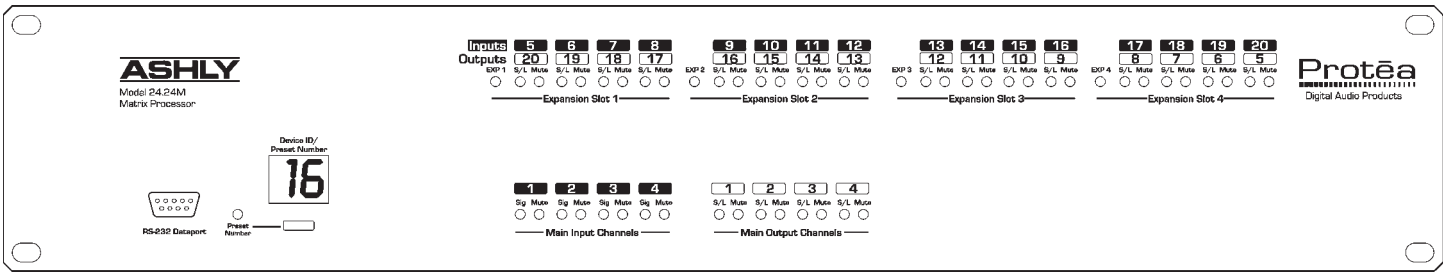
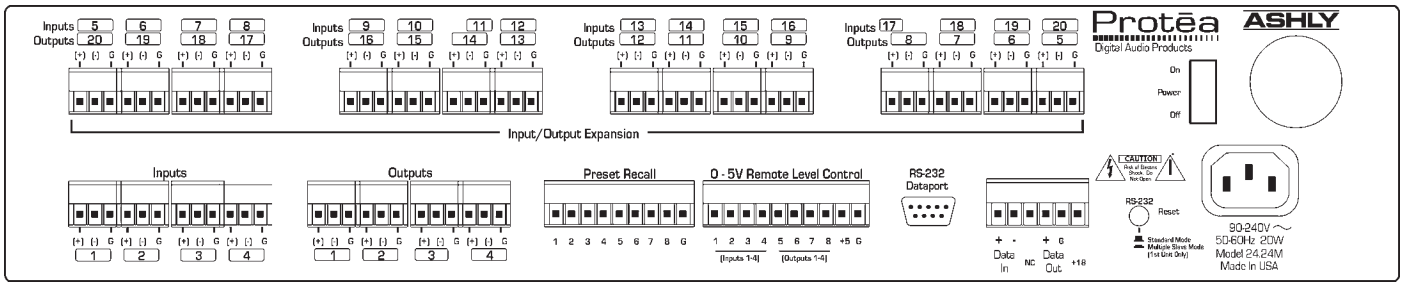
Protea 24.24M Matrix Processor

Features and Specs

November 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. 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:

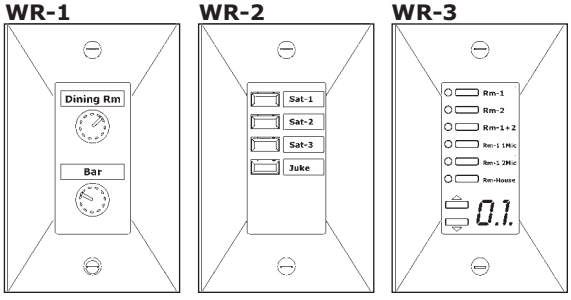
Corporate Boardrooms, Restaurants, Courtrooms, Houses of Worship, Left/Center/Right Theatres, Conference Centers, Auditoriums or anywhere a zoned system requires signal processing

- Base Model - Four Inputs Four Outputs
- Expandable To 24 Total Channels
- Inputs Configurable for Mic or Line Level
- 35 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)

Wall remotes are designed to fit in standard electrical boxes and can be ordered with white or beige faceplates.



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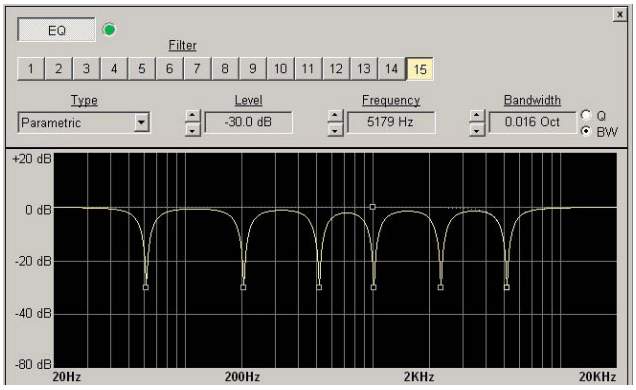
Input Block Definitions

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

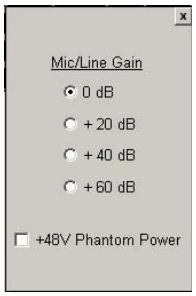
Up to 4 input cards may be installed for a total of 20 input channels!

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



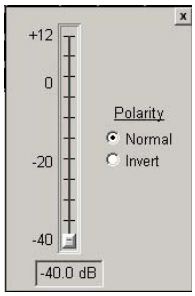
EQ
15 Total - Choose from parametric, shelf or allpass. Adjust frequency, level and Q

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



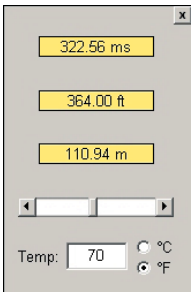
Preamp
Set optimum input gain

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



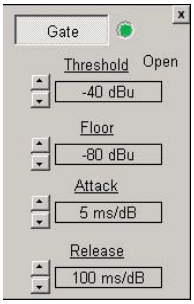
Gain
Set input gain stage for optimum level

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



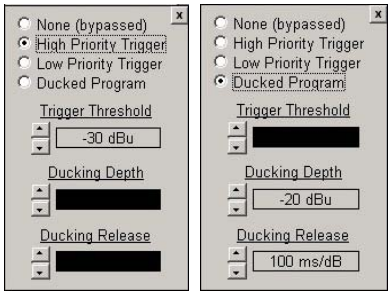
Delay
Set channel delay max delay 682ms

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



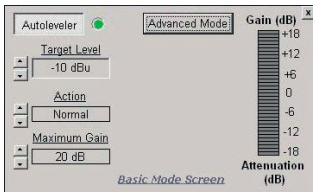
Gate
Automatically open and close channels

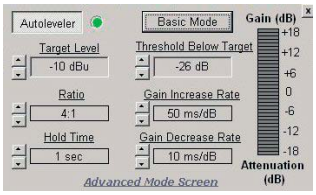
Threshold +20dBu to -80dBu
1dB increments, default = -40dBu
Floor 0dBu to -80dBu, 1dB increments,
default = -80dBu
Attack .2 to 50ms/dB,
steps =.2, .5, 1, 2, 5, 10, 20, 50ms,
default = 5ms
Release 5ms to 1s/dB,
steps = 5, 10, 20, 50, 100, 200, 500,
1000ms, default = 100ms



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

Basic Mode
Target Level: -40 to +20dBu, 1dBu increments, default = -10dBu
Action: Aggressive, Normal, Gentle, default = Normal
Maximum Gain: 0dB to 22dB,
1dB increments, default = 20dB

Advanced Mode
Target level +20dBu to -40dBu
1dB increments, default = -10dBu
Threshold below target 0 to -30dB 1dB increments default = -26dB
Ratio 1 to 10 steps =1.2, 1.5, 2, 3, 4, 6, 10, default = 4:1
Gain Increase Rate 5ms to 1s/dB,
steps =5, 10, 20, 50, 100, 200, 500, 1000ms, default = 50ms/dB
Gain Decrease Rate 5ms to 1s/dB,
steps =5, 10, 20, 50, 100, 200, 500, 1000ms, default = 10ms/dB
Hold time 0 to 6 sec,
1sec increments, default = 1sec

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

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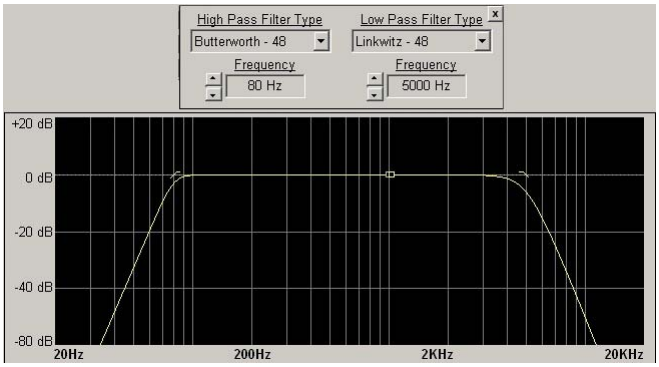
Output Block Definitions

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

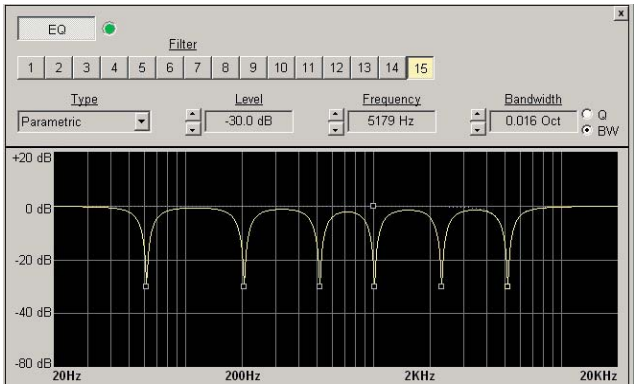
Up to 4 output cards may be installed for a total of 20 output channels!

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



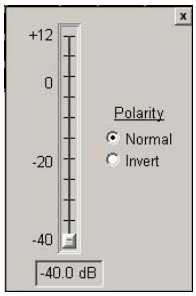
HPF - LPF
Set Crossover Frequencies - Choose from Bessel, Butterworth or Linkwitz-Riley

Type 12 to 48dB/oct, steps =12, 18, 24, 48dB/oct, Butterworth, Bessel, LR, default =24dB/oct LR
Frequency 20Hz - 20kHz, off 1 Hz increments, default =Full Range



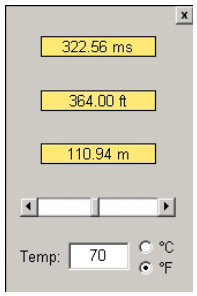
EQ
15 Total - Choose from parametric, shelf or allpass. Adjust frequency, level and Q

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



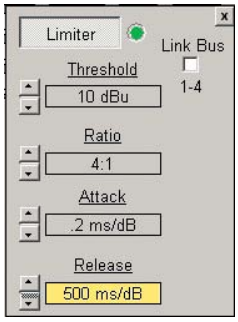
Gain
Set gain stage for optimum level

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



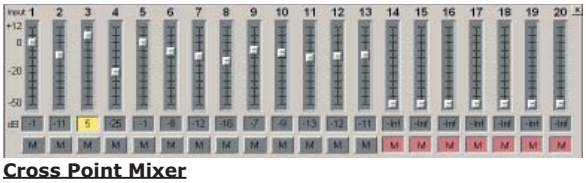
Delay
Set channel delay max delay 682ms

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



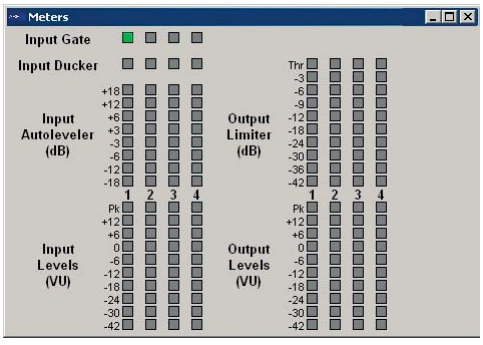
Cross Point Mixer
Mix or mute any or all inputs separately to the output without affecting the input structure

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

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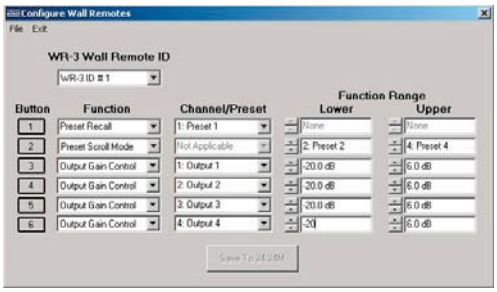
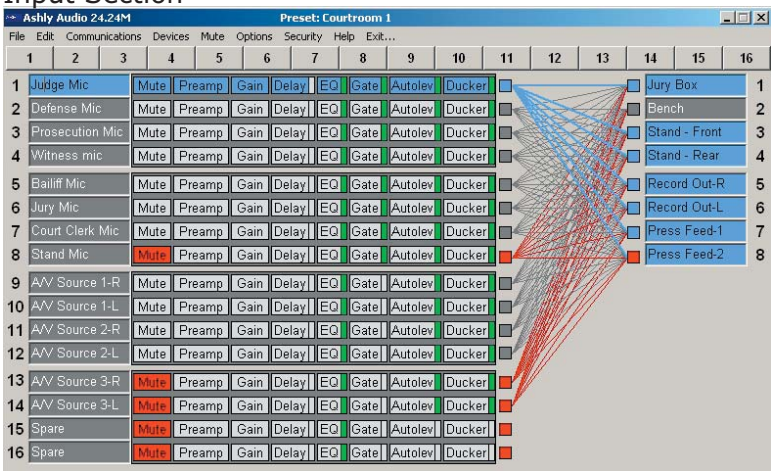
WR-3 Programmable Multifunction Remote



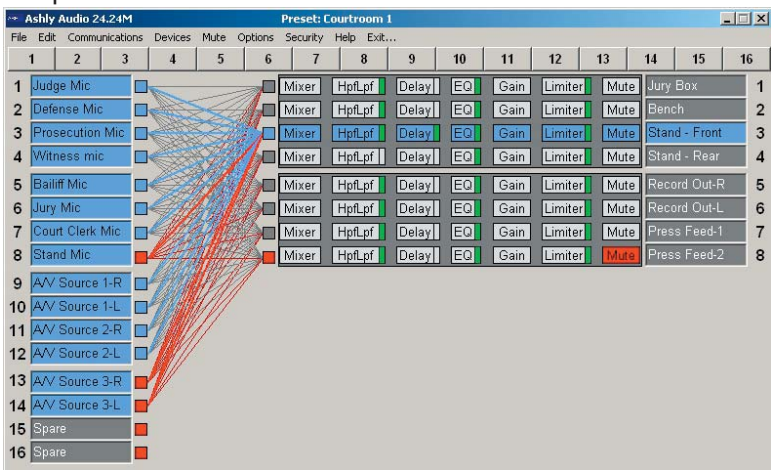
The 24.24M can be configured to be controlled by up to four separate WR-3 Wall remotes. The WR-3 select buttons can be mapped to one of six functions including Preset Recall, Preset Scroll, Input Gain Control, Output Gain Control, Input Mute Control and Output Mute Control. Configuration data is stored in the 24.24M and not in the WR-3.

Sample Application
16 X 8 Matrix
8 Microphone, 3 Stereo Line Inputs, 2 Spare Inputs - 8 Outputs

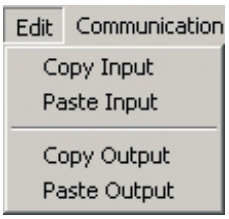
Input Section



Output Section

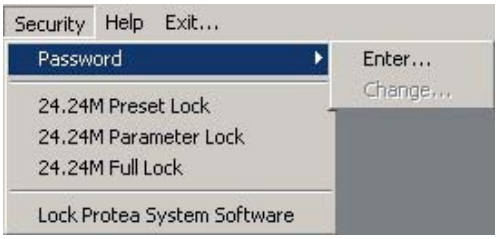


Setting up a system on your PC and then downloading the preset to the device saves valuable field time.



Editing channels is simplified when you copy and paste channels and then fine-tune the parameters

Protect the device from tampering with the multi-level security options



Control:
Protea System Software for PC control of the Protea 24.24M may be downloaded free from our web site. Use it to control the 24.24M, 4.24C, 4.24D, 4.24G, 4.24GS, 4.24PS, 2.24GS and 2.24PS. Download it now to preview the capabilities of the Protea System II Digital Products. Protea System Software operates on Windows™ 95, 98, 2000, XP and NT platforms.

Protea 24.24M Matrix Processor

Specifications

Input: Active Balanced, 18 kohms
Max Input Level: +20 dBu
Input Gain Range: -50dB to +12dB, selectable polarity
Output: Active Servo Balanced, 112 ohms
Max Output Level: +20 dBu
Output Gain Range: -50dB to +12dB, selectable polarity
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

Mic Preamp
Gain: 0dB, +40dB, +60dB
Phantom Power: +48VDC (9.6ma/input)
EIN: -128dBu, 20-20KHz, 50 ohm source

Eq Filters
Number: 15 per Input, 15 per Output
Selectable As:
Parametric
Bandwidth: 1/64th Octave to 4 Octave
Range: +15/-30dB, 0.1 dB increments
Frequency Resolution: 1Hz
Low-Shelf
Slope: Selectable 6 or 12dB/Octave
Frequency Range: 20Hz to 2KHz
Range: +/-15dB, 0.1dB increments
High-Shelf
Slope: Selectable 6 or 12dB/Octave
Frequency Range: 3.886KHz to 20KHz
Range: +/-15 dB, 0.1 dB increments
All-Pass
Type: Second-Order (-180 degrees)
Frequency Range: 20Hz to 20KHz

Crossover Filters
High Pass Filter
Type: Linkwitz-Riley, Bessel, Butterworth
Slope: 12, 18, 24 and 48dB/Octave
Frequency Range: Off to 20KHz, 1Hz increments
Low Pass Filter
Type: Linkwitz-Riley, Bessel, Butterworth
Slope: 12, 18, 24 and 48dB/Octave
Frequency Range: Off to 20KHz, 1Hz increments

Delay
Input Maximum Delay: 682.5ms
Increment: 20µs
Output Maximum Delay: 682.5ms
Increment: 20µs

Gate
Threshold: -80 to +20dBu, 1dBu increments
Floor: Off, -80 to 0dBu, 1dBu increments
Attack: .2, .5, 1, 2, 5, 10, 20, 50ms/dB
Release: 5, 10, 20 50, 100, 200, 500, 1000ms/dB

Autoleveler
Basic Screen
Target Level: -40 to +20dBu, 1dBu increments
Action:
Aggressive/ Ratio 10:1, Hold Time 0 sec, Gain Incr. Rate 20 ms/dB, Gain Dec. Rate 5 ms/dB
Normal/ Ratio 4:1, Hold Time 1 sec, Gain Incr. Rate 50 ms/dB, Gain Dec. Rate 10 ms/dB
Gentle/ Ratio 2:1, Hold Time 2 sec, Gain Incr. Rate 100 ms/dB, Gain Dec. Rate 20 ms/dB
Maximum Gain: 0dB to 22dB, 1dB increments
Advanced Screen
Target Level: -40 to +20dBu, 1dBu increments
Ratio: 1.2:1, 1.5:1, 2:1, 3:1, 4:1, 6:1, 10:1
Hold Time: 0, 1, 2,3, 4, 5, 6Sec
Threshold Below Target: -30 to 0dB, 1dB increments
Gain Increase Rate: 5, 10, 20 50, 100, 200, 500, 1000ms/dB
Gain Decrease Rate: 5, 10, 20 50, 100, 200, 500, 1000ms/dB

Ducker
Trigger Threshold: -80 to +20dBu, 1dBu increments
Ducker Depth: Off, -30 to 0dBu, 1dBu increments
Ducker Release: 5, 10, 20 50, 100, 200, 500, 1000ms/dB

Cross Point Mixer
Gain: Inf., -50 to +12dB, 1dB increments with Mute

Compressor/Limiter
Threshold: -20dBu to +20dBu, 1dB increments
Ratio: 1.2 :1 to Infinity (1.2, 1.5, 2., 3, 4, 6, 10, 20, Infinite:1)
Attack: 0.5 ms to 50 ms per dB
Release: 10 ms to 1 sec. per dB

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

Other
Power Requirements: 90 - 240VAC, 40W
Shipping Weight: 13lbs (Maximum)
Dimensions: 19.0”L x 3.5”H x 8.5”D
Connections: Euroblock
Environmental: 40-120 deg. F, (4-49 deg, C) noncondensing

More information about the Protea 24.24M Matrix Processor can be found on our web site - www.ashly.com

Specifications and features are subject to improvement or change without notice

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