

NS10 to NS60 Power Amplifiers

Low Frequency Amplifiers

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OVERVIEW

Nautel's family of configurable high power amplifiers deliver energy for LFA projectors. The standard frequency range is 800 Hz to 5 KHz. Lower and higher ranges can be configured as options. Optional ranges include seismic frequencies to high frequency sonars. The amplifiers can be used for other high power applications.

The amplifier modules are a 5 kW H bridge with silicon carbide FETs, and can handle both inductive and capacitive reactive loads. The amplifier modules are paired with switch mode power supplies and an output transformer, which forms the building block for the modular family of amplifiers. A Nautel DSP-based exciter drives all the amplifier modules. The overall efficiency is 85% or better, resulting in low cooling requirements. Air cooling is standard and water cooling is an option.

The NS Series of LFA Amplifiers supports output configurations from one output per module, to any combination of modules up to a single high power output. An NS60 has 12 modules and delivers 60 kW output, while the NS10 has two module sets and delivers 10 kW output.

Nautel offers optional super capacitor energy banks. The peak input power supply requirements for the energy storage option are typically 20% of the non-energy storage amplifier. Energy storage drastically reduces the demand on the vessel power supply and reduces the attendant wiring needs.

All amplifiers have analog and digital signal inputs, configurable output transformers, and are IP-ready for network operation. All servicing is conveniently performed through the front door panel.

Nautel amplifiers are typically 50% lighter and 40% less volume than other amplifiers, and meet or exceed MIL STD typical warship environmental testing for shock, vibration, power supply filtering and EMI.

Nautel's customer care philosophy results in a long and reliable life expectancy for our amplifiers – we continue to provide industry leading customer support for every product from our 47 years in business.



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GENERAL

KW power rating	10 to 60 kW per package, 5 kW modules
Max. power duty cycle	< 20%
Nominal output impedance	20 ohms
Optional load matching	Yes
Input power	3 PH AC
Power Supply package	SMPS
Energy Storage option	Yes
Frequency range	800 Hz to 5 KHz
Extended Frequency options	Yes
Handle Reactive loads	Yes
Package Weight Savings, Typical	50%
Package Volume Savings, Typical	40%
Exciter	DSP
Analog and digital inputs	Yes
IP connection ready	Optional
V and I data outputs	Yes
Configurable alarms	Yes
30 minute MTTR	PA/SMPS
Front maintenance access	Yes
Ambient Temperature	Typical ship
Air cooled	Yes
Water cooled	Optional
Silicon Carbide FETS	Yes
Error lookup data table	Yes
Maintenance USB computer port	Yes

ENVIRONMENTAL

MIL-STD-901D shock	1/2 sine pulse, G (TBD)
MIL-STD-167-1A Mechanical Vibration	Yes
MIL-STD-1399 Interface Standard	Yes
MIL-STD--461E Requirements for control of electromagnetic interference, August 1999	Yes (TBD)
Shock compliant base required	Yes