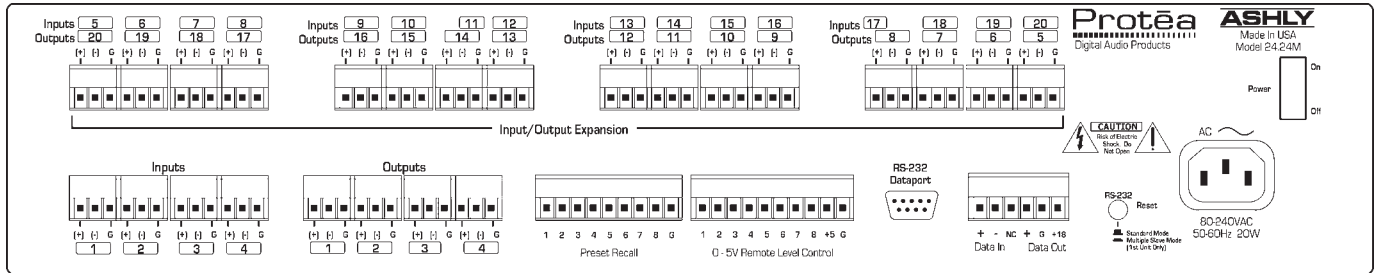
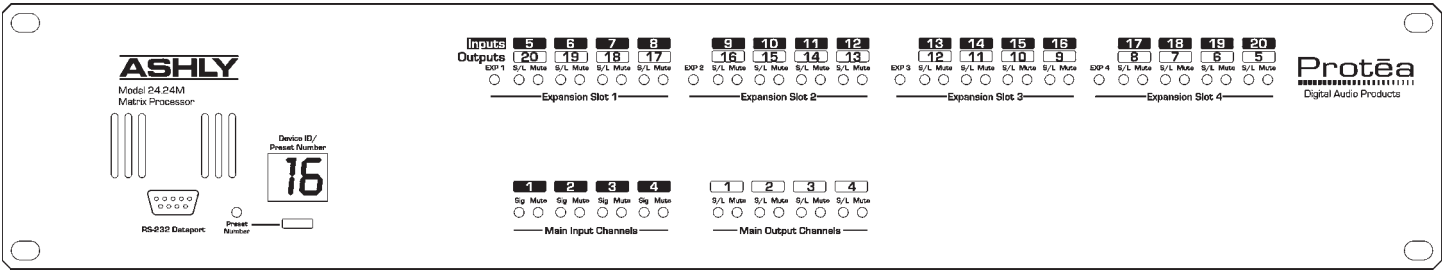




Protea 24.24M Matrix Processor

Preliminary Product Information

June 1, 2004



The Protea 24.24M Matrix Processor uses modular expansion cards to provide up to twenty-four channels of audio matrixing and processing. The base unit offers a four-input four-output configuration. Each input and output expansion card has an individual DSP processor allowing you to expand the base unit's total inputs or outputs four channels at a time. These cards are easily installed without dismantling or reprogramming 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.

Input channel processing blocks include Mic Preamp with Phantom Power, Gain, Delay, 15 EQ Filters, Gate, Autoleveler and Ducker. Output channel processing blocks consist of a Cross Point Mixer, HPF/LPF, Delay, 15 EQ Filters, Gain and Limiter. The cross point mixer in the output section allows you to route any input to any output at any level and mute any input at any output without affecting the true input configuration. The HPF/LPF block offers Bessel, Butterworth and Linkwitz-Riley filters with 12, 18, 24 and 48dB octave slopes.

Euroblock connectors for audio, preset recall, dc remote level control and data in/out connections are on the rear panel. Standard 9-pin RS-232 data connectors are located on the front and rear panel to allow all functions to be controlled either by a PC or a dedicated control system.

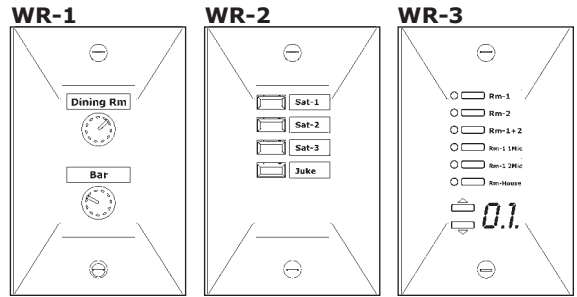
Applications:

Corporate Boardrooms, Restaurants, Courtrooms, Houses of Worship, Left/Center/Right Theatres, Conference Centers, Auditoriums or anywhere a zoned system requires signal processing

- Base Model - Four Inputs Four Outputs
- Expandable To 24 Total Channels
- Inputs Configurable for Mic or Line Level
- 30 Internal Presets
- Protea System Software Control via RS-232
- Euroblock Connectors
- Remote Voltage Control of First Four Input and Output Levels
- Contact Closure For Remote Recall Of Up To Eight Presets
- +48V Phantom Power
- Password Protected System Security

Wall Receptacle Remote Control Accessories

- WR-1 Remote Volume Control (Two volume pots)
 - WR-2 Remote Contact Closure (Four preset switches)
 - WR-3 Active Remote Control (Active input volume, output volume, preset recall)
- (designed to fit in standard electrical boxes)



Protea 24.24M Matrix Processor

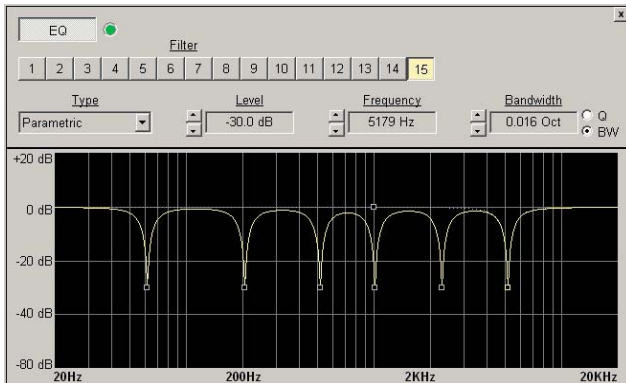
Input Block Definitions

Input Card Four channels - all with full processing power in each channel

1	Input 1	Mute	Preamp	Gain	Delay	EQ	Gate	Autolev	Ducker	<input type="checkbox"/>
2	Input 2	Mute	Preamp	Gain	Delay	EQ	Gate	Autolev	Ducker	<input type="checkbox"/>
3	Input 3	Mute	Preamp	Gain	Delay	EQ	Gate	Autolev	Ducker	<input type="checkbox"/>
4	Input 4	Mute	Preamp	Gain	Delay	EQ	Gate	Autolev	Ducker	<input type="checkbox"/>

Up to 4 input cards may be installed for a total of 20 input channels!

Inputs	Available Outputs
4	4,8,12,16,20
8	4,8,12,16
12	4,8,12
16	4,8
20	4



EQ
15 Total - Choose from parametric, shelf or allpass. Adjust frequency, level and Q

Frequency 20Hz - 20kHz, 1Hz increments, default = 1kHz
Level +15 to -30dB, 0.1dB increments, default = 0.0dB
Q .016 to 4 oct., default = 1 oct. BW
Type PEQ, 4 shelf types, Allpass, default = PEQ

Preamp
Set optimum input gain

Gain 0 to +60dB, 20dB increments, default = 0dB

Gain
Set input gain stage for optimum level

Gain +12 to -40dB, 0.1dB increments, default = -40.0dB

Delay
Set channel delay max delay 682ms

Delay 0-682ms, .020833ms increments, default = 0ms

Ducker
Set priority status to channels or choose channels where program is ducked

Threshold +20dBu to -80dBu, 1dB increments, default = -30dBu
Ducking Depth 0dBu to -80dBu, 1dB increments, default = -20dBu
Release 5ms to 1s/dB, steps 5, 10, 20, 50, 100, 200, 500, 1000ms, default = 100ms

Autolevel
Keep program material at a constant level

Target level +20dBu to -40dBu 1dB increments, default = -10dBu
Threshold below target 0 to -30dB 1dB increments default = -30dB
Ratio 1 to 10 steps = 1.2, 1.5, 2, 3, 4, 6, 10, default = 10:1
Gain Change Rate 5ms to 1s/dB, steps = 5, 10, 20, 50, 100, 200, 500, 1000ms, default = 100ms
Hold time 0 to 6 sec, 1sec increments, default = 1sec

Gate
Automatically open and close channels

Threshold +20dBu to -80dBu 1dB increments, default = -40dBu
Floor 0dBu to -80dBu, 1dB increments, default = -80dBu
Attack .2 to 50ms/dB, steps = .2, .5, 1, 2, 5, 10, 20, 50ms, default = 5ms
Release 5ms to 1s/dB, steps = 5, 10, 20, 50, 100, 200, 500, 1000ms, default = 100ms

Programming is simple and straight-forward using Protea System Software and an RS-232 Interface

Any input may be routed to any output

Bypass for Delay, EQ, Gate, Autoleveler and Ducker

Individual Channel Muting

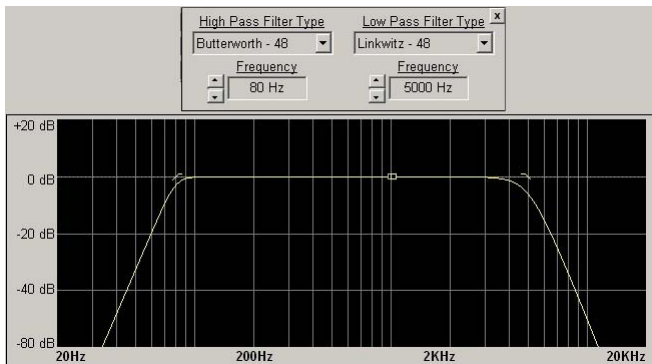
Protea 24.24M Matrix Processor

Output Block Definitions

Output Card Four channels - all with full processing power in each channel

Up to 4 output cards may be installed for a total of 20 output channels!

Outputs Available	Inputs
4	4,8,12,16,20
8	4,8,12,16
12	4,8,12
16	4,8
20	4

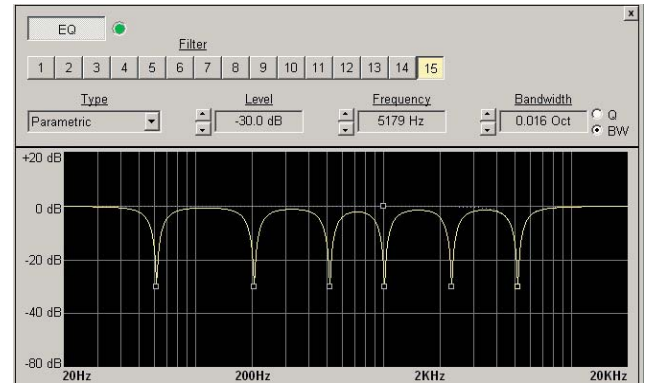


HPF - LPF

Set Crossover Frequencies - Choose from Bessel, Butterworth or Linkwitz-Riley

Type 12 to 48dB/oct, steps =12, 18, 24, 48dB/oct, Butt, Bessel, LR, default =24dB/oct LR

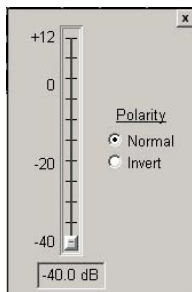
Frequency 20Hz - 20kHz, off 1 Hz increments, default =Full Range



EQ

15 Total - Choose from parametric, shelf or allpass. Adjust frequency, level and Q

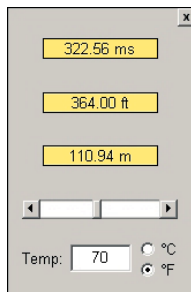
Frequency 20Hz - 20kHz, 1Hz increments, default = 1kHz
 Level +15 to -30dB, 0.1dB increments, default = 0.0dB
 Q .016 to 4 oct., default = 1 oct. BW
 Type PEQ, 4 shelf types, Allpass, default = PEQ



Gain

Set gain stage for optimum level

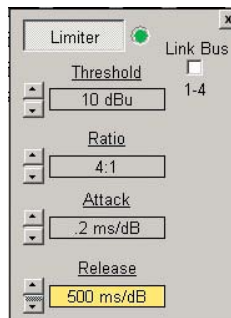
Gain +12 to -40dB, 0.1dB increments, default = -40.0dB



Delay

Set channel delay max delay 682ms

Delay 0-682ms, .020833ms increments, default = 0ms



Limiter

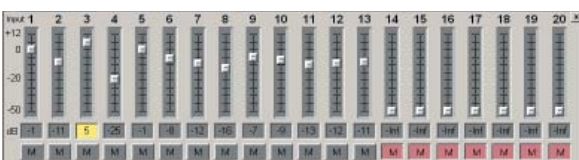
Protect your system from harmful audio peaks or keep output levels within a specified range

Threshold +20dBu to -20dBu, 1dB increments, default = 0dBu
 Ratio 1 to inf steps = 1.2, 1.5, 2, 3, 4, 6, 10, 20, inf, default =10:1

Attack .5 to 50ms/dB steps = .2, .5, 1, 2, 5, 10, 20, 50ms, default =5ms

Release 10ms to 1000ms/dB steps =5, 10, 20, 50, 100, 200, 500,1000ms, default =100ms

Link Channels On or off, default =Not Linked



Cross Point Mixer

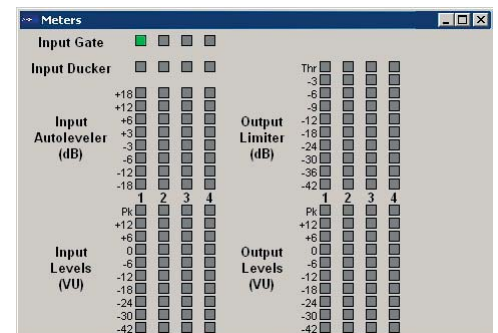
Mix or mute any or all inputs separately to the output without affecting the input structure

Gain +12 to -50dB then -INF, 1dB increments, default =-INF
 Mute on or off, default =Not Muted

Inputs may be routed to any output

Bypass for HPF/ LPF, Delay, EQ and Limiter

Whole Channel and Cross Point Mixer Input Muting



Meters

Monitor signal levels, Autoleveler gain, Limiter reduction, Gate, Ducker, and clip status

Protea 24.24M Matrix Processor

Specifications

General Specifications Protea System II 24.24M

INPUT: Active Balanced, 18 Kohms
MAX. INPUT LEVEL: +20 dBu
OUTPUT: Active Balanced, 112 ohms
MAX. OUTPUT LEVEL: +20 dBu
FREQUENCY RESPONSE: 20 Hz-20KHz, ±0.25 dB
THD: <0.01% @1 KHz, +20 dBu
DYNAMIC RANGE: >110 dB (20 Hz-20 kHz) unweighted
OUTPUT NOISE: <-90 dBu unweighted

PROCESSOR:

INPUT A TO D: 24 bit
OUTPUT D TO A: 24 bit
PROCESSOR: 24 bit, 56 bit accumulator
SAMPLE RATE: 48 kHz
PROPAGATION DELAY: 1.46 ms

OTHER:

SIGNAL AND CLIP LEDs: Inputs: Green = -20dBu, Red = Clip
 Outputs: Green = -20dBu, Yellow = Limit, Red = Clip

RS-232 CABLE DISTANCE: 1300ft (Max)
MIDI CABLE DISTANCE: 500ft (Max)
POWER REQUIREMENTS: 90 - 240VAC, 50W max
SHIPPING WEIGHT: 13 lbs.
DIMENSIONS: 19.0"L x 3.5"H x 8.0"D
I/O CONNECTORS: Euroblock
ENVIRONMENTAL: 40-120 deg. F, noncondensing

Notes:

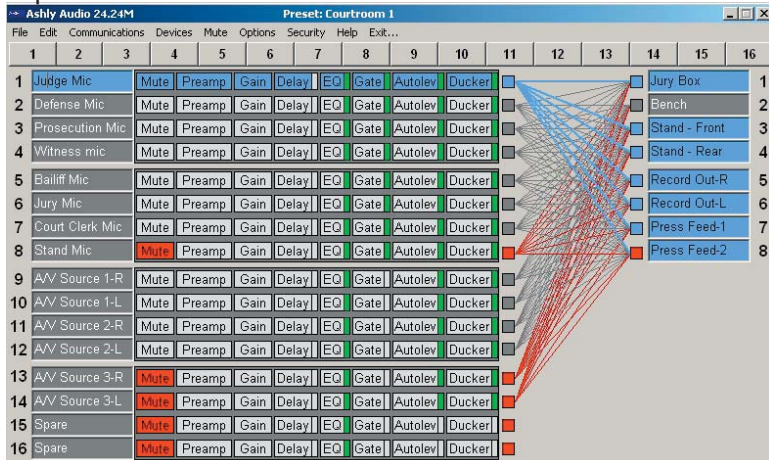
- 1) 0dBu = 0.775V RMS
- 2) Specifications subject to change without notice

Sample Application

16 X 8 Matrix

8 Microphone, 3 Stereo Line Inputs, 2 Spare Inputs - 8 Outputs

Input Section



Output Section

