Whether you are designing or installing a system for corporate boardrooms, restaurants, courtrooms, houses of worship, left/center/right high output speaker systems in performance spaces, auditoriums or conference centers, our widely-popular Protea™ ne24.24M Matrix Processor will more than satisfy your requirements for any zoned system. When your install requires input/output matrixing with signal processing it doesn’t get much easier than programming your channels using Protea™ ne Software on your PC.

The ne24.24M uses modular expansion cards to provide up to 24-channels of audio matrixing and processing. The base unit offers a 4-input/4-output configuration. Each input and output expansion card has an individual DSP processor allowing you to expand the total input or output 4 channels of DSP processing at a time. These cards are easily installed in the field without the need to reprogram the device.

Matrixing allows you to route any input to any output and control individual levels once they have been assigned. Fixed path architecture and extensive processing power per channel will reduce the amount of time it takes to set up your system.

An optional GPO Logic Card allows the ne24.24M to trigger projection screens, curtains or lights. The logic card is installed in place of a 4-input or 4-output card and occupies one of the four expansion slots.

ne24.24M Features:
- 10/100 Ethernet & RS-232 computer interface standard
- Extensive DSP available
- Easy and intuitive user interface
- Mic/line inputs
- 24-bit A/D–D/A audio resolution
- Up to 24-channels of audio processing
- 4x4 base unit configuration
- Expand inputs or outputs 4-channels per module
- Modules easily field installable
- Euroblock connectors for audio, preset recall, DC remote level control and data in/out
- 31 preset locations
- Remote controls for level, preset recall and programmable functions
- Third-party control-friendly
- Input and output metering viewable in dBu
- Multi-level security
- Safety/Compliance: cTUVu, FCC, CE, RoHS

Specifications:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Gain Range</td>
<td>-50dB – +12dB, Selectable Polarity</td>
</tr>
<tr>
<td>Output Gain Range</td>
<td>-50dB – +12dB, Selectable Polarity</td>
</tr>
<tr>
<td>THD</td>
<td>&lt;0.01% @ 1kHz, +20 dBu</td>
</tr>
<tr>
<td>Dynamic Range</td>
<td>&gt;110dB (20Hz–20kHz) Unweighted</td>
</tr>
<tr>
<td>Output Noise</td>
<td>&lt;-90 dBu Unweighted</td>
</tr>
<tr>
<td>Environmental</td>
<td>40–120 deg. F, (4-49 deg, C) noncondensing</td>
</tr>
</tbody>
</table>

Rear Panel

- Controls: Remote level control, Data In/Out ports, Preset Recall, Logic Inputs, On/Off switch
- Connections: 10/100 Ethernet port, RS-232, Euroblock In/Out
- Power Cord: 3-Prong, Detachable
- Weight, Dimensions & Power
  - Dimensions: 19”L x 3.5”H x 8.5”D (483mm x 89mm x 216mm)
  - Unit Weight: 8.9lbs (4.04kg)
  - Shipping Weight: 12lbs (6kg)
  - Power Requirements: 90–240VAC, 50/60Hz, 40W

Accessories

- Internal Modules
- 4-Channel, Input Module
- 4-Channel, Output Module
- GPO Logic Output Option Module
- External Remotes
  - WR-1: 2-Channel Level Control
  - WR-1.5: Preset Recall and Level Control
  - WR-2: Four-Position Preset Recall Switch
  - WR-5: Programmable Button Controller
  - RD/RW8: 8-Channel Fader Remote
  - netWR-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®

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Protēa™ DSP Specifications

All DSP functions can be linked to 1 of 16 link groups

Compressor
Threshold: -20dBu to +20dBu
Ratio: 1:1 to ∞
Attack: 0.2 to 50ms
Release: 5ms/dB to 1000ms/dB
Detector: Peak/Average
Attenuation Bus: 1 available

Metering: In, Out, Attenuation, Graphical

Autoleveler Controls
Target Level: -40dBu to +20dBu
Action: Gentle, normal, aggressive, user defined
Maximum Gain: 0dB to +27dB
Metering: Attenuation
Ratio: 1.2:1 to 10:1
Threshold Below Target: -30dB to 0dB
Gain Increase/Decrease Rate: 0.2ms/dB to 50ms/dB
Hold Time: 0-6 sec

Ducking: High/Low Priority, Trigger, Fillbuster, Ducked Program
Trigger Threshold: -30dBu to +20dBu
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: Gate LED, Graphical

Gain
Gain: -50dB to +12dB, off, polarity invert
Remote Level Control: 8 available, 0dB to -∞
Remote RD8C Gain: Enable per channel, 0dB to -∞
WR-5 (neWR-5) Remote Gain: 0 to -50dB, Mute

EQ: Parametric 15 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: Variable Q HP/LP
Frequency: 20Hz–20kHz
Q Value: 3.047 to 0.267

Crossover: 2 Way, 3 Way, 4 Way Crossover & High Pass/Low Pass Filters
Bessel & Butterworth Filters: 12/18/24 dB/oct
Linkwitz-Riley Filter: 12/24/48 dB/oct
Frequency: Off, 20Hz–20kHz

Delay: @ 96kHz Sampling Rate (Input Time, Distance & Temperature)
Speaker Delay: 0–10.6ms
Delay: 0–341ms

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, -50 to +12dB
Mute: Per channel
Enable Ducking at Mixer: Yes
Ducking LED: Per channel if enabled

Processors
Input A/D, Output D/A: 24-bit
DSP Processors: 24-bit signal, 48-bit filters, 56-bit accumulator
Sample Rate: 48kHz
Propagation Delay @ 48kHz: 1.46ms

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

Audio professionals find our Protēa™ 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.
The digital signal processor base unit shall consist of four inputs and four outputs and shall use modular expansion cards to provide up to twenty-four channels of input/output audio matrixing and processing. Each expansion card shall have an individual DSP processor allowing for expansion of the base unit’s total inputs or outputs four channels at a time. Expansion cards shall be factory installed or easily installed in the field without the need to reprogram. The processor shall use fixed path architecture to reduce set-up time. The processor control and programming shall be accomplished using a PC platform through a standard Ethernet connection. An RS-232 jack shall be provided for control and monitoring by a third-party controller. Multi-level security and no front panel controls shall insure tamper-resistant operation. Input channel processing blocks shall include a Mic/Line Preamp with 48V Phantom Power, Gain, Pink Noise Generator, Delay, fifteen EQ Filters, Gate, Autoleveler and Ducker. Output channel processing blocks shall include a Cross-Point Mixer, HPF/LPF, Delay, fifteen EQ Filters, Gain, and Limiter. The cross point mixer shall allow any input to be routed to any output at any level and mute any input at any output without affecting the true input configuration. Rear panel Euroblock connectors shall include eight preset recall contact closures plus eight remote potentiometer level controls. 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 **ne24.24M**