

S P E C I F I C A T I O N S



MediaMatrix® MM™-900nt SERIES

Description

The MediaMatrix® MM-900nt Series Mainframe is the flagship of Peavey's digital signal processing product line. It is a software-based, integrated sound system design, control, and hardware platform that requires only microphones and their preamps, power amplifiers, and speakers to provide a complete and working system. The 900 Series Mainframe is based on an open architecture that utilizes a modular computer mainframe including dual redundant power supplies, a floppy disk drive, a CD-ROM drive, a system controller board, and up to eight digital signal processing boards. Fully loaded, the system can provide all needed signal processing for 256 audio input lines and 256 audio output lines. There are two models in the 900 Series: the MM-980nt and the MM-960nt. The MM-980nt includes dual, removable, mirrored redundant hard disk drives. The MM-960nt has a single hard disk drive.

The Series CPU is Intel® Pentium® III-based, and the user's control and design interface GUI is Peavey's MWare™ 3.x running under Microsoft® Windows® 2000 Professional. The MediaMatrix MWare 3.x software provides the user/designer the ability to design, wire, operate, control,

and troubleshoot a complete digital audio system in the software domain. The user/designer can create control panels and devices to provide solutions not possible on other DSP audio platforms.

The 900 Series Mainframe accommodates three types of DPU boards. Each of these DPU board types employs four Motorola® 56002 80 MHz DSP chips and provides signal processing for up to 32 digital audio inputs and up to 32 digital audio outputs. Due to extremely efficient code, an exceptional amount of processing can be accomplished while maintaining double-precision DSP filtering on each DPU board. The MM-DSP-RJ is the standard DPU board that interfaces to the Peavey MM-8802 Break-out-Boxes (BoBs). The MM-DSP-AES interfaces to AES/EBU standard digital signal I/Os. The MM-DSP-CN interfaces to the Peavey CAB™ Series CobraNet™ bridges, which transport audio and control via an Ethernet network.

Features

- Up to 256 inputs and 256 outputs
- Slots for up to eight DPU boards
- Over 600 software audio devices available in library
- Double-precision DSP filtering for

- accurate filter characteristics
- Standard 19" NEMA rack-mount enclosure with slide rails:
7" H x 19" W x 30" D space required
17.78 cm H x 48.26 cm W x 76.20 cm D
- Two 400 Watt, removable, load-sharing, front-accessible power supplies
- Lockable front control panel
- Mouse and keyboard ports on front and back panels
- Two switches for keyboard lock and front door lock
- Two front-panel removable, 3.5" mirrored, redundant 10+ gigabyte hard disk drives (MM-980nt); one for the MM-960nt
- 1.44 megabyte, 3.5" floppy disk drive
- 32X CD-ROM drive
- Rugged, American-made steel construction
- Positive airflow chassis cooling
- True color, PCI video with 8 megabytes of video RAM and selectable resolution from 640 x 480 to 1,600 x 1,200, plus refresh rates from 43 Hz to 200 Hz
- 10/100BaseT Network interface port provided

Applications

- Stadiums
- Cruise ships
- Multi-purpose facilities

- Auditoriums
- Large-scale paging systems
- Schools
- Courts of law
- Airports
- University campus buildings
- Theme parks
- Performing arts centers
- Distance learning centers
- Hotel meeting room complexes
- Houses of worship
- Conference centers
- Teleconferencing systems
- Civic centers
- Theaters
- Arenas

DIGITAL ELECTRONICS SPECIFICATIONS

System Controller Board:

Pentium® III SBC (single board computer)

Processor: Intel® Pentium III 800 MHz or equivalent, or better (MM™-980nt); Pentium III 750 MHz or equal, or better (MM-960nt)

Cache: 512 kilobytes or more

Memory: 512 MB or more PC-100 RAM (MM-980nt); 256 MB or more PC-100 RAM (MM-960nt)

Drives:

- 3.5" 1.44 megabyte floppy disk drive
- 32X CD-ROM
- Dual 10+ gigabyte, front-panel removable, mirrored, redundant hard disk drives on drive sleds (MM-980nt)
- 10+ gigabyte, front-panel removable hard disk drive on a drive sled (MM-960nt)

Video Port:

True color, PCI video board with 8 megabytes of video RAM and selectable resolutions from 640 x 480 to 1,600 x 1,200, plus refresh rates from 43 Hz to 200 Hz. The system is shipped set for 800 x 600 at 75 Hz.

Network Interface Port:

10/100BaseT fast Ethernet with RJ-45 connector

Digital Audio Processing Boards:

Digital Audio I/O: 32 channels in / 32 channels out per DPU board for all DPU board types

Processors: Four Motorola® 56002 80 MHz DSP chips per board

Digital Audio Bussing: 256 inter-board channels (between DPU boards), 256 inter-cell channels (between DSP chips)

Backplane:

14-slot passive backplane with three PCI

slots and (11) ISA slots

SOFTWARE SPECIFICATIONS

Operating System:

Microsoft® Windows® 2000 Professional for system controller board. MWare™ 3.x for sound system design, control, and diagnostics (operates under Microsoft Windows 2000)

Virtual Audio Devices (In Software Environment Libraries):

- **AES** digital audio input and output ports and level controls
- **Automatic mixers** from 2 to 32 input channels with direct outputs and linking capability
- **Bitmaps** to incorporate a graphic into the system control interface
- **BoBs** (Break-out-Boxes) analog input and output ports and level controls, with control ports for virtually any system control parameter
- **Blocks:** a graphic object that contains a child window with a sub-system or sub-function, etc.
- **Bump panels:** a graphic object for a control area, label, message, etc.
- **Comments:** a text entry area to type in any type of note or comment for explanation or clarification
- **Control modifiers** to limit the range of controls
- **Crossover networks:** 2-, 3-, and 4-way using Bessel, Butterworth, and Linkwitz-Riley filter functions in appropriate slope-rates from 6 dB to 48 dB per octave in 6 dB increments
- **Delay lines:** 5, 50, and 200 ms, plus 3D position calculating delays, from 1 to 16 outputs
- **Diagnostics** for the system (compiled-in)
- **Diagnostics** for the system (non-compiled)
- **Dip panels:** a graphic object for a control area, label, message, etc.
- **Dynamics:** **AGCs, compressors, duckers, expanders, GAP Ambient Level Sensors™, noise gates, and limiters**
- **Equalization filters:** **all-pass filters, band-pass filters, CD horn lift, graphic EQs, high-pass filters, low-pass filters, parametric filter sets, shelving filters, and tone controls**
- **Error indicators** for digital errors
- **Feedback Ferret™** acoustic feedback elimination technology
- **Hardware failure indicators**
- **Labels:** graphic areas to type in any type of label, banner, etc.
- **Level controls:** **attenuators** with and without trim control (limits); **cross-faders; distribution amplifiers** with 2

to 16 outputs; **multi-channel attenuator groups** from 2 to 16 channels; **On-Off switches; panning attenuators** from 2 to 5 channels; **ramps** with adjustable ramp level change, ramp time, and ramp rate

- **Logic controls:** **Boolean** with 2, 4, 8 or 16 inputs **RPN: base integer RPN, base logic RPN, base % RPN, control inverter, dual flip-flop, event counter, or flip-flop** functions
- **Meters:** **LED** with tiny and large signal-presence or overload indication, **Peak** and **RMS** meters in four appearances with parameter controls
- **Mixers** from 2 to 64 inputs and from 1 to 16 outputs
- **Presets:** up to 255 system-wide with more possible
- **Program launchers** to launch other programs from within MWare™ 3.x
- **RoomLink™** room combiners, using either automixers, mixers, or mixers with delay, for 3 to 15 rooms
- **Routers:** from 1 to 32 inputs and from 1 to 32 outputs, with or without
- **Processor** preconfigurations for four Peavey speaker systems
- **Sub-presets:** up to 255 for individual child windows with more possible and schedulable with a built-in event timer
- **System mute:** to mute all outputs simultaneously
- **Test functions:** **DC-voltage generator, frequency-response probe, I/O probe, pink-noise generator, signal probe, sine-wave generator, and a white-noise generator**
- **Title blocks:** a graphic area to type in any type of title, etc.
- **Via** function to allow a signal to loop back up the signal chain without creating feedback oscillation
- **Wave file players** for 32, 44.1, and 48 kHz system sample rates at 100%, 50%, and 25% of that sample rate.

- Notes:** (1) New devices may be created and stored by the user in these libraries.
(2) Any control parameters of any of the above devices may be controlled via the control ports on the BoB or CAB I/Os, and via third-party control software with a properly configured interface port.

GENERAL SPECIFICATIONS

Controls:

- Front door lock
- Keyboard lock
- System power switch
- Power and hard drive LEDs

- power switch, power and power fail LEDs, plus audible failure tone per power supply
- Chassis slide rails

Connectors:

Front panel: (1) AT keyboard connector and (1) PS2 mouse connector

Rear panel: (1) Euro-style AC cord connector, (1) DB-25 parallel connector, (1) PS2 keyboard connector, (1) PS2 mouse connector (1) DB-15 video connector, (2) COM port DB-9 connectors (COM 1 and COM 2) and (1) RJ-45 10/100BaseT connector

Dimensions:

MM™-980nt and MM-960nt:
6.97" H x 19" W x 26" D
(17.70 cm H x 46.26 cm W x 66.04 cm D)
Note: a NEMA standard 30"-deep rack is required.

Net Weight:

MM-980nt: 63 lbs. (28.64 kg)
MM-960nt: 60 lbs. (27.27 kg)

AC Power:

Two 400 Watt, redundant, removable, load-sharing, front accessible universal power supplies with Power Factor Correction, UL, CSA, and CE listed, Voltage: 100 to 120/200 to 240 VAC +/- 10%, auto-switching
Frequency: 50 to 60 Hz +/-5%

Maximum Power Consumption and Heat Generation Per Power Supply:

- 920 Watts, 3128 BTU/Hr. at 115 VAC fully loaded
- 1150 Watts, 3910 BTU/Hr. at 230 VAC fully loaded

Maximum In-rush Current Per Power Supply:

80A at 115 VAC, 40A at 230 VAC, 25° C cold start

Finish:

Grey powder-coat painted steel

Accessories:

- Detachable AC cord
- Rack slides
- Keys for front door, keyboard, and mouse
- Keys for mirrored, redundant hard disk drives (MM-980nt only)
- Microsoft® Windows® 2000 Professional CD
- Drivers for the 10/100BaseT fast Ethernet and PCI video ports

Product Agency Compliance Listings:
UL, CUL, CE, and FCC part 15, A

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The MediaMatrix® MM-980nt/MM-960nt Mainframe signal processor shall be a software-based, integrated sound system design, control, and hardware platform that requires only microphones, microphone preamps, power amplifiers, and speakers to provide a complete and working system. It shall be based on an open architecture that utilizes a modular computer mainframe including dual redundant power supplies, a floppy disk drive, a CD-ROM drive, a system controller board, and up to eight digital signal processing boards. The 900 Series Mainframe system shall provide all needed signal processing for up to 256 audio input lines and 256 audio output lines. It (MM-980nt) shall include dual, removable, mirrored redundant hard disk drives. Systems of lesser capacity shall not be acceptable.

The 900 Series Mainframe system's CPU shall be Intel® Pentium III-based, and the user's control and design interface GUI shall be Peavey's MWare™ 3.x running under Microsoft Windows 2000 Professional. The 900 Series Mainframe system's software must provide the ability to design, wire, operate, control, and troubleshoot a complete digital audio system in the software domain. It shall allow the creation of custom control panels and devices to provide unique solutions not possible on other DSP audio platforms. Additionally, it shall allow third-party control of virtually any adjustable parameter in the system design. Systems not providing the above capabilities and not operating under Microsoft Windows 2000's robust and stable operating system shall not be acceptable.

The 900 Series Mainframe shall accommodate three types of DPU boards: digital audio boards accommodating A to D / D to A converted signals conversion; AES/EBU standard digital audio signal boards; and digital audio boards for CobraNet™ bridges to Ethernet networked audio paths. Each of these DPU board types shall provide signal processing for 32 digital audio inputs and 32 digital audio outputs. Systems not accommodating various digital audio DPU boards shall not be acceptable.

The 900 Series Mainframe system shall have a CPU that is an Intel Pentium III

(800 MHz/750 MHz) with 512 kB of cache and (512 MB/256 MB) of RAM or equal, or better. It shall have a 1.44 MB FDD, a 32X CD-ROM drive, and a 10/100BaseT fast Ethernet interface port. Video shall be a true color, PCI video board with 8 megabytes of video RAM and selectable resolutions from 640 x 480 to 1,600 x 1,200, plus refresh rates from 43 Hz to 200 Hz (MM-980nt). The 900 Series Mainframe shall have dual, 10 GB or larger, front-panel removable, mirrored, redundant HDDs. (MM-960nt): The 900 Series Mainframe shall have a 10 GB or larger, front-panel, removable HDD. It shall also have a passive backplane that enables the digital audio to function during CPU failure. The backplane shall have (3) PCI slots and (11) ISA slots to enable maximum flexibility in system configuration. Systems of lesser CPU and video capabilities, or lacking the above drives or passive backplane and its flexible capacity, shall not be acceptable.

The 900 Series Mainframe shall accommodate up to (8) audio DPU boards. Each board shall provide digital audio signal processing for 32 input channels and 32 output channels. A 256 channel digital audio bus shall allow processing resources to be shared between DPU boards and DSP chips. Systems using hardware restricted digital audio paths shall not be acceptable.

The 900 Series Mainframe system shall operate under the Microsoft Windows 2000 Professional operating system for stable operation and increased network access security. The sound system design, control and diagnostics software shall be Peavey MWare 3.x, which allows the creation of custom control panels and devices to provide unique solutions not possible on other DSP audio platforms.

The virtual audio devices available for sound system creation shall include the following:

- **Automatic mixers** from 2 to 32 input channels with direct outputs and linking
- **AES** digital audio input and output ports and level controls capability
- **Bitmaps** to incorporate a graphic into the system control interface
- **BoBs** (Break-out-Boxes) analog input and output ports and level controls, with control ports for virtually any system control parameter
- **Blocks:** a graphic object that contains a child window with a sub-system or sub-

- function, etc.
- **Bump panels:** a graphic object for a control area, label, message, etc.
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- **Peak** and **RMS** meters in 4 appearances with parameter controls
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- **RoomLink™** room combiners, using either automixers, mixers, or mixers with delay, for 3 to 15 rooms
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- **Wave file players** for 32, 44.1, and 48 kHz system sample rates at 100%, 50%, and 25% of that sample rate

- Notes:** (1) New devices may be created and stored by the user in these libraries.
 (2) Any control parameters of any of the above devices may be controlled via the control ports on the BoB or CAB I/Os, and via third-party control software with a properly configured interface port.

Other software packages not offering the stability, security or flexibility of these operating system and design/control/ diagnostics packages shall not be acceptable.

The 900 Series Mainframe system shall have the following front-panel controls and connectors: Front door and keyboard locks, system power and reset switches; aux., power, and power fail LEDs; an AT keyboard and PS2 mouse connectors. On the rear panel, it shall have a Euro-style AC cord connector, a DB-25 parallel connector, a PS2 keyboard connector, a PS2 mouse connector, a DB-15 video connector, an RJ-45 10/100 BaseT network connector and two COM port DB-9 connectors for COM 1 and COM 2.

(MM-980nt): The 900 Series Mainframe shall have two, 400 Watt, redundant, removable, load-sharing, front accessible universal power supplies, UL, CSA, and CE listed. (MM-960nt): It shall have a 400-

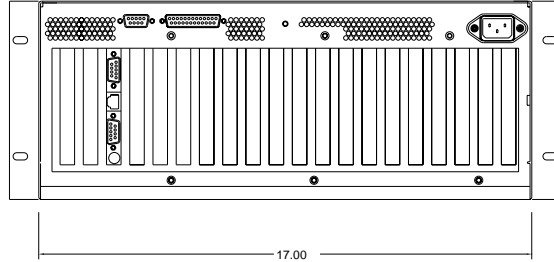
Watt power supply, UL, CSA, and CE listed. It shall operate on AC power at either 50 or 60 Hz +/-5%, from 100 to 120 VAC or 200 to 240 VAC +/-10% and with Power Factor Correction depending on the source voltage. (MM-980nt): Each power supply shall consume no more than 920 Watts and produce no more than 3128 BTU/Hr. at 115 VAC fully loaded, or consume no more than 1150 Watts and produce no more than 3910 BTU/Hr. at 230 VAC fully loaded. Each power supply shall draw a maximum in-rush current of no more than 80A at 115 VAC and no more than 40 A at 230 VAC. (MM-960nt): Its power supply shall consume no more than 920 Watts and produce no more than 3128 BTU/Hr. at 115 VAC fully loaded, or consume no more than 1150 Watts and produce no more than 3910 BTU/Hr. at 230 VAC fully loaded. The power supply shall draw a maximum in-rush current of no more than 80A at 115 VAC and no more than 40 A at 230 VAC.

The 900 Series Mainframe shall be 6.97" (17.70 cm) high by 19" (46.26 cm) wide by 26" (66.04 cm) deep and require a NEMA standard 30"-deep rack. It shall weigh (MM-980nt): 63 lbs. (28.64 kg)/ (MM-960nt): 60 lbs. (27.27 kg). Its front shall be finished in grey powder-coat painted steel. It shall be supplied with the following accessories: a detachable AC cord, rack slides, keys for the front door and keyboard lock, (MM-980nt): keys for mirrored, redundant hard disk drives locks, Microsoft Windows 2000 Professional CD, MediaMatrix MWare 3.x CD and drivers for the 10/100BaseT fast Ethernet board and PCI video board.

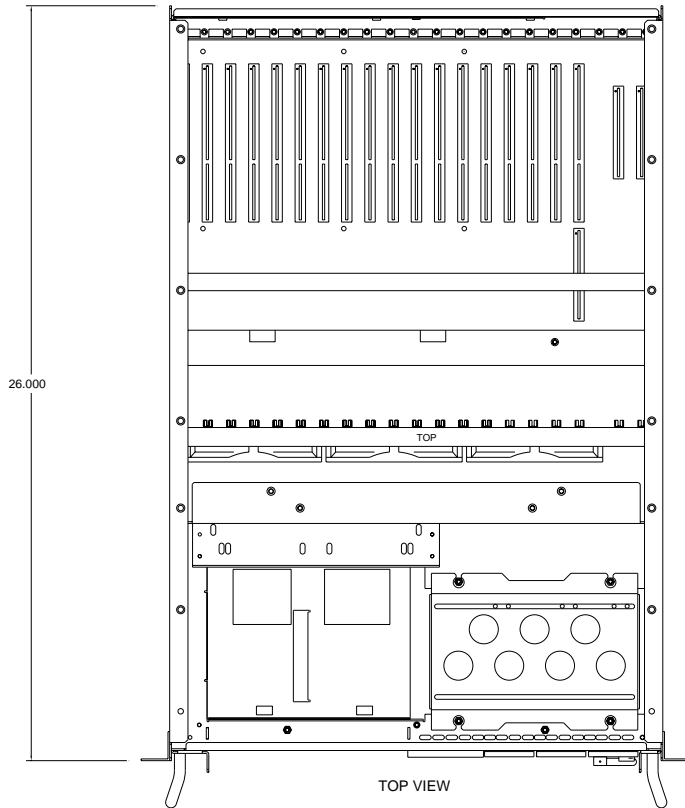
The 900 Series Mainframe shall be in compliance with the standards of and listed by UL, CUL, CE, and FCC part 15, A. The mainframe system shall be the Peavey MediaMatrix MM-980nt/MM-960nt.

Note: Microsoft® Windows® 2000 is a registered trademark of Microsoft Corporation, and Motorola® is a registered trademark of Motorola, Inc. Pentium® is a registered trademark of Intel. CobraNet™ is a trademark of Peak Audio, Inc.

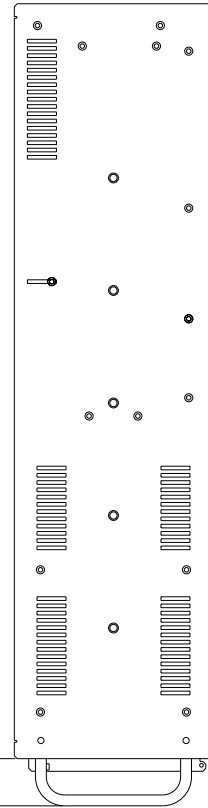
MM™ -960nt Mechanical Drawing



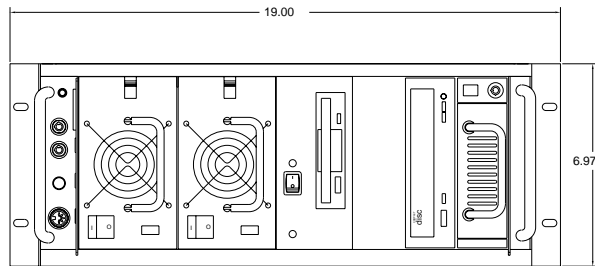
REAR VIEW



TOP VIEW



SIDE VIEW

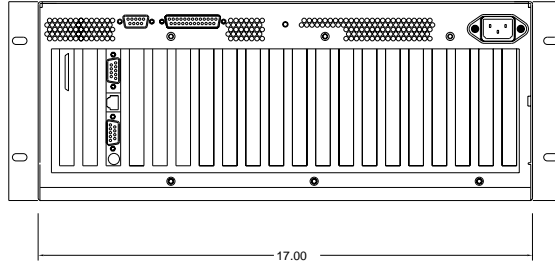


FRONT VIEW
(DOOR NOT SHOWN FOR CLARITY)

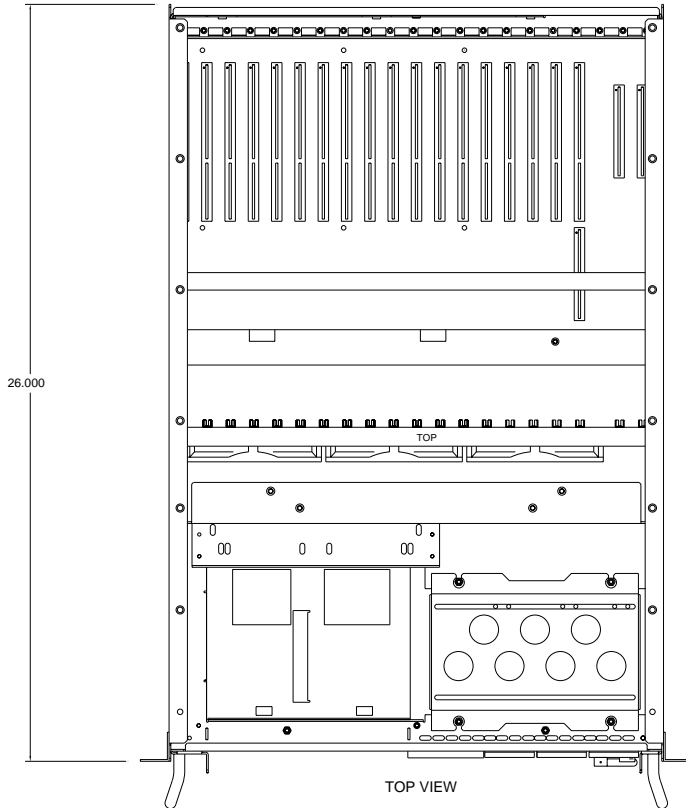
1 YEAR LIMITED WARRANTY

NOTE: For details, refer to the warranty statement. Copies of this statement may be obtained by contacting Peavey Electronics Corporation P.O. Box 2898, Meridian, Mississippi 39301-2898.

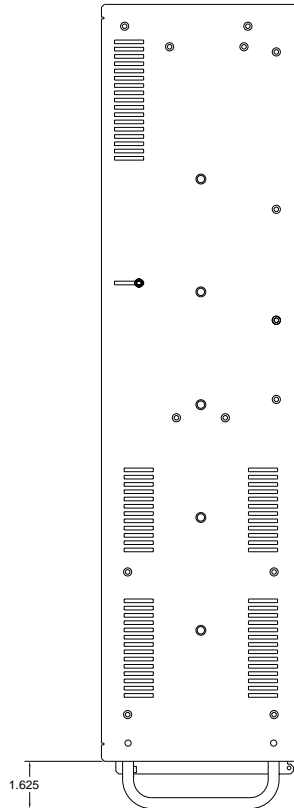
MM™ -980nt Mechanical Drawing



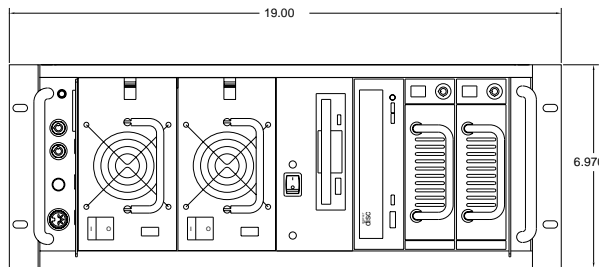
REAR VIEW



TOP VIEW



SIDE VIEW



FRONT VIEW



Features and specifications subject to change without notice.

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