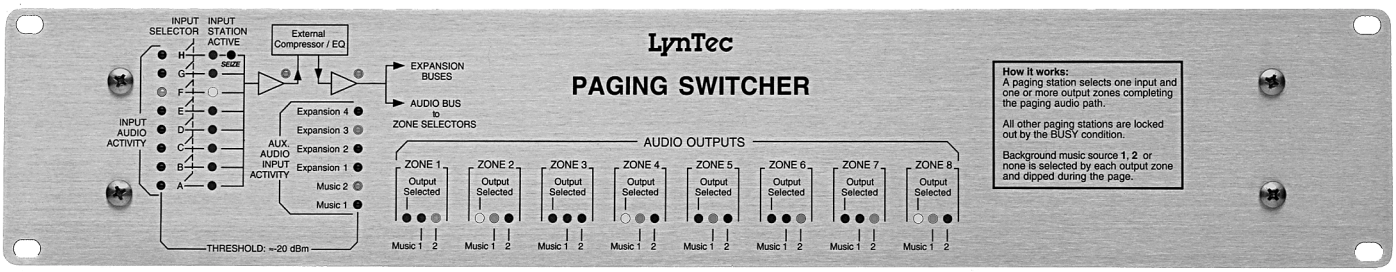
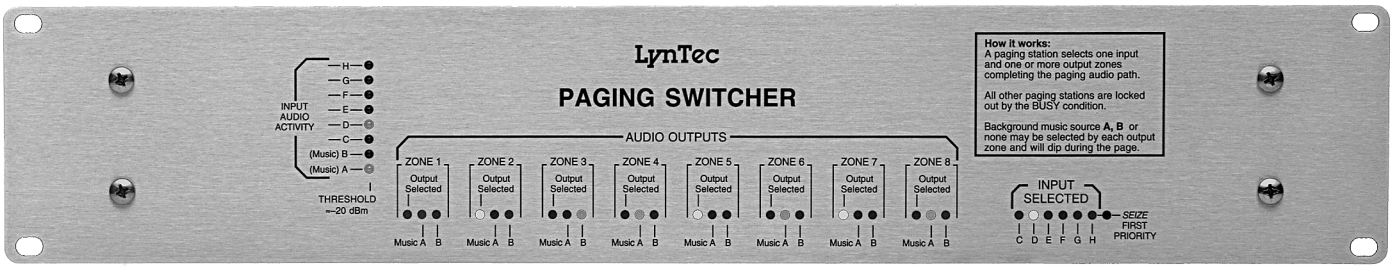
LynTec PAGING SWITCHERS

A line level switching system for routing and control of paging and music in:

- Small airports
- Retail stores
- Warehouses
- Offices
- Convention facilities
- Restaurants
- Arenas
- Cruise ships
- Malls
- Theatres
- Casinos



EXPANSION INPUT model with compressor/EQ sharing. PS10TE-8



Basic 8 input non-expandable model. PS8TC-8 M2

BENEFITS

- ✔ Superior paging and music audio quality... far exceeds phone based paging.
- ✔ Provides wide flexibility for the sound system designer.
- ✔ Reduced system and wiring troubleshooting time. Many LEDs for instant visual diagnosis.
- ✔ *Designed-in* reliability and consistency cuts one-of-a-kind design and documentation costs.

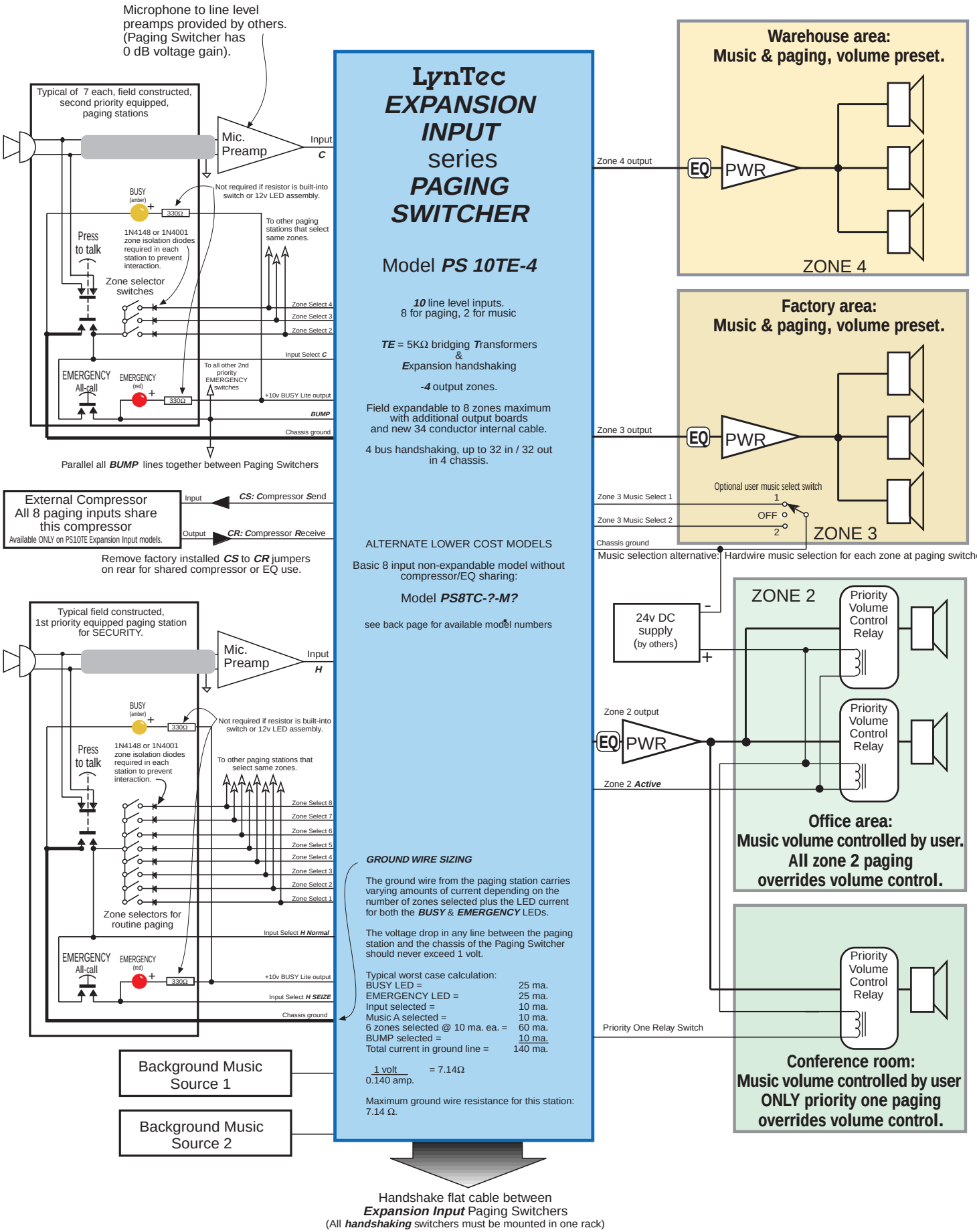
FEATURES (both models)

- ❑ Full flexibility... any input may page any combination of output zones.
- ❑ Up to 8 inputs. Up to 10 output zones.
- ❑ Two levels of priority override for emergency paging.
- ❑ Two channels of zone selectable background music are dipped by paging with a smooth slo-restore.
- ❑ High fidelity signal path. Broadcast quality transformers provide wideband response.
- ❑ Built-in control for wall-mounted priority attenuators.
- ❑ Up to 69 diagnostic LEDs per chassis provide constant readout of paging system status.
- ❑ Busy lite output drives paging station **BUSY** LEDs.
- ❑ Status LEDs on all control lines simplify system troubleshooting.
- ❑ Time limit timer prevents system monopolizing and ignores held-down-buttons or control line shorts.
- ❑ All solid state switching eliminates troublesome relays.

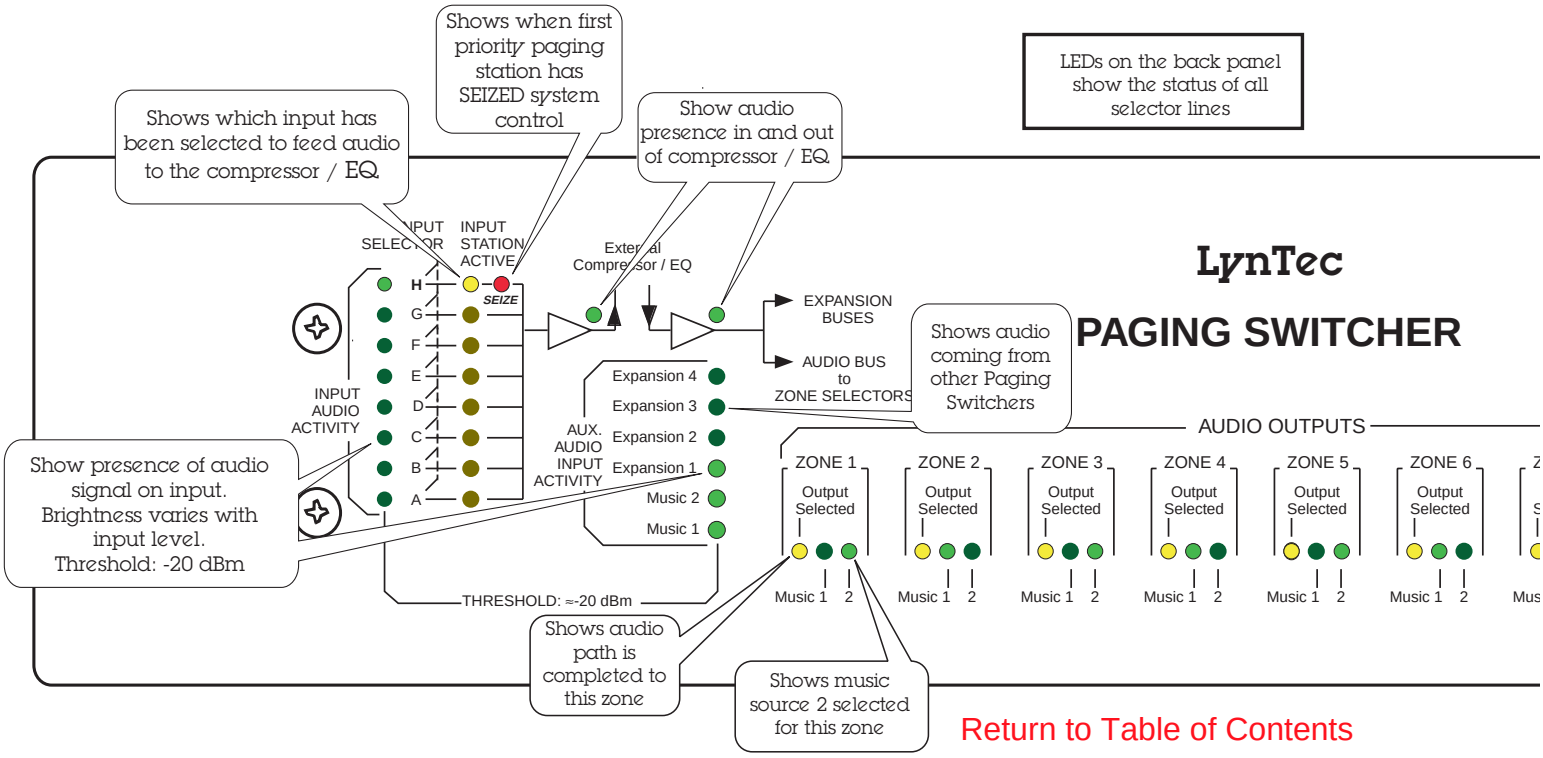
Additional EXPANSION INPUT *FEATURES*

- ❑ Compressor/EQ sharing. One compressor or EQ serves 8 paging inputs.
- ❑ Expandable up to 32 inputs and 32 output zones.

Typical Paging System Block Diagram



LED functions on
PS10TE series PAGING SWITCHER



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Combined SPECIFICATIONS for PS 8 and PS 10TE series PAGING SWITCHERs

AUDIO INPUT CHARACTERISTICS

Each of the line level audio inputs are identical and have the following characteristics:

Input Impedance: 20 KΩ ±10%, unbalanced.

(Optional **T**ransformer balanced: 5 KΩ minimum @40 Hz)

Typical operating level: 0 dBm (0.775v RMS)

Maximum input level: +18 dBv (6.16v RMS)

AUDIO INPUT ACTIVITY indicators

LEDs show the output of the input amplifiers.

Brightness varies with audio input level. Threshold ≈-20 dBm.

AUDIO OUTPUT CHARACTERISTICS

Depending on the model, there are 1 to 5 dual output boards installed having the following characteristics:

All balanced outputs are transformer coupled and intended to drive a 600Ω load. All parameters are measured with a 600Ω load at 0 dBm unless stated otherwise.

Frequency response: ± 1 dB, 40 Hz - 15 kHz.
± 2 dB, 20 Hz - 20 kHz.

Maximum output level: +18 dBm (6.14v) RMS.

Typical output impedance @ 1 kHz: 275Ω.

Hum, noise & distortion: At 1 kHz@ 0 dBm, less than 0.1% added.
20 Hz - 20 kHz bandwidth.

COMPRESSOR / EQ SHARING (PS10TE series only)

The expansion input paging switchers provide a **CS C**ompressor **S**end output(600Ω xfmr) and **CR C**ompressor **R**eceive input (5KΩ xfmr). The active input is routed to this I/O port so one compressor may serve all 8 inputs.

AUDIO SIGNAL SWITCHING CHARACTERISTICS

In the ON condition, the system has unity voltage gain ±0.5 dB, (1 volt in = 1 volt out).
In the off or mute condition, the output will be more than 80 dB below full output.

PAGING SWITCHING TIME

Audio is connected 30-50 milliseconds after ground is applied to the INPUT SELECT and ZONE SELECT terminals.

Release time: 30-50 milliseconds after button release.

INPUT & OUTPUT ZONE SELECTION

Line level audio is routed from any input to any combination of output zones.

All selector lines are to be grounded to select. Each selector line is a 10 ma. source [1KΩ from +10v] and may be used to drive external LEDs as long as the voltage appearing at the Paging Switcher selector terminals drops below 4.5 volts during selection.

There are 3 types of INPUT SELECTORS. LEDs behind each terminal show selection. Normal (green LED), ***BUMP*** (yellow LED) and **H *SEIZE*** (red LED).

Normal selector (**A** thru **G** and **H Normal** [routine security paging]) have the lowest priority. Selecting a normal input will page only those zones that are simultaneously selected and dip the music.

The ***BUMP*** selector provides a second priority all-call from any station equipped with a momentary EMERGENCY all-call button. The user must hold down the EMERGENCY button prior to depressing the push-to-talk switch to gain emergency access. Any normal user will be *bumped* from the system. This second level priority is subject to the Time Limit timer.

The **H *SEIZE*** selector makes **H** a first priority all-call. It will seize control of the system and retain control until released. Any other Input Selection will be over-ridden or ignored. This top priority level is not subject to the Time Limit timer. It will retain control of the system as long as it is selected. (grounded)

OUTPUT ZONE SELECTION

Grounding any combination of **ZONE SELECT** terminals completes the audio path from the **INPUT SELECTED**. Note: zones must be selected prior to or simultaneously with the input select. Zone selector switch changes *after* the page is initiated are ignored. (See Time Limit Timer for logic explanation).

BUSY LITE OUTPUT

Pressing any microphone button initiates Input Selection, locking out all other non-priority inputs with a BUSY signal. The BUSY LITE output provides 10 volts DC to drive yellow **BUSY** LEDs at all of the microphone stations. (A 330Ω, 1/4 watt series resistor is required for each **BUSY** led).

BUSY LITE output current is 1 ampere maximum per chassis.

The BUSY LITE output rise and fall times are intentionally slowed, to 20 & 4 milliseconds respectively, to reduce the possibility of inducing clicks in long microphone lines run in common conduit.

Installation tip: ALWAYS run microphone level circuits in a SEPARATE shielded pair to prevent induced clicks. Multiple pairs within the same sheath should be avoided for any circuit carrying audio. Run in metal conduit for best shielding. Avoid plastic conduit. Zone and Input Selector lines are individually filtered in the Paging Switcher and may be run within the same sheath.

LynTec PAGING SWITCHER

SPECIFICATIONS

continued

TIME LIMIT TIMER

An automatic timer prevents system monopolizing and ignores locked-down buttons or selector line ground faults.

The first Input Select line grounded will hold control until released or until TIME LIMIT time-out occurs.

The timer limit is preset internally by a jumper at 17, 34, 68 or 136 seconds. (Factory set at 68 sec., field changeable by removing cover and moving jumper)

The timer de-selects all non-priority channels at the end of the preset time period and the BUSY lite goes out.

The next person that pushes down a button will take control of the system. The system only acknowledges the *transitions* of the buttons, holding the button down while the system is busy will NOT give you next access.

The first person to activate a press-to-talk switch when the system is not busy will access the system.

BACKGROUND MUSIC OPTIONS

In the standard **PS8C-**x**-M2** model, input channels **A** & **B** are dedicated to background music. The **PS10TE** series contains two dedicated music channels labelled **MUSIC 1** and **MUSIC 2** in addition to the 8 paging inputs. Either channel of background music is available to any output zone not actively paging. Any zone may select music **A\1** or music **B\2** or none.

Music is selected by grounding either Music **A\1** or Music **B\2** terminal for each output zone. A corresponding front panel LED will light when the terminal is grounded.

The Music select lines also source 10 ma. (1.2KΩ from +12v) A remote indicator LED may be driven in series, provided there is NO series resistor. [A *and* B may also be selected simultaneously, providing a *mixed* A & B output. Selecting both A & B signals reduces the music output to that zone 6 dB.]

MUSIC DIP and SLO-RESTORE

During the page, the music level will dip 15 dB. The music level recovers slowly after the page, achieving full volume within 5 seconds. The music is fully muted for priority pages. Music dip may be disabled for masking use or set for 30 dB at the time of manufacture. (Call)

VOLUME CONTROL OVERRIDE RELAY CONTROL

Two priority levels of switching may be used to control volume control override relays. These zener protected, open collector, NPN transistors will switch up to 200 ma. to ground. Relays must be powered by an external regulated DC supply. Absolute maximum open circuit voltage: +28.5 volts.

ZONE ACTIVE

Each output zone has a ZONE ACTIVE terminal that switches to ground when the zone is paged. Typical application: Offices want music volume control, over-ridden by all pages to their zone. (same circuit limits as override relay control)

PRIORITY ONE RELAY SWITCH

Switches to ground only during a priority-one page. Typical application: Conference room requiring music volume control over-ridden *only* by a priority-one page (from **H *SEIZE*** [Security]).

PAGING STATION CONSIDERATIONS

See page 2 for Paging Station schematic.

Each contractor supplied paging station typically consists of a microphone; a two pole momentary push-to-talk switch; a one pole zone selector switch and an optional indicator LED for each zone; and one 10v, 20-30 ma. BUSY led indicator. Isolation diodes are required in the zone select lines if the same zones are accessed by more than one station.

A momentary EMERGENCY page switch may be installed at any station to provide second priority all-call access. All EMERGENCY switches are connected in parallel to the *BUMP* selector line. A high-brightness red LED indicator located adjacent to the emergency switch is recommended to provide all users visual feedback of an emergency page. (Ask about optional illuminated EMERGENCY switch).

The INPUT SELECT switching may be accomplished with any switch capable of switching from 20 ma. to 115 ma. at 10 volts [10 ma. per zone plus 10 ma. for input select & 25 ma. for EMERGENCY LED]. A typical Input Select (micro-phone) switch could be a momentarily ON push-button switch with optional auxiliary contacts to short microphone audio in the off position.

[The Switcher operates at line level with no gain. Microphone pre-amps (supplied by others) are required ahead of the Switcher] See page 2 Block Diagram.

Typical wire requirements: One separate shielded pair for mic. audio; one pair for BUSY light and INPUT SELECT; one line for *BUMP,* if installed; one line for each output zone addressed by this station and a heavier ground return line. The heavier ground is needed to keep the voltage drop below 1 volt, due to the *combined* current of 10 ma. per line. An additional pair will provide user selection of background music. See page 2 Block Diagram for wire sizing.

Maximum wire run between microphone station and Paging Switcher is 5,000 ft.

TURN-ON DELAY MUTING

All outputs are muted for 3-5 seconds when AC power is applied.

INPUT POWER REQUIREMENTS

95-125 volts A.C., 50-60 Hz, 25 watts maximum. 240v model optional.

Input fuse: AGC 1/2 ampere.

5 ft., 3 wire power cord attached. NO A.C. power switch is provided. A red POWER pilot LED on rear indicates when AC power is applied.

SAFETY AGENCY APPROVALS

All components in the 110v circuit are UR & CSA rated. The Paging Switcher is not agency certified. If UL is required in your application, an external wall-mount transformer can be supplied as an option which bears the UL listed designation.

MECHANICAL CHARACTERISTICS

RIAA rack panel mounting. 19.00" wide, 3.50" high, 10" behind mounting surface. Weight: 10 lb. max.

INPUT / OUTPUT CONNECTIONS

Slotted head screw activated wire clamping terminal blocks or spring loaded cage clamp terminal strips at rear of unit.

DO NOT APPLY VOLTAGE FROM AN EXTERNAL SOURCE TO ANY **INPUT SELECT** OR **ZONE SELECT** TERMINAL.

MODEL NUMBER EXPLANATION

PS10TE series EXPANSION INPUT MODELS

All inputs have 5KΩ bridging input **T**ransformers.
Compressor /EQ sharing standard

Model No.	Description
PS 10TE-2	8 paging & 2 music inputs, 2 output zones.
PS 10TE-4	8 paging & 2 music inputs, 4 output zones.
PS 10TE-6	8 paging & 2 music inputs, 6 output zones.
PS 10TE-8	8 paging & 2 music inputs, 8 output zones.

PS 8C series – 8 INPUT MODELS

(NOT expandable, NO Compressor / EQ sharing)

UNBALANCED INPUT MODELS

20 KΩ unbalanced inputs, 600Ω transformer balanced outputs.

All models have 8 inputs with two levels of priority.

-M2 is standard. All units will have A & B dedicated as music inputs unless a **-M1** or **-MØ** suffix is specified. **-M1** or **-MØ** are additional cost options.

-M1 uses A as a music input with 7 paging inputs

-MØ has no music inputs. All 8 inputs are paging inputs.

Model No.	Description
PS 8C-2 M?	8 inputs, 2 output zones.
PS 8C-4 M?	8 inputs, 4 output zones.
PS 8C-6 M?	8 inputs, 6 output zones.
PS 8C-8 M?	8 inputs, 8 output zones.
PS 8C-10 M?	8 inputs, 10 output zones.

BALANCED INPUT MODELS

Same as PS 8C but with 5KΩ bridging input **T**ransformers.

Model No.	Description
PS 8TC-2 M?	8 inputs, 2 output zones.
PS 8TC-4 M?	8 inputs, 4 output zones.
PS 8TC-6 M?	8 inputs, 6 output zones.
PS 8TC-8 M?	8 inputs, 8 output zones.

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INSTRUCTION MANUAL

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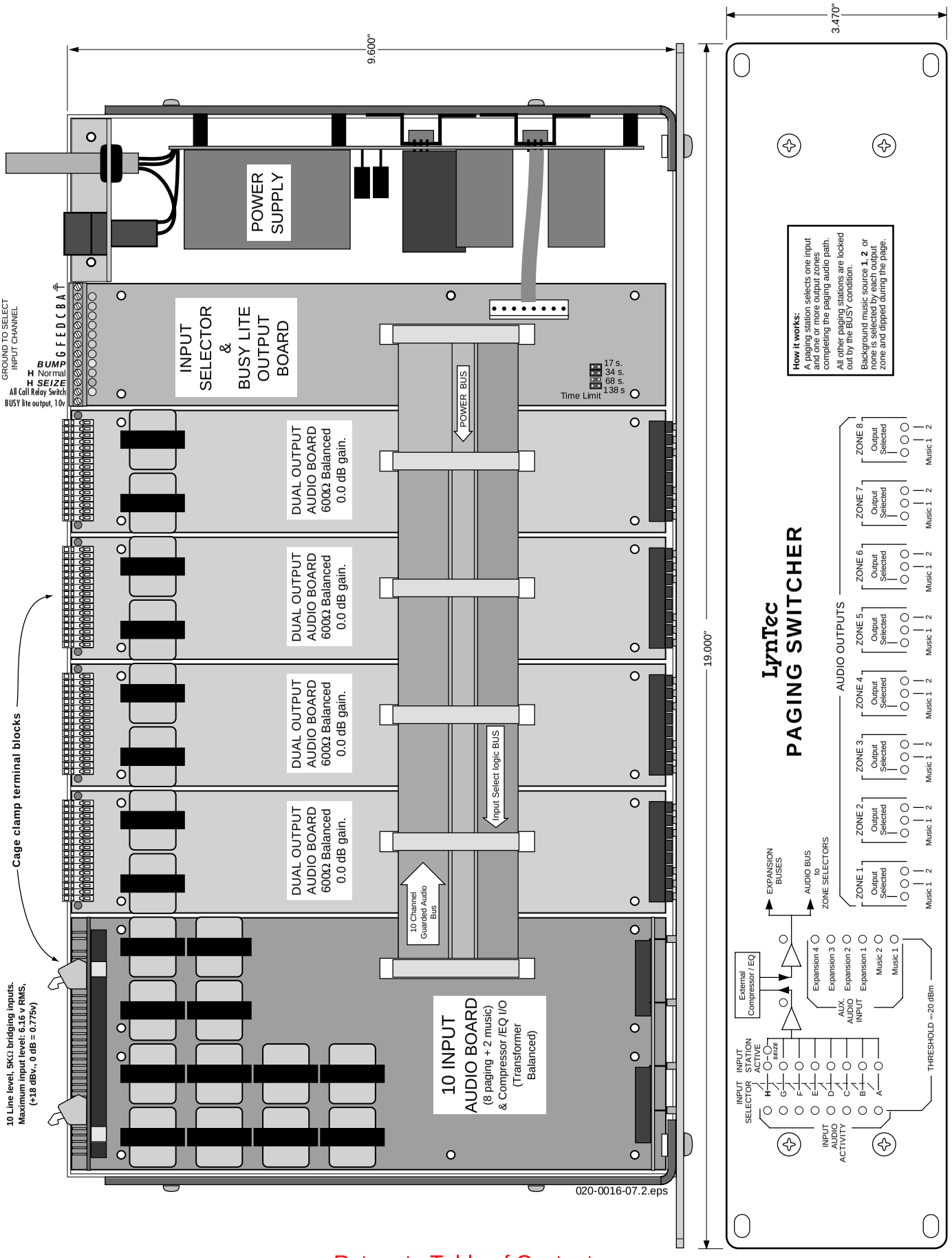

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Product Description

The LynTec Paging Switcher is a line level audio switching system that may be used to feed paging and background music to different zones.

8 input channels are routed to up to 8 transformer isolated output channels by solid state audio switches.

A COMPRESSOR / EQ I/O allows all eight paging inputs to share a common external compressor or equalizer (or both).

The inputs are 5KΩ bridging transformer inputs. All outputs are transformer coupled to drive a 600Ω load.

Each output zone may have individual control of all paging including emergency. Any zone may lockout routine paging. Emergency paging will override this lock-out.

Background music: Each output zone may select Music 1 or Music 2 (or both) or no music.

Each output zone has a ZONE ACTIVE output. This open-collector relay driver turns on when the zone paging becomes active. ZONE ACTIVE is used to drive 24v priority volume control relays powered by an external DC power supply [provided by others].

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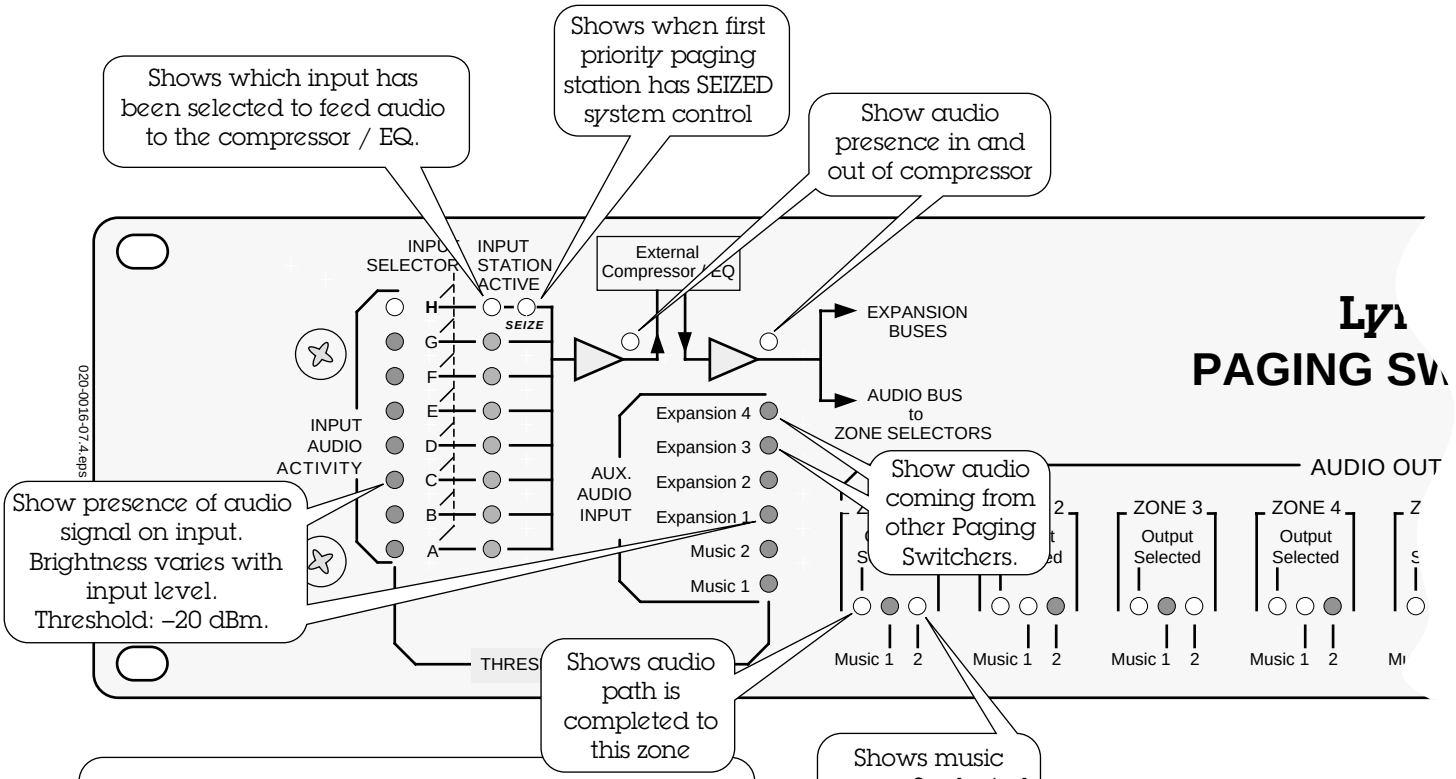
Front Panel LED Indicator Functions



Two rear terminals must be grounded simultaneously for this amber led to light.

An INPUT SELECT terminal must be grounded to select the appropriate input and the ZONE SELECT terminal for this zone must be grounded.

When both are grounded, the Output Selected LED will light, indicating that the paging audio path is completed. This LED will stay lit until the page is completed or TIME OUT occurs.

At the end of the page, the amber LED will extinguish slowly and the level of the music selected will slowly restore.

The music selector LEDs indicate which music channel is selected for this zone. They do not vary in brightness when the music dips 15 dB during paging and slow restore.

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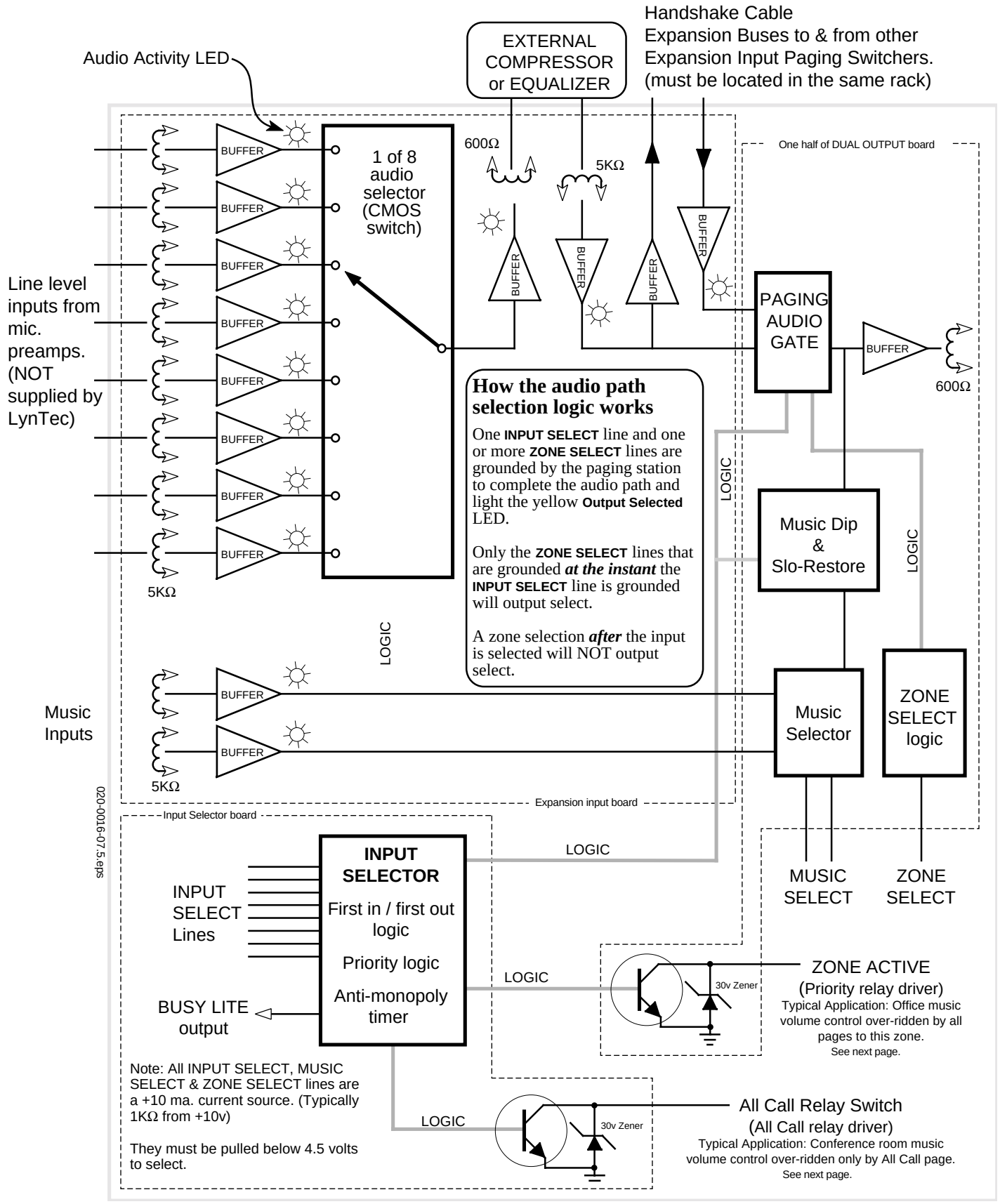
Functional Block Diagram



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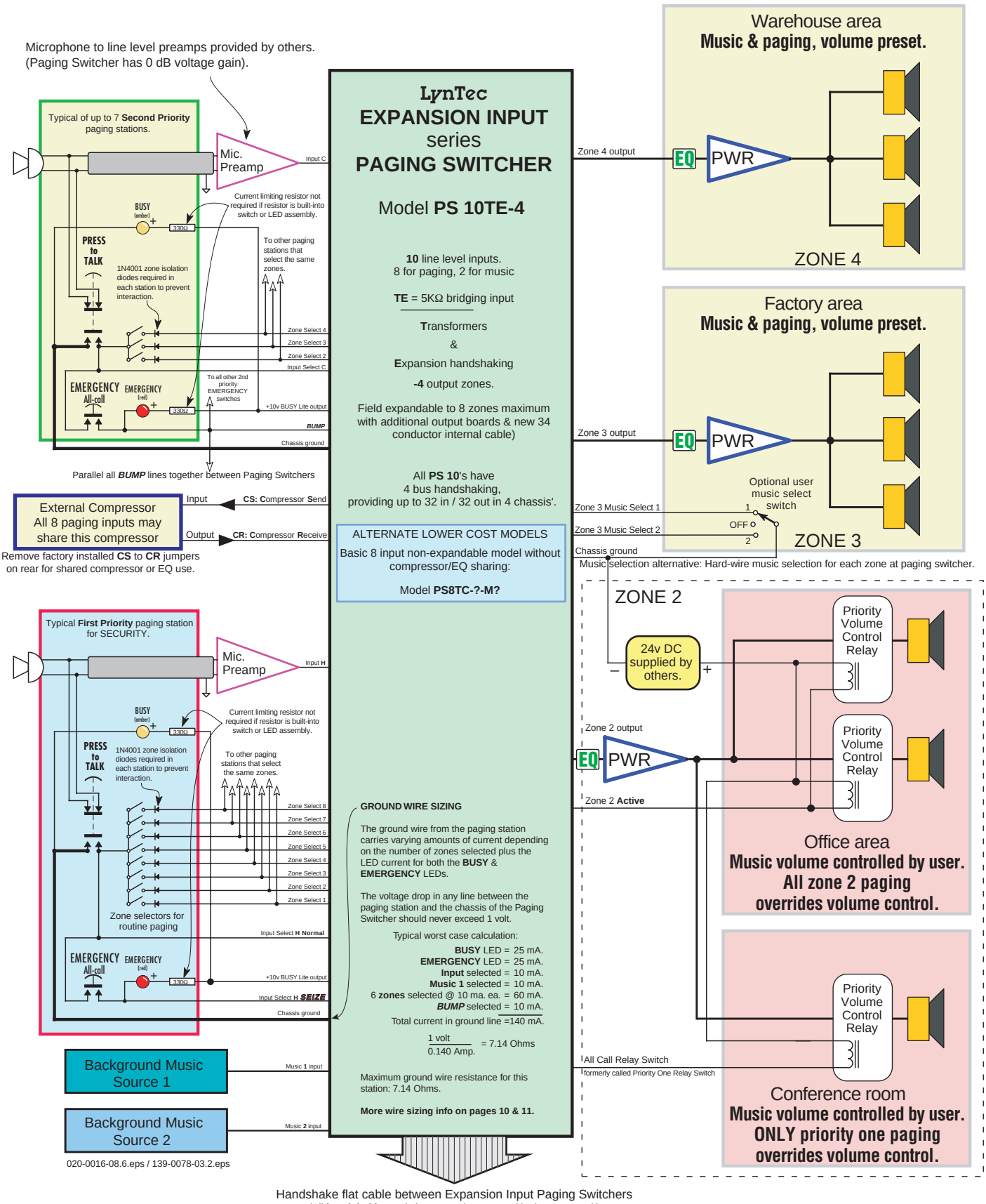

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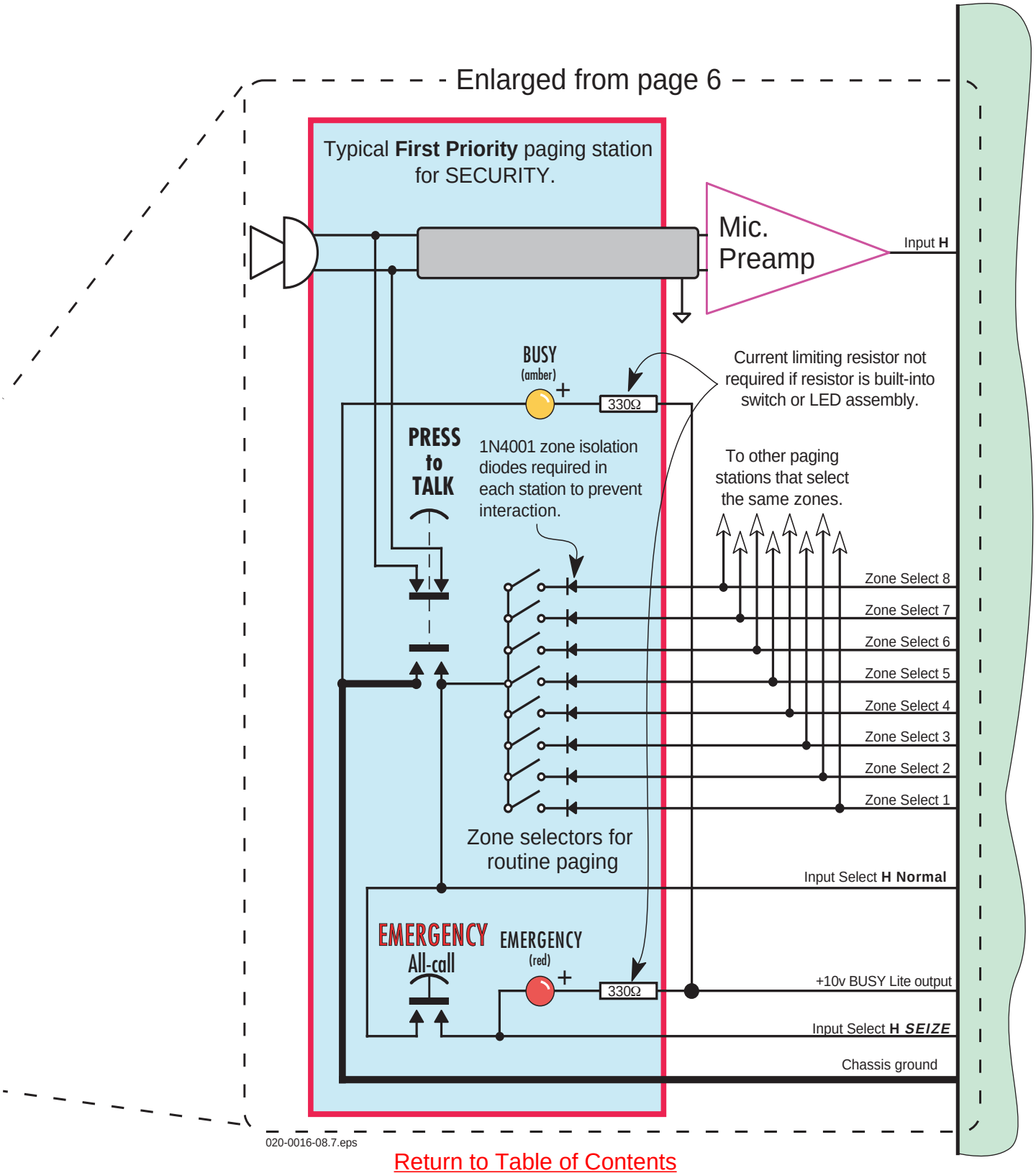
First Priority Paging Station Wiring Diagram



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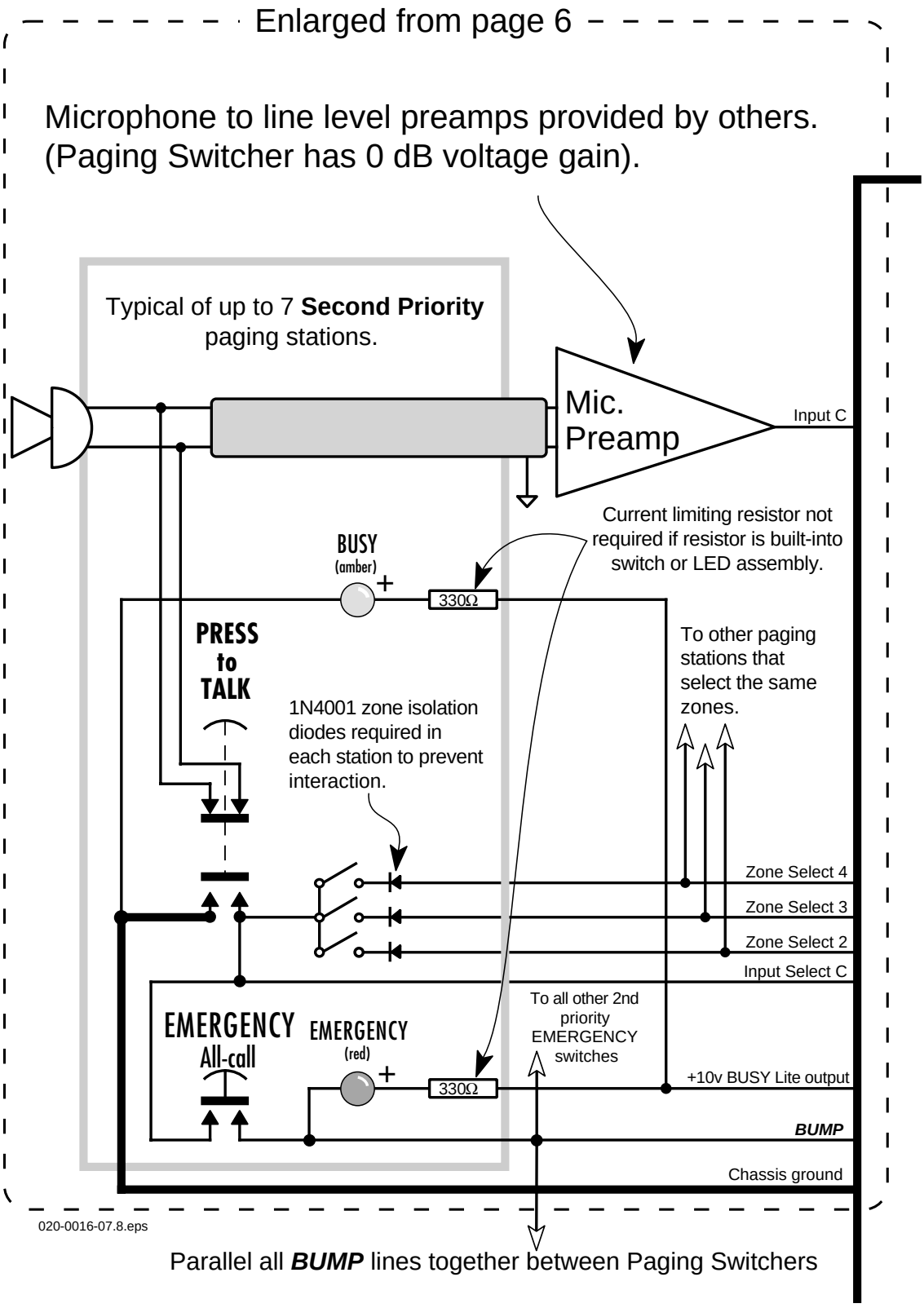
Second Priority Paging Station Wiring Diagram



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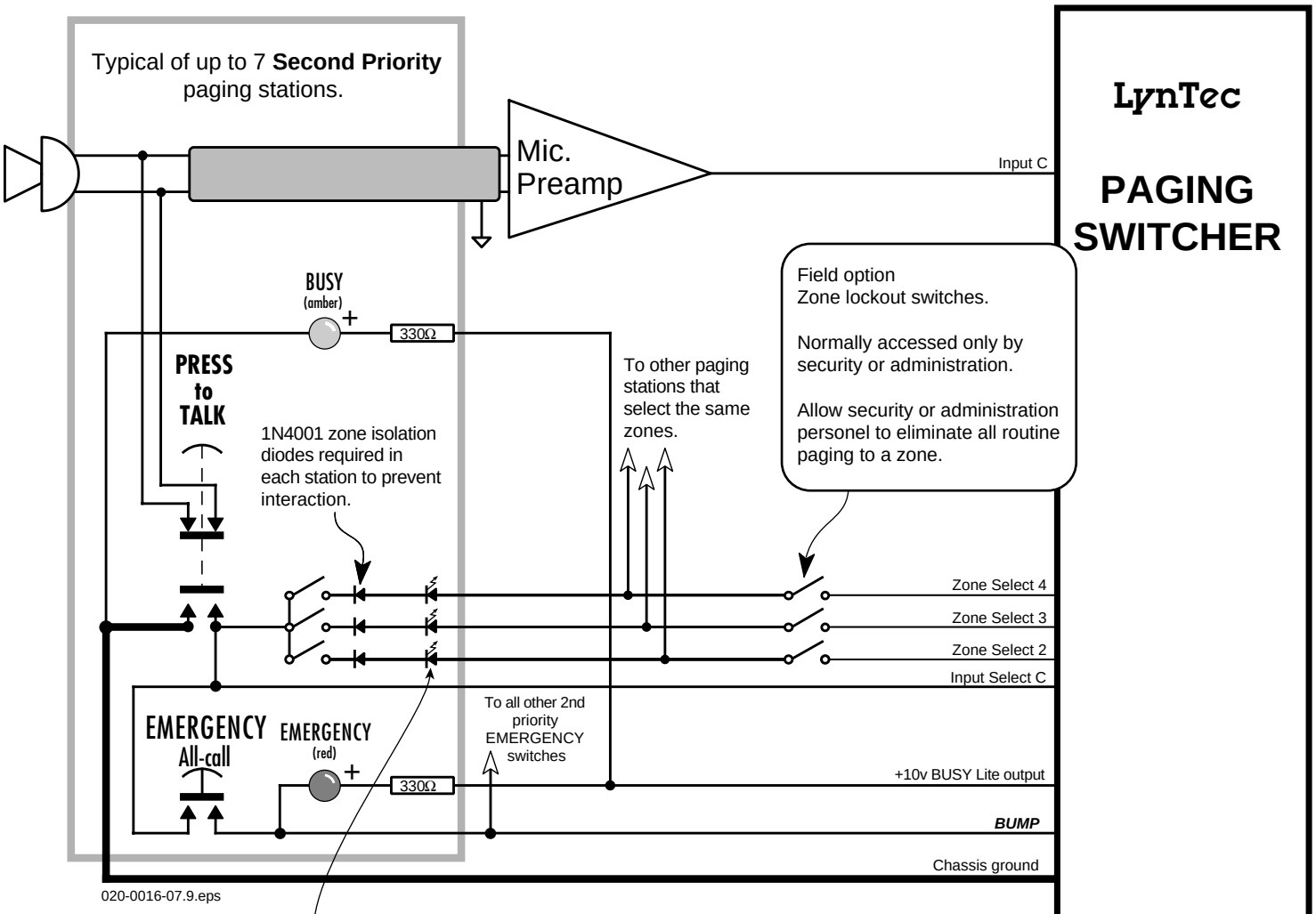
Field optional **Zone Lockout** and **Remote Zone** indicators



Field option Remote zone selection indicator LEDs.

Provide user feedback of his selection during paging and of any zone lockouts.

NOTE

These LEDs light only ***during*** paging.

NOTE

If more than 2 zones are selected at once, (through one LED), a parallel shunt resistor must be used to limit the LED current and resulting voltage drop.

Each Zone Selector line is a 10 ma. current source.

Example: Zones 3, 4, 5 and 6 are selected by one switch with an indicator LED for the "Arena". The four zone selector lines deliver 40 ma. which exceeds the LED's 20 ma. rating. The normal forward voltage drop increases due to the LED overload and the "Arena" selection is erratic.

Solution: Add shunt resistor in parallel with the LED.

3 zones — use 220 , 1/4 watt in parallel with LED.

4 zones — use 100 , 1/4 watt in parallel with LED.

5 zones — use 68 , 1/4 watt in parallel with LED.

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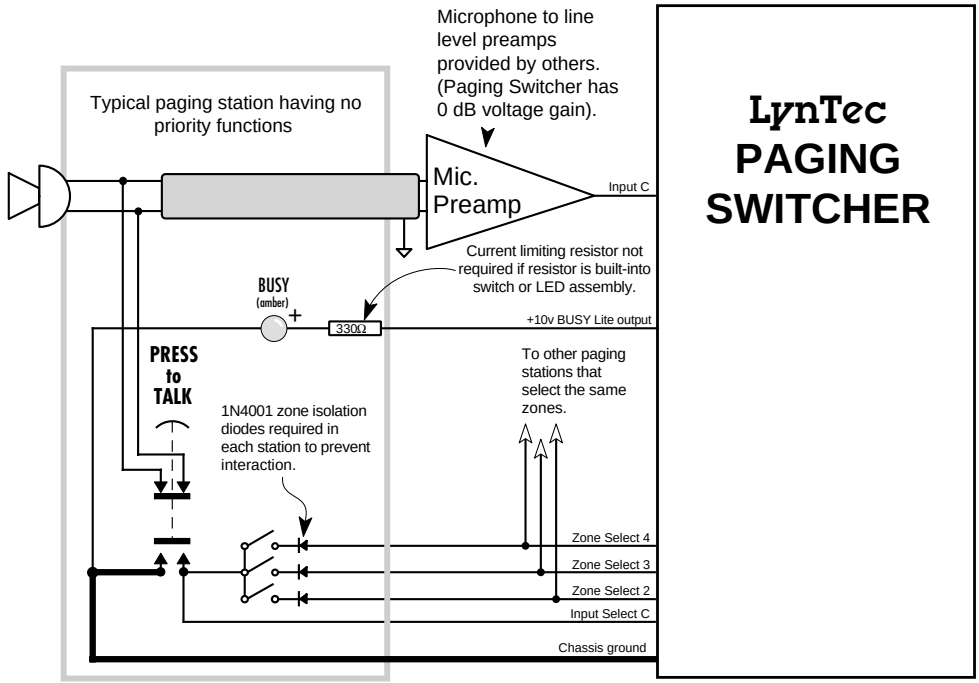
No-Frills paging station wire sizing table

Use these wire run calculations for bare-bones paging stations that **don't** require EMERGENCY all-call (***BUMP***), remote zone LED's, remote music selection or illuminated switches with built-in resistors. For any of these options, use the table on page 11. (Any of these options require less voltage drop in the ground wire.)



		Any **Selector** line Maximum run for .75v @10 mA.	**BUSY** or **EMERGENCY** LED line Maximum run for 1.0v @25 mA.	**Ground return wire** Maximum run in feet				
				No remote zone LEDs, 3v drop allowed. No BUMP or EMERGENCY. Music selected at switcher. BUSY LED with external resistor.				
	Max. Current	10 mA.	25 mA.	65 mA.	85 mA.	105 mA.	125 mA.	
Maximum number of selectable zones				**2 zones**	**4 zones**	**6 zones**	**8 zones**	
	Max. DCR	75Ω	40Ω	46.15Ω	35.29Ω	28.57Ω	11.76Ω	
AWG Gauge	Ohms per 1,000 ft.							AWG Gauge
12	1.588	47,229 ft.	25,189 ft.	29,064 ft.	22,225 ft.	17,992 ft.	15,113 ft.	12
14	**2.525**	**29,703 ft.**	**15,842 ft.**	**18,279 ft.**	**13,978 ft.**	**11,315 ft.**	**9,505 ft.**	**14**
16	4.016	18,675 ft.	9,960 ft.	11,493 ft.	8,788 ft.	7,114 ft.	5,976 ft.	16
18	**6.385**	**11,746 ft.**	**6,265 ft.**	**7,229 ft.**	**5,528 ft.**	**4,475 ft.**	**3,759 ft.**	**18**
3-20's	3.383	22,167 ft.	11,823 ft.	13,642 ft.	10,432 ft.	8,445 ft.	7,094 ft.	3-20's
2-20's	**5.075**	**14,778 ft.**	**7,882 ft.**	**9,094 ft.**	**6,954 ft.**	**5,630 ft.**	**4,729 ft.**	**2-20's**
20	10.150	7,389 ft.	3,941 ft.	4,547 ft.	3,477 ft.	2,815 ft.	2,365 ft.	20
3-22's	**5.380**	**13,941 ft.**	**7,435 ft.**	**8,579 ft.**	**6,560 ft.**	**5,311 ft.**	**4,461 ft.**	**3-22's**
2-22's	8.070	9,294 ft.	4,957 ft.	5,719 ft.	4,373 ft.	3,540 ft.	2,974 ft.	2-22's
22	**16.140**	**4,647 ft.**	**2,478 ft.**	**2,860 ft.**	**2,187 ft.**	**1,770 ft.**	**1,487 ft.**	**22**
3-24's	8.557	8,765 ft.	4,675 ft.	5,394 ft.	4,125 ft.	3,339 ft.	2,805 ft.	3-24's
2-24's	**12.835**	**5,843 ft.**	**3,116 ft.**	**3,596 ft.**	**2,750 ft.**	**2,226 ft.**	**1,870 ft.**	**2-24's**
24	25.67	2,922 ft.	**1,558 ft.**	1,798 ft.	1,375 ft.	1,113 ft.	935 ft.	24

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Full-Function paging station wire sizing table

Use these wire run calculations when in doubt or if any of the following optional paging station functions are used: EMERGENCY all-call (***BUMP***), remote zone LED's, remote music selection or 12 volt illuminated switches with built-in resistors. (Any of these options require less voltage drop in the ground wire.)

		Any **Selector** line Maximum run for .75v @10 mA.	**BUSY** or **EMERGENCY** LED line Maximum run for 1.0v @25 mA.	**Ground return wire** Maximum run in feet				
				Remote zone LEDs, 1v drop allowed BUMP & EMERGENCY Remote music selection 12 v. IDEC BUSY or EMERGENCY switch assy.			Heaviest load	
	Max. Current	10 mA.	25 mA.	100 mA.	120 mA.	140 mA.	160 mA.	
Maximum number of se ectab e zones				**2 zones**	**4 zones**	**6 zones**	**8 zones**	
	Max. DCR	75Ω	40Ω	10Ω	8.33Ω	7.14Ω	6.25Ω	
AWG Gauge	Ohms per 1,000 ft.							AWG Gauge
12	1.588	47,229 ft.	25,189 ft.	6,297 ft.	5,227 ft.	4,496 ft.	3,936 ft.	12
14	**2.525**	**29,703 ft.**	**15,842 ft.**	**3,960 ft.**	**3,287 ft.**	**2,828 ft.**	**2,475 ft.**	**14**
16	4.016	18,675 ft.	9,960 ft.	2,490 ft.	2,067 ft.	1,778 ft.	1,556 ft.	16
18	**6.385**	**11,746 ft.**	**6,265 ft.**	**1,566 ft.**	**1,300 ft.**	**1,118 ft.**	**979 ft.**	**18**
3-20's	3.383	22,167 ft.	11,823 ft.	2,956 ft.	2,453 ft.	2,110 ft.	1847 ft.	3-20's
2-20's	**5.075**	**14,778 ft.**	**7,882 ft.**	**1,970 ft.**	**1,635 ft.**	**1,407 ft.**	**1232 ft.**	**2-20's**
20	10.150	7,389 ft.	3,941 ft.	985 ft.	818 ft.	703 ft.	616 ft.	20
3-22's	**5.380**	**13,941 ft.**	**7,435 ft.**	**1,859 ft.**	**1,543 ft.**	**1,327 ft.**	**1162 ft.**	**3-22's**
2-22's	8.070	9,294 ft.	4,957 ft.	1,239 ft.	1,029 ft.	885 ft.	774 ft.	2-22's
22	**16.140**	**4,647 ft.**	**2,478 ft.**	**620 ft.**	**514 ft.**	**442 ft.**	**387 ft.**	**22**
3-24's	8.557	8,765 ft.	4,675 ft.	1,169 ft.	970 ft.	834 ft.	730 ft.	3-24's
2-24's	**12.835**	**5,843 ft.**	**3,116 ft.**	**779 ft.**	**647 ft.**	**556 ft.**	**487 ft.**	**2-24's**
24	25.67	2,922 ft.	**1,558 ft.**	390 ft.	323 ft.	278 ft.	243 ft.	24

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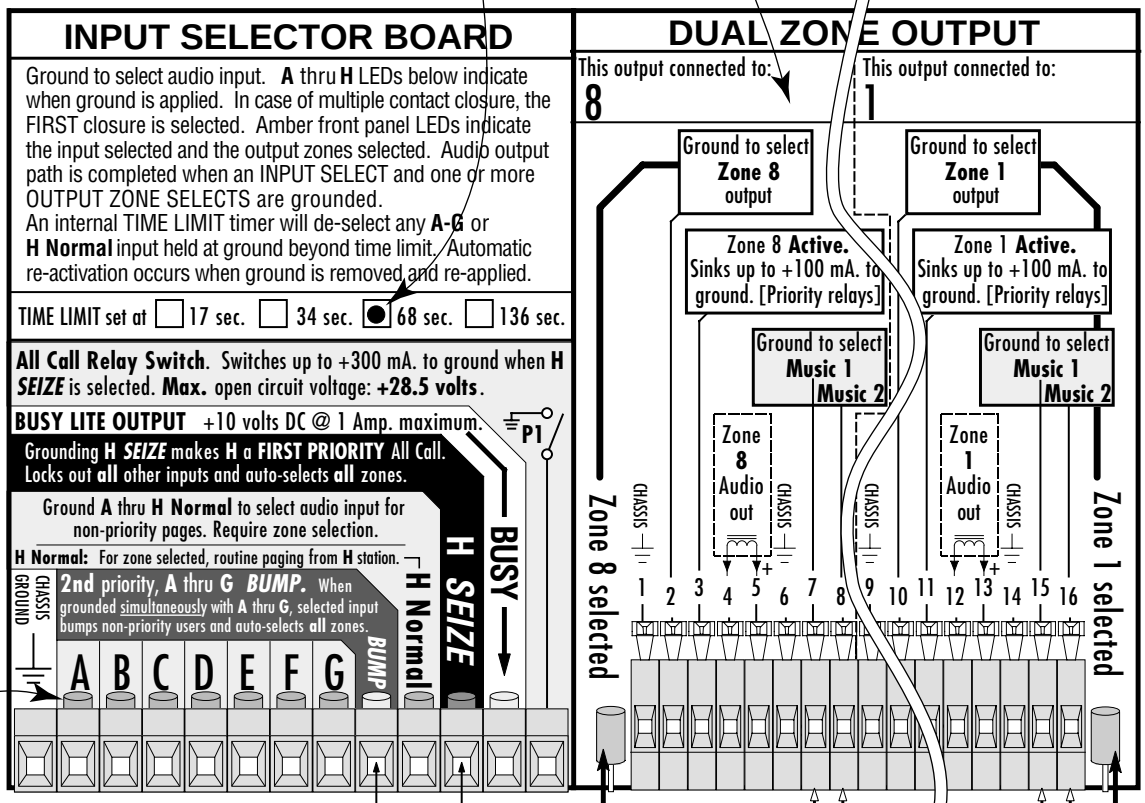
Channel Select & **Output** rear panel connections and labelling

TIME LIMIT factory set at 68 sec.
See page 15 for changing.

Open white space on mylar label for field connection information.
Use Sharpie or other permanent marker.
WD-40 on a rag will erase it.



A thru **H** ***SEIZE*** LEDs indicate when terminal is grounded.
A continously lit LED indicates a button stuck or ground fault.

Parallel connect **BUMP** & **H** ***SEIZE*** terminals on all handshaking Paging Switchers

Grounding any of these Music Selector lines will light the corresponding LED on the front panel and select music for each zone.
If no music is desired, leave open.

Zone Selected LEDs indicate when the zone select terminal is grounded. These LEDs should only be lit when the system is busy and the zone is selected.
A continously lit LED indicates a ground fault or wiring error.

Be sure to leave a 10 inch service loop on all wiring.

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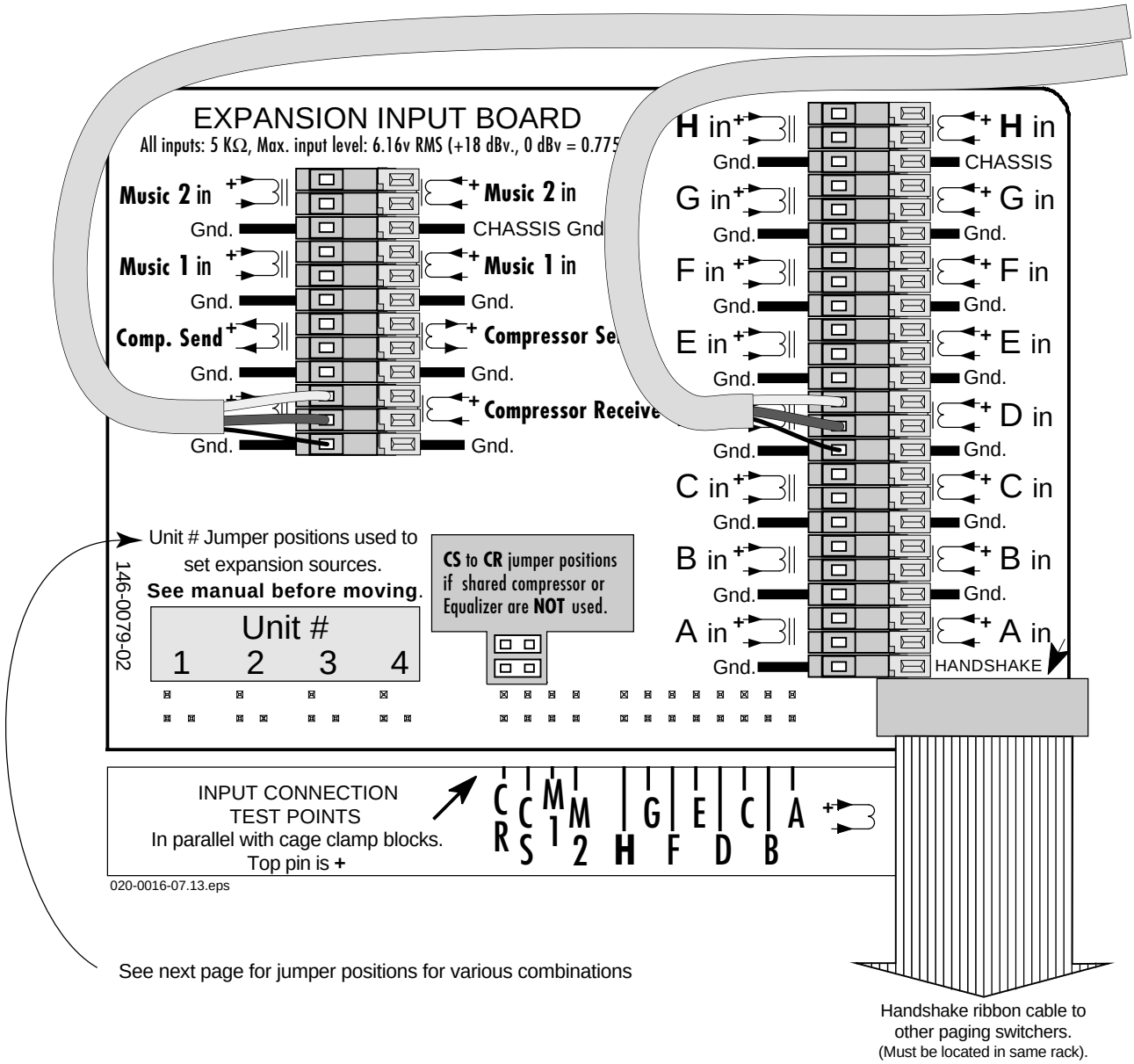
Expansion Input rear panel connections and labelling

Shagnasty's law: Equipment will fail only if it is inaccessible.

Leave enough cable slack to remove Paging Switcher from rack for cover removal.
Boards may be replaced individually after the cover is removed but only if you leave a 10 inch service loop.
Do your part to guarantee the reliability of the system by leaving an adequate service loop.

Recommended cabling routing to provide access to test pins at bottom.



HUM NOTE Input transformers on this board are susceptible to high strength magnetic fields. Adjacent power transformers may induce hum into these inputs. Open inputs are more susceptible than inputs driven from low impedance sources. If hum is observed in a specific channel, isolate by removing input wiring. Short input pins, if hum is reduced appreciably, try moving the Paging Switcher or adjacent equipment. This is another good reason to leave service loop allowance in installation cabling.

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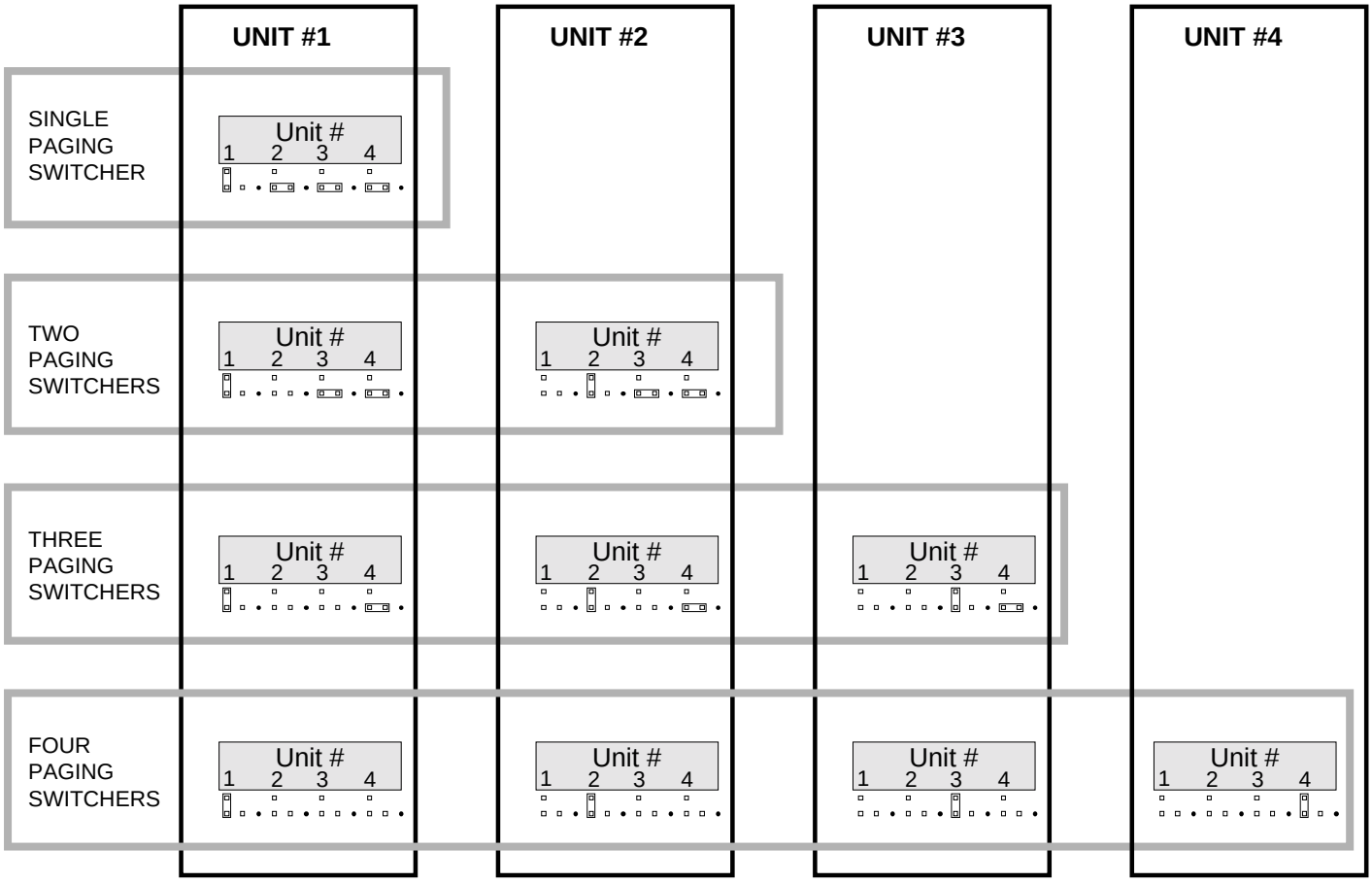
Unit # Jumper positions for setting expansion sources

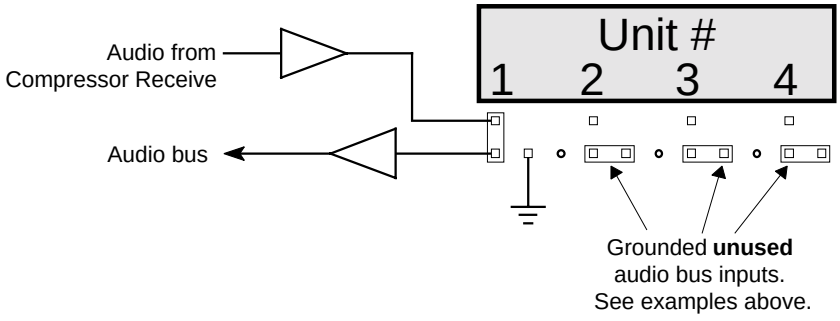


020-0016-07.14.eps

The Unit # jumpers are used to assign each unit's Compressor Receive signal to a different audio bus input.

Unused audio bus inputs are grounded by the horizontally positioned jumper only if **unused** on **any** of the handshaking units.

Each chassis must have it's own unique audio bus.



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Changing TIME LIMIT timer setting

Remove the Switcher from the rack and remove the top cover by removing the two screws at the top of each side plate.

Re-apply power to the Switcher.

The blue TIMER jumper is near the front of the input selector board, near the green led that cycles in 17 second intervals.

The board is marked **Time Limit 17 s.**, **34 s.**, **68 s.** and **136 s**. Reposition the jumper to the desired time.

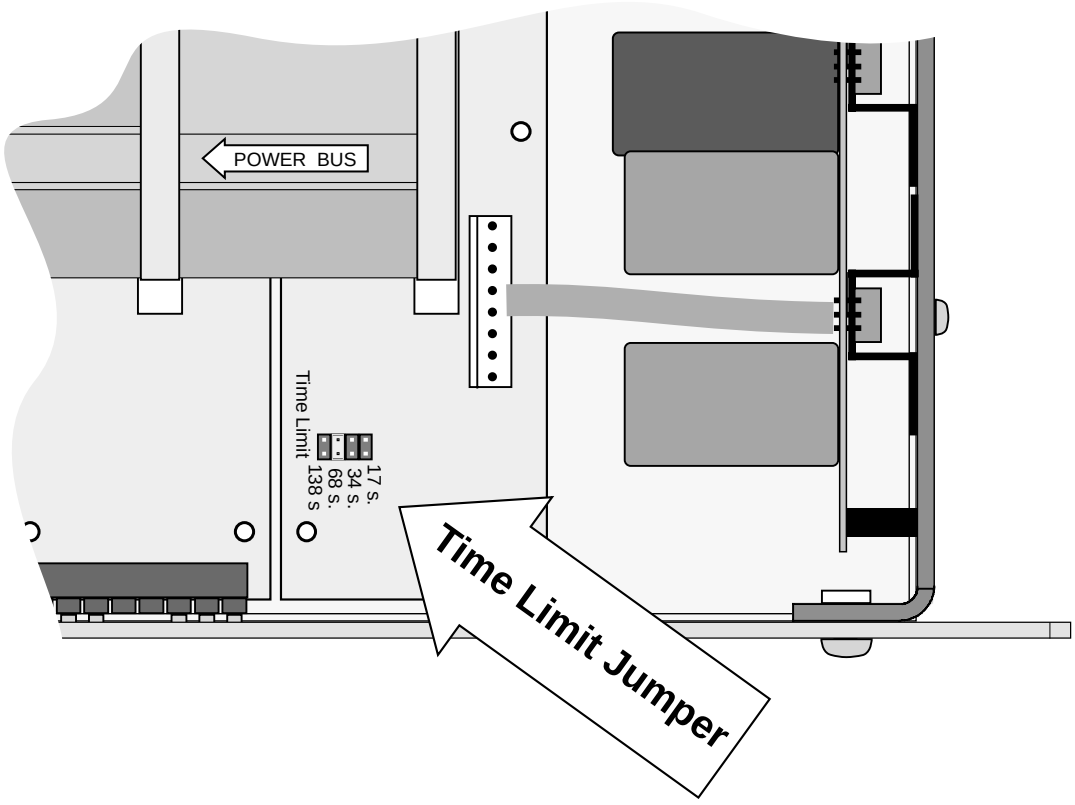
The jumper may be repositioned to only one pin (no completed contact pair) if no time limit is desired.

CAUTION

There is a trade-off if no time limit is selected. The time limit timer essentially resets the first-in/first-out function. If no time limit is selected, a locked-down press-to-talk switch or ground fault on an input select line can render the system semi-inoperative because it will only relinquish control of the system if the **H *SEIZE,*** first priority, input or second priority ***BUMP*** are activated.

NOTE

For all units that handshake:
Time Limit settings must be the **same** or the shortest time will govern.



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PS 10TE series SPECIFICATIONS

AUDIO INPUT CHARACTERISTICS

Each of the 10 line level and Compressor Receive audio inputs are identical and have the following characteristics:

Input Impedance: 5 KΩ minimum @40 Hz, transformer balanced.

Typical operating level: 0 dBm (0.775v RMS)

Maximum input level: +18 dBv (6.16v RMS)

AUDIO INPUT ACTIVITY indicators:

LEDs show the output of the input amplifiers. Brightness varies with audio input level. Threshold ≈-20 dBm.

AUDIO OUTPUT CHARACTERISTICS

Depending on the model, there are 1 to 4 dual output boards installed having the following characteristics:

All balanced outputs are transformer coupled and intended to drive a 600Ω load. All parameters are measured with a 600Ω load at 0 dBm unless stated otherwise.

Frequency response: ± 1 dB, 40 Hz - 15 kHz.
± 2 dB, 20 Hz - 20 kHz.

Maximum output level: +18 dBm (6.14v) RMS.

Typical output impedance @ 1 kHz: 275Ω.

Hum, noise & distortion: At 1 kHz@ 0 dBm, less than 0.1% added. 20 Hz - 20 kHz bandwidth.

COMPRESSOR / EQUALIZER I/O

The COMPRESSOR / EQ I/O port provides a means for all paging stations to share the same compressor or equalizer or both.

With 0 dBv into an input, the Compressor Send signal is the same level as the line input level with a source impedance of 275Ω @ 1kHz. For 1 dB unity gain accuracy thru Paging Switcher, load with no lower than 2KΩ.

Compressor Receive characteristics: See AUDIO input characteristics above.

CS to **CR** jumpers, at the bottom center of the input board, complete the audio path if no compressor or equalizer is used.

AUDIO SIGNAL SWITCHING CHARACTERISTICS

In the ON condition, the system has unity voltage gain ±0.5 dB, (1 volt in = 1 volt out). In the off or MUTE condition the output will be more than 80 dB below full output.

PAGING SWITCHING TIME

Audio is connected 30-50 milliseconds after ground is applied to the INPUT SELECT & ZONE SELECT terminal. Release time: 30-50 msec. after button release.

INPUT SELECTION & OUTPUT ZONE SELECTION

Line level audio is routed from any input to any combination of output zones.

All selector lines are to be grounded to select. Each selector line is a 10 mA. source [1KΩ from +10v] and may be used to drive external LEDs as long as the voltage appearing at the Paging Switcher selector terminals drops below 4.5 volts at selection.

There are 3 types of INPUT SELECTORS. LEDs behind each terminal show selection. Normal (green LED), ***BUMP*** (yellow LED) and **H *SEIZE*** (red LED).

Normal selector (**A** thru **G** and **H Normal** [routine security paging]) have the lowest priority. Selecting a normal input will page only those zones that are simultaneously selected and dip the music.

The ***BUMP*** selector provides a second priority all-call from any station equipped with a momentary EMERGENCY all-call button. The user must hold down the EMERGENCY button prior to depressing the push-to-talk switch to gain emergency access. Any normal user will be *bumped* from the system. This second level priority is subject to the Time Limit timer.

The **H *SEIZE*** selector makes **H** a first priority all-call. It will seize control of the system and retain control until released. Any other Input Selection will be over-ridden or ignored. This top priority level is not subject to the Time Limit timer. It will retain control of the system as long as it is selected. (grounded)

OUTPUT ZONE SELECTION
Grounding any combination of **ZONE SELECT** terminals completes the audio path from the **INPUT SELECTED**. Note: zones must be selected prior to or simultaneously with the input select. Zone selector switch changes *after* the page is initiated are ignored. (See Time Limit Timer for logic explanation).

BUSY LITE OUTPUT

Pressing any microphone button initiates Input Selection, locking out all other non-priority inputs with a BUSY signal. The BUSY LITE output provides 10 volts DC to drive yellow **BUSY** LEDs at all of the microphone stations. (A 330Ω, 1/4 watt series resistor is required for each **BUSY** led).

BUSY LITE output current is 1 ampere maximum per chassis.

The BUSY LITE output rise and fall times are intentionally slowed, to 20 & 4 msec. respectively, to reduce the possibility of inducing clicks in long microphone lines run in common conduit. **ALWAYS** run microphone level circuits in a SEPARATE shielded pair to prevent induced clicks. Multiple pairs within the same sheath should be avoided for any circuit carrying audio. Zone and Input Selector lines are individually filtered within the Paging Switcher and may be run within the same sheath.

TIME LIMIT TIMER

An automatic timer prevents system monopolizing and ignores locked-down buttons or selector line ground faults.

The first Input Select line grounded will hold control until released or until TIME LIMIT time-out occurs.

The timer's limit is preset internally by a jumper at 17, 34, 68

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PS 10TE series SPECIFICATIONS (continued)

or 136 seconds. (Factory set at 68 sec., field changeable)

The timer de-selects all non-priority channels at the end of the preset time period and the BUSY lite goes out.

The next person that pushes down a button will take control of the system. The system only acknowledges the *transitions* of the buttons, holding the button down while the system is busy will NOT give you next access.

The first person to activate a press-to-talk switch when the system is not busy will access the system.

BACKGROUND MUSIC OPTION

Two channels of background music are available to any output zone not actively paging. Any zone may select music 1 or music 2 or none.

The background music is fed into Music Inputs 1 & 2.

[1 *and* 2 may also be selected simultaneously, providing a *mixed* 1 & 2 output. Selecting both 1 & 2 signals reduces the music output to that zone 6dB.]

Music is selected by grounding either Music 1 or Music 2 terminal for each output zone. A corresponding front panel LED will light when the terminal is grounded.

The Music select lines source 10 mA. (1.2KΩ from +12v) A remote indicator LED may be driven in series provided there is NO series resistor.

MUSIC DIP and SLOW RESTORE

During the page, the music level will dip 15 dB in any zone that has been selected. The music level recovers slowly after the page, achieving full volume within 5 seconds. (A ≥25 dB dip is a factory installed option) Music is fully muted for **H *SEIZE*** & ***BUMP*** priority pages.

TURN-ON DELAY MUTING

All outputs are muted for 3-5 seconds when A.C. power is applied to allow system settling time.

ZONE ACTIVE lines for priority volume control relay switching.

Each output zone has a ZONE ACTIVE line which may be used to control priority volume control relays or any other positive sourced relay up to 28 volts @ up to 100 mA.

The ZONE ACTIVE terminal is connected to an open collector NPN transistor with a 30 volt zener diode spike snubber. See page 5.

for schematic. An external DC supply (provided by others) is required to power the relays. Power supply voltage must never exceed 28.5 volts.

CONTROL WIRE SIZE CONSIDERATIONS

Each contractor supplied microphone station typically consists of a microphone, a two pole momentary push-to-talk switch, a one pole zone selector switch and indicator LED for each zone and one 10v, 20-30 mA. BUSY led indicator.

Each selector line is a 10 milliampere current source. (typically 1KΩ from 10v) Selection will occur when a selector line is pulled below 6 volts. To provide noise immunity, any selector line should present less than 4.5 volts at the selector terminal on the rear of the paging switcher.

Wire sizes required are shown on pages 10 & 11.

Maximum distance between microphone station and Paging Switcher is 5,000 feet.

[The Switcher operates at line level with no gain. Microphone pre-amps (provided by others) are required ahead of the Switcher] See Paging Station diagrams on page 7 & 8.

The INPUT SELECT switching may be accomplished with any switch capable of switching 10 mA. at 10 volts. A typical Input Select (microphone Press-To-Talk) switch could be a momentarily ON push-button switch with auxiliary contacts to short the microphone in the off position.

DO NOT APPLY VOLTAGE FROM AN EXTERNAL SOURCE TO ANY **INPUT SELECT** OR **ZONE SELECT** TERMINAL.

INPUT POWER REQUIREMENTS

95-125 volts A.C., 50-60 Hz, 25 watts maximum.
Input fuse: AGC 1/2 ampere.

5 ft., 3 wire power cord attached. NO A.C. power switch is provided. A red POWER pilot LED on rear of unit indicates when AC power is applied.

MECHANICAL CHARACTERISTICS

RIAA rack panel mounting. 19.00" wide, 3.50" high, 10" behind mounting surface. Weight: 9 lb max.

INPUT / OUTPUT CONNECTIONS

Input Select Board:

Slotted-head-screw-activated, wire clamping terminal blocks at rear of unit.

Expansion Input & Dual Output Boards:

Spring loaded cage clamp terminal strips.

EXPANSION INPUT MODEL NUMBER EXPLANATION

Transformer balanced outputs to be loaded with 600Ω.
5KΩ bridging input transformers.
All models have 10 inputs: 8 paging and 2 music.
Any of the **A** thru **G** inputs may be made a second priority all-call by the addition of an EMERGENCY switch at the paging station. (see ***BUMP***)
H *SEIZE* makes **H** a first priority all-call paging input.
H normal allows routine paging from the **H** (Security) station.
Any output zone may select music from the two music inputs.
All models may be expanded up to 4 total chassis

Model No.	Description
PS 10TE-2	8 paging + 2 music inputs, 2 output zones
PS 10TE-4	8 paging + 2 music inputs, 4 output zones
PS 10TE-6	8 paging + 2 music inputs, 6 output zones
PS 10TE-8	8 paging + 2 music inputs, 8 output zones

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LIMITED WARRANTY

All LynTec products are warranted to be free from defects in workmanship and materials for a period of 15 months from the original invoice date. Warranty status may be found on the serial number plate which shows the warranty expiration date. This warranty shall be limited to the repair, adjustment and/or replacement of defective parts, excluding batteries.

LynTec will repair or replace at its option, defective LynTec products only at the factory at 8401 Melrose Drive, Lenexa, KS 66214. Phone 800-724-4047. All returns are to be prepaid. LynTec will pay return UPS surface freight charges on warranty repairs. All excess transportation charges will be borne by the customer.

LynTec will not be responsible for inconveniences or consequential damages occasioned by LynTec equipment, or by breach of any express or implied warranty with respect thereto.

Implied warranties on this product shall be in effect only for the duration of the express warranty set forth above. After the warranty expiration date shown on the serial number plate, there shall be no warranties, express or implied on the product.

This warranty becomes void if the product shows evidence of mishandling, tampering, battery or chemical corrosion, fire, water or lightning damage or other acts of nature, use contrary to the applicable instruction manual, shipping damage or repair performed by others.

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