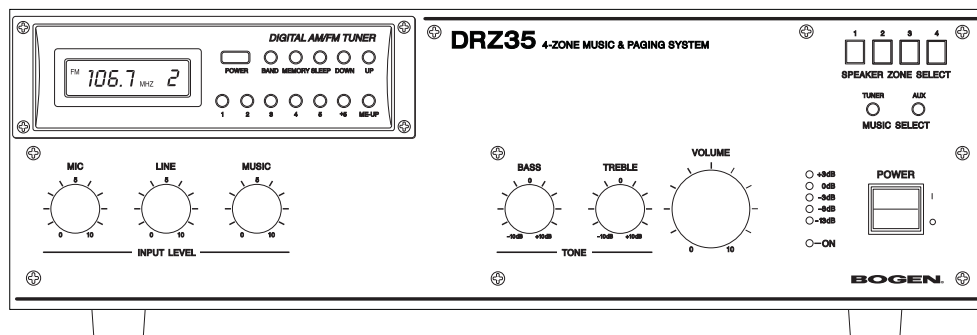




DRZ35

4-Zone Music & Paging System

BOGEN[®]
COMMUNICATIONS, INC.

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Specifications subject to change without notice.

54-2190-01B 0912

NOTICE: Every effort was made to ensure that the information in this guide was complete and accurate at the time of printing. However, information is subject to change.

WARNING: To reduce the risk of Fire or Electric Shock, Do Not Expose this apparatus to rain or moisture.

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases shall be placed on the apparatus.

WARNING: Only connect unit to AC mains outlet providing protective earthing connection.

NOTE: Mains plug is used as disconnect device from the mains and shall remain readily accessible and operable.

CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Always follow these basic safety precautions when installing and using the unit:

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean unit with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade, or the third prong, are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when not used for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**



CAUTION: TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE ANY FRONT/BACK COVERS OR PANELS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

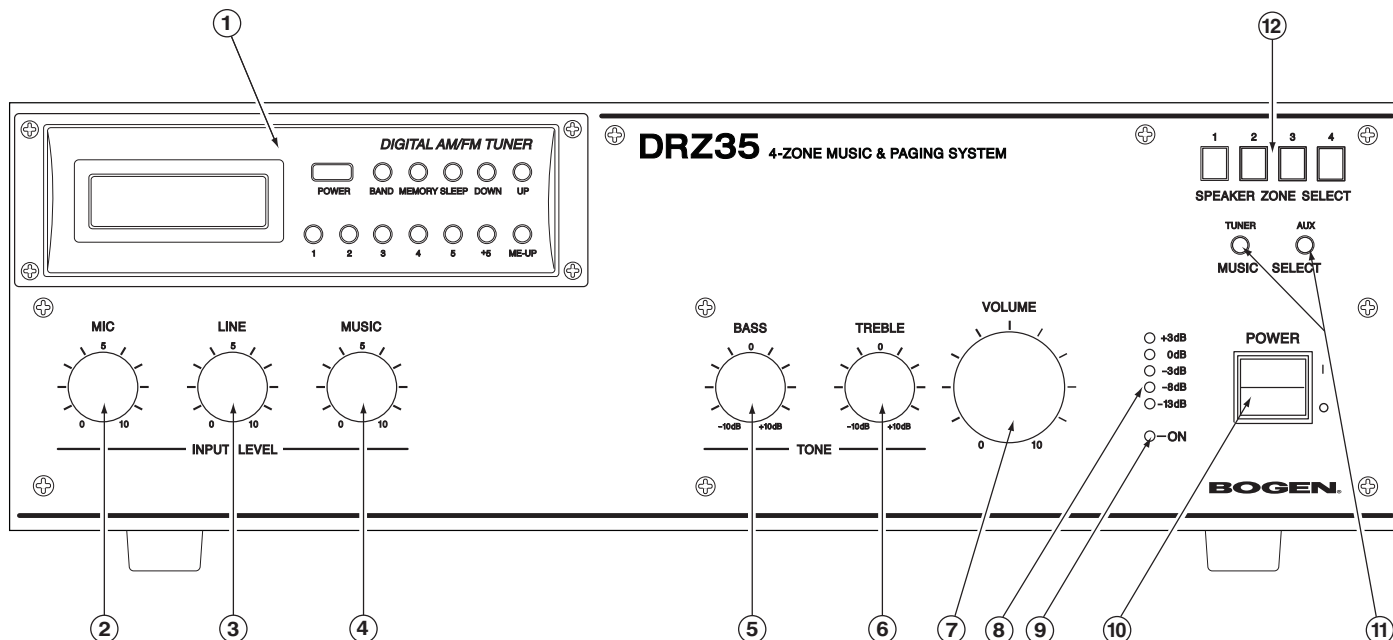
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions.

Contents

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DRZ35 Front Panel



1. Digital AM/FM Tuner

AM/FM tuner module (see Page 3 for details).

2. MIC Input Level Control

Controls microphone level. MIC can be set so that it will mute all other input sources.

3. LINE Input Level Control

Controls level of the Line input.

4. MUSIC Input Level Control

Controls level of selected music source (Tuner or AUX input).

5. BASS Tone Control

Controls the amount of cut or boost of Bass frequencies below 100Hz.

6. TREBLE Tone Control

Controls the amount of cut or boost of Treble frequencies above 10kHz.

7. Master VOLUME Control

Controls overall level of mixed input signals.

8. Signal Level LED Indicators

Five-segment output voltage level. 0dB indicates maximum rated output level.

9. Power ON Indicator

Indicates when Power is on.

10. Master POWER Switch

Turns Power to DRZ35 unit ON or OFF.

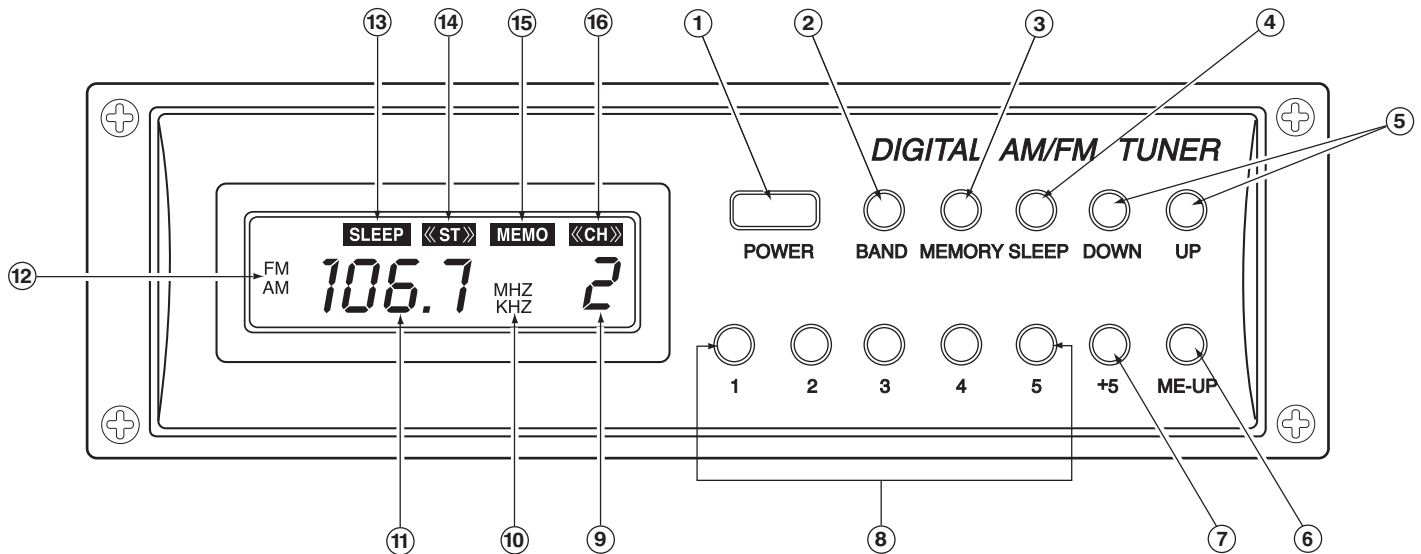
11. Music Select Buttons: TUNER & AUX

Determines if Tuner or rear panel AUX input is fed to Music control.

12. Speaker Zone Select Buttons

Allows zones of speakers to be selectively connected to the amplifier output. Push-On/Push-Off operation (see page 4, callout #2).

Digital AM/FM Tuner



1. Tuner Power Button

Turns Digital Tuner ON or OFF.

2. AM/FM Band Select Button

Selects AM or FM tuning bands.

3. Channel Memory Button

Used when storing preset channels.

4. Sleep Mode Select Button

Used to set turn-off delay time of the tuner section.

5. Channel Select Buttons: UP and DOWN

Manual station tuning UP and DOWN buttons.

6. Memory Up

Press to change to the next higher station preset.

7. +5 Memory Offset

Used in tandem with 1-5 buttons to select presets 6 - 10.

8. Station Preset Buttons: 1-5 (6 - 10)

Selects a preset station from 1 to 5 directly (6 to 10 using the +5 button in tandem).

9. Preset Station Display

Indicates currently selected preset station.

10. Tuning Units Display

Indicates receiving frequency units.

11. Channel Frequency/Sleep Display

Shows current channel frequency or sleep time.

12. FM/AM Band Indicator

Indicates receiving band.

13. Sleep Indicator Icon

Turns on to indicate sleep function has been set.

14. Stereo Indicator Icon

Indicates when received station is in stereo.

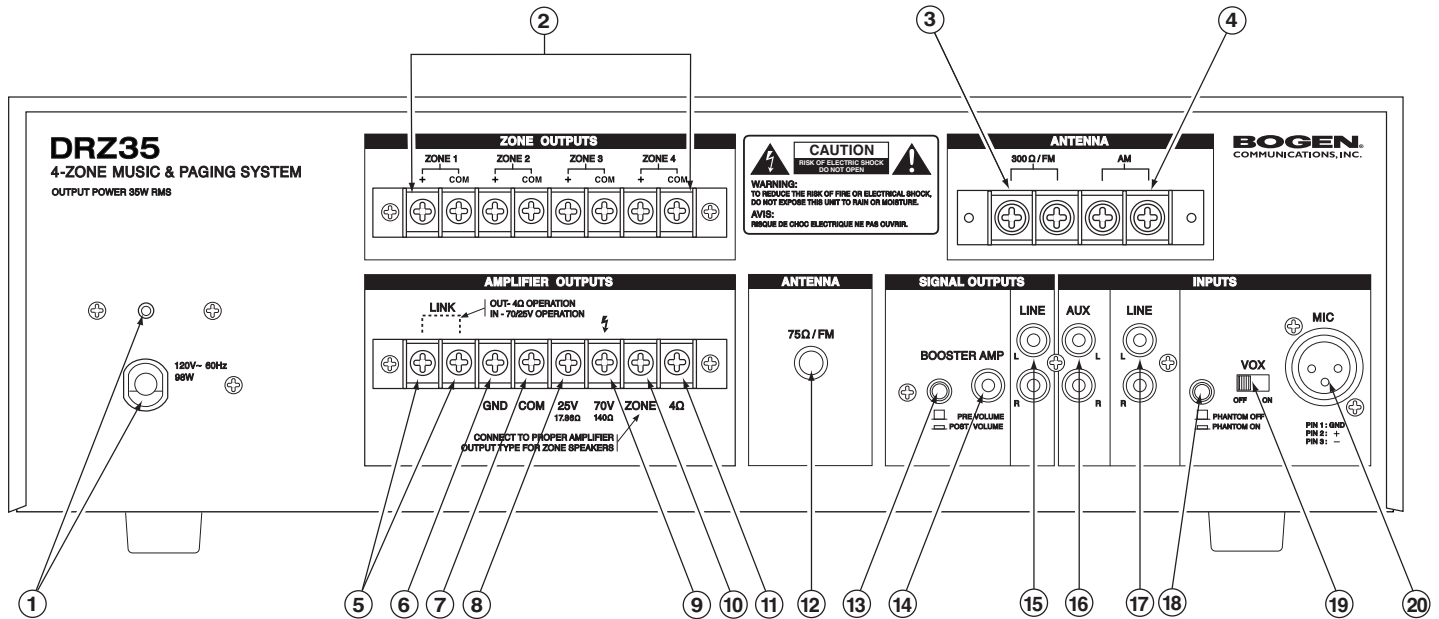
15. Memory Indicator Icon

Turns on to indicate that a station preset is ready to be stored.

16. Channel Indicator Icon

Indicates channel/preset in use.

DRZ35 Rear Panel



1. Circuit Breaker/Reset Button & AC Line Cord

Line cord for connection to 120V AC, 60Hz outlet. Circuit breaker reset button.

2. 4-Zone Outputs Barrier Strip: + and COM

Connect up to 4 groups of speakers to this terminal strip when using the zone selection function (see page 2, callout #12).

3. Antenna: 300-ohm / FM Connection

Connection for 300-ohm FM antenna.

4. Antenna: AM Connection

Connection for AM antenna.

5. Amplifier Output: Link

Set Link for either 4-ohm or 25V/70V speaker loads.

6. Amplifier Output: GND

System ground used for low-impedance (4-ohm) speaker loads.

7. Amplifier Output: COM

Used for 25V/70V loads.

8. Amplifier Output: 25V

Amp output connections for 25V speaker loads.

9. Amplifier Output: 70V

Amp output connections for 70V speaker loads.

10. Amplifier Output: Zone

Connects the amplifier output (4Ω, 25V, 70V) to speaker zone switch bank.

11. Amplifier Output: 4-ohm

Low-impedance amp output (4Ω min. load impedance).

12. Antenna: 75-ohm/FM

Co-axial connector for 75Ω FM antenna.

13. Pre-Volume/Post Volume Button

Switch position determines whether or not the Booster signal is affected by the Master Volume Control.

14. Signal Output: Booster Amp Connection

Signal level feed to Booster amp or recording device.

15. Signal Output: Line (Left & Right)

Dual-mono, signal level output (Pre-Volume).

16. AUX Inputs (Left & Right)

Stereo combining input connections for audio source controlled by Music Select switch (AUX selection) and Music Level Control (see page 2, callout #4).

17. Line Inputs (Left & Right)

Stereo combining input connections for audio source controlled by Line Level Control.

18. Phantom OFF/Phantom ON Button

Turns Phantom power for condenser Mics on and off.

19. VOX ON/OFF Switch

Turns voice-activated muting of Music & Line inputs by the microphone on or off.

20. MIC Input Connection

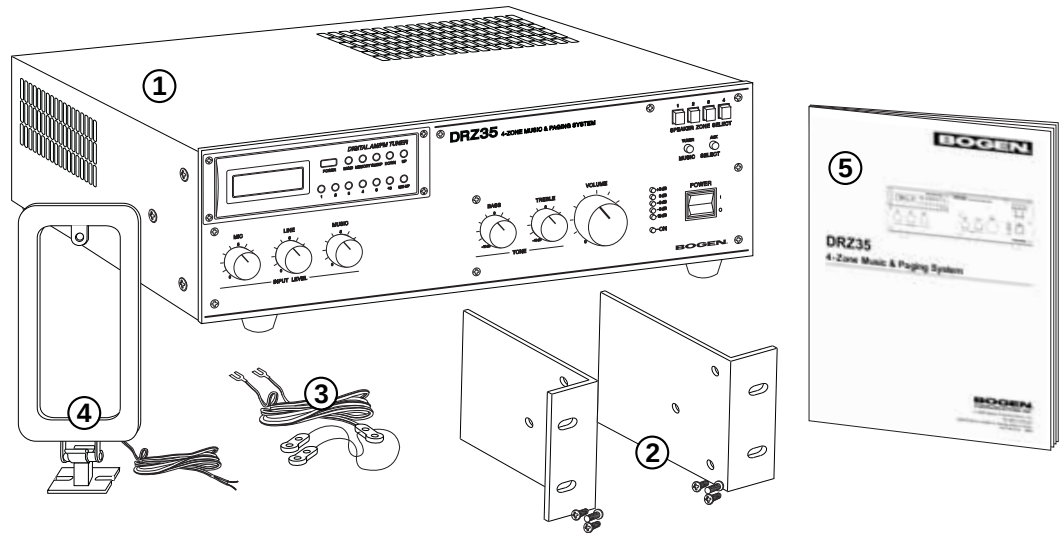
XLR style microphone input connector.

WARNING: 4-ohm and 25V/70V outputs should not be connected simultaneously. Only one output to be used at a time.

DRZ35 Installation

PACKAGE CONTENTS

1. DRZ35 4-Zone Music & Paging Unit
2. Rack Mounting Brackets with screws
3. FM Dipole Antenna
4. AM Loop Antenna
5. Instruction Manual



RACK MOUNTING

When assembling equipment in a rack, the DRZ35 should either be on the bottom of the rack or above any equipment that does not produce heat to ensure a source of cool air to the bottom of the unit. Provide at least 1 RU (Rack Unit) of space above and below the DRZ35 so that cool air is available to the unit. Rack mounting brackets are provided with the unit. To attach rack mounting brackets to the DRZ35, first remove and discard the three screws located toward the front on each side of the unit. Using the screws included with the rack brackets, attach the brackets to each side of the unit.

SHELF / TABLE MOUNTING

When placing the DRZ35 on a shelf or table, the unit should ideally stand alone with no equipment on top of or beneath it. If the DRZ35 must be stacked with other equipment, care must be taken to ensure that the DRZ35, which is passively cooled, be allowed a minimum clearance of 1/2" for the bottom (set by height of the unit's feet) and a minimum of 1" from the top to other obstructions. Be sure that any equipment situated below the unit produces little heat. The sides of the DRZ35 have no specific clearance area requirements. These are minimum acceptable clearances, however the more space provided, both top and bottom, the better. Rubber feet must be installed on the unit to allow it to be placed on a shelf or tabletop.

Connections

Connecting Speakers to the Zone Switch Bank

The terminal strip in the Zone Output section of the rear panel allows groups of speakers to be connected to a selector switch bank so that they can be selectively connected and disconnected to the DRZ35's amplifier. This feature is useful when paging into only one area or a few areas is desired. The user selects the zones to be paged, makes the page, and then can select different zones to get background music.

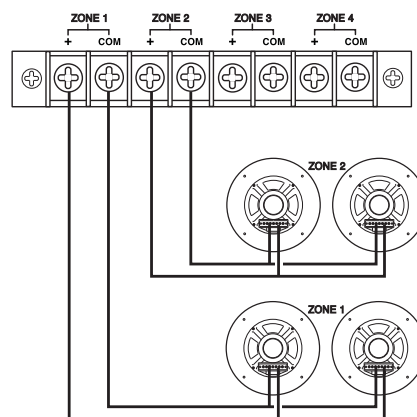
Wiring Groups of Speakers Together:

Each group or zone of speakers are connected by the + and COM terminals for each zone. For best sound performance, the speakers should be wired consistently. All the Black or Com wires for transformer coupled speakers in a group should be wired together and all the transformer Tap wires should be wired together. The Com and Tap leads from the group of speakers should then be wired to the COM and + terminals (respectively) of the particular zone output on the DRZ35. Other zones of speakers should be wired likewise. Care should be taken to ensure that the sum of all the speakers in the zones does not exceed 35W, in case all zones are turned on at once.

Low-impedance speakers can be wired to the zone terminals, however, the combined load of all the speakers when all zones are turned on must not be less than 4 ohms. The amplifier is not designed to drive loads lower than 4 ohms. Meeting this requirement is often difficult to do with low-impedance speakers and calculations using Ohm's law are typically required if more than one or two speakers are used per zone.

Consistency in wiring low-impedance speakers should also be exercised. One of the speaker terminals is typically identified by a + symbol, a red dot, or some other identifier. All the terminals in a zone should be wired together and returned to the + of the zone's terminals. Likewise for the other terminal on the speakers.

Reversing the speaker connection on one speaker versus another will not damage the speaker or the DRZ35, but it may reduce the amount of bass that the system will produce since the reversed speaker will cancel some of the bass from the adjacent speakers.



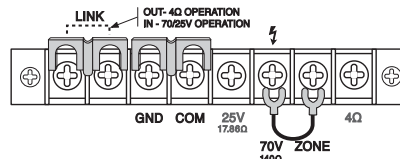
WARNING: DO NOT mix different speaker types (4Ω, 70V, and 25V) in the same system.

Connecting the Speaker Zone Switch Bank to the Amplifier Output:

As mentioned in the previous section, the zone selector is simply a bank of switches that can direct the DRZ35's amplifier to different groups of speakers. Before the zone section function can operate, it must be connected to one of the amplifier output types. A jumper wire is used to connect the ZONE terminal on the Amplifier Outputs terminal strip to either the 25V, 70V or 4-ohm terminal on the same strip.

Using Transformer-Coupled Speakers:

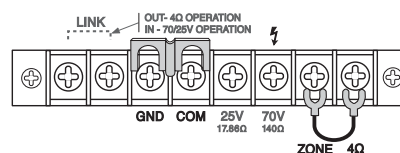
When using transformer-coupled speakers, use the included jumper to connect the ZONE terminal to either 25V or 70V depending on the speakers being used. Also make sure that a jumper is connected across the LINK terminals. A second jumper is typically installed across the GND and COM terminals. This jumper is optional when using transformer-coupled speakers. In some instances it is desirable to allow the transformer-coupled speakers to float and not have a connection to the system's ground. The GND to COM jumper can be omitted if desired, but typically it is put in place.



Jumpers shown connecting the 70V Output to the Zone Selection Switches.

Using Low-Impedance Speakers:

When using low-impedance speakers, use an included jumper to connect the ZONE terminal to the 4Ω terminal and a jumper to connect the GND and COM terminals on the Amplifier Output terminal strip. Also be sure to remove any jumper connected across the LINK terminals. Removing the link jumper will disconnect the output transformer from the DRZ35's amplifier.



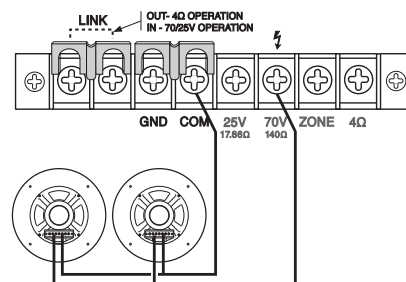
Jumpers shown connecting the 4Ω Output to the Zone Selection Switches.

Connecting a Speaker Load directly to the Amplifier Output (not using zone function):

When the zone selection feature is not desirable, the speaker load can be connected directly to one of the amplifier output terminals on the Amplifier Output terminal strip (25V, 70V or 4-ohm).

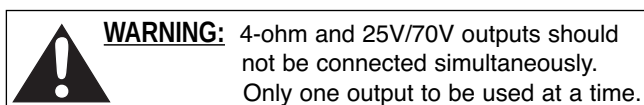
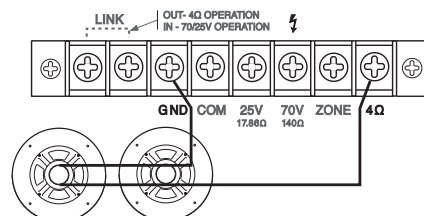
Connecting a single group of 25V or 70V speakers:

The speaker load for transformer-coupled speakers are connected between the COM and either 25V or 70V terminal depending on the speaker type. A jumper must be connected across the LINK terminals for these outputs to work. A second jumper is typically connected across the GND and COM terminals. This jumper can be omitted if it is desirable to have the speaker signals float without a hard connection to the system ground.



Connecting a single group of low-impedance speakers:

The speaker load for low-impedance speakers are connected between the GND and the 4Ω terminal. There must be no jumper installed across the LINK terminals for the 4-ohm output to work properly.



Antenna Connections:

300-ohm / FM Antenna -

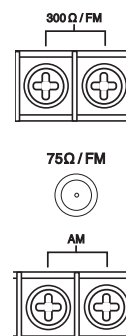
The included di-pole antenna or a 300-ohm antenna feed can be connected to these terminals.

75-ohm / FM Antenna -

A 75-ohm coaxial antenna can be connected to this F style connector.

AM Antenna -

The included AM loop antenna can be connected to these terminals



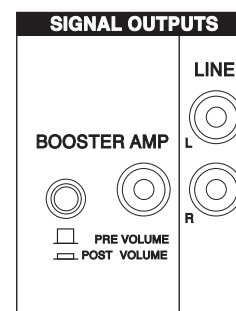
Signal Outputs:

• BOOSTER AMP OUTPUT

A mono RCA connector provides a line level output of the signal feeding the DRZ35 power amplifier. This signal is typically used to feed the input of an additional booster amp for systems that require more than the DRZ35's 35 watts of power. Since the additional booster amp is external to the DRZ35, the zone switches have no effect on the output of this amp. The Booster Amp Output is affected by the PRE/POST Volume switch, which allows the installer to determine if the Booster Amp signal is affected by changes in the front panel volume control (Post Volume) or not (Pre Volume). When using this output to supply an additional external amplifier, the Post position might be desirable so that the output level of that amplifier tracks adjustments to the DRZ35 volume control. If it is desirable to use the volume control on the external booster amp to control its output level, then Pre Volume should be used so that the input level to the booster amp does not change with adjustments to the front panel volume control of the DRZ35.

• LINE OUTPUT

The LINE Output is a dual-mono feed of the DRZ35's output for use with recording devices or other amplifiers. The LINE Output is always Pre Volume.



Connections

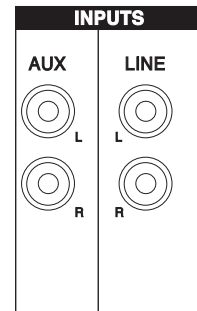
Inputs:

• AUX

A stereo combining RCA pair are provided for connection of an external line level audio device. The AUX input works in conjunction with the MUSIC SELECT switch and the MUSIC control on the unit's front panel.

• LINE

A stereo combining RCA pair are provided for connection of an external line level audio device. The line input works in conjunction with the LINE control on the unit's front panel.



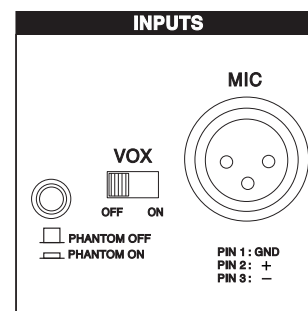
Microphone Input:

• MIC

A standard XLR type balanced microphone connector is provided for the connection of a paging microphone. The microphone can be either a low impedance Dynamic or Electret Condenser type. The connection polarities for the microphone input are printed on the rear panel near the connector.

• PHANTOM

The Phantom push button allows phantom power to be supplied to the microphone if it is needed. Only Electret Condenser microphones need this function. It should be set to OFF for dynamic microphones.



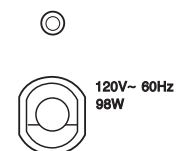
• VOX

The VOX switch allows the microphone input to override the other audio inputs when it is in use. By setting the switch to on, any audio activity detected at the microphone input will mute the audio from the other inputs until the microphone is no longer in use. With the VOX set to off, the Microphone will not mute other inputs but instead mix into the audio program with the other input sources.

Microphone inputs are very sensitive and can pick up the slightest audio from the microphone. This can cause false signal triggering VOX muting. Because of this, it is recommended to use a microphone that has an ON/OFF switch that quiets the microphone's output when it is off. Push-to-talk desktop or gooseneck microphones work very well for this purpose.

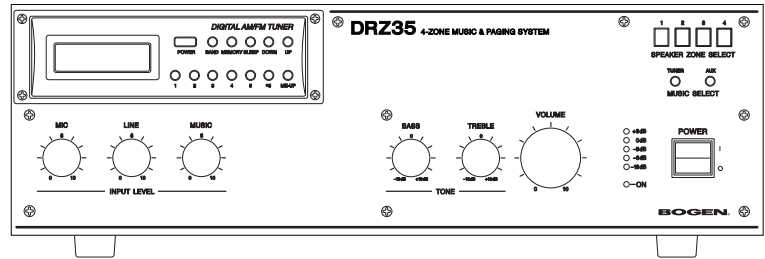
• AC Power

Plug the line cord into a standard 15A, 120VAC outlet after making all the necessary connections. A push to reset circuit breaker provides overload protection. Reset this breaker should the unit ever fail to turn on.



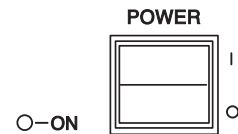
DRZ35 Operation

FRONT PANEL CONTROLS:



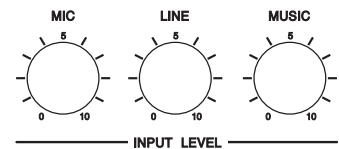
Power Switch

The large power switch in the lower right corner turns the unit on or off. The ON indicator confirms the current state of the switch.



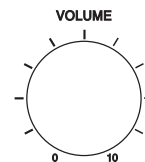
Input Level Controls

Separate input level controls are provided for Microphone, Line, and Music inputs. Use these 3 controls to set the desired audio levels between the three sources.



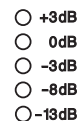
Volume Control

The large Volume control sets the overall system output level. The relative mix level between the three input sources is not affected by this control.



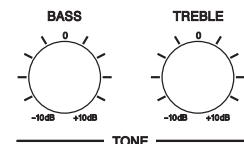
Level Meter

Next to the Volume control is a 5-segment output level meter. This meter helps in setting the maximum level of the system. During loud passages of audio, the output meter should not exceed the 0 dB segment. When this segment is on, the output from the amp has reached its designed maximum output voltage level. Generally exceeding this level can cause noticeable distortion in the audio program and exceeding this level continuously may cause temporary thermal shut down of the amp as a protection measure. If the system output level is very low, the level meter may not light any segments.



Bass & Treble Controls

Use these controls to adjust the amount of high and low frequency content heard through the speakers. The 0 position on the control provides no cut or boost to that frequency band.



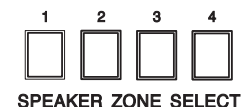
Music Select Switch

Use the Music Select switch to choose between feeding the Tuner signal or the rear panel AUX input signal to the Music Input. Use the Music Input Level control to adjust the relative volume of the selected input signal.



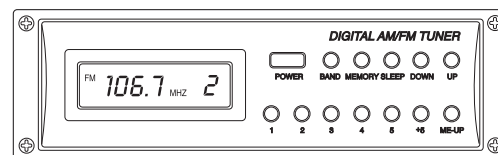
Speaker Zone Select Switches

The Speaker Zone Select switches are push-on/push-off type switches. Any number or combination of these switches can be selected to control which zones in the facility receive the audio program. When the zone is selected, the button is sunken flush with the front panel. When the zone is not selected, the button noticeably protrudes from the panel. See Page 6 for more important information on connecting speakers to the Zone Switch Bank.



Digital AM/FM Tuner Operation

TUNER PANEL CONTROLS:



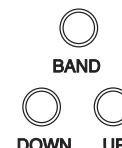
Power Button

If the tuner section is currently off, press the POWER button to turn on the Tuner module. The Tuner module can be turned off separately from the main power button.



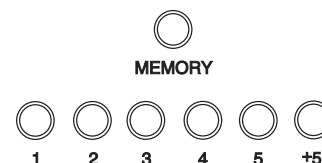
Band Selection and Tuning

Push the BAND button until the desired band (AM or FM) is shown in the display. Then use the DOWN and UP buttons to manually tune to the desired station.

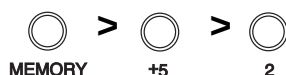


Storing stations in Memory

Tune to a desired station, press the MEMORY button (the MEM icon will be displayed) and then immediately push the desired memory button (1-5). The tuner allows up to 10 stations to be stored for each band. To store a station in memory locations 6 through 10, press the memory button, then the +5 button, and then one of the 1-5 memory buttons. The memory location in these cases is 5+ the number of the memory button used.



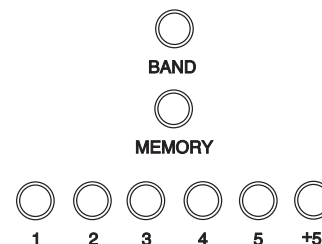
For example, memory location 7 is stored by pressing:



Recalling stations from Memory

First select the desired band (AM/FM) by using the BAND button. Then press the desired memory number (1-5). To access stations stored in memory locations 6-10, first push the +5 button and then the memory button (1-5) so that it adds up to the desired memory location. See the example above for how to use the +5 button.

For example, memory location 7 is recalled by pressing:



Manually scan through stored stations

Repeatedly pushing the ME-UP button will sequence through all the memory locations.



Sleep Timer

The tuner can be set to turn off after a preset number of minutes. To turn on this function and set the turn off delay, repeatedly press the SLEEP button. The display will show the number of minutes until the tuner turns off. The delay time starts at 90 minutes and will change (at 10 minute increments) with each push of the SLEEP button and eventually return to off (the sleep function is disabled).

Once the tuner turns off due to the sleep timer, it must be turned on again by pressing the POWER button on the Tuner module. Please note that the sleep function only affects the tuner module and does not turn off the DRZ35 itself. Microphone paging and other inputs will still be heard when the tuner is off.



Specifications

Amplifier

Power Rating (RMS):	.35 watts
Distortion:	<1% Rated output power @ 1 kHz
Signal to Noise Ratio:	MIC: -55 dB LINE/AUX: -70 dB
Audio Frequency Response:	.70 Hz - 15 kHz (25/70V) 20 Hz - 20 kHz (4Ω)
Speaker Outputs:	4-ohm, 25V, 70V
Tone Controls:	Bass: +/-10 dB @ 100 Hz Treble: +/-10 dB @ 10 kHz
Microphone Input:	.750μV/1k-ohm balanced (3-pin XLR connector)
Phantom Power:	.21V (switch-enabled)
MIC Precedence:	.VOX-triggered (switch-enabled)
LINE and AUX Inputs:	.80 mV/10k-ohm unbalanced; RCA jack
Booster Amp Output:	.50Ω/Pre (1V), Post (4V); RCA jack
Line Output:	.50Ω/(1V); RCA jack

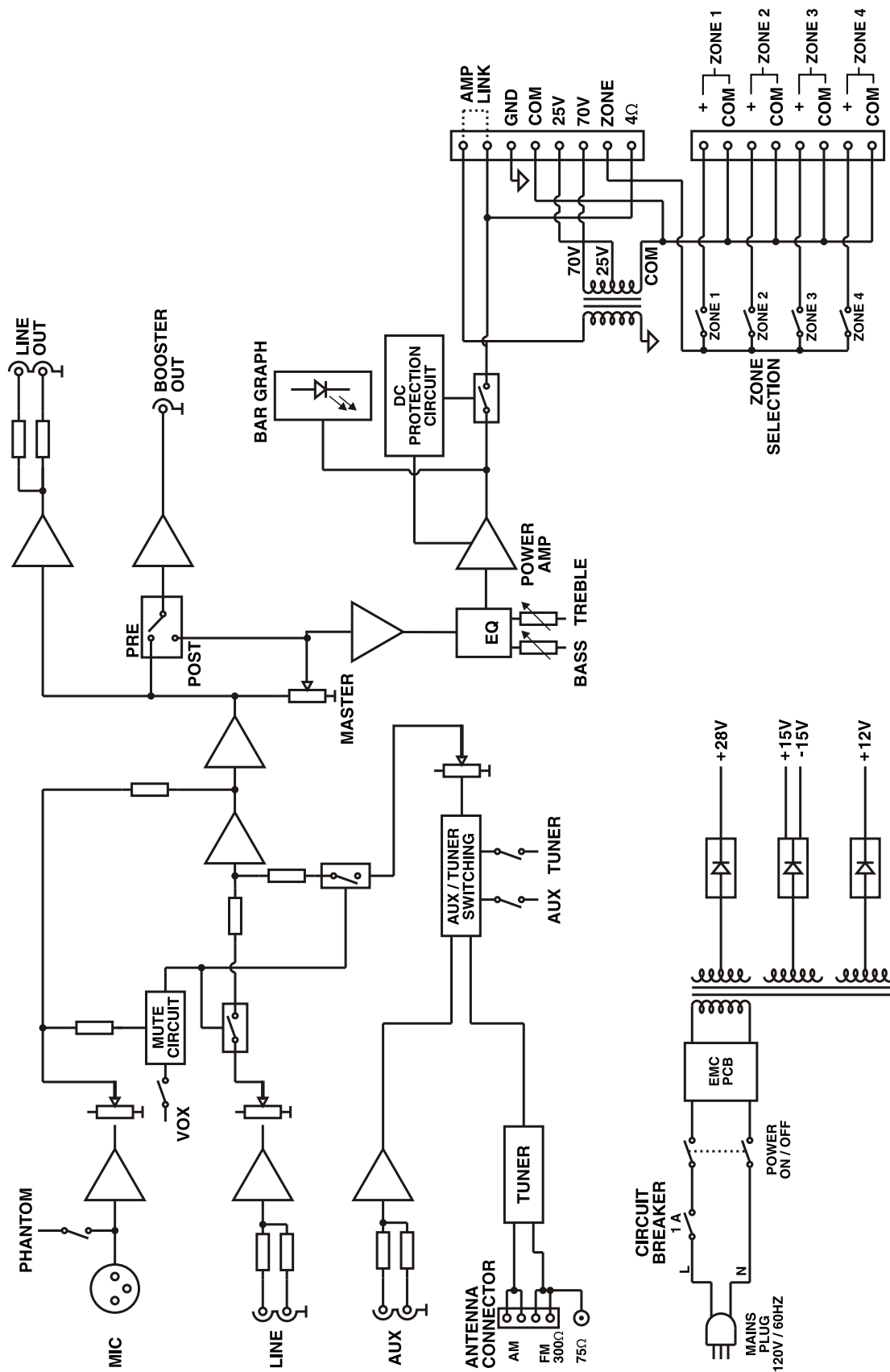
Tuner

Station Tuning:	.Digital, pushbutton, with PLL Synthesizer
Band Coverage:	.AM: 522 to 1620 kHz FM: 87.5 to 108 MHz
Antenna:	.75Ω coaxial, 300Ω screw, AM Loop screw
Preset Memory:	.10 FM, 10 AM
Memory Scan:	.Preset stations
Channel Indicator:	.Backlit, LCD

Power / Dimensions

Power Required:	.120V AC nominal @ 60 Hz
Power Consumption:	.98W
Dimensions:	.17" W x 5-1/4" H x 13-5/8" D
Product Weight:	.27 lbs.
Regulatory Approvals:	.UL, CUL, FCC

DRZ35 Block Diagram



Limited Warranty; Exclusion of Certain Damages

The **Bogen DRZ35 4-Zone Music & Paging System** is warranted to be free from defects in material and workmanship for two (2) years from the date of sale to the original purchaser. Any part of the product covered by this warranty that, with normal installation and use, becomes defective (as confirmed by Bogen upon inspection) during the applicable warranty period, will be repaired or replaced by Bogen, at Bogen's option, provided the product is shipped insured and prepaid to: Bogen Factory Service Department, 50 Spring Street, Ramsey, NJ 07446, USA. Repaired or replacement product will be returned to you freight prepaid. This warranty does not extend to any of our products that have been subjected to abuse, misuse, improper storage, neglect, accident, improper installation or have been modified or repaired or altered in any manner whatsoever, or where the serial number or date code has been removed or defaced.

THE FOREGOING LIMITED WARRANTY IS BOGEN'S SOLE AND EXCLUSIVE WARRANTY AND THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY. BOGEN MAKES NO OTHER WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED AND EXCLUDED TO THE MAXIMUM EXTENT ALLOWABLE BY LAW. Bogen's liability arising out of the manufacture, sale or supplying of products or their use or disposition, whether based upon warranty, contract, tort or otherwise, shall be limited to the price of the product. **IN NO EVENT SHALL BOGEN BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, LOSS OF DATA OR LOSS OF USE DAMAGES) ARISING OUT OF THE MANUFACTURE, SALE OR SUPPLYING OF PRODUCTS, EVEN IF BOGEN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSSES.** Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

Products that are out of warranty will also be repaired by the Bogen Factory Service Department – same address as above or call 201-934-8500. The parts and labor involved in these repairs are warranted for 90 days when repaired by the Bogen Factory Service Department. All shipping charges in addition to parts and labor charges will be at the owner's expense. All returns require a Return Authorization number. For most efficient warranty or repair service, please include a description of the failure.

12/2008

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