



SNG-VM



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

PAVA Modular Amplifier 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 amplifier modules, providing a maximum 14CH, totally 7000W output power (burst^{*1}). In case the amplifier fails, one or two channel of internal amplifier or an external amplifier can act as backup amplifier, which will automatically take over the operations of the failed amplifier.

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

The ATEIS-Net is a highly secured and professional-grade audio network protocol, and had been proven in many world famous project installations more than two decades. 3rd generation ATEIS-Net provides most secured performance and greater scalability than any other IP architectures. Each amplifier processor can be networked up to 256 units via ATEIS-Net in a redundant loop architecture. It can be linked via STP 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 support AES67 and AES70 audio network protocol 48k sampling with AES128, TLS high security encryption.

Each amplifier processor has 4 monitored remote 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. The maximum cable length is 250M (820 ft)^{*3} 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 card of 4CH Mic/Line in, 4CH Line in, 4CH Line out, 2CH Mic/Line in and 2CH Line out, 4 port digital I/O (8 in/8 out), 4CH VoIP and 8CH Stereo AES-EBU I/O. 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 and/or particular professional 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 but easy to integrate and setup.

In accordance with EN 54-16 and UL 2572, the system, including AC mains and DC backup power with charger, micro controller, amplifiers, paging microphones and 70V/100V loudspeaker line are fully supervised with faults reported and logged. Multiple volume attenuators can be installed on monitored main speaker lines 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 (20W). The Sinergia system also allows integration with third party control via RS232, RS485 and Ethernet.

*1: Burst power calculation is refer to CEA-490-A-R2008 which works with 20 ms long sine bursts, which repeat themselves every 500 ms.

*2: In star wiring mode, less than 1 ms within 7 hubs or switches. In redundant loop mode 1 ms within 12 nodes, and then 83.3 μs more per node.

*3: If more remotes, the cable length will be shorter. It may required DLR01 digital loop repeater for distance extension.

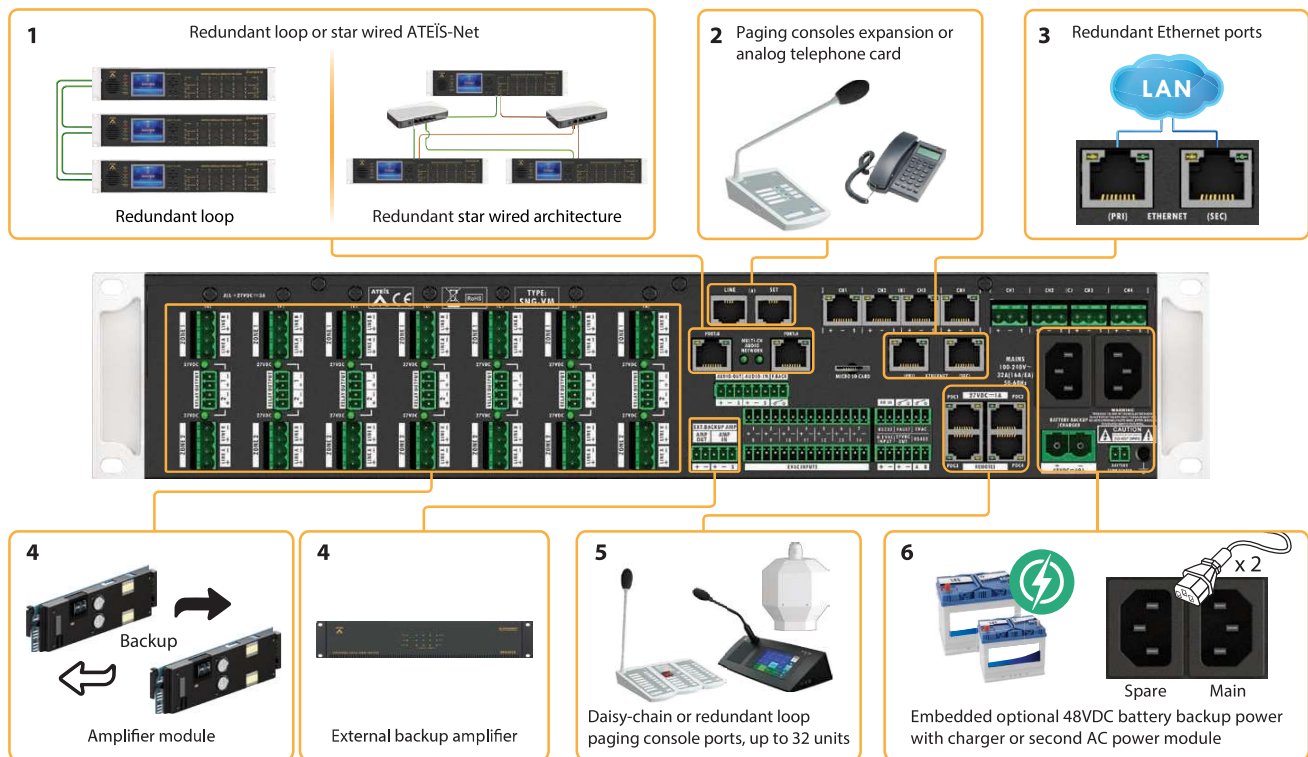
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SYSTEM FEATURES

HIGH LEVEL OF FULL-REDUNDANCY ARCHITECTURE

1. ATEIS-Net ports for real time audio network with less than 1 ms² latency in star wired architecture or redundant loop
2. Slot A is used for analog telephone card or redundant remote network paging card for multiple paging consoles expansion
3. Dual Ethernet ports with auto detection, switch to secondary network if the primary one fails or its cable is disconnected
4. In case the amplifier fails, one of specified internal amplifier channel or an external amplifier can act as a backup amplifier
5. The 4 monitored remote controller ports can be wired in daisy-chain or in redundant loop using 2 ports
6. Embedded optional 48VDC battery backup power with charger or second AC power module



HOT-SWAP AMP MODULES

- Support hot-swap amp module 250W x 2CH and 500W x 2CH (burst*). Failure amplifier module can be replaced directly from the front panel of SNG-VM amplifier processor.



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EXCELLENT AUDIO QUALITY & DSP PROCESSING

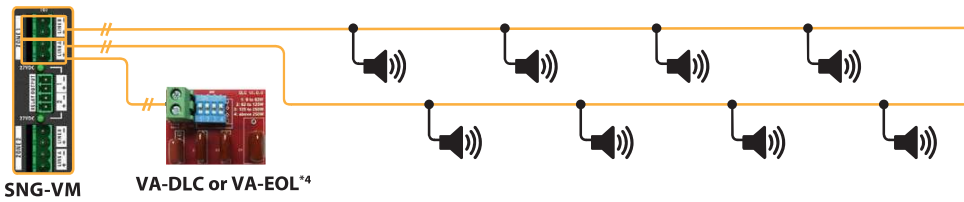
To meet the various requirement of PA/VA projects, the Sinergia system is programmed and controlled via a flexible and sophisticated PC-based software.

Full-featured drag-n-drop functions, 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, Delay, Ducker, Mixer, paging control, level control, etc.

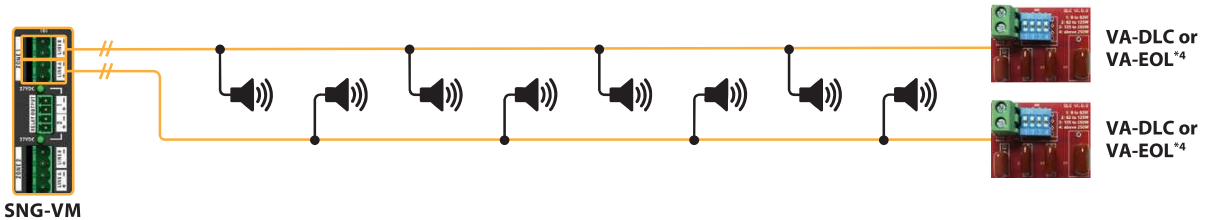


ATEIS Designer Suite

SPEAKER LINES MONITORING WITH REDUNDANT LINE (CLASS A)



SPEAKER LINES MONITORING WITH REDUNDANT LINE (CLASS B)

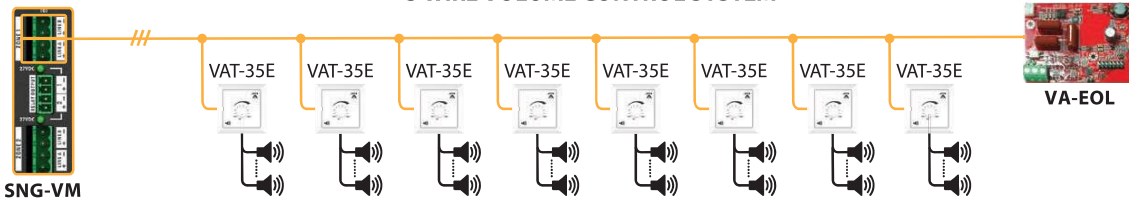


*4: If branch is more than 2 or volume attenuator installed, a VA-EOL should add at end of each branch/line, otherwise add VA-DLC at end of each branch/line.

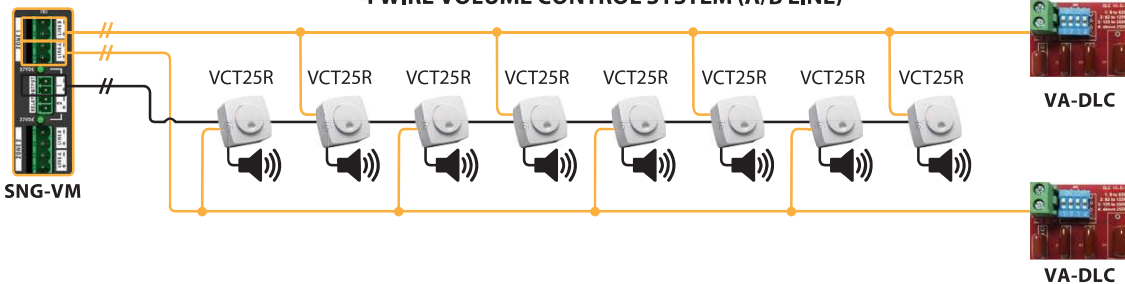
SPEAKER LINES MONITORING WITH VOLUME ATTENUATOR

By installing the VA-EOL end of SP-line module for multi-branch speaker line or 3 wired volume 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.

3 WIRE VOLUME CONTROL SYSTEM



4 WIRE VOLUME CONTROL SYSTEM (A/B LINE)

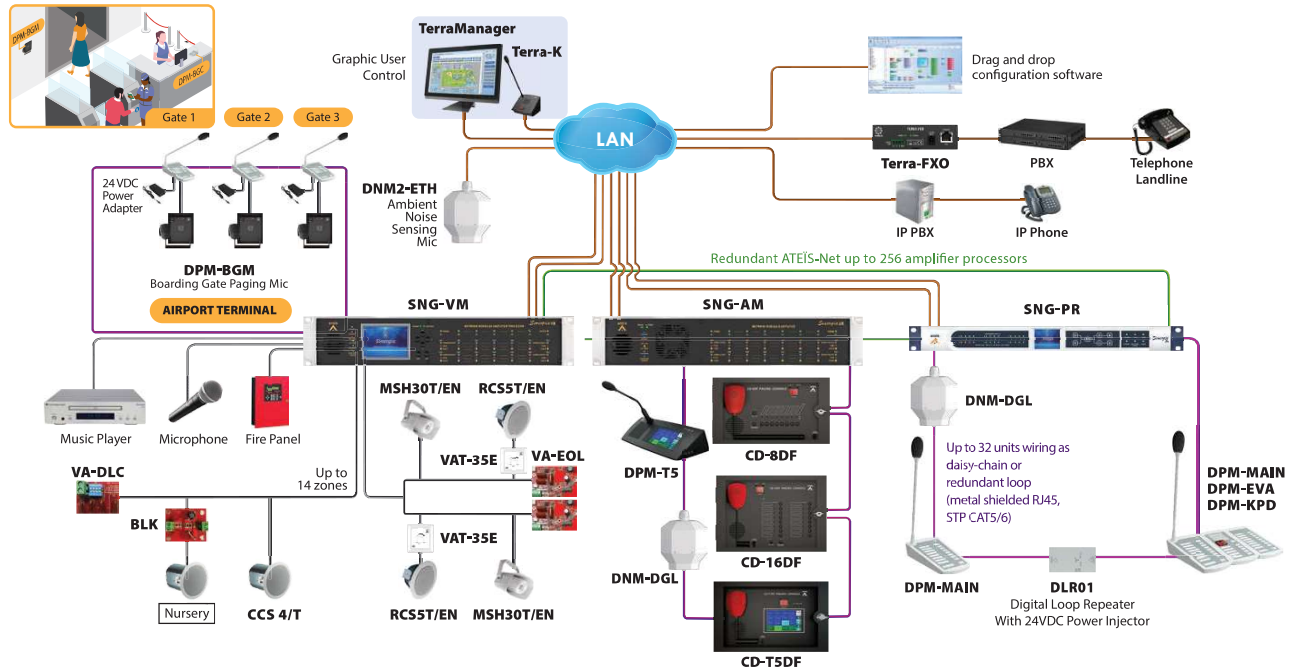


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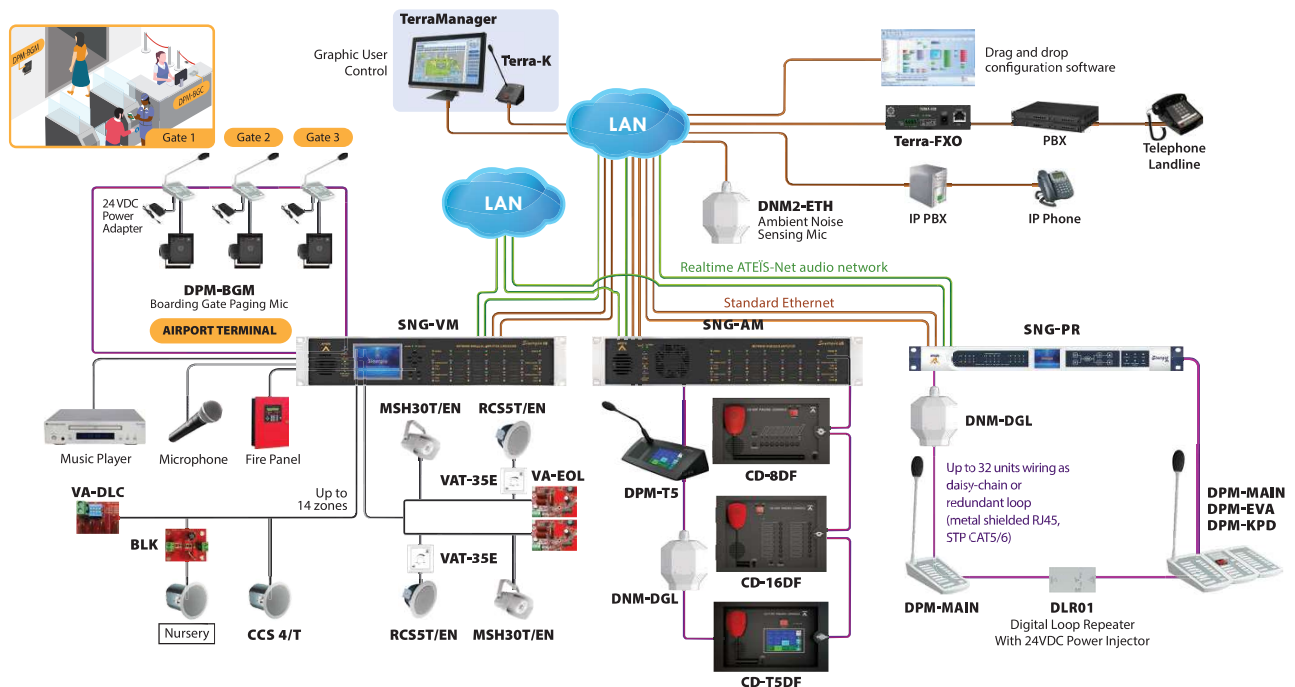
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SYSTEM DIAGRAM

ATEIS-NET IN REDUNDANT LOOP



ATEIS-NET IN STAR-WIRED ARCHITECTURE



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CERTIFICATIONS AND APPROVALS (PENDING)

Europe/UK	Voice Alarm	EN 54-4	EN 54-16
Europe	CE/EMI	EN 55032	
Europe	CE/EMC	EN 61000-3-2 EN 61000-3-3	EN 61000-6-2 EN 61000-6-4 EN 55035
Europe	CE/LVD	EN 62368-1	
USA	Mass Notification Systems	UL 2572	
USA	Safety	UL 62368-1	

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 module LEDs (Power, Signal/Select, EVAC, Fault)
- Status LEDs (Ethernet, Network, Gen. Evac, Sys. Fault, Faultback, Monitoring Disabled)

■ Rear

- Optional 48VDC battery backup power with charger
- Optional dual AC power modules or power cord sockets
- 1 battery temperature sensor
- 7 amplifier modules 250W x 2CH or 500W x 2CH (burst¹) with up to 14 speaker zones (A/B)
- Monitored 27VDC power for volume attenuator override or emergency sounder/flasher
- 1CH external amplifier backup interface
- Maximum current supply 0.5A @27VDC output between RS485 and General EVAC input
- 2 redundant Ethernet ports
- 2 ATEIS-Net ports for realtime audio network in redundant loop or redundant 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/4 CH VoIP card/ Stereo AES-EBU I/O Card, 4 Port
- 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, RS485 or Ethernet for third party control

ELECTRICAL

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

idle	1/2 full power	full power
30W	1800W	3300W

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

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

standby mode	idle	1/8 full power	1/2 full power	full power
20W	30W	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 (burst¹)
 - 250W x 2CH (100V or 70V)
 - 500W x 2CH (100V or 70V)
- Output power (EN54)
 - 125W x 2CH (100V or 70V)
 - 250W x 2CH (100V or 70V)
- Frequency response: 20 Hz ~ 20 kHz (±3 dB) @ 0 dBu
- THD+N
 - Power (EN54), 50 Hz ~ 20k Hz: <0.5 %
 - 6 dB below power (EN54), 50 Hz ~ 20k Hz: <0.1 %
- SNR: > 90 dB

WATTAGE CAPACITY

- Burst power¹: 500W per zone, and 7000W per unit (100V or 70V)
- Power (EN54): 250W per zone, and 3000W per unit

LOUDSPEAKER OUTPUTS

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

NETWORK

- ATEIS-Net star wired or redundant loop structure: 256 units (max.)
- Max. distance between the units: 100m (RJ45 CAT5/6 or higher), 2 km (multi mode fiber optic) and 20 km (single mode fiber optic) longer distance upon request
- Max. number of remotes/per processor: 32
- Max. distance between remote units: 250m, longer distance upon request (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 ~ 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 (-40 °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 500W AMP Module	Number of 1000W AMP Module	Number of Isolator Driver	Slot Type 1	Slot Type 2		Network Card	Rack Mount Type

Choose Backup Power									
									No Backup Power
	D								DC Backup Power with Battery Charger
	A								Dual AC Power Supply
	S								Dual AC Power Socket
Number of 500W AMP Module									
		0							None
		1~7							Number of 500W AMP Module
Number of 1000W AMP Module									
			0						None
			1~7						Number of 1000W AMP Module
Number of Isolator Driver									
				0					None
				1~7					Number of Isolator Driver
Slot Type 1									
					T				Telephone Card
					P				Remote Paging Console Expansion Netcard
Slot Type 2 (choose 2 in order)									
						M	M		4CH Mic/Line Audio Input Card
						L	L		4CH Line Audio Input Card
						O	O		4CH Line Audio Output Card
						H	H		2CH Mic/Line Input & 2CH Line Audio Output Card
						A	A		4CH Mic/Line Input card with AEC
						E	E		Stereo AES-EBU I/O Card, 4 Port
						K	K		OCTOLINK Card
						V	V		4CH Duplex VoIP Card
						F	F		Analog TEL Card with 4 Line
						T	T		Analog TEL Card with 2 Line and 2 Set
Loop/Star Network Card (100M/1G) Dynamic									
									None
								RR/JJ	RJ45(A)-(B)
								MR/TJ	Fiber Multi Mode(A)-RJ45(B)
								SR/GJ	Fiber Single Mode(A)-RJ45(B)
								RM/JT	RJ45(A)-Fiber Multi Mode(B)
								RS/JG	RJ45(A)-Fiber Single Mode(B)
								MM/TT	Fiber Multi Mode(A)-(B)
								SS/GG	Fiber Single Mode(A)-(B)

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

• M → L → O → H → A → E → K → V → F → T

Zone Board/Isolator Driver	
SNG-ABZN	SNG A/B Zone Board
SNG-ID	SNG Isolator Driver

Amplifier Module	
AMP500D	Amplifier Module 250W x2CH, Burst
AMP1000D	Amplifier Module 500W x2CH, Burst
AMP500DZ	Amplifier Module 250W x2CH, Burst & Zone Board
AMP1000DZ	Amplifier Module 500W x2CH, Burst & Zone Board
AMP500DI	Amplifier Module 250W x2CH, Burst & ISO Driver
AMP1000DI	Amplifier Module 500W x2CH, Burst & ISO Driver