322 DSP Engine

Symetrix
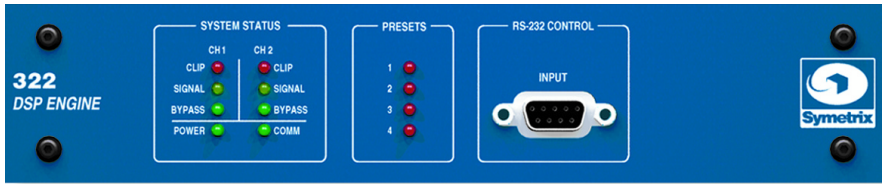
APPLICATIONS

● Performing Arts Centers

● A/V Presentation Systems

● Sound Masking Systems

● Houses of Worship

● Auditoriums

● Casinos

Expand your design possibilities with the 322 DSP Engine. By matching a deep set of processing features with a breakthrough price, the 322 delivers the benefits of DSP to small installed sound systems.

Designs that previously would have been cost prohibitive using multiple analog units, or requiring DSP power only available from large multi I/O platforms, are all possible with the 322.

A compact, all-in-one, general-purpose signal processor, the 322 features two inputs, two outputs, and 24-bit multifunction DSP. It provides all the processing generally needed between a mixing console and a power amplifier in small sound systems. Using 322 Designer™, a Windows based control application, installers create custom setups using these drag-and-drop processing modules: parametric EQ;

high-pass, low-pass and shelving filters; a crossover; a mixer; speaker alignment delay; bus routing; gate; and multiband comp/limiter.

Small installations with small budgets don't have to dictate small audio thinking. Enhance performance and increase flexibility with the 322 DSP Engine from Symetrix, the engineering driven company of signal processing specialists.

FEATURES

322 Designer	Using Symetrix 322 Designer software and a host PC, system designers can program the 322's presets and adjust audio parameters. Once programmed, the 322 can operate independently of the host computer.
Drag & Drop Setup	A simple Windows-based application editor allows installers to drag and drop processing blocks for a completely user-configurable signal flow. Place the blocks anywhere along the signal path and move them later to accommodate changing installation needs.
Presets	Four user presets. Trigger preset change using contact closure inputs on rear panel.
Remote Control	Two rear panel inputs for remote control of four internal parameters including volume.
Tamper-proof Operation	Control data streams through a front panel RS232 connection, leaving the 322's chassis tamper-proof.

Processing & Routing	**Filters** — Multiband 12 and 24 dB/octave low pass and high pass filters. Multiband 6 dB/octave shelving filters. Small speaker EQ.
	Dynamics Processing — AGC, gate and compressor/limiter with split-band mode. Split-band mode eliminates hole-punching and breathing while delivering great sounding peak level control.
	EQ — A total of 16 bands of parametric EQ.
	Crossover — Butterworth and Bessel filters with allowed crossover slopes of 6, 12, 18, 24, 30, 42, and 48 dB/octave. Only 12, 24, and 48 are allowed with Linkwitz-Riley enabled.
	Mixer & Send — Sum two channels or split one channel into two signal paths.
	Speaker Alignment Delay — Displays delay in either distance or time measurements. Permits manual correction of the delay time to accommodate changes in ambient temperature.
	Signal Generators — A pink noise generator with 6 minute cycle time for testing and sound masking applications.

REAR PANEL
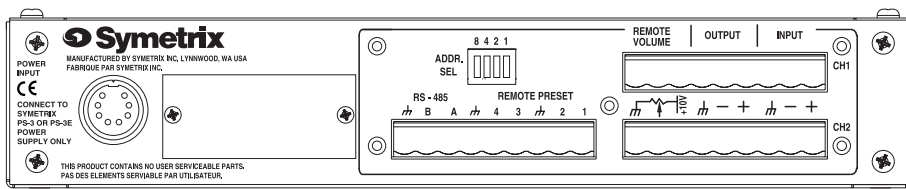
SPECIFICATIONS

Performance Data

Frequency Response	20 Hz to 20 kHz, +/–0.5 dB
Dynamic Range	108 dB typical
THD+Noise	–95 dB at 1 kHz typical
CMR	>40 dB
Crosstalk	<–50 dB at 10 kHz
Maximum Input Level	+24 dBu
Maximum Output Level	+24 dBu
Number of Stored Programs	4
Maximum Number of Units on a Single Daisy Chain	16
RS-485 Baud Rates	9600, 19200, 38400, 57600, 115200
RS-232 Baud Rate	38400

Connections

Line Inputs and Line Outputs	Euroblock
Control	RS-232 and RS-485
Device Address	Dip switch
Remote Preset Select and Volume Control	Euroblock
Power In	7-pin DIN

Physical

Size (H x W x D)	1/2 rack unit
	1.75 in. x 8.5 in. x 8.5 in. / 4.445 cm x 21.59 cm x 21.59 cm

Electrical

Power Requirements	16 W maximum, Symetrix PS-3 Series only

Host Computer Requirements

A Windows PC, 233MHz or higher Pentium processor: WIN 98SE, WIN ME, or WIN 2000; 5MB free storage; 1024 x 768 graphics; 16 bit or higher colors; CD-ROM drive or Internet connection; 32MB or greater RAM as required by the operating system.

ACCESSORIES

19" Rackmount Tray (1U)	RM-3
Filler Panel - Covers unused half of rack tray.	FP-3
RC-3 Remote Control - Controls one volume channel.	RC-3

ARCHITECTS AND ENGINEERS SPECIFICATIONS

The digital signal processor (Processor) shall have two inputs and two outputs. There shall be no user-accessible (front panel) controls. The Processor shall perform all signal processing functions in the digital domain utilizing 24-bit digital word lengths. Analog-to-digital and digital-to-analog conversion shall use 24-bit delta-sigma converters.

The Processor shall provide the following signal processing functions: high-pass and low-pass filters, high and low shelving filters, parametric equalizers, signal delay, single and split-band compression/limiting, automatic gain control (AGC), mixing, routing, gating, and crossover with adjustable slope and filter type. The Processor shall also provide pink noise for testing and sound masking purposes. All signal processing functions shall be controllable by a suitable graphical interface computer program.
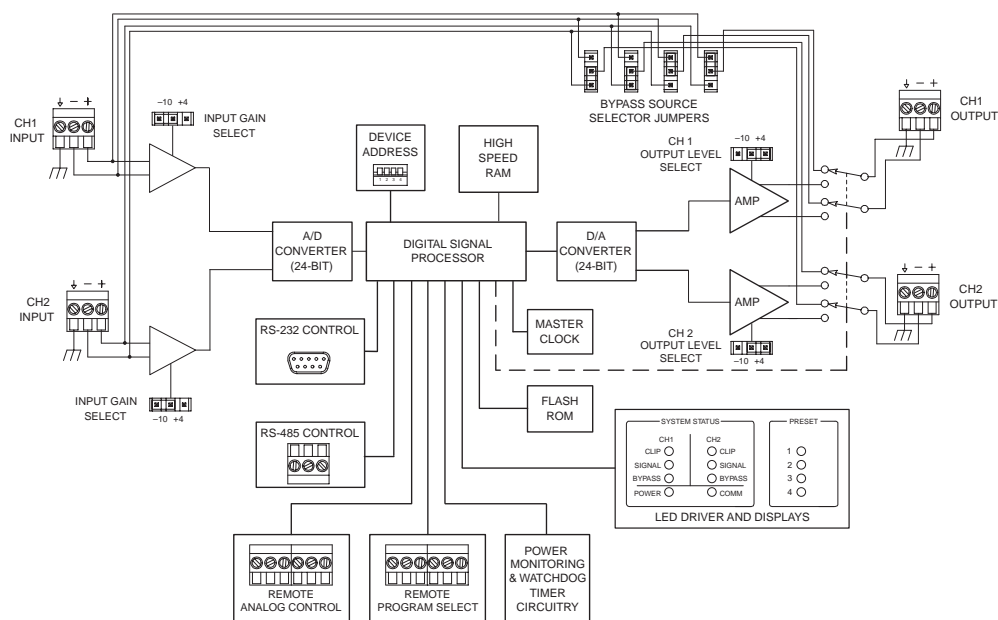
The computer control program shall allow each channel of the Processor to be configured to use any of the aforementioned signal processing functions via a drag-and-drop user interface. Each channel shall have eight locations for signal processing blocks. It shall be possible to interconnect the two channels of the processor so that one input drives both outputs.

Communication with the Processor shall take place via RS-232 serial protocol. The Processor shall be capable of storing 4 preset configurations in its own memory. The presets may be recalled via a contact closure arrangement. In addtion to the contact closure terminals, there shall be two analog remote control ports which can be programmed via graphical user interface. The system status shall be indicated on the front panel. The system programming port shall be located on the front panel. Up to 15 Processors shall be capable of being chain connected together via a rear-panel RS485 port while maintaining their ability to be assigned an address.

All audio connections shall be balanced and accessible via Euroblock connectors. RS-232 connections shall utilize DB-9 female connectors. There shall be no batteries within the Processor. The digital signal processor shall be the Symetrix 322 DSP Engine.

SIGNAL FLOW DIAGRAM

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