



5-Year Warranty



Hand-built in Webster, NY



NE4400  
NE4800  
NE8800



# NE SERIES NETWORK-ENABLED DSP PROCESSORS

Connecting and controlling an audio processor for networked systems is simplified with our *ne Digital Signal Processors*. Complimentary to our amplifiers, our processors offer easy setup and control using standard 10/100 Ethernet protocol and *Protea ne Software*. No special outboard control units are needed.

Standard units are analog line input/output format of **ne4400** (4x4), **ne4800** (4x8), and **ne8800** (8x8, shown above) with four option bays supporting network audio, AES3, and mic input options. The DSP signal processing library is extensive and utilizes multiple SHARC 32-Bit processors with sample rates of either 48kHz or 96kHz.

Processing blocks include either a 4x4, 4x8 or 8x8 matrix mixer, a full array of graphic, parametric and all pass equalization, crossover filters including 8th-order Butterworth, Bessel, Linkwitz-Riley and notched Linkwitz-Riley.

*The Protea™ Software Suite* also includes an extremely advanced automatic feedback suppressor, FIR filter capability, gain sharing automatic microphone mixing, ambient noise sensing and level adjustment, autolevelers, compressors, matrix duckers, limiters, frequency-keyed noise gates, signal delay up to 1,365ms on every channel and your choice of sinewave, pink or white noise generators.

All programming is accomplished using standard 10/100 Ethernet or RS-232 protocol and *Protea ne Software* on a PC platform. Hot-plug software control allows you to plug any function into any channel block even when running live audio with no recompiling necessary. Automatic DHCP network IP configuration reduces network set up time. Multi-level software security with password access assures you a tamper-proof audio system.

ne8800, 4800, & 4400 Features:

- CobraNet®, Dante®, AES3, Mic Input options
- 10/100 Ethernet and RS-232 computer interface standard
- Extensive DSP available
- Easy and intuitive user interface
- 24-Bit A/D–D/A audio resolution
- 32-Bit SHARC DSPs
- Sample rates of 48kHz and 96kHz
- Hot-plug software control
- Automatic DHCP network IP configuration
- Butterworth, Bessel, Linkwitz-Riley, and Notched-Linkwitz-Riley filters
- FIR filter capability
- Advanced automatic feedback suppression
- Word Clock input and output
- Euroblock connectors for audio, preset recall, DC remote level control and data in/out
- Remote controls for level, logic I/O and programmable functions
- Third-party control friendly, input and output metering, multi-level security
- Safety/Compliance:  $\epsilon$ TUV<sub>us</sub>, CE, FCC, RoHS

## Control Functions

Digital	
Ethernet Control	Standard RJ45 10/100 Ethernet w/ auto-configuration
RS-232 Control	Standard female Dsub9 jack (RS-232 control protocol document for Ashly NE products is available on Ashly website)
4-pin Serial Data Remote	4-pin Euroblock for phantom-powered bi-directional remotes
Logic Inputs	9-pin Euroblock for (8) assignable 5V logic inputs
Logic Outputs	Shared with logic inputs. +12V @ 10mA output high, 100mA input low
Analog	
Remote Attenuators	10-pin Euroblock for (8) assignable 0-5VDC passive remote attenuators

## Digital Audio Hardware

Samples Rates	48kHz, 96kHz
DSP Processing	32-Bit floating-point SHARC processor array
Audio Input Source Selection	Selectable in adjacent channel pairs from analog, AES3, or network inputs
Network Audio	CobraNet® and Dante® (Optional)
Network Audio Routing	Selectable between input/output or internal to matrix mixer
Digital Audio/Output Jitter	0.5nS average, 1.0nS peak

## Remote Accessories

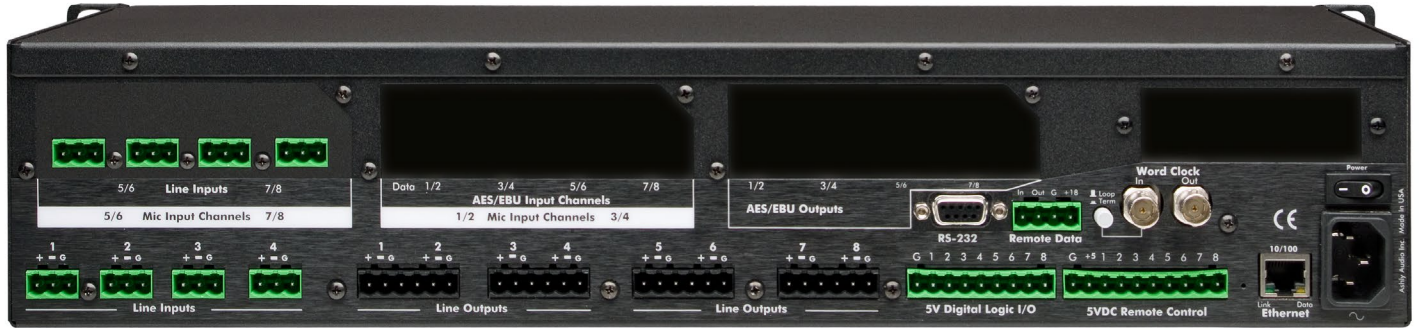
WR-1	2-Channel Level Control
WR-1.5	Level Control Only
WR-5	Programmable Button Controller
neWR-5	Programmable Network Button Controller
FR-8	8-Channel Network Fader Remote
FR-16	16-Channel Network Fader Remote
Ashly Remote	Remote Application for Apple® iPad®



NE uses Neutrik®  
Components



NE4400  
NE4800  
NE8800



ne8800 Rear Panel

Sonic Performance	A > D	D > A	A > A	D > D
<b>Frequency Response</b>				
20Hz–20kHz	+/- 0.1dB	+/-0.25dB	+/-0.25dB	n/a <sup>3</sup>
<b>Dynamic Range</b>				
20Hz–20kHz, Unweighted	> 115dB	> 114dB	> 114dB	n/a <sup>3</sup>
<b>Distortion, THD and Noise</b>				
1kHz, +20dBu Analog (-1dBFS digital)	< 0.001%	< 0.002%	< 0.002%	< 0.00001%
<b>Latency</b>				
@ 48kHz	1.42ms	0.90ms	2.21ms	0.10ms
@ 96kHz <sup>4</sup>	0.71ms	0.45ms	1.11ms	0.05ms

Word Clock	
Input/Output Type	75 Ohms BNC
Lock Range	48kHz +/- 4%, 96kHz +/- 4%
Input Impedance	Selectable 75 Ohm or high impedance
Input Voltage Range	1.0Vpp–7.0Vpp
Output Impedance	75 Ohms
Output Level	5.0Vpp nominal, unterminated

Master Clock	
Sources	Audio network, Word Clock, AES3, Internal crystal clock
Modes	Prioritized auto switching or manual

Audio Inputs	
<b>Analog Line/Mic</b>	
Input Type	Active balanced Euroblock
Input Impedance	20k Ohms
Max Input Level	+20dBu
<b>AES3 Digital</b>	
Input Type	Transformer balanced female XLR
Input Impedance	110 Ohms
Max Input Level	7.0 Vpp

Audio Outputs	
<b>Servo-balanced Euroblock</b>	
Output Impedance	20 Ohms
Max Output Level	+20dBu
<b>AES3 Transformer balanced male XLR</b>	
Output Impedance	110 Ohms
Max Output Level	5.0Vpp

Rear Panel	
Connectors	10/100 Ethernet port, RS-232 port, Euroblock inputs/outputs, Four option bays, Word Clock in/out, Remote level control, Logic I/O, Data in/out ports, On/off switch

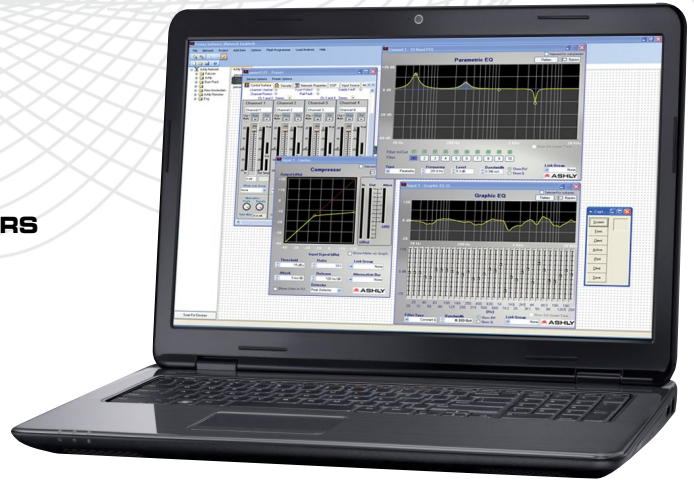
Weight, Dimension & Power	
Unit Weight	4400: 10lbs (4.54kg)
	4800: 10.3lbs (4.68kg)
	8800: 10.5lbs (4.77kg)
Shipping Weight	4400: 13lbs (6kg)
	4800: 13lbs (6kg)
	8800: 13lbs (6kg)
Dimensions	19"L x 3.5"H x 8.5"D (483mm x 89mm x 216mm)
Environmental	40–120 deg. F. (4–49 deg. C), (noncondensing)
<b>Power Requirements</b>	
AC Mains	90–240VAC, 50–60Hz, 70W Max
Power Cable Connector	15A Edison 3-Prong IEC

# Protea™

## DIGITAL SIGNAL PROCESSING FOR NE PROCESSORS

Protea is compatible with Microsoft® Windows 8, 7 (Vista/XP) 32 & 64 bit systems.

Audio professionals find our Protea™ DSP to be very intuitive and easy to navigate—and you will too. No need to attend a one-week training class away from home to learn our software. Common sense layout of controls and features, on-line help, or a visit to the Technical Support page on our website provides answers to all of your questions.



Protea™ DSP Specifications	
All DSP functions can be linked to 1 of 8 link groups	
Input Source Selection	
Input Source Select Options	Analog, Auto (Net, AES3, Analog)
Brick Wall Limiter	
Threshold	-20dBu to +20dBu
Ratio	Infinite
Attack	0.2ms/dB to 50 ms/dB
Release	5ms/dB to 1000ms/dB
Compressor	
Threshold	-20dBu to +20dBu
Ratio	1.2:1 to infinite
Attack	0.2 to 50ms
Release	5ms/dB to 1000ms/dB
Detector	Peak/Average
Attenuation Bus	4 available
Metering	In, Out, Attenuation, Graphical
Autoleveler Controls	
Target Level	-40dBu to +20dBu
Action	Gentle, normal, aggressive, user-defined
Maximum Gain	0dB to +22dB
Metering	Input Level, Gain, Attenuation
Ratio	1.2:1 to 10:1
Threshold Below Target	-30dB to 0dB
Gain Increase/Decrease Rate	5ms/dB to 1000ms/dB
Hold Time	0-6 sec
Ambient Noise Compensation: Output Only	
Max Gain	-20dB to +20dB
Min/Base Gain	-40dB to -1dB
Gain Change Rate	0.2s/dB to 20s/dB
Link Group	8 available
ANC Input Channel	1-2 or 1-4
Noise Threshold	-40dBu to +20dBu
Program/Ambient Gain Ratio	0.3:1 to 3:1
Metering	Input level, Attenuation, Average noise
Ducking: High/Low Priority, Trigger, Filler, Ducked Program	
Trigger Threshold	-80dBu to +20 dBu
Ducking Release	5ms/dB to 1000ms/dB
Ducking Depth	0dB to -30dB, -∞
Enable Ducking at Matrix Mixer	Yes
Metering	Input

Gate	
Threshold	-80dBu to +20dBu
Range	off, 100dB to 0dB
Attack	0.2ms/dB to 50 ms/dB
Release	5ms/dB to 1000ms/dB
Metering	Key Signal, Gate LED, Graphical
Advanced Gate Controls	
Key Engage Enable	Yes
Key Frequency	20Hz to 20kHz
Key Bandwidth	0.016 to 3.995 Octave
Gain	
Gain (with/without VCA)	-50dB to +12dB, off, polarity invert
Digital VCA Groups	4 available
Remote RD8C Gain	Enable per channel, 0dB to -∞
WR-5 (neWR-5) Remote Gain	0 to -50dB, Mute
EQ: 31-Band	
Filter Type	Constant Q or Proportional Q
Bandwidth	0.499oct to 0.25oct
EQ: Parametric 2,4,6, or 10 Band	
Frequency	20-20kHz
Level	-30dB to +15dB
Q Value	0.016 to 3.995 Octave
EQ: Hi/Low Shelf 6/12 dB/oct	
Frequency	20Hz-20kHz
Level	-15dB to +15dB
EQ: All Pass	
Frequency	20Hz-20kHz
EQ: Variable Q HP/LP	
Frequency	20Hz-20kHz
Q Value	3.047 to 0.267
EQ: Notch/Bandpass	
Frequency	20Hz-20kHz
Bandwidth Range	0.016 to 3.995 oct.
Feedback Suppressor: Only available w/ 48kHz sampling rate (inputs only)	
Filters	12
In/Out per filter	Yes
Filter Modes	Float, Restricted, Manual, Lock
Filter Type	Notch, Parametric
Filter Frequency Range	20Hz to 20kHz
Parametric Filter Level	+15dB to -30dB
Filter Bandwidth	0.016 to 3.995 Octave
Detector Sensitivity	5 levels
Float Time	5 seconds to 24 hours

Crossover: 2 Way, 3 Way, 4 Way Crossover & High Pass/Low Pass Filters	
Bessel & Butterworth Filters	12/18/24/48 dB/oct
Linkwitz-Riley Filter	12/24/48 dB/oct
Notched Linkwitz-Riley	4th Order, 8th Order
Frequency	Off, 20Hz-20kHz
Delay: @ 48kHz Sampling Rate (Input Time, Distance & Temperature)	
Speaker Delay	0-58.65ms
Delay	0-1,365.31ms
Delay: @ 96kHz Sampling Rate (Input Time, Distance & Temperature)	
Speaker Delay	0-29.32ms
Delay	0-682.65ms
Audio Metering Tool	
Range	-60dBu to +20dBu
Increments	1dB
Peak Hold Indicator	Yes
Signal Generator Tool: Pink noise, White noise, Sine wave	
Signal Level	Off, -50dBu to +20dBu
Sine Wave Frequency	20Hz-12kHz
Matrix Mixer	
Gain (0.5dB increments)	Off, -50dB to +12dB
Mute	Input
Auto-Mixer	Automix assign per input
Global Auto-mixer Response	0.01sec to 2sec
Enable Ducking at Mixer	Yes
Ducking LED	Per channel if enabled
Metering	Level, auto-mixer level
Processors	
Input A/D, Output D/A	24 bit
DSP Processors	32-bit floating point
Sample Rates	48kHz, 96kHz

- Notes:
- 1) Measured 20 Hz - 20 kHz unweighted using AES17 LPF at 48 kHz sample rate.
  - 2) Analog in to analog out measured using internal master clock.
  - 3) Zero noise or signal amplitude variation introduced in digital domain.
  - 4) Latency of network audio link is additional to latency of digital audio processor.



# NE SERIES ARCHITECT & ENGINEERING SPECS

## ne8800

The digital signal processor unit shall be analog line input / output with four option bays for supporting Cobranet® or Dante® network audio, AES/EBU, and mic input options. The processor shall consist of eight inputs and eight outputs. The processor shall use fixed-path architecture with hot-plugable audio functions anywhere in the signal path to reduce set-up time. All control and monitoring programming shall be accomplished using a PC platform and standard Ethernet network connection or RS-232 protocol. Multi-level security with password access and no front panel controls shall insure tamper-resistant operation. Input / output channel processing blocks shall include a full array of variable-Q graphic and parametric equalization. The processor shall have crossover filters to 8th order Butterworth, Bessel, Linkwitz, and Notched-Linkwitz. The processor shall have an advanced automatic feedback suppressor, FIR filter capability, autolevelers, compressors, matrix duckers, limiters, frequency-keyed gates and time delay to 1365ms. Sinewave, pink noise, and white noise generators shall be included in the processor. A matrix mixer shall allow any input to be routed to any output at any level. A gain-sharing automixer may also be enabled on any input signal of any output mixer. Rear panel Euroblock connectors shall include eight logic input or output connections, plus eight remote potentiometer level controls. Word clock input and output BNC connections shall be provided for digital audio frame locking to a house sync. The DSP processor shall mount in a standard 19" rack using 2 spaces (3.5" high).

The digital signal processor shall be an Ashly DSP Matrix Mixer model **ne8800**.

## ne4800

The digital signal processor unit shall be analog line input / output with four option bays for supporting Cobranet® or Dante® network audio, AES/EBU, and mic input options. The processor shall consist of four inputs and eight outputs. The processor shall use fixed-path architecture with hot-plugable audio functions anywhere in the signal path to reduce set-up time. All control and monitoring programming shall be accomplished using a PC platform and standard Ethernet network connection or RS-232 protocol. Multi-level security with password access and no front panel controls shall insure tamper-resistant operation. Input / output channel processing blocks shall include a full array of variable-Q graphic and parametric equalization. The processor shall have crossover filters to 8th order Butterworth, Bessel, Linkwitz, and Notched-Linkwitz. The processor shall have an advanced automatic feedback suppressor, FIR filter capability, autolevelers, compressors, matrix duckers, limiters, frequency-keyed gates and time delay to 1365ms. Sinewave, pink noise, and white noise generators shall be included in the processor. A matrix mixer shall allow any input to be routed to any output at any level. A gain-sharing automixer may also be enabled on any input signal of any output mixer. Rear panel Euroblock connectors shall include eight logic input or output connections, plus eight remote potentiometer level controls. Word clock input and output BNC connections shall be provided for digital audio frame locking to a house sync. The DSP processor shall mount in a standard 19" rack using 2 spaces (3.5" high).

The digital signal processor shall be an Ashly DSP Matrix Mixer model **ne4800**.

## ne4400

The digital signal processor unit shall be analog line input / output with four option bays for supporting Cobranet® or Dante® network audio, AES/EBU, and mic input options. The processor shall consist of four inputs and four outputs. The processor shall use fixed-path architecture with hot-plugable audio functions anywhere in the signal path to reduce set-up time. All control and monitoring programming shall be accomplished using a PC platform and standard Ethernet network connection or RS-232 protocol. Multi-level security with password access and no front panel controls shall insure tamper-resistant operation. Input / output channel processing blocks shall include a full array of variable-Q graphic and parametric equalization. The processor shall have crossover filters to 8th order Butterworth, Bessel, Linkwitz, and Notched-Linkwitz. The processor shall have an advanced automatic feedback suppressor, FIR filter capability, autolevelers, compressors, matrix duckers, limiters, frequency-keyed gates and time delay to 1365ms. Sinewave, pink noise, and white noise generators shall be included in the processor. A matrix mixer shall allow any input to be routed to any output at any level. A gain-sharing automixer may also be enabled on any input signal of any output mixer. Rear panel Euroblock connectors shall include eight logic input or output connections, plus eight remote potentiometer level controls. Word clock input and output BNC connections shall be provided for digital audio frame locking to a house sync. The DSP processor shall mount in a standard 19" rack using 2 spaces (3.5" high).

The digital signal processor shall be an Ashly DSP Matrix Mixer model **ne4400**.

