SNG-VM

"THE SINERGIA INTEGRATED PA/VA SYSTEM PROVIDES FLEXIBLE, SPACE-SAVING AND COST-EFFECTIVE!"

PAVA Modular Processor

The SNG-VM is a PA/VA amplifier processor that offers 14 monitored speaker zones. It's equipped with 7 slots which can install either 250W x 2CH or 500W x 2CH highly efficiency, hot-swappable modular amplifiers, providing a maximum 14CH totally 6000W output power (burst power*1). In case the amplifier fails, one of specified internal modular amplifier or an external amplifier can act as spare backup amplifier, which will automatically take over the operations of the failed amplifier.

The Sinergia system offers a high level of full-redundancy and real-time monitoring loops for PA/VA installations. Including 2 redundant AC power supply, 48VDC battery backup with battery charger, A/B speaker lines for each zone, redundant paging console, redundant Ethernet network, and 3rd generation Ateis-Net real time audio network with less than 1 ms latency in redundant loop or star wired architecture.

The Ateis-Net is a highly secured and professional-grade audio network technology, and had been proven in many project installations since twenty years ago. Ateis-Net provides better performance and greater scalability than any other IP architectures offering on the market without additional network switch/router. Each amplifier processor can be networked up to 128 units via Ateis-Net in a redundant loop architecture. It can be linked via CAT5/6 cable or higher with RJ45 connector (max. length 100m between units), multi-mode fiber (2 km), single-mode fiber (20 km or even longer upon request). In addition, the system can be networked in star wired architecture in AES67, AES70 and Dante*2 and compatible at 48k 24 bit open long encryption mode.

Each amplifier processor has 4 monitored remote controller ports and each remote port can connect up to 16 paging consoles, and max. 32 paging consoles per SNG-VM. The remote ports can be wired in daisy-chain or in redundant loop*3. The maximum cable length is 250M (820 ft) between the SNG-VM processor and DPM-MAIN paging console via STP CAT5/6 cable or higher with metal shielded RJ45 connector.

The SNG-VM comes with 3 card slots for audio I/O expansion, slot A is used for analog telephone card or remote network paging card, and slot B/C can be equipped with 4CH Mic/Line in, 4CH Line out, 2CH Mic/Line in and 2CH Line out, 4CH digital I/O, VoIP and AES/EBU. The SNG-VM not only provides pre-defined configurations for time-saving set-up, but also offers a full drag and drop DSP architecture for more complex applications. The amplifier processor has internal message storage for up to 120 minutes and a Micro SD card interface for configuration backup with all security message storage. The PC based software provides event scheduler, DSP parameter adjustment, preset control, logic control, message player, VoIP, recorder etc., making the entire system flexible and easy to program and integrate.

In accordance with EN 54-16 and UL2572, the system, including power, micro controller, amplifiers, paging microphones and 70V/100V loudspeaker line is fully supervised with faults reported and logged. Multiple volume attenuators can be installed on monitored main speaker lines*4 without the need for a loop-back cable. The amplifier processor is an Eco-friendly product with extremely low power consumption during stand-by mode (7.2W). The Sinergia system also allows integration with third party control via RS232, RS485 and Ethernet.

*1: Burst power to refer to the ability of amplifiers to deliver power for a short duration at a power output level greater than the amplifier's ability to output continuous power.

*2: Audinate is the leading provider of professional digital audio networking technologies globally. Audinate's Dante platform distributes digital audio signals over computer networks, and is designed to bring the benefits of IT networking to the professional AV industry."

*3: If the control signal of DPM is not strong enough, it needs to connect to DLR01 digital loop repeater for extending the distance 250m longer. And if the power is not enough, connect a 24VDC local power on DLR01.

*4: The supervision of speaker lines is not included the wires which are connected to the VAT/VCT volume attenuators."

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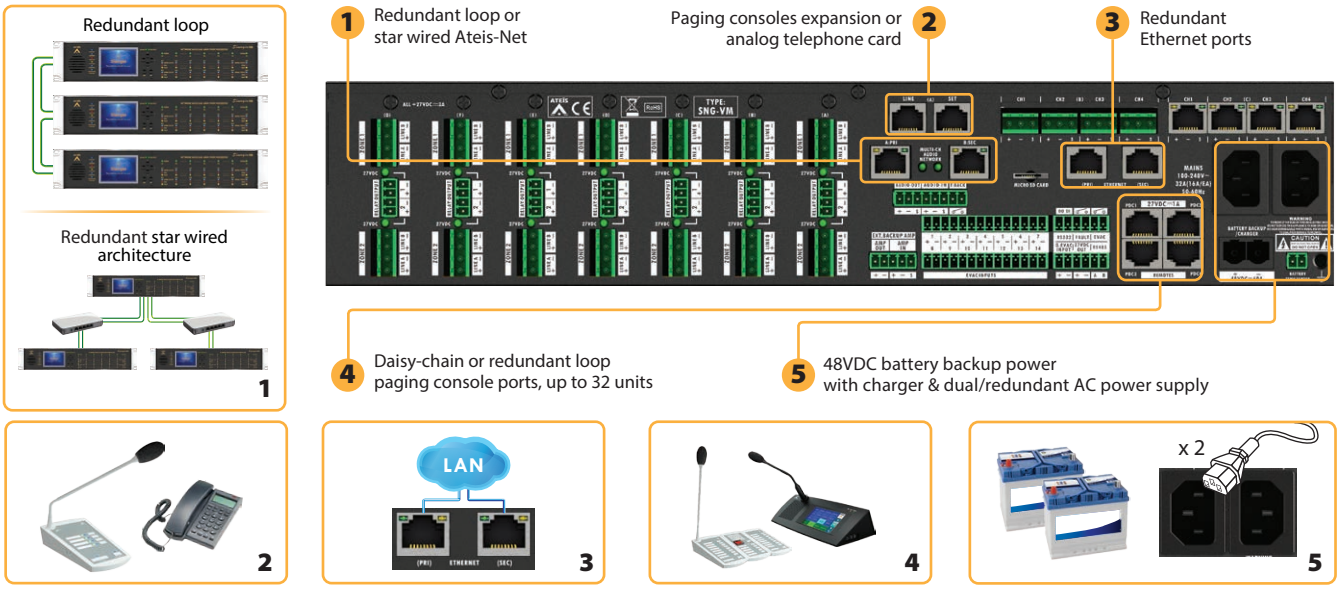
SYSTEM FEATURES

HIGH LEVEL OF FULL-REDUNDANCY ARCHITECTURE

1. Ateis-Net ports for real time audio network with less than 1 ms latency in redundant loop or star wired architecture.
2. Dual Ethernet ports with auto detection to switch to secondary network if the primary one fails or its cable is disconnected.
3. The 4 monitored remote controller ports can be wired in daisy-chain or in redundant loop using 2 ports.
4. Slot A is used for analog telephone card or redundant remote network paging card for multiple paging consoles expansion.
5. Embedded dual AC power units, 48 VDC battery backup power and the charger.



HOT-SWAP AMP BOARDS

- Support hot-swap amp boards (250W x 2CH or 500W x 2CH). Broken amplifier boards can be replaced directly from the front panel of SNG-VM amplifier processor.

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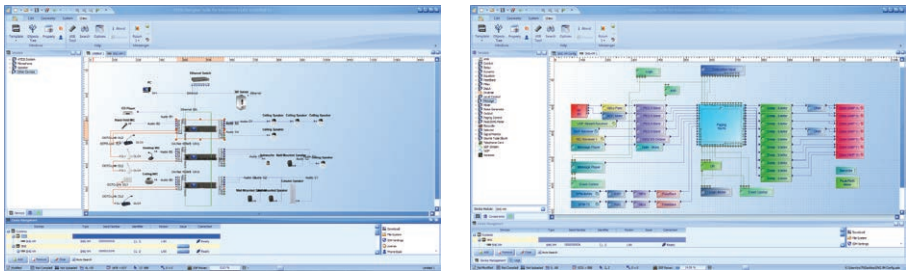
EXCELLENT AUDIO QUALITY & DSP PROCESSING

To meet the various requirement of PA/VA projects, the Sinergia system is programmed and controlled via a flexible and sophisticated PC-based software. Full-featured drag-n-drop functions on board, including event scheduler, preset control, logic control, message player (G.711, G.722, G.726, G.727, MP3, WAV and HE-AAC v2), recorder, AGC, A.N.G (Auto Noise Gain), PEQ, Hi/Lo Pass Filter, In/Out streaming via Delay, Ducker, Mixer, paging control, level control etc..



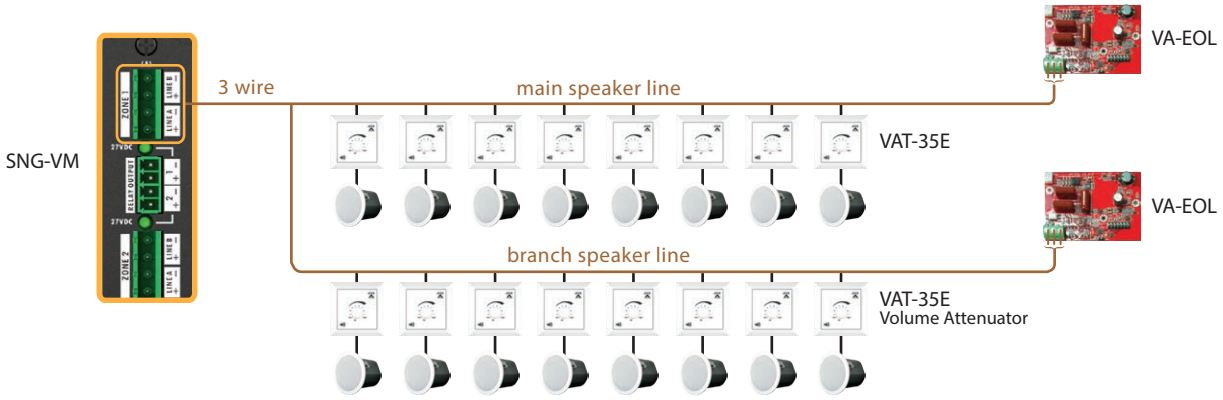
ATEIS Designer Suite

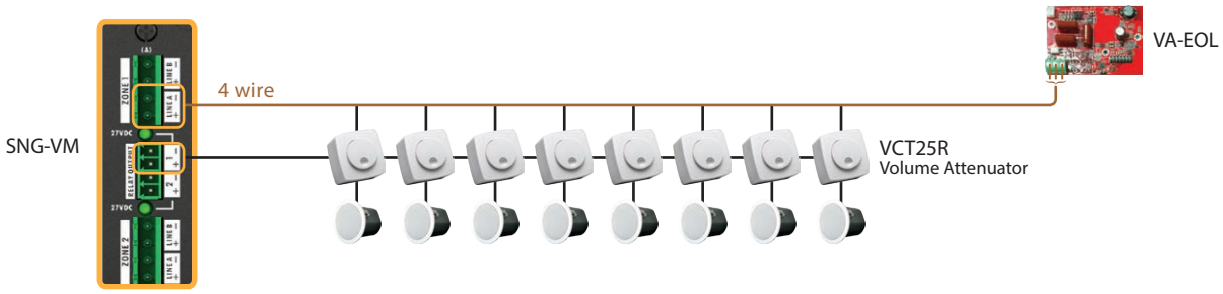
ECO-FRIENDLY PRODUCT

Sinergia is an eco-friendly product embedded amplifier processor, power amplifier and paging console that consumes as low as 7.2w in standby mode.

SPEAKER LINES MONITORING WITH VAT & VA-EOL/3 WIRE

By installing the VA-EOL end of SP-line module for multi-branch speaker line or 3 wired volume control attenuator, the system can indicate which speaker line/branch is open/short circuit within 90 seconds (EN 54-16 requirement) without the need for a loopback cable.





* The supervision of speaker lines is not included the wires which are connected to the VCT/VAT volume attenuators.

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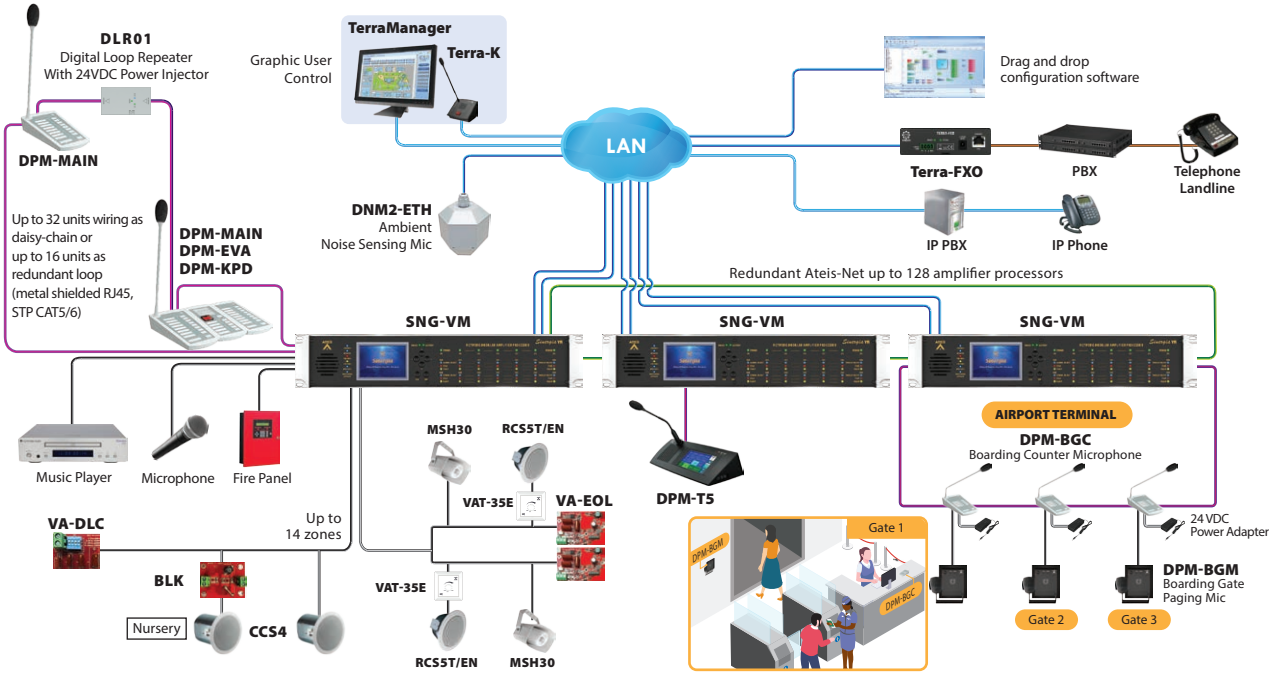
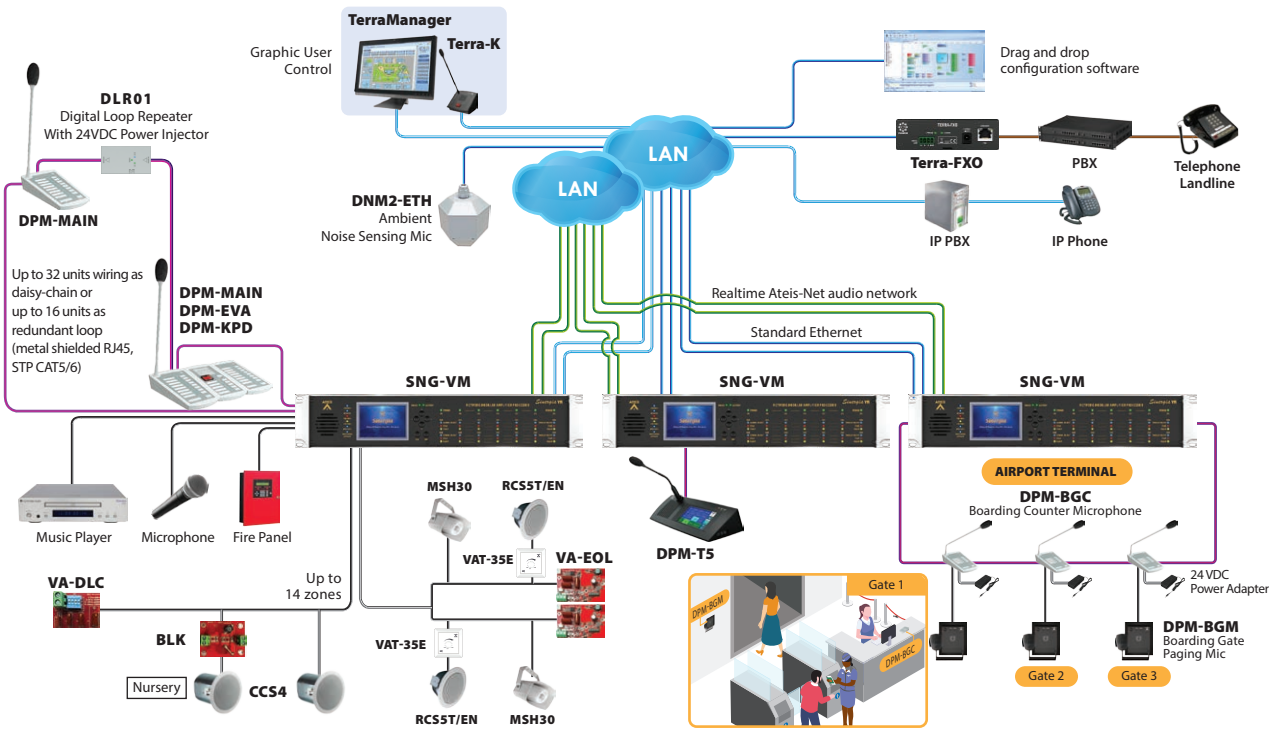
SYSTEM DIAGRAM

ATEIS-NET IN REDUNDANT LOOP



ATEIS-NET IN STAR-WIRED ARCHITECTURE



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CERTIFICATIONS AND APPROVALS (PENDING)

Europe	Voice Alarm	EN 54-4 EN 54-16
Europe	CE/EMI	EN 55032
Europe	CE/EMC	EN 61000-3-2 EN 61000-6-2 EN 61000-3-3 EN 61000-6-4 EN 55035
Europe	CE/LVD	EN 60065
USA	Mass Notification Systems	UL 2572
USA	Safety	UL 62368

CONTROLS AND INDICATORS

- **Front**
  - 3.5" full color touch screen LCD display
  - 6 LCD navigation buttons (+/-/▲/▼/OK/ESC)
  - Monitoring speaker
  - Mains LED
  - Battery LED
  - Amplifier board LEDs (Power, Signal/Select, EVAC, Fault)
  - Status LEDs (Ethernet, Network, Gen. Evac, Sys. Fault, Faultback, Monitoring Disabled)
- **Rear**
  - 2 redundant AC power cord sockets
  - 48 VDC battery backup power
  - 1 battery temperature sensor
  - 7 modular amplifier boards (250W x 2CH or 500W x 2CH) with up to14 speaker zones (A/B) outputs and 24VDC relay output for volume attenuator override
  - 14 relay output LEDs (27VDC)
  - 1CH external amplifier backup interface
  - 27VDC output (0.5A)
  - 2 Ethernet ports (for network redundancy)
  - 2 Ateis-Net ports for realtime audio network in redundant loop or star wired architecture
  - Slot A: analog telephone card or remote network paging card
  - Slot B/C: 4CH Mic/Line input card/4CH Line/input card 4CH Line output card /2CH Mic/Line input and 2CH/Line output card/VoIP card/AES-EBU 4 port/Digital I/O card
  - 4 digital interfaces for paging console and remotes
  - 1 Micro SD card for configuration backup with all security message storage
  - 14 monitored EVAC inputs and 1 global EVAC input
  - 1 fault and 1 EVAC relay output
  - Faultback mode allows the emergency paging/messages to all zones when CPU failed
  - RS232 and RS485 for third party control

ELECTRICAL

- AC power input: 100 VAC ~ 240 VAC, 50/60 Hz
- Power consumption (AC)

idle	1/2 full power	full power
24W	1800W	3300W

Idle: pilot tone -36 dB, 1/2 full power: alarm tone

- DC power input: 43 VDC ~ 56 VDC
- Power consumption (DC)

standby mode	idle	1/8 full power	1/2 full power	full power
6.5W	22W	510W	1800W	3300W

Idle: pilot tone -36 dB, 1/8 full power: speech, 1/2 full power: alarm tone

AUDIO CHARACTERISTICS

- A/D-D/A bit resolution: 24 bit
- Sampling rate: 48k Hz
- Frequency response: 20 Hz ~ 20k Hz (±1 dB) @ 0 dBu
- EIN: < -123 dBrA @ 42 dB gain
- THD+N: < 0.04 % @ 0 dB gain, -24 dBu (1k Hz) in
- CMRR: > 80 dBu @ 0 dB gain (1k Hz) in
- Crosstalk: > 90 dB @ 0 dB gain (1k Hz) in
- Input gain range: 0 ~ 66 dB (6 dB steps)
- Phantom power: 48 VDC, 15 mA
- Maximum input level: 17 dBu
- Maximum output level: 17 dBu
- Input impedance: 8k ohm
- Output impedance: 32 ohm

AMPLIFIER MODULE CHARACTERISTICS

- Output power (burst): 250W x 2CH or 500W x 2CH (100V or 70V line out)
- Output power (rated): 125W x 2CH, 250W x 2CH (100V or 70V line out)
- Frequency response: 20 Hz ~ 20 kHz (±3 dB) @ 0 dBu
- THD+N
  - Rated power, 50 Hz~20k Hz: <0.5 %
  - 6 dB below rated power, 50 Hz~20k Hz: <0.1 %
- SNR: > 90 dB

WATTAGE CAPACITY

- Burst power: 500W per zone, and 6000W per unit (100V or 70V line out)
- Rated power: 250W per zone, and 3000W per unit.

LOUDSPEAKER OUTPUTS

- Maximum number of speaker zones: 14 with redundant A/B lines

NETWORK

- Ateis-Net redundant loop structure: 128 units (max.)
- Ateis-Net star wired structure: 256 units in a local area network
- Max. distance between the units: 100m (RJ45 CAT6 or higher), 2 km (multi mode fiber optic) and 20 km (single mode fiber optic)
- Max. remote unit/per processor: 32
- Max. distance between remote units: 250m (metal shielded RJ45 connector, STP CAT5/6)

RELAY OUTPUTS

- Maximum voltage: 100 VDC
- Maximum current: 0.5A

EVAC INPUTS

- Voltage mode
  - Maximum voltage: 72 VDC
  - Active voltage: 18 VDC ~ 72 VDC
  - Inactive voltage: < 0.8 VDC
- Contact mode
  - Non-isolated analogue interfaces with internal pull-up to +5V by 10k ohm
  - Monitored analogue contact thresholds
    - Faulty-open circuit: > 2.7 VDC
    - Inactive voltage: 2 ~ 2.5 VDC
    - Active voltage: 1.35 ~ 1.7 VDC
    - Faulty-short circuit: < 0.6 VDC

MECHANICAL

- Dimensions (W x H x D): 481 x 88 x 451 mm (18.9 x 3.5 x 17.8 inch)
- Frame weight: 11 kg (24.2 lbs) excl. amplifier and optional cards
- Mounting: 19" 2U rack
- Colour: RAL 7016

ENVIRONMENTAL

- Operating temperature: -5 °C ~ +55 °C (+23 °F ~ +131 °F)
- Storage temperature: -40 °C ~ +70 °C (-104 °F ~ +158 °F)
- Relative humidity: 20% to 95%
- Air pressure: 600 to 1100 hPa
- Heat dissipation: 1025 BTU/hr

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Ordering Information

Model No.	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Description of Model
SNG-VM	Backup Power	Number of 250W x 2CH AMP Card	Number of 500W x 2CH AMP Card	Number of Isolator	Slot A	Slot B	Slot C	Network Card	PA/VA Modular Processor - Rack Mount Type
SNG-VW									PA/VA Modular Processor - Wall Mount Type

Choose Backup Power							
							No Backup Power
D							DC Backup Power
A							AC Backup Power
Number of 250W x 2CH AMP Card							
	0						None
	1~7						Number of 250W x 2CH AMP Card
Number of 500W x 2CH AMP Card							
		0					None
		1~6					Number of 500W x 2CH AMP Card
Number of Isolator Card							
			0				None
			1~7				Number of Isolator
Slot A							
				T			None
				P			Telephone Card
				N			Remote Network Paging Card
*** Slot B/C** (choose 2 in order)							
					M		4CH Mic/Line Audio Input Card
					L		4CH Line Audio Input Card
					O		4CH Line Audio Output Card
					H		2CH Mic/Line Input & 2CH Line Audio Output Card
					A		4CH Mic/Line Input card with AEC
					E		Stereo AES-EBU I/O Card, 4 Port
					K		OCTOLINK Card
					V		4CH Duplex VoIP Card
					F		Analog TEL Card with 4 Line
					T		Analog TEL Card with 2 Line and 2 Set
					S		2CH Mic/Line In & Analog TEL 1 Line & 1 Set Card
					N		None of the card is installed
Network Card							
							None
						RR	RJ45(A)-(B)
						MR	Fiber Multi Mode(A)-RJ45(B)
						SR	Fiber Single Mode(A)-RJ45(B)
						RM	RJ45(A)-Fiber Multi Mode(B)
						RS	RJ45(A)-Fiber Single Mode(B)
						MM	Fiber Multi Mode(A)-(B)
						SS	Fiber Single Mode(A)-(B)

*** Please selects two cards for B/C slots in order when buyer make an order:**

- M → L → O → H → A → E → K → V → F → T → S → N

Amplifier Module	
AMP500D	Amplifier Module 250W x 2CH
AMP1000D	Amplifier Module 500W x 2CH