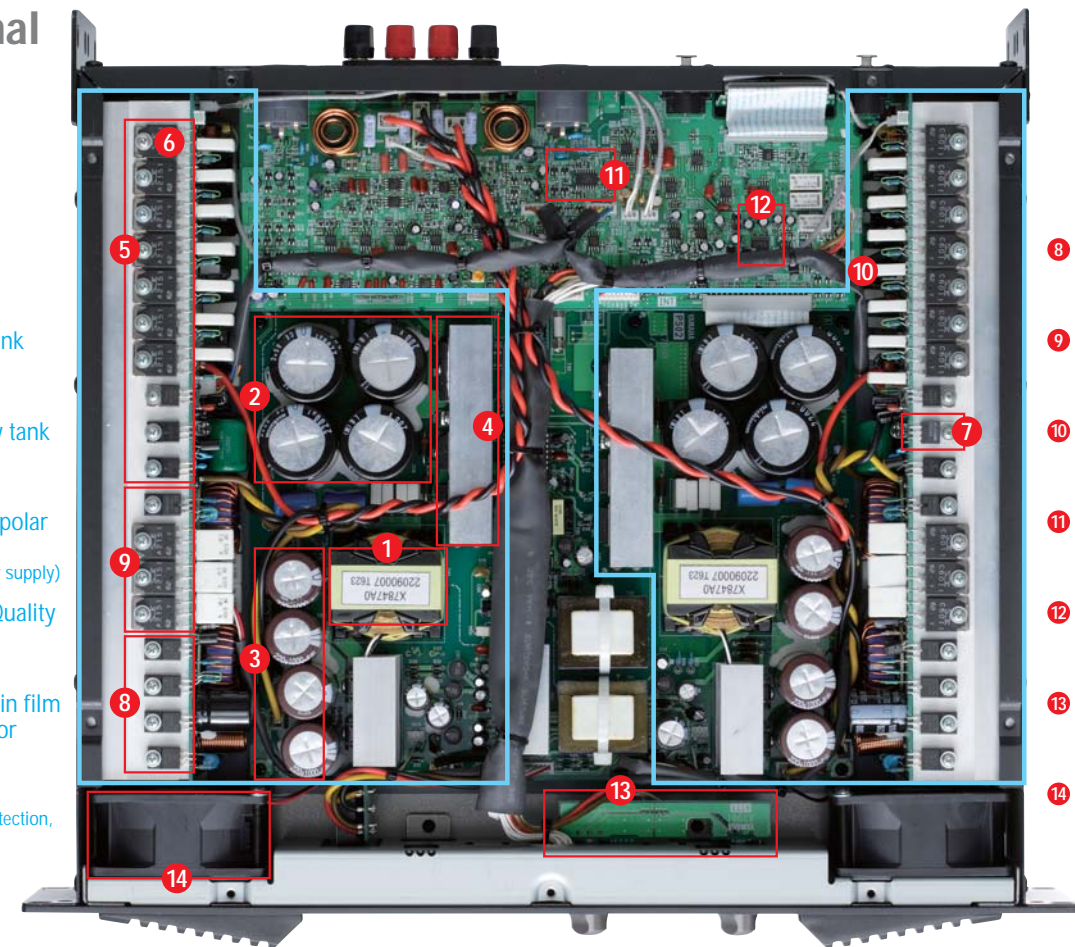
# T5n / T4n / T3n



T5n REAR PANEL

## T5n internal layout.

- 1 Transformer
- 2 200v Primary tank capacitors
- 3 220v Secondary tank capacitors
- 4 Insulated Gate Bipolar Transistor (for switching power supply)
- 5 Class AB High Quality Amplifier
- 6 High Voltage Thin film Bipolar Transistor
- 7 Thermo Sensor (for Fan Control, Protection, and Status Monitor)



- 8 High-Efficiency Current Buffer for EEEngine
- 9 High-Speed Voltage Buffer for EEEngine
- 10 CPU (for Status Monitor and Remote)
- 11 VCA (for each Limiter)
- 12 Electrical Volume (Custom manufactured by Yamaha)
- 13 High Resolution 1dB Step attenuator
- 14 High Power and High Speed Fan

 : Mono Amp x 2 = Dual Mono Amp structure

## Solid Power for Any Application

In touring applications that require the ability to drive large numbers of speakers, amp drive capability and power become extremely important criteria. Furthermore, since the entire system has to be set up, taken down, and transported for every show, the total number of amps required, and their total weight, has a significant influence on manpower and cost. While the Tn series power amps are all compact 2U-size units, they deliver remarkably high power: 2500 watts from the T5n, 2200 watts from the T4n, and 1900 watts from the T3n, stereo into 2 ohms. Tn series amplifiers are capable of driving line array or other large-scale speaker setups in systems that take up less space than ever before.

### Output Power (W)

	T5n	T4n	T3n
2Ω per channel	2500	2200	1900
4Ω per channel	2350	2050	1400
8Ω per channel	1350	1150	750
4Ω bridge	5000	4400	3800
8Ω bridge	4700	4100	2800

230V(EU), 1kHz, THD+N=1%

## High Definition, Serious Impact



By applying the full gamut of technology, experience, and resources acquired through the development and production of industry-standard digital mixing consoles and signal processors, as well as extensive know-how gained through years of hall and installation system design, The Tn series amplifiers

have been refined to unprecedented levels of performance and sound quality. Transparency across the entire audio spectrum is a basic requirement, but the Tn amplifiers go beyond the basics with extraordinary midrange presence and a low end that is huge and authoritative while maintaining maximum reproduction accuracy. This has been achieved not only through no-compromise parts selection and circuit design, but also through extensive vibration-reduction measures that effectively suppress internal vibration that can have a negative impact on sound quality. The heat sinks, for example, are solidly screwed to the chassis side panels at numerous points, but with special insulators that are designed to absorb vibration and chassis resonance that would otherwise interfere with optimum reproduction. The detailed work involved goes well beyond the normal definition of manufacturing and crosses over into the realm of craftsmanship.



## Stable 2-ohm Drive Capability

Line array systems offer many benefits for large scale live sound applications, but because of the many speakers involved they normally need to be driven by a correspondingly large number of power amplifiers. The 2-ohm drive capability of the Tn series amplifiers easily drives multiple speakers in line array systems. And also Tn series is an excellent choice for driving multiple parallel-connected Yamaha Installation Series speakers as well as multiple parallel-connected monitor speakers allocated on the stage. In order to provide stable low-impedance drive capability the Tn amplifiers employ newly developed thin-film power transistors, and flat-wire power transformer windings to minimize heat loss. Many other details contribute, but the final result is totally stable drive capability down to 2 ohms.

## Durability to Handle the Most Demanding Tours

Daily setup, take down, and transportation is an unavoidable part of the touring routine, and the Tn series amplifiers are built to take it all in their stride. A durable exterior resists dents and breakage, while dual high-volume cooling fans maintain stable operation under a wide range of ambient conditions. Large, tough fan guards prevent damage during transportation. Fan speed is automatically varied according to the current output power to minimize noise and maximize motor life. Dust filters at the fan intakes can be easily removed for cleaning. A comprehensive range of protection circuits is also provided: DC, muting, thermal protection, and an advanced output short sensing circuit (PC limiting) that contributes to reliable low-impedance drive

capability. There's also a VHF protection circuit that will prevent damage to HF speaker units if input signals with frequencies higher than 20 kHz continue for more than a few seconds. All in all the Tn series amplifiers offer failsafe performance that will keep the show running night after night under even the severest conditions.



## Ultra-efficient Yamaha EEEngine Amp Drive



Original Yamaha EEEngine technology reduces power consumption by approximately 50% compared to conventional amplifiers. Power supply quality and capacity are perennial obstacles in large-scale live sound systems, but the Tn series amplifiers' high power output with dramatically reduced power consumption goes a long way towards alleviating the problem. Reduced power consumption simultaneously achieves reduced heat generation, significantly increasing part life and reliability. Reduced heat generation further means that smaller, less-obtrusive cooling fans can be used, providing greater freedom for internal layout. That, in turn, translates into overall design that emphasizes sound quality rather than simply keeping the amp stable. In order to achieve stable 2-ohm drive capability the EEEngine circuitry in the Tn series amplifiers features a newly developed high-efficiency FET current buffer drive circuit. Only Yamaha can deliver this level of high efficiency and stability with low-impedance loads.

