



DOVER SCHOOL DISTRICT SAU 11

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Empowering all Learners

TO: Members Dover School Board
William R. Harbron, Superintendent of Schools
Michael Limanni, Business Administrator
FROM: Thomas Rup, Director of Technology
DATE: April 14th, 2025
RE: Intercom Bid Award

A sealed Request for Proposal was issued and received for Intercom Bid Award that includes new intercom systems for the Dover School District staff include the Dover Middle School, Garrison Elementary School, Woodman Park School, Frances G Hopkins School, and Bellamy Academy. The bid was done due to age of the current systems, lack of functionality in many of the schools, and to become compliant with many e911 laws.

The district currently uses different systems in each school including older Dukhane and Simplex systems. These systems were purchased and are supported from different vendors. Through the bidding process the district met with 10 vendors interested in bidding on the process and ultimately received 8 responses. The district formed a committee to review and narrow the proposals down to 3 to bring in for a demo. Through the review process, the committee decided on using a system proposed by NHVOIP which includes Grandstream PoE Speakers. The system was robust, flexible and cost effective for the district. The proposal's total amount also allows the district to add in Dover High School to the project, making all of the system the same with a central point of management. It is the recommendation to accept the proposal from NHVOIP for the Intercom replacement project in the total amount of \$185,135.00 contingent upon funding availability and satisfactory vendor performance. Proposal results are noted below.

	Total Required	Total Optional	Full Cost
1. Arcomm – declined	\$ -	\$0.00	\$0.00
2. Stryker/Vocera	\$ 97,953.20	\$0.00	\$ 97,953.20
3. Telnet	\$ 389,003.28	\$153,551.56	\$ 542,554.84
4. ProAv	\$ 343,808.76	\$0.00	\$ 343,808.76
5. Canfield	\$ 121,246.00	\$72,167.00	\$ 193,413.00
6. Partners Tech/Valcom	\$ 270,717.62	\$131,386.00	\$ 402,103.62
7. NHVoip	\$ 129,615.00	\$0.00	\$ 129,615.00
8. E+ Technology	\$ 490,537.82	\$15,282.25	\$ 505,820.07

**RFP request and received bid prices did not include DHS

These services will be funded through the capitol project funding already approved by the district. Please see the attachments for the bid score sheet and proposal for the project.

Required										Optional				
	Meets Req.	2-Way Comm	Page & Anno	Emergency Al	User-Friendl	Future Expansion	Mobile Device	Single Button Page	Install Plans	Training	Speakers	Prioritized Support		
1. Arcomm – declined	-	-	-	-	-	-	-	-	-	-	-	-		
2. Styker/Vocera – USB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y		
3. Telnet – USB	Y	Y	Y	Y	N	Y	Unsure	Y	Y	Y	Y	Y		
4. ProAv – USB	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Unsure	N		
5. Canfield – USB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y		
6. Partners Tech/Valcom – USB	Y	Y-IP Phones	Y	Y	Y	Y	Y	Y	N	Unsure	Y	N		
7. NHVVoip – USB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Unsure	Y	N		
8. E+ Technology – USB	N	Y	Y	Y	N	Y	Y	Unsure	N	N	Y	N		

Optional Costs										Required Cost					Notes	
	Woodman	DMS	FGH	Bellamy	Garrison	Woodman	DMS	FGH	Bellamy	Garrison	Total Required	Total Optional	Full Cost			
1. Arcomm – declined											\$ -	\$0.00	\$0.00			
2. Styker/Vocera – USB											\$ 97,953.20	\$0.00	\$ 97,953.20			Card based system, school needs overhead paging
3. Telnet – USB	\$33,828.73	\$59,110.72	\$25,112.87	\$12,977.13	\$22,522.11	\$ 104,533.55	\$ 117,755.42	\$ 58,605.76	\$ 42,398.00	\$ 65,710.55	\$ 389,003.28	\$153,551.56	\$ 542,554.84			Cost over budget
4. ProAv – USB						\$ 63,275.00	\$ 90,912.58	\$ 71,650.44	\$ 48,021.00	\$ 69,949.74	\$ 343,808.76	\$0.00	\$ 343,808.76			
5. Canfield – USB	\$18,249.00	\$22,176.00	\$13,426.00	\$7,080.00	\$11,236.00	\$ 27,326.00	\$ 32,960.00	\$ 23,694.00	\$ 12,782.00	\$ 24,484.00	\$ 121,246.00	\$72,167.00	\$ 193,413.00			
6. Partners Tech/Valcom – USB	\$28,385.00	\$55,770.00	\$18,613.00	\$10,005.00	\$18,613.00	\$ 58,720.78	\$ 59,850.70	\$ 52,545.88	\$ 47,054.38	\$ 52,545.88	\$ 270,717.62	\$131,386.00	\$ 402,103.62			Bid relies on Phone Bid
7. NHVVoip – USB						\$ 36,130.00	\$ 42,950.00	\$ 21,440.00	\$ 8,640.00	\$ 20,455.00	\$ 129,615.00	\$0.00	\$ 129,615.00			
8. E+ Technology – USB											\$ 490,537.82	\$15,282.25	\$ 505,820.07			Cost over budget



Overview of Proposed System and Architecture

NHVoIP is proposing to install and program 5 IP based paging and intercom systems for the schools specified in the bid request. Each system is controlled by an Algo Solutions 8301 IP paging gateway. For all areas that require two-way intercom, we propose installing a Grandstream GSC3516 two-way SIP based speaker with multicast. These speakers offer high fidelity using a high-definition g.722 codec that provides software adjustable volume of up to 15 watts of clear rich sound. Most traditional classroom speakers provide 1-2 watts of power and cannot provide the same volume or clarity. The speakers serve two main functions. As a two-way intercom, it requires an extension of the IP phone system and acts like a conference room phone with a 4.3-meter pickup via 3 built in microphones. The second function is that the speakers listen to different multicast broadcasts, with each multicast broadcast being a zone of paging. The speakers can listen to a maximum of 10 zones of paging and when listening to and playing a zone page become a one-way speaker.

Another major advantage of our proposal is the ability to manage all Grandstream GSC3516 speakers via the Cloud-based Grandstream Device Management System (GDMS). GDMS allows for monitoring and management of the speakers, sorted by each school via "sites". GDMS provides the ability to update the firmware for the speakers, schedule reboots, and make changes to groups of speakers via templates or individually. A vast number of diagnostic tools are also available as well. This allows NHVoIP to quickly diagnose any issues and make program changes to any speaker or volume of any speaker from anywhere, rapidly without an onsite visit. Grandstream is based in Boston, MA and sells a full line of state-of-the-art IP Phones, Network Switches, Wireless Access Points and Facility Management IP Devices (Cameras and door access). Grandstream has operations in 150 countries with 500 employees.

NHVoIP proposes to reuse any existing common area speakers that are used for one-way paging only, such as corridors, bathrooms and outside horns. An Algo 8373 provides up to 3 zones of paging along with a Viking Electronics 250-watt digital amplifier for these type speakers is how we plan on integrating traditional speakers to the IP system. The Algo 8273 acts as a multicast slave, listening to the Algo 8301 master controller. This will save the cost of rewiring the common areas with ethernet cabling and the cost of speaker replacement. For many school districts where their 30-year-old paging controller fails, we use this design to reuse the existing speakers and replace the failed system with our IP based Algo controllers. This provides a one-way inexpensive paging system until they can go out to bid for a complete intercom system replacement.

For the new IP speakers, we propose reusing one of the classroom's ethernet cables, relocating it to above the ceiling, ID the cable so that the cable can be patched into the school district's power over ethernet data switches. Optionally, NHVoIP can provide Grandstream managed, layer 2, Gigabit switches to power the speakers and provide network connectivity. Our switches are managed via the GDMS and are inexpensive (48 port \$550 each, 24 port \$395 each).

Safety Technology International (STI) industry standard call (panic) buttons are proposed. This button can be customized labeled and will activate the classroom speaker when pressed, calling an emergency page group of administrators, an internal extension or external call. When used to call an emergency page group on a NHVoIP IP system, the administration staff can dial *1 to converse to the classroom. The GSC3516 speakers are configurable to use the relay contact to activate emergency alerts instead if required. A two-wire 18-gauge alarm cable will be run from the IP speaker to the panic button location. The panic button has a protective clear glass door and mounts to a standard single gang workbox. Any existing intercom call button location wire can be reused, any schools that do not have an existing call button for their existing paging system, will be cabled. The panic button can be flush mounted, or surface mounted with metal raceway if required.

Grandstream GSC3516 speakers have built in WiFi ability and can be set up for areas that do not ethernet cabling, using a PoE power injector plugged into a nearby electrical outlet. We have one school district that uses a speaker for a teacher with a hearing disability placing the speaker near his desk connected via the school's voice WiFi SSID. This teacher has advocated to the district superintendent that the school district should replace all traditional speakers, with Grandstream IP speakers for all of the schools in the district.



Overview of Proposed System and Architecture (continued)

Another interesting ability of the Grandstream IP speakers is that the speakers have built-in Bluetooth ability. If the school district wanted to offer teachers the ability to pair to their classroom speaker, this could be set up. This would allow teachers to pair from their laptop the audio lesson or audio from a mobile phone. Each speaker pairing pin can be set differently and the name of the speaker would be the room number. Grandstream offers a free app called GSC which would allow the teacher to control their speaker volume once synced to the speaker. We expect that additional features will be developed and provided for the GSC app in the future.

The Algo 8301 paging gateway provides a calendar web-based bell scheduler system that allows for up to 30 bell schedules. Each schedule can have up to 500 bells or events. The scheduler allows for up to 5 schedules to be overlayed per day. Some schools have different schedules for different grade levels and have multiple schedules, where the time overlaps but the multicast zones are different. Administrators can choose from an inventory of tones or create their own tones, voice overs uploaded to the 1 Gb of file storage. Many schools record a welcome message from the principle announcing, "Good morning students, the time is 7:35, you have 5 minutes before the final bell". Other schools play streaming music between periods. The possibilities are exciting and it allows administration to provide customization based on their objectives. A user interface can provide access and control to create and manage the bell schedules without access to the administration level settings. With this ability a principal or school administrator can change the schedule and make a change for early dismissal or late arrival days. The scheduler allows for the programming of the complete calendar year to be set for holidays, testing days and professional development days.

In addition, the Algo 8301 paging gateway has 10 emergency alert notifications, each one being a sip extension and can broadcast the announcement until the administration cancels by dialing another extension number (programmed to be the cancel function). This is good for fire alarm drills, lock out and lock in, clear the hallways and corridors etc.

For any small office areas, where a speaker is not required (100 sq ft or less typically). IP phones can listen to all call or zone pages via multicast using the telephone speaker. Our Grandstream phones allow us to prioritize up to 10 multicast zones. All speakers and phones will use prioritization levels to always ensure priority pages are heard. Algo also manufactures multi-color beacons with multiple strobe and flashing patterns that listen to multicast zone paging and can be set up to flash or strobe, with different colors during different page types. The Pembroke School District uses these for high noise areas and exterior areas for visual alerting when a page is broadcasting (cafeteria, music classrooms and outdoor areas). These can always be added via a PoE-enabled ethernet cables.

NHVoIP is excited to present our IP paging solution for the Dover School District. The combination of powerful high-definition sound from our Grandstream GSC3516 speakers, Cloud based GDMS management of the speakers, plus the Algo 8301 page controller's simple to program, calendar based bell scheduling with up to 50 zones of paging capacity and 10 emergency custom alert announcements, provides a complete advanced intercom system and will improve your school's communication and safety.



NHVoIP LLC formerly TSEdigitalvoice

About NHVoIP

After 32 years of business, on January 1st 2025, TSEdigitalvoice re-organized and re-branded from a New Hampshire corporation to an New Hampshire LLC. The new company name is NHVoIP LLC and is registered with the FCC and State of NH as an interconnected VoIP provider. We added a new owner, Marshall Young, who has been with TSEdigitalvoice for over 20 years. Due to the ever-evolving government regulations we have invested and implemented a new carrier-based billing system to assist us with tax compliance and reporting. We also felt it necessary to undertake a complete rebranding to align with the marketplace demand for Unified Communications.

TSE was founded in 1992. as a national wholesale distributor and repair house of ISDN equipment and Centrex terminals. Our focus on customer service allowed us to grow rapidly into a multimillion-dollar operation with a customer base of telecom dealers, State agencies, Bell companies, and large corporations. Our reputation as one of the leading ISDN equipment suppliers in the country was built by providing quality products and reliable customer service. Telephone Systems Efficiency's largest client was Bellcore, which was the parent company for the 7 regional Bell companies before the divestiture of the industry. The State of Vermont also was one of our largest ISDN customers for many of our early years.

TSEdigitalvoice division was established in 2006 to bring the advantages of internet telephony and related services to the public. We offer end users the opportunity to dramatically reduce their monthly recurring phone service cost by replacing their legacy phone lines and call usage with our VoIP service and the installation of state-of-the-art IP phone equipment. We started offering internet-based voice service before Comcast entered the marketplace. During that time period, we were the only locally based provider of VoIP SIP trunking. Unlike National VoIP carriers, TSEdigitalvoice central office switch is conveniently located in Bedford, NH.

Within our central office we connect to multiple Tier 1 local and long-distance providers. By having multiple carrier relationships, we can route calls if needed to alternate carrier networks. We are proud to offer Enhanced 911 through Bandwidth Dynamic Location PSAP routing, one of the nation's largest and most trusted E911 providers. Our origination carrier provides redundancy to our clients by providing the ability to route incoming calls through redundant SIP trunks for each customer's phone system. Having multiple SIP trunks in each system provides multiple call routing paths for redundancy should our central office have any impairment. We also provide each IPpbx system the ability to alternately make outbound calls through any of the SIP trunks at no extra cost to our clients.

Our central office switch also provides automatic incoming call redirection of incoming calls made to your main number to an alternate copper line or cell phone, in the event of a customer-based internet outage. With each installation, failover design and disaster recovery are discussed, planned and implemented.

Company Owners and Staff

Dale Greenwood Jr., CEO and Senior Technician 42 years of telecommunications experience Bachelor of Science, Clarkson University, 1983-1992 Siemens National Account Manager Telecommunication Division, Marshall Young, CTO and Senior Technician 18 years of IP Telecom experience Bachelor of Science, Johnson & Wales, Scott Greenwood, CFO, Matthew Bunker, Technician 28 years of telecom experience, Cindy Greenwood-Young, E911 Database Administrator, Nicole Darling, Customer Success Representative and Cindy Garrett, Sales Executive

We also subcontract labor and cabling when needed, with Total Asset Solutions, based out of Hooksett, NH. Total Asset Solutions is an authorized Grandstream partner. They sell and install Sangoma FreePBX systems with Grandstream phones utilizing our NHVoIP SIP Trunking. Total Asset Solutions has 4 senior technicians on staff, and they are available as needed.

Experience

NHVoIP has installed and or maintains over 100 paging and intercom systems in NH, MA, ME & VT. 75% of these systems were legacy digital paging systems manufactured by Valcom, Bogen or Viking Electronics. We have installed traditional 25/70v, amplifier driven systems and systems where the speakers have on board amplification using 4 wire, centrally powered connections. Up until 6 years ago, IP paging systems were too expensive to deploy. Grandstream introduced their line of SIP speakers with Multicast at a reasonable cost and we now only install IP paging systems using Grandstream IP speakers with IP phone systems. As more and more schools abandon the classroom ethernet wiring in lieu of wireless connectivity, the cost to install an IP paging system is achievable by reusing the ethernet cabling for an IP speaker that is powered centrally by a power over ethernet switch. As NH schools legacy paging systems age out, NHVoIP expects a growing trend toward the flexibility of IP paging systems

NHVoIP specializes in providing managed voice solutions for schools. To date we have installed IP Paging Systems for over 30 local schools. We take pride in enhancing the safety of the schools we work with. The paging system is an integral part of their school safety programs with emergency paging announcements and notifications. The combination of offering our enhanced 911 voice service, IP phone systems and IP based paging systems with emergency announcements and bell scheduling adds to our advanced school systems designed for safety.



Intercom and IP Paging System References

York School Department

469 US Route 1, York, ME 03909

High School, Middle School, 2 Elementary Schools and SAU Office

3 Grandstream / Algo Solutions IP based paging systems

Chris Rynne, Facilities Director, 207-363-3403

Summer 2024 Upgraded to cloud based Grandstream Paging Speakers

101 GDMS Cloud managed Grandstream paging speakers

Newfound Area School District SAU 4

20 North Main Street, Bristol, NH 03222

High School, Middle School, 3 Elementary Schools

Paul Ciotti, Director of Technology, 603-744-5555

Time for completion: 7 weeks Completed August 2024

165 GDMS Cloud managed Grandstream paging speakers

SAU #53 Allenstown & Pembroke

267 Pembroke Road, Pembroke, NH 03275

Pembroke High School, Three Rivers Middle School and Pembroke Hill Elementary School

Joshua Coughlin, Director of Facilities, 603-485-5187

Allenstown Community School (new construction 2024)

Middle School and Elementary Installed summer 2023

Pembroke Academy and Allenstown Community 2024

240 GDMS Cloud managed Grandstream paging speakers

SAU #72 Alton, SAU #301 Prospect Mountain & SAU #86 Barnstead

Alton Central School, Prospect Mountain High School (Bogen system) and Barnstead Elementary School

Barnstead Elementary School installed summer of 2021

Matthew Dumond, Director of Technology, 603-875-3800 x2236

Alton Central School installed summer 2024

Barnstead Elementary School installed summer of 2021

130 GDMS Cloud managed Grandstream paging speakers



Preliminary Implementation Plan

Coordinate the paperwork and master agreement between the School District and NHVOIP.

50% Deposit required. When received, the equipment is ordered for the job.

Commence working after school on site, starting May through June to move existing ethernet cables and run panic button cabling.
Cut in workboxes in rooms that have drywall or install surface mounted workboxes with metal raceway on cement walls.
Temporarily, cover the workbox with blank plates.

Install speakers (not provisioned). Work with Dover IT department to ID ethernet cables and provide port connections in PoE data switches

Meet with each school's administration and IT department to determine and create zones withing each building and initial bell schedules

Once school is out normal work hours on site will take place.

When school is out for the summer start installing the panic buttons

Install each school's paging controllers and digital paging amplifier

The conversion date is set and confirmed for each site. Work with phone vendor to integrate paging system to new phone system

Training session with each school's admin scheduled in late August.

Management and Support for the paging systems commences.



NHVoIP LLC, 20 Commerce Park N, Unit 105, Bedford, NH 03110

Paging Systems Replacement Bid

Equipment & Labor

Item	Description	Qty	Price	Total
	Frances G Hopkins Elementary School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	1	\$ 455	455
	Viking Electronics PA-250, 250-Watt Paging Amplifier	1	\$ 775	775
	Grandstream GSC3516 IP Paging Speaker	45	\$ 155	6,975
	Safety Technology International STI SS2 Panic Button	45	\$ 105	4,725
	Labor, wiring and Materials to Install above devices	67	\$ 115	7,705
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	4	95	380
				\$ 21,440
	Garrison Street Elementary School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	1	\$ 455	455
	Viking Electronics PA-250, 250-Watt Paging Amplifier	1	\$ 775	775
	Grandstream GSC3516 IP Paging Speaker	45	\$ 155	6,975
	Safety Technology International STI SS2 Panic Button	40	\$ 105	4,200
	Labor, wiring and Materials to Install above devices	63	\$ 115	7,245
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	4	95	380
				\$ 20,455
	Bellamy Academy			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Grandstream GSC3516 IP Paging Speaker	20	\$ 155	3,100
	Safety Technology International STI SS2 Panic Button	13	\$ 105	1,365
	Labor, wiring and Materials to Install above devices, Cabling cost to rewire corridors, bathrooms and lobby for IP Speakers	30	\$ 125	3,750
				\$ 8,640



NHVoIP LLC, 20 Commerce Park N, Unit 105, Bedford, NH 03110

Equipment & Labor

	Woodman Park Elementary School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	2	\$ 455	910
	Viking Electronics PA-250, 250-Watt Paging Amplifier	2	\$ 775	1,550
	Grandstream GSC3516 IP Paging Speaker	80	\$ 155	12,400
	Safety Technology International STI SS2 Panic Button	65	\$ 105	6,825
	Labor, wiring and Materials to Install above devices	112	\$ 115	12,880
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	12	\$ 95	1,140
				\$ 36,130
	Dover Middle School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	2	\$ 455	910
	Viking Electronics PA-250, 250-Watt Paging Amplifier	2	\$ 775	1,550
	Grandstream GSC3516 IP Paging Speaker	90	\$ 155	13,950
	Safety Technology International STI SS2 Panic Button	90	\$ 105	9,450
	Labor, wiring and Materials to Install above devices	135	\$ 115	15,525
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	12	\$ 95	1,140
				\$ 42,950
	Dover Middle School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	3	\$ 455	1,365
	Viking Electronics PA-250, 250-Watt Paging Amplifier	3	\$ 775	2,325
	Grandstream GSC3516 IP Paging Speaker	125	\$ 155	19,375
	Safety Technology International STI SS2 Panic Button	125	\$ 105	13,125
	Labor, wiring and Materials to Install above devices	135	\$ 95	17,765
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	12	\$ 95	1,140
				\$ 55,520



NHVoIP LLC, 20 Commerce Park N, Unit 105, Bedford, NH 03110

Paging Systems Replacement Bid

Total Intercom Paging System Replacement Cost

1	Frances G Hopkins Elementary School	21,440
2	Garrison Elementary School	20,455
3	Bellamy Academy	8,640
4	Woodman Park Elementary School	36,130
5	Dover Middle School	42,950
6	Dover High School	55,520
	Total Bid Cost	\$ 185,135



NHVoIP LLC, 20 Commerce Park N, Unit 105, Bedford, NH 03110

Paging Systems Replacement Bid Using GSC3575 LCD panels

Equipment & Labor

Item	Description	Qty	Price	Total
	Frances G Hopkins Elementary School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	1	\$ 455	455
	Viking Electronics PA-250, 250-Watt Paging Amplifier	1	\$ 775	775
	Grandstream GSC3516 IP Paging Speaker	45	\$ 155	6,975
	Grandstream GSC3575 Paging Control Unit	45	\$ 135	6,075
	Labor, wiring and Materials to Install above devices	67	\$ 115	7,705
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	4	95	380
				\$ 22,790
	Garrison Street Elementary School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	1	\$ 455	455
	Viking Electronics PA-250, 250-Watt Paging Amplifier	1	\$ 775	775
	Grandstream GSC3516 IP Paging Speaker	45	\$ 155	6,975
	Grandstream GSC3575 Paging Control Unit	40	\$ 135	5,400
	Labor, wiring and Materials to Install above devices	63	\$ 115	7,245
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	4	95	380
				\$ 21,655
	Bellamy Academy			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Grandstream GSC3516 IP Paging Speaker	20	\$ 155	3,100
	Grandstream GSC3575 Paging Control Unit	13	\$ 135	1,755
	Labor, wiring and Materials to Install above devices, Cabling cost to rewire corridors, bathrooms and lobby for IP Speakers	30	\$ 125	3,750
				\$ 9,030



NHVoIP LLC, 20 Commerce Park N, Unit 105, Bedford, NH 03110

Equipment & Labor (continued)

	Woodman Park Elementary School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	2	\$ 455	910
	Viking Electronics PA-250, 250-Watt Paging Amplifier	2	\$ 775	1,550
	Grandstream GSC3516 IP Paging Speaker	80	\$ 155	12,400
	Grandstream GSC3575 Paging Control Unit	65	\$ 135	8,775
	Labor, wiring and Materials to Install above devices	112	\$ 115	12,880
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	12	\$ 95	1,140
				\$ 38,080
	Dover Middle School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	2	\$ 455	910
	Viking Electronics PA-250, 250-Watt Paging Amplifier	2	\$ 775	1,550
	Grandstream GSC3516 IP Paging Speaker	90	\$ 155	13,950
	Grandstream GSC3575 Paging Control Unit	90	\$ 135	12,150
	Labor, wiring and Materials to Install above devices	135	\$ 115	15,525
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	12	\$ 95	1,140
				\$ 45,650
	Dover Middle School			
	Algo 8301 IP Paging Gateway/Controller	1	\$ 425	425
	Algo 8373 3-Zone Paging Gateway	3	\$ 455	1,365
	Viking Electronics PA-250, 250-Watt Paging Amplifier	3	\$ 775	2,325
	Grandstream GSC3516 IP Paging Speaker	125	\$ 155	19,375
	Grandstream GSC3575 Paging Control Unit	125	\$ 135	16,875
	Labor, wiring and Materials to Install above devices	135	\$ 115	15,525
	Labor to tone and cross-connect existing corridors, bathrooms and outside horns to paging controller (existing traditional 25/75v speakers)	12	\$ 95	1,140
				\$ 57,030



NHVoIP LLC, 20 Commerce Park N, Unit 105, Bedford, NH 03110

Paging Systems Replacement Bid Using GSC3575 LCD panels

Total Intercom Paging System Replacement Cost for all locations

1	Frances G Hopkins Elementary School	22,790
2	Garrison Elementary School	21,655
3	Bellamy Academy	9,030
4	Woodman Park Elementary School	38,080
5	Dover Middle School	45,650
6	Dover High School	57,030
	Total Bid Cost	\$ 194,235

Algo 8301 Paging Gateway Controller



For each School, an Algo 8301 Paging Gateway will be the central controller for the proposed paging system

The 8301 IP Paging Adapter is a SIP endpoint that integrates existing traditional paging infrastructure into a VoIP environment

Configure up to 50 Paging Zones each using SIP Extensions and Multicast Broadcasting to IP Speakers

Proposed Sangoma FreePBX / Asterisk system provides unlimited amount of SIP extensions without the cost of licensing per extension

Configure up to 10 Emergency broadcast pre-recorded announcements via SIP extensions, for Lockdown, Lockout, Clear Corridors, Fire Drills or actual Fire alerts.

Wideband HD audio (G.722 voice codec) for high intelligibility speech

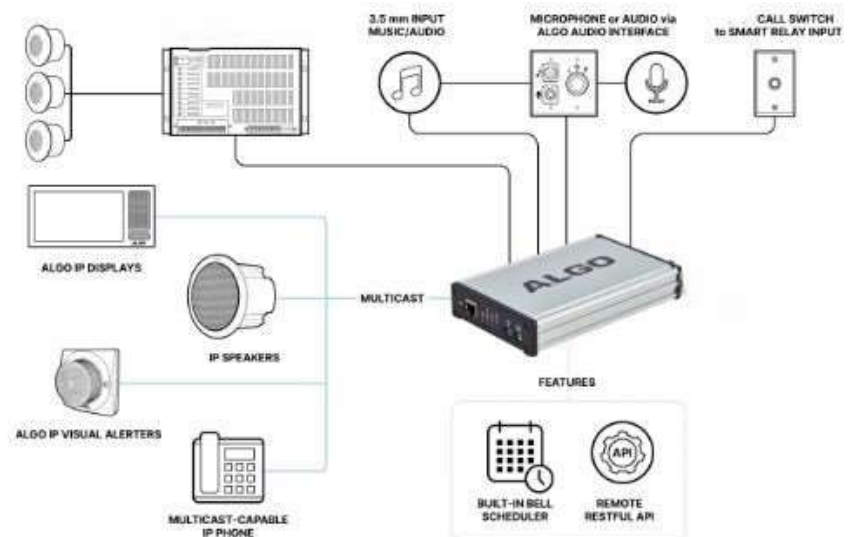
PoE powered (IEEE 802.3af Class 0) 48 V, 15.4 W)

Compatible with Grandstream GSC SIP/Multicast Series of Paging Speakers and Grandstream GRP Series IP Phone Speakers

Ability to integrate into a Fire alarm system via a built-in input relay

Multicast Master Sender for all NHVoIP installed paging systems. Additional units can be added as a Multicast Listener device

Security Settings for TLS, SRTP or Mutual Authentication



Algo 8301 Paging System Graphical Web based Calendar Bell Scheduler

User level access to scheduler and schedules functions for school administrators Easy to use graphical user interface via web

Each Schedule can have up to 500 events or bells

30 Schedules maximum

Programmable Tones, Voice Recordings, Music via unloadable files. 1 Gb of files storage space WAV or MP3 format, 200 Mbps per file

Auxiliary input to play music as an event (music scheduled via event streaming from an external device such as an iPad, cell phone or laptop.

8301 Paging Adapter & Scheduler Control Panel

Status
Basic Settings
Additional Features
Scheduler
Advanced Settings
System
Logout

Calendar
Schedules
Data

Today
<
>
March 2025
Tue 11 Mar, 2025 11:19:45 (System Time)
Save

Schedule:
--Select & click date to set--
All Weekdays
All

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3: Normal Schedule 24-25	4: Normal Schedule 24-25	5: Normal Schedule 24-25	6: Normal Schedule 24-25	7: Normal Schedule 24-25	8
9	10: Normal Schedule 24-25	11	12: Normal Schedule 24-25	13: Normal Schedule 24-25	14: Normal Schedule 24-25	15
16	17: Normal Schedule 24-25	18: Normal Schedule 24-25	19: Normal Schedule 24-25	20: Normal Schedule 24-25	21: Normal Schedule 24-25	22
23	24: Normal Schedule 24-25	25: Normal Schedule 24-25	26: Normal Schedule 24-25	27: Normal Schedule 24-25	28: Normal Schedule 24-25	29
30	31: Normal Schedule 24-25					

8301 Paging Adapter & Scheduler Control Panel

Status
Basic Settings
Additional Features
Scheduler
Advanced Settings
System
Logout

Calendar
Schedules
Data

Tue 11 Mar, 2025 11:54:10 (System Time)
Save

Schedule Name	Colour in Calendar
✕ C Test	
✕ C Normal Day	
✕ C Last Chapel	
✕ C SAT Testing day	
✕ C Early Release	
✕ C Delayed Opening	
✕ C Midterms and Finals	
✕ C Midterm Delayed Opening	
✕ C Early Release Special	
✕ C Extended Advisory	

Algo 8373 Traditional Paging Speakers Controller



For each School, an Algo 8373 Traditional Paging Speaker Controller will be provided (DMS and WPS will have 2 units each)

3-Zone Paging Gateway that interfaces a traditional paging amplifier which allows reuse of existing outside horns, corridor & bathroom 25/70v analog paging speakers. DMS and WPS will have 6-Zones ability for existing analog speakers

The 8373 will be used as a Multicast Listener to the 8301 Master Multicast Sender, allowing the ability to break the existing speakers that we reuse, into specific zones such as gymnasium, corridors by floor and outside horns for example. These are areas that are typically for one-way general page announcement

The 8373 IP Paging Controller is a SIP endpoint that integrates existing traditional paging infrastructure into a VoIP environment

Each paging zone is called by dialing a SIP extension dedicated to each zone

Proposed Sangoma FreePBX / Asterisk system provides unlimited amount of SIP extensions without the cost of licensing per extension

Add three channels behind legacy amplifier, wiring three strings of speakers for zoned paging

Programmable 1-1000 MS synchronization delay adjustment to synchronize the Multicast page to the digital amplified existing speakers

Wideband HD audio (G.722 voice codec) for high intelligibility speech

PoE powered (IEEE 802.3af Class 0) 48 V, 15.4 W)

Ability to integrate into a Fire alarm system via a built-in input relay

DMS and WPES will have two Viking PP-250 Amplifiers, GES and FGHE will have one Viking PP-250 Amp

Bellamy Academy will be all IP based using GSC3516 speakers (no amp or existing speakers)

250 Watt 70V Paging Power Amplifier





Grandstream GSC3516 Two-Way SIP & Multicast Paging Speaker

Used everywhere two-way intercom is required



Full-duplex speakerphone with HD acoustic chamber, advanced acoustic echo cancellation



3 directional mics with MMAD & microphone beamforming array and 1 omnidirectional auxiliary microphone



Full-band and wide-band audio codec support including Opus & G.722



Integrated dual-band 802.11 a/b/g/n/ac Wi-Fi and Bluetooth



One 10/100Mbps network port with PoE/PoE+



2-pin multi-purpose input to support peripherals including call buttons

Robust SIP intercom device offers 2-way voice functionality with both a high-fidelity 15-Watt HD speaker

Each speaker can listen to up to 10 zones of paging via Multicast listening with programmable priority levels

Allow Teachers to utilize Integrated Bluetooth ability using their laptop or phone. The GSC3516 speaker with Bluetooth 2.1 and Enhanced Data Rate (EDR)+ BT4.2. Volume can be controlled via the Grandstream GSC mobile app

Managed by the Grandstream Cloud based Device Management System (GDMS), which provides a centralized interface to configure, provision, manage and monitor deployment s of Grandstream endpoints

Panic Buttons connected to each speaker via 2 wire form C contact, are configurable to make an emergency page to a specific administration page group, activating the two-way speaker for that room. Administrators can dial a feature code to talk back to the classroom speaker where the panic button has been pressed

STI STOPPER® STATION SERIES



PRODUCT OVERVIEW

These ADA Compliant, multipurpose push button switches cover a wide range of applications both indoors and outdoors. They're called Stopper Stations. They incorporate a unique, patented design that helps dramatically to stop accidental activation. A number of standard models are available or we can create custom units to meet your needs exactly. You have your choice of any of five universal shell colors, several button styles, standard or custom wording and language.

HOW THEY WORK

Because of their superior, patented design combined with quality construction throughout, you can expect outstanding performance for years to come. In fact, many STI customers are surprised to find that all this quality is available at no increase in price. Plus, customers appreciate the option to protect the switches with STI protective covers that carry a three year guarantee against breakage in normal use, one year on electro mechanical and electronic components. For indoor applications, you can order your Stopper Station with a pre-alarm cover to help stop malicious and accidental activation.

KEY FEATURES

General Information

- Multipurpose push button switches cover a wide range of applications both indoors and outdoors.
- Three year guarantee against breakage of polycarbonate in normal use (one year on electro mechanical and electronic components).

Design

- Unique, curved design helps protect against accidental activation.

Construction

- Station housing molded of tough polycarbonate.
- UL Listed to U.S. and Canadian safety standards.
- Stainless steel backplate.
- Push buttons are ADA Compliant (excludes "3" key switch button).

Installation

- 5VA flammability rating on backplate and spacer.
- Typical working properties of polycarbonate are -40° to 250°F (-40° to 121°C).
- Polycarbonate complies with FDA regulations for food contact applications.

Options

- Your choice of colors — red, green, yellow, white or blue.
- Standard or custom text or hi-res logo.
- Custom text in any language.
- Protect with STI indoor/outdoor protective covers.



For more information, call 1-800-888-4784 (4STI) or visit www.sti-usa.com



**Safety Technology
International, Inc.**

STI Stopper® Station Series

Dimensions and Technical Information

UNIQUE BUTTON FEATURES

Models SS2xy0, SS2xy1, SS2xy3, SS2xy4

- Interchangeable or replaceable N.O. or N.C., SPST gold-plated contact blocks rated for 6 amps @ 600 VAC or 1 amp @ 250 VDC.
- Standard switch includes one N.O. and one N.C. contact. Holds up to three sets of isolated contacts.

Note: some standard single gang boxes need additional depth.
To add 5/8" depth, order KIT-102722-color (B=blue, G=green, R=red, Y=yellow, W=white)

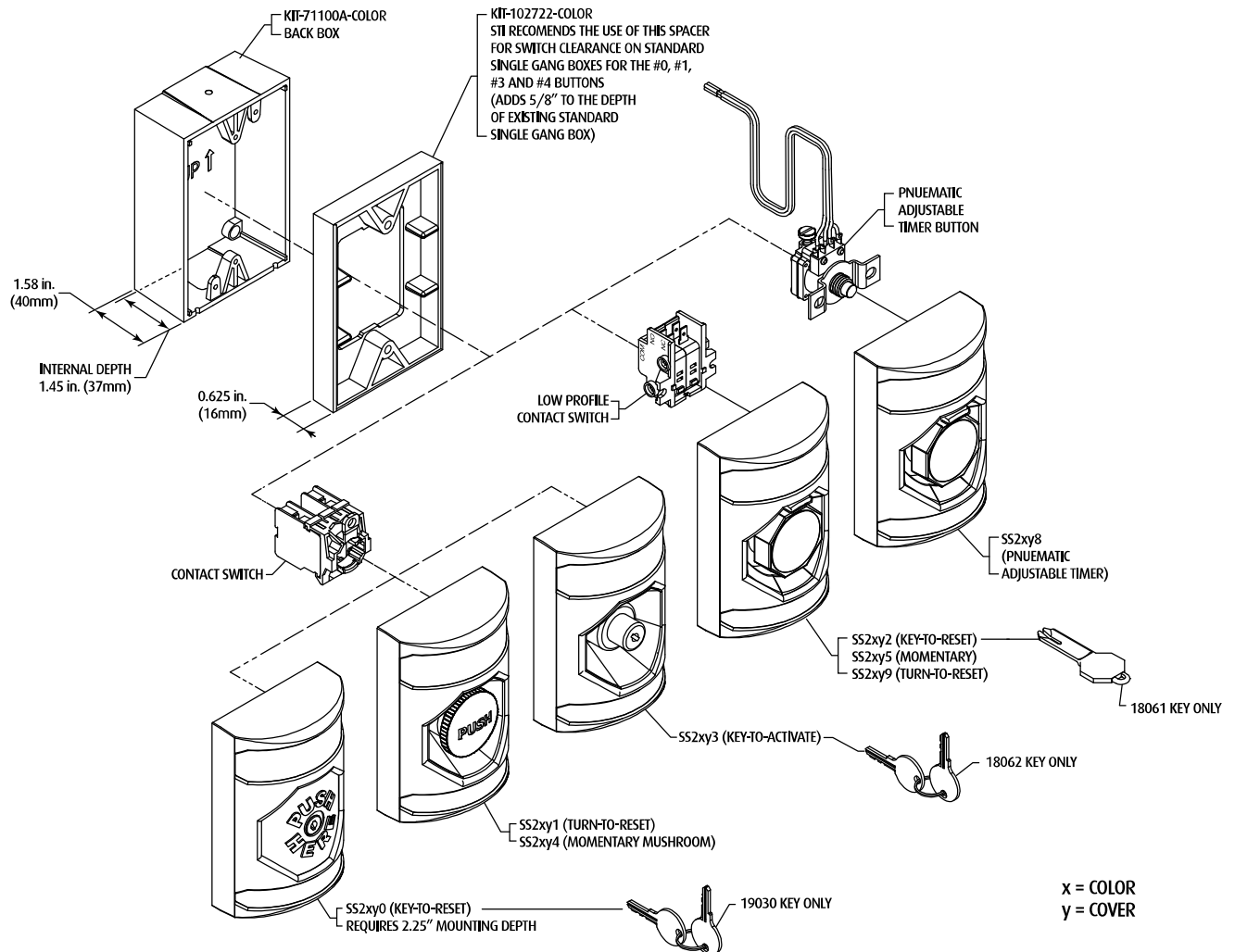
Models SS2xy2, SS2xy5, SS2xy9

- Two (2) Form "C" contacts, DPDT, rated 10 amps @ 125/250 VAC, 1/2 HP, 6 amps @ 30 VDC.

Models SS2xy8

- Switch rating 10 amps @ 240 VAC resistive and has a timer range: 2 - 60 seconds ($\pm 15\%$).
- Indoor use only. Not recommended for outdoor/water applications, temperature range of button 15° to 120°F (-9° to +49°C).
- Timer life of over 1,000,000 operations.
- Pneumatic adjustable timer opens or closes a circuit and has a timed delay before reset. No electricity to operate.
- Ideal for security applications.
- 1 Form Z, 1 N.O. and 1 N.C. contact.

***Note:** x = color, y = cover, see page 4 for details.



STI Stopper® Station Series

Dimensions and Technical Information

APPROVALS & WARRANTY

TESTING

It has been tested and approved or listed by:

- Underwriter Laboratories and Canadian Underwriter Laboratories UL No. S7255. Complies with UL 2017. UL Listed for indoor and outdoor use ("8" button indoor only, temperature range 15° to 120°F). When mounting outdoor, must use an STI weather cover.
- ADA Compliant (excludes "3" button)

WARRANTY

Three year guarantee against breakage of polycarbonate in normal use (one year on electro mechanical and electronic components).

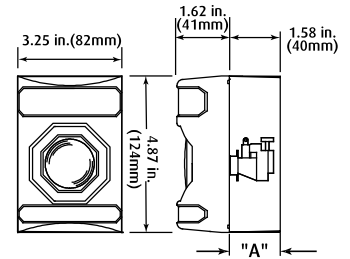
Accessories

LT-1UL	UL Latching/Timer Module
KIT-71100A-Color	Back box - Red, Green, Yellow, White and Blue for 2, 5, 8 and 9 switch
KIT-E10196	N.O. contact for 0, 1, 3 or 4 switch
KIT-M10197H	Replacement contact holder for 0, 1, 3 & 4 switch
KIT-E10198	N.C. contact for 0, 1, 3 or 4 switch
KIT-71101A-Color	Back box & Spacer Kit for 1, 3 or 4 switch in Red, Green, Yellow, White and Blue
KIT-102722-Color	Plastic Spacer - Red, Green, Yellow, White and Blue adds 5/8" depth
KIT-H19030	One Extra Key for 0 switch
KIT-H18061	One Extra Key for 2 switch
KIT-H18062	One Extra Key for 3 switch

"A" - Contact Depth

SS2xy0*	2.16"
SS2xy1	2.04"
SS2xy2	1.00"
SS2xy3*	2.13"
SS2xy4	2.04"
SS2xy5	1.00"
SS2xy8	1.4"
SS2xy9	1.00"

* If extra depth needed in electrical box order KIT-102722-color.



Covers to protect your STI Stopper Station from damage or weather and to help stop malicious or accidental activation.



Stopper® Station Shield (Cover 2, A)

This inexpensive and highly durable cover, without alarm, was invented to mount directly onto the Stopper Station series of buttons with two tabs that snap into the Stopper Station shell. It takes hard knocks in stride while protecting the button against vandalism, damage and accidental activation. Ideal for use when space is limited. Cover available with sound, with sound and wireless or cover only.

No labeling can be placed on the Stopper Station shield.



Universal Stopper® (Covers 3, 4, 7, 8)

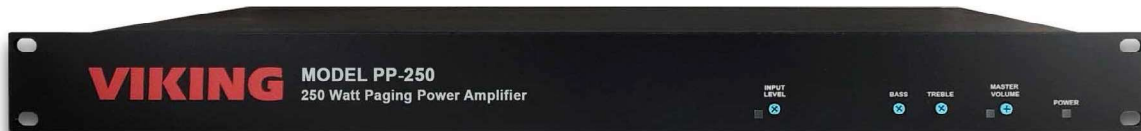
This indoor/outdoor cover helps stop false fire alarms and can protect Stopper Stations against damage as well as malicious or accidental activation. It consists of a clear polycarbonate shield that fits easily over any STI Stopper Station model. When it is lifted to gain access to the Stopper Station, the optional piercing 105 dB warning horn sounds. Legitimate activation is not affected. The protective cover options include: dome or low profile, with or without horn, flush mount, surface mount.

Additional labeling may be placed on the Universal Stopper.

Note:

Stopper Stations are approved for outdoor use with an outdoor rated protective cover. Excludes pneumatic buttons.

250 Watt 70V Paging Power Amplifier



The **PP-250** is a 250 Watt 70V Paging Power Amplifier that can drive up to two hundred fifty (250) 70V speakers or up to one hundred fifty (150) 25V speakers (each speaker set to “1 Watt tap”). The small 1U rack size chassis is possible because the **PP-250** uses new amplifier technology that is 3 times more efficient than old designs competitors use. The high efficiency of the **PP-250** means much less heat dissipation, smaller size, higher reliability, and lower cost.

There are many advantages of using a 70V distributed audio paging system, such as being able to put more speakers on a wire run, having longer speaker wire runs, using smaller gauge wire, and being able to set the volume of each speaker independently.

The **PP-250** Line Input can connect to any line level audio source.

Features

- Powerful 70V amplifier drives up to 250 Watt load
- Up to 150 Watt with 25V speakers
- Line input allows connection to any analog line level output, such as: telephone system paging port, paging preamp / mixer, etc.
- Volume control
- Input Level control
- Bass and treble controls
- Power and volume LEDs
- Peak limiter and multiple protection modes
- Tamper resistant trim pots

Applications

- Paging systems requiring up to 250 speakers
- Paging from virtually any analog line level paging source
- Installations that can utilize the below advantages of a 70V distributed audio system:
 - Longer wire runs using smaller gauge speaker wire to save costs
 - Many speakers can be connected on the same wire run to save costs
 - Set each speaker's volume individually using its own power taps

Specifications

Power: 100V to 240V AC, 50 to 60Hz

Dimensions: approximately 19" x 1.75" x 6" (483 mm x 44.5 mm x 153 mm)

Shipping Weight: 5.1 lbs (2.3 kg)

Environmental: 0°C to 32°C (32°F to 90°F) with 5% to 95% non-condensing humidity

Paging Output: Capable of driving 250 Watt load of 70V speakers or 150 Watt load of 25V speakers

Power Cord: Dual IEC C7 plugs “Y” Power Cord included

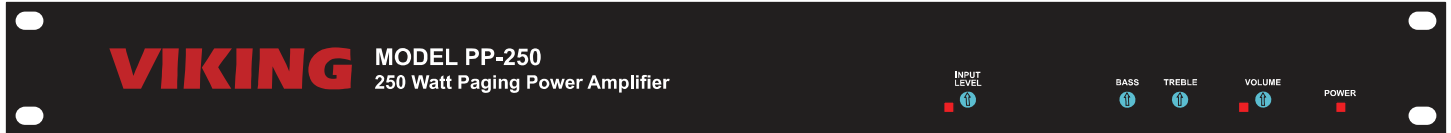
Connections: (7) removable cage clamp screw terminals, (2) IEC C8 AC power inlets

Information: 715-386-8861
www.VikingElectronics.com

Features Overview

⚠ IMPORTANT: Electronic devices are susceptible to lightning and power station electrical surges. It is recommended that a surge protector be installed to protect against such surges.

PP-250 Front View



INPUT LEVEL: Input Level control and LED to show activity and audio level

BASS: Low frequency tone control

TREBLE: High frequency tone control

VOLUME: Volume control and LED level indicator for setting Peak Limiting

POWER: LED indicating power is on (winks off to indicate an overload condition)



Use included slotted bit to adjust tamper resistant front panel pots.

PP-250 Back View



LINE INPUT
Analog line level input

SHIELD
Analog ground

SPEAKERS:
Connect up to two hundred fifty (250) 70V or one hundred fifty (150) 25V speakers

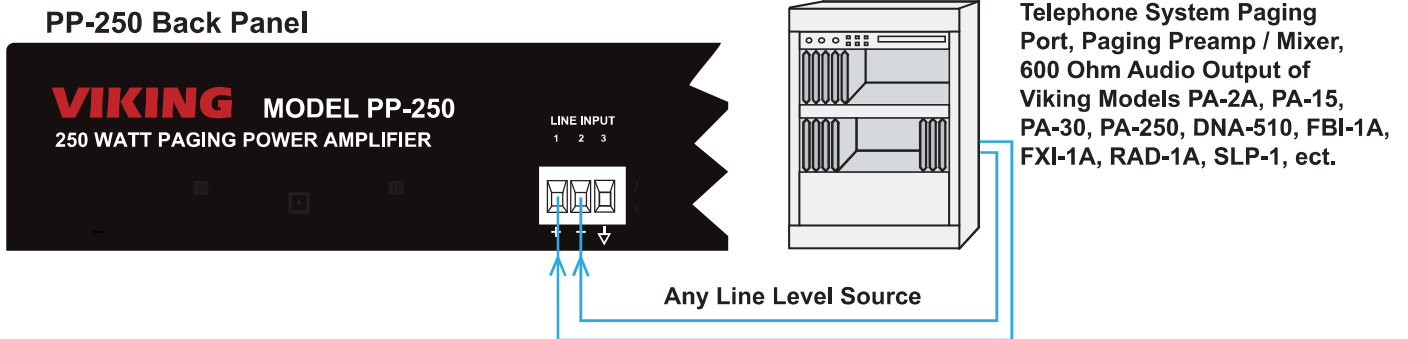
AC POWER INPUT:
Connect to 100V to 240V AC power using the included "Y" power cord

Installation

A. Line Input

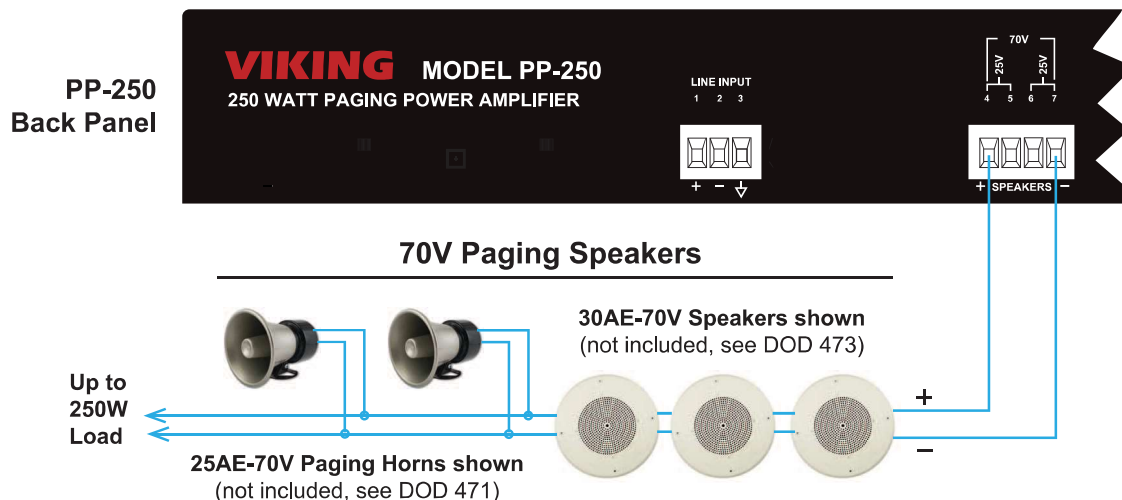
Step 1	Connect any balanced or unbalanced line level source to the LINE INPUT terminals (pins 1 & 2)
Step 2	Adjust the front panel INPUT LEVEL trim pot so the LED flashes with audio. If audio sounds distorted, its input is probably being overdriven. Turn down the front panel INPUT LEVEL trim pot until the sound is clear.
Step 3	If the audio is coming from an RCA jack, and hum or buzz is present in the audio, the RCA cable shield may need to be grounded on the PP-250 side. This can be done by connecting the cable shield to the GROUND terminal (pin 3).

NOTE: A speaker level signal can be connected to the **LINE INPUT** terminals, as long as the front panel **INPUT LEVEL** trim pot is turned down low enough to not overdrive the input.

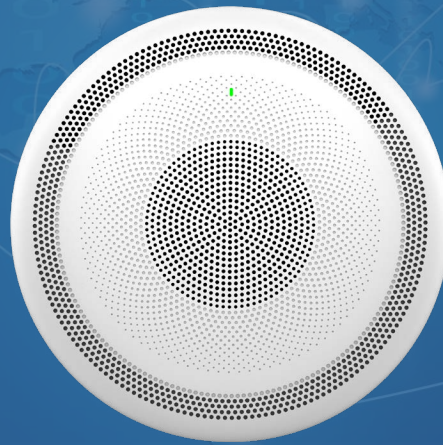
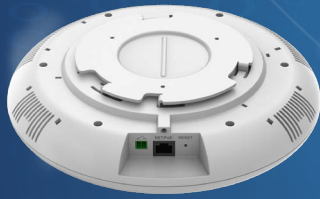


B. Speakers

Step 1	Connect 70V speakers across the 70V SPEAKERS terminals (pins 4 & 7).
Step 2	If using 25V speakers, connect half of them across the 25V SPEAKERS terminals (pins 4 & 5), and the other half across the 25V SPEAKERS terminals (pins 6 & 7), so that the power load is balanced between the two outputs.
Step 3	Check the power tap of each speaker connected, and be sure the sum of all the 70V speakers connected does not exceed 250 Watts. For example, if there are 40 speakers, all wired to their 5 Watt taps, the amplifier is driving a 200 Watt load. Since the PP-250 is capable of driving a 250 Watt load, additional speakers could be added, or some of the existing speakers could be tapped at a higher wattage setting to play louder. If the total speaker load goes "over budget" (greater than 250 Watt load), remove some speakers, or use lower power taps to get to a 250 Watt load. Each of the two 25V speaker outputs can drive up to 75 Watt load (150 total).



NOTE: For wire run lengths up to 500 feet, use #18 gauge or larger speaker cables. For wire run lengths up to 1000 feet, use #16 gauge or larger speaker cables. For wire run lengths up to 1500 feet, use #14 gauge or larger speaker cables, etc.



SIP/Multicast Talk-Back Speaker GSC3516

The GSC3516 is a SIP/Multicast Talk-Back Speaker that allows offices, schools, hospitals, apartments and more to build powerful voice intercom solutions that expand security and communication. This robust SIP intercom device offers 2-way voice functionality with both a high-fidelity 15W HD speaker and 3 directional microphones with Multichannel Microphone Array Design (MMAD) and 1 omnidirectional auxiliary microphone that offer a 4.2 meter pickup distance. The GSC3516 supports a wide-range of peripherals including Bluetooth devices, built-in whitelists, blacklists and greylists to easily block unwanted calls, integrated dual-band Wi-Fi and advanced acoustic echo cancellation. By pairing the GSC3516 with other Grandstream devices, including desktop and cordless IP phones as well as the GDS series of Facility Access products, users can easily sculpt a state-of-the-art security and voice intercom solution. Thanks to its modern industrial design, cleanable exterior surface and rich features, the GSC3516 is the ideal intercom speaker/microphone for any setting.



Full-duplex speakerphone with HD acoustic chamber, advanced acoustic echo cancellation



3 directional mics with MMAD & microphone beamforming array and 1 omnidirectional auxiliary microphone



Full-band and wide-band audio codec support including Opus & G.722



Integrated dual-band 802.11 a/b/g/n/ac Wi-Fi and Bluetooth



One 10/100Mbps network port with PoE/ PoE+



2-pin multi-purpose input to support peripherals including call buttons

Protocols/Standards	SIP RFC3261, TCP/IP/UDP, RTP/RTCP, RTCP-XR, HTTP/HTTPS, ARP, ICMP, DNS (A record, SRV, NAPTR), DHCP, PPPoE, SSH, TFTP, NTP, STUN, LLDP-MED, SIMPLE, LDAP, TR-069, 802.1x, TLS, SRTP, IPv6, OpenVPN®
Network Interfaces	One 10/100 Mbps port with integrated PoE/PoE+
Operating System	Linux
Bluetooth	Yes, integrated. Bluetooth 2.1+Enhanced Data Rate (EDR)+ BT4.2
Wi-Fi	Yes, dual-band 2.4 & 5GHz with 802.11 a/b/g/n/ac
Auxiliary Port	One 2-pin multi-purpose input port, Reset
Voice Codecs and Capabilities	G.711µ/a, G.722 (wide-band), G.726-32, iLBC, Opus, G.723, G.729A/B, in-band and out-of-band DTMF (In audio, RFC2833, SIP INFO), VAD, CNG, AEC, PLC, AJB, AGC, ANS
Telephony Features	SIP Paging, Multicast Paging, Group Paging, PTT, Call-waiting with priority override, Bluetooth SCO call
HD Audio	Yes, HD speakerphone with support for full band audio with 48KHz voice sampling frequency
Speaker	15W high-fidelity HD speaker Frequency: 110Hz-20000 Hz Sensitivity: Up to 90 dBA at 1W power at 0.5 meter
Microphone	3 directional microphones with beam-forming capability and 1 omnidirectional auxiliary microphone that offer a 4.2 meter pickup distance
QoS	Layer 2 QoS (802.1Q, 802.1p) and Layer 3 (ToS, DiffServ, MPLS) QoS
Security	User and administrator level passwords, MD5 and MD5-sess based authentication, 256-bit AES encrypted configuration file, TLS, SRTP, HTTPS, 802.1x media access control, secure boot
Multi-language	English, German, French, Spanish, Portuguese, Russian & Chinese
Upgrade/Provisioning	Firmware upgrade via TFTP / HTTP / HTTPS or local HTTP upload, mass provisioning using GDMS/TR069 or AES encrypted XML configuration file
Power & Green Energy Efficiency	Integrated PoE* 802.3af Class 3, PoE+ 802.3at Class 4
Temperature and Humidity	Operation: 0°C to 45°C Storage: -10°C to 60°C, Humidity: 10% to 90% Non-condensing
Package Content	GSC3516 SIP/Multicast Talk-Back Speaker, mounting kits, quick installation guide
Physical	Unit Dimensions: 257mm (diameter) x 68.5mm (depth) Unit Weight: 0.92kg , Box Weight: 1.75kg
Compliance	FCC: FCC 47 CFR Part 15 Subpart B; FCC 47 CFR Part 15 Subpart C; FCC 47 CFR Part 15 Subpart E. IC: ICES-003; RSS-247 Issue 2; RSS-Gen Issue 5; RSS-102 Issue 5. CE: ETSI EN 300 328; ETSI EN 301 893; ETSI EN 300 440; ETSI EN 301 489-1; ETSI EN 301 489-3; ETSI EN 301 489-17; EN 55032; EN 55035; EN IEC 61000-3-2; EN 61000-3-3; EN IEC 62311; EN IEC 62368-1. UKCA: ETSI EN 300 328; ETSI EN 301 893; ETSI EN 300 440; ETSI EN 301 489-1; ETSI EN 301 489-3; ETSI EN 301 489-17; BS EN 55032; BS EN 55035; BS EN IEC 61000-3-2; BS EN 61000-3-3; BS EN IEC 62311; BS EN IEC 62368-1. RCM: AS/NZS CISPR 32; AS/NZS 62368.1; AS/NZS 4268; AS/NZS 2772.2.