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 parameter 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, cross over and programmable functions
- Third-party control friendly, input and output metering, multi-level security
- Safety/Compliance: TUVus, CE, FCC, RoHS

### Control Functions

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

### 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® |

©2014 All features, specifications and graphical representations are subject to change without notice.
### 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

<table>
<thead>
<tr>
<th>Product</th>
<th>Unit Weight</th>
<th>Shipping Weight</th>
<th>Dimensions</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>ne4400</td>
<td>9lbs (4.1kg)</td>
<td>13lbs (6kg)</td>
<td>19&quot; x 3.5&quot; x 8.5&quot; (483mm x 89mm x 216mm)</td>
<td>40–120 deg. F (4–49 deg. C), (noncondensing)</td>
</tr>
<tr>
<td>ne4800</td>
<td>9.3lbs (4.2kg)</td>
<td>13lbs (6kg)</td>
<td>19&quot; x 3.5&quot; x 8.5&quot; (483mm x 89mm x 216mm)</td>
<td>40–120 deg. F (4–49 deg. C), (noncondensing)</td>
</tr>
<tr>
<td>ne8800</td>
<td>9.5lbs (4.3kg)</td>
<td>13lbs (6kg)</td>
<td>19&quot; x 3.5&quot; x 8.5&quot; (483mm x 89mm x 216mm)</td>
<td>40–120 deg. F (4–49 deg. C), (noncondensing)</td>
</tr>
</tbody>
</table>

### Expertise For Technical Approval

- **Audio Inputs**
  - **Analog Line/Mic**
    - Input Type: Active balanced Euroblock
    - Input Impedance: 20k Ohms
    - Max Input Level: +20dBu

- **AES3 Digital**
  - Input Type: Transformer balanced female XLR
  - Input Impedance: 110 Ohms
  - Max Input Level: 7.0 Vpp

### Word Clock

- **Input/Output Type**: 75 Ohms BNC
- **Lock Range**: 48kHz +/- 4%, 96kHz +/- 4%
- **Input Impedance**: Selectable 75 Ohm or high impedance

### Master Clock

- **Sources**: Audio network, Word Clock, AES3, Internal crystal clock
- **Modes**: Prioritized auto switching or manual
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: 1.2:1 to infinite
- Attack: 0.2ms to 50ms
- Release: 5ms to 1000ms

**Compressor**

- Threshold: -20dBu to +20dBu
- Ratio: 1.2:1 to infinite
- Attack: 0.2 to 50ms
- Release: 5ms to 1000ms
- Release: 4 available
- 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
- Max Gain: 0dB to +22dB
- Detector: Input Level, Gain, Attenuation
- Ratio: 1.2:1 to 10:1
- Threshold Below Target: -30dB to 0dB
- Gain Increase/Decrease Rate: 5ms to 1000ms
- Hold Time: 0-6 sec

**Ambient Noise Compensation:**

- Output Only
- Max Gain: -20dB to +20dB
- Min/Max Gain: -40dB to +10dB
- Gain Change Rate: 0.2dB to 200dB
- 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, Filibuster, Ducked Program
- Trigger Threshold: -40dBu to +20dBu
- Ducking Release: 5ms to 1000ms
- Ducking Depth: 0.08 to +30dB
- Enable Ducking at Matrix Mixer: Yes
- Metering: Input

**Gate**

- Threshold: -80dBu to +20dBu
- Range: 0.01 to 10,000,000
- Attack: 0.2ms to 50ms
- Release: 5ms to 1000ms
- Metering: Key Signal, Gate LED, Graphical

**Advanced Gate Controls**

- Key Engage Enable: Yes
- Key Frequency: 20Hz to 20kHz
- Key Bandwidth: 0.016 to 3.95 Octave

**Gain**

- Gain: (with/without VCA) -50dB to +12dB, off, polarity invert
- Digital VCA Groups: 4 available
- Remote RDC Gain: Enable per channel, 0dB to +10dB
- WR-5 (neWR-5) Remote Gain: 0 to -50dB, Mute

**EQ**

- Bandwidth: 0.49Oct to 0.25Oct
- Filter Type: Constant Q or Proportional Q
- Frequency: 20Hz to 20kHz
- Q Value: 0.016 to 3.95 Octave

**Filter**

- Bandwidth: 0.016 to 3.95 Octave
- Filter Type: 12/24/48 dB/oct
- Filter Frequency Range: 20Hz to 20kHz
- Bandwidth Range: 20Hz to 20kHz
- Frequency: 20Hz to 20kHz
- Q Value: 3.047 to 0.267
- Delay: 0.2ms to 50ms
- Variable Q HP/LP
- HP/LP: 31-Band
- Q Value: 0.016 to 3.95 Octave
- Stereo: 2 Way, 3 Way, 4 Way

**Crossover**

- 2 Way, 3 Way, 4 Way Crossover & High Pass/Low Pass Filters
- @ 96kHz Sampling Rate (Input Time, Distance & Temperature)
- @ 48kHz Sampling Rate (Input Time, Distance & Temperature)
- @ 24kHz Sampling Rate (Input Time, Distance & Temperature)
- @ 48kHz Sampling Rate (Input Time, Distance & Temperature)
- @ 96kHz Sampling Rate (Input Time, Distance & Temperature)

**Matrix Mixer**

- Gain (0.5dB increments): 0-50dBu to +20dBu
- 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

**Priorities**

- 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.
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 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 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.

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.