

# NE 24.24M

## NETWORK-ENABLED MATRIX PROCESSING WITH PROTEA™ DSP

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.

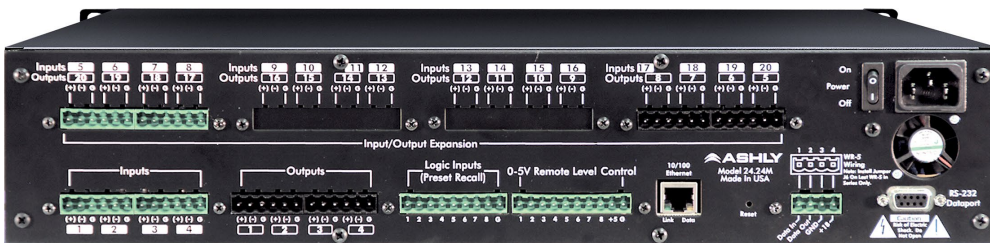
An optional GPO Logic Card allows the ne24.24M to trigger projection screens, curtains or lights. The logic card is installed in place of a 4-input or 4-output card and occupies one of the four expansion slots.

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: cTUV<sub>US</sub>, FCC, CE, RoHS

| Specifications                        |   | Note: 0dBu = 0.775 VRMS |
|---------------------------------------|---|-------------------------|
| Input                                 | Active Balanced, 18k Ohms   |                         |
| Input Gain Range                      | -50dB – +12dB, Selectable Polarity  |                         |
| Output                                | Active Servo Balanced, 112 Ohms   |                         |
| Input/Output Level                    | +20dBu (Max)  |                         |
| Output Gain Range                     | -50dB – +12dB, Selectable Polarity  |                         |
| Frequency Response                    | 20Hz–20kHz, ±0.25 dB  |                         |
| THD                                   | <0.01% @ 1kHz, +20 dBu  |                         |
| Dynamic Range                         | >110dB (20Hz–20kHz) Unweighted  |                         |
| Output Noise                          | <-90 dBu Unweighted   |                         |
| Environmental                         | 40–120 deg. F, (4-49 deg. C) noncondensing  |                         |
| <b>Rear Panel</b>                     |   |                         |
| 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   |                         |
| <b>Weight, Dimensions &amp; Power</b> |   |                         |
| 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   |                         |

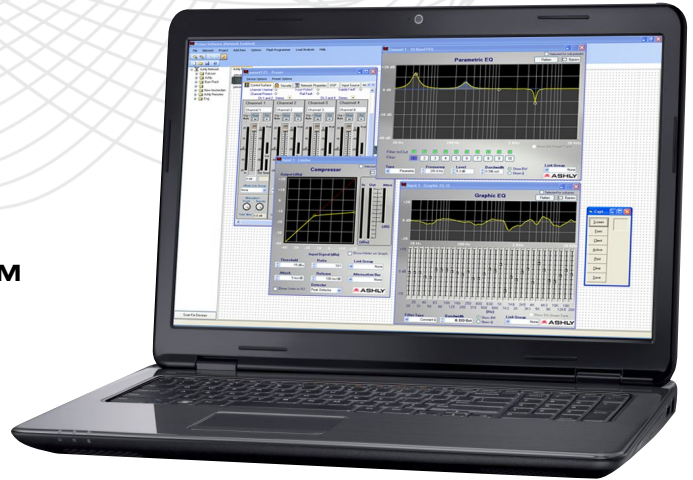
| Accessories                    |  |
|--------------------------------|--|
| <b>Internal Modules</b>        |  |
| 4-Channel, Input Module        |  |
| 4-Channel, Output Module       |  |
| GPO Logic Output Option Module |  |
| <b>External Remotes</b>        |  |
| WR-1                           | 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                 |
| 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®    |



# Protēa™

## DIGITAL SIGNAL PROCESSING FOR THE NE24.24M

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.

| Protēa™ DSP Specifications                                     |  |
|--|--|
| <i>All DSP functions can be linked to 1 of 16 link groups</i>  |  |
| Compressor   |  |
| Threshold  | -20dBu to +20dBu                         |
| Ratio  | 1.2:1 – ∞                                |
| 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                                    | 5ms/dB to 1000ms/dB                      |
| Hold Time  | 0-6 sec                                  |
| Ducking: High/Low Priority, Trigger, Fllbuster, 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  | Gate LED, Graphical                  |
| Gain  |                                      |
| Gain  | -50dB to +12dB, off, polarity invert |
| Remote Level Control  | 8 available, 0dB to -∞               |
| Remote RD&C 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: 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                           |
| Q Value   | 92.436 to 0.267                      |
| 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                      |
| Frequency   | Off, 20Hz–20KHz                      |

| Delay: @ 48kHz Sampling Rate (Input Time, Distance & Temperature) |   |
|---|---|
| Speaker Delay   | 0–21ms  |
| Delay   | 0–682ms   |
| 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  |

# NE 24.24M

## ARCHITECT & ENGINEERING SPECS

### ne24.24M

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**